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Assessment and Action Plan to improve payment for electricity services in the Palestinian Territories

Study on Electricity Sector Contribution to Net Lending

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GEEDR

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Assessment and Action Plan to improve payment for electricity services in the Palestinian Territories

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Acronyms and Abbreviations

CP	Connection Point
DISCO	Distribution Company
GEDCO	Gaza Electricity Distribution Company
GPGC	Gaza Power Generating Company
HEPCO	Hebron Electric Power Company
IEC	Israeli Electricity Corporation
JDECO	Jerusalem District Electricity Company
KPI	Key Performance Indicator
kWh	Kilo Watt Hour
MDLF	Municipality Development Lending and Funding
MOE	Ministry of Economy (Palestinian)
MOF	Ministry of Finance (Palestinian)
MOI	Ministry of Interior (Palestinian)
MOJ	Ministry of Justice (Palestinian)
MOLG	Ministry of Local Governance (Palestinian)
NEDCO	North Electricity Distribution Company
PA	Palestinian Authority
PCBS	Palestinian Central Bureau of Statistics
PENRA	Palestinian Energy and Natural Resources Authority
PERC	Palestinian Electricity Regulatory Commission
PETL	Palestinian Electricity Transmission Company Ltd.
PNA	Palestinian National Authority
PUA	Power Utility Authority (Israeli Electricity Regulator)
PwC	PricewaterhouseCoopers
SELCO	Southern Electricity Company
TEDCO	Tubas Electricity Distribution Company
TOR	Terms of Reference
WB	World Bank
Wh	Watt Hour

Table of Contents

Executive Summary **5**

Non-Payment for Electricity Services in the Palestinian Territories 5

Results of the assessment 6

Recommended priority actions 10

1. Introduction **13**

2. Overview of the Palestinian Electricity Sector **15**

2.1. Electricity Supply 15

2.2. Institutional Setup 16

2.3. Key Players 16

2.4. Connection Points Owners 19

2.5. The Sector in the Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip 21

3. Analysis and key findings **22**

3.1 IEC invoice reconciliation and cycle 22

3.2 Non-payment of Distributors to the IEC 22

3.3 Electricity Losses 29

3.4 Collection from customers 32

3.5 Tariff Analysis 39

3.6 Efficiency and transparency of Distributors 47

3.7 Other reasons for non–payment 48

4. Conclusion **53**

4.1. Summary of analysis 53

4.2. Invoice reconciliation and cycle 55

4.3. Non-Payment from Distributors to the IEC 55

4.4. Electricity Losses 56

4.5. Collection from customers 56

4.6. Tariff 57

4.7. Efficiency and transparency of Distributors 58

4.8. Others reasons for non-payment 58

5. PA action plans and current donor programs **59**

5.1. Stakeholders' existing and planned action plans 59
5.2. Assessment of Palestinian stakeholder's existing and planned action plans 61
5.3. Conclusion of the assessment and revised action plan....71
Appendix A Assessment process for the study 83
Appendix B: Data Received from the World Bank....87
Appendix C: Overall data gathered by DISCOs and municipalities 89
Appendix D: List of connection point owners....91
Appendix E: Monthly comparison MOF versus IEC Net Lending data 99
Appendix F Payment flow to the IEC 100
Appendix G: Cost of electricity purchased from IEC vs. payments and Net Lending in ILS for 2010-2013 101
Appendix H: Customer survey and focus group –profile of respondents 104
Appendix I: Percentage Distribution of Households by Region and Type of Electricity Meter Used- January 2011....106
Appendix J: Palestinian stakeholders action plans....107
Appendix K: Governmental Subsidy for DISCOs (in ILS)....115
Appendix L: Main features of West Bank and Gaza Electricity 116
Appendix M: PERC Current Tariff Structure....118

List of tables

Table 1: Distribution companies in Palestinian Territories 17
Table 2: Major municipalities and villages councils who distribute electricity in West Bank 18
Table 3: Distribution of connection points between the different Distributors 19
Table 4: PA revenues from clearance revenue vs. electricity Net Lending 2010-2013 23
Table 5: Non-payment to IEC analysis for all regions (all figures in million ILS) 2010-2013.... 26
Table 6: Largest non-payers to IEC period 2010-2013 27
Table 7: Percentage of electricity losses for DISCOs 30
Table 8: Cost of losses in the West Bank 31
Table 9: Cost of losses in Gaza 31
Table 10: Saving estimations for West Bank based on assumption (in ILS) 32
Table 11: Average yearly collection for DISCOs 2009-2013 33
Table 12; Qalqiliya collection rate 2011-2013 34
Table 13: Reasons for non-payment in West Bank 37
Table 14: Reasons for non-payment in Gaza.... 37
Table 15: Willingness to pay survey results 38
Table 16: Factors to encourage payment customer survey results 39
Table 17: Israeli Tariff as 16.5.2013: Fixed rates – Agorot per kWh 40
Table 18: Governmental subsidy 2011-2013 in ILS – excluding the subsidy for the social cases 46
Table 19: JDECO Refugee camps consumption characteristics in 2013 49
Table 20: NEDCO – Refugee camps consumption characteristics 49
Table 21: HEPCO – Hebron Old City consumption characteristics.... 51
Table 22: Howwarah and Einabos consumption characteristics 51

Table 23: NEDCO – Nablus old city consumption characteristics 51
Table 24: DISCOs implementing assistance to social cases in the West Bank 52
Table 25: Overall data gathered from DISCOs for 2012 89
Table 26: Overall data gathered for municipalities for 2012 90
Table 27: Sample selection for survey 104
Table 28: West Bank electricity main characteristics for 2010-2013 116
Table 29: Gaza Electricity main characteristics 116

List of diagrams

Diagram 1: MV and LV connection point schematic diagrams 15
Diagram 2: Electricity sector institutional setup 16
Diagram 3: General overview of payment and non-payment from Palestinian Distributors to IEC 23
Diagram 4: Electricity losses 30
Diagram 5: Assessment process for the study 83
Diagram 6: Payment Flow to IEC 100

List of Charts

Chart 1: Overview of non-payment in the West Bank in 2013 (in million ILS) 10
Chart 2: Overview of non-payment in Gaza in 2013 (in million ILS) 10
Chart 3: Savings expected from the implementation of the action plan 12
Chart 4: Electricity sources in West Bank and Gaza Strip in 2013 16
Chart 5: Electricity purchases from IEC per Distributor 18
Chart 6: Total Net Lending, Direct Payment and Debts in ILS for West Bank and Gaza for the Period 2010-2013 24
Chart 7: Total non-payment (Net Lending, Debts) and Direct Payment in ILS for West Bank and Gaza regions for the Period 2010-2013 25
Chart 8: Growth of non-payment 2010-2013 25
Chart 9: District Poverty rate vs. deduction and payment 2013 according to MOSA data 29
Chart 10: Electricity losses and sales (kWh) 2010-2013 in West Bank 31
Chart 11: Collection to purchase cost from all sources 34
Chart 12: Collection percentage per customer category 36
Chart 13: Actions Taken When Salaries are late 39
Chart 14: Comparing purchase and sales tariff 2009-2013 41
Chart 15: Comparing purchase and sales tariff 2009-2013 42
Chart 16: Comparison between sales tariff in the Palestinian Territories and Israel 44
Chart 17: Tariff per customer category in ILS 2009-2013 44
Chart 18: Largest 10 Non-Payers in West Bank plus GEDCO in % of payments 47
Chart 19: Overview of non-payment in the West Bank in 2013 (in million ILS) 53
Chart 20: Overview of non-payment in Gaza in 2013 (in million ILS) 54
Chart 21: Cost of electricity purchased from IEC vs. payments and Net Lending in ILS for 2010-2013 101
Chart 22: Cost of purchased electricity from IEC (estimated) vs. Net Lending and direct payment in ILS for Palestinian Territories regions 2010-2013 103
Chart 23: Percentage Distribution of Households by Region and Type of Electricity Meter Used, January 2011 106

List of maps

Map 1: Electricity Distributors in the West Bank and Gaza and DISCOs concession areas- 2013 source PETL 20

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CURRENCY EQUIVALENTS

Currency Unit = Israeli Shekel (ILS)

Average exchange rate of US$ against the Israeli shekel during 2010-2013

	2010	2011	2012	2013
Annual average	37.3	3.58	3.85	3.60

Average 2010-2013: US$1 = 3.69 ILS

Definitions

Clearance mechanism "Maqasa"	Mechanism through which indirect taxes[1] are collected by Israel on behalf of the PA and normally refunded via clearance procedures which were agreed in the 1994 Oslo accords (Protocol of Economic Relations also called the 'Paris Protocol'[2]).
Net Lending	For the purpose of this engagement Net Lending refers to the indirect payment made by the PA to IEC through deductions by the Israeli Ministry of Finance on clearance revenues collected on behalf of the PA. These deductions are made to cover portion of the unpaid electricity bills from Palestinian electricity Distributors.
Debt/outstanding debt	Open payments for all connection points in the West Bank and Gaza to IEC for the purchase of electricity which has not been paid by the connection point owner or covered by the Net Lending
Non-Payment	Non- payment by customers to DISCOs, municipalities and village councils for the cost of electricity consumed or Non-payment by DISCOs, municipalities and village councils for the cost of electricity purchased from the IEC which is equal to Net Lending + Debt
DISCO	Electricity Distribution Companies that sell and deliver electricity to customers
GEDCO	Gaza Electricity Distribution Company. It is important to note that: • GEDCO is the sole electricity Distributor in the entire Gaza Strip. • It purchases electricity from 3 different sources: IEC, the Gaza Power Generating Company (GPGC) and Egypt. • Information and data included in this report regarding Net Lending only covers electricity from the IEC.
JDECO	Jerusalem District Electricity Company. JDECO's concession area includes the districts of Ramallah/El Bireh, Jerusalem, Bethlehem and Jericho: the "Center area of West Bank".
HEPCO	Hebron Electricity Power Company – HEPCO's concession area includes Hebron and Halhul cities: part of the "Southern area of the West Bank".
SELCO	Southern Electricity Company - SELCO's concession area includes the cities of Yatta, Durra and Dahriya and other villages in the Southern area of the West Bank.
TEDCO	Tubas Electricity Distribution Company - TEDCO's concession area includes most of Tubas district as well as other villages in the Jenin district.
NEDCO	North Electricity Distribution Company NEDCO's concession area includes the cities of Nablus, Jenin and other villages in Nablus and Jenin districts.
Electricity Losses	Difference between electricity purchased from the IEC measured at IEC meters at each connection point and the electricity sold to Palestinian customers measured at the customer electricity meters. Electricity losses include technical losses due to inefficiencies in the distribution network, and non-technical losses due to

[1] As described in the Protocol of Economic Relations also called the 'Paris Protocol'
[2] http://unispal.un.org/UNISPAL.NSF/0/15AF20B2F7F41905852560A7004AB2D5

	electricity theft.
Top 10	Largest 10 non-payers in the West Bank
Special Areas	Areas with high losses and low collection rate within Distributors' serviced areas such as camps, Area C and Old Cities
Distributors	All Palestinian electricity providers including, DISCOs, municipalities and village councils
Time of Use Tariff	Electricity prices are set for a specific time period (season, time of the day, weekends and holidays) on an advance or forward basis.

Executive Summary

Non-Payment for Electricity Services in the Palestinian Territories

1. The Palestinian Territories (West Bank and Gaza Strip) are highly dependent on energy imports from neighboring countries due to the lack of domestic energy resources. The Palestinian Territories consumed 5,430 GWh of electricity as of 2013 (1,581 GWh in the Gaza Strip and 3,849 GWh in the West Bank). The Israeli Electricity Corporation (IEC) is the largest supplier of electricity providing the Territories with around 88% of its total electricity consumption. In 2013, 4,778 GWh were imported from IEC amounting to 2.4 billion ILS (US$ 660 million).

2. In this context, the Palestinian Authority (PA) -with support from the international community- has been actively engaged in a comprehensive reform of the electricity sector to increase its overall efficiency for the benefit of the Palestinian population. The commitment and involvement of all stakeholders in this extensive restructuring has resulted in the creation of a well-structured electricity market. Additionally, the international community has been facilitating the strengthening, rehabilitation and extension of the transmission and distribution systems in order for the PA to be able to meet the growing demand for electricity in the Palestinian Territories.

3. Alongside the steady increase in electricity consumption, non-payment for electricity imported from the IEC has increased over the past few years, amounting to 58% of its total cost (equivalent to 1,407 million ILS or US$ 381.3 million in 2013). Non-payment of IEC's electricity bills by Palestinian electricity distributors, including municipalities, village councils and Distribution Companies (DISCOs) remains a key challenge to the electricity sector and to the overall fiscal position of the PA. Outstanding payments owed to the IEC are either (i) deducted from the PA's clearance revenues by the Israeli Ministry of Finance and registered as "Net lending[3]" or (ii) are accumulated as debt owed to the IEC.

4. Net lending reduced the PA's available revenues by an estimated 1 billion ILS in 2012 (US$ 280 million), representing 13.5% of the PA's total revenues. The IEC only recovered part of the non-paid bills by Palestinian electricity distributors through Net lending, which led the outstanding debt to grow over the years reaching a total of 1.172 billion ILS (US$ 330 million) as of February 2014. Even if a settlement of this historic debt is agreed upon by Palestinian and Israel stakeholders, additional debt would continue to accumulate in the future unless decisive actions are taken to address the underlying issues of non-payment for electricity services in the Palestinian Territories.

5. More recently, to complement the electricity sector reform, the Palestinian Energy and Natural Resources Authority (PENRA) initiated several measures specially targeted at reducing electricity non-payment. These measures include amendments to the Electricity Law covering punitive actions for electricity theft. While the initiatives introduced by PENRA may have a positive effect, a cohesive strategy is required to successfully deal with this problem.

6. This assessment aims to more precisely understand the sources and reasons for non-payment of electricity in the Palestinian Territories and to develop an action plan based on current programs and activities led by PENRA and the donor community.

[3] For the purpose of this engagement Net Lending refers to the indirect payment made by the PA to IEC through deductions by the Israeli Ministry of Finance on clearance revenues collected on behalf of the PA. These deductions are made to cover unpaid electricity bills from Palestinian electricity Distributors

Results of the assessment

7. To present a comprehensive overview, the report has assessed the impact of non-payment for electricity services throughout the complete financial payment cycle as follows:

a. IEC's invoice cycle:

There are no procedures for the invoicing of electricity from the IEC to the Palestinian distributors. The current process is not harmonized for all electricity distributors and lacks transparency. Distributors in various areas of the West Bank and Gaza do not have access to meters located in area C in the West Bank, and meters near the borders between Gaza and Israel. Further, some electricity distributors claim that they do not receive IEC's invoices on regular basis, which results in them not paying their bills.

Any late payment leads to the addition of a late payment fee or an added interest. Interest rates for late payment are set unilaterally by the Israeli Public Utility Authority (PUA) and are high compared to commercial interest rates in both the Israeli and the Palestinian markets.

While Israeli deductions from the clearance revenues collected on behalf of the PA are not implemented in a transparent manner, some progress has recently been recorded. IEC, for example, provided PENRA and the World Bank with critical data and information to complete this assessment. Since then, the Palestinian Electricity Transmission Company Ltd. (PETL) stated that IEC has been sending regularly their invoices. This process should lead to an institutionalized, regulated and transparent cooperation between the IEC, PUA and PETL.

b. Non-payment by Palestinian electricity distributors to the IEC:

In the period 2010 to 2013, Palestinian electricity distributors in the West Bank did not pay 37% of their bills to the IEC. During the same period, non-payment reached 100% in Gaza.

The Top 10+1 group of non-payers, which included the largest ten non-payers in the West Bank and the Gaza Electricity Distribution Company (GEDCO), represented 92% of the total non-payment of Palestinian electricity distributors to IEC.

GEDCO was the single largest non-payer, accounting for more than 1.7 billion (US$ 471 million) or 41.8% of the total non-payments to the IEC from 2009 to 2013. During the same period, JDECO was the second largest non-payer contributing to more than 1.1 billion ILS (US$ 297 million) or 26.3% of the total IEC non-payments.

c. Electricity Losses:

Electricity losses were high and steady at 23-30% between 2010 and 2013. Distributors did not have proper tools to measure losses and could not differentiate between technical and non-technical losses. GEDCO, in particular, did not have the necessary tools to assess its losses and could not access the meters required for an appropriate measurement and categorization of losses. Losses in GEDCO and JDECO concession areas were reported to reach very high levels and should be dealt with as a priority.

In 2013, electricity losses caused significant revenue loss to Palestinian distributors – estimated at 726 million ILS (US$ 201 million). Due to high electricity losses, revenues from invoiced amounts to end customers in the West Bank were only able to cover the cost of electricity purchased from the IEC and did not cover the electricity distributor's operating and investment costs. The amount invoiced to customers in Gaza only accounted for two thirds of the electricity purchases for the whole Gaza Strip while one third of the purchased quantity (247 million ILS) was lost either as a technical or a non-technical loss.

d. Collection from customers:

The overall bill collection rate from end customers in the West Bank and Gaza for the period 2010-2013 was better than expected, but customer payment has consistently been decreasing in the West Bank and increasing in the Gaza Strip. The increase of payment in Gaza can perhaps be attributed to a program to roll-out pre-paid meters across Gaza and the successful implementation of an automatic electricity bill deduction from civil servant salaries.

Overall, Special areas such as refugee camps, i.e. areas with low collection rates and high electricity losses, and institutions of the Palestinian Authority are the poorest payers. Their poor payment performance is also claimed to negatively impact the payment behavior of other customers.

The main reasons attributed to the deterioration of the collection rate in the West Bank can be summarized as follows:

- Israeli deductions from the clearance revenue, e.g. November 2012, give the impression that customer bills are and will be paid for by the PA.
- PA introduced incentives for customers committed to pay their bills and for the indebted customers to reschedule their debts. As an example JDECO deducted 14 million ILS from committed customers since starting this initiative and cancelled 8 million ILS of debt for indebted customers. However, the Palestinian Government did not compensate JDECO for these amounts. Also, the Israeli deductions from clearance revenue in November 2012 and PA's measures for indebted customers created a disincentive for committed customers, which resulted in a significant decrease in JDECO's collection rate from 96% in 2012 to 83% in 2013.
- Unpaid bills from PA institutions, in particular for water pumping, resulted in most of the electricity distributors unilaterally settling their debts[4] to the Ministry of Finance (MOF) from the unpaid consumption of the PA institutions. This unilateral settlement between the DISCOs and MOF was not done consistently or systematically and was time consuming. If PA institutions would pay for their electricity consumption, collection rates could increase by 3-5%.
- Municipalities are not paying for their bills for services such as street lighting and water pumping. If municipalities would pay for these services, collection rates could increase by 1.5-2.5%.
- Subsidies made available by DISCOs for social cases but then not repaid by the government also contribute to a lower collection rate.
- Special areas, such as refugee camps and certain villages have low collection rates. If bill collection rates from these Special areas could be increased to benchmark levels, collection rates would increase by 4-6%.
- The quality of the service provided by Palestinian electricity distributors to customers in the West Bank and Gaza is deemed to also be one of the reasons for the deterioration of the collection rate. Customers have voiced severe criticism on a declining service quality.

e. Tariff analysis:

The purchase tariff is set unilaterally by the Israeli Electricity Regulator (PUA) as a bulk tariff for medium or low voltage. This is contested by the Palestinian Authority (PA) as it does not consider the Palestinian electricity distributors as one unit. As the largest single customer to the

[4] Amounts owed by Palestinian Electricity distributors to the Ministry of Finance (MOF) related to Net Lending.

Israeli Electricity Corporation (IEC), it is recommended that the tariff be set at an export wholesale price only including the cost components applicable to PA's consumption and removing non-applicable components, such as the renewable energy component.

The PA has been involved in talks with its Israeli counterpart for the past 10 years to negotiate a commercial agreement for the sale and purchase of electricity, i.e. Power Purchase Agreement. However, progress on reaching an agreement has been slow, and it is recommended that this process is brought to a conclusion as soon as possible.

As for the sales tariff, the Palestinian Electricity Regulator (PERC) has been setting the sales tariff to the Palestinian customers since 2011 based on a cost plus approach to cover the cost of electricity purchased from IEC as well as the operational expenses and an acceptable profit margin for electricity distributors. According to the methodology, the tariff would be reviewed yearly and be amended to include benchmarks for certain key performance indicators (KPIs), including losses and operating costs in order to enhance the efficiency of DISCOs. PERC is currently in the process of reviewing the tariff for the first time, which will include reviewing the different tariff components, such as the impact of removing subsidies and the inclusion of certain financial and quality KPIs.

The difference between the sales and the purchase tariff, also known as tariff margin, reached 54% after the new tariff was implemented in 2011. When the tariff was first applied, this margin was considered to be sufficient to cover all the cost of electricity distributors and was estimated to even allow them to earn a small profit. Since then, the tariff margin has decreased in the West Bank between 2010 and 2013 from 54% to 40% largely due to (i) subsidies included in the tariff, which are mostly not repaid by the Government, and (ii) a significant increase in the amount of electricity purchased from the IEC.

In order to avoid an increase in the sales tariff, the Palestinian Electricity Transmission Company Ltd. (PETL) should finalize the Power Purchase Agreement (PPA) with the IEC at a lower wholesale tariff, while PERC should set benchmarks for electricity distributors to reduce their operational expenses. At the same time, electricity distributors should cooperate with relevant electricity authorities to improve their efficiency. This further requires that all revenues from electricity services are primarily used to cover its purchase and operating costs.

As for Gaza, the average purchase tariff from all the sources[5] is nearly equal to the average sales tariff. GEDCO should review at least its commercial tariff, which is currently 20% less than the commercial tariff in the West Bank.

In order to reduce electricity generation cost from the Gaza Power Plant and to eventually use bill collections from customers to pay for IEC invoices, the PA has plans to supply the plant with natural gas instead of diesel. In addition to reducing the costs, this action by PA will also enable the plant to run at full capacity, which will then reduce the power shortages in Gaza.

In the West Bank, the PA introduced subsidies amounting to 200 million ILS (US$ 55 million) as part of the tariff between 2011 and the end of 2013. These governmental subsidies were adopted for political reasons essentially to satisfy customers and to prevent public disturbance as a result of electricity price increase. Unfortunately, due to the weak financial situation of the PA, MOF only repaid 40 million ILS (US$ 10.8 million) out of the 200 million ILS owed to electricity distributors[6]. The non-payment of these subsidies created more deficits to electricity distributors, which often chose to compensate for this cost by reducing their payments to the IEC. The outstanding unpaid subsidies owed to electricity distributors were 10.5 million ILS (US$ 2.9 million) representing about 4% of the estimated electricity purchase cost of distributors in the West Bank between 2011-2013.

[5] Gaza is supplied from IEC, Egypt and Gaza power plant which is fuel operated
[6] Distributors apply these subsidies in the tariff and need to be reimbursed by MOF

f. Efficiency and transparency of Palestinian electricity distributors:

According to the Palestinian Electricity law nº13, only licensed electricity distributors can sell electricity to customers. The law was implemented in 2009 to integrate municipalities, which were providing electricity services, in four efficient Distribution Companies (DISCOs) in the Palestinian Territories, three in the West Bank and one in Gaza. While many municipalities never joined the DISCOs, the existing DISCOs -which built structures to serve complete regions-, remained highly inefficient due to the absence of economies of scale. In parallel, those municipalities that did not join the DISCOs, kept their inefficient structure.

Distributors –and particularly municipalities and villages- have opaque financial systems with unclear payment mechanisms. MOLG reported that some municipalities have not yet proceeded with segregating their accounts. DISCOs also appear to be only moderately transparent showing an inability to report properly on their finances. Palestinian electricity distributors seem to be highly influenced by the internal political environment in which they operate.

Distributors choose to cover operational costs, investment costs and payments to shareholders before paying invoices to the IEC, which is one of the reasons for non-payment in the West Bank. Distributors were reported to have financed their shareholders through dividends and loans totaling 242 million ILS (US$ 67 million) in 2013, in spite of not completing their invoice payments to the IEC. NEDCO, HEPCO and SELCO, in particular, indicated that they use part of the collection from customers to fund ad-hoc payments to their municipal shareholders.

Municipalities, on the other hand, disburse funds collected from electricity sales to cover the payment of other services, such as education, health, project finance and rehabilitation projects. All these payments are vaguely categorized under “municipal finance”.

g. Other reasons for Non-payment of electricity:

The analysis of the special areas[7] revealed that collection there is usually low, but significant differences in collection trends and behavior are nonetheless observed. In terms of absolute figures, the contribution of these areas to non-payment is quite low because they do not cover extensive areas or large numbers of customers, e.g. special areas in JDECO (refugee camps) only represent 5% of the total customers and 21% of JDECO non-payment to IEC in 2013.

It is critical to note, however, that in refugee camps the consumption per capita reached unprecedented levels, and non-technical losses are also significantly higher than in the rest of the Palestinian Territories.

Specific issues related to affordability and arrears in these areas were addressed by the PA through the introduction of incentives and subsidies for the benefit of social cases. Unfortunately, the subsidies for social cases were not paid by the government to the electricity distributors thus impacting the non-payment negatively. On the other hand, incentives to refugee camps were never implemented due to the refusal of customers in refugee camps to pay for their electricity consumption.

The special arrears analyzed in this assessment, in particular the refugee camps and the old city of Hebron, are considered to be areas that require special political attention in order to constructively tackle non-payment. Law enforcement in these areas is challenging and indeed requires the endorsement of PA’s highest authority as well as the representatives of these areas.

[7] Areas of low collection and high losses such as refugee camps.

Distributors, in coordination with the PA, should nevertheless continue to address these issues. It is also crucial for DISCOs to improve public perception by launching media campaigns and developing customer service trainings for their employees.

The graph below illustrates the financial impact of the payment shortages in the payment cycle as well as issues arising from the purchase and sales tariff levels.

Chart 1: Overview of non-payment in the West Bank in 2013 (in million ILS)

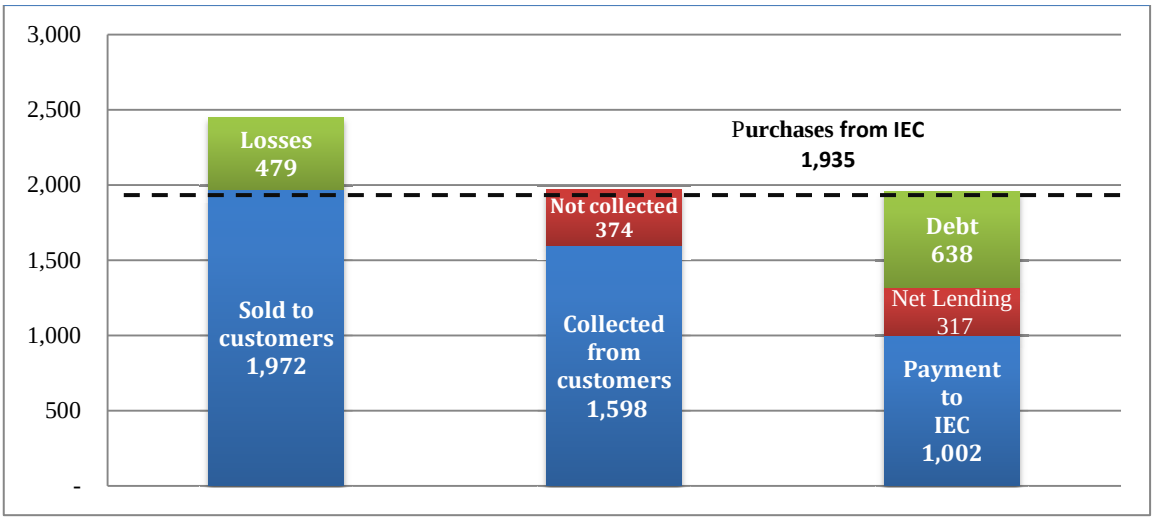
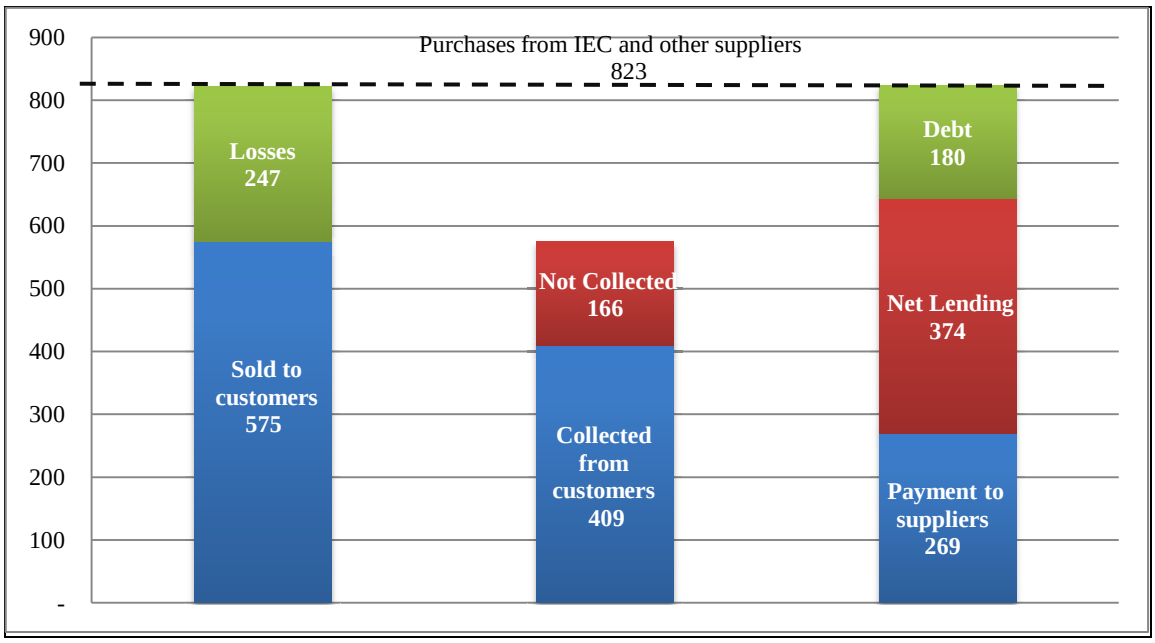


Chart 2: Overview of non-payment in Gaza in 2013[8] (in million ILS)



Recommended priority actions

8. The study reviewed the action plans from Palestinian stakeholders and the sectorial activities supported by donors to assess the extent to which these plans are addressing or will address non-payment for electricity services. The action plan proposed in this assessment incorporates both insights drawn from the analytical results and from the strategies currently being implemented by

[8] Suppliers to Gaza are IEC, GPGC and Egypt

PENRA and the PA –and supported by the international donor community. To be effective, the different actions suggested in the proposed action plan should be implemented as part of a cohesive broader plan monitored and regulated by a coordination entity comprising all sector stakeholders.

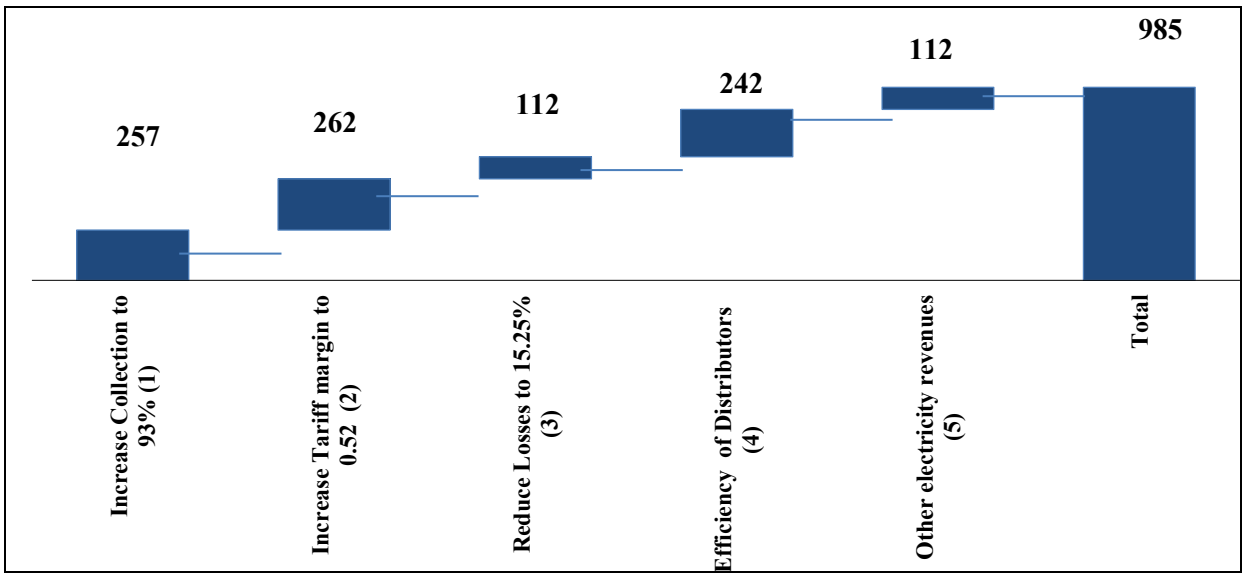
9. The action plan recommends to further develop the Palestinian electricity sector by continuing its on-going institutional reform, improving its legal and regulatory environment and developing key infrastructure to consolidate and monitor electricity supply. The success of the proposed action plan is highly reliant on steady donor support, which will need to be coordinated with a Special Committee that bears overall responsibility for the action plan, including the collaboration of all stakeholders, and monitoring payment improvement and progress in related aspects.

10. The action plan puts forward a set of recommendations classified by priority level (see Section 5.3 of the assessment for the complete list). The high priority recommendations are the following:

    - Expand the mandate of the existing "Net lending" governmental committee to be able to manage and monitor all actions proposed in the action plan to reduce non-payment. The performance of this specialized committee, which will ensure that all actions are coordinated and implemented correctly, is a precondition for the successful implementation of the action plan.
    - Continue capacity-building activities for PERC and PETL to ensure that both institutions are ready to implement satisfactorily key actions proposed in the plan.
    - Finalize a Power Purchase Agreement (PPA) between PETL and the IEC, which will (i) settle the issues related to the invoice cycle with the definition of clear invoice and payment procedures, (ii) set the purchase tariff at wholesale levels, and (iii) reduce non-payment to the IEC.
    - Establish a web-based database between PETL and the IEC to ensure timely transfer of invoices and payments to the IEC and to establish a reliable system to monitor payment cycles for all electricity stakeholders.
    - Install monitoring meters to measure and identify the location of non-technical losses in the Palestinian Territories and be able to take appropriate actions.
    - Rehabilitate electricity networks to reduce technical losses.
    - Install additional prepaid meters and smart metering systems to increase collections and timely payment from customers.
    - Conduct regular awareness campaigns.
    - Enable law enforcement and implementation of the legal actions arising under the amended electricity law.

11. The chart below illustrates the saving targets that could be reached with the cohesive implementation of all high priority actions proposed in the action plan. The saving targets set in the chart entails an increase in customer collection up to 93%, assumes a tariff margin set at around 0.52, with losses reduced to a mere 15.25% and revenue from electricity services used only to cover electricity expenses.

Chart 3: Savings in million ILS expected from the implementation of the action plan



(1) Increasing the collection rate to 93% will increase decrease non-payment by 257 million ILS.
(2) Increasing the tariff margin to 0.52 by reducing the whole sale price will decrease non-payment by 262 million ILS.
(3) Reducing the total losses to 15.25% will decrease non-payment by 112 million ILS.
(4) Increasing the efficiency of the Distributors by using the revenues from the electricity service to cover only the cost of the electricity will decrease non-payment by 242 million ILS.
(5) Utilizing other revenues from the electricity service such as fees, customer contribution in grid connection, fixed charge and other fees will reduce the non-payment by 112 million ILS.

1. Introduction

In the past few years, the Palestinian Authority - with support from the international community - has been actively engaged in a comprehensive reform of the electricity sector to increase its overall efficiency for the benefit of the Palestinian population. The commitment and involvement of all stakeholders in this extensive restructuring has transformed the sector and led to the creation of a well-structured electricity market. The Palestinian electricity sector now displays proper legal and regulatory frameworks, a suitable market model, well defined institutions and identifiable key market players.

In 2013, 88% of the total electricity purchased and provided to the Palestinian Territories (West Bank and Gaza) was supplied by the Israeli Electricity Corporation (IEC). The Palestinian Authority has faced many challenges over the years to both ensure the proper operation of the sector and secure the timely payments of invoices by Distributors to the IEC.

The non-payments or partial payments of these bills create deficits for the IEC which then leads the Israeli government to proceed with monthly deductions from the clearance revenue (tax and customs transfer) owed to the PA. The deducted amounts are transferred by the Israeli Ministry of Finance to the IEC, which then registers the remaining amount (if any) as debt. As a result, these non-payments are either accounted for as deductions from the clearance revenue - mechanism also known as Net Lending - or accumulated as debt[9].

Sector stakeholders have attributed the reasons for the non-payment to a variety of factors which can be summarized as follows:

- **Electricity Losses** whether technical or non-technical which result in shortfall between the quantity of electricity sold and invoiced by the IEC and the quantity of electricity which is sold to customers.
- **Collection from Customers** of electricity invoiced by Distributors which is believed to be low and continuously decreasing.
- **Tariff** at which electricity is sold to the customers is considered to be high and some Distributors indicated it did not even cover their costs. In addition, Distributors also indicated during the assessment workshop that the purchase tariff from IEC is deemed to be high and payment terms are unfair[10].
- **Efficiency and transparency of Distributors** is being questioned. This includes allegations that Distributors use the collected cash for other purposes than the settlement of invoices and operational costs. Revenues collected by Distributors from electricity sales are customarily consumed to cover the cost of purchased electricity, the operational expenses, the capital expenses, dividends for shareholders and other costs. In the Palestinian territories. Many DISCOs[11] do not properly settle their invoices and use part of the collection to make ad hoc payments to their shareholders[12]. Municipalities and village councils are also reported to use funds collected from electricity for other services such as payment of education health, municipal projects finance, etc. All these payments are categorized under "municipal finance".

The objective of this report is to support the on-going efforts to improve the payment for electricity services and reduce "Net Lending" in the West Bank and Gaza by: a) more precisely understanding the sources and reasons for non-payment for electricity within the Palestinian Territories, b) assessing current donor programs and PENRA actions aimed at addressing non-payment of electricity, and c) developing

[9] Invoices whether received by Palestinian distributors or not, should be paid within 14 days of issuance. Any payment delay will lead to a 10% annual late fee charge imposed by the IEC regardless of the circumstances.
[10] 11 days to pay to IEC after which they are imposed a late fee of 8.75%
[11] NEDCO, HEPCO and SELCO
[12] Which are all municipalities of village councils for these 3 DISCOs

an action plan that builds on the current donor programs to further improve payment for electricity in the Palestinian Territories.

The purpose of the assessment is to understand the reason for the non-payment and determine whether it is the result of the factors listed above. The detailed methodology followed to perform the assessment is provided in Appendix A. The list of data received from the IEC in provided in Appendix B and the data gathered by the Palestinian Distributors and Municipalities in Appendix C of the report.

The analysis of the reasons for non-payment in this report is based on an assessment of the consumption and payment data collected from the IEC between 2010-2013 for 286 connection points between the Palestinian Territories and Israel and data collected from Distributors covering the period between 2009-2013. The report includes an assessment of non-payment by customers (from Palestinian residential and commercial sectors, etc. to Palestinian Distributors), as well as non-payment by Palestinian Distributors to the IEC. The report also includes the conclusions of a survey and focus groups. Based on this assessment and taking into consideration existing strategies and proposed actions by the PA and the donor community, the report finally provides a detailed action plan with suggestions on how to improve non-payment and reduce Net Lending in the Palestinian Territories.

2. Overview of the Palestinian Electricity Sector

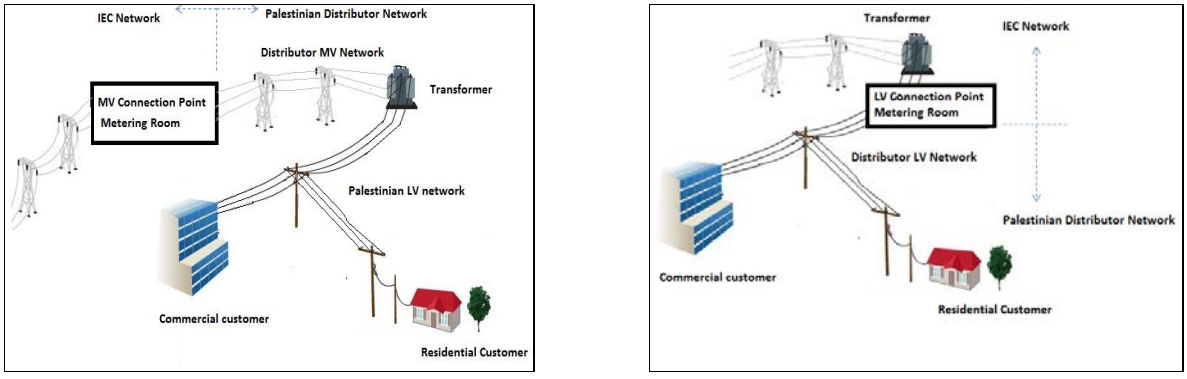
This chapter provides an overview of the electricity sector in the Palestinian Territories (West Bank and Gaza). It explains the set-up of the sector and the existing framework within which the issues were addressed and the recommendations developed. It examines the electricity supply chain in the West Bank and Gaza as well as the institutional set up and the main sector actors. Finally, it outlines the political context within which the sector is operating.

2.1. Electricity Supply

The Palestinian Territories are highly dependent on electricity supplies from the Israeli Electricity Corporation (Chart 1). Diagram 1 below illustrates the electricity supply mechanism where Palestinian loads to the West Bank and Gaza are distributed through the IEC controlled lines, which extend from the IEC substations. The Palestinian network only starts beyond the network connection points which are also currently under the administration of the IEC.

In 2014, 286 Low Voltage (LV) and Medium Voltage (MV) connection points belonging to 173 connection point owners[13] service the Palestinian Territories. Ten of these connection points supply the Gaza Strip while the remaining 276 supply the Palestinian areas in the West Bank. The capacity of the MV connection point is greater than that of the LV connection point which creates an opportunity to extend the network by installing additional transformers and lines within the Palestinian Territories when required. The Palestinian Authority (PA) with the support of the World Bank, the European Investment Bank (EIB) and other donors initiated the "Electric Utility Management Project (EUMP)" which includes the consolidation of a large number of the existing connection points in the West Bank into 4 high voltage substations financed by the EIB. The project, initiated in 2008 is currently under implementation with the first substation expected to be operational by the end of 2014. The operation of these PA owned substations should increase Palestinian control over imported electricity from Israel and pave the way for the PA to finalize negotiations on a commercial agreement with the IEC to supply the West Bank, and potentially reduce the price of electricity to customers[14].

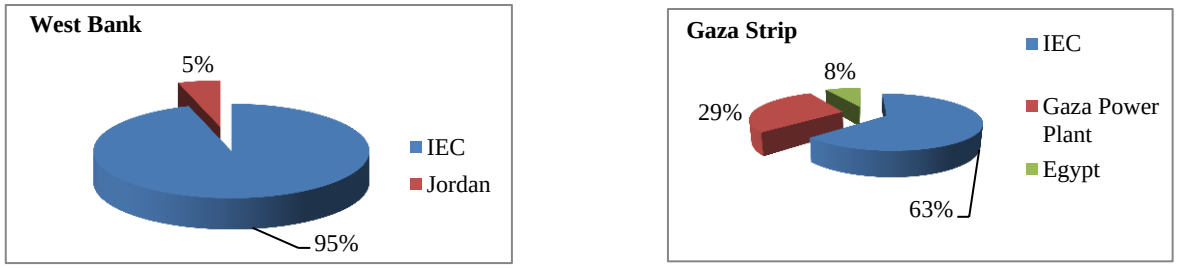
Diagram 1: MV and LV connection point schematic diagrams



In addition to the supply from the IEC, a medium voltage connection line from Jordan supplies the West Bank city of Jericho with around 5% of the total West Bank electricity supply as of 2013. In Gaza, a fuel operated power plant provides the Strip with around 29% of Gaza's total supply, while as of 2013; an additional 8% is supplied from Egypt to Rafah, in the southern area of Gaza.

[13] List of connection point owners included in Appendix D
[14] There is currently no PPA between IEC and the PA and each connection point owner has a separate contract with IEC that does not go through PA

Chart 4: Electricity sources in West Bank and Gaza Strip in 2013



2.2. Institutional Setup

In the last few years, the Palestinian Authority with the support of the donor community committed to initiate a comprehensive restructuring of the electricity sector. An extensive reform process began which led to the establishment of robust institutions and provided the Palestinian Territories with one of the best structured markets in the Middle East. In 2009, the Palestinian Authority issued the electricity law which formulates this institutional set up and started with its implementation defined in Diagram 2.

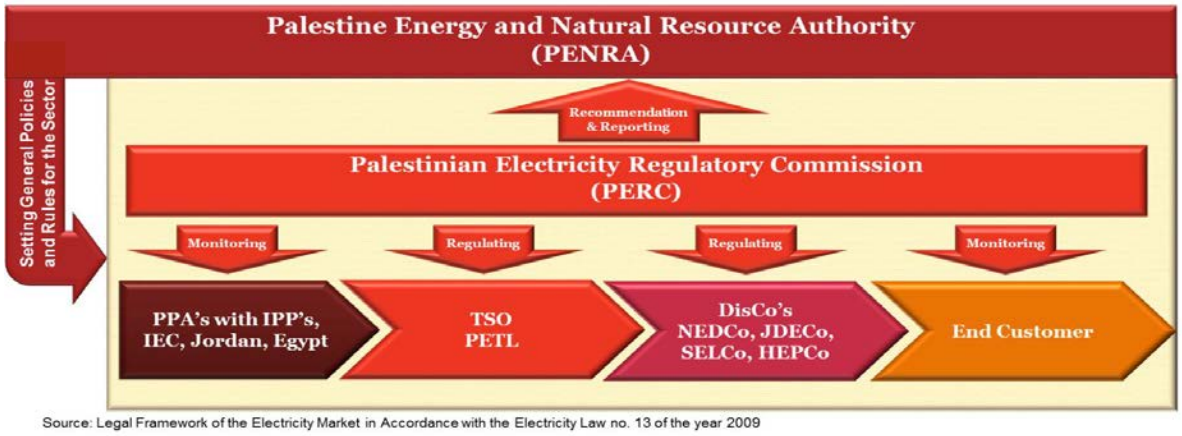


Diagram 2: Electricity sector institutional setup

2.3. Key Players[15]

- **PENRA:** The Palestinian Energy and Natural Resources Authority former Palestinian Energy Authority was established in 1995 as the electricity policy maker. It is responsible for ensuring the provision of reliable electricity at affordable prices to Palestinian citizens.
- **PERC[16]:** The Palestinian Electricity Regulation Commission was established in 2010 to monitor and ensure a well performing sector based on high quality services and fair tariffs.
- **PETL[17]:** The Palestinian Electricity Transmission Company was established in the last quarter of 2013 to act as a single buyer in a regulated and organised environment.
- **Distribution Companies**

[15] The EU funded the Institutional Development and Electricity Sector Reform project which has been providing technical assistance to all sector stakeholders from 2011 to July 2013.
[16] PERC's starting and operation costs were financed by the World Bank,
[17] PETL's starting and operation costs were financed by the World Bank

Table 1: Distribution companies in Palestinian Territories

Company	Date of establishment	Geographical coverage	Customers	% of total electricity purchases from IEC in 2013	# of connection points
NEDCO	2010	Northern West Bank: Cities of Nablus, Jenin 8 councils joined in 2011 4 councils joined in 2012	44,000	9.7%	13
TEDCO	2002	Northern West Bank: Tubas + 18 villages	15,000 + 18 villages on bulk basis	1.8%	1
JDECO	1914	Center West Bank: East Jerusalem, Ramallah and Al-Bireh district, Bethlehem district and Jericho district	234,000	40.0%	51
HEPCO	2000	Cities of Hebron and Halhul	39,000	8.1%	5
SELCO	2004	Cities of Dura, Yatta and Daheria and villages in Southern West Bank	24,664	2.6%	17
GEDCO	1998	All Gaza Strip	212,000	20.8%	10
Total				83.1%	97

Of the six DISCOs currently operating, only two (JDECO and NEDCO) received distribution licenses from PENRA upon recommendation of PERC in 2011, in line with the electricity law. All other DISCOs are still operating without a formal license.

The electricity regulator PERC has not, until recently, been able to have any authority over GEDCO due to political differences between the West Bank and Gaza authorities. Although this situation is expected to improve shortly with reconciliation talks between the two parties under way, GEDCO is yet to apply the unified tariff prevalent in the West Bank under PERC's recommendations.

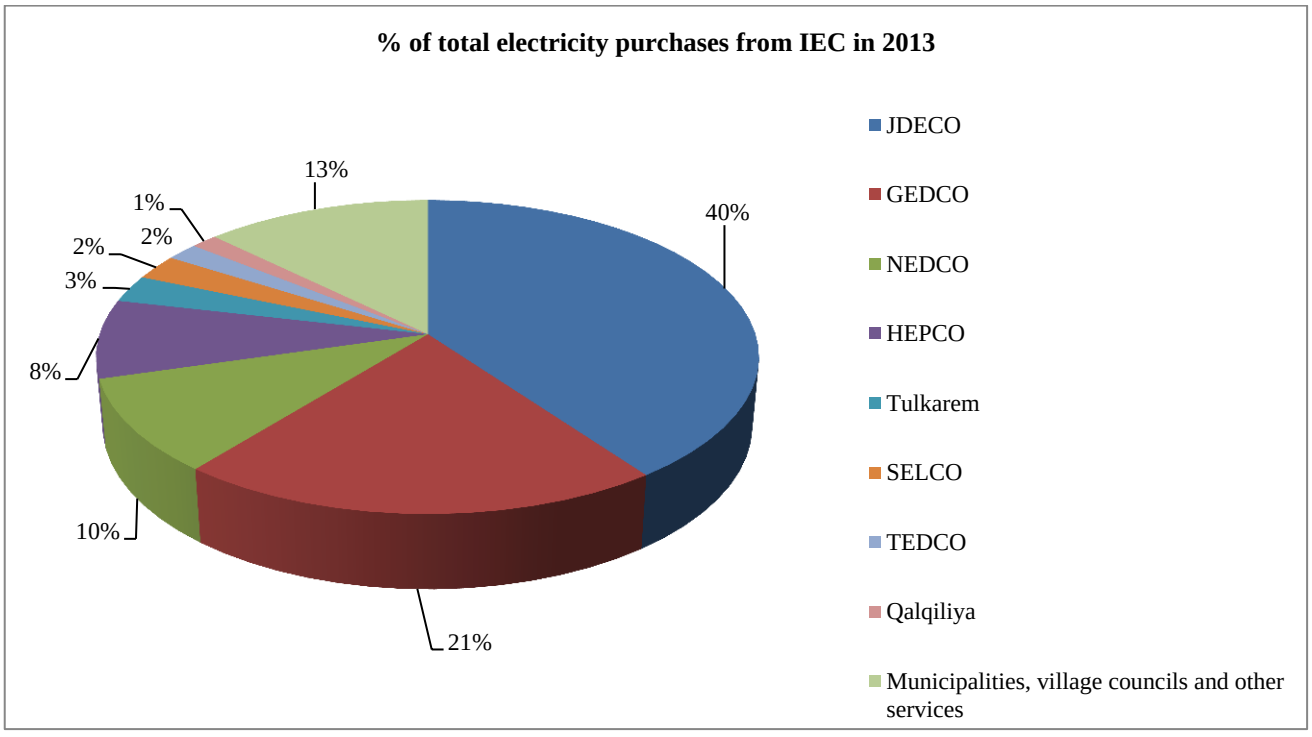
Comprehensive tables including all data related to DISCOs including collection, tariff, losses, customer profile, etc. is attached in Appendix C.

- **Municipalities and village councils:** It is important to note that around 150 municipalities and village councils in the northern and southern regions of West Bank have not transferred their electricity services to DISCOs. The consumption of these municipalities and village councils represents about 22% of the total electricity purchased from the IEC to West Bank, and about 17% of the total purchased electricity from the IEC by the Palestinian Territories in 2013. The major municipalities and village councils not included in West Bank DISCOs are shown below.

Table 2: Major municipalities and villages councils who distribute electricity in West Bank

Distributor	Geographical coverage	Customers	% of total electricity purchases from IEC in 2013	# of connection points
North municipalities and village councils				
Tulkarem	Tulkarem city , Tulkarem camp, Nur Shams camp and another 2 villages	17920	2.8%	2
Qalqiliya	Qalqiliya city	12,193	1.5%	1
Ya'bad	Ya'bad an another 13 villages	5,668[18]	0.6%	1
Qabatia	Qabatia city	4,500[18]	0.5%	1
Salfit	Salfit city and other 2 villages	2,000[18]	0.3%	1
Illar	Illar and other 5 villages	3,700[18]	0.3%	1
South municipalities and village councils				
Beit Ummar	Beit Ummar and one village	2,500[18]	0.4%	1
Bani Naim	Bani Naim	3,307	0.4%	1
Si'ir	Si'ir	2,74. [18]	0.3%	1
Beit Awwa	Beit Awwa	1,7. 6[18]	0.3%	1
A-Shuyukh	A-Shuyukh	1,600[18]	0.3%	1
Idna	Idna	4,655	0.3%	1

Chart 5: Electricity purchases from IEC per Distributor



[18] Estimated

2.4. Connection Points Owners[19]

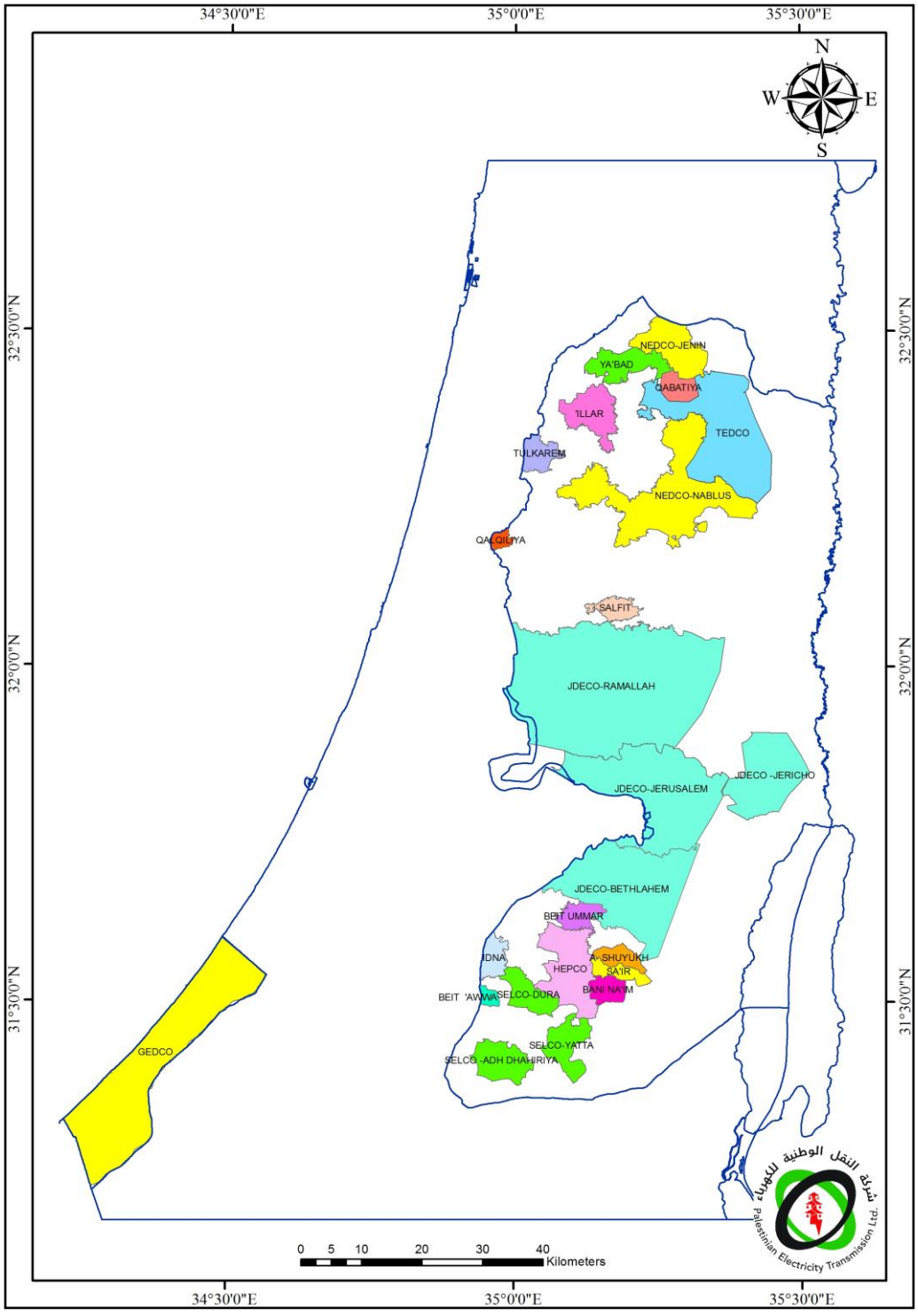
The 286 existing connection points are distributed between the different Distributors and few private sector organizations as shown in the next table.

Table 3: Distribution of connection points between the different Distributors

Company	# of connection points
NEDCO	13
TEDCO	1
JDECO	51
HEPCO	5
SELCO	17
GEDCO	10
Municipalities and village councils	175
Private sector	14
Total	286

[19] List of connection point as received by the IEC is attached in Appendix D

Map 1: Electricity Distributors in the West Bank and Gaza and DISCOs concession areas- 2013 source PETL



2.5. The Sector in the Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip

In the 1993 interim agreement on the West Bank and Gaza Strip, it was agreed that the "powers and responsibilities"[20] of the Palestinian electricity sector would remain with the Israeli Civil Administration, and would not be transferred to the Palestinian Authority. In Article 10 of this agreement, both sides agreed to continue their negotiations on Electricity matters with the aim of reaching a final settlement[2]. In the interim, the status quo in the electricity sector in the West Bank and Gaza will persist. This includes free, unrestricted and secure access for IEC personnel and equipment to the Palestinian electricity grid.

As of today, no agreement has been reached regarding the transfer of the power and responsibilities of the electricity sector from the Israeli Civil Administration to the Palestinian Authority with the exception of the Gaza Strip where the "power and responsibility" were transferred after the Israeli Disengagement from Gaza Strip in 2005.

It is worth noting that currently, while the Israeli Civil Administration is responsible for the power and responsibilities of the sector, it is not in a position to enforce some rules and regulations falling under this mandate such as setting the tariff on the Palestinian Distributors. The approval of the Israeli Civil Administration is still required for the installation of any new connection points as well as for the increase in capacity of existing connection points in the West Bank and Gaza. Finally, its approval is required for the installation of any new electricity lines in area C[21].

[20] http://www.incore.ulst.ac.uk/services/cds/agreements/pdf/is15.pdf

[21] The Oslo II Accord divided the West Bank into three administrative divisions: Areas *A*, *B* and *C :*

- *Area A* (full civil and security control by the Palestinian Authority): circa 3% of the West Bank, exclusive East Jerusalem (first phase, 1995). This area includes eight Palestinian cities and their surrounding areas (Nablus, Jenin, Tulkarem, Qalqiliya, Ramallah, Bethlehem, Jericho and 80 percent of Hebron), with no Israeli settlements. Entry into this area is forbidden to all Israeli citizens.
- *Area B* (Palestinian civil control and joint Israeli-Palestinian security control): circa 23-25% (first phase, 1995). This area includes some 440 Palestinian villages and their surrounding lands, and no Israeli settlements.
- *Area C* (full Israeli civil and security control): circa 72-74% (first phase, 1995): "areas of the West Bank outside Areas A and B, which, except for the issues that will be negotiated in the permanent status negotiations, will be gradually transferred to Palestinian jurisdiction in accordance with this Agreement".

3. Analysis and key findings

Analysis of the data collected from stakeholders during the review revealed the magnitude of the non-payment issue as well as its distribution throughout the West Bank and Gaza. It exposes the main non-payers in the Palestinian Territories as well as the causes of the non-payment. This chapter describes the non-payment issue, in particular the extent and main contributors as a starting point to understand the reasons identified for non-payment during the data analysis. Electricity losses, collection levels, level of purchase and sales tariff, governmental subsidies, and efficiency and transparency of sector participants (external and internal) were identified as the main factors contributing to the non-payment described below.

3.1 IEC invoice reconciliation and cycle

The IEC issues monthly invoices to connection point owners. These need to be paid within 11 days of the date of issue. Any delay in payment leads to a 10% annual late fee charge.

While the IEC bills are issued monthly, a number of Distributors [22] (mainly municipalities and village councils) indicated that these bills were rarely received by connection point owners or that the receipt was often delayed. The receipt of bills by connection point owner is the starting point to ensure proper and timely payment of invoices. An efficient mechanism to guarantee invoice deliveries and monitoring of payments should be designed and implemented to secure this operation. The invoice process needs to be fully transparent as most of the connection points are located in area C[21], where Palestinians have no access to connection points and this prevents them from reading the meters and verifying the accuracy of IEC's invoices.

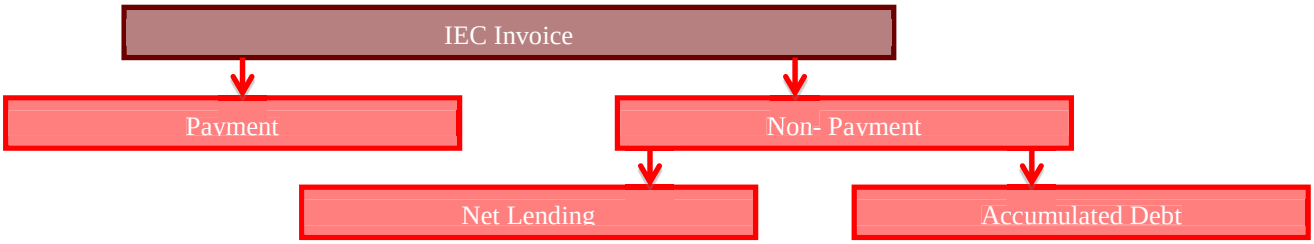
3.2 Non-payment of Distributors to the IEC

Although non-payment of electricity bills to the IEC started as early as 2002, the issue became a concern and priority for the PA in 2007 when the levels of non-payment showed significant year on year increases, resulting in 1407 million ILS (381 million US$) being due in 2013.

The non-payment and partial payment of electricity bills creates receivables for the IEC which then leads the Israeli government to proceed with monthly deductions from the clearance revenue (tax and customs transfer) owed to the PA. These amounts are transferred by the Israeli Ministry of Finance to the IEC, who then registers the remaining amount (if any) as debt from each connection point. As a result, these non-payments from the owners of connections points are either accounted for as deductions from the clearance revenue mechanism also known as Net Lending- or accumulated as debt. The absence of mechanism to monitor payments to the IEC makes it impossible to check if duplicate payments are made to the IEC by the connection point owner or through deductions from the clearance revenue. Discrepancies were actually detected between the monthly Net Lending amounts as registered at MOF and the IEC financial data as shown in Appendix E.

[22] GEDCO stated it had not received any IEC invoices for the past 3 years. PENRA started receiving these invoices at the beginning of 2014 and has been transmitting them to GEDCO shortly after.

Diagram 3: General overview of payment and non-payment from Palestinian Distributors to IEC



3.1.1. Non-payment figures

The analysis of the data[23] shows that for the period 2010-2013, the total non-payment amounts for the West Bank and the Gaza Strip reached 4.16 billion ILS (1,135 million US$ equivalent) [24]. This amount translates into non-payment of 37% of the total invoiced amount for the West Bank and 100% for Gaza. During that period, the Israeli Ministry of Finance proceeded with arbitrary deductions –following IEC's request- from the clearance revenue to partially compensate the non-payments. The amounts deducted and the frequency of deductions does not follow a set calendar or pattern and seem to occur following requests from the IEC to the Israeli Ministry of Finance and negotiations between the Israeli Government and the PA Ministry of Finance. These deductions are recorded as Net Lending on the PA's balance sheet and are shown as receivables against Distributors under the assets' category. The amounts which are not deducted are recorded as debts which are expected to either be paid by Distributors in future bills or will be later deducted through the clearance mechanism as Net Lending. A detailed description of the deductions from the clearance revenues is provided in Appendix F.

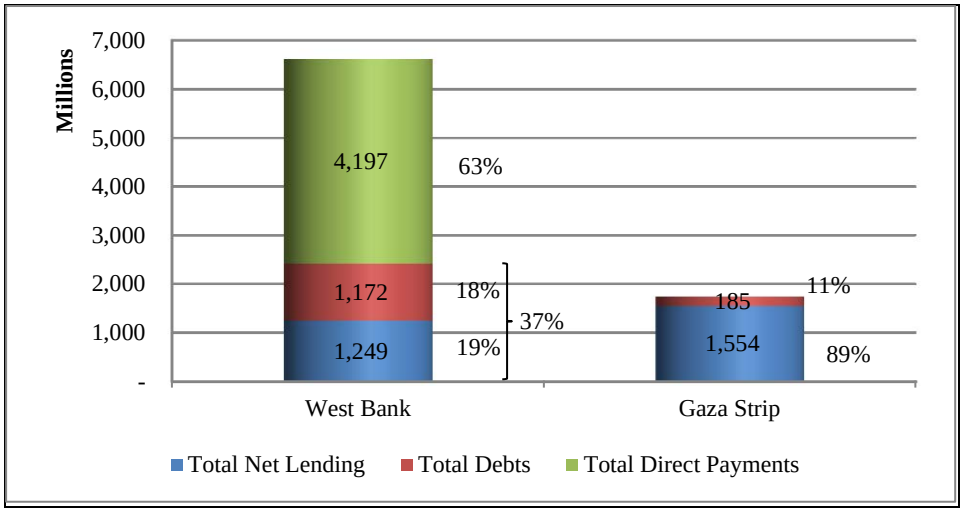
In 2012, the Israeli Ministry of Finance deducted a significant amount in comparison with the previous years to compensate for Distributor's accumulated debt. This led the Net Lending to increase to unprecedented levels that year reaching **13.5% of the total PA revenues**. The clearance revenue that year amounted for 70.3% of the total PA revenues[25] and Net Lending reached 19.2% of the total clearance revenue amount. These percentages and amounts illustrate both the dependence of the PA on the clearance revenue for its general budget and the burden represented by Net Lending on the PA general budget. The following table compares the clearance revenue and the electricity Net Lending for the period 2010-2013.

Table 4: PA revenues from clearance revenue vs. electricity Net Lending 2010-2013

Year	Revenue from clearance revenue (million US$)[26]	Electricity Net Lending (million US$)[27]	Percentage
2010	1,258.8	146.1	11.6%
2011	1,424.1	136.0	9.5%
2012	1,459.0	280.3	19.2%
2013	1,729.5	192.1	11.1%
Total	5,871.4	754.5	12.9%

[23] Received from IEC attached Appendix A. JDECO information was not provided by IEC and was obtained from JDECO directly.
[24] Debt is up to 02/2014 and not up to the end of 2013, which means it includes accumulated debts from the months of January and February 2014.
[25] Source: PCBS
[26] Source: Data for 2010-2012 from PCBS report "Performance of the Palestinian economy 2012", data for 2013 from MOF.
[27] Source: Data as received from IEC.

Chart 6: Total Net Lending, Direct Payment and Debts in ILS for West Bank and Gaza for the Period 2010-2013



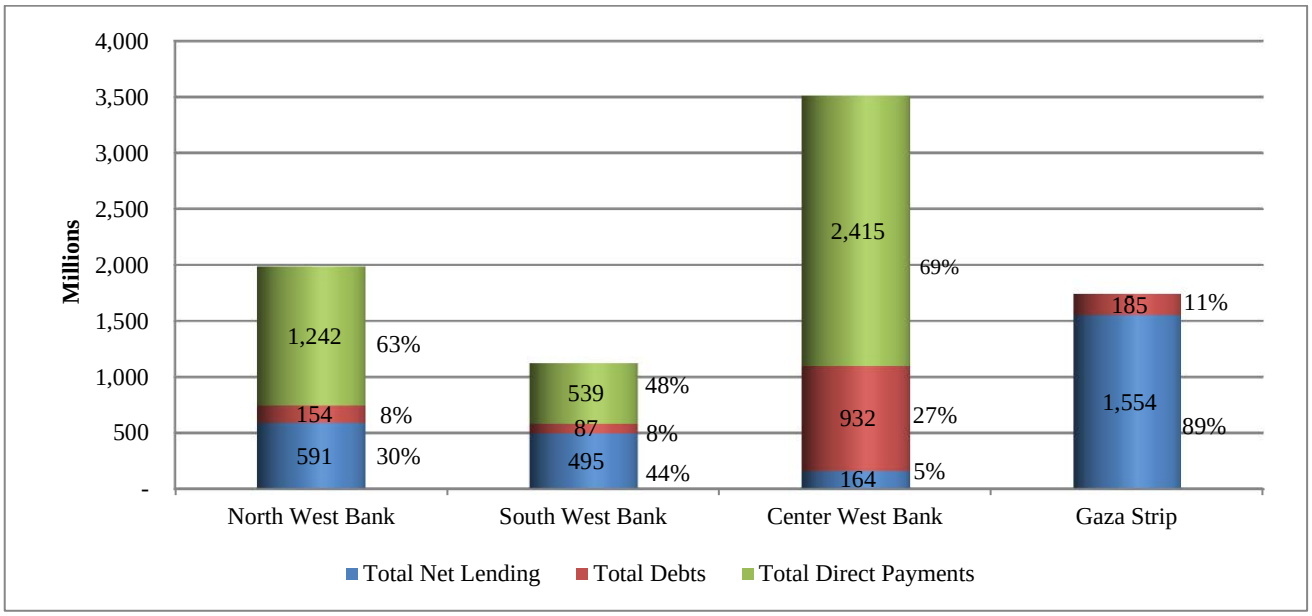
During this period non-payment to the IEC from the West Bank amounted to 2.422 billion ILS (664.7 million US$ equivalent) from which the Israeli Ministry of Finance deducted 1.25 billion ILS (334.7 million US$ equivalent) registered as Net Lending for the PA and the remaining amount of 1,172 billion ILS (330 million US$ equivalent) was registered as outstanding debt[24] to IEC.

During the same period, non-payment to the IEC from Gaza amounted to 1.74 billion ILS (471 million US$ equivalent) representing 100% of the total cost of IEC invoices for Gaza. 89% of this amount was deducted by the Israeli Ministry of Finance while the remaining 11% was recorded as outstanding debt to the IEC. The amounts of the overall non-payment are substantial and could be used by the PA for other priority expenditures in the electricity or other sectors.

3.1.2. Geographical distribution of non-payment 2010-2013

The next step to understand the extent of non-payment in the Palestinian Territory is to analyze the regional level of non-payment. The analysis clearly revealed that **Gaza** comprises the highest non-payments in absolute amounts (GEDCO concession area) with a total amount of **1.739 billion ILS (471 million US$ equivalent).** The **West Bank central region** (JDECO concession area) is next with a total amount of **1.096 billion ILS (297 million US$ equivalent)**. This clearly indicates that solving the non-payment issue in the Palestinian Territories will require focusing mainly on these two geographical areas which together represent **almost 70% of the non-payments** during the reporting period.

Chart 7: Total non-payment (Net Lending, Debts) and Direct Payment in ILS for West Bank and Gaza regions for the Period 2010-2013



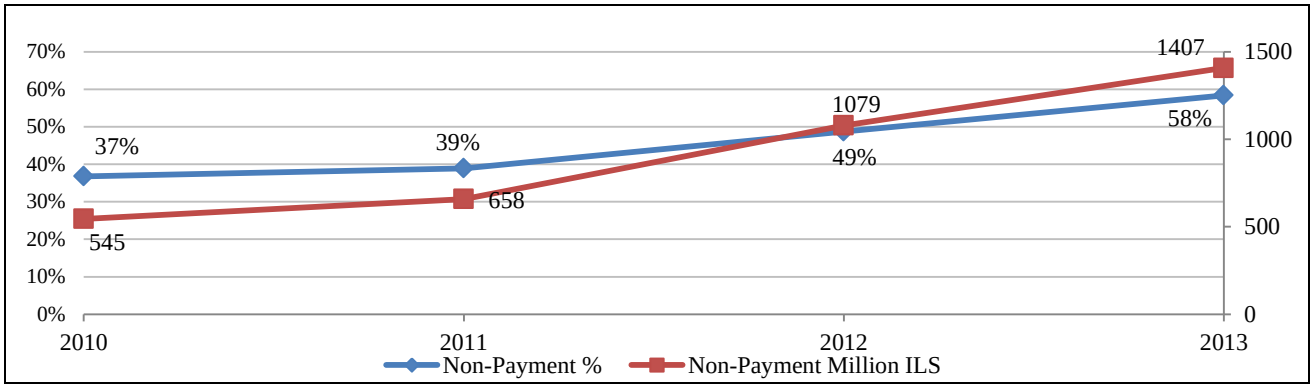
3.1.3. Progression of non-payment over the period 2010-2013

It is essential to acknowledge that during this reporting period, the price of electricity purchased by Palestinian Distributors from the IEC increased by 33%[28] going from 0.33 ILS/kWh to 0.44 ILS/kWh, since the increasing cost of electricity is one factor in terms of willingness to pay.

Non-payment during the period constantly and rapidly increased. In 2010[29] non-payment reached 37% of the total electricity cost and it jumped to 58% of the total electricity cost in 2013.

This non-payment can be attributed to several factors including, the increase in the purchase price from the IEC and a corresponding decline in willingness to pay, the decline in collection from customers and the 2012 large deduction executed by the Israeli authority through the clearance mechanism which gave Distributors and customers the impression that non-payment would automatically be compensated by the PA.

Chart 8: Growth of non-payment 2010-2013



To confirm whether non-payment was widespread in the Palestinian Territories or was only affecting certain regions more significantly, the data was broken up into regions. In the West Bank, the overall trend reveals that the increase in non-payment is generally in line with regional variables. In the Center

[28] Figures on purchased electricity corresponds to the authors estimation based on consumption data from IEC and tariff data from PERC
[29] From 2003 to 2009, the accumulated Net Lending amounted to 3.8 billion ILS

West Bank non-payment only started in 2011 and although it has the lowest non-payment percentage it shows the highest increase going from 0% in 2010 to 44% in 2013.

.

Non-payment in the Northern West Bank increased significantly in 2012 compared to the previous year. The Southern West Bank and Gaza have however, not seen any significant increases during this period with an average non-payment level of around 50% for the southern West Bank, and Gaza consistently not paying at all for IEC invoices.

The table below summarizes the regional distribution of non-payment to the IEC for the period 2010-2013. For a better appreciation of the scale and location of the non-payment during the period, charts have been developed and included in Appendix G (see Appendix G: Cost of purchase electricity vs. Net Lending and direct payment) to provide details of non-payment percentage per region for the West Bank and Gaza.

Table 5: Non-payment to IEC analysis for all regions (all figures in million ILS) 2010-2013

Region		North	South	Center	Gaza	Total
2010	Cost of Electricity	369	205	589	320	1483
	Net Lending	94	118	0	363	575
	Debt	-	-	0	-	0
	Non-payment	94	118	0	363	575
2011	Cost of Electricity	413	230	696	349	1688
	Net Lending	76	74	-	336	486
	Debt	33	28	96	13	170
	Non-payment	109	102	96	349	656
2012	Cost of Electricity	563	310	908	425	2206
	Net Lending	247	189	164	480	1080
	Debt	-	-	55	-	55
	Non-payment	247	189	219	480	1135
2013	Cost of Electricity	650	349	958	451	2408
	Net Lending	174	143	-	374	691
	Debt	162	59	417	77	715
	Non-payment	336	202	417	451	1406

This section has enabled us to understand the extent of non-payment from Distributors to the IEC in the West Bank and Gaza. The overall data collected provided clear evidence that non-payment has been consistently increasing in the West Bank and had always existed in the Gaza Strip. It further identifies the main regions and Distributors accountable for this increase.

3.1.4. Largest Non-Payers to IEC

To further identify the origin of the non-payment, an analysis of the largest non-payers to the IEC in the West Bank and Gaza was performed and revealed the following results.

The largest non-payer to the IEC is GEDCO with a total amount of non-payment reaching 1,738,750,017 ILS (471,205,967 US$). During the 2010-2013 reporting period, GEDCOs' contribution to the overall non-payment to the IEC reached 41.8% while in 2013 it only purchased 21% of the total electricity sold to the Palestinian Territories from the IEC.

JDECO is the second largest contributor to non-payment reaching a total of 1,095,484,015 ILS (296,879,137 US$). Although this figure is quite significant, it is worth noting that JDECO's contribution to the total IEC non-payment reached 26.3% while it accounted for around 40% of the total electricity purchases to the IEC in 2013.

The table below provides a more detailed list of the largest non-payers for the period 2010-2013 as well as an indication of the percentage of electricity they purchased from IEC in 2013.

Table 6: Largest non-payers to IEC period 2010-2013

DISCOs/Municipalities		Total non-payment	% to the total IEC non-payment 2010- 2013	% of total electricity purchases from IEC in 2013
GEDCO	ILS	1,738,750,017	41.8%	**21%**
	US$	471,205,967		
JDECO	ILS	1,095,484,015	26.3%	**40%**
	US$	296,879,137		
HEPCO	ILS	306,748,292	7.4%	**8%**
	US$	83,129,618		
NEDCO	ILS	300,557,342	7.2%	**10%**
	US$	81,451,855		
Tulkarem municipality	ILS	144,415,518	3.5%	**3%**
	US$	39,136,996		
SELCO	ILS	115,519,727	2.8%	**2%**
	US$	31,306,159		
Qalqiliya municipality	ILS	45,359,303	1.1%	**1%**
	US$	12,292,494		
TEDCO	ILS	41,343,742	1.0%	**2.0%**
	US$	11,204,266		
Qabatia council	ILS	8,203,976	0.2%	**13%**
	US$	2,223,300		
Beit Awwa village	ILS	21,515,034	0.5%	
	US$	5,830,632		
Beit Ummar municipality	ILS	16,593,021	0.4%	
	US$	4,496,754		
Others	ILS	325,494,204	7.8%	

	US$	88,209,811		
TOTAL	ILS	4,159,984,191	100.0%	**100.0%**
	US$	1,127,366,993		

3.1.5. Net Lending and poverty

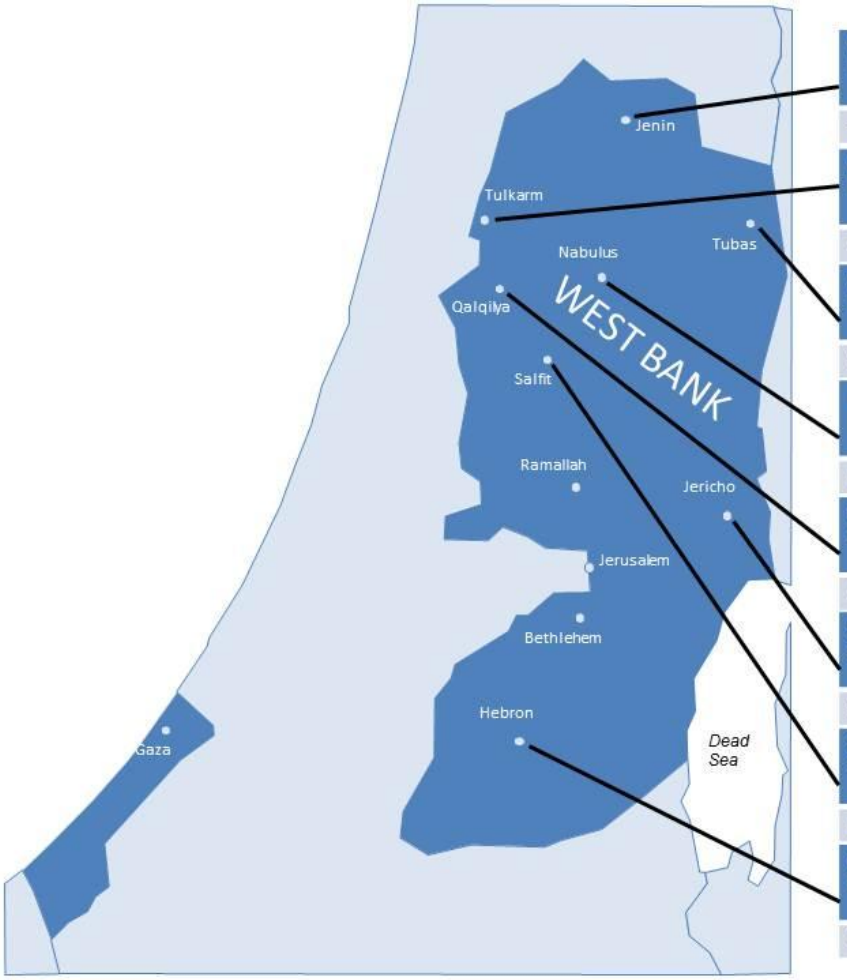
To identify the external factors that contribute to non-payment, it was also necessary to understand whether there is a link between non-payment to IEC and poverty. The assessment work therefore compared the non-payment in ILS/kWh to the IEC in 2013 data with the MOSA poverty data for the same year.

In 2013, the District with the lowest poverty rate was Nablus District with a poverty rate of 5.9% and non-payment about 40.4%[30]. Qalqiliya has the highest poverty rate of 15.9% and non-payment of 23.1% as shown in the chart below. An area with one of the highest non-payment percentage is the Jericho District (outside JDECO concession area) with 82.7% of non-payment, but the poverty rate of 13.8% is lower than other areas in the West Bank.

This shows that non-payment from the Palestinian Distributors to IEC is not connected to the poverty level of the customers supplied by these Distributors. For example, Nablus governorate which has one of the lowest poverty rates is one of the largest contributors to Net Lending and non-payment. This shows that poverty levels are not one of the main factors leading to non-payment of Distributors to IEC.

[30] As percentage of the kWh cost from IEC of 0.52 ILS/kWh including VAT

Chart 9: District Poverty rate according to MOSA data vs. non-payment to IEC in 2013



Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.30	57.7%	8.3%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.30	57.7%	14.2%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.20	38.5%	11.6%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.21	40.4%	5.9%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.12	23.1%	15.9%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.43	82.7%	13.8%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.16	30.8%	9.0%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.30	57.7%	7.9%

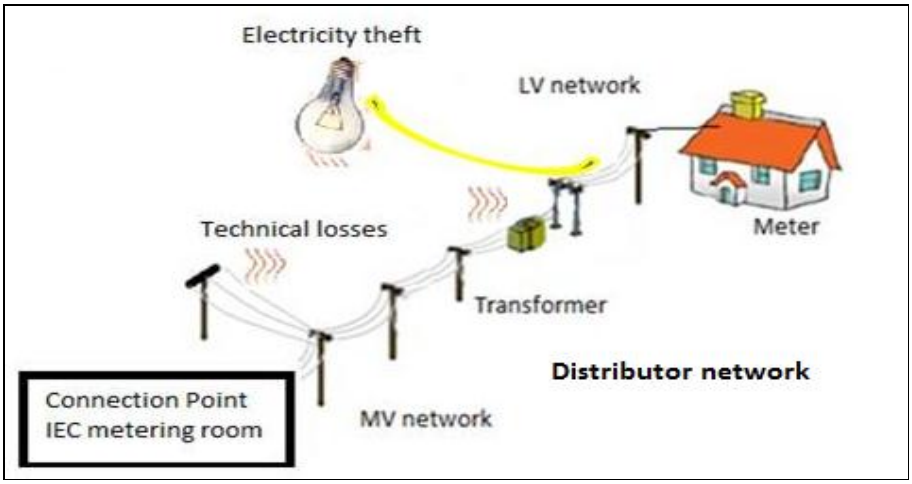
3.3 Electricity Losses

Distributors and other sector stakeholders often indicate that electricity losses are a major contributor to non-payment. It was therefore necessary to analyze the amount of losses and their link to non-payment.

Electricity losses can be defined as difference between the amounts of electricity purchased from the different electricity suppliers (mainly from IEC) and the electricity consumed by the end users as measured by their electricity meters.

Losses can be categorized into two types: technical losses and non-technical losses. Technical losses are losses on the electricity network (lines, cables, transformers, etc.), and these losses are the result of inherent resistance of electrical conductors and can be verified using load flow software analysis and measurements. Non-technical losses are the electricity which gets lost due to theft and errors of metering and billing. The losses locations are illustrated in the next diagram.

Diagram 4: Electricity losses



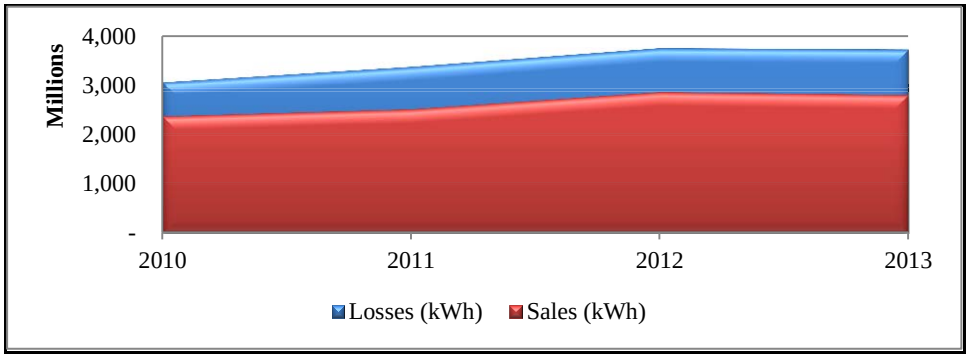
The total electricity losses (which are the difference between the purchased electricity from all sources[36] as measured at the connection points and the sold electricity to the customers as measured by their meters for the different DISCOs) did not vary much during the period 2010-2013; remaining steady at 23-30% although this is above the levels reported by other regional Distributors such as those in Jordan which has average losses of 13%.

Table 7: Percentage of electricity losses for DISCOs

Year	NEDCO	TEDCO[31]	JDECO	HEPCO	West Bank[32]	GEDCO[33]
2009			28%	22%	26%	30%
2010	18%	5%	26%	20%	23%	30%
2011	20%	4%	28%	22%	26%	30%
2012	18%	16%	27%	19%	24%	30%
2013	N/A	16%	26%	20%	25%	30%

[31] Losses reported for TEDCO in 2010 and 2011 only include losses from medium voltage network under the responsibility of TEDCO during this period. TEDCO took over responsibility of low voltage network from some municipalities in 2012, which can explain the increase in losses in 2012 and 2013.
[32] Estimation based on the sample.
[33] Estimations received from GEDCO.

Chart 10: Electricity losses and sales (kWh) 2010-2013 in West Bank



The total losses as shown in the table and chart above include both technical and non-technical losses. The split between technical and non-technical losses cannot be determined as Distributors do not have proper measurement/monitoring tools installed on the network and are not equipped with the required technical software tools to analyze the losses. To obtain this split, it is necessary to perform a technical study to calculate the actual level of technical losses and then determine the difference between the total losses and the technical losses to obtain the total non-technical losses. The only loss studies for West Bank and Gaza are at least 10 years old which prevents us from making any conclusions based on these studies.

Nevertheless, during discussions, DISCOs indicated that they estimate the split between technical and non-technical losses to be 50%: 50%. This estimation is based on their experience of the sector and self-judgment only.

In terms of financial value, the cost of losses (technical and non-technical) during the period 2010-2013 in West Bank was as follows:

Table 8: Cost of losses in the West Bank

	2010	2011	2012	2013
Cost of losses ILS (Incl. VAT)	267,607,997	356,760,251	430,189,017	479,216,164
Cost of losses US$ (Incl. VAT)	71,744,771	99,653,701	111,737,407	133,115,601
Losses/non-payment to IEC	126%	116%	66%	50%

The table above shows that cost of losses increased by 80% during the period while its significance compared to non-payment dropped during the same period. This is mainly due to the fact that, as detailed in the previous sections, non-payment has seen a sharp increase since 2011.

Table 9: Cost of losses in Gaza

	2010	2011	2012	2013
Cost of losses ILS (Incl. VAT)	170,703,919	178,444,489	214,154,900	246,752,051
Cost of losses US$ (Incl. VAT)	45,765,126	49,844,829	55,624,649	68,542,236
Percentage of losses/non-payment to IEC	47%	51%	45%	55%

It should be noted that in the absence of the relevant information, in particular the amount of kWh purchased from the IEC and Egypt, the percentage for Gaza losses were estimated by GEDCO. Based on the current available information, losses were estimated at 14% in 2010, 19% in 2011 and in 2012 and

23% in 2014. It is recommended that an in depth study and analysis to calculate the actual amount of losses is carried out.

Technical losses could be reduced by strengthening the electricity network with the installation of new lines to reduce overloaded networks, the installation of capacitor banks to increase power factor, etc. This means that the reduction of technical losses can only take place with financial investment in the network. Non-technical losses can be reduced by increasing inspections, enforcing the law and taking legal and punitive actions against the customers who steal electricity.

In order to measure the impact of a reduction of losses on the non-payment two loss reduction scenarios are proposed below. These scenarios show that loss reduction would reduce the non-payment levels by 19% (with 2013 figures). The table reveals that the impact of reducing the losses on non-payment is decreasing yearly as other important factors have started influencing non-payment, such as the collection rates and the tariff margin.

The following two scenarios provide estimates on the savings for West Bank Distributors through a decrease in technical and non-technical losses. The 2 scenarios are based on the assumption noted above, that technical losses and non-technical losses are nearly equal.

- **Scenario 1:** technical losses reduced by 25% and non-technical losses reduced by 25%; i.e. total losses = 18.75% in 2013 instead of 25%.
- **Scenario 2:** technical losses reduced by 25% and non-technical losses reduced by 50%; i.e. total losses = 15.63% in 2013 instead of 25%.

Table 10: Saving estimations for West Bank based on assumption (in ILS)

Scenario 1	**2010**	**2011**	**2012**	**2013**
Savings	66,901,999	89,190,063	107,547,254	119,804,041
Percentage of savings/non-payment to IEC[34]	32%	29%	16%	13%
Scenario 2	**2010**	**2011**	**2012**	**2013**
Savings	100,352,999	133,785,094	161,320,882	179,706,061
Percentage of savings/non-payment to IEC	47%	44%	25%	19%

3.4 Collection from customers

Another reason mentioned by sector stakeholders to explain non-payment to IEC is the low collection rate from customers. The following section seeks to understand whether the collection is actually low and its impact on non-payment to the IEC.

An analysis of customer payment behavior was undertaken using data from all DISCOs and selected municipalities. The analysis also included a survey, which was distributed to a representative sample of customers throughout West Bank and Gaza to better understand their consumption patterns and payment attitudes. The result of this exercise and complete analysis is available in Appendix H.

3.4.1 Overall information on collection

Customer collection (which is the ratio between yearly total collections to the value of yearly total sales) in the West Bank and Gaza is not as low as is widely believed in the Palestinian Territories. In 2013, the average collection rate in the West Bank reached 81% while it reached 71% in the Gaza Strip.

[34] Savings from reducing losses to the amount of the non-payment of that year as included in table 25.

Unfortunately the trend of payment from customer has been declining in all regions in the West Bank with the sharpest drop at JDECO with a collection rate of 97% in 2012 going down to 83% in 2013.

In Gaza collection has been continually increasing from a rate of 47% in 2009 and reaching 71% in 2013.

Table 11: Average yearly collection for DISCOs 2009-2013

Year	NEDCO[35]	TEDCO	JDECO	HEPCO	West Bank	GEDCO
2009		93%	96%	81%	93%	47%
2010	81%	117%	92%	80%	90%	59%
2011	79%	97%	96%	74%	90%	65%
2012	70%	105%	97%	74%	89%	68%
2013		97%	83%	70%	81%	71%

In comparing the yearly collection totals from Distributors to the cost of purchased electricity from the IEC and the payments processed, it appears that up to 2010, for most DISCOs in the West Bank the collection level was sufficient to cover the IEC invoices. The only exception is JDECO which collected the necessary funds to also cover costs up to 2011.

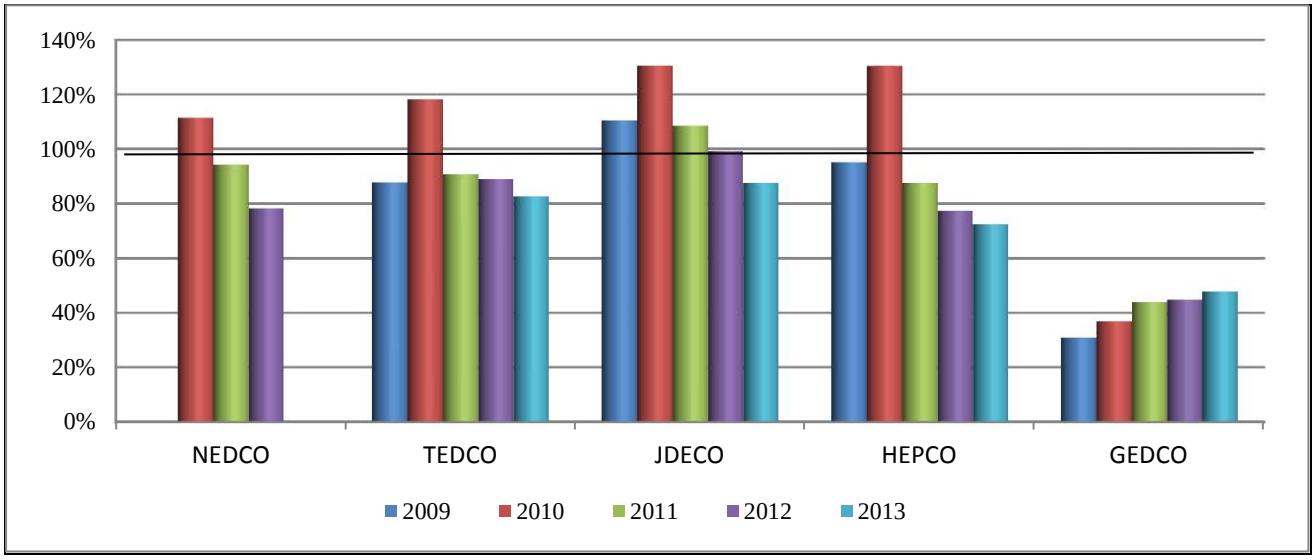
In Gaza during 2010-2013, the amounts collected were never sufficient to cover the purchase not even reaching 50% of the costs. This clearly indicates that if with the collection reaching 71% GEDCO cannot cover 50% of the IEC costs it will not be able to cover the cost of the purchase even with 100% collection. While GEDCO is the main contributor to the non-payment, customer collection is only one of the causes of non-payment.

GEDCO has been actively searching for solutions to increase the collection rate. With the support of PENRA and donors, GEDCO successfully initiated a prepaid meter pilot project which enabled the utility to collect about 1 million ILS (0.28 million US$) in 2013. GEDCO is currently requesting to extend the installation of prepaid meters throughout the Strip. The preparation of a strategy for installing prepaid meters in Gaza based on lessons learnt from West Bank Distributors is included as a recommendation in the next section.

Chart 8 provides an overview of the collection to purchase cost from all electricity sources between 2010 and 2013 for the major DISCOs in the West Bank and Gaza. The analysis shows that as of 2012, amounts collected by DISCOs were insufficient to cover electricity purchases. The chart illustrates the current situation and clearly shows the decline in collection in the West Bank and the increase in Gaza.

[35] The 2010 data for NEDCO represents half year. NEDCO 2013 data was not provided

Chart 11: Collection to purchase cost from all sources[36]



Various attempts to increase collection by DISCOs have been taken in previous years including the installation of pre-paid meters at scale. Appendix I provides further information based on the geographical distribution of prepaid meters in the West Bank. In the past two years, JDECO has started smart meter[37] pilot projects, which look to increase the collection amounts and better monitor the losses.

Municipalities and village council's collections[38]: The average collection rate of the main municipalities and village council's is estimated to be high. This is due the installation of large amounts of prepaid meters[39] in these areas. Qalqiliya reported the following collection rates.

Table 12; Qalqiliya collection rate 2011-2013

Year	2011	2012	2013
Collection rate	104%	103%	100%

Illar[40] reported a collection rate averaging 100% in the past years with the operation of 100% prepaid meters. Tulkarem did not report the collection rate, but it is estimated to be between 60% and 70% due to poor collection from Tulkarem refugee camp which represents about 10% of Tulkarem' total sales but has a collection level of zero.

3.4.2 Collection per customer's category

An assessment of the collection levels per customer category was performed to identify the payment performances of the different customer categories and propose if necessary targeted actions per customer category. Distributors issue monthly electricity bills to their customers serviced through postpaid electricity meters for the cost of electricity consumed during the previous month, while customers with prepaid electricity meters pay in advance for their future consumption.

Palestinian customers can be classified into 3 main categories as follows:

1. Residential;
2. Commercial; and

[36] IEC, Jordan, Egypt and GPGC
[37] Smart meter: continuously measures consumption and provides detailed information on customer behavior and transmits real-time data to the DISCO IT control system
[38] Data was not available from all municipalities approached
[39] AFD and Norway financed the procurement of more than 150,000 meters as part of the EUMP project
[40] Illar is Palestinian town in the Tulkarem Governorate in the eastern West Bank. According to the Palestinian Central Bureau of Statistics, 'Illar had a population of approximately 6,190 inhabitants in 2007

3. Others including "industrial users connected at low voltage level, industrial users connected at medium voltage level, water pumps, agricultural areas, street lights and temporary services".

The first 2 categories comprise more than 75% of the total DISCOs' sales and more than 95% of the total number of customers.

A detailed chart providing information on the ratio of the different customer category in each DISCO is available below. Observations on the data collected on customer category can be summarized as follows:

The only pattern which could be identified is that there is a higher level of collection from commercial customers compared to all other categories in the West Bank and Gaza.

- **NEDCO:** Collections from the Residential category are moderate (around 82%) and have seen a yearly decrease (to 78%) in 2012. This could be explained by the transfer of villages (comprising mainly of residential customers with lower collection rates) into NEDCO in 2011 and 2012. Collections from the Commercial category went down from 95% in 2010 to 70% in 2012[41] mainly due to non-payment by governmental institutions[42].

  Collections from the "Other" category are low probably due to the fact that water pumps and street lights are either owned by a municipality or the PA who do not systematically pay for their bills. For example, in 2012, sales for street lights amounted to around 5 million ILS which represents 2% of NEDCO's total sales while collection for street lights was close to zero. The same year, sales for water pumps amounted to 16 million ILS which represents 8.9% of NEDCO's total sales while collection was also close to zero.
- **JDECO:** Collections from the Residential category are high but decreased rapidly in 2013 dropping to 86%. Based on anecdotal evidence, it is believed that some residential customers stopped paying their bills after learning that the IEC deducted non-payments from clearance revenues (Net Lending) in November 2012. Collections from the Commercial category are high (90-100%) and no collection problems are noticed within this category. This could be due to JDECO's ability to exercise its rights to disconnect electricity and take legal actions more easily against Commercial customers who are larger, easier to find and approach.

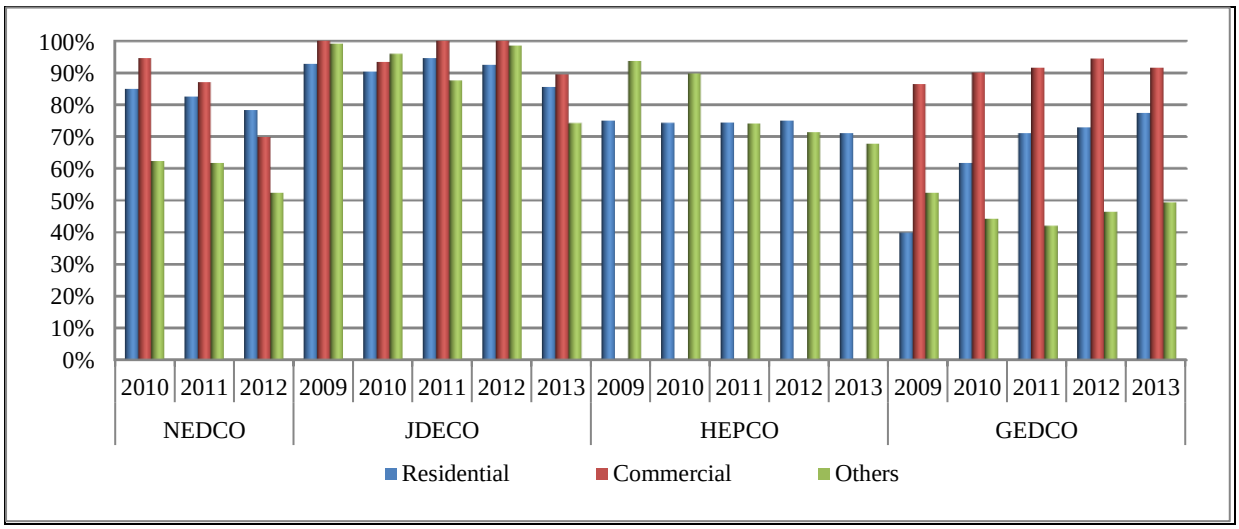
  Collections from the "Other" category are high except for 2013 which saw a sudden drop mainly due to the deterioration in the collection of payments from industrial medium voltage customers: non-payment of major PA water wells in Bethlehem area and military academy in Jericho.
- **HEPCO:** Collections from the residential category are low averaging between 71% and 75% during the period 2009-2013, with 2013 witnessing the lowest collection rate for the period.

  The collections from the "Other" category decreased gradually after 2010 due to the reduction in collection from street lighting and the governmental services[42]. Sales to municipalities for street lights in 2013 were about 6.7 million ILS which represented about 2.2% of HEPCO's total sales while collections for street lights reached around 57%. Sales for Governmental institutions amounted to around 6.2 million ILS which represented 3.1% of the total sales whilst the collection was close to nil.
- **GEDCO:** Collections from the residential category are low (62%-77%) but 2013 registered the highest collection rate. The yearly increase in collection could be partially explained by the automatic salary deductions implemented by the PA for civil servants in Gaza to cover part of their debt to GEDCO. The salary deductions from PA civil servants in Gaza amounted to 134 million ILS in 2013 representing more than 30% of the total collections. Similarly, the collection from commercial customers is relatively high, reaching 92% in the period 2011-2013 and the collection for the "Other" category[43] is average and reaching around 77% but steadily increasing by 2 to 3% yearly since 2010.

[41] No data received for 2013
[42] Includes buildings and schools.
[43] Others including "industrial users connected at low voltage level, industrial uses connected at medium voltage level, water pumps, agricultural areas, street lights and temporary services".

The chart[44] below shows the percentage of collection (ratio between yearly total collections to the value of yearly total sales) for the 3 major customer categories in NEDCO[45], JDECO, HEPCO[46] and GEDCO[47].

Chart 12: Collection percentage per customer category



3.4.3 Reasons for non-payment according to customers

In order to identify and understand the reasons and factors affecting non-payment from customers to Distributors, a survey was performed in the West Bank and Gaza. The results of the survey do not reflect actual personal payment behavior of customers, but their personal views on the reasons of non-payment in the country.

The vast majority of respondents believe the cost of electricity is high and this is the main reason for non-payment by customers. During the study, it was also possible to evaluate the proportion of household income that the monthly electricity invoices represented. This ratio reached 8.15% in the West Bank and 11.91% in Gaza. It is interesting to note that while respondents perceive electricity to be sold at a high costs, an EBRD research paper[48] dated 2005 provides "benchmarks used in measuring affordability from various sources" in different countries (IPA energy, WHO and WB) which range between 10-15% of the household income.

In the West Bank, other important reasons communicated to explain non-payment by customers were related to the low source of income, the fact that many do not pay and the refugee status.

In Gaza, in addition to the high cost of electricity, respondents indicated that non-payment was due to the low level of income in Gaza and the dissatisfaction of customer in the service provided.

The responses were analyzed by calculating the mean scores of responses based on a Likert scale of one to five with one being the strongest and five being the weakest. The tables below represent the strongest indicators for nonpayment. In addition a color coded system was employed to identify critical factors in the decision of respondents not to pay, which follows below:

- Black was a main or critical factor in non-payment
- Red was a strong factor in non-payment
- Yellow was a potential or weak factor in non-payment
- Green was a non-factor in non-payment

[44] SELCO has not been included due to unavailability of sufficient quality data.
[45] NEDCO was not in operation in 2009 so the data for this year is not included.
[46] The commercial customers' data are included in the data of the "other" customers as we could not obtain from HEPCO the split between the two categories.
[47] TEDCO data is not included in the chart as TEDCO sells most of the electricity to 18 villages on bulk meters and not directly to the end customers
[48] http://www.ebrd.com/downloads/research/economics/workingpapers/wp0092.pdf.

Table 13: Reasons for non-payment in West Bank

	West Bank
Refugee Status	2.83
Neighbor Doesn't Pay	2.73
High Cost of Electricity	1.72
Poor Service	3.62
Don't Receive Invoice	4.63
Irregular Payment of Salaries	3.66
Lack of Enforcement	3.44
No Penalties for Nonpayment	3.48
No Communication with Provider	4.31
No Source of Income	2.04

Table 14: Reasons for non-payment in Gaza

	Gaza Strip
Refugee Status	4.62
Neighbor Doesn't Pay	4.08
High Cost of Electricity	1.88
Poor Service	1.94
Don't Receive Invoice	4.69
Irregular Payment of Salaries	4.68
Lack of Enforcement	4.30
No Penalties for Nonpayment	4.21
No Communication with Provider	4.33
No Source of Income	1.55

While the analysis above provides an insight into participant's perceptions of the reasons for non-payment, it was also decided to evaluate the willingness of customers to pay for their invoices.

The analysis as reported in table below was inconclusive. There is no clear pattern for willingness to pay based on income, invoice or percentage of invoice to household income. It is likely that additional factors are most probably influencing the behavior of customers; such as a culture of non-payment. The table nevertheless, clearly illustrates that in areas where large amounts of pre-paid meters are installed (more than 70%); the willingness to pay by customers serviced with postpaid meters living in this area is very high.

Furthermore, Jerusalem and Ramallah (JDECO concession area) have the highest percentage of willingness to pay which could be explained by the prosecution action that is taken against offenders who are in arrears or by culture of payment in these areas. Jericho has the lowest percentage of willingness to pay but also the highest price rate compared to income. The main reason for low willingness to pay in this governorate can perhaps be explained by the high percentage that electricity bills represent on the household income for customers in this area.

To further challenge the results received from the analysis of electricity payment, we also included in the survey a few questions on payments to other utilities and basic services. The results of these questions were enlightening as they revealed that in the West Bank, over 80% of respondents stated that they regularly pay for other utilities such as water, telephone, and internet. In West Bank, the reasons cited for paying for these bills were related to the fear of penalty or punishment (56% of respondent) and the perception of the importance of the service itself (21.8%). In Gaza, 52% of respondents justified the payment of other utilities bills for fear of penalty or punishment (28.8%), to remain debt free (23.7%) and due to the perception of that the prices were acceptable (22.4%).

It is important to note that only those respondents served by postpaid meters are included in table 15. Respondents with pre-paid meters are required to pay for the electricity service in advance. Approximately 57.6% of all respondent are serviced by postpaid meters, with the balance of 42.4% serviced by prepaid meters.

Table 15: Willingness to pay survey results

Governorate	Income /Household Member (ILS)	Monthly Invoice (ILS)	Invoice as % of Income	Unwilling to Pay (Invoice, Excl. Prepaid Meter)	Willing to Pay (Invoice, Excl Prepaid Meter)	% of Prepaid Meters
Tulkarem	370.63	210.75	10.1%	69.2%	30.8%	56.6%
Qalqiliya	352.22	241.14	10.8%	0%	100%	92.0%
Hebron	516.59	208.26	6.5%	47.1%	52.9%	59.7%
Nablus	424.95	216.83	10.5%	38.9%	61.1%	51.3%
Salfit	563.33	212.00	6.3%	0%	100%	100%
Jenin	460.69	182.69	7.5%	25.0%	75.0%	70.4%
Tubas	329.83	208.75	10%	37.5%	62.5%	75.0%
Ramallah/Al Bireh	623.97	278.12	7.9%	17.2%	82.8%	43.0%
Jerusalem	738.26	378.48	8.5%	28.6%	71.4%	61.9%
Bethlehem	526.44	322.22	10.5%	85.7%	14.3%	53.3%
Jericho	389.90	296.75	15.4%	87.5%	12.5%	60.0%

Governorate	Income /Household Member (ILS)	Monthly Invoice (ILS)	Invoice as % of Income	Unwilling to Pay (Invoice, Excl Prepaid Meter)	Willing to Pay (Invoice, Excl Prepaid Meter)
North Gaza	190.5	135.8	9.6%	50.0%	50.0%
Gaza	164.5	154.9	12.9%	58.5%	41.5%
Deir Al Balah	194.69	153.79	10.53%	61.4%	38.6%
Khan Younis	158.91	149.71	13.54%	77.9%	22.1%
Rafah	160.66	159.02	12.79%	58.1%	41.9%

The next step towards understanding customers' behavior and defining the most suitable actions to implement to achieve an increase in collection was to identify the factors which can encourage customers to pay. While results differed slightly between the West Bank and Gaza, customers in both locations believe that flexibility in payment schedule – mainly related to the settlement of arrears - should encourage more customers to pay. In the West Bank survey respondents also indicated that the installation of pre-paid meters should settle the issue of non-payment. In the Gaza Strip respondents believe that enhancing the level of service –essentially uninterrupted provision of electricity - should certainly lead to an increase in payment.

Table 16: Factors to encourage payment customer survey results

Factors to Encourage Payment	West Bank Mean Score	Gaza Mean Score
Electronic Payment	4.32	4.51
Paying via Collector	3.72	4.30
Prepaid Meter	**2.14**	3.57
Other Payment Methods	4.36	4.41
Flexibility in Minimum Payment Amounts	**2.65**	**2.91**
Satisfactory Level of Service	3.11	**1.77**
Nothing	4.26	4.67

Payment behavior of civil servants

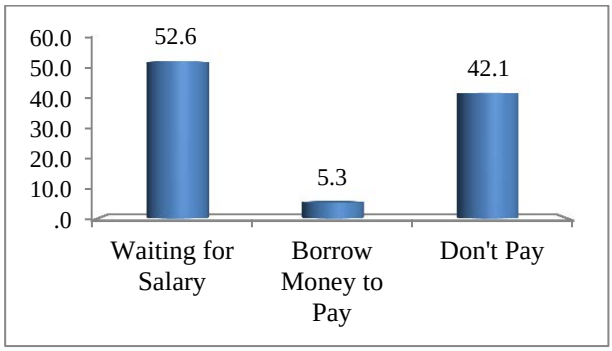
The survey also included questions on payment behavior, which captured civil servant's behavior and concluded that over half (52.6%) indicated they were compelled to wait for their salary before paying their bill,

- While 5.3% indicated they borrow money to pay their electricity bills.
- And over 42% however, stated that they simply don't pay because they can't.

The total number of respondents employed in the public sector that participated in this study was 82. Of the 82 respondents, 38 answered the question related to the irregular payment of salaries and how it affects their ability to settle their electricity invoices. The remaining respondents in this category were serviced through a prepaid meter for their electricity needs.

It should be noted that during the months where salary payments for Civil Servants are delayed, Distributors in West Bank typically give these employees a monthly credit of 50-100 ILS.

Chart 13: Actions Taken When Salaries are late



3.5 Tariff Analysis

One of the factors commonly attributed to the non-payment in the West Bank and Gaza is the high sales tariff for customers.

The sales tariff is calculated based on the purchase tariff from the IEC to which a markup is added according to an approved approach and methodology ("Cost plus" Approach). This approach should ensure that the operational cost of the DISCOs including acceptable levels of technical and non-technical losses, working capital needs and future investments, are covered and should allow for a limited profit

margin. The regulatory authority is entitled to set future benchmarks for certain Key Performance Indicators ("KPIs") for certain components such as technical and non-technical losses to be covered by the tariff.

To understand the impact of the tariff on the non-payment, this section will first analyze the purchase tariff, followed by the markup and finally look at the sales tariff including the governmental subsidy component.

3.5.1 Purchase Tariff

Most of the Distributors purchase electricity from the IEC at a tariff set by the Israeli Power Utility Authority (PUA), with the following main characteristics:

- It is a LV or MV bulk flat tariff for all connection points except for JDECO, where the Time of Use tariff (ToU) is applied;
- It is fixed by the PUA without any consultations with the Palestinian Distributors or Authorities.
- It is a tariff designed for the Israeli electricity market, not customized for the Palestinian market. It includes beside other components for example an unknown percentage[49] to cover the development of the renewable energy sector in Israel; which Palestinians recipients do not benefit from.

The tariff applied by the PUA in the Palestinian Territories is a **bulk tariff** for Low Voltage for connection points connected at the low voltage and is a medium voltage bulk tariff for connection points connected at the medium voltage:

Table 17: Israeli Tariff as 16.5.2013: Fixed rates – Agorot per kWh

Residential	General	Street lighting	Low Voltage bulk tariff	Medium Voltage bulk
54.03	55.61	47.63	**52.55**	45.27

The purchase tariff set unilaterally by the PUA is contested by the PA which considers that it does not reflect appropriate costs as it does not consider the Palestinian electricity Distributors as one unit. The PA believes that, as the largest single customer to the IEC, the tariff should be an export tariff which only includes the cost components applicable to the PA consumption and from which all other components such as the renewable energy component should be removed.

Payment conditions applied to Palestinian Distributors are the same as the ones applied to Israeli residential and commercial customers. They only have 11 days to pay the IEC after which they are imposed a late fee of 8.75%[50]. Palestinian Distributors, which purchase electricity with a yearly amount of over 2 billion ILS (560 million US$), believe that their payment conditions should be different from those from Israeli residential or commercial customers. It is recommended that payment conditions be revised to appropriate wholesale levels, recognizing the fact that Distributors are large companies with their own costs, and who need to read meters and issue invoices for thousands of customers, collect money from them and are only then in a position to pay the IEC.

The Palestinian Authority has been involved in talks with its Israeli counterpart for the past 10 years to negotiate a commercial agreement which should resolve the above mentioned issues and in particular agree on a special export tariff to the Palestinian Distributors with fair payment conditions. Unfortunately, progress on reaching an agreement has slow, and needs to be brought to a conclusion.

[49] The authors were not in a position to estimate the renewable component within the purchase tariff from IEC.

[50] The PUA stated that this interest is published by the Accountant General of the state of Israel and it currently stand for 8.75% annual nominal terms

3.5.2 Tariff margin[51]

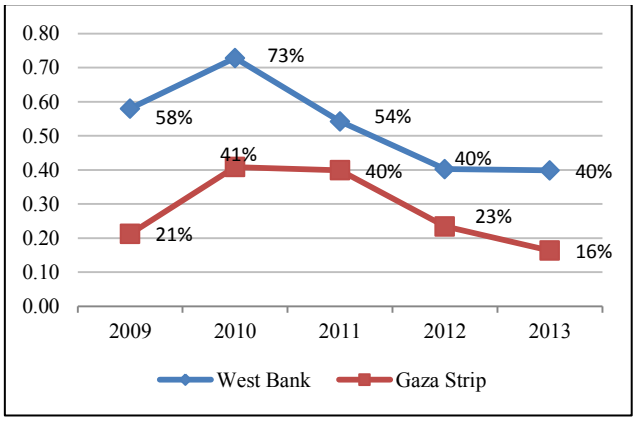
A new tariff approach and methodology was approved by the BoD of PERC in 2011. Details of the approach are summarized below:

1- It is a cost plus tariff: the tariff must recover all the regulated expenses plus a profit equal to the Weighted Average Cost of Capital (WACC).
2- It includes the following 11 types of customers: residential, residential prepaid, commercial, commercial prepaid, industrial low voltage, industrial medium voltage, water pumps, agricultural, street lights, temporarily connection and temporarily prepaid connection. The tariff varies according to the customer category and the voltage level.
3- It is a 5 step tariff for residential customers with postpaid meter and flat for all other customer categories; with the exception of customers serviced through medium voltage for which the Time of Use (ToU) tariff applies. The residential step tariff is an ascending tariff with the first step having the lowest price.
4- It includes Governmental subsidy.
5- It includes a threshold for total losses set at 22.5% the first year (2011) and gradually decreasing after.

The sales tariff was set to cover the cost of electricity purchased from IEC as well as the operational expenses and allow for an acceptable profit margin for Distributors.

Following implementation of the above methodology, the Tariff Margin reached 54% in the West Bank and 40% in Gaza in 2011. There was a sharp decrease in the margin in West Bank from 73% to 54% between 2010 and 2011 following the introduction of the regulated tariff. This decrease is commonly seen during transfers from non-regulated to regulated market. The margin continued to decrease in 2012 mostly due to the governmental decision to partly subsidize the tariff and not to increase the sales tariff to the customers. The margin remained in place for 2013.

Chart 14: Comparing purchase and sales tariff 2009-2013



The tariff margin has decreased in the West Bank between 2010 and 2013 going from 54% to 40% largely due to:

1- The high increase of the purchase cost ofelectricity from IEC, and
2- The subsidies included in the tariff which are mostly not repaid by the Government[52].

The removal of subsidy and decrease in losses threshold in the tariff should bring the tariff margin under 54%. While a fair tariff margin can be calculated at 50-52% for 2013 in the current context[53], it would be necessary for the PA to reach a fair commercial agreement with IEC to reach this goal.

During the period 2010-2013, the cost of electricity purchased from the IEC (estimations) increased by 62%. This increase was the result of the rise in the purchase tariff from the IEC by 34% during this period and the increase of the quantity of electricity purchased from the IEC by 22% during the same period.

[51] The difference between the sales and the purchase tariff is defined as the tariff margin.

[52] Governmental subsidies are detailed chapter 3.7.2 and Annex L provides details of governmental subsidies including repayment
[53] Comparing 2011 margin of 54% reduced by 2%-4% including reduced losses threshold in PERC tariff methodology and excluding any governmental subsidy.

The following paragraphs attempt to provide additional information to explain why the margin went down so dramatically:

The average purchase tariff from the IEC decreased by 12% from 2009 to 2010 while the sales tariff decreased by 3%. This explains the high percentage of collection to purchase[54] value in 2010 as shown in Chart 13. From 2011 to 2013 the purchase tariff increased steadily. In 2011 it increased by 7% compared to 2010. During the same time, the sales tariff decreased by 4%. 2012 was particularly challenging as the purchase tariff increased by 17% compared to 2011 while the sales tariff only increased by 6.5%.

The purchase tariff in Gaza is set by the IEC and is similar to the West Bank. However, the sales' tariff in Gaza is lower than the one in the West Bank and is set by GEDCO rather than by PERC (which still has not exercised its mandate in the Strip). The sales tariff in Gaza is 70% of the sales tariff in the West Bank. The sales tariff has not changed in Gaza for the last 3 years, largely due to:

1- Political reasons; and

2- A shortage of electricity supply to customers: GEDCO is not willing to increase the tariff for the costumers while daily electricity cuts last between 6-12 hours.

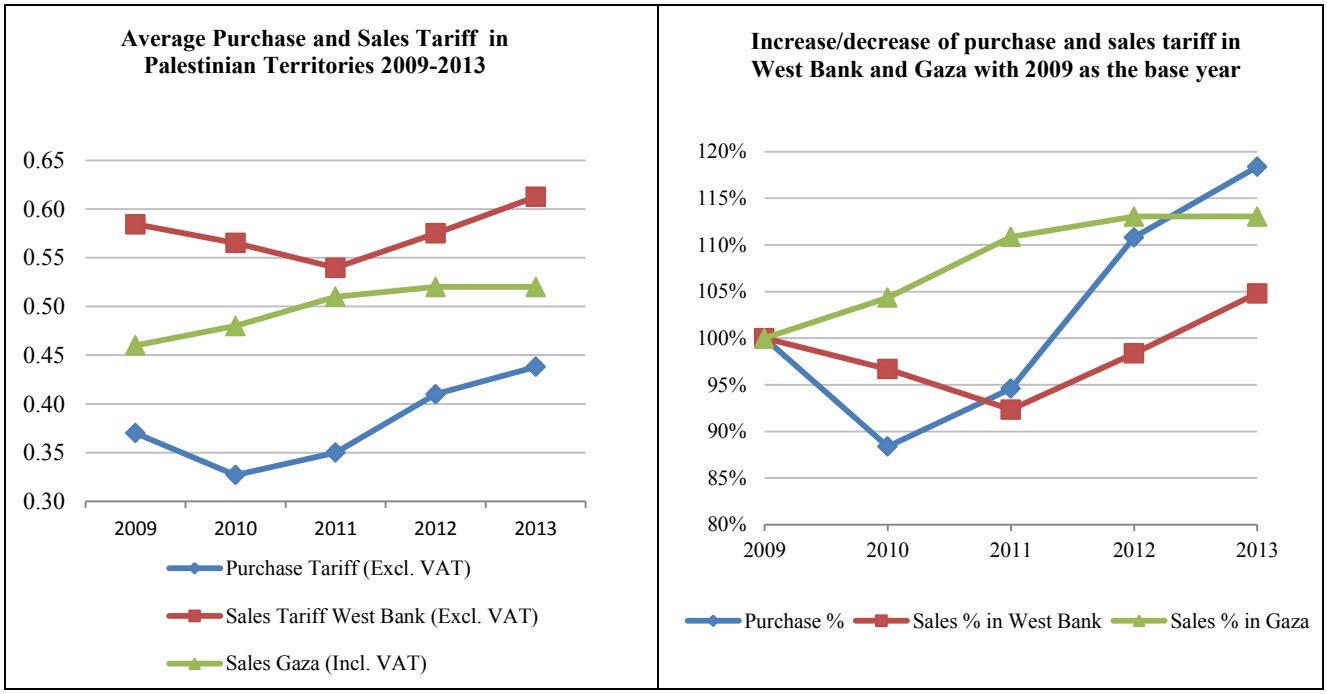
The tariff margin in Gaza is 16% in 2013, if PERC tariff methodology is applied in Gaza then the tariff margin should be increased to 50-52%. This means that the sales tariff in Gaza will be the same as in West Bank and requires the sales tariff to be increased by 36% without taking into consideration the high cost of generating electricity from Gaza power plant. Should this increase be implemented it must be conditioned at least with serious enhancement in the quality of the electricity service to the population in the Gaza Strip which would require an increase in the supply and the capacity of the grid.

Given this, the PA has (with the support of the international community) plans to supply the Gaza Power Plant with natural gas to reduce the generating cost and to utilize collections from customers to pay for IEC invoices. In addition to reducing the costs, this action will also enable it to run at full capacity which will then reduce the power shortages in Gaza.

The following charts illustrate the average sales and purchase tariffs in West Bank and Gaza for the period 2009-2013 based on our analysis of the data received from the different Distributors.

Chart 15: Comparing purchase and sales tariff 2009-2013

[54] Total collection in ILS from each DISCO to the cost of purchased electricity from the IEC



While it is important to ensure that the mark up guarantees the payback of Distributor's costs and includes some profit, the tariff as currently implemented is standard and does not take into consideration the reality on the ground as shown below. The tariff currently implemented fails to take into consideration the following points:

- Collections reached around 81% in the West Bank in 2013 rather than 100% and this figure showed a drop from 90% in 2011, the first year the unified tariff was implemented.
- Technical and Non-technical losses are above the acceptable range to PERC of 22.5% reaching 25% in 2013.
- Governmental subsidies are not systematically paid although they amount to 4% of the electricity purchase value, and not all Distributors implement the subsidy scheme for specific social cases[55].
- Furthermore, although it is important to offer a life line tariff, this tariff should only target the poor customers and should not be applied to all customers as is the case presently.

The tariff for the prepaid meters would also need to be reviewed in particular for commercial customers. For this customer category the prepaid meters tariff has a fixed charge of zero and is 4.5% less than the tariff of the commercial customer with postpaid meter.

3.5.3 Sales Tariff

After analyzing the purchase tariff and the margin, it is also necessary to examine if the sales tariff implemented by Distributors follows the approved tariff methodology issued by PERC which should cover the operation costs of Distributors including the cost of IEC invoices.

The Palestinian Territories have a unified sales tariff which was approved by the Cabinet in 2011 and has only been applied in the West Bank since. The electricity sales tariff[56] is recommended by the PERC for all DISCOs - except for the East Jerusalem area where the tariff is set by the PUA directly - and for municipalities who adopt the PERC tariff following MOLG instructions.

[55] As detailed in the next sub-section **Governmental Subsidies in West Bank.**

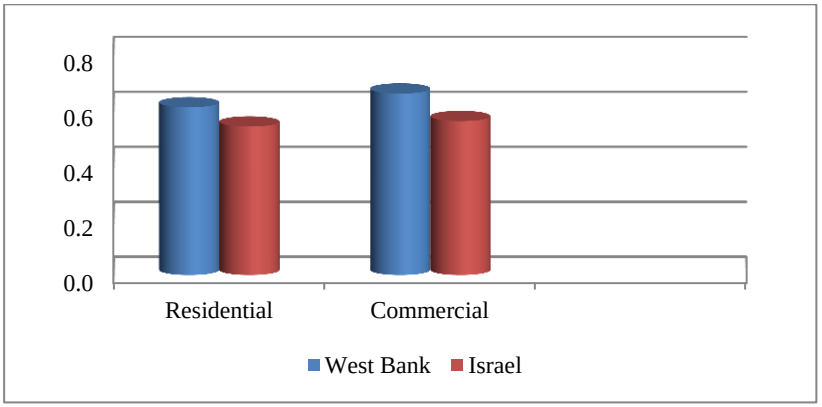
[56] The tariff is recommended by PERC to PENRA which approves it and transmits it to the cabinet for endorsement.

GEDCO does not apply the unified sales tariff introduced by PERC but rather sets its own tariff which has not changed for the last 3 years. The political situation in Gaza has not permitted PERC to exercise its mandate on GEDCO.

PERC issued the first unified tariff in the West Bank in mid-2011, and was mandated to review the tariff on a yearly basis[57]. One should note that the sales tariff prior to 2011 was determined individually by each utility since the electricity sector only started to be regulated after the issuance by PERC of the first unified tariff in West Bank which was then applied by all DISCOs.

The average sales tariff applied in the West Bank is higher than the average sales tariff for customers in Israel. The West Bank residential tariff is 11% higher than its Israeli equivalent and the commercial tariff in the West Bank is 15% higher than the Israeli commercial tariff. These figures corroborate customer's claims that electricity prices are too high. Chart 13 below illustrates these disparities.

Chart 16: Comparison between sales tariff in the Palestinian Territories and Israel



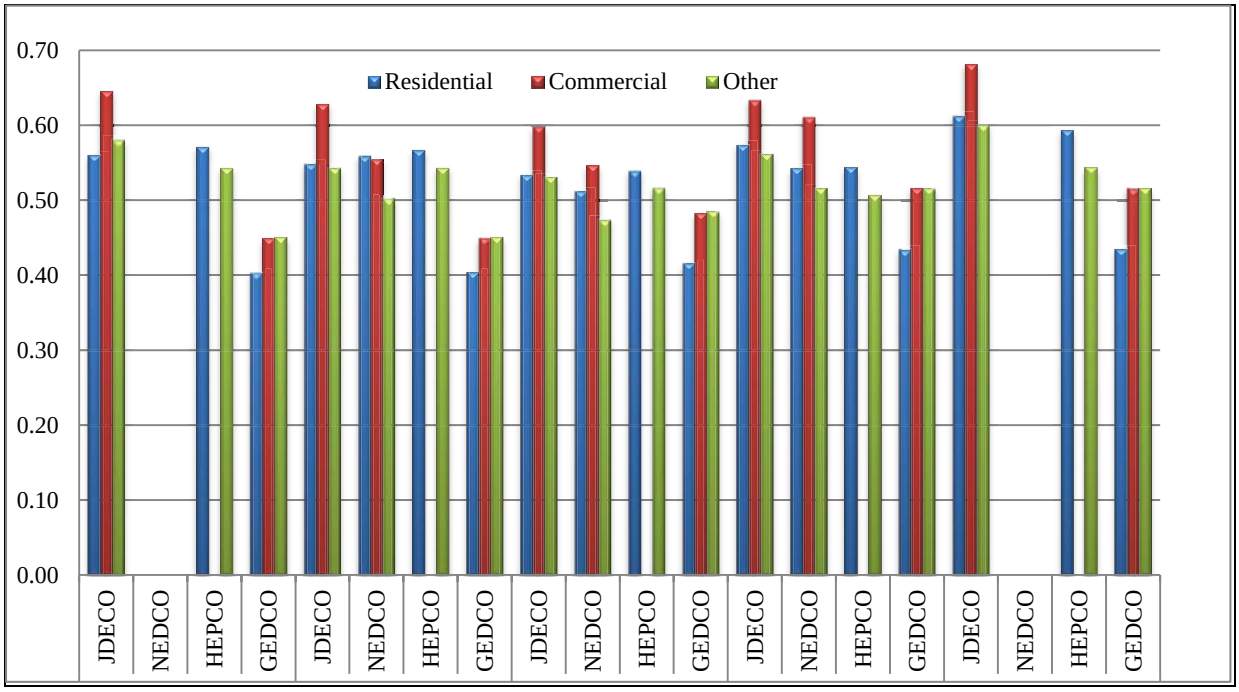
An in-depth analysis of the sales tariff for the different 3 customer categories was performed for the period 2009-2013 to assess tariff variations between the categories and whether this could partially explain the non-payment issue.

The analysis revealed variances in the value of the sales tariff within categories between different DISCOs as shown in the chart below. This is due to the fact that:

- The residential tariff is a step tariff and not a flat tariff. This results in variation based on consumption.
- Different tariffs are applied for customers with prepaid meters and customers with postpaid. The prepaid meter tariff does not include a fixed charge fee and is 4.5% lower than the postpaid meter tariff. As an example of the variation of these tariffs, we observed that the tariff for commercial customer with postpaid meter is 0.667 ILS/kWh whilst for a commercial customer with a prepaid meter it is 0.637 ILS/kWh. It is worth noting that in the past years, prepaid meters were installed in large quantities in the northern region of the West Bank as shown in Chart 11 Appendix I[58].

Chart 17: Tariff per customer category in ILS 2009-2013

[57] The detailed current tariff structure of PERC is included in Appendix C. The first tariff review since its application is currently been performed.
[58] Source: PCBS



3.5.4 Governmental Subsidies in West Bank[59]

Over the past few years, the PA has taken a number of tariff decisions to compensate for the various increases in IEC sales tariffs and to prevent high prices impacting on end use customers. These subsidies complement PERCs' initiative to implement a step tariff for residential areas with the first step being a life line tariff available for all but essentially aiming to give the poor people with low consumption a reduced tariff. The impact of these subsidies on non-payment needs to be assessed to determine their impact and allow appropriate action to be taken. It is also necessary to understand whether these subsidies have been paid to Distributors by the government.

The different subsidy tariff decisions were initiated in 2011 mostly at the initiative of the government and essentially to maintain public order and avoid public unrest after some demonstrations against increase in prices occurred in the West Bank in the midst of the "Arab Spring". The governmental subsidies did not take into consideration the actual cost of electricity and the capacity of the PA to cover the subsidies amounts. The subsidies approved by the cabinet during the period can be classified into the following categories:

Type 1: Subsidy for each kWh sold by DISCOs[60]

- *Cabinet Decision No. (4/94/13)* for the year 2011**:** PERCs' calculation of the end customer's tariff reflects losses which are estimated to reach 20%. The government commits to pay to DISCOs any amounts for losses which go beyond 20%, if any. This decision was valid from 20/06/2011 until 01/09/2012 in the West Bank.
- *Cabinet Decision No. (04/14/14)* for the year 2012: On 28 August 2012, following an increase in the purchase price from the IEC by 8.9% a new tariff was issued. The IEC price was only reflected up to 25% in the costumer tariff and the remaining 75% was covered by the government in the form of subsidies. Decision No. (4/94/13) mentioned above was cancelled the day Decision No. (04/14/14) was approved.
- *Cabinet Decision No. (7/45/14)* for the year 2013: approved on 5 March 2013. This decision concerned electricity debts related to local authorities and DISCOs and included among its articles "A

[59] The details of the Governmental subsidy for each DISCO is included in Appendix E
[60] Excluding Jericho

new tariff was issued, in line with the increase of 8.8% in the purchase price from the IEC. The government will subsidize 2.6 agora per kWh on this new tariff".

Type 2: Subsidy for each kWh sold to all customers in Jericho area as in the following decision

- *Cabinet Decision No. (14/04/14)* for the year 2012: Following an increase in the purchase price of electricity from Jordan for the Jericho area by more than 75% (from 33 agora to 57 agora), on 1st June 2012, PERC agreed not to reflect the increase in the sales price which was of 49 agora, and the government decided to subsidize the difference.

According to data provided by DISCOs, the PA only reimbursed 20% of the subsidies funds that they owed DISCOs according to the decisions approved by the cabinet between 2011 and2013 (see Table 18 below). The outstanding subsidy payment amounts (unpaid amounts) represents around 4% of the estimated cost of the purchased electricity for the period 2011-2013. This reveals the significant burden that unpaid subsidies are representing on the non-payment to IEC issue and questions the effectiveness of such a mechanism if the PA is not in a position to fund it. Annex L provides further details on the costs of subsidies and the government payment of subsidies for DISCOs.

The non-payment by the government of the subsidies also leads Distributors to reduce the subsidy amounts from their payments to the IEC. IEC in return collects this amount through Net Lending.

It should be noted that MOLG indicated that no municipality had been compensated through the subsidy mechanisms.

Table 18: Governmental subsidy 2011-2013 in ILS – excluding the subsidy for the social cases[61]

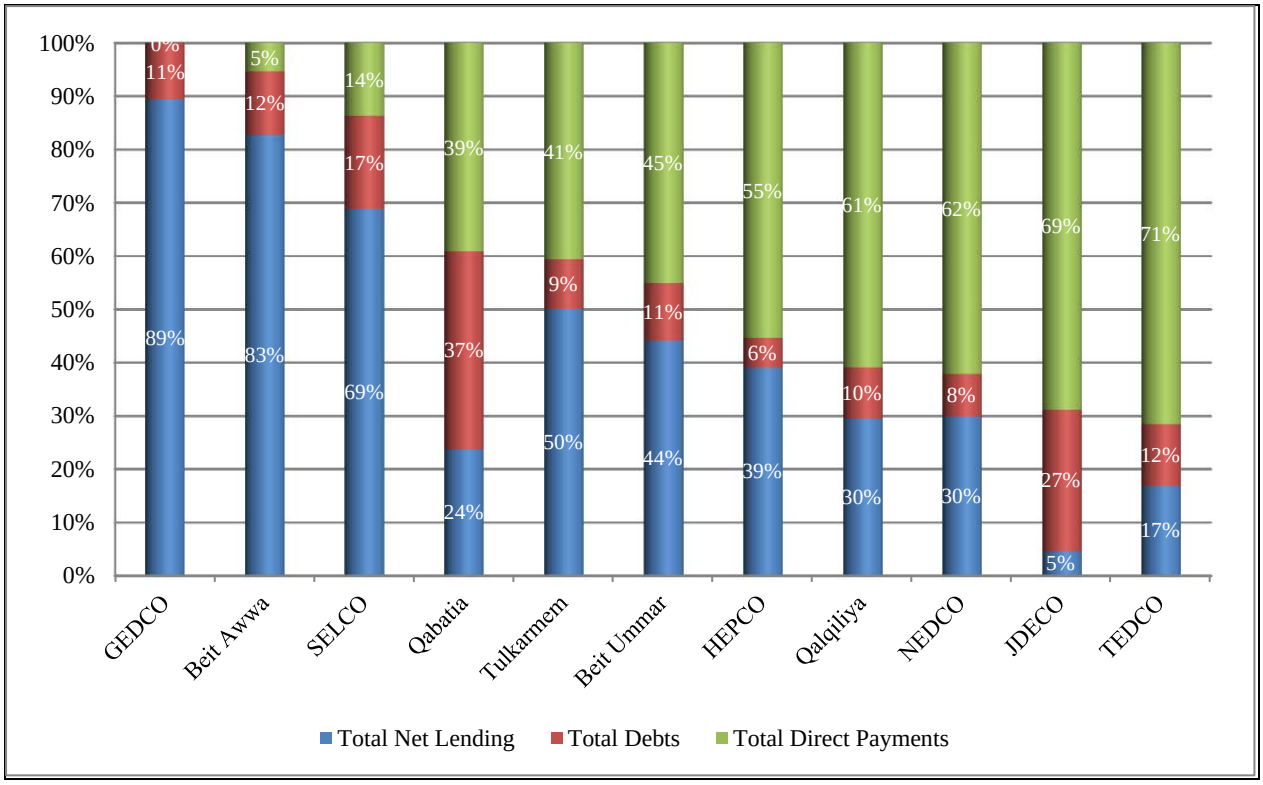
Year	Cost of Subsidies[62] ILS	Subsidy payments from the Government to DISCOs ILS	Subsidy outstanding Payments ILS
2011	33,574,195	20,757,124	12,817,072
2012	110,714,921	19,643,126	91,071,794
2013	57,926,784	-	57,926,784
Total	202,215,900	40,400,250	161,815,651

[61] Information was received from the DISCOs but was not validated by the Government
[62] As provided by DISCOs, and not confirmed by the Governments

3.6 Efficiency and transparency of Distributors

While the previous sections exposed GEDCO and JDECO as the main contributor to non-payment in absolute figures, it is important to highlight that in terms of percentage of payments to IEC invoice, municipalities are also not performing well. While GEDCO remains the largest non-payer in absolute value and percentage, 4 municipalities are presently part of the top 5 largest non-payers in the West Bank. Although the sections above have clearly identified significant factors affecting payment, it is important to understand whether municipalities and DISCOs are performing efficiently and are diligently paying for their invoices.

Chart 18: Largest 10 Non-Payers in West Bank plus GEDCO in % of payments



The information collected during the study has allowed the analysis to isolate the amount collected by West Bank Distributors from the Palestinian customers and not paid to the IEC. This is estimated to amount to **595,415,998 ILS in 2013** which represents **37% of the collected amount in that year**. This amount is probably disbursed by the different Distributors in the West Bank to cover the costs of:

- Operating expenses: to cover the operational costs of the Distributors such as salaries, network maintenance expenses, etc. are estimated at 0.065 ILS/kWh purchased based on a high level analysis on the public financial statements of JDECO, HEPCO and NEDCO amounted to 242,098,907 ILS (representing approximately 41% of the amount collected but not paid to the IEC).
- Capital expenses: Covering the cost of capital investment for network expansion of 120 million ILS (estimated at 20% of the amount collected and not paid to the IEC).
- Municipal finance and shareholder's finance: as defined in the introduction of the report amount to 242 million ILS which corresponds to the remaining amounts from the collection which are not paid to IEC (representing about 40% of the difference).

For Gaza, the difference amounts to **139,544,004 ILS which represents 34% of collection,** and is estimated to be utilized to cover:

- Operating expenses: Estimated at 0.065 ILS/kWh purchase amounting to 102,746,221 ILS representing 74% of the difference.

- Capital expenses: 20% of the difference amounting to 27,908,801 ILS.
- Other: The remaining amount of 8,888,982 ILS.

DISCOs and municipalities indicated they could not provide detailed descriptions for the "municipal finance and shareholder finance" amounts. Moreover, DISCOs and municipalities indicated they could not provide their audited financial statements for the previous year. It was therefore not possible to know for certain what the excess cash registered as "municipal finance and shareholder finance" was used for.

Nevertheless, DISCOs indicated that they use the excess cash for shareholder loans, advance dividend payments and other stakeholder payments. It is obvious that the system is not transparent and lacks proper procedures. The efficiency of DISCOs needs to be improved to ensure that amounts collected from customers to cover the cost of the electricity service include IEC payments, operational expenses, and capital expenses but exclude shareholder finance.

The lack of efficiency of municipalities has been pointed out by many stakeholders and it is widely believed that municipalities do not have segregated accounts. This makes it difficult to maintain distinct accounts for the different municipal services.

In addition, municipalities indicated that they do not systematically receive revenues from the PA for taxes transfers, subsidies and other services which then leads them to proceed with automatic compensation from funds collected from electricity services.

All the above clearly indicated that actions are required by the PA and from municipalities and DISCOs to improve the payments process and ensure its transparency.

3.7 Other reasons for non–payment

3.7.1 Analysis on Special areas

The purpose of this section is to observe whether certain areas contribute more to high losses (the total of technical and non-technical losses) and low collection. The areas selected represent all geographical areas and include different customer types such as refugee camps and other specific sensitive areas.

The customers in these areas are supplied with electricity from different DISCOs, but the collection behavior and volume of losses are different than for costumers outside the areas.

The analysis of the special areas did not reveal a common pattern for all these areas but rather showed that each area has specific issues which are detailed per area below.

- ***JDECO- Refugee Camps***

JDECO serves 13 camps within its jurisdiction, one of them is located in Jerusalem in area C[21] and the remaining camps are located in the West Bank in area A[21]. JDECO reported the following consumption characteristics in camps in 2013.

It is important to note that the average consumption per customer inside the camps is equivalent to 175% of the average customer outside the camps. This disparity is mainly due to electricity theft which leads to increased consumption without accompanying growth in the number of customers. It is believed that some small commercial facilities also contribute to the problem by opening businesses inside the camps, benefitting from the camp location to avoid payment of their electricity bills.

The table below shows that the uncollected sales from the camps reached around 29 million ILS in 2013, which represents 20% of the total JDECO uncollected sales for that year. Increasing the collection inside the camps from 30% to 95% would increase JDECOs' total collection from 83% to 87%, which equates to approximately 26.5 million ILS.

While customers in the camps only represent 5.3% of JDECO's total customers, their total losses[63] (63%) amount to around 21% of JDECO's total losses in 2013. Reducing the losses in the camps to a mere 20% would save JDECO around 37 million ILS/year.

Shuafat camp located in Jerusalem area has the highest collection rate reaching 75% while all the other camps located in West Bank have a collection rate in the range of 15%-20%. Although the collection rate is very high in Shuafat refugee camp electricity losses are very high, reaching 60% (believed to be non-technical losses essentially).

Table 19: JDECO Refugee camps consumption characteristics in 2013[64]

# of camps	13
# of Customers	12,491
Total Consumption (kWh)	166,795,957
Total Sales (kWh)	62,367,937
Losses %	63%
Cost of losses ILS	53,743,880
Cost of sales ILS (Incl. VAT)	50,525,039
Collection from customers (Incl. VAT) ILS	14,955,451
Collection %	30%
Outstanding debts as end of 2013 ILS	269,364,079
Consumption (kWh)/customer	13,353
Sales (kWh)/customer	4993

- ***NEDCO[65]- Refugee camps[66]***

While the average consumption per customer inside and outside the camps is almost similar, collection in the camps is very low and has been decreasing consistently. As is the case for HEPCO, the decrease in collection is mainly the result of a lack of punitive measures for non-payers due to NEDCO's inability to take legal actions against them. Increasing the collection rate in the camps to the same level as the average collection rate for NEDCO would result in a yearly revenue increase for NEDCO of around 9 million ILS (which represents 4% of the total sales).

Table 20: NEDCO – Refugee camps consumption characteristics

Year	# of Customers	Sales kWh	Sales ILS	Collection ILS	Collection %	Outstanding debts (ILS)	Sales kWh/Customer
2010	5,270	13,060,141	8,264,288	2,941,414	36%	5,322,875	2,478
2011	5,114	23,946,284	14,664,346	3,640,853	25%	16,346,368	4,682
2012	4,441	24,739,431	15,539,312	2,800,738	18%	29,084,941	5,571

- ***Focus groups in Balata (NEDCO)67 and Amari Refugee Camps (JDECO)[68]***

[63] The consumption of electricity by the camps is measured by monitoring meters installed by JDECO at each of the transformers supplying the camps. The reading of these monitoring meters is then compared to the reading of the customer's meters inside the camps to estimate the total losses (technical and non-technical losses).

[64] More historical data was not provided.

[65] NEDCO does not have monitoring meters installed at the transformers supplying the old city and therefore could not report on the total area consumption and losses.

[66] NEDCO serves 4 camps of which 3 are located in Nablus area A[21] and the 4th is located in Jenin. NEDCO reported the following consumption data for customers in these four camps in 2010-2013.

[67] 10 participants selected based on certain criteria including self-employment, and those with a view on utilities and electricity usage.

[68] 7 participants selected based on certain criteria including self-employment, and those with a view on utilities and electricity usage. In East Jerusalem the focus group was not conducted as the safety of the field researchers and the facilitator could not be assured following hostile demonstrations from participants towards them.

To further refine the analysis of non-payment in the refugee camps, focus groups were held to determine the motives of non-payment and understand the perception of the electricity Distributors in major camps. The overall perception of Distributors is negative as they are alleged to be solely profit oriented and failing or slow to meet the needs of their customers. Contributing factors to this perception included poor communication skills by Distributors, the lack of customer services, and the lack of concern showed by the Distributors to the residents of the camp.

Participants further complained about the high cost of electricity at a time of acute unemployment and dire economic situation. The lack of economic opportunities, the high taxation, and penalties all contribute negatively to the customer's willingness to pay for electricity bills.

The electricity network in both camps was reported to be in poor condition and technicians mandated to fix electricity problems were not only delayed but also reported to be lacking in courtesy. The lack of payment points for customers to go and settle their invoices as well as the absence of other basic customer services (i.e., recharging of prepaid meters) were also reported as points of concern.

Representatives of the Popular Committee[69] in the Amari Refugee Camp also reported that one of the byproducts of the accumulation of arrears was the impact on housing prices. For example, if someone owns a home valued at JD 20,000 in a refugee camp with JD 10,000 in accumulated arrears, the buyer would simply offset the difference between the value of the home and the amount of the arrears paying it directly to the Distributor. Finally, the unprofessional behavior of electricity Distributor technicians was also raised by the Popular Committee representatives who indicated that this behavior conveyed a negative image of the Distributor which then discouraged customers from paying or communicating with them.

- ***Gaza Strip Refugee Camps Focus Group***[70]

The perception of Distributors in the Gaza focus group was quite negative with comments such as: "poor service", "being solely profit oriented", "lacking empathy" and "having prices that are too high". Contributing factors to this perception included poor communication skills by Distributor employees including a lack of empathy towards ordinary citizens.

Participants overwhelmingly highlighted that electricity costs including payment of arrears represented a huge burden on households. In several instances, participants complained about the direct deduction from civil servants family members' salaries of 170 ILS/month. Participants also requested that amnesties be granted to customers with accumulated arrears.

Participants appealed for an organizational restructuring of GEDCO to improve customer services, revise electricity prices and pricing policies including perceived excessive taxation and penalties. GEDCO collectors were pointed out and criticized for receiving commissions on collections from end users.

- ***HEPCO- Hebron old City (H2)***[71]

Collection in H2[71] area has been decreasing consistently throughout the years. The decrease in collection is mainly as a result of weak law enforcement for non-payers due to HEPCO's inability to take legal actions against them in H2 area. Contributing to the issue is the fact that we believe that an increasing

In the south West Bank, the focus group was scheduled several times but no participants showed up.

[69] Popular Committees supervise projects sponsored by local and international institutions, donor entities/countries and UNRWA. They also seek to promote social interaction inside the camps, in addition to their coordination role with institutions working outside the camps.

[70] A total of 11 participants from various professional backgrounds participated in the focus groups.

[71] Following the 1995 Oslo Agreement and subsequent 1997 Hebron Agreement, Palestinian cities were placed under the exclusive jurisdiction of the Palestinian Authority, with the exception of Hebron, which was split into two sectors: H1 controlled by the Palestinian Authority and H2 controlled by Israel. Around 120,000 Palestinians live in H1, while around 30,000 Palestinians along with around 700 Israelis remain under Israeli military control in H2.

number of customers believe that the PA is directly paying for their invoices to IEC. If it were possible to raise the collection rate from the old city to average collection rate for HEPCO for 2013 of 95%, it would result in an increase of HEPCO's yearly revenue by 14 million ILS (which represents 7% of the total sales).

Table 21: HEPCO – Hebron Old City[72] consumption characteristics

Year	Number of Customers	Sales kWh	Sales ILS	Collection ILS	Collection %	Sales kWh/Customer
2009	8,671	68,554,869	43,676,441	30,122,623	69%	7,906
2010	8,729	75,988,012	48,180,222	32,725,237	68%	8,705
2011	8,743	81,280,607	48,809,120	31,065,244	64%	9,297
2012	8,757	87,238,069	52,159,714	31,670,462	61%	9,962
2013	8,765	86,248,385	55,957,512	30,648,695	55%	9,840

- ***NEDCO - Howwarah and Einabos Villages***

These 2 villages are located close to Nablus city in area A[21] and whilst they had high collection rates in 2010, this deteriorated in 2011 and 2012. In parallel with the drop in collection, electricity consumption increased rapidly during these years largely due to the access to free electricity.

Table 22: Howwarah and Einabos consumption characteristics

Year	# of Customers	Sales kWh	Sales ILS	Collection ILS	Collection %	Outstanding debts (ILS)	Sales kWh/Customer
2010	1,362	4,363,068	2,757,841	2,594,534	94%	105,671	3,203
2011	1,447	7,511,677	4,758,281	3,610,092	76%	1,253,860	5,191
2012	1,505	8,323,568	5,371,378	2,809,480	52%	3,815,757	5,531

The collection rate of these two villages has dropped significantly during the reported period. Unfortunately we could not immediately identify the reasons for this sharp decrease. A more thorough analysis including site visits would be necessary to understand the drop.

- ***NEDCO - Nablus old city***

Table 23: NEDCO – Nablus old city consumption characteristics

Year	# of Customers	Sales kWh	Sales ILS	Collection ILS	Collection %	Outstanding debts (ILS)	Sales kWh/Customer
2010	3,314	7,243,846	4,609,356	4,207,499	91%	192,407	2,186
2011	3,318	11,595,666	7,183,525	6,131,870	85%	490,770	3,495
2012	3,095	11,592,329	8,137,589	6,406,105	79%	784,843	3,746

The table above shows that collection rate from Nablus old city is high and the consumption per capita is in the national average. The old city of Nablus is under area A[21] which is fully controlled by the PA; this may explain the difference between Nablus old city which is under area A[21] and Hebron old city which is under area H2[71].

[72] The losses in Hebron old city are not reported. HEPCO does not have monitoring meters installed at the transformers supplying the old city and could therefore not report on the total area consumption and losses.

3.7.2 Subsidy and incentives

- ***Social cases***

Cabinet Decision No. (7/45/14) approved on 5 March 2013. This decision concerns electricity debts related to local authorities and DISCOs and included among its articles "The Government will cover the monthly cost of the first 150kWh for social cases registered at MOSA".

8,759 social cases, supplied by three DISCOs, benefited from the Governmental subsidy Decision during the reported period. While these DISCOs supplied the social cases with a monthly 150kWh free of charge, the Government has not yet compensated the DISCOs. The absence of governmental reimbursement is affecting DISCOs and contributes to the non-payment issue.

Table 24: DISCOs implementing assistance to social cases in the West Bank

DISCO	Number of beneficiary customers	Cost of subsidy ILS
NEDCO	2970[73]	3,564,645
TEDCO	1984	2,338,547
SELCO	3805	4,638,260
Total	8,759	10,541,452

- ***Incentives***

On 30/12/2012 the *Camps agreement* was adopted including the following: All debts starting January 2008 up to the end of December 2012 will be covered by the government for those costumers accepting this agreement.

Cabinet Decision No (7/45/14) for the year 2013: approved on 5 March 2013. This decision concerns electricity debts related to local authorities and DISCOs. The decision offered the following incentives for costumers to pay their bills.

  - Any customer committed to pay his invoice will be rewarded with a 10% deduction on his monthly invoice. This deduction will be subsidized by the government.
  - Any indebted customer who pays an additional 10% to his bill to reimburse his debt will be offered a 10% cancellation to his debt. This cancellation will be subsidized by the government.

The incentive schemes mentioned above and approved by the Government aimed to enhance DISCO's collections by targeting the camps and cancelling old debts in exchange of payments. These incentive schemes were contested by Palestinian Political Fractions and people outside the camps which were demanding that customers outside the camps should also benefit from these advantages. These protests led the government to extend these cabinet decisions to all customers outside the camps. Yet, the *camp agreement* was never implemented and the status quo continued.

Even without being implemented, these incentive schemes created discontent within the Palestinian population outside camps which is assumed to have impacted these customers' payments of electricity invoices.

[73] Estimated

4. Conclusion

4.1. Summary of analysis

In the past years, non-payment has reached unprecedented levels in the West Bank and Gaza and represents a significant financial burden for the Palestinian Authority. The previous sections of the report have analyzed in detail the data collected to understand the main causes of this non-payment. This concluding section summarizes the main findings related to the non-payment.

To present a consolidated representation of the non-payment situation issue, we have analyzed its impact throughout the end to end financial payment cycle:

1. Purchases from IEC and other Suppliers
2. Losses between quantity purchased and quantity invoiced (sold) to customers
3. Collected amount from sold electricity
4. Payments to IEC and other Suppliers
5. Non-Payment amount split between Net Lending and Debt

The graph below illustrates the financial impact of the payment shortages in the payment cycle as well as issues arising from the purchase and sales tariff levels.

Chart 19: Overview of non-payment in the West Bank in 2013 (in million ILS)

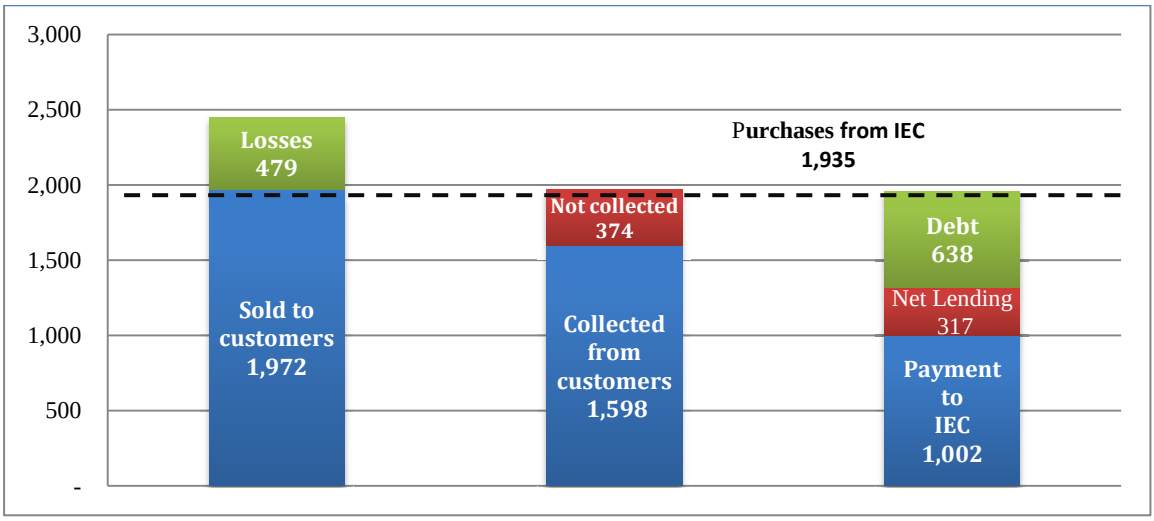
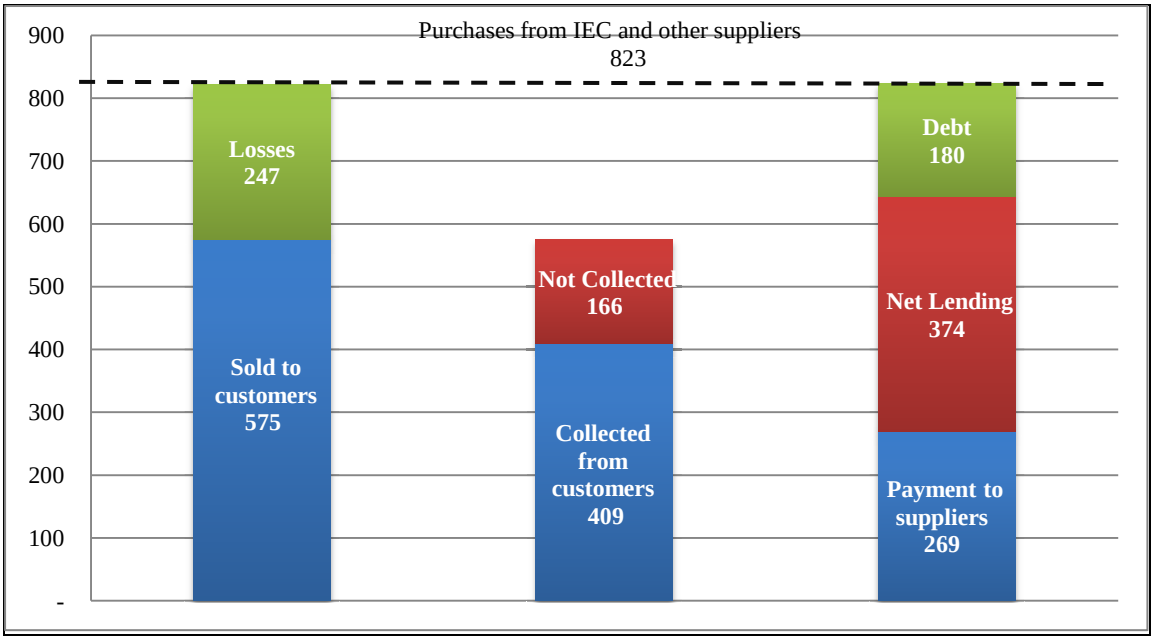


Chart 20: Overview of non-payment in Gaza in 2013 (in million ILS)



The analysis in the previous sections revealed that the 92% of the total contribution to non-payments during the period was caused by 10 Distributors in the West Bank + GEDCO. Out of the 92%, GEDCO and JDECO are the largest contributors to the non-payment representing 68% of the total non-payment of electricity in the West Bank and Gaza. GEDCO contributed to 55.4% of the total West Bank and Gaza Net Lending during the period while JDECO contributed to 68.7% of the total West Bank and Gaza debt up to February 2014.

Electricity losses are considered to be excessive although they remained stable throughout the period. In addition, it emerged that Distributors do not have the necessary tools to measure losses properly and that the split between technical and non-technical losses is mostly based on estimates. Due to losses amounting to 479 million ILS in the West Bank and 247 million ILS in Gaza in 2013, the invoiced electricity sales could barely cover the cost of electricity purchases.

The collections from customers continuously decreased with the exception of Gaza which has witnessed a constant increase mostly due to the deductions by MOF of the civil servant salaries. Nevertheless, the collection in Gaza is still lower than in the West Bank.

The sales tariff does not take into consideration the limitations of the market. The sales tariff includes a governmental subsidy which was only partially paid by the PA to the Distributors and the actual losses for most of the Distributors are higher than the lost threshold included in the tariff methodology. Regardless of these, the sales tariff to the Palestinian customer is still high and higher than the sales tariff to the Israeli consumers, which is mostly due to the high purchase tariff from the IEC.

Cash collected by Distributors from electricity invoices were not systematically utilized to cover electricity related matters. Distributors choose to cover their operational expenses and other expenses such as municipal finance and shareholder finance before settling their invoices to the IEC. These clearly reveal a governance issue within Distributors which needs to be urgently addressed to improve their efficiency and the level of payments to the IEC.

Special areas such as refugee camps exhibited most of the issues mentioned above, resulting in high levels of non-payment. Nevertheless, these areas did not contribute greatly to the overall non-payment as they only represent a small number of customers and a limited proportion of total invoiced amounts.

4.2. Invoice reconciliation and cycle

The analysis revealed that there are no procedures for the invoicing of electricity from the IEC to the Palestinian Distributors and that the process currently implemented is not harmonized for all Distributors and lacks transparency.

Distributors in various areas of the West Bank and in the Gaza Strip do not have access to meters and do not receive IEC invoices regularly. In the absence of information on electricity charges, many Distributors do not pay for electricity that has been delivered.

Furthermore, as the PUA does not provide detailed information on purchase price of electricity including the components of the tariff applied to Distributors in the West Bank and Gaza, the opacity of the invoice process becomes more acute.

In addition, the interest rate for late payment unilaterally set by the PUA is high and reflects that of a retail (residential/small commercial) customer rather than that of a wholesale customer represented by the Palestinian market.

Finally, the Israeli deductions from the clearance revenue are not implemented in a consistent and fully transparent manner and do not follow clearly agreed upon procedures, and are therefore difficult to predict. Debts should appear on the invoices and be reconciled with the payments.

The IEC has recently provided important data related to invoices to its Palestinian counterparts, which has enabled a much stronger reconciliation of net-lending accounts. IEC is now also regularly providing invoices, which is necessary for payment requirements to be understood. Further institutionalized regulated and transparent cooperation between the IEC, PUA and PETL is recommended, in order to improve information and payment flows.

4.3. Non-Payment from Distributors to the IEC

Between 2010 and 2013, Palestinian electricity Distributors in the West Bank did not pay 37% of their total bills to IEC and this figure reached 100% in Gaza.

The total contribution of the Top 10+1 (GEDCO) non-payers reached 92%. GEDCO is largest non-payer accounting for more than 1.7 billion (471 million US$) or 41.8% of the total non-payments to the IEC between 2009 and 2013 while it only purchased 21% of the total electricity sold by the IEC in 2013.

During the same period, JDECO was the second largest non-payer contributing to more than 1.1 billion ILS (297 million US$) or 26.3%e of the total IEC non-payments while accounting for around 40% of the total electricity purchases to the IEC in 2013.

The remaining 9 Distributors between them accounted for 1 billion ILS (271 million US$) or 24% of the total non-payment. The split between these Distributors is as follows: HEPCO: 7.4%, NEDCO: 7.2%, Tulkarem municipality: 3.5%, SELCO: 2.8%, Qalqiliya: 1.1%, TEDCO: 1%, Qabatia council: 0.2%, Beit Awwa village: 0.5%, Beit Ummar: 0.4%.

As mentioned previously, non-payment from GEDCO essentially comprises Net Lending while non-payment from JDECO mainly includes debts to the IEC. Substantial reduction in non-payment will only take place by ensuring that measures implemented target these two DISCOs and are tailored to respond to the specific issues and patterns found in the two utilities.

Non-payment during the period in the Palestinian Territory also constantly and rapidly increased. In 2010, 37% of the total electricity invoiced was not paid and this figure jumped to 58% in 2013.

The level and increase in non-payment can be attributed to a variety of factors as detailed in the report including losses, collection, tariff and efficiency of Distributors. The study nevertheless showed that non-payment from the Palestinian Distributors to IEC is not connected to the poverty level of the customers supplied by these Distributors.

4.4. Electricity Losses

Although the level of losses remained the same in the past years, its level is still above acceptable limits. Distributors do not have proper tools to measure losses and cannot differentiate between technical and non-technical losses. GEDCO, in particular, does not have the necessary tools to assess the losses on its grid and it cannot access the meters which would allow for proper measurement and classification of losses.

Losses in GEDCO and JDECO concession area are reported to reach significantly high levels and should be dealt with as a priority.

In the West Bank and the Gaza Strip, the levels of electricity losses result in significant revenue losses – these amounted to 726 million ILS. In the West Bank, due to losses, the amounts invoiced to end customers only cover the cost of purchases from the IEC and do not cover Distributor's costs such as operating costs, investments costs, profits or dividends. The amount invoiced for customers in Gaza only accounts for two thirds of the electricity purchases for the Strip while one third of the purchased quantity (247 million ILS) was lost either as a technical or non-technical loss.

4.5. Collection from customers

The overall collection rate in the West Bank and Gaza for the period between 2010 and 2013 is better than expected but the trend shows that customer payment has consistently been decreasing in the West Bank and increasing in the Gaza Strip. The increase in payment rate could be attributed to the successful implementation of an automatic deduction from civil servant salaries for electricity bills in Gaza.

Overall, the Special Areas and the Palestinian Authority are the poorest payers and their performances are suspected to negatively impact the payment behavior of other customers.

The main reasons attributed to the deterioration of the collection rate in the West Bank can be summarized as follows:

1. Israeli deductions from the clearance revenue which gives the impression that customer bills are paid for by the PA: for example, the collection rate for JDECO dropped to 83% in 2013 following the first Israeli deduction to cover parts of the JDECO debts to the IEC.
2. PA introduced incentives for customers committed to pay their bills and for the indebted customers to reschedule their debts. As an example JDECO deducted 14 million ILS from committed customers since starting this initiative and cancelled 8 million ILS of debt for indebted customers and yet the Palestinian Government did not compensate JDECO for these amounts.
3. Unpaid bills from the PA institutions in particular for water pumps. As a result, most of the DISCOs are calculating their debts to MOF with the unpaid consumption of the PA institutions and compensating themselves. This unilateral settlement between the DISCOs and MOF is not done consistently or systematically and is time consuming. The payment by the PA of its electricity consumption can raise the collection by 3%-5%.
4. Municipalities do not pay for their bills for municipal services like street lights and water pumping bills. Were these to be paid, it would increase the collection by 1.5%-2.5%.
5. The subsidy that is made available for social cases is not repaid by the government to the DISCOs which then contribute to a lower collection rate.
6. Low collection from special areas like camps and certain villages. If these could be increased to benchmark levels, collection rates would increase by 4%-6%.
7. Quality of the services received from Distributors in the West Bank and Gaza has been severely criticized by customers.

4.6. Tariff

The purchase tariff is set unilaterally by the PUA as a bulk tariff for medium or low voltage. This purchase tariff appears very high for the nature of the supply relationship, and with payment conditions that do not reflect this relationship. The purchase tariff is not fully transparency as it includes many unknown costs.

The Palestinian Authority has been involved in talks with its Israeli counterpart for the past 10 years to negotiate a commercial agreement. Progress on reaching an agreement has been slow and must be concluded to give appropriate and clear pricing of electricity sales.[74]

Starting 2011, PERC has been setting the sales tariff to the Palestinian customers based on a cost plus approach to cover the cost of electricity purchased from IEC as well as the operational expenses and acceptable profit margin for Distributors. The methodology stipulated that the tariff would undergo yearly reviews and amendments to include benchmarks for certain KPIs like losses and operating cost in order to enhance the efficiency of DISCOs. Unfortunately, the tariff has not been reviewed since its implementation. Nevertheless, PERC is currently in the process of reviewing the different tariff components including the impact of removing subsidies and the inclusion of certain financial and quality KPIs.

The difference between the sales and the purchase tariff, which is the tariff margin, reached 54% after the new tariff was implemented. When the tariff was first applied, this margin was considered to be sufficient to cover all the cost of Distributors and estimated to even allow them to earn small profits.

Since then, the tariff margin has decreased in the West Bank going from 54% to 40% between 2010 and 2013 largely due to:

1- The subsidies included in the tariff which are mostly not repaid by the Government; and

2- The high increase of the purchase electricity from IEC.

Distributors did not collect enough to cover all their financial obligations including electricity purchase and operating costs.

Therefore in order to avoid an increase of sales tariff, PETL should finalize the commercial agreement with the IEC, PERC should set benchmarks for Distributors to reduce operational expenses and Distributors should cooperate with relevant electricity authorities to improve their efficiency.

In Gaza, the average purchase tariff from all the sources is nearly equal to the average sales tariff. GEDCO should review at least its commercial tariff which is currently 20% less than West Bank commercial tariff.

With the support of the international community, the PA has plans to supply the Gaza Power Plant with natural gas to reduce the generating cost and to utilize collections from customers to pay for IEC invoices. In addition to reducing the costs, this action will also enable it to run at full capacity which will then reduce the power shortages in Gaza.

As mentioned above, in 2011 the PA introduced subsidies amounting to 200 million ILS up to the end of 2013 as part of the tariff. These governmental subsidies were adopted for political reasons essentially to satisfy customers. Unfortunately due to the weak financial situation of the PA, MOF only repaid 40 million ILS out of the 200 million ILS total. The non-payment of these subsidies created more deficits to Distributors which often chose to compensate for this cost by reducing their payments to the IEC. The subsidies outstanding payment (unpaid amounts) represents about 4% of the estimated cost of the purchase of electricity of West Bank Distributors during the period 2011-2013.

[74] The PA and IEC are willing to reach a commercial agreement, but IEC stated that paying the debt will facilitate the negotiations of the commercial agreement.

4.7. Efficiency and transparency of Distributors

According to the Electricity law only licensed Distributors can sell electricity to customers. The law was implemented in 2009 to compel municipalities to join DISCOs and reach the target of operation of four efficient DISCOs in the Palestinian Territories, three in the West Bank and one in Gaza. While many municipalities never joined DISCOs, the existing DISCOs (which built structures to serve complete regions) remained highly inefficient in the absence of functioning economy of scales. On the other hand municipalities kept their inefficient structure.

In addition to that Distributors (especially municipalities and village) have opaque financial systems with unclear payment mechanism and municipalities were reported not to proceed with segregation of accounts.

DISCOs also appear to be only moderately transparent showing an inability to report properly on their finances. They are considered to be highly influenced by the internal political environment in which they operate.

The analysis included in section 3.6 related to the efficiency and transparency of Distributors revealed that Distributors chose to cover operation costs, investment costs and payments to shareholders before paying invoices to the IEC which is one of the reasons for the Non-Payment in the West Bank. Distributors were reported to finance their shareholders through dividends and loans reaching 242 million ILS, although they did not complete their invoice payments to the IEC.

NEDCO, HEPCO and SELCO, in particular, indicated they use part of the collection and proceed with ad hoc payments to their municipal shareholders.

Municipalities on the other hand disburse funds collected from electricity sales to cover the payment of other services such as education health, project finance, rehabilitation projects, etc. All these payments are categorized under “municipal finance”.

4.8. Others reasons for non-payment

The analysis of the special area revealed that collection in these areas is usually low, but significant differences in collection trend and behavior were nevertheless observed identified in these areas. In terms of absolute figures, the contribution of these areas to non-payment is quite low as they do not cover extensive areas or large numbers of customers For example; special areas in JDECO (refugee camps) only represent 21% of JDECO non-payment to IEC in 2013.

Nevertheless, in refugee camps, the consumption per capita reached unprecedented level and losses – believed to be non-technical - are significantly higher than in the rest of the Palestinian Territories.

Specific issues related to affordability and arrears in these areas were addressed by the PA through incentive and subsidy for social cases as detailed in section 3.7.2. Unfortunately, the subsidies for social cases were never paid by the government which negatively impacted the non-payment. Incentives to refugee camps on the other hand were never implemented due to refusal of refugee customer camps to pay for their electricity consumption.

The special arrears analyzed in this report (in particular the refugee camps and the old city of Hebron) are considered to be areas requiring special political attention to address issues related to non-payment. Law enforcement in these areas is challenging and requires endorsement of the highest authority from the PA as well as the representatives of these areas.

Distributors in coordination with the PA should nevertheless continue to address these issues, it is crucial for the utilities to also deal with the problem of public perception through media campaigns and customer engagement training for their employees

This focus on the special areas should not prevent the Distributors from acting to address non-payment in all other areas. For example, the JDECO refugee camps only contribute 27% of the total JDECO losses, meaning that 73% of the losses are actually located within the remaining area of JDECO jurisdiction.

5. PA action plans and current donor programs

Introduction

The development and implementation of an inclusive operational and financial action plan by all sector stakeholders is essential to address the issue of non-payment, losses and reduce "Net Lending" in the West Bank and Gaza.

This section looks to present and assess the various Palestinian stakeholders' action plans and the sectorial activities carried by donor programs to determine the extent to which these plans are addressing or will address non-payment of electricity and/or reduction of losses. In assessing each action proposed by these plans, we have also proposed amendments to the actions building on the analysis provided in the previous sections of this report. A summary of a revised action plan that builds on these actions and activities for the short, medium and long term is then presented.

It is essential to note that the proposed revised action plan builds on the existing plans of the PA and the current donor programs. Although anticipated to lead to improvements in payment performance, the different actions suggested in the revised action plan should be implemented as part of a cohesive broader plan monitored and regulated by a coordination entity comprising all sector stakeholders. The action plan recommends the development of the electricity sector through continued institutional reform combined with legal and regulatory improvements and supported by infrastructure development, particularly to consolidate and monitor electricity supply and strengthen PENRAs' capacity to enforce payments. Finally, the revised action plan builds on conclusions stemming from the analysis in this report and builds on current strategies and actions implemented by PENRA and the PA supported by the international donor community.

5.1. Stakeholders' existing and planned action plans

The current unstable fiscal situation in the Palestinian Territories has constrained the PA's abilities to intensify its actions and policies aimed at significantly reducing Net Lending which represents major burden on its finances. To reach this objective, with the support of donors, the PA adopted specific measures to increase collections and reduce debts from customers to Distributors and from Distributors to IEC.

In 2008 with the support of the World Bank, Norway, and the European Investment Bank, the PA initiated the "Electric Utility Management Project (EUMP)" with the overall objective of improving the efficiency and quality of electricity supply in the Palestinian areas through: (i) financing of critical investments for the strengthening and rehabilitation/ extensions of the transmission and distribution system in the West Bank and Gaza Strip and (ii) assisting with the implementation of sector reforms, capacity building and training. The intended outcome of this ongoing project is to contribute to a reduction in the non-payment issue in West Bank and Gaza. Under this program and with the support of the donor community, the PA initiated the following institutional and infrastructure developments:

- Establishment of PERC and funding of its startup operation cost for more than 3 years[75]
- Establishment of PETL and funding of its startup operation up to mid-2015[75]
- Establishment of NEDCO and partial coverage of its 2 years operation cost
- Promotion of renewable energy and energy efficiency programs
- Procurement and installation of large numbers of prepaid meters
- Rehabilitation of low voltage and medium voltage electricity network
- Construction of 4 high voltage substations and development of the associated distribution systems.

[75] Funded by the World Bank and by the European Commission.

With the support from the European Union, in 2011, the PA initiated the reform of the electricity sector including the restructuring of its institution as well as the building of the capacity of its employees.

In addition to these programs and in light of the deteriorating situation in the sector (namely a sharp drop in payments of electricity bills from Distributors and end-customers), the PA took a set of measures to expand its control over the sector and increase collection. The following measures were adopted and implemented in the last 2 years:

- In 2012, the PA (represented by the Prime Minister Dr. Salam Fayyad) agreed with the representatives of the refugee camp committees to start a new era of payments from the camps costumers. This agreement, detailed in Appendix J was based on incentives for costumers to pay their bills as well as penalties for electricity thefts. Nevertheless, following protests by customers outside camps and political factions the agreement was not implemented. Protestors had required the agreement to be extended from camp customers to all customers. To act in response to this demand, the cabinet proposed the implementation of measures to encourage customers to pay for their electricity debts by offering incentives to customers who were prepared to commit to paying for their invoices. In 2013, an agreement was signed with Distributors and endorsed by the cabinet offering deductions on monthly electricity bills to customers with no arrears and deductions on arrears for customers who accepted a schedule to settle their arrears. The cost of these deductions was to be covered by the PA in the form of subsidy. Although the agreement was implemented it did not have a major impact on the reduction of the non-payment.
- In 2012, the Palestinian President ratified an amendment to the Electricity Law to include punitive actions for electricity theft. This measure led Palestinian Courts to penalize offenders (i.e.: extract on court order from Al Quds newspaper).

أحكام جزائية تطال سارقي التيار الكهربائي والمتخلفين عن تسديد الفواتير

رام الله- أصدرت النيابة العامة الفلسطينية ، اجراءات قضائية واحكام جزائية جديدة طالت عددا من سارقي التيار الكهربائي والمتخلفين عن تسديد فواتير الكهرباء في مناطق امتياز شركة كهرباء القدس.

وأشارت الدائرة القانونية لدى شركة كهرباء محافظة القدس ، الى أن الأحكام الجزائية تمثلت ما بين الحبس لمدة ثلاثة شهور أو دفع مخالفات لصالح الشركة بالإضافة إلى دفع رسوم وتكاليف أتعاب المحامين، حيث صدرت عن للحكمة أحكاماً بحق كل من : للواطنة (أ.ف)، و للواطن (أ.ع) و (ح.ع) و (م.ح) من منطقة القدس ، بالإضافة إلى للواطن (أ.ج) و (ح.م) من منطقة رام الله، و للواطن (خ.م) و (م.ح) و (م.ج) من محافظة بيت لحم ، إلى جانب للواطن (ع.أ) من منطقة قبيا الذي حُكم عليه بالحبس لأكثر من ٣ أشهر.

وفي هذا السياق، قال مدير عام شركة كهرباء محافظة القدس م. هشام العمري: "أصبح من الضروري أن تتخذ الجهات القضائية والأمنية اجراءات أكثر صرامة على كل من يتعدى على ممتلكات الشركة وكل من يتلاعب بعدادات الكهرباء".

وأضاف أن هذه الظاهرة في تفاقم مستمر وتحتاج إلى وقفها بشكل فوري لما تسببه من خسائر للشركة وللمواطنين.

كما طالب العمري ، بإتخاذ اجراءات أكثر صرامة بحق للتخلفين عن الدفع من أجل حماية الشركة من التوقف عن العمل، خاصة في ظل زيادة الديون لصالح الشركة القطرية الاسرائيلية الأمرالذي يهدد استمرار تدفق الكهرباء للمواطنين الفلسطينيين.

وفي هذا السياق أشاد العمري بدور الأجهزة الأمنية والقضائية في ملاحقة المعتدين على ممتلكات الشركة، كما أكد حرص الشركة على التعاون مع تلك الاجهزة من أجل وضع خطط وآليات أكثر فعالية تهدف لوقف الجرائم المتعلقة بالكهرباء، واقتلاع هذه الظاهرة من جذورها.

Al-Quds newspaper 24/3/2014: Court orders against electricity fraud and non-paying electricity invoices in JDECO concessions area.

Criminal provisions affect electricity thieves and bill defaulters

Ramallah – The Palestinian Public Prosecutor issued new proceedings and provisions that affected a number of electricity thieves and electric bill defaulters that lagged behind in the payment of electricity bills in the concession areas of the Jerusalem Electricity Distribution Company.

The legal department of the Company indicated that the more strict actions on all those who misuse company assets and all those who tamper with electricity meters".

He also added that this pattern is in a constant increase and it needs to be stopped immediately for the losses it causes to both the Company and the customers.

Mr. Omari also requested that more strict actions will be

penal provisions were either imprisonment for three months or paying the fines to the company in addition to paying the lawyers' fees. This is after the court issued verdicts against: residents (A. F.), (A. A.), (H. A.), and (M. H.) from the Jerusalem area, as well as residents (A. J.) and (H. M.) from Ramallah, (K. M.), (M. H.) and (M. J.) from Bethlehem, and also resident (A. A.) from Qibya who was sentenced to more than 3 months in prison.

Within this context, Mr Hisham Al Omari, the general manager of the Jerusalem Electricity Distribution Company, stated: "It has become a necessity for the legal and Security authorities to take taken against those who default on payments in order to prevent the company from stopping operations, especially with the increase in the company's debt to the IEC, which threatens the continuity of the electricity flow to Palestinian residents.

Within this context, Mr. Omari highlighted the role of the security and the legal authorities in tracking down the company property offenders, he also emphasized the coordination that the company has with these authorities in laying down more effective plans and actions that aim towards stopping electricity related crimes and removing it from its source.

- On 9 February 2014, the Government established a Special Committee comprising members of MOF, MOLG, MOI, MOE and PENRA to solve the electricity debt issue. On 25 February 2014, following recommendations from the Special Committee, the cabinet issued a decision stating that:
  1. All electricity Distributors, within a maximum period of 30 days from the date of issuance of this decision, are required to reschedule the reimbursement of their debts to MOF which were deducted from the Ministry's clearing account for the benefit of the IEC.
  2. All electricity Distributors shall commit to pay for their electricity bills received from the IEC excluding the allotment corresponding to the governmental subsidy to support the electricity sector.
  3. The cabinet is empowered to proceed with lawsuits against representatives of Distributors in the case where it has been proven that public money has been compromised.
  4. All benefits and financial aids from the Ministry of Finance and/or any governmental body shall be halted to any electricity Distributors failing to abide by the rules and regulations set in this decision.
  5. All electricity Distributors are required to provide MOF and PENRA with their IEC billing and payment information within 3 business days of receiving the invoice or making payment to IEC.
  6. To ensure the successful implementation of the present agreement, all electricity Distributors must apply for a meeting with the special electricity committee, where the committee shall examine the status of each Distributor and propose tailored recommendations for approval by the cabinet.
  7. The special electricity committee will perform quarterly reviews of all rules and regulations included in this decision and will update and propose amendments to the cabinet whenever deemed necessary.

While the cabinet responses attempted to address the issue of non-payment, Palestinian institutions developed distinct operational actions plans to tackle the issue and proposed specific measures to reduce the Net Lending. Most of these actions are detailed in their action plans which with the assistance from the World Bank, were collected from the relevant institutions and are included in Appendix J of the report.

5.2. Assessment of Palestinian stakeholder's existing and planned action plans

To ensure a cohesive approach and understanding of the different measures implemented by the PA, the actions have been classified in line with the conclusions of the analysis.

The following section lists the different actions implemented by the PA in response to non-payment, provides a comprehensive description of these actions as well as an assessment detailing the impact of

these actions as reported in the top down and bottom up analysis of the report. The section also suggests future areas of focus to build on these actions.

5.2.1. Fundamental actions

Establishment of Special Committee comprising members of MOF, MOLG, MOI, MOE and PENRA to solve the electricity debt issue.

This cabinet decision is one of the most important recent actions from the PA to solve the non-payment issue. The Special Committee which took office early 2014 has already been very active in proposing different specific actions to improve payment results, as can be seen from the action list below.

Proposed improvement: Although the Committee had been mandated to make recommendations to the cabinet on actions to tackle the debt issue, it was strongly recommended that the mandate of this entity to deal with the issue of non-payment in a cohesive way should be increased further. The Committee should be empowered to lead all the activities related to non-payment and monitor the implementation of these activities. It is suggested that the Committee supervises and coordinates with all Palestinian stakeholders and donor communities the implementation of the revised action plan. In order to ensure the success of the Committee it is recommended to have a secretariat established to support the committee and perform daily tasks related to the mandate of the Committee. The expanded roles and responsibilities of the Committee will need to be developed and agreed with all sector stakeholders. The secretariat could be supported by the donor community.

5.2.2. Invoice reconciliation and cycle

Establish a central database between MOF, PETL and Distributors

This web-based database will connect the MOF with all Distributors providing a separate access to Distributors via secured login information system to enter the following data:

1- Scanned copies of IEC monthly invoices

2- Connection point codes and invoice amounts

3- Scanned copy of payments executed to IEC

4- Cost of electricity sales to PA institutions supplied by Distributors

This database will be linked to the MOF database to enable Distributors to monitor revenues that they are entitled to from the MOF and follow up on transfers. In addition, PETL will receive copies of monthly invoices from the IEC for all connection points and will record this data in the database and perform comparisons with the data entered by Distributors.

This database, currently being developed by USAID through its ICI project, is expected to be operational by July 2014. It will be an essential tool to monitor non-payment and take rapid corrective actions. A few challenges as detailed below await the effective operation of this database:

- Sustainability: The database is being designed through a donor funded project expected to terminate shortly. The Web-site source code will be delivered to the Ministry of Finance (MOF), hence the programing language will available to MOF. Therefore, MOF will be able to make any updates on the website after the one year warranty.
- Cooperation: The significance of this database relies exclusively on the full and continuous cooperation of all stakeholders including the IEC which should commit to provide PETL with a copy of monthly invoices and small villages which might not have the capability to transfer required information to the database.

Proposed improvement: It is recommended that with the assistance of the international donor community, the PA shall guarantee the sustainability of the operation and maintenance of this database by allocating the specialized personal and funds.

It is recommended for this database to be connected to the IEC which will require the full cooperation of the IEC, or to ensure the development of parallel database connecting PETL to the IEC for transfer of data and information between these entities on invoicing and payments. The on-going USAID-financed ICI project plans to have a screen for IEC on the website. The Palestinian MOF and PETL will be able to identify IEC authorities on this website.

In addition, it is recommended to establish a shared services centre to consolidate IT support processes from all Distributors into a standalone entity serving them back. As part of the consolidation, the processes should be reengineered and standardized to eliminate costs through economies of scale, eliminate redundant activities, reduce head count and delivery of high-quality services. The estimated cost of such a shared service centre is 3.5 million US$; however it is estimated to save about 2 million US$ of Distributor's operational costs each year.

5.2.3. Non-Payment from Distributors to the IEC

Commercial agreement between PETL and IEC

This action is included in both the action plans of the MOF and PENRA. The purpose of this commercial agreement is to ensure a transparent commercial relationship between PETL, the sole electricity buyer authorized by law and the IEC. The Palestinian counterpart to the agreement is aiming for a reduced price (export tariff) and improved payment conditions. The IEC, in return will require payment guarantees which could be provided through external support.. Currently the IEC only has bilateral supplier to customer relationships with each connection point owner.

This action is expected to significantly reduce non-payment as it is expected to

- Increase the DISCOs sales tariff margin and increase their ability to pay IEC invoices following the expected reduction in the purchase price.
- Secure continuous channel and flow of information with the IEC allowing for better monitoring of payments.
- Enhance the payment conditions for PETL which will in turn improve the Palestinian DISCOs payment schedule.

*Proposed improvement***:** This action will not only require the cooperation of the relevant IEC stakeholders including PUA, the IEC and the electricity officer from the Israeli Civil Administration but also the commitment of PETL to pay IEC invoices and provide guarantees for such commitment. This action should be monitored by the Special Committee.

International support could be possible to facilitate the negotiations between the Palestinian and Israeli parties as well as the provision of financial guarantees to the IEC.

Distributors to pay all invoices excluding government subsidies and to report to MOF and PENRA on IEC invoices and payments within 3 business days of receiving the invoice or making payment to the IEC.

This cabinet action driven by the Special Committee to solve the debt issue, demonstrates the governments' commitment to cutting back non-payment and ensuring that Palestinian financial obligations towards the IEC are met in due time.

Proposed improvement: While the impact of this action on the reduction of the non-payment is very promising, its success cannot be ensured as explained below. The action aims to induce Distributors to pay for their invoices but neglects to address the payment of subsidies. Whereas Distributors could pledge to pay, the subsidy share excluded from the equation would go unpaid and would add up as debt to the IEC anticipated to be deducted from the clearance revenue on behalf of the Distributors. According to anecdotal evidence, this decision seems to have been taken following MOFs' inability to comply with a previous cabinet decision requiring the ministry to proceed with the payment of subsidy to Distributors. It

is recommended that the subsidy component is removed from this action to ensure its successful implementation.

The action further requires Distributors to report to MOF and PENRA on IEC invoices and payments. The establishment and maintenance of lasting communication channels for the transmission of information and reporting from Distributors is essential for proper monitoring of this action and it is recommended that this responsibility is transferred to the Special Committee rather than only involving MOF and PENRA.

This action will also need to be complemented by follow up legal actions in cases of non-payment as described in pillar 4 "legal pillar". The constant flow of information on payments from the Distributors will enable the PA to take quick legal actions against offenders and prevent payment of additional fees resulting from late payment. The analysis of the monthly direct payment data[76] from Distributors revealed that the absence of payment from NEDCO to IEC during the first half of 2013 led the utility to pay increased fees later in the year to compensate for late payment of invoices.

In light of the current political relations between West Bank and Gaza this action may not realistically apply to GEDCO for the immediate future.

Legal actions from Cabinet against Distributors not complying with the decision if proven that public money is compromised.

This action included in the action plans of MOF, MOLG & PENRA is in line with the cabinet decision "Approving the guarantees of electricity payments" issued in February 2014. The legal actions can lead to removal of municipal councils or requests to the anticorruption committee to investigate if non-payment to IEC is considered to be miss financial management and public money is compromised. In such an event the management of the Distributors can be brought to court.

Renewable Energy

One of the main objectives of the renewable energy projects included in the PENRA action plan is to diversity the supply of electricity and reduce the amounts purchased from the IEC thereby decreasing the energy dependence on the IEC.

During the last quarter of 2012 the cabinet approved the Palestinian Renewable Strategy up to 2020. The strategy aims to generate a total of 240GWh from the different renewable sources through a 2 phased approach. The first phase will run from 2012 to 2015 while the second phase will extend from 2016 to 2020. Phase I focuses on the promotion of renewable sources, the issuance of relevant regulations and the implementation of the Palestinian Solar Initiative (PSI) supporting the installation of 5 MW solar power on rooftops of buildings with 1,000 residential customers during the period 2013-2015. To ensure the implementation of the PSI initiative PERC issued the first Feed in Tariff (FIT) regulations and the project was launched early 2013. In the first half of 2013, the private sector expressed interest in installing solar power systems on rooftops. Unfortunately, shortly after, MOFs' inability to pay the FIT through DISCOs caused a major setback to the implementation of the initiative. To overcome this drawback, PERC proposed to the cabinet that the DISCOs should finance the FIT through their payment in concept of licensing fees that shall be transferred to MOF to finance PERC. This proposal was unsuccessful as only two DISCOs are licensed and some even took the initiative to suspend payments to customers.

Nevertheless, a few DISCOs chose to self-finance the initiative in some municipal buildings and public buildings in camps as an act of social responsibility.

Proposed improvement: A proposal to overcome this setback would be to accelerate the issuance of net metering regulations and finalize consultations between DISCOs and PENRA on this issue. In addition soft financing to encourage the energy renewable projects for the private sector similar to the Energy

[76] See Appendix D

Efficiency initiative launched by the AFD[77] could be introduced to support the implementation of renewable projects.

This action is closely linked to the reduction of non-payment. Therefore to encourage the implementation of renewable projects it is recommended that:

- PERC/PENRA be encouraged to issue net metering regulations;
- A revolving fund is established to ensure the implementation of small size solar power project in public buildings, which could be financed by donors through this fund similarly to the AFD finance of the revolving fund for energy efficiency;
- Soft loans mechanisms are developed by Palestinian banks for the private sector to implement small size renewable projects; and
- Donors may assist the PA to achieve the objectives set in the renewable strategy by providing the necessary financing tools. The implementation of medium or large scale renewable projects by the private sector require the generation cost for these projects to be competitive with the IEC purchase price. If these prices are higher, it will require subsidy from the MOF or will result in an increase in the sales price of electricity to the Palestinian customers.

Energy efficiency measures

This action plan is introduced in the PENRA action plan. PENRA has set indicative targets for energy efficiency and proposed a 5% saving in the overall end user electricity demand by 2020. To support this aim, PENRA committed 4 million US$ of AFD funding to launch the second phase of a project to promote energy efficiency. This included the introduction of a revolving fund for implementing energy efficiency projects within public buildings and providing subsidized loans (with zero interest) for the private sector to implement energy efficiency projects, in addition to providing funds to operate a specialized energy efficiency unit at PENRA.

Energy efficiency projects should reduce amounts of electricity purchased from, as well as the payments made to the IEC which will contribute to a reduction in non-payments. In addition the revolving fund introduced for public buildings has proven to be successful as it has reduced the PA's electricity consumption invoiced by DISCOs, which in turn has led to a reduction in non-payments from the PA to DISCOs.

The World Bank has launched a tender to conduct a study aimed at improving PENRA's understanding of the Energy Efficiency potential in the West Bank and Gaza. This work will provide an assessment and an action plan to develop energy efficiency projects in the West Bank and Gaza in the short, medium and long-term. The action plan will incorporate a roadmap for the development of legal, regulatory, institutional and capacity-building initiatives to support this action plan.

Proposed improvement: It is nevertheless recommended that a comprehensive assessment of the revolving fund is performed to examine the possibility of increasing its current funding level and copying the model to support renewable energy programs.

5.2.4. Electricity Losses

Legal actions according to the amended electricity law

This action included in the JDECO action plan is in line with the amended electricity law which clearly classified electricity theft as a crime. JDECO is planning to initiate legal actions against 15,000 customers accused of stealing electricity or suspected of non-payment. This action is closely linked with the reduction of non-technical losses which represent a financial burden on all DISCOs and on the reduction of non-payment.

Proposed improvement: This action will require actual law enforcement

[77] As detailed in Action II.4

Installation of monitoring meters to measure non-technical losses

Monitoring meters will be fixed adjacent to transformers supplying multiple customers to enable Distributors to compare the measurements of these meters with the measurements of the meters of the customers supplied by these same transformers. This technique is already being implemented by JDECO and enables the utility to identify high losses areas. PENRA is keen to extend this action to the widest possible area in the West Bank and Gaza by installing an additional 4,000 monitoring meters with the total cost of 3 million US$.

Proposed improvement: Exposing electricity theft can contribute to a reduction in non-payment if complemented by measures aimed at cutting these losses such as network inspections, disconnection of illegal connection and legal penalties.

Rehabilitation of electricity networks

This action developed in PENRA and DISCOs' action plans includes rehabilitating the network to reduce technical losses and removing networks considered hazardous for the public. PENRA and DISCOs have carried out a significant number of rehabilitation projects and intend to continue with this activity to further eliminate technical losses and remove all dangerous networks.

Proposed improvement: This action is highly related to the reduction of non-payment requiring it to be monitored with specific KPI's linked to loss reduction and to "Distributors project financing". It is recommended that the rehabilitation of electricity network to be used in the awareness campaign as examples of PA and donors efforts to reduce Net Lending.

5.2.5. Collection from customers

Installation of prepaid meters and smart metering systems

This action is introduced in DISCOs and PENRA action plans. Prepaid meters have been largely installed in the northern and southern areas of West Bank since 2006 and in fewer locations in the central area of West Bank. In 2013 GEDCO installed 5,000 prepaid meters as pilot project and following the success of their operation, GEDCO is interested in continuing with further installations.

The installation of prepaid meters assumed to increase the collection, have been creating difficulties for DISCOs which lack automatic integration systems between their billing systems and the systems of the various brands of meters. In addition, DISCOs are not inspecting the meters, only recharging customer's meter cards in their offices. It is highly recommended that DISCOs are incentivized to inspect and read the consumption readings of all prepaid meters as they do for postpaid meters.

DISCOs in an effort to reduce the non-technical losses have requested smart meter pilot projects which can communicate remotely with the DISCOs on customer consumption and behavior.

Proposed improvement: This action, highly related to the reduction of non-payment, should be accompanied by more frequent measurement and inspection of these meters by DISCOs, as well as a review of the tariff structure for these meters by PERC. PENRA needs to secure 3 million US$ to finance prepaid meters for Gaza and West Bank and to implement smart meters pilot projects. An assessment of the impact of prepaid meters is required before proceeding with the implementation of this work. It will also be necessary to proceed with a review of the tariff as is suggested in the updated action plan.

Conduct continuous awareness campaigns

This action included in the PENRA, PERC and DISCOs action plans is currently being implemented by PENRA and PERC who are running donor funded awareness campaigns for energy efficiency and prepaid meters. No assessment has yet been performed to measure the impact of these campaigns on the targeted audiences. DISCOs also regularly launch awareness campaigns on electricity theft, energy efficiency, etc.

PERC and PENRA have developed concepts for new awareness campaigns focusing on renewable energy, energy efficiency and prevention of electricity theft. The conduct of these campaigns is subject to donor funding.

Proposed improvement: Awareness campaigns against electricity theft will need to use unconventional messages and methods to impact the Palestinian population. Looking to tackle this issue by addressing thieves only will not be sufficient. The campaign will need to illustrate the various effects of electricity theft including power outages, tariff increases, and even casualties from electrocution following handling of illegal connections. The awareness campaign should address these issues in an integrated manner using suitable communication channels, through partnership with private sector, women unions, NGO's and governmental institutions. It should be held during a mid-term period and include seminars, workshops, lectures in schools. Only by utilizing a variety of means will the campaign significantly contribute to the reduction of non-payment.

5.2.6. Tariff

Consolidation of connection points into high voltage substations

This action included in PENRAs' action plan aims to consolidate all collection points into the 4 substations currently being built and intended to be controlled by PETL. This project involves the construction of associated distribution systems, and will offer the following advantages:

- A reduction in the number of connection points (70% of the connection points in the northern region and southern region will be consolidated into the substations in the north and the south and 10 connection points will be consolidated in the central substations).
- Enable PETL to benefit from a lower purchase price of up to 5% resulting from the shifting to a higher voltage.
- Enable PETL to act as a single buyer to the IEC operating under a commercial agreement with IEC.

In addition to the construction of the 4 substations financed by a loan from the EIB, PENRA and PETL are planning to construct a fifth substation in the central area of West Bank with costs estimated at around 16 million US$. This substation is needed to cover the load growth in the northern area of Ramallah and replace some of the existing connection points in that area.

Proposed improvement: The construction of the substations is crucial for the development of the electricity infrastructure in the Palestinian Territories. This improvement can only succeed if associated with the development of the distribution system associated with these substations to transfer electricity from the substations to the Palestinian load centers. PENRA is therefore requesting an additional 8 million US$ to be disbursed from donors to cover the cost of installation of the distribution system and the procurement of associated goods.

This project is expected to reduce the purchase price of electricity, and this could be further decreased should a commercial agreement be reached. This reduction is therefore likely to contribute significantly to the reduction of non-payment by having a sufficient tariff margin and transparent relation with the IEC.

To ensure success in this area it will also be necessary to provide PETL[78] with the required support to operate the substations. The consolidation of PETL will be a newly founded institution, and as such it is strongly recommended that technical and financial assistance for its operation is provided to guarantee the future sustainability of PETL.

5.2.7. Efficiency and transparency of Distributors

Transfer of electricity services from municipalities to DISCOs to be finalized.

[78] The World Bank is financing starting and operation costs of PETL, but sustainability is not ensured unless PA or other donors step in.

This action included in the action plans of MOLG and PENRA is required by the electricity law. MOLG observed that to ensure the success of the transfers it was necessary to draw up a compensation mechanism for municipalities for the cash losses resulting from the transfers. MOLG noted that the transfer of the electricity services from Nablus and Jenin cities to NEDCO only came after an agreement between PERC, MOLG and MOF with these municipalities to transfer their electricity services to NEDCO in exchange of a monthly compensation from the MOF equivalent to 20% of their sales.

It should be noted that the transfer agreement also stipulated that debts from customers to these municipalities would be collected by NEDCO and later transferred to the municipalities after deducting NEDCO's collection expenses.

The establishment of DISCOs crucial for the development of the sector is required by the electricity law. The law is also expected to influence strongly the payments to DISCOs, as these organizations only deal with electricity services, and are not influenced by any other services.

Proposed improvement: This action will need to be supplemented by technical assistance to municipalities to allow them to engage in suitable municipal finance practices and secure other income generating sources such as license fees, different types of municipal taxes, etc.

In addition the compensation mechanism which has been approved for transferring municipalities needs to be assessed as its implementation has proven to be extremely costly. It would be necessary to evaluate the financial impact of the process and search for possible alternative compensation scheme.

Funding for municipal projects to be conditioned on payment of electricity invoices

This action is included in the action plans of the MOF, MOLG and PENRA. It stipulates that all benefits and financial aids to municipalities from the MOF and/or any other governmental entities shall be suspended should municipalities refuse to abide by the rules and regulations. Conditioning financing of projects to IEC payments and reporting is intended to demonstrate to municipalities that the non-payment of invoices affects the fiscal position of the PA with a manifest impact on the development of the country.

Proposed improvement: Exemption of vital projects related to health and education from this action will be determined following a transparent assessment process and should then be communicated to all. To ensure that this happens, it is highly recommended that the Special Committee is asked to monitor the implementation of this action.

This action which can contribute highly to the reduction of non-payments requires the cooperation and commitment of all Palestinian institutions as well as the reaching of an agreement with donors and MOPAD following extensive consultations.

5.2.8. Others reasons for non-payment

Government to cover the monthly cost of the first 150kWh for social cases registered at MOSA.

The action is included in PENRA's action plan as well as in MOSA's plan and is part of the cabinet decision "Endorsement of MOU between DISCOs and local authorities" issued on 5 March 2013[79].

MOSA reported multiple obstacles in the implementation of this action resulting from the fact that the transfer would go from MOF to the different Distributors, due to the following factors:

- The high number of stakeholders impacted by the action and the lack of a detailed comprehensive implementation mechanism resulted in multiple discordant interpretations for its application.
- Other fees imposed on social cases by some of the Distributors providing electricity such as collecting old debts or street lightening fees. This assistance might not be used to cover the electricity cost alone but some other fees requested by the Distributors.

[79] Appendix E point 1.2.

- To benefit from this assistance social cases should be serviced through prepaid meters. In the West Bank, around 10,000 households out of approximately 50,000 social cases households are serviced through prepaid meters and can thus benefit from this assistance.

In light of the above, MOSA has requested that the Cabinet modify the mechanism to add 50 ILS to the monthly cash transfer for MOSA of all social cases. This amendment should enable MOSA to overcome the obstacles faced implementing the assistance to the social cases. MOSA estimated that the cost of this mechanism would reach 30,000,000 ILS annually to cover 50,000 social case families in the West Bank.

This action is expected to contribute to the reduction of non-payment as part of the electricity bills from social cases will be covered by the PA. It is also expected that it will encourage social cases to settle the remaining amount which they owe.

Proposed improvement: In light of MOSA's observations concerning the flaws in the mechanism, some changes could be implemented to improve this action or for it to be replaced it by a more result based oriented action.
Suggestion 1: update action:

- The current sales tariff values the cost of 150 kWh to equate to around 100 ILS; subsidy to social cases is recommended to be 100 ILS rather than 50 ILS as proposed by MOSA. This would cover the first 150kWh that the government committed to cover on behalf of these social cases.
- While there is a high risk that MOF delays the subsidy payment to MOSA for social cases, it is recommended that DISCOs avoid disconnecting electricity from these cases if the non-payment is less than 6 months (i.e. 600 ILS).
- It is recommended that municipalities exempt social cases from street lighting fee payments.
- Installing prepaid meters for social cases, but if sufficient quantities of prepaid meters are not available within the different Distributors, then the Distributors shall implement the new mechanism until the prepaid meters are available.

Segregation of electricity accounts of municipalities and village councils.

This action included in the MOLG action plan requires municipalities distributing electricity to segregate their electricity accounts from all other municipal account and to utilize this segregated account solely for electricity services. MOLG noted that while this action was adopted in 2010 MOLG financial controllers failed to monitor its implementation and the MOF suspended the transfer of municipal revenues to these municipalities who then in turn ceased to operate with the segregated accounts principle.

Proposed improvement: This action will hopefully significantly reduce non-payments. With the implementation of this action, financial controllers will be in a position to report directly to the MOLG and the MOF on accounts segregation and cash flows related to electricity services.

5.2.9. To be frozen or canceled

Distributors to reschedule arrears to MOF in line with the deductions

This action was agreed by PA institutions and is included in the action plans of MOF, MOLG and PENRA. It is in line with the cabinet decision "Approving the guarantees of electricity payments" issued in February 2014[80]. The mechanism and criteria for rescheduling the arrears is not described, but it is assumed that it will be made on a case by case basis following discussions between MOF and Distributors and that it will take into account the amounts of MOF arrears to these Distributors for the supply of electricity to PA public buildings and services.

The PA is also expected to carefully define the rescheduling of arrears without undermining the Distributors' ability to pay for new IEC invoices and operate efficiently.

[80] Appendix E point 1.4

Proposed improvement: It is highly recommended that the Special Committee in coordination with PERC proceeds with an analysis of the impact of rescheduling on the Distributors' arrears. In the meantime the payments from the Distributors to MOF should be frozen for a period of one year before re-evaluating the situation.

Distributors to settle arrears through revenue deductions from MOF[81]

This action included in MOF's action plan proposes the settlement of Distributor's debts in West Bank in return for a reduction in the amounts that the Israeli Ministry of Finance is deducting from these entities for electricity bills to the IEC. This settlement, which should be transferred from the MOF to these entities, would be funded from the following revenue sources:

1- **Transportation fees:** MOF deducted 69 million ILS for these fees payable to municipalities for the period January 2011 to March 2014
2- **Property tax:** MOF deducted 72.9 million ILS for the taxes due to municipalities for the period January 2011 to March 2014
3- **Profession license fees:** MOF deducted 11.3 million ILS for these fees owed to municipalities for the period from January 2011 to March 2014
4- **Others:** MOF deducted 20.9 million ILS for the period January 2011to March 2014

This action enabled the MOF to compensate up to 173 million ILS for the period from January 2011 to March 2014 for the lack of collection from municipalities in West Bank. It also served as a tool for the MOF to pressure municipalities involved in electricity distribution to pay for their IEC bills.

Proposed improvement: The Special Committee in coordination with PERC should analyze the impact of the debt rescheduling on Distributors. In the meantime and for a period of at least one year, the debt from the Distributors to MOF should be frozen. In the meantime, MOF should ensure timely payments of future public services electricity bills to Distributors including the electricity bills of the water wells.

Incentives for customers to pay their debts and 100% of their invoices

This action, included in PENRA action plan, is in line with the cabinet decision "Endorsement of MOU between DISCOs and local authorities" issued on 5 March 2013[82].

DISCOs are currently implementing this decision but MOF has not been compensating the utilities accordingly. The impact of this action on the reduction of the non-payment is perceived to be negative as DISCOs are compelled to compensate for the loss from their revenues.

Proposed improvement: In the absence of proper compensation from MOF it is recommended that this action is cancelled.

5.2.10. New action suggested

Capacity building for PERC and PETL

Various actions in the Action Plan are dependent on the efficiency and capacity of PERC and PETL. It is therefore recommended that both institutions receive the required assistance to implement these actions. In addition, it is anticipated that the mandate of PERC and PETL will be extended to the Gaza Strip which will require additional costs to ensure these institutions operate efficiently in Gaza.

PERC:

- Operational costs including training costs to guarantee the sustainability of the institution, especially if the mandate of PERC is extended to cover Gaza.
- Technical Assistance to support with the preparation of the tariff review and benchmarking between the different DISCOs.

[81] Revenues to be transferred to municipalities and village councils from the Ministry of Finance
[82] Appendix E point 1.2.

- Assist PERC in following up the implementation of the DISCOs KPIs.
- Technical Assistance to design information system to connect PERC to have a continuous flow of data with all the DISCOs.

PETL:

- Operational costs to guarantee the sustainability of the institution, especially if the mandate of PETL is extended to cover Gaza.
- Technical and legal assistance for the commercial agreement with the IEC.
- Assistance to design a proper financial and technical IT system.

5.3. Conclusion of the assessment and revised action plan

The assessment of the different actions initiated by the PA reveals that all of the factors contributing to non-payment have been addressed by the different institutional stakeholders in a fragmented manner during the past years. These actions were nevertheless insufficient to reduce non-payment. The lack of success of these actions can be explained by internal and external political reasons as well as the fact the implementation of a few of these actions has recently started and will need time to show results. In addition, a few actions were found to have insignificant impact, some of them even resulting in increase in the non-payment; for example the governmental subsidies and incentives.

Concerning political reasons, one of the internal political reasons for the failure of some actions is the lack of comprehensive approach to non-payment by the PA by different Palestinian stakeholders - PENRA, MOF, MOLG and MOSA – taking independent actions without prior consultation or coordination amongst themselves and with other sector stakeholders.

In addition, until recently due to divergent opinions between the PA and some Distributors, there was no clear policy to compel Distributors to pay their invoices to the IEC before proceeding with the settlement of other internal expenses. PENRA indicated that following the cabinet decision to create the ministerial committee to deal with the debt positive signals were received from Distributors agreeing to increase their payments to the IEC.

The failure of the PA to negotiate the payment of invoices from the refugee camps is also highly dependent on internal Palestinian politics and requires high level political interventions.

The main external reason affecting the successful implementation of some actions is the slow progress between Palestinian and Israeli counterparts in reaching a commercial agreement on tariffs.

The suggested action plan developed below builds on the assessment of different action of the PA mentioned above. The plan proposes a comprehensive approach of the non-payment problem through propositions related to every cause of non-payment identified in the analysis as follows:

- Invoice reconciliation and cycle
- Non-payment from Distributors to IEC
- Electricity losses
- Collection from customers to Distributors
- Tariff
- Efficiency of Distributors
- Others – Special areas

The updated plan further ranks the actions according to their level of priority (high – medium –low) and the level of involvement of donors requested for its implementation (financial and non-financial support).

An outline of the suggested plan below summarizes the actions to be implemented according to cause and priority.

Category	Action	Ref
Fundamentals	Governmental special committee for non-payment	F.1
	Capacity building for PETL and PERC	F.2
Non-payment	Legal actions according to the amended electricity law leading to less losses and non-payment	III.1
	Distributors to pay all invoices and report to MoF and PENRA	III.3
	Renewable Energy	II.2
	Energy efficiency measures - Non payment	II.3
	Commercial agreement between PETL and IEC	I.1
Invoice Cycle		
	Establish a web database between IEC and PETL	I.2
Special Areas	Government to cover monthly cost of the first 150kWh for social cases registered at MOSA	III.4
Distributors Efficiency	Establish an IT shared service center for Distributors Efficiency	II.1
	Finalize the transfer of electricity services from municipalities and village councils to DISCOs	I.9
	Distributors projects financing - Efficiency	I.10
	Segregation of electricity accounts for municipalities and village councils	III.5
	Legal actions from cabinet against distributors not complying with the decision if proven that the public money is compromised	III.6
Tariff	Completion of the high voltage substations with the associated distribution system in West Bank and installation of a new substation	I.7
	Commercial agreement between PETL and IEC	I.1
	Infrastructure to supply natural gas to Gaza Power Plant	I.8
Collection	Installation of prepaid meters and smart metering system	I.5
	Conduct continuous awareness campaigns	I.6
	MOF to implement solid policies for payment of PA electricity consumption invoices to distributors	III.2
	Government to cover monthly cost of the first 150kWh for social cases registered at MOSA	III.4
Losses	Installation of additional monitoring meters to measure the non-technical losses in West Bank and Gaza	I.3
	Rehabilitation of electricity networks in West Bank and Gaza	I.4
	Law enforcement and implementation of the Legal actions according to the amended electricity law	III.1

High Priority	Medium Priority

The table is divided by priority:

- **Fundamental actions - High Priority:** This action is a pre-requisite to ensure the successful implementation of the plan. It is necessary to ensure that all actions proposed in the plan are implemented in a cohesive manner and are properly supervised and monitored.
- **Level I actions – High Priority requiring donor involvement:** Actions with significant expected impact on the reduction of non-payment to be implemented with the financial or political support of donors.
- **Level II actions – Medium Priority requiring donor involvement:** Actions with moderate expected impact on the reduction of non-payment to be implemented with the financial or political support of donors.
- **Level III actions – High Priority PA stakeholder sole involvement:** Actions with significant expected impact on the reduction of non-payment which are to be implemented by PA stakeholders without any assistance or support

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
FUNDAMENTAL ACTIONS- HIGH PRIORITY					
Action F.1: Governmental Special committee for non-payment					
Overall impact on all conclusion aspects To lead and monitor all the activities related to the reduction of non-payment To supervise and coordinate with all Palestinian stakeholders and donor communities the implementation of the revised action plan	Palestinian Cabinet	• To have a clear mandate • To include a secretariat to assist the committee and monitor actions • To be chaired by PENRA and include representatives of MOF, MOLG, MOI, MOE • To be empowered by the cabinet to propose and monitor implementation of actions • To define and operate under clear policies and procedures	To be implemented rapidly and to operate until the issue of non-payment is contained Initial operation for 3 years	1.5 million US$ for 3 years	The PA established a committee for the Net Lending[83]. The mandate of this committee needs to be expanded and it needs to be empowered by the cabinet and recognized by all sector stakeholders and donors

[83] As detailed in 5.1.2.1. Fundamental actions

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Action F.2: Capacity building for PETL and PERC					
Overall impact on all conclusion aspects To reinforce the capacity of PERC and PETL to operate and monitor the sector	PERC and PETL	• Sustainability of PERC and PETL • Assistance to PERC to review the impact of the subsidy and recommend to the Government a new tariff structure excluding subsidy • Assistance to PERC to review the sales tariff for West Bank and Gaza • Support PETL with commercial agreement • Support to PERC and PETL daily operations	36 months	3	1.5 million US$ for each institution
LEVEL I ACTIONS – High priority requiring donor involvement					
Action I.1: Commercial agreement between PETL and IEC					
Invoice cycle: **accord on invoice to be included** Non-payment: **expected decrease in purchase tariff to impact payment to IEC** Tariff: **decrease in purchase tariff**	PETL and IEC	• Supervision of the implementation of this action by the special committee mentioned in Action 1. • Cooperation of relevant IEC stakeholders including PUA, IEC and electricity officer the Israeli Civil Administration; • Commitment of PETL in paying to IEC the amounts of the invoices and to provide guarantees on this commitment.	6 months	Included in cost of F.2	Clause in the agreement between PENRA and IEC signed in 2012 for the construction of the substation includes reaching a commercial agreement within 6 months of the construction Donors should assist in facilitating the negotiations between the Palestinian and Israeli parties If request donors' possible provision of financial guarantees to the IEC on behalf of the PA

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Action I.2: Establish a web database between IEC and PETL					
Invoice cycle: **Timely transfer of invoices and payments** **Monitoring of invoicing and payment by stakeholders**	Special Committee and IEC	• Sustainability of finance of operation and maintenance of the database. • Cooperation of IEC and all Palestinian stakeholders • To be managed and maintained by the Special Committee secretariat	To be implemented rapidly Indefinitely		Operation and sustainability to be assessed USAID financed an initial PA stakeholder Additional financing will be needed at a later stage for its expansion, operation and maintenance
Action I.3: Installation of additional monitoring meters to measure the non-technical losses in West Bank and Gaza					
Losses: **Identify and quantify extent and location of non-technical losses to take appropriate actions**	Distributors	• Requires continuous network inspection • Monitoring of loss findings and reporting to management • Taking necessary legal actions based on the findings of inspection and reports such as disconnection of illegal connections and prosecuting electricity thieves. • Implementation to be coordinated and supervised by the Special Committee • Requires cooperation of Israeli Authorities for entrance of materials in the West Bank and Gaza	Procurement and installation period of 9 months Monitoring indefinitely	0.5	In 2012, Norway funded 0.5 million US$ for installation of such meters in West Bank and Gaza JDECO has already installed some which have proven to be successful to locate and determine non-technical losses
Action I.4: Continuing consolidation and Rehabilitation of electricity networks in West Bank and Gaza					

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Losses: **Reduction of technical losses**	Distributors	• To be prioritized according to technical loss reduction impact and removal of danger for the West Bank and Gaza • Implementation to be coordinated and supervised by the Special Committee • Requires cooperation of Israeli Authorities for entrance of materials in the West Bank and Gaza	To be implemented in phases of 12-18 months for procurement and installation	3 per phase	Ongoing financing by World Bank and Islamic Development Bank in Gaza of rehabilitation of grid in Gaza up to 16 million US$
Action I.5: Installation of prepaid meters and smart metering systems					
Collection: **increase collection and timely payment from customers**	Distributors	• Required frequent inspection of the prepaid meters • Continuous monitoring and reporting of customers with meters who do not buy electricity. • Integration with the existing billing system • To implement Smart Meters the legal, regulatory and technical frameworks should be implemented • Maintenance agreements with the suppliers • GEDCO to prepare a strategy for the installation of prepaid meters	Procurement 9-12 months Installation: 12 months	3	Donors have been financing pre-paid meters since 2006 Smart meter project need to be preceded by pilot project Experience from some DISCOs of customers by-passing pre-paid meters
Action I.6: Conduct continuous awareness campaigns					
Collection: **Change the culture of non-payment**	Special Committee	• Cooperation of all PA stakeholders and Distributors • To tackle all the problems resulted from electricity theft and non-payment in an integrated manner. • To use of all appropriate communication channels, including unconventional. • To combine efforts of stakeholders with participation of NGOs and private sector.	24 months	0.5	Awareness campaigns funded by AFD and implemented by PERNA and PERC are currently taking place

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Action I.7: Completion of the high voltage substations with the associated distribution system in West Bank and installation of a new substation					
Tariff: **According to existing Israeli tariff structure the higher the level of the connection point the lower the purchase tariff from IEC**	PETL	• The sustainability of PETL who will operate the substations in terms of long term financing and capacity building. • The timely construction of the associated distribution system. • Reaching a commercial agreement with IEC	36 months	24	• 8 million US$ for connecting the substation under construction with existing connection points • 16 million US$ for new proposed substation in Ramallah area
Action I.8 Infrastructure to supply natural gas to Gaza Power Plant					
Tariff: **It will reduce the cost of generated electricity from the power plant and increase the supply to Gaza**	PENRA	• Cooperation from the Israeli government • Gas pipeline and required infrastructure at the power plant • Gas supply agreement to be reached in reasonable timeframe	12-24 months Variation subject to origin of gas	15	Requires political support from donors
Action I.9 Finalize the transfer of electricity services from municipalities and village councils to DISCOs					

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Efficiency of Distributors: **to increase the monitoring capability on Distributors and reduce number of Distributors**	PENRA and MOLG	• Municipalities have to transfer their assets to DISCOS and only four DISCO should operate in the Palestinian Territories • No municipality should be allowed to sell electricity to customers • Technical assistance for municipal finance and municipalities to secure other income generating sources such as license fees, different types of municipal taxes, etc. • Law enforcement to secure transfer process	unknown	0	According to electricity law should have been completed latest 2012
Action I.10: Distributors Projects financing- Efficiency					
Efficiency of Distributors: **tool to compel Distributors to pay for invoices.**	Special Committee	• Agreement of all donors and MOPAD not to finance projects from Distributors not complying with Special Committee decisions • Cooperation and commitment of all PA institutions • Monitoring of any project by the Special Committee • Any exemption must be transparent and communicated to all avoiding exemption for individual cases.	Continuously	0	
LEVEL II ACTIONS – Medium priority requiring donor involvement					
Action II.1: Establish an IT shared service center for Distributors - Efficiency					

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Efficiency of Distributors: **reduce operational cost of DISCOs**	DISCOs	• Agreement and cooperation of all DISCOs[84] • Training • Sustainability of the IT SSC	At least 24 months	3.5	Cost estimated based on the IT feasibility study on IT shared service center
Action II.2: Renewable Energy- Non payment					
Non-payment: **reduces purchases from IEC**	PENRA	• Issuance of net metering regulations • Establishment of revolving fund for financing small projects in public buildings and soft loan mechanism for financing private sector projects • Financing of Private sector subsidies	Continuously	3	PENRA is requesting this amount for small and medium scale renewable projects
Action II.3: Energy efficiency measures – Non payment					
Non-payment: **reduces purchases from IEC**		• Sustainability of energy efficiency unit • External assessment for the achievements and success of the financed projects through the revolving fund and the soft loan mechanism.	Continuously	1.5	AFD is currently financing Phase II of energy efficiency measures for a total amount of 3 million US$ including revolving fund and subsidies interest loans
LEVEL III ACTIONS – High Priority Palestinian stakeholders sole involvement					
Action III.1: Law enforcement and implementation of the Legal actions according to the amended electricity law : Losses and non-payment					

[84] Under the EU Electricity Sector Reform, PwC prepared feasibility study on IT shared service center

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Losses: **Reduction of non-technical losses through prosecution** Non-payment: **increase collection through prosecution**	Distributors	• Monitoring of implementation by the Special Committee • Reducing non-technical losses through taking legal actions against electricity thieves.	Continuously	0	Ongoing implementation by the DISCOs monitored by the Special Committee JDECO set the goal of prosecution 10,000 cases mostly for non-payment
Action III.2: MOF to implement solid policies for payment of PA electricity consumption invoices to Distributors -					
Collection: **increase in level of collection for all Distributors expected**	MoF	• To include all PA services including the electricity bills of the water wells • To be monitored by the Special Committee	Continuously	0	
Action III.3 Distributors to pay all invoices and report to MOF and PENRA					
Non-payment: **reduces non-payment to IEC through compulsory and monitoring measures**	Distributors	• To be monitored by the Special Committee		0	Currently implemented with Distributors required to transfer to the PA copies of bank statements for proof of payment of IEC invoices.
Action III.4: Government to cover monthly cost of the first 150kWh for social cases registered at MOSA.					

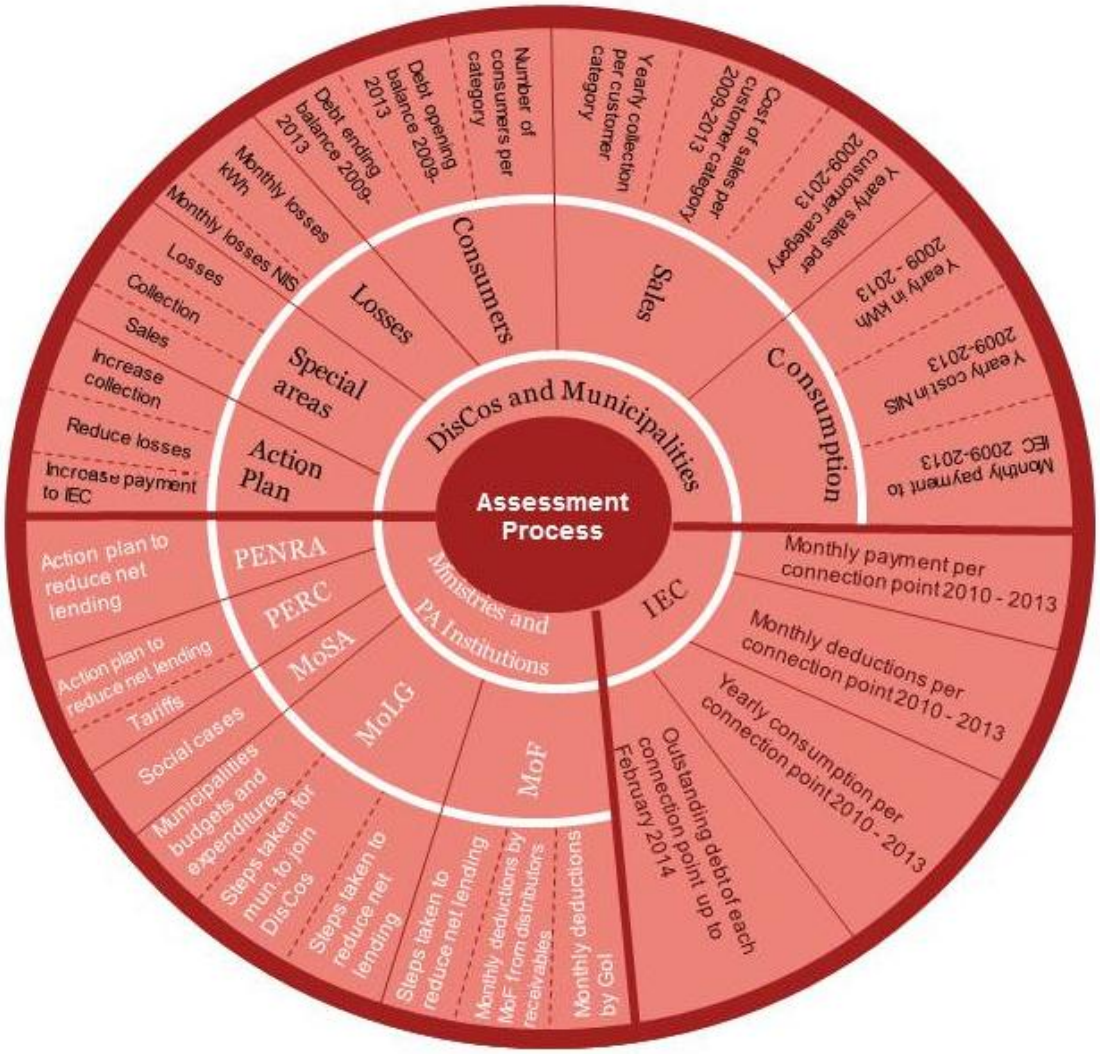
Collection: **Increase collection supported by MOF** Other reasons – special areas	MoF and MOSA	• The assistance to the social cases shall be 100 ILS not 50 to cover the cost of 150kWh. • DISCOs shall not disconnect electricity for these beneficiaries if the non-payment is less than 6 month (i.e. less than 600 ILS). • The municipalities should exempt the social cases from the street lighting fees • MoF to provide timely funds to Distributors to cover payments • Prepaid meters may be installed to social cases but the unavailability of these meters shall not prevent any Distributor from implementing it.	Continuously	17 per year	
Action III.5: Segregation of electricity accounts for municipalities and village councils					
Efficiency of Distributors: **Ability to secure and monitor that cash collected for electricity services is only utilized to cover electricity related payments.**	MOLG	• To be monitored by the Special Committee		0	
Action III.6: Legal actions from Cabinet against Distributors not complying with the decision if proven that public money is compromised					
Efficiency of Distributors:	Distributors	• Frequent monitoring of the payments from each Distributors to IEC	Continuously	0	

Appendices

Appendix A Assessment process for the study

The diagram below provides a comprehensive representation of the assessment process for the study.

Diagram 5: Assessment process for the study



1. Data gathering

The analysis presented in this report was prepared following an extensive data gathering process[85] which was made possible by the generous contribution from several Israeli and Palestinian stakeholders[86]. The data gathering process was carried out using the following method:

[85] During this data gathering exercise, the authors noted that the IEC did not provide the PA with detailed information related to deductions, purchase cost and consumption between September 2009 and early 2014. This data was provided to PA in September 2013, following World Bank intervention. Recommendations to improve information flow between stakeholders is provided later in the report in the Action plan section (Section 4)

[86] IEC, PA, Distributors

Step 1: Data gathering "Top-down" from Israeli utility, IEC

The World Bank with authorization from PENRA initiated a process of high level discussions with the Israeli parties including:

- Meetings with the Israeli Ministry of Foreign Affairs, Israeli Ministry of Finance and IEC.
- Drafting a list of required data from the IEC.

Following these discussions, the IEC agreed to provide the World Bank with the following data items:

- Monthly deduction made from the clearance revenue on each connection point –i.e. its contribution to the Net Lending- from January 2010 up to December 2013 in ILS.
- Direct payments made by each connection point to the IEC to cover the cost of electricity purchased or part as from January 2010 up to December 2013 in ILS.
- Outstanding debt owed to the IEC for each connection point as of February 2014 in ILS.
- Yearly consumption in kWh for each connection point for the years 2010, 2011, 2012 and 2013.

Data on yearly invoiced cost of electricity sold to each connection point was not available which led the authors of this report to proceed with estimations to complete missing areas of information.

Step 2: Data gathering from Palestinian Distributors: "Bottom-up approach"

With the assistance of the World Bank, data for the period 2009-2013 was collected from the following Distributors:

1. DISCOs: JDECO, NEDCO, GEDCO, HEPCO, SELCO and TEDCO.
2. Municipalities and village councils: Tulkarem, Qalqiliya, Yabed, Illar, Bani Naim, Salfit, Jayyus, Sa'ier, Tarqumia, Beit Awwa and Ithna.

The data collected from these Distributors included:

- Monthly IEC data from 01/2009 to 12/2013 on: purchase from the IEC in ILS and kWh, payments to the IEC in ILS and outstanding debt owed to the IEC in ILS.
- Annual Customer category data from 2009 to 2013 on: number of customers per category, sales per customer category in ILS and kWh, and outstanding debt.
- Data for special areas of low collection and/or high losses.
- Data outlining losses for the period 2009-2013.
- Governmental subsidy data.
- Data on low consumption customers.

The municipalities and village councils of Salfit, Jayyus, Sa'ier, Tarqumia, Beit Awwa and Ithna did not respond to the requests and did not provide any data[87].

The remaining municipalities and village councils provided only partial data claiming that the requested data could not be extracted from their billing system in the required format.

DISCOs provided most of the data requested with the exception of GEDCO who could not provide information on purchase data from the IEC as it had not received IEC bills. Finally data received from SELCO was not utilized in the report as it appeared to contain a certain number of inconsistencies.

The data received from both the IEC and different Palestinian stakeholders was crossed checked to ensure the robustness of both sets of data. After a few reviews and the receipt of updated data from stakeholders, no further serious discrepancies were uncovered.

[87] Official requests on 20 February 2014 and subsequent went unanswered

Step 3: Collection of action plans on means to improve non-payments of electricity services and reduce Net Lending from the Palestinian institutions

Action plans from Palestinian Institutions involved in the sector were collected, including: PENRA, PERC, MOF, MOLG and MOSA. The content of these actions plans and proposed updates were discussed with stakeholders during follow up meetings.

Step 4: Administration of 1038 customer survey questionnaire to electricity customers

A customer survey and focus groups were conducted in areas with the highest levels of non-payment of electricity bills to collect detailed information on the nature and reasons of customers' non-payment to their electricity providers in West Bank and Gaza. Activities completed included:

- **Focus groups:** Three focus group meetings were held (One in the North of the West Bank, one in the South of the West Bank, and one in the Gaza strip).
- **Subscribers' questionnaire:** A questionnaire was prepared to collect data on the socio-economic profiles of subscribers, subscribers' utilities and obligations, electricity usage and consumption, and efficiency of electricity providers. The survey was initially piloted with 35 customers to ensure its clarity and robustness.
- **Survey:** The survey covered a representative household of Palestinian customers in areas with high level of non-payment.

2. Data analysis

a. High level data analysis

Following the completion of the information and data collection phase, preliminary high level analysis began to identify the areas and connection points with high non-payment behavior. The analysis was based on clear KPIs such as consumption cost, payment to the IEC, collection rate, outstanding debt to the IEC for electricity purchases and high losses.

Finally, a comparison of the information and data received from the different Palestinian electricity Distributors and stakeholders with the data received from the IEC was carried out to cross check and highlight any discrepancies.

b. Customers survey analysis

Following completion and collection of the questionnaires, a process of coding and data entry with SPSS (Statistical Package for Social Sciences) software was used to reflect and illustrate the customers' answers. Descriptive statistics such as cross tabulations were employed to measure the relationships between certain variables and to develop a better understanding of the reasons for non-payment for electricity services.

3. Identifying external factors

A desk review of previous studies, published information, and other data and information on micro-economic factors affecting the Net Lending was performed. This included specific data, research and documents from the Palestinian Central Bureau of Statistics library.

Finally, the survey questionnaire included questions which could provide insights on micro-economic factors affecting the Net Lending. These questions were related mainly to pricing of alternative energy sources, affordability of electricity, household income and poverty, and regularity of payment of salaries.

4. Strategies and action plan

a. Assessing PA's existing and planned strategies

The Palestinian stakeholders' action plans and the sectorial activities carried by donor were also assessed to determine the extent to which these plans are addressing or will address non-payment of electricity or reduction of losses. Each action was individually assessed and proposed amendments to each specific action have been suggested based on the analysis from the collected data.

b. Revised Action Plan

Following the completion of the above activities, a summary of the key actions were set out in an overall action plan, for execution over three distinct time periods:

1- Short term actions (< 12 months)
2- Medium term actions (12 to 36 months)
3- Long term actions (> 36 months)

Appendix B: Data Received from the World Bank

No.	Data Received
1.	JDECO connection points, total purchase 2010- June 2013, monthly purchase per connection point 2010- June 2013, non-technical losses for some areas in Ramallah district for year 2010- June 2013, and camps consumption's, sales & total losses for years 2010- May 2013.
2.	JDECO's electricity consumption in kWh for the period stretching from 2010 – 2012 per area, customer, and type on monthly basis.
3.	NEDCO's sales and purchases for 2011, collections for collection cycles from 207 - 218, in addition to the number of customers in 2011 and the number of connection points for NEDCO.
4.	HEPCO's Electricity purchases in kWh and ILS on monthly basis for the period stretching from Jan 2010 – July 2013.
5.	Total deductions (Net Lending) per month for each connection point except for JDECO's for the year 2010.
6.	Total deductions (Net Lending) per month for each connection point except for JDECO's for the year 2011.
7.	Total deductions (Net Lending) per month for each connection point except for JDECO's for the year 2012.
8.	Total deductions (Net Lending) per month for each connection point except for JDECO's from January 2013 – July 2013.
9.	Total payments in ILS (Direct + Net Lending) per month per connection point excluding JDECO's for the year 2010
10.	Total payments in ILS (Direct + Net Lending) per month per connection point excluding JDECO's for the year 2011.
11.	Total payments in ILS (Direct + Net Lending) per month per connection point excluding JDECO's for the year 2012.
12.	Total payments in ILS (Direct + Net Lending) per month per connection point excluding JDECO's from January 2013 – June 2013.
13.	Total payments in ILS for the years (2010/2011/2012/2013) including all the direct payments and non-direct payments excluding JDECO.
14.	Total deductions (Net Lending) for the years (2010/2011/2012/2013) in ILS.
15.	Debts from April 2013 to June 2013 in ILS excluding JDECO.
16.	Payments per connection point from paid by the connection point owner to IEC through the Cairo Amman Bank.
17.	Total amount of Net Lending (payments from the Palestinian Ministry of Finance for electricity) from 2010 to June 2013.
18.	Total payments (from all sources such as MOF, DISCOs, etc…) from 2010 till June 2013.
19.	KWh supply per connection point excluding JDECO for the years 2010, 2012, until June 2013.
20.	JDECO's annual SCADA report for 2012.
21.	A CD which included all the above mentioned data in addition to a file containing JDECO's kWh consumption for 2010, 2011, 2012, and 2013, in addition to the connection points of JDECO with the IEC and the losses incurred in refugee camps for 2011 and 2012, and the losses for the

	Ramallah area till end of August 2012 and for May 2013. The file also includes the annual report for the year 2012 of JDECO and the total consumption of high voltage and low voltage connection points of JDECO from 2010 till August 2013. The World Bank has provided a preliminary analysis of the data provided as well.

Appendix C: Overall data gathered by DISCOs and municipalities

Table 25: Overall data gathered from DISCOs for 2012[88]

	NEDCO	TEDCO	JDECO	HEPCO	GEDCO
Purchased electricity from IEC (kWh)	478,879,017	81,454,320	1,863,386,610	369,219,480	899,384,165
Purchased electricity from Jordan (kWh)	N/A	N/A	82,274,000	N/A	N/A
Purchased electricity from Egypt (kWh)	N/A	N/A	N/A	N/A	124,521,333
Purchased electricity from Gaza Power Plant (kWh)	N/A	N/A	N/A	N/A	391,966,790
Electricity sales to customers (kWh)	392,500,906	68,335,483	1,421,259,762	299,837,140	598,860,735
Cost of purchased electricity from IEC ILS (incl. VAT)	225,501,236	40,223,677	922,715,772	177,293,502	443,846,085
Cost of purchased electricity from Jordan ILS	-	-	37,409,988	-	-
Cost of purchased electricity from Egypt ILS	-	-	-	-	29,137,992[89]
Cost of purchased electricity from Gaza Power Plant ILS	-	-	-	-	254,972,224[90]
Electricity sales to Residential customers ILS (incl. VAT)	126,258,501	22,653,543	496,045,611	121,857,662	400,835,236
Electricity sales to Commercial customers ILS (incl. VAT)	71,542,421		278,739,677	64,056,596	46,878,136
Electricity sales to Other customers ILS (incl. VAT)	52,447,593	11,555,381	181,804,218		151,147,363
Collection from Residential customers(incl. VAT)	98,954,736	25,761,052	459,407,287	91,523,606	291,911,923
Collection from Commercial customers (incl. VAT)	50,003,692		285,659,308	45,678,494	44,286,540
Collection from Other customers (incl. VAT)	27,455,709	10,014,416	179,164,708		70,239,381
Number of Residential customers	67,269	14,156	182,874	34,823	166,098

[88] This is a representative year as NEDCO did not provide data for 2013
[89] Estimated based on the kWh price o.45 Egyptian Pound
[90] Based on the actual payments from GEDCO for the Power Plant and for the fuel

Number of Commercial customers	13,640		35,690	1,849	11,468
Number of Other customers	2,266	18	5,667		10,754

Table 26: Overall data gathered for municipalities for 2012

	Qalqiliya	**Tulkarem**	**Illar**	**Bani Naim**
Purchased electricity from IEC (kWh)	66,827,840	125,209,520	15,257,960	16,310,640
Cost of purchased electricity from IEC ILS (incl. VAT)	32,418,537	65,416,482	7,350,520	7,965,431
Payment to IEC ILS (incl. VAT)	13,851,975	22,731,707	7,077,340	
Number of Residential customers	9,654	14,336	4,000[91]	3,203
Number of Commercial and Other customers	1,857	3,584		156
Electricity sales for Residential customers (kWh)	38,700,107	93,907,140[92]	12,511,527[93]	6,805,771
Electricity sales for Commercial and Other customers (kWh)	13,271,984			4,537,181
Electricity sales for residential customers ILS	22,183,252	56,344,284[94]	7,256,688	3,981,373
Electricity sales for commercial and Other customers ILS	8,456,271			2,654,248
Collection from Residential customers ILS	23,386,834	N/A	7,256,688	N/A
Collection from Commercial and other customers ILS	8,112,359	N/A		N/A

[91] Estimation
[92] Assumed at 25% losses
[93] Assumed at total losses = 18%, as Illar estimates MV losses at 9%
[94] Assumed at sales tariff of 0.6 ILS/kWh

Appendix D: List of connection point owners

Contract number	Customer name	Location (If available)	District
4939938	A - Naqoura		NABLUS
4785912	Abd Rabbo al-Mahdi	Residential home, Beit Awwa	HEBRON
4952245	SELCO	Abu al-'Urqan village	HEBRON
4785767	SELCO	Abu Asja village	HEBRON
4688129	Agricultural School al- Aarrob, SELCO	Alon Shvut	HEBRON
4688249	Agricultural Station	Beita Foka, Nablus area	NABLUS
4688269	Ajansiniya village		NABLUS
4952310	Ajja village		JENIN
4688264	Akrabaniya village	Between Nablus and Hamra	NABLUS
4785787	Al - Hijra village	Hebron area	HEBRON
4803041	Al Burj village	Hebron	HEBRON
4785867	Al Fandakumiya village	near Geva, after Homesh	JENIN
4946378	Al Fasael village	Jordan valley	JERICHO
4803066	Al Funduq village	Funduqumiya village	QALQILYA
4688344	A'lar village council		TULKARM
4803031	Al-bira village	Hebron area	HEBRON
4803011	Al-Fawar village	Hebron area	HEBRON
4952235	Al-Ghashi company	Hebron area, Beit Kahil, concrete factory	HEBRON
4952250	Almajd village -SELCO	Hebron area	HEBRON
4803076	Amin Rashid Abd Salam	Azzun, olive oil factory	QALQILYA
4785902	A-Nasariya village	Nablus district, near Yosef camp	NABLUS
4952365	Anin Electric Association	Jenin	JENIN
4952305	Anza Village		JENIN
4688239	Aqraba village	Migdalim Road	NABLUS
4803086	Araba council	Ariel, near Dotan-Jenin camp	JENIN
5056870	Arabuna village council		JENIN
4688374	Arane village		JENIN
4688169	A-Rihiya village	Hebron district	HEBRON
4688199	A'sala village	Hirbet Asala village	BETHLEHEM
4803171	A-Salam investment group	Hebron area, above Telem, gas farm	HEBRON
4785832	A-Sawiya village	Nablus district	NABLUS
4803116	A-Sharq elitne li'sanat aluminum	Kusin area	NABLUS
4939823	A-Shuyukh council	Heron disrtrict	HEBRON
4803131	A'ssisa village	Asisa village, Aziz village, Samriya	JENIN
4809441	A'til village council	Baka al-Gharbiya	TULKARM
4803101	Awarta village	Near Nablus, near the Muhtar	NABLUS

4688209	A-Zawiya	Tulkarm area	SALFIT
4688304	Azbat Salman village	Tulkarm district	QALQILYA
4952320	Azmut village		NABLUS
4688214	Azun council	Tulkarm district	QALQILYA
4785842	Azzoun council	water well, Azzoun village	QALQILYA
4803081	Azzun Atme village		QALQILYA
4939973	Badran Hosni Mohamed Younis	Baka a-Sharkiya gas station	TULKARM
4785922	Baka A-Sharkiya village council		TULKARM
4939898	Bal'a council		TULKARM
4939903	Bal'a council	Water drill	TULKARM
4688224	Bal'a village	Bal'a village council	TULKARM
4785752	Bani Na'im village council		HEBRON
4688134	Baraka hospital	Alon Shvut	BETHLEHEM
4803186	Bardala village		TUBAS
4785877	Bayta Foqa village	Nablus district, near the Muhtar	NABLUS
4803061	Bazariyeh	Samariya	NABLUS
4785807	SELCO	Beit A-Rosh Alfoka	HEBRON
4939918	Beit Amarin village council		NABLUS
4688334	Beit Amin	Azon, Atme, Beit Amin, west of Sha'arei Tikva	NABLUS
4688179	SELCO	Beit Arush Al-Tahta - Hebron	HEBRON
4803006	Beit Awla council	Hebron area	HEBRON
4939858	Beit Awwa village		HEBRON
4803106	Beit Furik council		NABLUS
4939928	Beit Hassan village	Between Nablus and Hamara	NABLUS
4785762	Beit Kahil village	Hebre area	HEBRON
4708704	SELCO	Beit Marsam South-west of Negohot	HEBRON
4802996	Beit Omar municipality	Migdal Oz	HEBRON
4785937	Beit Qad North	Jenin area	JENIN
4803176	Beit Qad South		JENIN
4939838	Beit Ula council	Hebron area, west of Kiryat Arba	HEBRON
4688244	Beita Tahta village	Nablus district, Huwara area, near the Muhtar	NABLUS
4688204	Bidya village		SALFIT
4688259	Burin village		NABLUS
4939913	Burqa village	Nablus district	NABLUS
5315502	Daghmon Company Ltd.	Otniel, A-Samo'u-Otniel road (quarries)	HEBRON
4939853	SELCO	Deir Razeh - Hebron	HEBRON
4688369	Deir Abu Daif, near Jenin	Jenin area	JENIN
4939923	Deir al Hatab council		NABLUS

4785802	SELCO	Deir al-'Assal Foqa village	HEBRON
4785797	SELCO	Deir al-'Assal Tahta village	HEBRON
4785927	Deir Al-Ghusun municipality		TULKARM
4803056	Deir Ballut village	Tulkarm district	SALFIT
4688364	Deir Ghazala		JENIN
4785852	Deir Istiya village	Tulkarm area	SALFIT
4803036	Deir Samet village	Hebron area	HEBRON
4956458	SELCO		HEBRON
4952275	Diq and Burkin	Tulkarm district	SALFIT
4785812	Duma village	Alon road, Migdalim	NABLUS
4803026	SELCO	Dura Concil	HEBRON
4785917	East Barta'a association		JENIN
4803181	Ein al Bayda village	after Bardala	TUBAS
4688189	Ein Shibli village	Argaman	NABLUS
5878798	Farid Rajeh	Hamra, Water drill	NABLUS
4688349	Ghawisha village council		TULKARM
4939848	Hadab village -SELCO	Hebron area	HEBRON
4939888	Hares village	Samariya	SALFIT
4939833	Hasaka village	Hebron area	HEBRON
5082300	Hebron Arab Quarries	A-Samo'u, Hebron district	HEBRON
4959015	HEPCo		HEBRON
5611063	HEPCo	Adura,refugee camp pumping station	HEBRON
4939968	HEPCo		HEBRON
4688149	HEPCo	Hebron, HaShalom road	HEBRON
4688144	HEPCo		HEBRON
5349389	HEPCo	Hashalom road, Hebron	HEBRON
4688139	HEPCo	Hebron, water well	HEBRON
4688164	HEPCo	connection from Hebron substation	HEBRON
4688329	Hija-Imatin village	"French project", Nablus districit, a group of 4 villages in the area	QALQILYA
5920945	Ibisi Hisham	Hamra, Water drill	NABLUS
4785957	Ibrahim Haddad	Shib'in area, Jenin district	JENIN
4785792	Idna village	Hebron district	HEBRON
4803016	SELCO	Imreish village (+Abda)	HEBRON
5315512	Intermediate Chemical and Plastic Industries	Kusin	NABLUS
4939908	Jaba village	Jenin area, near Sanur	JENIN
4688324	Jabara village	South-west of Avney Hefets	TULKARM
4952270	Jaber Hatem Mohammed Jaber	Argaman, Ein Shibli, flour mill	NABLUS
4688359	Jalame municipality	Jenin area	JENIN

4939893	Jamma'in council		NABLUS
4688289	Jarar Kamel	Nablus-Jenin road, near Jaba village	JENIN
4803136	Jat village	near Kdumim	QALQILYA
4803161	Jayyus village	"French project", 7 villages	QALQILYA
4939873	Jericho Marketing Cooperative	Jordan Valley road, packing house	JERICHO
4803166	Jiftlik village	Masu'a	JERICHO
4785932	Jilbun village, through Jenin	near Jenin	JENIN
4803071	Jinspot village		QALQILYA
4979000	Ka'abne village -Azzuwidin	Ka'abne, Um AlDaraj, Hebron area	HEBRON
4803091	Kabatia council	Jenin district	JENIN
4809431	Kafel Hares village		SALFIT
4952355	Kafin village council	Baka al-Gharbiya	TULKARM
4785837	Kafr-a-Labad village council	near Tulkarm	TULKARM
4785772	SELCO	Karame village	HEBRON
4785942	Kardala village - near Meholah	Jordan valley	TUBAS
5315507	Khaled Sudqi Sadeq Assi	Kusin, tile and block factory	NABLUS
4688154	Kharas village municipality	Hebron area	HEBRON
4939843	Khirbet Khilat al-Miya	Hebron area	HEBRON
4688159	Kom al-Marj		HEBRON
4688309	Laqif village		QALQILYA
4952280	Lubban Sharqiya village	in front of the entrace	NABLUS
4803096	Lutfi Saleh Alawani	Anza village, appartment	JENIN
4688254	Madama village	Nablus district	NABLUS
4939878	Mahmoud A'lan Daman	Jiftlik, Nablus area (agricultural farm)	JERICHO
4803046	Majdal Bani Fadil village	Nablus district	NABLUS
5045853	Marj al-Ghazal village	Argaman	JERICHO
4688184	Marj a-Naja	Argaman	JERICHO
4688219	Marka/Marda village	Samariya	SALFIT
4939883	Mas'ha village		SALFIT
4952265	Masri Anad Adaf Omar	Pumping station near Maso'ah	JERICHO
4952300	Nabi Elias village	Hirbat A-Nabi Elias, on the right	QALQILYA
4952325	Nablus Nylon and plastics	Plastics factory, Beit Iba	NABLUS
4939943	National Company Ltd	Beit Iba, concrete factory	NABLUS
4688354	Nazlat Issa village council		TULKARM
4952360	NEDCO	Jenin	JENIN
4844762	NEDCO	Anabta	JENIN
4688279	NEDCO	Quseen Village	JENIN
5732867	NEDCO	Anin	JENIN

4688194	NEDCO	Nablus municipality, near Kusin	NABLUS
4939933	NEDCO	Howara	NABLUS
4785827	NEDCO	Askar	NABLUS
5410530	NEDCO	Nablus muncipality, Jenid neighborhood (Sarra)	NABLUS
4688284	NEDCO	Nablus municipality	NABLUS
4803146	NEDCO	Fahma	QALQILYA
4688294	NEDCO	Jenin - Maythalon	TULKARM
4785872	Nisf Jubeil	Between Beit Umarin and Sebestiya	NABLUS
4785757	Nuba village	Hebron area	HEBRON
4785887	Odala village	Nablus distrit	NABLUS
4803111	Ousrin village		NABLUS
4688229	Padesco compnay	Burqa, Gas station before Homesh	NABLUS
4939983	Pakua village council	Ma'ale Gilboa	JENIN
4969470	Gaza Strip	Kisufim, supply to Deir AlBalah	GAZA
4688379	Gaza Strip	Erez, Kna'an line	GAZA
4688384	Gaza Strip	Erez, Grizim line, Palestinian Authority	GAZA
4969465	Gaza Strip	Nahal Oz, supply to Gaza, near checkpoint	GAZA
4952308	Gaza Strip	Nahal Oz, supply to Gaza, northern entrance	GAZA
4704814	Gaza Strip	supply to Rafah, through Kerem Shalom	GAZA
4803211	Gaza Strip	Nahal Oz, supply to Gaza, central entrance	GAZA
4802532	Gaza Strip	Nir Oz, supply to Abasans and Han Younis	GAZA
4803216	Gaza Strip	Kisufim, supply to Gaza strip	GAZA
5182527	Gaza Strip	Erez, Eival line	GAZA
4803236	Palestinian Authority	Um A-Reihan	JENIN
5886833	Gaza Strip	GAZA	GAZA
4974845	Palestinian Authority Kofr Sur	Kafr Sur, near Sal'it	TULKARM
4688394	Palestinian Authority - Tulkarem	Tulkarm	TULKARM
4803226	Palestinian Authority - Alras	A-Ras	TULKARM
4939863	Palestinian Authority, Ministry of Communications- Jerusalem	Beit Nabala-Atarot road	JERUSALEM
4939868	Palestinian Authority, Ministry of Health - Jericho	Jiftlik medical clinic	JERICHO
4952340	Palestinian Water Authority - Bani Naim	Bani Na'im junction	HEBRON
4952330	Palestinian Water Authority - Si'ir drill	Si'r drill, Hebron area	HEBRON
4688234	Qabalan village		NABLUS
4952350	Qadum village council	Kdumim	QALQILYA

4946448	Illar	TULKARM - ILLAR	TULKARM
4956463	Qarawat village	Qarawat Bani Hassan	SALFIT
4939948	Qaryut village	Judea and Samriya headquarters	NABLUS
4952295	Qira village		SALFIT
4952260	Qusra village	Nablus district, Migdalim	NABLUS
4803021	SELCO	Rabud Council	HEBRON
4688314	Rafat council	Tulkarm area	SALFIT
4688319	SELCO	near Eshkolot and Eshtamo'a	HEBRON
4803121	Rashid Muhammad Amin R. Azzuni	Kusin, factory for filling gas	NABLUS
4785882	Rujeib village	Nablus area	NABLUS
4736819	Rumana municipality		JENIN
4785892	Salem village council	Ariel	NABLUS
4785857	Salfit municipality	near Tulkarm	SALFIT
4785777	Samu' council	Hebron disrict	HEBRON
4803141	Sanur village		JENIN
4952290	NEDCO	Sarra Village	NABLUS
4785847	Sarta viilage council		SALFIT
4952315	Sebastia village		NABLUS
5028708	SELCO	Dhahiriya, A-Siqa, west of Negohot	HEBRON
5593394	Shaheen Sadiq Muhammad Yusuf	Hamra, water drill	NABLUS
5138530	Shufa village	south of Avney Hefets	TULKARM
4939828	Si'ir village	Hebron area	HEBRON
4785862	Silat al-Dahr village	Jenin district	JENIN
4803126	Smana Ahmad	Kusin, Beit Iba-Kusin road, block factory	NABLUS
4803001	Surif village	Hebron district	HEBRON
4688274	Tamimi Abdel Rahim	Kusin, factory for filling gas	NABLUS
4952240	Tarama village, SELCO		HEBRON
4785742	Tarkumiya village	Hebron Mount south	HEBRON
4688174	SELCO	Tawas village	HEBRON
4688299	Tubas municipality	Jenin district	TUBAS
4785782	Tufah village, Hebron district	Hebron district	HEBRON
4785952	Tulkarm district association of municipalities	Baka al-Gharbiya	TULKARM
4952380	Tulkarm municipality		TULKARM
4803241	Tulkarm municipality	Nur A-Shams + Iktaba	TULKARM
4939963	Um -Lasfa village, Yatta	Hebron disrict	HEBRON
4803051	UNRWA	Jiftlik village, Nablus area	JERICHO
4785897	Urif village	Nablus district	NABLUS
4694694	Wadi Sajane village -SELCO	Hebrew area	HEBRON
4802991	West Bank headquarters, Ministry of	Alon Shvot, Al-Arub	HEBRON

	Agriculture		
4952335	Ya'bad village	"French project", Jenin district, a group of 12 villages	JENIN
4803156	Yasuf village, Civil Administration	Salfit area, Tulkaren district	SALFIT
4952285	Yatma Village Council	-	NABLUS
5675416	SELCO	Hebron area	HEBRON
4952345	Zahrat al Finjan	Fahma, landfill site, south of Arabe	JENIN
4785822	Zbeidat village	After Argaman	JERICHO
5923878	Supply Column T 485 / 22		JERICHO
4969740	Electricity Supply Column NS 11/72		JERICHO
4939978	Zeita municipality, Tulkarm district	-	TULKARM
5898035	JDECO	Beit Safafa	Jerusalem
5728256	JDECO	Rakefet	Jerusalem
5897955	JDECO	Ramallah	Jerusalem
5898020	JDECO	Al-Ram	Jerusalem
5726696	JDECO	Pereg	Jerusalem
5869898	JDECO	Rama1	Jerusalem
5613154	JDECO	Bethlehem (Gilo 1)	Jerusalem
5726706	JDECO	Talpiot	Jerusalem
5726711	JDECO	Abu-Dis	Jerusalem
5714717	JDECO	Hatsav	Jerusalem
5898050	JDECO	Moor (Shakid)	Jerusalem
5869923	JDECO	A-Tur	Jerusalem
5726701	JDECO	Mishoor Adomim	Jerusalem
5869933	JDECO	Shufat (Gilo2)	Jerusalem
5613219	JDECO	Zayem	Jerusalem
5869918	JDECO	Ramallah	Jerusalem
5613234	JDECO	Qalandia	Jerusalem
5613169	JDECO	Barid	Jerusalem
5869868	JDECO	Hana	Jerusalem
5900735	JDECO	Pizgat Zaeav (Eshel)	Jerusalem
5717392	JDECO	Al Nashash	Jerusalem
5714747	JDECO	Vered (Aqabet Jaber)	Jerusalem
5726721	JDECO	Sinjel	Jerusalem
5717387	JDECO	Beit Fajar	Jerusalem
5898025	JDECO	Nabi Saleh	Jerusalem
5869928	JDECO	Nabi Samuel	Jerusalem
5898055	JDECO	Bab Al-Khalil (Homa)	Jerusalem
5869938	JDECO	Beit Horon	Jerusalem

5714722	JDECO	Erfat (Itzhak)	Jerusalem
5714757	JDECO	Ein Samia	Jerusalem
5726676	JDECO	Beit Eil	Jerusalem
5898030	JDECO	Habeid 22	Jerusalem
5613159	JDECO	Arart	Jerusalem
5726636	JDECO	Jabaa	Jerusalem
5898040	JDECO	Tqoaa	Jerusalem
5613164	JDECO	Armenian Quarter	Jerusalem
5897985	JDECO	Barkai Electricity Company	Jerusalem
5726626	JDECO	Zakaria Junction	Jerusalem
5869873	JDECO	Havid 30	Jerusalem
5898010	JDECO	French Hill	Jerusalem
5869863	JDECO	Mossad Pillar	Jerusalem
5898005	JDECO	Barman	Jerusalem
5726716	JDECO	Arabic Mosque	Jerusalem
5898015	JDECO	Bar Oun	Jerusalem
5726731	JDECO	Pre Amal	Jerusalem
5726656	JDECO	Hayozma 11	Jerusalem
5613199	JDECO	Pirrart	Jerusalem
5714777	JDECO	Jewish Temple	Jerusalem
4688266	TEDCo	TEDCo	TUBAS
5563289	NEDCO	Jalame	Jenin
5726646	JDECO	Jerusalem	Jerusalem
5848454	NEDCO		NABLUS
5875002	JDECO	Jerusalem	Jerusalem
4785907	Zuhar Kimhiyeh	Kusin, factory for stone cutting	NABLUS

Appendix E: Monthly comparison MOF versus IEC Net Lending data

Difference between MOF and IEC 2011													
ILS	**Jan/11**	**Feb/11**	**Mar/11**	**Apr/11**	**May/11**	**Jun/11**	**Jul/11**	**Aug/11**	**Sep/11**	**Oct/11**	**Nov/11**	**Dec/11**	**Total**
Difference	8,085,930	5,587,070	5,167,253	45,000,000	(35,195,931)	,182,586	4,842,425	(2,429,749)	7,743,404	27,431,359	65,000,000	(69,683,831)	69,730,518

Difference between MOF and IEC 2012													
ILS	**Jan/12**	**Feb/12**	**Mar/12**	**Apr/12**	**May/12**	**Jun/12**	**Jul/12**	**Aug/12**	**Sep/12**	**Oct/12**	**Nov/12**	**Dec/12**	**Total**
Difference	(183,660)	8,889,185	6,395,827	(2,946,135)	19,911,875	3,298,323	1,677,908	17,060,167	(25,871,936)	(49,278,473)	220,127,120	(217,932,589)	(18,852,389)

Difference between MOF and IEC 2013								
ILS	**Jan/13**	**Feb/13**	**Mar/13**	**Apr/13**	**May/13**	**Jun/13**	**July - Dec 2013**	**Total**
Difference	4,362,195	(7,551,323)	5,012,210	5,560,034	(3,472,307)	3,810,268	(239,387)	7,481,690

Appendix F Payment flow to the IEC

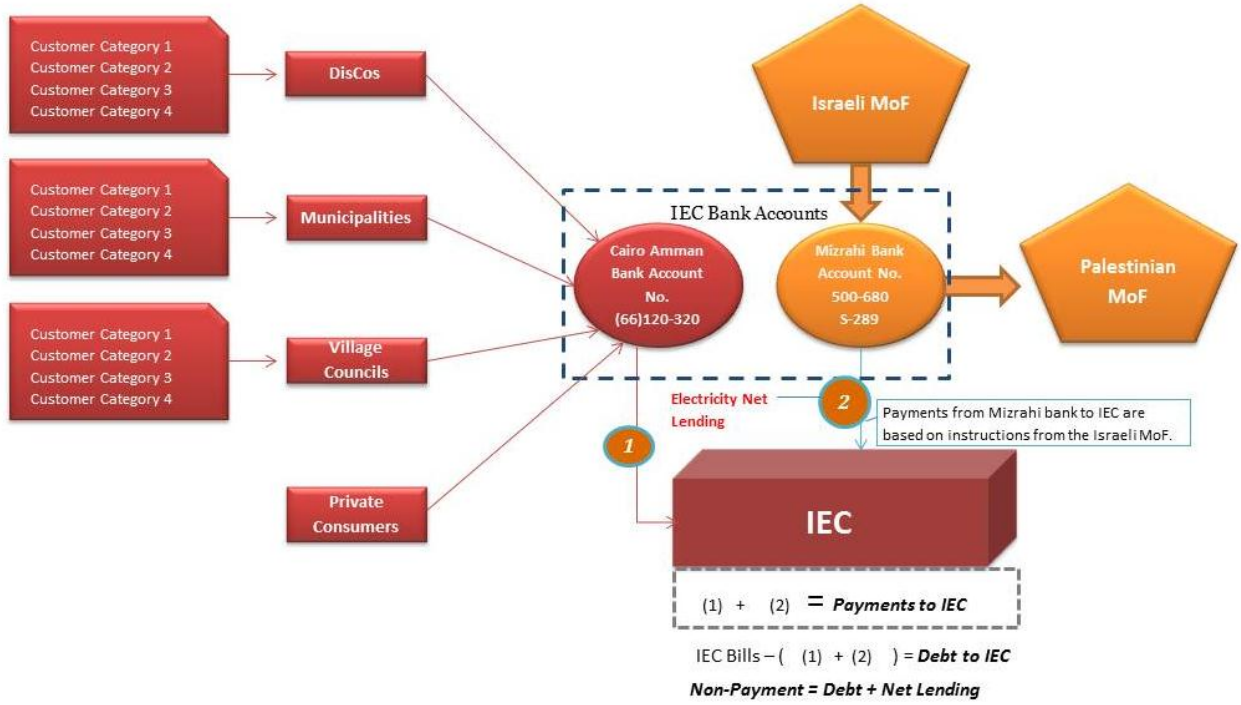
Palestinian Distributors behave in three ways after receiving monthly electricity bills from IEC (see diagram 3): (i) they pay in full the total amount; (ii) they pay part of the bill; or (iii) they do not pay the bill at all. If partial or no payment is made then the IEC either deducts the unpaid amount or part of it from the Clearance revenue or registers the remaining amounts as debt on the connection point.

From the IEC's perspective, the payment on each of the connection points is done through direct payment from the connection point owner and through the transferred amount from the Clearance revenue, which has been deducted by the Israeli Ministry of Finance ("Net lending").

The diagram below illustrates the flow of payments for IEC through two main channels:

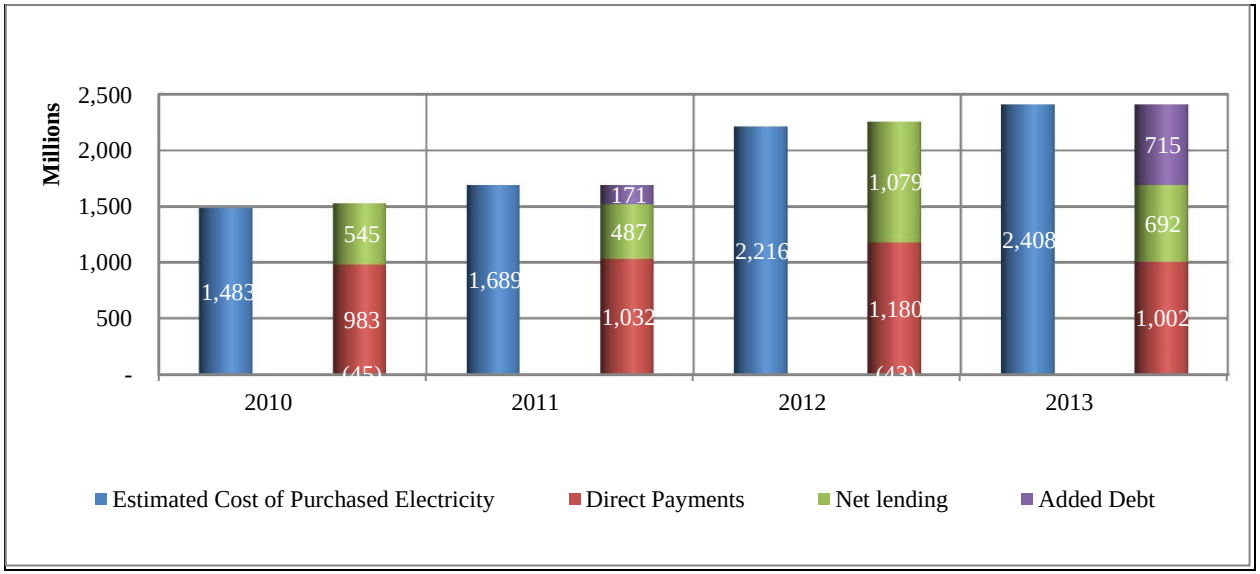
1. **Direct channel:** payments are made directly by the owner of the connection point (DISCOs, Municipality, Village council and private sector) to an IEC bank account at Cairo Amman Bank. A small number of connection point owners pay directly to IEC offices with checks or cash.
2. **Indirect channel:** payments are made through deductions from the Clearance revenue by the Israeli Ministry of Finance (Net Lending). The IEC informs the Israeli Ministry of Finance of the amounts due by Palestinian electricity Distributors. The Israeli Ministry of Finance deducts these amounts from PA's clearance revenues and transfers the funds to the IEC.

Diagram 6: Payment Flow to IEC



Appendix G: Cost of electricity purchased from IEC vs. payments and Net Lending in ILS for 2010-2013

Chart 21: Cost of electricity purchased from IEC vs. payments and Net Lending in ILS for 2010-2013[95]



The Chart shows that in 2013, the Palestinian electricity Distributors accumulated debt to IEC reached 715 million ILS [96](193 million US$ equivalent).

The Chart clearly shows that the cost of purchased electricity has increased between 2010 and 2013 by 62%. It also reveals that up to 2012 direct payments from Palestinian Distributors were gradually increasing although they never reached the level of the actual cost of purchase electricity. In 2013, the direct payment decreased by 178 million ILS (48 million US$ equivalent). Some sector stakeholders believe that this decrease was the result of the substantial amount (1,079 million ISL - 292 million US$ equivalent) which was deducted by the Israeli Ministry of Finance from the clearance revenue for the benefit of the IEC and which led the people to believe that their unpaid bills could be taken care of by the Palestinian Authority.

[95] The estimated cost of the purchased electricity does not include the interest added to the late payment
[96] The authors were not able to assess the evolution of the outstanding debt overtime due to data unavailability

The Chart finally clarifies that deductions by the Israeli Authorities through the Clearance revenue is not systematic or regular. Net Lending figures vary throughout the years between 2010 and 2013 and not clear pattern can be found.

Analyzing the yearly figures in the Chart shows that in 2010 the payment received by the IEC (direct payment and the Net Lending) exceeded the estimated cost of the purchased electricity by 45 million ILS. This indicated that during that year, funds were transferred to the IEC through the clearance mechanism to compensate for what is believed to be part of the pre 2010 debt. In 2010 the Net Lending represented **37%** of the estimated cost of purchased electricity and there was no accumulated debt from the previous year, therefore, the 37% is also the percentage of total non-payment for 2010. The non-payment in 2010 totaled 545 million ILS.

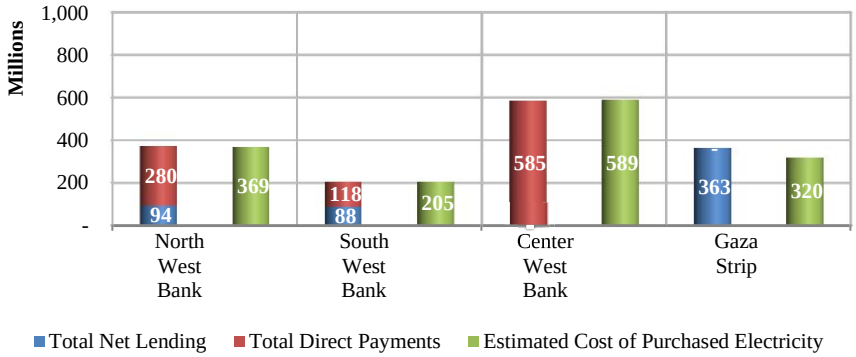
In 2011, IEC recovered 487 million ILS (132 million US$ equivalent) of non-paid amounts by Palestinian Electricity Distributors through Net Lending (representing 29% of estimated cost of purchased electricity). However, the IEC still had 171 million ILS of outstanding debt from Palestinian electricity providers, which carried over the following year. In 2011 the Net Lending represented 29% of the estimated cost of purchased electricity and the added debt represented 10% of the estimated cost of purchased electricity; therefore the non-payment in 2011 was **39%** of the estimated cost of the purchased electricity, which equates to **658 million ILS**. The estimated cost of purchased electricity in 2011 increased by 14% compared to 2010.

In 2012 the payment received by the IEC (direct payment and the Net Lending) exceeded the estimated cost of the purchased electricity by 43 million ILS which meant a reduction of the accumulated debt to the IEC by this amount. In 2012 the Net Lending represented **49%** of the estimated cost of purchased electricity. This percentage is considered as the non-payment percentage as no additional debt was added that year. The non-payment in 2012 was equal to **1,180 million ILS**. Based on these values, the non-payment increased by 10% in 2012 compared to 2011 and by 12% compared to 2010. The estimated cost of purchased electricity increased by 31% compared to 2011 and by 49% compared to 2010.

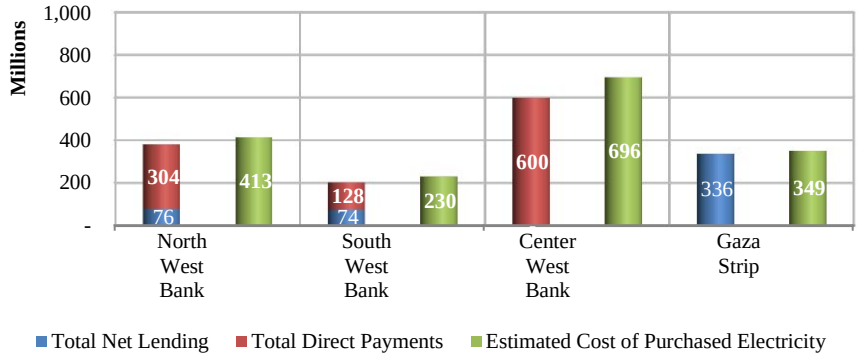
In 2013 the payment received by the IEC (direct payment and the Net Lending) was 1,694 million ILS. This was 715 million ILS less than the estimated cost of the purchased electricity which meant that the debt to the IEC increased by this amount. In 2013 the Net Lending represented 29% of the estimated cost of purchased electricity and the added debt represented 30% of the estimated cost of purchased electricity therefore the non-payment in 2013 was **58%** of the estimated cost of the purchased electricity and is equal to **1,406 million ILS**. This shows that non-payment increased by 10% in 2013 compared to 2012 and by 12% compared to 2011. The estimated cost of purchased electricity increased by 9% compared to 2012.

Chart 22: Cost of purchased electricity from IEC (estimated) vs. Net Lending and direct payment in ILS for Palestinian Territories regions 2010-2013

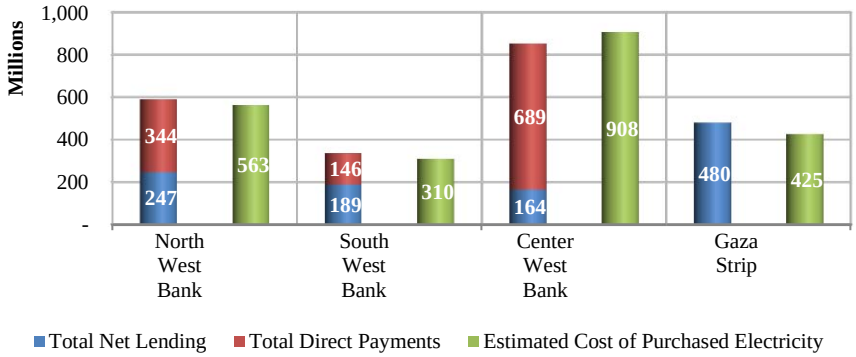
Cost of purchased electricity from IEC vs Net Lending and direct payment in ILS for Palestinian Territories regions 2010



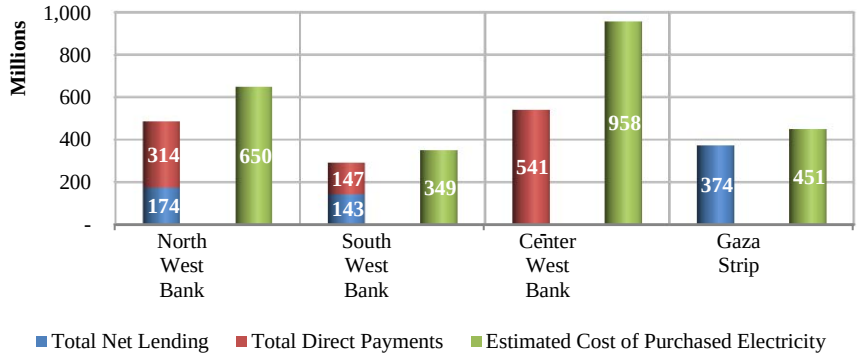
Cost of purchased electricity from IEC vs Net Lending and direct payment in ILS for Palestinian Territories regions 2011



Cost of purchased electricity from IEC vs Net Lending and direct payment in ILS for Palestinian Territories regions 2012



Cost of purchased electricity from IEC vs Net Lending and direct payment in ILS for Palestinian Territories regions 2013



Appendix H: Customer survey and focus group –profile of respondents

The study's respondents were chosen from areas with the highest levels of electricity bill non-payment. In the West Bank, 615 questionnaires were administered in 103 localities within 11 governorates while in the Gaza Strip, 423 questionnaires were administered in 23 localities within 5 governorates.

The criteria for selecting the sample were as follows:
1- Jurisdictions where high level data collection and analysis was performed
2- For JDECO area: survey areas with losses above 30%
3- Coverage of all refugee camps within DISCOs.
4- Coverage of all major cities
5- All Distributors supplying more than one city, village or camp to be included in the survey

Table 27: Sample selection for survey

Area	Sample
GEDCO	All Gaza Strip
JDECO	• Refugee camps • Villages around Ramallah, Bethlehem, and Jerusalem with high losses • Cities of Ramallah, Bethlehem, Jerusalem and Jericho
NEDCO	• Refugee camps (Balata, Askar and Ein AlMayyah) • Cities of Nablus and Jenin • Villages of Hawarah, Yamoon, Deir Sharaf, Salem
HEPCO	Hebron including the old city and Halhul city
SELCO	Dura, Yatta and AlDaherya cities
Municipalities outside DISCOs	Northern West Bank : Tulkarm, Qalqiliya, Tubas, Salfit, Qabatia Southern West Bank : Saier, Idna, Beit Awwa,
Villages outside DISCOs	Ajja, Al-Nasariya from the northern region of West Bank Deir Samet from the southern region of West Bank
Area C[21]	Jericho area: Zbeidat, Jiftlik
Refugee camps outside DISCOs	AlFawar camp

In the West Bank: Hebron, Jerusalem and Ramallah/Al-Bireh included the bulk of the respondents, slightly more than 62%. 58 localities were covered in the West Bank: 11 localities for Hebron, 36 for Ramallah/Al-Bireh and 11 for Jerusalem.

In the Gaza Strip: Gaza, North Gaza, and Deir Al Balah governorates represented 72.58% of the respondents. 14 localities were covered (3 in Gaza, 5 in North Gaza, and 6 in Khan Yunis) out of a total of 23 Gaza Strip localities.

The study also recorded the demographic profiles of Palestinian respondents. The criteria consisted of age, education level, employment status and sector, number of household members, and working household members, as well as the average monthly income at a household level. The completed profiles of the study respondents can be summarized as follows:

- West Bank respondents: 38.14 years on average with secondary education level[97]. Bethlehem, Tubas and Ramallah/Al-Bireh governorates displayed the highest average education levels while Nablus, Qalqiliya, and Tulkarem showed the lowest.
- Gaza Strip respondents: 45.07 years on average with primary and secondary education levels with only slight variations between governorates[98].

West Bank respondents are more likely to be active in the labor market than Gaza Strip respondents. West Bank respondents showed a higher propensity to be employed in the private sector or self-employed while Gaza Strip respondents tended to be unemployed or retired, and thus, less active in the labor force.

West Bank respondents have on average 5.86 members per household, with an average of 1.43 employed. In the Gaza Strip, this figure rises to 7.34 persons per household with only 0.78 employed or working.

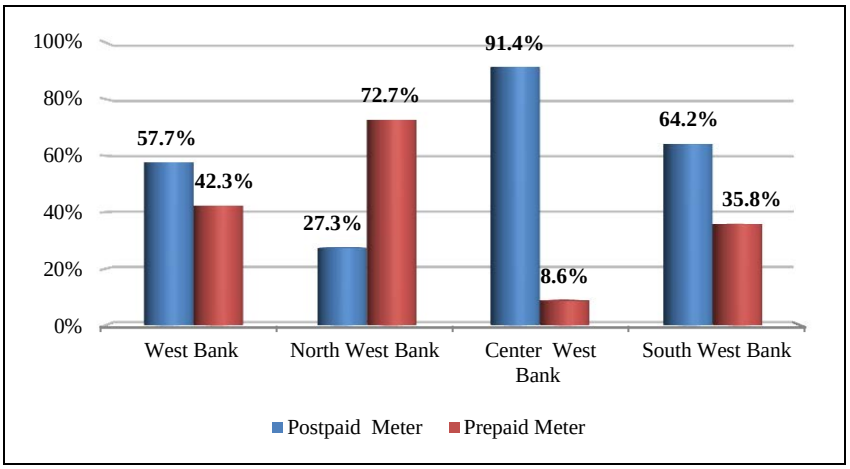
The information related to the profile of the respondent could explain some of the answers received and needs to be taken into consideration when suggesting possible future actions to increase the collection rate from customers. It is reasonable to believe that the behavior of customers varies according to age, employment situation and number of household members. Specific media campaigns addressing the customer non-payment issue should be tailored to address the different population categories, and look to mainly target the most commonly found customer profile.

[97] The study's respondents were distributed equally, for the most part, as females comprised 50.9% of respondents whereas males accounted for 49.1%.

[98] The study's respondents tended to be male amongst respondents from the Gaza Strip, as females only comprised 36.6% of respondents whereas males accounted for 63.4%.

Appendix I: Percentage Distribution of Households by Region and Type of Electricity Meter Used- January 2011

Chart 23: Percentage Distribution of Households by Region and Type of Electricity Meter Used, January 2011



Appendix J: Palestinian stakeholders action plans

1. Palestinian Authority (PA) Decisions

1.1. "Camps agreement" issued on December 30, 2012 between the Prime Minister and the Representative Committees of camps

Late 2012 the Palestinian government approved a decision known as the "**Camps agreement**" in which the government addressed electricity debts of refugees' camps. The decision proposes incentives for customers to pay their bills as well as penalties for electricity thefts. This agreement can be summarized as follows:

- All arrears of customers who agree to pay for their actual and upcoming electricity bills will be cancelled;
- Tariff for the first 150 KWh for residential customers will be at cost;
- Utilities will cover electricity bills of some public institutions in the camps.
- The electricity tariff in the camps will be aligned with the tariff for regular customers
- Camp representatives in collaboration with MOSA will review all social cases in the camps
- PENRA will provide utilities with performing equipment and goods to rehabilitate the electricity networks in the camps.
- Utilities will install prepaid meters for customers
- If more than one customer is connected to the same meter they will be separated and the utility will install a prepaid meter for each customer at no cost.

1.2. Cabinet Decision Number (*45/54/70/م.و/س.ف*) of 2013 issued on 5 March 2013 "Endorsement of MoU between DISCOs and local authorities"

This decision concerns electricity debts related to local authorities and DISCOs. The decision offers incentives for customers to pay their bills and penalties for electricity thefts.

- Any customer committed to pay his invoice will be rewarded with a 10% deduction on his monthly invoice. This deduction will be subsidies by the government.
- Any indebted customer who pays an additional 10% to his bill to reimburse his debt will be offered a 10% cancellation to his debt. This cancellation will be subsidies by the government.
- The Government will cover the monthly cost of the first 150kWh for social cases registered at MOSA.

1.3. Cabinet decision "formulation of special committee to follow up the electricity debts number (*40/70/ر.و/ر.ح*)"

The Cabinet on 9 February 2014 established a special committee to handle the electricity debts. This committee chaired by PENRA and includes members from MOI, MOLG, MOE and MOF is responsible for proposing to the Prime Minister recommendations on solving the electricity debt issues.

1.4. Cabinet decision "Approving the guarantees of electricity payments"

On 25 of February 2014 the Cabinet took the decision (ح7ر7م17/21/56) "Approving the Guarantees of Electricity Payments", which states the following:

8. All electricity distributing entities have to and within a maximum of 30 days from the date of the issuance of this decision: reschedule all debts due on them for the Ministry

of Finance which is resulted from the electricity deduction from the Ministry's clearing account to the IEC.

9. All electricity distributing entities have to shall commit to paying all of the IEC bill deducted of it the government's support percentage of the monthly electricity bill which is approved by the government to support the electricity sector.
10. The cabinet and in accordance with the recommendations of the electricity Special Committee, have the right to take all legal actions against the representatives of any electricity distributing entity in the case where it has been proven that the public money has been compromised.
11. All benefits and financial aids from the Ministry of Finance and/or any governmental body shall be halted to any electricity distributing entity not abiding by the rules and regulations set in this decision.
12. All electricity distributing entities have to supply the Ministry of Finance and the Palestinian Natural Resources Authority with the supporting documents to pay any amounts due from them to the IEC in a date maximum of 3 working days from the date of payment.
13. Any electricity distributing entity and to enforce its ability to carry out the rules and regulations of this decision, has to apply for a meeting with the special electricity committee, where the committee shall study the case of the distributing entity and submits recommendation for each case separately to the ministers cabinet; and the cabinet will decide on the case.
14. The special electricity committee has to review all the rules and regulations of this decision every three months and has to give recommendations about it for the minister's cabinet.
15. Any rules and regulations going against this decision shall be cancelled.

2. Ministry of Finance action plan

The MOF in cooperation with all relevant Palestinian stakeholders is working towards increasing level of payments to IEC and reducing the Net Lending by taking the following measures:

1- MOF is member of the ministerial committee that is working on following up the electricity debts.

2- MOF is currently working on establishing an interactive data base to include comprehensive information on Net Lending where this database will be connected with the MOF financial system and managed by MOF to ensure sustainability where information will be gathered from municipalities, PENRA, DISCOS, PETL, and IEC. This data base should be able to provide us with all missing and needed information that is needed to have a clear picture about the Net Lending situation, the database is supposed to be ready by July 2014. MOF will consult the relevant international partners (including the World Bank) to get feedback about the structure and functions of this database.

3- MOF is following up with the GoI through the Palestinian- Israeli joint committee to get full detailed information about the deductions from the clearance against electricity and health. This information will be validated with relative PA institution and will be used in the data base.

4- The council of ministries has recently issued a decree about the settlement of the electricity debt by the relevant utilities, Distributors, where MOF is involved in following up this decree to ensure its implementation, while doing so MOF is working with different institutions to study the financial effect of the different government decisions about the

electricity subsidies. Besides that MOF will continue its pressure on municipalities to reschedule and reconcile the dent to MOF and will consider some measurements to encourage municipalities to do so.

MOF has provided data concerning the settlements that is done between MOF and the various municipalities, DISCOs and village councils in West Bank in exchange of the reduction that Israeli Ministry of Finance is doing on these entities electricity bills to IEC. The settlement is made on four different revenue sources which should be transferred from MOF to these entities, as follows:

5- **Transportation fees:** MOF has deducted 69 million ILS in the period January 2011-March 2014
6- **Property tax:** MOF has deducted 72.9 million ILS in the period January 2011-March 2014
7- **Profession license fees:** MOF has deducted 11.3 million ILS in the period January 2011-March 2014
8- **Others:** MOF has deducted 20.9 million ILS in the period January 2011-March 2014

This indicates that MOF could only collect back from the different electricity Distributors an amount of 173 million ILS in the period January 2011-March 2014.

3. Ministry of Local Government action plan

The MOLG efforts to reduce the Net Lending focus on two areas:

1- Improve collections in the local councils and increase their payments to IEC.
2- Assist in the process of establishing DISCOs with actions to encourage local councils to join electricity distribution companies.

To improve the collection and the payment to IEC from the local authorities, MOLG is taking the following actions:

- Ordering the local councils to separate the electricity financial accounts from other accounts and to exclusively disburse from this account to pay for electricity services. The account being under the responsibility of the electricity department. This order has been valid and operational since 2009;
- Placing financial supervisors at local councils who did not follow this order to ensure its execution;
- Monitoring the commitment of the local councils to settle electricity payments, issue monthly payment statements and send these statements to the directorates of the Local Governments;
- Instructing MOF to pay transportation expenses only to local councils who settle the payment of at least 10 monthly bills of electricity a year. MOF has engaged to commit to this instruction;
- Encouraging the local councils to install prepaid meters to improve their electricity collections, to issue self-financed bids, and to follow up on this matter with PENRA to secure the supply of prepaid meters to the local councils;
- Dissolving municipal councils who did not commit to pay their electrical bills to the supplier, and assigning Special Committees from the public sector to manage these municipalities;

1. Circulating tariff decisions and supervising their implementation through MOLG supervision teams;
2. Auditing the unpaid electricity while performing assurance on the payment slips;

3. Requesting the local councils to propose electricity debt payment schedules and in cooperation with MOF, monitoring their commitment to this schedule;
4. Linking local councils projects to the electricity debt payment and releasing the project funds upon clearance from MOF on the approved settlement of these payments;
5. Binding the local councils to schedule their subscribers debts through the prepaid meters to improve the collection and enable them to pay their monthly supplies bills and their scheduled debts;
6. Rejecting approvals of budgets of councils who have not initiated a debt scheduling scheme.

While to support the transfer of the electricity service from the local authorities to DISCOs, MOLG is taking the following actions:

- Requesting the local councils to transfer their electricity services to DISCOs as stipulated in the general electricity law;
- In cooperation with PENRA, promoting the integration of local councils electricity services to DISCOs in workshops;
- Facilitating and accelerating the transfer of electricity services from the local councils to DISCOs;
- Signing of numerous special agreements with relevant governmental bodies (MOF, PENRA, Organizing and Local Governance Council)to transfer the electricity services from the local councils to DISCOs;
- Encouraging the local councils to join DISCOs by performing a financial analysis measuring the impact of the transfer of the electricity distribution services from the local councils to DISCOs;
- MOLG assisted with the transfer of the electricity department employees from the local councils to DISCOs such as Nablus and Jenin electricity services to NEDCO;
- MOLG followed up on the matter of the local councils that have joined the distribution companies getting their compensations due from the MOF, though the MOF did not commit to paying the due amounts which led to a decline in the local council's desire in joining the distribution companies.

4. Ministry of Social Affairs action plan

MOSA actions in the West Bank essentially consist of ensuring the implementation of Cabinet decision dated 5 March 2013 related to the endorsement of MoU between the local authorities and DISCOs (ref: 3.5.2 bullet point 3: The Government will cover the monthly cost of the first 150kWh for social cases registered at MOSA). The implementation of this decision has faced multiple obstacles due to factors as listed below:

- High number of stakeholders involved suggesting different interpretations and implementation mechanisms for the decision.
- The number of local councils receiving electricity through local cooperative associations which are reluctant to cooperate on this decision.
- Other fees imposed by some of the Distributors that distribute electricity such as collecting old debts or street lightening fees.
- A number of local councils officially informed the Ministry of their refusal to implement the decision as they collect other services fees through the electricity bills.
- To benefit from this assistance social cases should have prepaid meters installed. Unfortunately, only around 10,000 households out of approximately 50,000 social cases

families in the West Bank have pre-aid meters and could thus benefit from this assistance.

In light of the above, MOSA has requested the Cabinet to modify the mechanism to add 50 ILS to the monthly cash transfer for MOSA beneficiaries who have prepaid meter installed. This amendment should enable MOSA to extend the electricity support to all households with pre-paid meters in West Bank cities, villages and refugee camps. MOSA estimated the cost of this mechanism to reach 30,000,000 ILS annually to cover 50,000 social cases families in the West Bank.

MOSA reported that the current mechanism is only implemented by three DISCOs who have not yet been compensated by MOF as shown in the table below

DISCOs implementing assistance to social cases in the West Bank

DISCO	Number of benefited cases	Cost ILS
NEDCO	2970[99]	3,564,645
TEDCO	1984	2,338,547
SELCO	3805	4,638,260
Total	8,759	10,541,452

The above table shows that the average monthly payment for each social case is 100 ILS (not 50ILS as proposed by MOSA).

5. Palestinian Electricity Regulation Council (PERC) action plan

PERC action plan to reduce the Net Lending is summarized below.

Government's role

1- Government to pay all its financial commitments to the Distributors
2- To limit the government subsidy to social case

PERC's role

1- Continue monitoring the performance of the electricity Distributors according to PERC approved KPIs
2- Review the tariff methodology and subsidy decisions
3- Follow up with DISCOs on action plan to reduce losses and increase collection, and consider the investment required within the tariff.
4- Cooperate with all stakeholders to implement the Cabinet decisions and the creation of electricity database within the PA institutions.
5- Attempts to include GEDCO within the work of PERC and start implementing PERC regulations in Gaza.
6- Cooperate with MOSA to determine the proper basis for including social cases in the Governmental subsidies including the refugee camps.
7- Cooperate with all stakeholders to complete the establishment of DISCOs in the north and south.
8- In cooperation with all DISCOs, implement a media awareness campaign against the electricity theft.
9- Cooperate with relevant parties, especially judiciary parties to fight against electricity theft.

[99] Estimated

10- Cooperate with all stakeholders to reduce the purchase electricity price from IEC and reach a fair commercial agreement.
11- Encourage the use of renewable energy and energy conservation.

6. Palestinian Energy and Natural Resources Authority action (PENRA) plan

PENRA action plan to reduce the Net Lending is organized in two main pillars.

Pillars 1- Institutional measures:

1- Follow up the implementation of Cabinet decisions
2- Finalize the establishment of PETL to operate as single buyer from IEC
3- Transfer the responsibility on all existing connection points with IEC from the local authorities and DISCOs to PETL.
4- Follow up with the judicial system the enforcement of penalties for electricity theft.
5- Reach a commercial agreement with IEC
6- Follow up with the nominated stakeholders the creation of the electricity database.
7- Ensure the completion of the establishment of DISCOs in the north and south of West Bank

Pillar 2 – Physical investment to reduce losses, increase collections and diversity of supply

1- Install additional prepaid meters in the West Bank and Gaza
2- Rehabilitate the electricity network to reduce losses
3- Complete the construction of the four high voltage substations in the West Bank and start the preparation for constructing of the fifth one
4- Develop the distribution systems in the north and south of West Bank to transfer the power from the high voltage substations to the Palestinian load centers which will replace most of the existing connection points with IEC.
5- Implement energy efficiency and renewable projects.
6- Build control center and SCADA systems

The three year investment plan for PENRA is as follows

Component	Budget (million US$)	Available (million US$)	Needed to be secured (million US$)	Notes
Institutional measures				
PETL operational costs	4	-	4	
Physical measures				
Installation of prepaid meters and smart meters	3	0	3	
Rehabilitation of medium voltage networks	12	2.6 (EURO)	9.4	
Development of the Northern and southern distribution systems – materials	26	23 from Italian government 3 through Norwegian fund	26	

Development of the Northern and southern distribution systems – installation	8	0	8	Top priority
Reconfiguration of JDECO distribution system (North Ramallah)	4	0	4	
Renewable energy including the PSI			1	
Energy efficiency	8	5.3 (AFD +WB)	2.7	
SCADA	8	-	8	
Total	**73**	**32.9**	**40.1**	

7. Distributors (DISCOs and local authorities) action plan

All visions and action plans submitted by DISCOs and local authorities have similar objectives and list of actions to be implemented as follows:

- Improve meter and network inspection procedures.
- Initiate legal procedures against electricity theft.

Criminal provisions affect electricity thieves and bill defaulters

Ramallah – The Palestinian Public Prosecutor issued new proceedings and provisions that affected a number of electricity thieves and electric bill defaulters that lagged behind in the payment of electricity bills in the concession areas of the Jerusalem Electricity Distribution Company.

The legal department of the Company indicated that the penal provisions were either imprisonment for three months or paying the fines to the company in addition to paying the lawyers' fees. This is after the court issued verdicts against: residents (A. F.), (A. A.), (H. A.), and (M. H.) from the Jerusalem area, as well as residents (A. J.) and (H. M.) from Ramallah, (K. M.), (M. H.) and (M. J.) from Bethlehem, and also resident (A. A.) from Qibya who was sentenced to more than 3 months in prison.

Within this context, Mr Hisham Al Omari, the general manager of the Jerusalem Electricity Distribution Company, stated: "It has become a necessity for the legal and Security authorities to take more strict actions on all those who misuse company assets and all those who tamper with electricity meters".

He also added that this pattern is in a constant increase and it needs to be stopped immediately for the losses it causes to both the Company and the customers.

Mr Omari also requested that more strict actions are taken against those who default on payments in order to prevent the company from stopping operations, especially with the increase in the company's debt to the IEC, which threatens the continuity of the electricity flow to Palestinian residents.

Within this context, Mr Omari highlighted the role of the security and the legal authorities in tracking down the company property offenders, he also emphasized the coordination that the company has with these authorities in laying down more effective plans and actions that aim towards stopping electricity related crimes and removing it from its source.

أحكام جزائية تطال سارقي التيار الكهربائي والمتخلفين عن تسديد الفواتير

رام الله- أصدرت النيابة العامة الفلسطينية ، اجراءات قضائية واحكام جزائية جديدة طالت عددا من سارقي التيار الكهربائي والمتخلفين عن تسديد فواتير الكهرباء في مناطق امتياز شركة كهرباء القدس.

وأشارت الدائرة القانونية لدى شركة كهرباء محافظة القدس ، الى أن الأحكام الجزائية تمثلت ما بين الحبس لمدة ثلاثة شهور أو دفع مخالفات لصالح الشركة بالإضافة إلى دفع رسوم وتكاليف أتعاب المحامين، حيث صدرت عن المحكمة أحكاماً بحق كل من : للواطنة (أ.ف)، و للواطن (أ.ع) و (ح.ع) و (م.ج) من منطقة القدس ، بالإضافة إلى للواطن (أ.ج) و (ح.م) من منطقة رام الله ، و للواطن (خ.م) و (م.ح) و (م.ج) من محافظة بيت لحم ، إلى جانب للواطن (ع.أ) من منطقة قبيا الذي حُكم عليه بالحبس لأكثر من ٣ أشهر.

وفي هذا السياق، قال مدير عام شركة كهرباء محافظة القدس م. هشام العمري: "أصبح من الضروري أن تتخذ الجهات القضائية والأمنية اجراءات أكثر صرامة على كل من يتعدى على ممتلكات الشركة وكل من يتلاعب بعدادات الكهرباء".

وأضاف أن هذه الظاهرة في تفاقم مستمر وتحتاج إلى وقفها بشكل فوري لما تسببه من خسائر للشركة وللمواطنين.

كما طالب العمري ، بإتخاذ اجراءات أكثر صرامة بحق المتخلفين عن الدفع من أجل حماية الشركة من التوقف عن العمل، خاصة في ظل زيادة الديون لصالح الشركة القطرية الاسرائيلية الأمرالذي يهدد استمرار تدفق الكهرباء للمواطنين الفلسطينيين.

وفي هذا السياق أشاد العمري بدور الأجهزة الأمنية والقضائية في ملاحقة المعتدين على ممتلكات الشركة، كما أكد حرص الشركة على التعاون مع تلك الاجهزة من أجل وضع خطط وآليات أكثر فعالية تهدف لوقف الجرائم المتعلقة بالكهرباء، واقتلاع هذه الظاهرة من جذورها.

Al-Quds newspaper 24/3/2014: Court orders against electricity fraud and non-paying electricity invoices in JDECO concessions area.

- Invest in prepaid meters and smart meters to help detect thefts and monitor customer performances;
- Increase productivity of collectors;
- Launch awareness campaigns and build solid partnerships with customers to assure added-value service, customer satisfaction, customer loyalty and commitment, and continue improving public image through media;
- Upgrade billing & financial systems, new CRM (Customer Relationship Management);
- Install split prepaid meters in refugee camps.
- Install monitoring meters near distribution substations to monitor & calculate the losses.
- Rehabilitate old medium voltage and low voltage networks and remove networks that constitute danger to the public.

Appendix K: Governmental Subsidy for DISCOs (in ILS)

	JDECO			SELCO			HEPCO		
Year	Cost of subsidy	Actual payments ILS	Outstanding Payments ILS	Cost of subsidy	Actual payments ILS	Outstanding Payments ILS	Cost of subsidy	Actual payments ILS	Outstanding Payments ILS
2011	11,860,626	11,860,626	-	1,443,743	1,443,743	-	9,537,989	6,627,818	2,910,171
2012	55,749,738	12,217,388	43,532,350	4,686,433	253,301	4,433,132	24,976,084	-	24,976,084
2013	40,459,124	-	40,459,124	3,217,599	-	3,217,599	11,940,557	-	11,940,557
Total	108,069,488	24,078,014	83,991,474	9,347,776	1,697,044	7,650,732	46,454,630	6,627,818	39,826,812

	NEDCO			TEDCO		
Year	Cost of subsidy	Actual payments ILS	Outstanding Payments ILS	Cost of subsidy	Actual payments ILS	Outstanding Payments ILS
2011	6,698,719	824,937	5,873,782	4,033,119	-	4,033,119
2012	18,951,035	7,172,437	11,778,598	6,351,630	-	6,351,630
2013				2,309,504	-	2,309,504
Total	25,649,754	7,997,374	17,652,380	12,694,253	-	12,694,253

Appendix L: Main features of West Bank and Gaza Electricity

Table 28: West Bank electricity main characteristics for 2010-2013

	2010	2011	2012	2013
Electricity purchased from all sources (kWh)[36]	3,067,365,370	3,379,691,651	3,752,652,024	3,724,598,572
Electricity losses %	23%	26%	24%	25%
Electricity sales kWh	2,361,871,335	2,500,971,822	2,852,015,538	2,793,448,929
Collection rate	90%	90%	89%	81%
Uncollected invoices kWh	236,187,134	250,097,182	313,721,709	530,755,296
Collected invoices kWh	2,125,684,202	2,250,874,640	2,538,293,829	2,262,693,632
Electricity purchase tariff ILS/kWh (incl. VAT)	0.38	0.41	0.48	0.52
Cost of electricity purchase ILS	1,163,092,301	1,338,749,697	1,780,515,266	1,957,097,167
Electricity sales tariff ILS/kWh (incl. VAT)	0.65	0.62	0.65	0.71
Electricity sales ILS	1,541,475,327	1,546,350,877	1,861,367,941	1,972,384,452
Invoice not collected ILS	154,147,533	154,635,088	204,750,474	374,753,046
Invoice collected ILS	1,387,327,794	1,391,715,790	1,656,617,467	1,597,631,406
Payment to IEC ILS	982,753,383	1,031,720,184	1,179,997,070	1,002,215,408
Non-payment ILS	180,338,918	307,029,513	600,518,196	954,881,759
Difference between collection and payment to IEC ILS	404,574,411	359,995,606	476,620,397	595,415,998

Table 29: Gaza Electricity main characteristics

	2010	2011	2012	2013
Electricity purchased from all sources (kWh)[36]	1,260,237,920	1,519,645,360	1,415,872,288	1,580,711,097
Electricity losses %	30%	30%	30%	30%
Electricity sales kWh	882,166,544	1,063,751,752	991,110,602	1,106,497,768
Collection rate %	59%	65%	68%	71%
Electricity uncollected kWh	361,688,283	372,313,113	317,155,393	320,884,353
Electricity collected kWh	520,478,261	691,438,639	673,955,209	785,613,415
Electricity purchase tariff ILS/kWh (incl. VAT)	0.45	0.39	0.50	0.52

	2010	2011	2012	2013
Cost of electricity purchase ILS	569,013,065	594,814,963	713,849,666	822,506,837
Electricity sales tariff ILS/kWh (incl. VAT)	0.48	0.51	0.52	0.52
Electricity sales ILS	423,439,941	542,513,394	515,377,513	575,378,839
Sales not collected ILS	173,610,376	189,879,688	164,920,804	166,859,863
Sales collected ILS	249,829,565	352,633,706	350,456,709	408,518,976
Payment to IEC and Egypt ILS	-	-	-	-
Payment to electricity generated from Gaza Power Plant	222,579,405	216,569,938	254,972,224	268,974,972
Difference between collection and payment to electricity suppliers	27,250,160	136,063,767	95,484,484	139,544,004

Appendix M: PERC Current Tariff Structure

التعرفة(ILS/KWh) Tariff	الشرائح (حسب الاستهلاك) Steps according to consumption
القطاع المنزلي فاتورة (Residential Postpaid)	
0.4900	0 – 160 KWh
0.5283	161 – 250 KWh
0.6350	251 – 400 KWh
0.6650	401 – 600 KWh
0.7350	755 الى من KWh
10	القطاع شهريا(Monthly fixed charge)
القطاع المنزلي مسبق الدفع (Residential Prepaid)	
0.5650	تعرفة موحدة(Flat tariff)
0	القطاع شهريا(Monthly fixed charge)
القطاع التجاري فاتورة (Commercial Post-paid)	
0.6670	تعرفة موحدة(Flat tariff)
20	القطاع شهريا(Monthly fixed charge)
القطاع التجاري مسبق الدفع (Commercial Prepaid)	
0.6370	تعرفة موحدة(Flat tariff)
0	القطاع شهريا(Monthly fixed charge)
القطاع الصناعي - الضغط المنخفض (Industrial Low Voltage)	
0.5366	تعرفة موحدة(Flat tariff)
30	القطاع شهريا(Monthly fixed charge)
القطاع الصناعي - الضغط المتوسط (Industrial Medium Voltage)	
0.4866	تعرفة موحدة(Flat tariff)
120	القطاع شهريا(Monthly fixed charge)
قطاع مضخات المياه(Water Pumps)	
0.5370	تعرفة موحدة(Flat tariff)
30	القطاع شهريا(Monthly fixed charge)
القطاع الزراعي (Agricultural)	
0.4970	تعرفة موحدة(Flat tariff)
10	القطاع شهريا(Monthly fixed charge)
قطاع انارة الشوارع(Street Lights)	
0.5030	تعرفة موحدة(Flat tariff)
10	القطاع شهريا(Monthly fixed charge)
قطاع الخدمات المؤقتة فاتورة(Services – Post-paid)	
0.8366	تعرفة موحدة(Flat tariff)

20	اقتطاع شهري ثابت(Monthly fixed charge)
قطاع الخدمات المدفوعة مسبقا-خدمات(Services Prepaid)	
0.8366	تعريفة موحدة(Flat tariff)
10	اقتطاع شهري ثابت(Monthly fixed charge)

Assessment and Action Plan to improve payment for electricity services in the Palestinian Territories

August 2014

WORLD BANK GROUP

Acronyms and Abbreviations

CP	Connection Point
DISCO	Distribution Company
GEDCO	Gaza Electricity Distribution Company
GPGC	Gaza Power Generating Company
HEPCO	Hebron Electric Power Company
IEC	Israeli Electricity Corporation
JDECO	Jerusalem District Electricity Company
KPI	Key Performance Indicator
kWh	Kilo Watt Hour
MDLF	Municipality Development Lending and Funding
MOE	Ministry of Economy (Palestinian)
MOF	Ministry of Finance (Palestinian)
MOI	Ministry of Interior (Palestinian)
MOJ	Ministry of Justice (Palestinian)
MOLG	Ministry of Local Governance (Palestinian)
NEDCO	North Electricity Distribution Company
PA	Palestinian Authority
PCBS	Palestinian Central Bureau of Statistics
PENRA	Palestinian Energy and Natural Resources Authority
PERC	Palestinian Electricity Regulatory Commission
PETL	Palestinian Electricity Transmission Company Ltd.
PNA	Palestinian National Authority
PUA	Power Utility Authority (Israeli Electricity Regulator)
PwC	PricewaterhouseCoopers
SELCO	Southern Electricity Company
TEDCO	Tubas Electricity Distribution Company
TOR	Terms of Reference
WB	World Bank
Wh	Watt Hour

Table of Contents

Executive Summary **5**

Non-Payment for Electricity Services in the Palestinian Territories 5

Results of the assessment 6

Recommended priority actions 10

1. Introduction **13**

2. Overview of the Palestinian Electricity Sector **15**

2.1. Electricity Supply 15

2.2. Institutional Setup 16

2.3. Key Players 16

2.4. Connection Points Owners 19

2.5. The Sector in the Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip 21

3. Analysis and key findings **22**

3.1 IEC invoice reconciliation and cycle 22

3.2 Non-payment of Distributors to the IEC 22

3.3 Electricity Losses 29

3.4 Collection from customers 32

3.5 Tariff Analysis 39

3.6 Efficiency and transparency of Distributors 47

3.7 Other reasons for non–payment 48

4. Conclusion **53**

4.1. Summary of analysis 53

4.2. Invoice reconciliation and cycle 55

4.3. Non-Payment from Distributors to the IEC 55

4.4. Electricity Losses 56

4.5. Collection from customers 56

4.6. Tariff 57

4.7. Efficiency and transparency of Distributors 58

4.8. Others reasons for non-payment 58

5. PA action plans and current donor programs **59**

5.1. Stakeholders' existing and planned action plans 59
5.2. Assessment of Palestinian stakeholder's existing and planned action plans 61
5.3. Conclusion of the assessment and revised action plan....71
Appendix A Assessment process for the study 83
Appendix B: Data Received from the World Bank....87
Appendix C: Overall data gathered by DISCOs and municipalities 89
Appendix D: List of connection point owners....91
Appendix E: Monthly comparison MOF versus IEC Net Lending data 99
Appendix F Payment flow to the IEC 100
Appendix G: Cost of electricity purchased from IEC vs. payments and Net Lending in ILS for 2010-2013 101
Appendix H: Customer survey and focus group –profile of respondents 104
Appendix I: Percentage Distribution of Households by Region and Type of Electricity Meter Used-January 2011....106
Appendix J: Palestinian stakeholders action plans....107
Appendix K: Governmental Subsidy for DISCOs (in ILS)....115
Appendix L: Main features of West Bank and Gaza Electricity 116
Appendix M: PERC Current Tariff Structure....118

List of tables

Table 1: Distribution companies in Palestinian Territories 17
Table 2: Major municipalities and villages councils who distribute electricity in West Bank 18
Table 3: Distribution of connection points between the different Distributors 19
Table 4: PA revenues from clearance revenue vs. electricity Net Lending 2010-2013 23
Table 5: Non-payment to IEC analysis for all regions (all figures in million ILS) 2010-2013.... 26
Table 6: Largest non-payers to IEC period 2010-2013 27
Table 7: Percentage of electricity losses for DISCOs 30
Table 8: Cost of losses in the West Bank 31
Table 9: Cost of losses in Gaza 31
Table 10: Saving estimations for West Bank based on assumption (in ILS) 32
Table 11: Average yearly collection for DISCOs 2009-2013 33
Table 12; Qalqiliya collection rate 2011-2013 34
Table 13: Reasons for non-payment in West Bank 37
Table 14: Reasons for non-payment in Gaza.... 37
Table 15: Willingness to pay survey results 38
Table 16: Factors to encourage payment customer survey results 39
Table 17: Israeli Tariff as 16.5.2013: Fixed rates – Agorot per kWh 40
Table 18: Governmental subsidy 2011-2013 in ILS – excluding the subsidy for the social cases 46
Table 19: JDECO Refugee camps consumption characteristics in 2013 49
Table 20: NEDCO – Refugee camps consumption characteristics 49
Table 21: HEPCO – Hebron Old City consumption characteristics.... 51
Table 22: Howwarah and Einabos consumption characteristics 51

Table 23: NEDCO – Nablus old city consumption characteristics 51
Table 24: DISCOs implementing assistance to social cases in the West Bank 52
Table 25: Overall data gathered from DISCOs for 2012 89
Table 26: Overall data gathered for municipalities for 2012 90
Table 27: Sample selection for survey 104
Table 28: West Bank electricity main characteristics for 2010-2013 116
Table 29: Gaza Electricity main characteristics 116

List of diagrams

Diagram 1: MV and LV connection point schematic diagrams 15
Diagram 2: Electricity sector institutional setup 16
Diagram 3: General overview of payment and non-payment from Palestinian Distributors to IEC 23
Diagram 4: Electricity losses 30
Diagram 5: Assessment process for the study 83
Diagram 6: Payment Flow to IEC 100

List of Charts

Chart 1: Overview of non-payment in the West Bank in 2013 (in million ILS) 10
Chart 2: Overview of non-payment in Gaza in 2013 (in million ILS) 10
Chart 3: Savings expected from the implementation of the action plan 12
Chart 4: Electricity sources in West Bank and Gaza Strip in 2013 16
Chart 5: Electricity purchases from IEC per Distributor 18
Chart 6: Total Net Lending, Direct Payment and Debts in ILS for West Bank and Gaza for the Period 2010-2013 24
Chart 7: Total non-payment (Net Lending, Debts) and Direct Payment in ILS for West Bank and Gaza regions for the Period 2010-2013 25
Chart 8: Growth of non-payment 2010-2013 25
Chart 9: District Poverty rate vs. deduction and payment 2013 according to MOSA data 29
Chart 10: Electricity losses and sales (kWh) 2010-2013 in West Bank 31
Chart 11: Collection to purchase cost from all sources 34
Chart 12: Collection percentage per customer category 36
Chart 13: Actions Taken When Salaries are late 39
Chart 14: Comparing purchase and sales tariff 2009-2013 41
Chart 15: Comparing purchase and sales tariff 2009-2013 42
Chart 16: Comparison between sales tariff in the Palestinian Territories and Israel 44
Chart 17: Tariff per customer category in ILS 2009-2013 44
Chart 18: Largest 10 Non-Payers in West Bank plus GEDCO in % of payments 47
Chart 19: Overview of non-payment in the West Bank in 2013 (in million ILS) 53
Chart 20: Overview of non-payment in Gaza in 2013 (in million ILS) 54
Chart 21: Cost of electricity purchased from IEC vs. payments and Net Lending in ILS for 2010-2013 101
Chart 22: Cost of purchased electricity from IEC (estimated) vs. Net Lending and direct payment in ILS for Palestinian Territories regions 2010-2013 103
Chart 23: Percentage Distribution of Households by Region and Type of Electricity Meter Used, January 2011 106

List of maps

Map 1: Electricity Distributors in the West Bank and Gaza and DISCOs concession areas- 2013 source PETL 20

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CURRENCY EQUIVALENTS

Currency Unit = Israeli Shekel (ILS)

Average exchange rate of US$ against the Israeli shekel during 2010-2013

	2010	2011	2012	2013
Annual average	3.73	3.58	3.85	3.60

Average 2010-2013: US$1 = 3.69 ILS

Definitions

Clearance mechanism "Maqasa"	Mechanism through which indirect taxes[1] are collected by Israel on behalf of the PA and normally refunded via clearance procedures which were agreed in the 1994 Oslo accords (Protocol of Economic Relations also called the 'Paris Protocol'[2]).
Net Lending	For the purpose of this engagement Net Lending refers to the indirect payment made by the PA to IEC through deductions by the Israeli Ministry of Finance on clearance revenues collected on behalf of the PA. These deductions are made to cover portion of the unpaid electricity bills from Palestinian electricity Distributors.
Debt/outstanding debt	Open payments for all connection points in the West Bank and Gaza to IEC for the purchase of electricity which has not been paid by the connection point owner or covered by the Net Lending
Non-Payment	Non- payment by customers to DISCOs, municipalities and village councils for the cost of electricity consumed or Non-payment by DISCOs, municipalities and village councils for the cost of electricity purchased from the IEC which is equal to Net Lending + Debt
DISCO	Electricity Distribution Companies that sell and deliver electricity to customers
GEDCO	Gaza Electricity Distribution Company. It is important to note that: • GEDCO is the sole electricity Distributor in the entire Gaza Strip. • It purchases electricity from 3 different sources: IEC, the Gaza Power Generating Company (GPGC) and Egypt. • Information and data included in this report regarding Net Lending only covers electricity from the IEC.
JDECO	Jerusalem District Electricity Company. JDECO's concession area includes the districts of Ramallah/El Bireh, Jerusalem, Bethlehem and Jericho: the "Center area of West Bank".
HEPCO	Hebron Electricity Power Company – HEPCO's concession area includes Hebron and Halhul cities: part of the "Southern area of the West Bank".
SELCO	Southern Electricity Company - SELCO's concession area includes the cities of Yatta, Durra and Dahriya and other villages in the Southern area of the West Bank.
TEDCO	Tubas Electricity Distribution Company - TEDCO's concession area includes most of Tubas district as well as other villages in the Jenin district.
NEDCO	North Electricity Distribution Company NEDCO's concession area includes the cities of Nablus, Jenin and other villages in Nablus and Jenin districts.
Electricity Losses	Difference between electricity purchased from the IEC measured at IEC meters at each connection point and the electricity sold to Palestinian customers measured at the customer electricity meters. Electricity losses include technical losses due to inefficiencies in the distribution network, and non-technical losses due to

[1] As described in the Protocol of Economic Relations also called the 'Paris Protocol'
[2] http://unispal.un.org/UNISPAL.NSF/0/15AF20B2F7F41905852560A7004AB2D5

	electricity theft.
Top 10	Largest 10 non-payers in the West Bank
Special Areas	Areas with high losses and low collection rate within Distributors' serviced areas such as camps, Area C and Old Cities
Distributors	All Palestinian electricity providers including, DISCOs, municipalities and village councils
Time of Use Tariff	Electricity prices are set for a specific time period (season, time of the day, weekends and holidays) on an advance or forward basis.

Executive Summary

Non-Payment for Electricity Services in the Palestinian Territories

1. The Palestinian Territories (West Bank and Gaza Strip) are highly dependent on energy imports from neighboring countries due to the lack of domestic energy resources. The Palestinian Territories consumed 5,430 GWh of electricity as of 2013 (1,581 GWh in the Gaza Strip and 3,849 GWh in the West Bank). The Israeli Electricity Corporation (IEC) is the largest supplier of electricity providing the Territories with around 88% of its total electricity consumption. In 2013, 4,778 GWh were imported from IEC amounting to 2.4 billion ILS (US$ 660 million).

2. In this context, the Palestinian Authority (PA) -with support from the international community- has been actively engaged in a comprehensive reform of the electricity sector to increase its overall efficiency for the benefit of the Palestinian population. The commitment and involvement of all stakeholders in this extensive restructuring has resulted in the creation of a well-structured electricity market. Additionally, the international community has been facilitating the strengthening, rehabilitation and extension of the transmission and distribution systems in order for the PA to be able to meet the growing demand for electricity in the Palestinian Territories.

3. Alongside the steady increase in electricity consumption, non-payment for electricity imported from the IEC has increased over the past few years, amounting to 58% of its total cost (equivalent to 1,407 million ILS or US$ 381.3 million in 2013). Non-payment of IEC's electricity bills by Palestinian electricity distributors, including municipalities, village councils and Distribution Companies (DISCOs) remains a key challenge to the electricity sector and to the overall fiscal position of the PA. Outstanding payments owed to the IEC are either (i) deducted from the PA's clearance revenues by the Israeli Ministry of Finance and registered as "Net lending[3]" or (ii) are accumulated as debt owed to the IEC.

4. Net lending reduced the PA's available revenues by an estimated 1 billion ILS in 2012 (US$ 280 million), representing 13.5% of the PA's total revenues. The IEC only recovered part of the non-paid bills by Palestinian electricity distributors through Net lending, which led the outstanding debt to grow over the years reaching a total of 1.172 billion ILS (US$ 330 million) as of February 2014. Even if a settlement of this historic debt is agreed upon by Palestinian and Israel stakeholders, additional debt would continue to accumulate in the future unless decisive actions are taken to address the underlying issues of non-payment for electricity services in the Palestinian Territories.

5. More recently, to complement the electricity sector reform, the Palestinian Energy and Natural Resources Authority (PENRA) initiated several measures specially targeted at reducing electricity non-payment. These measures include amendments to the Electricity Law covering punitive actions for electricity theft. While the initiatives introduced by PENRA may have a positive effect, a cohesive strategy is required to successfully deal with this problem.

6. This assessment aims to more precisely understand the sources and reasons for non-payment of electricity in the Palestinian Territories and to develop an action plan based on current programs and activities led by PENRA and the donor community.

[3] For the purpose of this engagement Net Lending refers to the indirect payment made by the PA to IEC through deductions by the Israeli Ministry of Finance on clearance revenues collected on behalf of the PA. These deductions are made to cover unpaid electricity bills from Palestinian electricity Distributors

Results of the assessment

7. To present a comprehensive overview, the report has assessed the impact of non-payment for electricity services throughout the complete financial payment cycle as follows:

a. IEC's invoice cycle:

There are no procedures for the invoicing of electricity from the IEC to the Palestinian distributors. The current process is not harmonized for all electricity distributors and lacks transparency. Distributors in various areas of the West Bank and Gaza do not have access to meters located in area C in the West Bank, and meters near the borders between Gaza and Israel. Further, some electricity distributors claim that they do not receive IEC's invoices on regular basis, which results in them not paying their bills.

Any late payment leads to the addition of a late payment fee or an added interest. Interest rates for late payment are set unilaterally by the Israeli Public Utility Authority (PUA) and are high compared to commercial interest rates in both the Israeli and the Palestinian markets.

While Israeli deductions from the clearance revenues collected on behalf of the PA are not implemented in a transparent manner, some progress has recently been recorded. IEC, for example, provided PENRA and the World Bank with critical data and information to complete this assessment. Since then, the Palestinian Electricity Transmission Company Ltd. (PETL) stated that IEC has been sending regularly their invoices. This process should lead to an institutionalized, regulated and transparent cooperation between the IEC, PUA and PETL.

b. Non-payment by Palestinian electricity distributors to the IEC:

In the period 2010 to 2013, Palestinian electricity distributors in the West Bank did not pay 37% of their bills to the IEC. During the same period, non-payment reached 100% in Gaza.

The Top 10+1 group of non-payers, which included the largest ten non-payers in the West Bank and the Gaza Electricity Distribution Company (GEDCO), represented 92% of the total non-payment of Palestinian electricity distributors to IEC.

GEDCO was the single largest non-payer, accounting for more than 1.7 billion (US$ 471 million) or 41.8% of the total non-payments to the IEC from 2009 to 2013. During the same period, JDECO was the second largest non-payer contributing to more than 1.1 billion ILS (US$ 297 million) or 26.3% of the total IEC non-payments.

c. Electricity Losses:

Electricity losses were high and steady at 23-30% between 2010 and 2013. Distributors did not have proper tools to measure losses and could not differentiate between technical and non-technical losses. GEDCO, in particular, did not have the necessary tools to assess its losses and could not access the meters required for an appropriate measurement and categorization of losses. Losses in GEDCO and JDECO concession areas were reported to reach very high levels and should be dealt with as a priority.

In 2013, electricity losses caused significant revenue loss to Palestinian distributors – estimated at 726 million ILS (US$ 201 million). Due to high electricity losses, revenues from invoiced amounts to end customers in the West Bank were only able to cover the cost of electricity purchased from the IEC and did not cover the electricity distributor's operating and investment costs. The amount invoiced to customers in Gaza only accounted for two thirds of the electricity purchases for the whole Gaza Strip while one third of the purchased quantity (247 million ILS) was lost either as a technical or a non-technical loss.

d. Collection from customers:

The overall bill collection rate from end customers in the West Bank and Gaza for the period 2010-2013 was better than expected, but customer payment has consistently been decreasing in the West Bank and increasing in the Gaza Strip. The increase of payment in Gaza can perhaps be attributed to a program to roll-out pre-paid meters across Gaza and the successful implementation of an automatic electricity bill deduction from civil servant salaries.

Overall, Special areas such as refugee camps, i.e. areas with low collection rates and high electricity losses, and institutions of the Palestinian Authority are the poorest payers. Their poor payment performance is also claimed to negatively impact the payment behavior of other customers.

The main reasons attributed to the deterioration of the collection rate in the West Bank can be summarized as follows:

- Israeli deductions from the clearance revenue, e.g. November 2012, give the impression that customer bills are and will be paid for by the PA.
- PA introduced incentives for customers committed to pay their bills and for the indebted customers to reschedule their debts. As an example JDECO deducted 14 million ILS from committed customers since starting this initiative and cancelled 8 million ILS of debt for indebted customers. However, the Palestinian Government did not compensate JDECO for these amounts. Also, the Israeli deductions from clearance revenue in November 2012 and PA's measures for indebted customers created a disincentive for committed customers, which resulted in a significant decrease in JDECO's collection rate from 96% in 2012 to 83% in 2013.
- Unpaid bills from PA institutions, in particular for water pumping, resulted in most of the electricity distributors unilaterally settling their debts[4] to the Ministry of Finance (MOF) from the unpaid consumption of the PA institutions. This unilateral settlement between the DISCOs and MOF was not done consistently or systematically and was time consuming. If PA institutions would pay for their electricity consumption, collection rates could increase by 3-5%.
- Municipalities are not paying for their bills for services such as street lighting and water pumping. If municipalities would pay for these services, collection rates could increase by 1.5-2.5%.
- Subsidies made available by DISCOs for social cases but then not repaid by the government also contribute to a lower collection rate.
- Special areas, such as refugee camps and certain villages have low collection rates. If bill collection rates from these Special areas could be increased to benchmark levels, collection rates would increase by 4-6%.
- The quality of the service provided by Palestinian electricity distributors to customers in the West Bank and Gaza is deemed to also be one of the reasons for the deterioration of the collection rate. Customers have voiced severe criticism on a declining service quality.

e. Tariff analysis:

The purchase tariff is set unilaterally by the Israeli Electricity Regulator (PUA) as a bulk tariff for medium or low voltage. This is contested by the Palestinian Authority (PA) as it does not consider the Palestinian electricity distributors as one unit. As the largest single customer to the

[4] Amounts owed by Palestinian Electricity distributors to the Ministry of Finance (MOF) related to Net Lending.

Israeli Electricity Corporation (IEC), it is recommended that the tariff be set at an export wholesale price only including the cost components applicable to PA's consumption and removing non-applicable components, such as the renewable energy component.

The PA has been involved in talks with its Israeli counterpart for the past 10 years to negotiate a commercial agreement for the sale and purchase of electricity, i.e. Power Purchase Agreement. However, progress on reaching an agreement has been slow, and it is recommended that this process is brought to a conclusion as soon as possible.

As for the sales tariff, the Palestinian Electricity Regulator (PERC) has been setting the sales tariff to the Palestinian customers since 2011 based on a cost plus approach to cover the cost of electricity purchased from IEC as well as the operational expenses and an acceptable profit margin for electricity distributors. According to the methodology, the tariff would be reviewed yearly and be amended to include benchmarks for certain key performance indicators (KPIs), including losses and operating costs in order to enhance the efficiency of DISCOs. PERC is currently in the process of reviewing the tariff for the first time, which will include reviewing the different tariff components, such as the impact of removing subsidies and the inclusion of certain financial and quality KPIs.

The difference between the sales and the purchase tariff, also known as tariff margin, reached 54% after the new tariff was implemented in 2011. When the tariff was first applied, this margin was considered to be sufficient to cover all the cost of electricity distributors and was estimated to even allow them to earn a small profit. Since then, the tariff margin has decreased in the West Bank between 2010 and 2013 from 54% to 40% largely due to (i) subsidies included in the tariff, which are mostly not repaid by the Government, and (ii) a significant increase in the amount of electricity purchased from the IEC.

In order to avoid an increase in the sales tariff, the Palestinian Electricity Transmission Company Ltd. (PETL) should finalize the Power Purchase Agreement (PPA) with the IEC at a lower wholesale tariff, while PERC should set benchmarks for electricity distributors to reduce their operational expenses. At the same time, electricity distributors should cooperate with relevant electricity authorities to improve their efficiency. This further requires that all revenues from electricity services are primarily used to cover its purchase and operating costs.

As for Gaza, the average purchase tariff from all the sources[5] is nearly equal to the average sales tariff. GEDCO should review at least its commercial tariff, which is currently 20% less than the commercial tariff in the West Bank.

In order to reduce electricity generation cost from the Gaza Power Plant and to eventually use bill collections from customers to pay for IEC invoices, the PA has plans to supply the plant with natural gas instead of diesel. In addition to reducing the costs, this action by PA will also enable the plant to run at full capacity, which will then reduce the power shortages in Gaza.

In the West Bank, the PA introduced subsidies amounting to 200 million ILS (US$ 55 million) as part of the tariff between 2011 and the end of 2013. These governmental subsidies were adopted for political reasons essentially to satisfy customers and to prevent public disturbance as a result of electricity price increase. Unfortunately, due to the weak financial situation of the PA, MOF only repaid 40 million ILS (US$ 10.8 million) out of the 200 million ILS owed to electricity distributors[6]. The non-payment of these subsidies created more deficits to electricity distributors, which often chose to compensate for this cost by reducing their payments to the IEC. The outstanding unpaid subsidies owed to electricity distributors were 10.5 million ILS (US$ 2.9 million) representing about 4% of the estimated electricity purchase cost of distributors in the West Bank between 2011-2013.

[5] Gaza is supplied from IEC, Egypt and Gaza power plant which is fuel operated
[6] Distributors apply these subsidies in the tariff and need to be reimbursed by MOF

f. Efficiency and transparency of Palestinian electricity distributors:

According to the Palestinian Electricity law nº13, only licensed electricity distributors can sell electricity to customers. The law was implemented in 2009 to integrate municipalities, which were providing electricity services, in four efficient Distribution Companies (DISCOs) in the Palestinian Territories, three in the West Bank and one in Gaza. While many municipalities never joined the DISCOs, the existing DISCOs -which built structures to serve complete regions-, remained highly inefficient due to the absence of economies of scale. In parallel, those municipalities that did not join the DISCOs, kept their inefficient structure.

Distributors –and particularly municipalities and villages- have opaque financial systems with unclear payment mechanisms. MOLG reported that some municipalities have not yet proceeded with segregating their accounts. DISCOs also appear to be only moderately transparent showing an inability to report properly on their finances. Palestinian electricity distributors seem to be highly influenced by the internal political environment in which they operate.

Distributors choose to cover operational costs, investment costs and payments to shareholders before paying invoices to the IEC, which is one of the reasons for non-payment in the West Bank. Distributors were reported to have financed their shareholders through dividends and loans totaling 242 million ILS (US$ 67 million) in 2013, in spite of not completing their invoice payments to the IEC. NEDCO, HEPCO and SELCO, in particular, indicated that they use part of the collection from customers to fund ad-hoc payments to their municipal shareholders.

Municipalities, on the other hand, disburse funds collected from electricity sales to cover the payment of other services, such as education, health, project finance and rehabilitation projects. All these payments are vaguely categorized under "municipal finance".

g. Other reasons for Non-payment of electricity:

The analysis of the special areas[7] revealed that collection there is usually low, but significant differences in collection trends and behavior are nonetheless observed. In terms of absolute figures, the contribution of these areas to non-payment is quite low because they do not cover extensive areas or large numbers of customers, e.g. special areas in JDECO (refugee camps) only represent 5% of the total customers and 21% of JDECO non-payment to IEC in 2013.

It is critical to note, however, that in refugee camps the consumption per capita reached unprecedented levels, and non-technical losses are also significantly higher than in the rest of the Palestinian Territories.

Specific issues related to affordability and arrears in these areas were addressed by the PA through the introduction of incentives and subsidies for the benefit of social cases. Unfortunately, the subsidies for social cases were not paid by the government to the electricity distributors thus impacting the non-payment negatively. On the other hand, incentives to refugee camps were never implemented due to the refusal of customers in refugee camps to pay for their electricity consumption.

The special arrears analyzed in this assessment, in particular the refugee camps and the old city of Hebron, are considered to be areas that require special political attention in order to constructively tackle non-payment. Law enforcement in these areas is challenging and indeed requires the endorsement of PA's highest authority as well as the representatives of these areas.

[7] Areas of low collection and high losses such as refugee camps.

Distributors, in coordination with the PA, should nevertheless continue to address these issues. It is also crucial for DISCOs to improve public perception by launching media campaigns and developing customer service trainings for their employees.

The graph below illustrates the financial impact of the payment shortages in the payment cycle as well as issues arising from the purchase and sales tariff levels.

Chart 1: Overview of non-payment in the West Bank in 2013 (in million ILS)

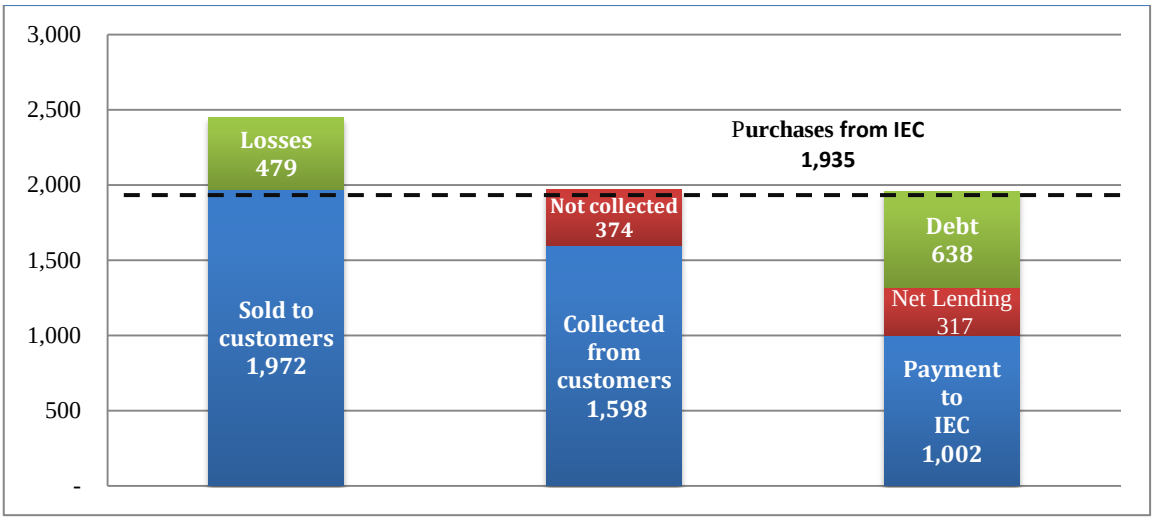
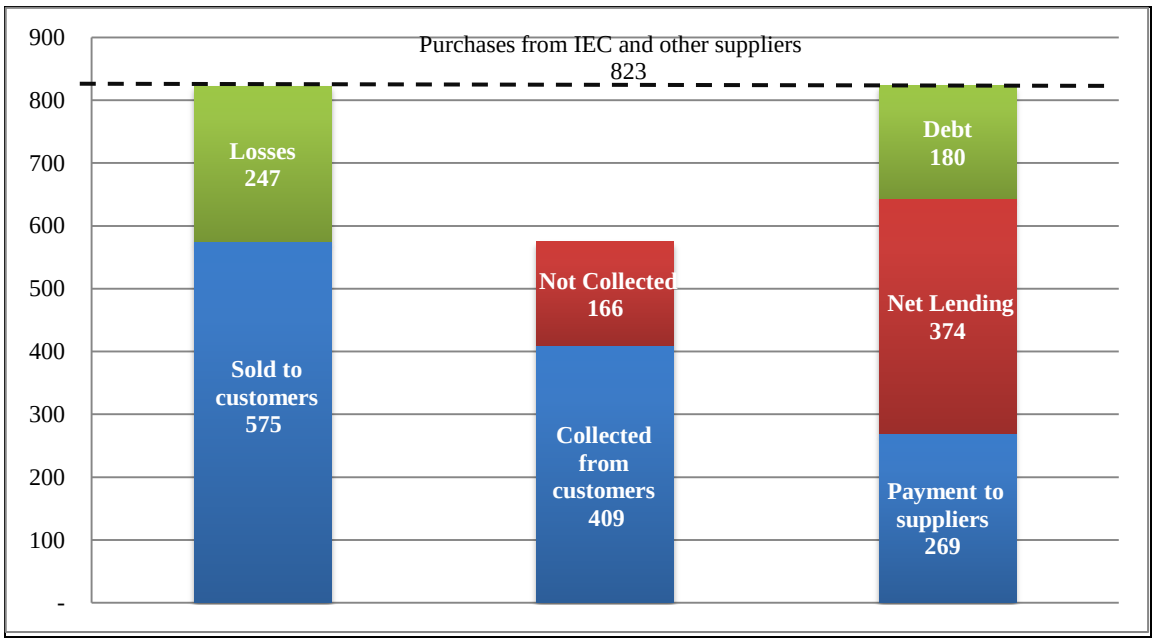


Chart 2: Overview of non-payment in Gaza in 2013[8] (in million ILS)



Recommended priority actions

8. The study reviewed the action plans from Palestinian stakeholders and the sectorial activities supported by donors to assess the extent to which these plans are addressing or will address non-payment for electricity services. The action plan proposed in this assessment incorporates both insights drawn from the analytical results and from the strategies currently being implemented by

[8] Suppliers to Gaza are IEC, GPGC and Egypt

PENRA and the PA –and supported by the international donor community. To be effective, the different actions suggested in the proposed action plan should be implemented as part of a cohesive broader plan monitored and regulated by a coordination entity comprising all sector stakeholders.

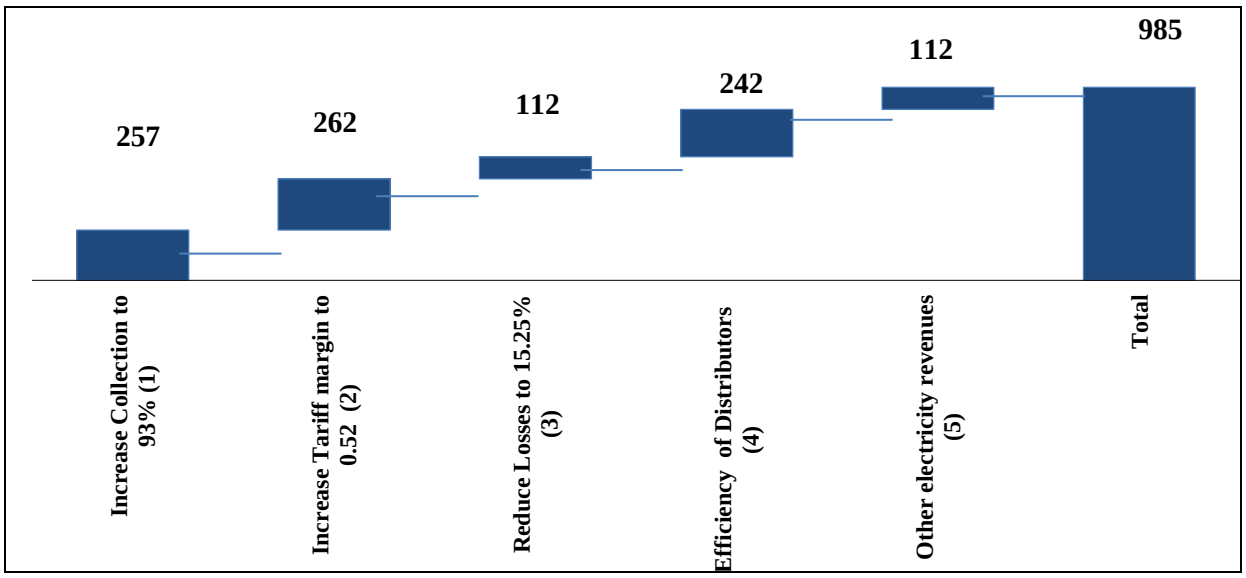
9. The action plan recommends to further develop the Palestinian electricity sector by continuing its on-going institutional reform, improving its legal and regulatory environment and developing key infrastructure to consolidate and monitor electricity supply. The success of the proposed action plan is highly reliant on steady donor support, which will need to be coordinated with a Special Committee that bears overall responsibility for the action plan, including the collaboration of all stakeholders, and monitoring payment improvement and progress in related aspects.

10. The action plan puts forward a set of recommendations classified by priority level (see Section 5.3 of the assessment for the complete list). The high priority recommendations are the following:

    - Expand the mandate of the existing "Net lending" governmental committee to be able to manage and monitor all actions proposed in the action plan to reduce non-payment. The performance of this specialized committee, which will ensure that all actions are coordinated and implemented correctly, is a precondition for the successful implementation of the action plan.
    - Continue capacity-building activities for PERC and PETL to ensure that both institutions are ready to implement satisfactorily key actions proposed in the plan.
    - Finalize a Power Purchase Agreement (PPA) between PETL and the IEC, which will (i) settle the issues related to the invoice cycle with the definition of clear invoice and payment procedures, (ii) set the purchase tariff at wholesale levels, and (iii) reduce non-payment to the IEC.
    - Establish a web-based database between PETL and the IEC to ensure timely transfer of invoices and payments to the IEC and to establish a reliable system to monitor payment cycles for all electricity stakeholders.
    - Install monitoring meters to measure and identify the location of non-technical losses in the Palestinian Territories and be able to take appropriate actions.
    - Rehabilitate electricity networks to reduce technical losses.
    - Install additional prepaid meters and smart metering systems to increase collections and timely payment from customers.
    - Conduct regular awareness campaigns.
    - Enable law enforcement and implementation of the legal actions arising under the amended electricity law.

11. The chart below illustrates the saving targets that could be reached with the cohesive implementation of all high priority actions proposed in the action plan. The saving targets set in the chart entails an increase in customer collection up to 93%, assumes a tariff margin set at around 0.52, with losses reduced to a mere 15.25% and revenue from electricity services used only to cover electricity expenses.

Chart 3: Savings in million ILS expected from the implementation of the action plan



(1) Increasing the collection rate to 93% will increase decrease non-payment by 257 million ILS.
(2) Increasing the tariff margin to 0.52 by reducing the whole sale price will decrease non-payment by 262 million ILS.
(3) Reducing the total losses to 15.25% will decrease non-payment by 112 million ILS.
(4) Increasing the efficiency of the Distributors by using the revenues from the electricity service to cover only the cost of the electricity will decrease non-payment by 242 million ILS.
(5) Utilizing other revenues from the electricity service such as fees, customer contribution in grid connection, fixed charge and other fees will reduce the non-payment by 112 million ILS.

1. Introduction

In the past few years, the Palestinian Authority - with support from the international community - has been actively engaged in a comprehensive reform of the electricity sector to increase its overall efficiency for the benefit of the Palestinian population. The commitment and involvement of all stakeholders in this extensive restructuring has transformed the sector and led to the creation of a well-structured electricity market. The Palestinian electricity sector now displays proper legal and regulatory frameworks, a suitable market model, well defined institutions and identifiable key market players.

In 2013, 88% of the total electricity purchased and provided to the Palestinian Territories (West Bank and Gaza) was supplied by the Israeli Electricity Corporation (IEC). The Palestinian Authority has faced many challenges over the years to both ensure the proper operation of the sector and secure the timely payments of invoices by Distributors to the IEC.

The non-payments or partial payments of these bills create deficits for the IEC which then leads the Israeli government to proceed with monthly deductions from the clearance revenue (tax and customs transfer) owed to the PA. The deducted amounts are transferred by the Israeli Ministry of Finance to the IEC, which then registers the remaining amount (if any) as debt. As a result, these non-payments are either accounted for as deductions from the clearance revenue - mechanism also known as Net Lending - or accumulated as debt[9].

Sector stakeholders have attributed the reasons for the non-payment to a variety of factors which can be summarized as follows:

- **Electricity Losses** whether technical or non-technical which result in shortfall between the quantity of electricity sold and invoiced by the IEC and the quantity of electricity which is sold to customers.
- **Collection from Customers** of electricity invoiced by Distributors which is believed to be low and continuously decreasing.
- **Tariff** at which electricity is sold to the customers is considered to be high and some Distributors indicated it did not even cover their costs. In addition, Distributors also indicated during the assessment workshop that the purchase tariff from IEC is deemed to be high and payment terms are unfair[10].
- **Efficiency and transparency of Distributors** is being questioned. This includes allegations that Distributors use the collected cash for other purposes than the settlement of invoices and operational costs. Revenues collected by Distributors from electricity sales are customarily consumed to cover the cost of purchased electricity, the operational expenses, the capital expenses, dividends for shareholders and other costs. In the Palestinian territories. Many DISCOs[11] do not properly settle their invoices and use part of the collection to make ad hoc payments to their shareholders[12]. Municipalities and village councils are also reported to use funds collected from electricity for other services such as payment of education health, municipal projects finance, etc. All these payments are categorized under "municipal finance".

The objective of this report is to support the on-going efforts to improve the payment for electricity services and reduce "Net Lending" in the West Bank and Gaza by: a) more precisely understanding the sources and reasons for non-payment for electricity within the Palestinian Territories, b) assessing current donor programs and PENRA actions aimed at addressing non-payment of electricity, and c) developing

[9] Invoices whether received by Palestinian distributors or not, should be paid within 14 days of issuance. Any payment delay will lead to a 10% annual late fee charge imposed by the IEC regardless of the circumstances.
[10] 11 days to pay to IEC after which they are imposed a late fee of 8.75%
[11] NEDCO, HEPCO and SELCO
[12] Which are all municipalities of village councils for these 3 DISCOs

an action plan that builds on the current donor programs to further improve payment for electricity in the Palestinian Territories.

The purpose of the assessment is to understand the reason for the non-payment and determine whether it is the result of the factors listed above. The detailed methodology followed to perform the assessment is provided in Appendix A. The list of data received from the IEC in provided in Appendix B and the data gathered by the Palestinian Distributors and Municipalities in Appendix C of the report.

The analysis of the reasons for non-payment in this report is based on an assessment of the consumption and payment data collected from the IEC between 2010-2013 for 286 connection points between the Palestinian Territories and Israel and data collected from Distributors covering the period between 2009-2013. The report includes an assessment of non-payment by customers (from Palestinian residential and commercial sectors, etc. to Palestinian Distributors), as well as non-payment by Palestinian Distributors to the IEC. The report also includes the conclusions of a survey and focus groups. Based on this assessment and taking into consideration existing strategies and proposed actions by the PA and the donor community, the report finally provides a detailed action plan with suggestions on how to improve non-payment and reduce Net Lending in the Palestinian Territories.

2. Overview of the Palestinian Electricity Sector

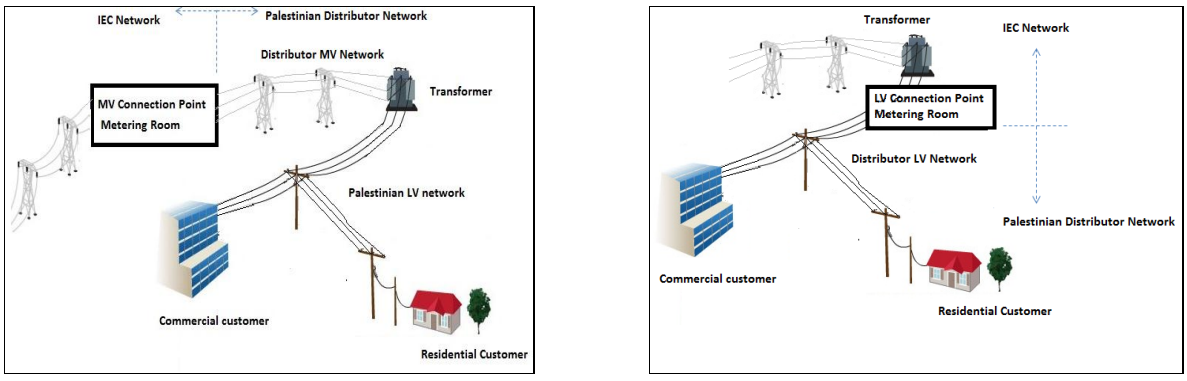
This chapter provides an overview of the electricity sector in the Palestinian Territories (West Bank and Gaza). It explains the set-up of the sector and the existing framework within which the issues were addressed and the recommendations developed. It examines the electricity supply chain in the West Bank and Gaza as well as the institutional set up and the main sector actors. Finally, it outlines the political context within which the sector is operating.

2.1. Electricity Supply

The Palestinian Territories are highly dependent on electricity supplies from the Israeli Electricity Corporation (Chart 1). Diagram 1 below illustrates the electricity supply mechanism where Palestinian loads to the West Bank and Gaza are distributed through the IEC controlled lines, which extend from the IEC substations. The Palestinian network only starts beyond the network connection points which are also currently under the administration of the IEC.

In 2014, 286 Low Voltage (LV) and Medium Voltage (MV) connection points belonging to 173 connection point owners[13] service the Palestinian Territories. Ten of these connection points supply the Gaza Strip while the remaining 276 supply the Palestinian areas in the West Bank. The capacity of the MV connection point is greater than that of the LV connection point which creates an opportunity to extend the network by installing additional transformers and lines within the Palestinian Territories when required. The Palestinian Authority (PA) with the support of the World Bank, the European Investment Bank (EIB) and other donors initiated the "Electric Utility Management Project (EUMP)" which includes the consolidation of a large number of the existing connection points in the West Bank into 4 high voltage substations financed by the EIB. The project, initiated in 2008 is currently under implementation with the first substation expected to be operational by the end of 2014. The operation of these PA owned substations should increase Palestinian control over imported electricity from Israel and pave the way for the PA to finalize negotiations on a commercial agreement with the IEC to supply the West Bank, and potentially reduce the price of electricity to customers[14].

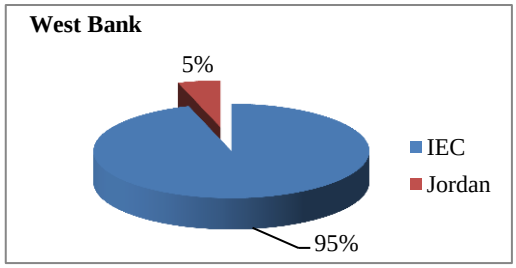
Diagram 1: MV and LV connection point schematic diagrams

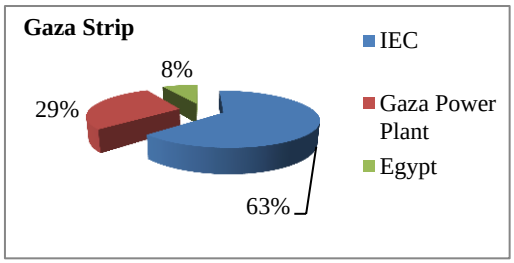


In addition to the supply from the IEC, a medium voltage connection line from Jordan supplies the West Bank city of Jericho with around 5% of the total West Bank electricity supply as of 2013. In Gaza, a fuel operated power plant provides the Strip with around 29% of Gaza's total supply, while as of 2013; an additional 8% is supplied from Egypt to Rafah, in the southern area of Gaza.

[13] List of connection point owners included in Appendix D
[14] There is currently no PPA between IEC and the PA and each connection point owner has a separate contract with IEC that does not go through PA

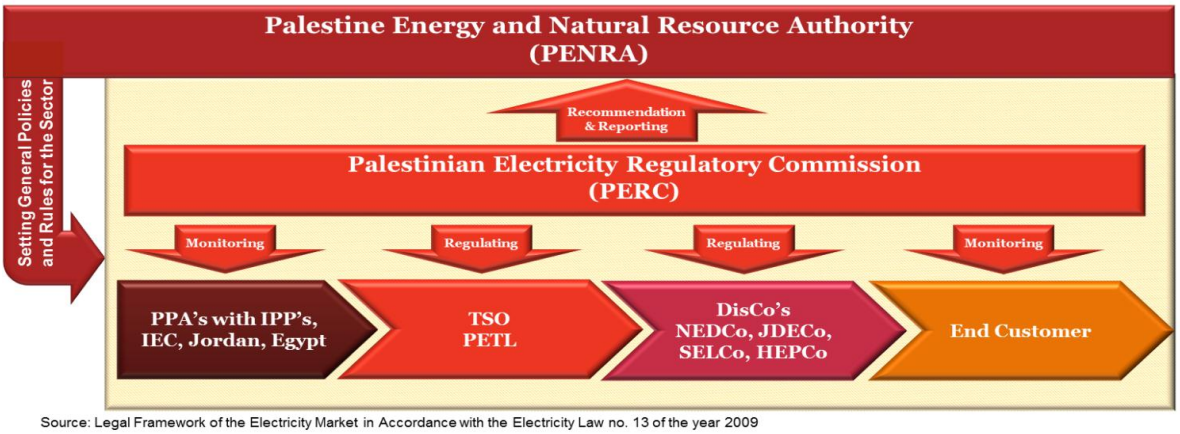
Chart 4: Electricity sources in West Bank and Gaza Strip in 2013





2.2. Institutional Setup

In the last few years, the Palestinian Authority with the support of the donor community committed to initiate a comprehensive restructuring of the electricity sector. An extensive reform process began which led to the establishment of robust institutions and provided the Palestinian Territories with one of the best structured markets in the Middle East. In 2009, the Palestinian Authority issued the electricity law which formulates this institutional set up and started with its implementation defined in Diagram 2.



Source: Legal Framework of the Electricity Market in Accordance with the Electricity Law no. 13 of the year 2009

Diagram 2: Electricity sector institutional setup

2.3. Key Players[15]

- **PENRA:** The Palestinian Energy and Natural Resources Authority former Palestinian Energy Authority was established in 1995 as the electricity policy maker. It is responsible for ensuring the provision of reliable electricity at affordable prices to Palestinian citizens.
- **PERC**[16]**:** The Palestinian Electricity Regulation Commission was established in 2010 to monitor and ensure a well performing sector based on high quality services and fair tariffs.
- **PETL**[17]**:** The Palestinian Electricity Transmission Company was established in the last quarter of 2013 to act as a single buyer in a regulated and organised environment.
- **Distribution Companies**

[15] The EU funded the Institutional Development and Electricity Sector Reform project which has been providing technical assistance to all sector stakeholders from 2011 to July 2013.
[16] PERC's starting and operation costs were financed by the World Bank,
[17] PETL's starting and operation costs were financed by the World Bank

Table 1: Distribution companies in Palestinian Territories

Company	Date of establishment	Geographical coverage	Customers	% of total electricity purchases from IEC in 2013	# of connection points
NEDCO	2010	Northern West Bank: Cities of Nablus, Jenin 8 councils joined in 2011 4 councils joined in 2012	44,000	9.7%	13
TEDCO	2002	Northern West Bank: Tubas + 18 villages	15,000 + 18 villages on bulk basis	1.8%	1
JDECO	1914	Center West Bank: East Jerusalem, Ramallah and Al-Bireh district, Bethlehem district and Jericho district	234,000	40.0%	51
HEPCO	2000	Cities of Hebron and Halhul	39,000	8.1%	5
SELCO	2004	Cities of Dura, Yatta and Daheria and villages in Southern West Bank	24,664	2.6%	17
GEDCO	1998	All Gaza Strip	212,000	20.8%	10
Total				83.1%	97

Of the six DISCOs currently operating, only two (JDECO and NEDCO) received distribution licenses from PENRA upon recommendation of PERC in 2011, in line with the electricity law. All other DISCOs are still operating without a formal license.

The electricity regulator PERC has not, until recently, been able to have any authority over GEDCO due to political differences between the West Bank and Gaza authorities. Although this situation is expected to improve shortly with reconciliation talks between the two parties under way, GEDCO is yet to apply the unified tariff prevalent in the West Bank under PERC's recommendations.

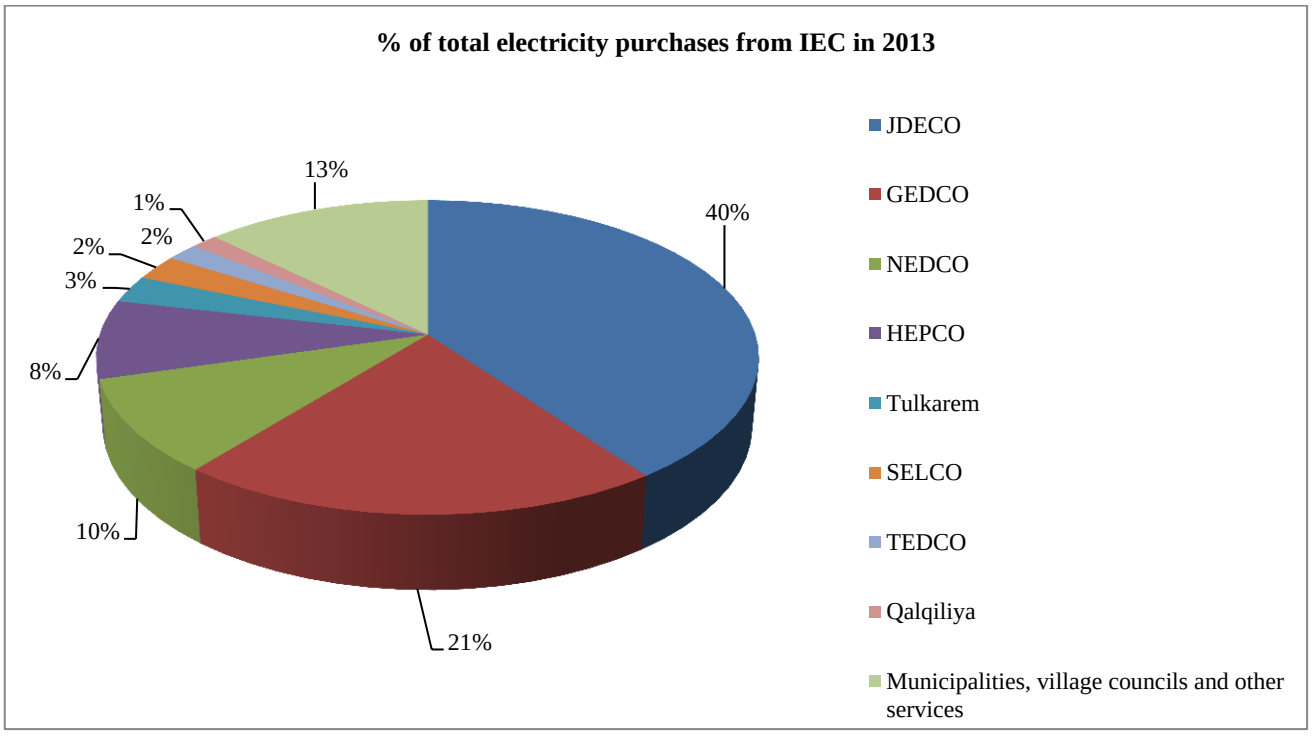
Comprehensive tables including all data related to DISCOs including collection, tariff, losses, customer profile, etc. is attached in Appendix C.

- **Municipalities and village councils:** It is important to note that around 150 municipalities and village councils in the northern and southern regions of West Bank have not transferred their electricity services to DISCOs. The consumption of these municipalities and village councils represents about 22% of the total electricity purchased from the IEC to West Bank, and about 17% of the total purchased electricity from the IEC by the Palestinian Territories in 2013. The major municipalities and village councils not included in West Bank DISCOs are shown below.

Table 2: Major municipalities and villages councils who distribute electricity in West Bank

Distributor	Geographical coverage	Customers	% of total electricity purchases from IEC in 2013	# of connection points
North municipalities and village councils				
Tulkarem	Tulkarem city , Tulkarem camp, Nur Shams camp and another 2 villages	17920	2.8%	2
Qalqiliya	Qalqiliya city	12,193	1.5%	1
Ya'bad	Ya'bad an another 13 villages	5,668[18]	0.6%	1
Qabatia	Qabatia city	4,500[18]	0.5%	1
Salfit	Salfit city and other 2 villages	2,000[18]	0.3%	1
Illar	Illar and other 5 villages	3,700[18]	0.3%	1
South municipalities and village councils				
Beit Ummar	Beit Ummar and one village	2,500[18]	0.4%	1
Bani Naim	Bani Naim	3,307	0.4%	1
Si'ir	Si'ir	2,647[18]	0.3%	1
Beit Awwa	Beit Awwa	1,675[18]	0.3%	1
A-Shuyukh	A-Shuyukh	1,600[18]	0.3%	1
Idna	Idna	4,500	0.3%	1

Chart 5: Electricity purchases from IEC per Distributor



[18] Estimated

2.4. Connection Points Owners[19]

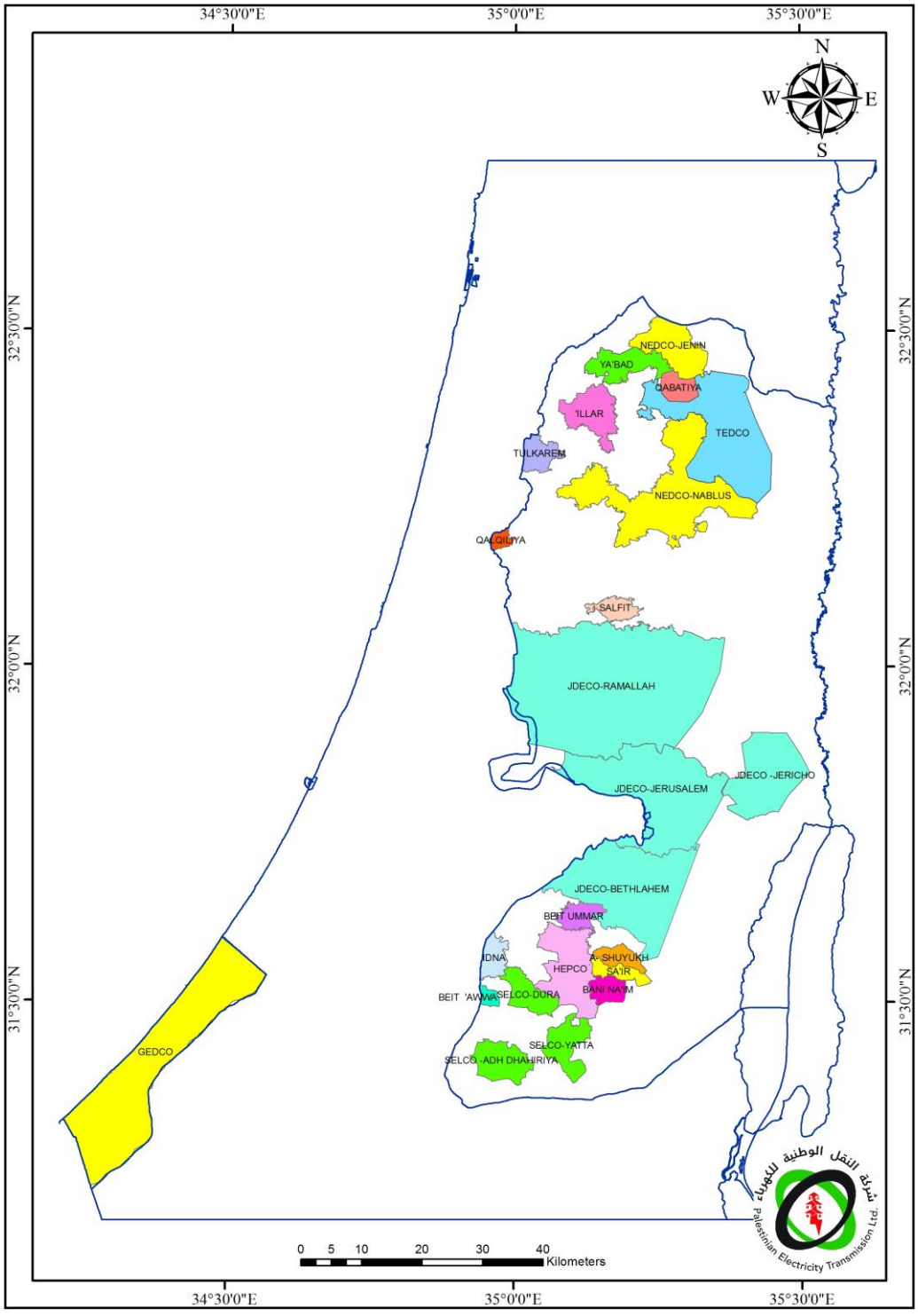
The 286 existing connection points are distributed between the different Distributors and few private sector organizations as shown in the next table.

Table 3: Distribution of connection points between the different Distributors

Company	# of connection points
NEDCO	13
TEDCO	1
JDECO	51
HEPCO	5
SELCO	17
GEDCO	10
Municipalities and village councils	175
Private sector	14
Total	286

[19] List of connection point as received by the IEC is attached in Appendix D

Map 1: Electricity Distributors in the West Bank and Gaza and DISCOs concession areas- 2013 source PETL



2.5. The Sector in the Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip

In the 1993 interim agreement on the West Bank and Gaza Strip, it was agreed that the "powers and responsibilities"[20] of the Palestinian electricity sector would remain with the Israeli Civil Administration, and would not be transferred to the Palestinian Authority. In Article 10 of this agreement, both sides agreed to continue their negotiations on Electricity matters with the aim of reaching a final settlement[2]. In the interim, the status quo in the electricity sector in the West Bank and Gaza will persist. This includes free, unrestricted and secure access for IEC personnel and equipment to the Palestinian electricity grid.

As of today, no agreement has been reached regarding the transfer of the power and responsibilities of the electricity sector from the Israeli Civil Administration to the Palestinian Authority with the exception of the Gaza Strip where the "power and responsibility" were transferred after the Israeli Disengagement from Gaza Strip in 2005.

It is worth noting that currently, while the Israeli Civil Administration is responsible for the power and responsibilities of the sector, it is not in a position to enforce some rules and regulations falling under this mandate such as setting the tariff on the Palestinian Distributors. The approval of the Israeli Civil Administration is still required for the installation of any new connection points as well as for the increase in capacity of existing connection points in the West Bank and Gaza. Finally, its approval is required for the installation of any new electricity lines in area C[21].

[20] http://www.incore.ulst.ac.uk/services/cds/agreements/pdf/is15.pdf

[21] The Oslo II Accord divided the West Bank into three administrative divisions: Areas *A*, *B* and *C :*

- *Area A* (full civil and security control by the Palestinian Authority): circa 3% of the West Bank, exclusive East Jerusalem (first phase, 1995). This area includes eight Palestinian cities and their surrounding areas (Nablus, Jenin, Tulkarem, Qalqiliya, Ramallah, Bethlehem, Jericho and 80 percent of Hebron), with no Israeli settlements. Entry into this area is forbidden to all Israeli citizens.
- *Area B* (Palestinian civil control and joint Israeli-Palestinian security control): circa 23-25% (first phase, 1995). This area includes some 440 Palestinian villages and their surrounding lands, and no Israeli settlements.
- *Area C* (full Israeli civil and security control): circa 72-74% (first phase, 1995): "areas of the West Bank outside Areas A and B, which, except for the issues that will be negotiated in the permanent status negotiations, will be gradually transferred to Palestinian jurisdiction in accordance with this Agreement".

3. Analysis and key findings

Analysis of the data collected from stakeholders during the review revealed the magnitude of the non-payment issue as well as its distribution throughout the West Bank and Gaza. It exposes the main non-payers in the Palestinian Territories as well as the causes of the non-payment. This chapter describes the non-payment issue, in particular the extent and main contributors as a starting point to understand the reasons identified for non-payment during the data analysis. Electricity losses, collection levels, level of purchase and sales tariff, governmental subsidies, and efficiency and transparency of sector participants (external and internal) were identified as the main factors contributing to the non-payment described below.

3.1 IEC invoice reconciliation and cycle

The IEC issues monthly invoices to connection point owners. These need to be paid within 11 days of the date of issue. Any delay in payment leads to a 10% annual late fee charge.

While the IEC bills are issued monthly, a number of Distributors [22] (mainly municipalities and village councils) indicated that these bills were rarely received by connection point owners or that the receipt was often delayed. The receipt of bills by connection point owner is the starting point to ensure proper and timely payment of invoices. An efficient mechanism to guarantee invoice deliveries and monitoring of payments should be designed and implemented to secure this operation. The invoice process needs to be fully transparent as most of the connection points are located in area C[21], where Palestinians have no access to connection points and this prevents them from reading the meters and verifying the accuracy of IEC's invoices.

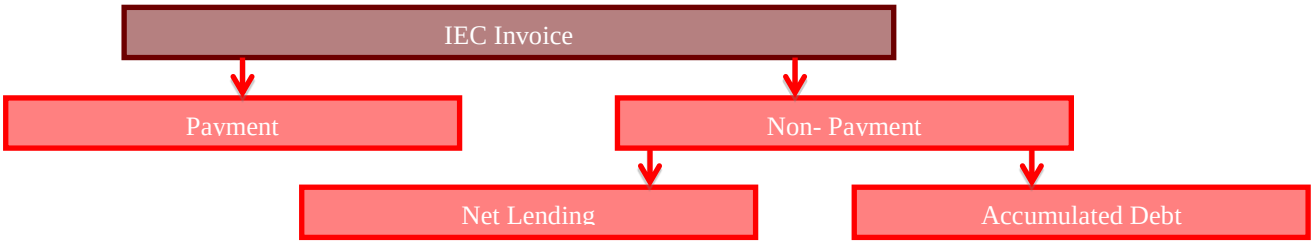
3.2 Non-payment of Distributors to the IEC

Although non-payment of electricity bills to the IEC started as early as 2002, the issue became a concern and priority for the PA in 2007 when the levels of non-payment showed significant year on year increases, resulting in 1407 million ILS (381 million US$) being due in 2013.

The non-payment and partial payment of electricity bills creates receivables for the IEC which then leads the Israeli government to proceed with monthly deductions from the clearance revenue (tax and customs transfer) owed to the PA. These amounts are transferred by the Israeli Ministry of Finance to the IEC, who then registers the remaining amount (if any) as debt from each connection point. As a result, these non-payments from the owners of connections points are either accounted for as deductions from the clearance revenue mechanism also known as Net Lending- or accumulated as debt. The absence of mechanism to monitor payments to the IEC makes it impossible to check if duplicate payments are made to the IEC by the connection point owner or through deductions from the clearance revenue. Discrepancies were actually detected between the monthly Net Lending amounts as registered at MOF and the IEC financial data as shown in Appendix E.

[22] GEDCO stated it had not received any IEC invoices for the past 3 years. PENRA started receiving these invoices at the beginning of 2014 and has been transmitting them to GEDCO shortly after.

Diagram 3: General overview of payment and non-payment from Palestinian Distributors to IEC



3.1.1. Non-payment figures

The analysis of the data[23] shows that for the period 2010-2013, the total non-payment amounts for the West Bank and the Gaza Strip reached 4.16 billion ILS (1,135 million US$ equivalent) [24]. This amount translates into non-payment of 37% of the total invoiced amount for the West Bank and 100% for Gaza. During that period, the Israeli Ministry of Finance proceeded with arbitrary deductions –following IEC's request- from the clearance revenue to partially compensate the non-payments. The amounts deducted and the frequency of deductions does not follow a set calendar or pattern and seem to occur following requests from the IEC to the Israeli Ministry of Finance and negotiations between the Israeli Government and the PA Ministry of Finance. These deductions are recorded as Net Lending on the PA's balance sheet and are shown as receivables against Distributors under the assets' category. The amounts which are not deducted are recorded as debts which are expected to either be paid by Distributors in future bills or will be later deducted through the clearance mechanism as Net Lending. A detailed description of the deductions from the clearance revenues is provided in Appendix F.

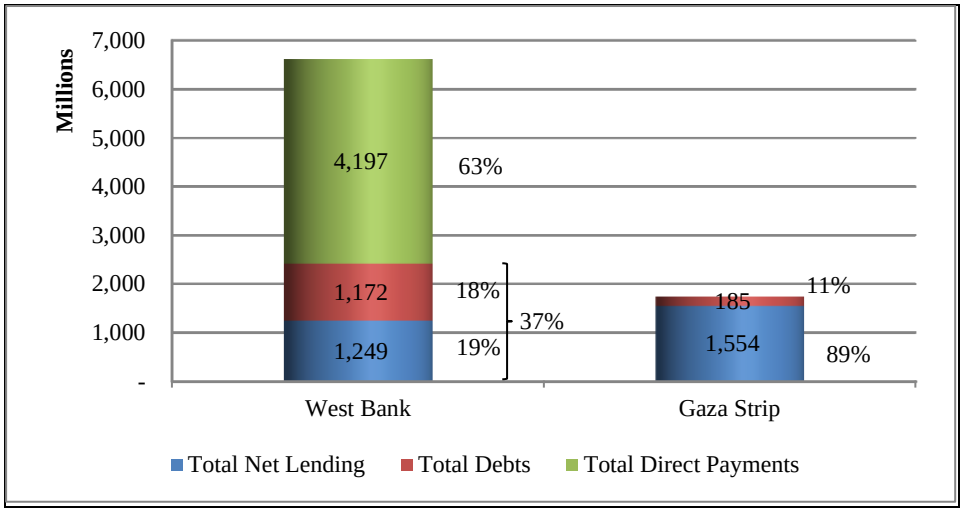
In 2012, the Israeli Ministry of Finance deducted a significant amount in comparison with the previous years to compensate for Distributor's accumulated debt. This led the Net Lending to increase to unprecedented levels that year reaching **13.5% of the total PA revenues**. The clearance revenue that year amounted for 70.3% of the total PA revenues[25] and Net Lending reached 19.2% of the total clearance revenue amount. These percentages and amounts illustrate both the dependence of the PA on the clearance revenue for its general budget and the burden represented by Net Lending on the PA general budget. The following table compares the clearance revenue and the electricity Net Lending for the period 2010-2013.

Table 4: PA revenues from clearance revenue vs. electricity Net Lending 2010-2013

Year	Revenue from clearance revenue (million US$)[26]	Electricity Net Lending (million US$)[27]	Percentage
2010	1,258.8	146.1	11.6%
2011	1,424.1	136.0	9.5%
2012	1,459.0	280.3	19.2%
2013	1,729.5	192.1	11.1%
Total	5,871.4	754.5	12.9%

[23] Received from IEC attached Appendix A. JDECO information was not provided by IEC and was obtained from JDECO directly.
[24] Debt is up to 02/2014 and not up to the end of 2013, which means it includes accumulated debts from the months of January and February 2014.
[25] Source: PCBS
[26] Source: Data for 2010-2012 from PCBS report "Performance of the Palestinian economy 2012", data for 2013 from MOF.
[27] Source: Data as received from IEC.

Chart 6: Total Net Lending, Direct Payment and Debts in ILS for West Bank and Gaza for the Period 2010-2013



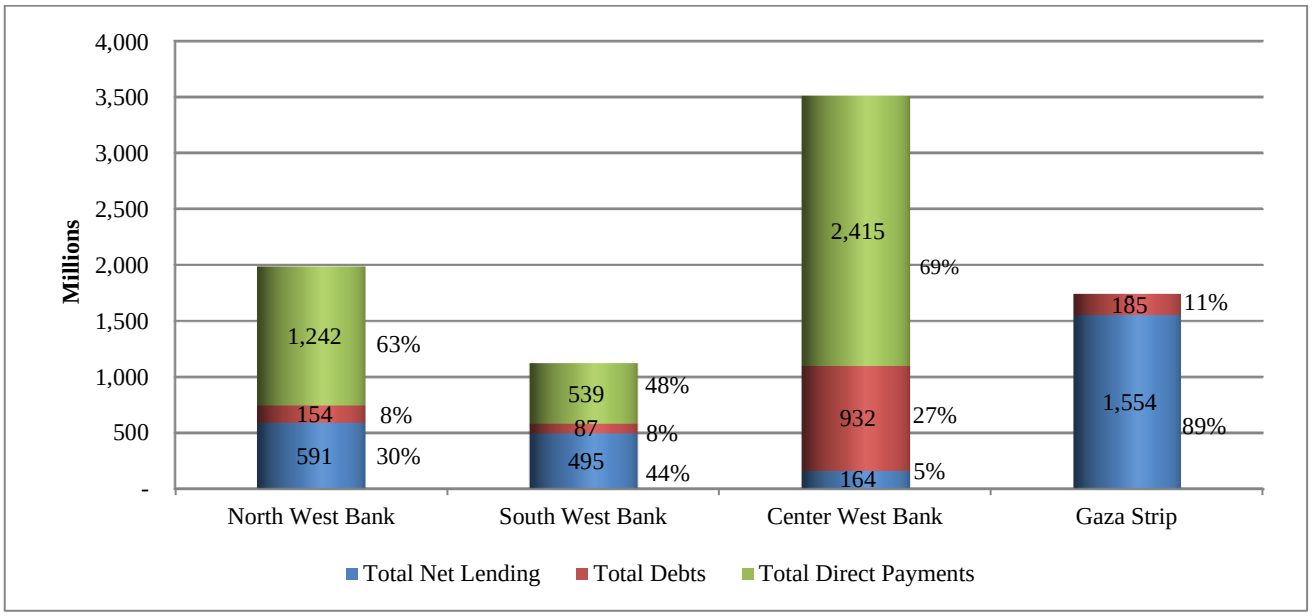
During this period non-payment to the IEC from the West Bank amounted to 2.422 billion ILS (664.7 million US$ equivalent) from which the Israeli Ministry of Finance deducted 1.25 billion ILS (334.7 million US$ equivalent) registered as Net Lending for the PA and the remaining amount of 1,172 billion ILS (330 million US$ equivalent) was registered as outstanding debt[24] to IEC.

During the same period, non-payment to the IEC from Gaza amounted to 1.74 billion ILS (471 million US$ equivalent) representing 100% of the total cost of IEC invoices for Gaza. 89% of this amount was deducted by the Israeli Ministry of Finance while the remaining 11% was recorded as outstanding debt to the IEC. The amounts of the overall non-payment are substantial and could be used by the PA for other priority expenditures in the electricity or other sectors.

3.1.2. Geographical distribution of non-payment 2010-2013

The next step to understand the extent of non-payment in the Palestinian Territory is to analyze the regional level of non-payment. The analysis clearly revealed that **Gaza** comprises the highest non-payments in absolute amounts (GEDCO concession area) with a total amount of **1.739 billion ILS (471 million US$ equivalent).** The **West Bank central region** (JDECO concession area) is next with a total amount of **1.096 billion ILS (297 million US$ equivalent)**. This clearly indicates that solving the non-payment issue in the Palestinian Territories will require focusing mainly on these two geographical areas which together represent **almost 70% of the non-payments** during the reporting period.

Chart 7: Total non-payment (Net Lending, Debts) and Direct Payment in ILS for West Bank and Gaza regions for the Period 2010-2013



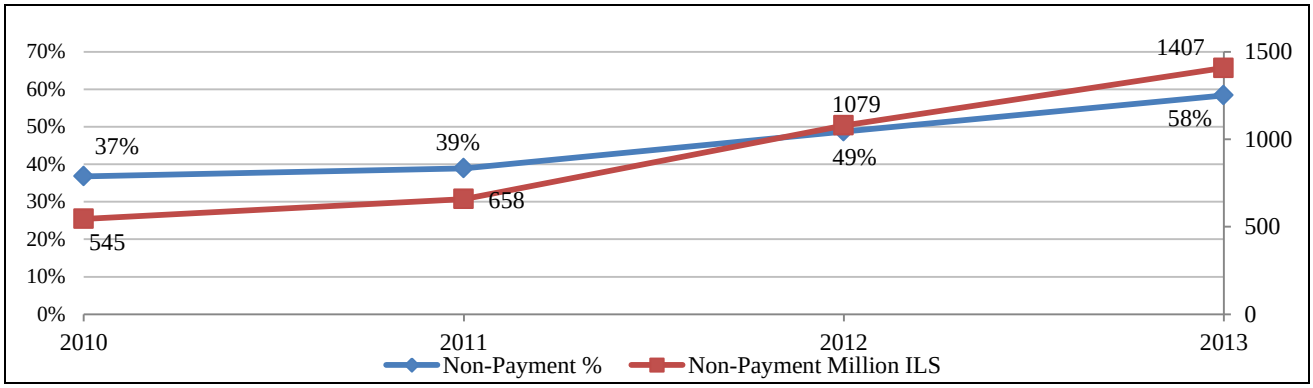
3.1.3. Progression of non-payment over the period 2010-2013

It is essential to acknowledge that during this reporting period, the price of electricity purchased by Palestinian Distributors from the IEC increased by 33%[28] going from 0.33 ILS/kWh to 0.44 ILS/kWh, since the increasing cost of electricity is one factor in terms of willingness to pay.

Non-payment during the period constantly and rapidly increased. In 2010[29] non-payment reached 37% of the total electricity cost and it jumped to 58% of the total electricity cost in 2013.

This non-payment can be attributed to several factors including, the increase in the purchase price from the IEC and a corresponding decline in willingness to pay, the decline in collection from customers and the 2012 large deduction executed by the Israeli authority through the clearance mechanism which gave Distributors and customers the impression that non-payment would automatically be compensated by the PA.

Chart 8: Growth of non-payment 2010-2013



To confirm whether non-payment was widespread in the Palestinian Territories or was only affecting certain regions more significantly, the data was broken up into regions. In the West Bank, the overall trend reveals that the increase in non-payment is generally in line with regional variables. In the Center

[28] Figures on purchased electricity corresponds to the authors estimation based on consumption data from IEC and tariff data from PERC
[29] From 2003 to 2009, the accumulated Net Lending amounted to 3.8 billion ILS

West Bank non-payment only started in 2011 and although it has the lowest non-payment percentage it shows the highest increase going from 0% in 2010 to 44% in 2013.

.

Non-payment in the Northern West Bank increased significantly in 2012 compared to the previous year. The Southern West Bank and Gaza have however, not seen any significant increases during this period with an average non-payment level of around 50% for the southern West Bank, and Gaza consistently not paying at all for IEC invoices.

The table below summarizes the regional distribution of non-payment to the IEC for the period 2010-2013. For a better appreciation of the scale and location of the non-payment during the period, charts have been developed and included in Appendix G (see Appendix G: Cost of purchase electricity vs. Net Lending and direct payment) to provide details of non-payment percentage per region for the West Bank and Gaza.

Table 5: Non-payment to IEC analysis for all regions (all figures in million ILS) 2010-2013

Region		North	South	Center	Gaza	Total
2010	Cost of Electricity	369	205	589	320	1483
	Net Lending	94	118	0	363	575
	Debt	-	-	0	-	0
	Non-payment	94	118	0	363	575
2011	Cost of Electricity	413	230	696	349	1688
	Net Lending	76	74	-	336	486
	Debt	33	28	96	13	170
	Non-payment	109	102	96	349	656
2012	Cost of Electricity	563	310	908	425	2206
	Net Lending	247	189	164	480	1080
	Debt	-	-	55	-	55
	Non-payment	247	189	219	480	1135
2013	Cost of Electricity	650	349	958	451	2408
	Net Lending	174	143	-	374	691
	Debt	162	59	417	77	715
	Non-payment	336	202	417	451	1406

This section has enabled us to understand the extent of non-payment from Distributors to the IEC in the West Bank and Gaza. The overall data collected provided clear evidence that non-payment has been consistently increasing in the West Bank and had always existed in the Gaza Strip. It further identifies the main regions and Distributors accountable for this increase.

3.1.4. Largest Non-Payers to IEC

To further identify the origin of the non-payment, an analysis of the largest non-payers to the IEC in the West Bank and Gaza was performed and revealed the following results.

The largest non-payer to the IEC is GEDCO with a total amount of non-payment reaching 1,738,750,017 ILS (471,205,967 US$). During the 2010-2013 reporting period, GEDCOs' contribution to the overall non-payment to the IEC reached 41.8% while in 2013 it only purchased 21% of the total electricity sold to the Palestinian Territories from the IEC.

JDECO is the second largest contributor to non-payment reaching a total of 1,095,484,015 ILS (296,879,137 US$). Although this figure is quite significant, it is worth noting that JDECO's contribution to the total IEC non-payment reached 26.3% while it accounted for around 40% of the total electricity purchases to the IEC in 2013.

The table below provides a more detailed list of the largest non-payers for the period 2010-2013 as well as an indication of the percentage of electricity they purchased from IEC in 2013.

Table 6: Largest non-payers to IEC period 2010-2013

DISCOs/Municipalities		Total non-payment	% to the total IEC non-payment 2010- 2013	% of total electricity purchases from IEC in 2013
GEDCO	ILS	1,738,750,017	41.8%	**21%**
	US$	471,205,967		
JDECO	ILS	1,095,484,015	26.3%	**40%**
	US$	296,879,137		
HEPCO	ILS	306,748,292	7.4%	**8%**
	US$	83,129,618		
NEDCO	ILS	300,557,342	7.2%	**10%**
	US$	81,451,855		
Tulkarem municipality	ILS	144,415,518	3.5%	**3%**
	US$	39,136,996		
SELCO	ILS	115,519,727	2.8%	**2%**
	US$	31,306,159		
Qalqiliya municipality	ILS	45,359,303	1.1%	**1%**
	US$	12,292,494		
TEDCO	ILS	41,343,742	1.0%	**2.0%**
	US$	11,204,266		
Qabatia council	ILS	8,203,976	0.2%	**13%**
	US$	2,223,300		
Beit Awwa village	ILS	21,515,034	0.5%	
	US$	5,830,632		
Beit Ummar municipality	ILS	16,593,021	0.4%	
	US$	4,496,754		
Others	ILS	325,494,204	7.8%	

	US$	88,209,811		
TOTAL	ILS	4,159,984,191	100.0%	**100.0%**
	US$	1,127,366,993		

3.1.5. Net Lending and poverty

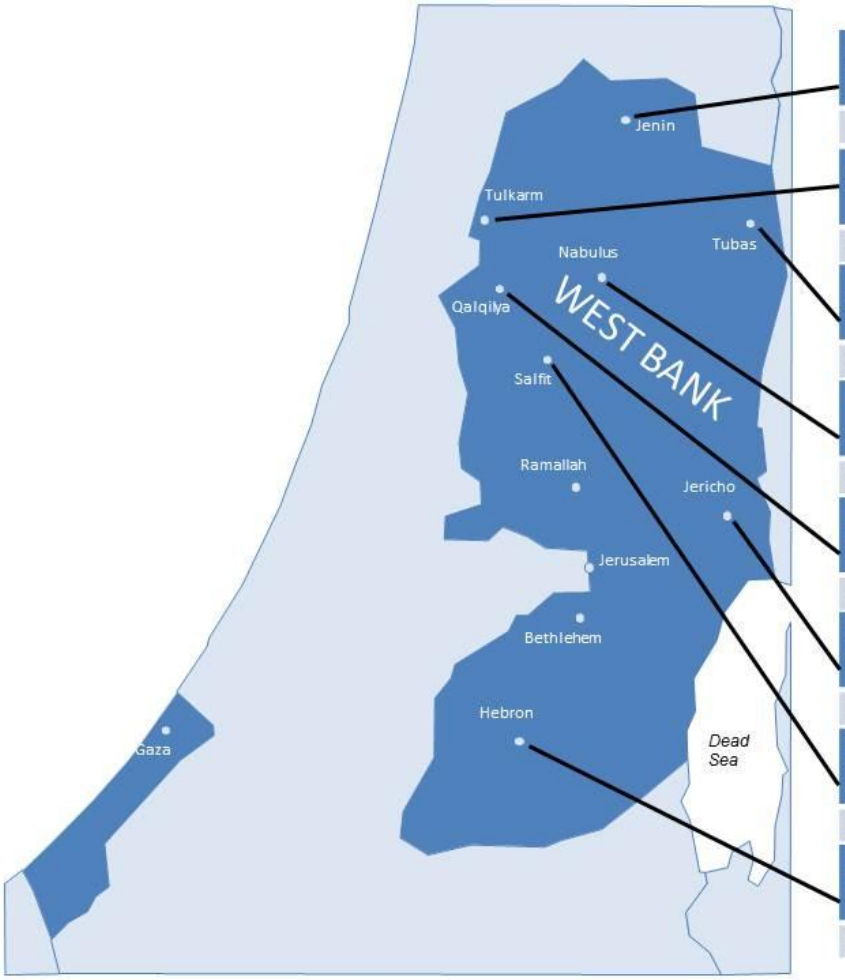
To identify the external factors that contribute to non-payment, it was also necessary to understand whether there is a link between non-payment to IEC and poverty. The assessment work therefore compared the non-payment in ILS/kWh to the IEC in 2013 data with the MOSA poverty data for the same year.

In 2013, the District with the lowest poverty rate was Nablus District with a poverty rate of 5.9% and non-payment about 40.4%[30]. Qalqiliya has the highest poverty rate of 15.9% and non-payment of 23.1% as shown in the chart below. An area with one of the highest non-payment percentage is the Jericho District (outside JDECO concession area) with 82.7% of non-payment, but the poverty rate of 13.8% is lower than other areas in the West Bank.

This shows that non-payment from the Palestinian Distributors to IEC is not connected to the poverty level of the customers supplied by these Distributors. For example, Nablus governorate which has one of the lowest poverty rates is one of the largest contributors to Net Lending and non-payment. This shows that poverty levels are not one of the main factors leading to non-payment of Distributors to IEC.

[30] As percentage of the kWh cost from IEC of 0.52 ILS/kWh including VAT

Chart 9: District Poverty rate according to MOSA data vs. non-payment to IEC in 2013



Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.30	57.7%	8.3%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.30	57.7%	14.2%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.20	38.5%	11.6%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.21	40.4%	5.9%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.12	23.1%	15.9%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.43	82.7%	13.8%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.16	30.8%	9.0%
Non-Payment ILS/ kWh- 2013	Non-Payment %	% of population registered at MoSA - 2013
0.30	57.7%	7.9%

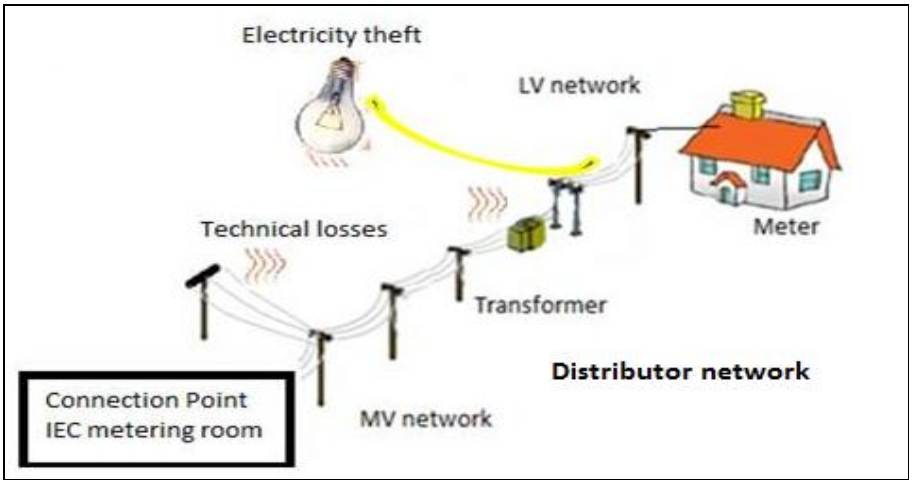
3.3 Electricity Losses

Distributors and other sector stakeholders often indicate that electricity losses are a major contributor to non-payment. It was therefore necessary to analyze the amount of losses and their link to non-payment.

Electricity losses can be defined as difference between the amounts of electricity purchased from the different electricity suppliers (mainly from IEC) and the electricity consumed by the end users as measured by their electricity meters.

Losses can be categorized into two types: technical losses and non-technical losses. Technical losses are losses on the electricity network (lines, cables, transformers, etc.), and these losses are the result of inherent resistance of electrical conductors and can be verified using load flow software analysis and measurements. Non-technical losses are the electricity which gets lost due to theft and errors of metering and billing. The losses locations are illustrated in the next diagram.

Diagram 4: Electricity losses



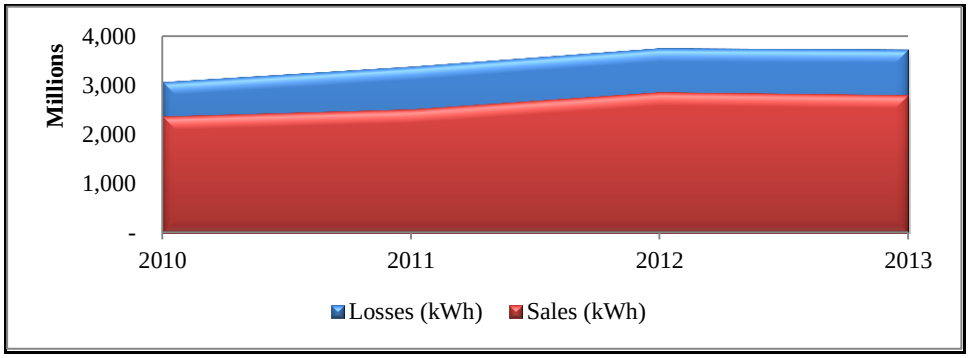
The total electricity losses (which are the difference between the purchased electricity from all sources[36] as measured at the connection points and the sold electricity to the customers as measured by their meters for the different DISCOs) did not vary much during the period 2010-2013; remaining steady at 23-30% although this is above the levels reported by other regional Distributors such as those in Jordan which has average losses of 13%.

Table 7: Percentage of electricity losses for DISCOs

Year	NEDCO	TEDCO[31]	JDECO	HEPCO	West Bank[32]	GEDCO[33]
2009			28%	22%	26%	30%
2010	18%	5%	26%	20%	23%	30%
2011	20%	4%	28%	22%	26%	30%
2012	18%	16%	27%	19%	24%	30%
2013	N/A	16%	26%	20%	25%	30%

[31] Losses reported for TEDCO in 2010 and 2011 only include losses from medium voltage network under the responsibility of TEDCO during this period. TEDCO took over responsibility of low voltage network from some municipalities in 2012, which can explain the increase in losses in 2012 and 2013.
[32] Estimation based on the sample.
[33] Estimations received from GEDCO.

Chart 10: Electricity losses and sales (kWh) 2010-2013 in West Bank



The total losses as shown in the table and chart above include both technical and non-technical losses. The split between technical and non-technical losses cannot be determined as Distributors do not have proper measurement/monitoring tools installed on the network and are not equipped with the required technical software tools to analyze the losses. To obtain this split, it is necessary to perform a technical study to calculate the actual level of technical losses and then determine the difference between the total losses and the technical losses to obtain the total non-technical losses. The only loss studies for West Bank and Gaza are at least 10 years old which prevents us from making any conclusions based on these studies.

Nevertheless, during discussions, DISCOs indicated that they estimate the split between technical and non-technical losses to be 50%: 50%. This estimation is based on their experience of the sector and self-judgment only.

In terms of financial value, the cost of losses (technical and non-technical) during the period 2010-2013 in West Bank was as follows:

Table 8: Cost of losses in the West Bank

	2010	2011	2012	2013
Cost of losses ILS (Incl. VAT)	267,607,997	356,760,251	430,189,017	479,216,164
Cost of losses US$ (Incl. VAT)	71,744,771	99,653,701	111,737,407	133,115,601
Losses/non-payment to IEC	126%	116%	66%	50%

The table above shows that cost of losses increased by 80% during the period while its significance compared to non-payment dropped during the same period. This is mainly due to the fact that, as detailed in the previous sections, non-payment has seen a sharp increase since 2011.

Table 9: Cost of losses in Gaza

	2010	2011	2012	2013
Cost of losses ILS (Incl. VAT)	170,703,919	178,444,489	214,154,900	246,752,051
Cost of losses US$ (Incl. VAT)	45,765,126	49,844,829	55,624,649	68,542,236
Percentage of losses/non-payment to IEC	47%	51%	45%	55%

It should be noted that in the absence of the relevant information, in particular the amount of kWh purchased from the IEC and Egypt, the percentage for Gaza losses were estimated by GEDCO. Based on the current available information, losses were estimated at 14% in 2010, 19% in 2011 and in 2012 and

23% in 2014. It is recommended that an in depth study and analysis to calculate the actual amount of losses is carried out.

Technical losses could be reduced by strengthening the electricity network with the installation of new lines to reduce overloaded networks, the installation of capacitor banks to increase power factor, etc. This means that the reduction of technical losses can only take place with financial investment in the network. Non-technical losses can be reduced by increasing inspections, enforcing the law and taking legal and punitive actions against the customers who steal electricity.

In order to measure the impact of a reduction of losses on the non-payment two loss reduction scenarios are proposed below. These scenarios show that loss reduction would reduce the non-payment levels by 19% (with 2013 figures). The table reveals that the impact of reducing the losses on non-payment is decreasing yearly as other important factors have started influencing non-payment, such as the collection rates and the tariff margin.

The following two scenarios provide estimates on the savings for West Bank Distributors through a decrease in technical and non-technical losses. The 2 scenarios are based on the assumption noted above, that technical losses and non-technical losses are nearly equal.

- **Scenario 1:** technical losses reduced by 25% and non-technical losses reduced by 25%; i.e. total losses = 18.75% in 2013 instead of 25%.
- **Scenario 2:** technical losses reduced by 25% and non-technical losses reduced by 50%; i.e. total losses = 15.63% in 2013 instead of 25%.

Table 10: Saving estimations for West Bank based on assumption (in ILS)

Scenario 1	**2010**	**2011**	**2012**	**2013**
Savings	66,901,999	89,190,063	107,547,254	119,804,041
Percentage of savings/non-payment to IEC[34]	32%	29%	16%	13%
Scenario 2	**2010**	**2011**	**2012**	**2013**
Savings	100,352,999	133,785,094	161,320,882	179,706,061
Percentage of savings/non-payment to IEC	47%	44%	25%	19%

3.4 Collection from customers

Another reason mentioned by sector stakeholders to explain non-payment to IEC is the low collection rate from customers. The following section seeks to understand whether the collection is actually low and its impact on non-payment to the IEC.

An analysis of customer payment behavior was undertaken using data from all DISCOs and selected municipalities. The analysis also included a survey, which was distributed to a representative sample of customers throughout West Bank and Gaza to better understand their consumption patterns and payment attitudes. The result of this exercise and complete analysis is available in Appendix H.

3.4.1 Overall information on collection

Customer collection (which is the ratio between yearly total collections to the value of yearly total sales) in the West Bank and Gaza is not as low as is widely believed in the Palestinian Territories. In 2013, the average collection rate in the West Bank reached 81% while it reached 71% in the Gaza Strip.

[34] Savings from reducing losses to the amount of the non-payment of that year as included in table 25.

Unfortunately the trend of payment from customer has been declining in all regions in the West Bank with the sharpest drop at JDECO with a collection rate of 97% in 2012 going down to 83% in 2013.

In Gaza collection has been continually increasing from a rate of 47% in 2009 and reaching 71% in 2013.

Table 11: Average yearly collection for DISCOs 2009-2013

Year	NEDCO[35]	TEDCO	JDECO	HEPCO	West Bank	GEDCO
2009		93%	96%	81%	93%	47%
2010	81%	117%	92%	80%	90%	59%
2011	79%	97%	96%	74%	90%	65%
2012	70%	105%	97%	74%	89%	68%
2013		97%	83%	70%	81%	71%

In comparing the yearly collection totals from Distributors to the cost of purchased electricity from the IEC and the payments processed, it appears that up to 2010, for most DISCOs in the West Bank the collection level was sufficient to cover the IEC invoices. The only exception is JDECO which collected the necessary funds to also cover costs up to 2011.

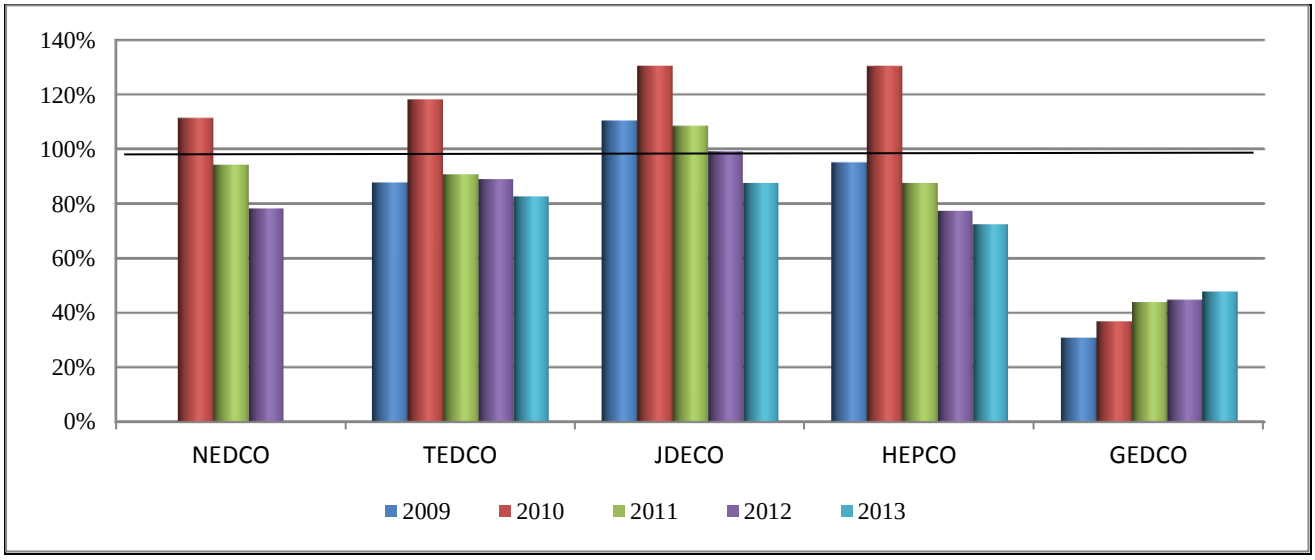
In Gaza during 2010-2013, the amounts collected were never sufficient to cover the purchase not even reaching 50% of the costs. This clearly indicates that if with the collection reaching 71% GEDCO cannot cover 50% of the IEC costs it will not be able to cover the cost of the purchase even with 100% collection. While GEDCO is the main contributor to the non-payment, customer collection is only one of the causes of non-payment.

GEDCO has been actively searching for solutions to increase the collection rate. With the support of PENRA and donors, GEDCO successfully initiated a prepaid meter pilot project which enabled the utility to collect about 1 million ILS (0.28 million US$) in 2013. GEDCO is currently requesting to extend the installation of prepaid meters throughout the Strip. The preparation of a strategy for installing prepaid meters in Gaza based on lessons learnt from West Bank Distributors is included as a recommendation in the next section.

Chart 8 provides an overview of the collection to purchase cost from all electricity sources between 2010 and 2013 for the major DISCOs in the West Bank and Gaza. The analysis shows that as of 2012, amounts collected by DISCOs were insufficient to cover electricity purchases. The chart illustrates the current situation and clearly shows the decline in collection in the West Bank and the increase in Gaza.

[35] The 2010 data for NEDCO represents half year. NEDCO 2013 data was not provided

Chart 11: Collection to purchase cost from all sources[36]



Various attempts to increase collection by DISCOs have been taken in previous years including the installation of pre-paid meters at scale. Appendix I provides further information based on the geographical distribution of prepaid meters in the West Bank. In the past two years, JDECO has started smart meter[37] pilot projects, which look to increase the collection amounts and better monitor the losses.

Municipalities and village council's collections[38]: The average collection rate of the main municipalities and village council's is estimated to be high. This is due the installation of large amounts of prepaid meters[39] in these areas. Qalqiliya reported the following collection rates.

Table 12; Qalqiliya collection rate 2011-2013

Year	2011	2012	2013
Collection rate	104%	103%	100%

Illar[40] reported a collection rate averaging 100% in the past years with the operation of 100% prepaid meters. Tulkarem did not report the collection rate, but it is estimated to be between 60% and 70% due to poor collection from Tulkarem refugee camp which represents about 10% of Tulkarem' total sales but has a collection level of zero.

3.4.2 Collection per customer's category

An assessment of the collection levels per customer category was performed to identify the payment performances of the different customer categories and propose if necessary targeted actions per customer category. Distributors issue monthly electricity bills to their customers serviced through postpaid electricity meters for the cost of electricity consumed during the previous month, while customers with prepaid electricity meters pay in advance for their future consumption.

Palestinian customers can be classified into 3 main categories as follows:

1. Residential;
2. Commercial; and

[36] IEC, Jordan, Egypt and GPGC
[37] Smart meter: continuously measures consumption and provides detailed information on customer behavior and transmits real-time data to the DISCO IT control system
[38] Data was not available from all municipalities approached
[39] AFD and Norway financed the procurement of more than 150,000 meters as part of the EUMP project
[40] Illar is Palestinian town in the Tulkarem Governorate in the eastern West Bank. According to the Palestinian Central Bureau of Statistics, 'Illar had a population of approximately 6,190 inhabitants in 2007

3. Others including "industrial users connected at low voltage level, industrial users connected at medium voltage level, water pumps, agricultural areas, street lights and temporary services".

The first 2 categories comprise more than 75% of the total DISCOs' sales and more than 95% of the total number of customers.

A detailed chart providing information on the ratio of the different customer category in each DISCO is available below. Observations on the data collected on customer category can be summarized as follows:

The only pattern which could be identified is that there is a higher level of collection from commercial customers compared to all other categories in the West Bank and Gaza.

- **NEDCO:** Collections from the Residential category are moderate (around 82%) and have seen a yearly decrease (to 78%) in 2012. This could be explained by the transfer of villages (comprising mainly of residential customers with lower collection rates) into NEDCO in 2011 and 2012. Collections from the Commercial category went down from 95% in 2010 to 70% in 2012[41] mainly due to non-payment by governmental institutions[42].

  Collections from the "Other" category are low probably due to the fact that water pumps and street lights are either owned by a municipality or the PA who do not systematically pay for their bills. For example, in 2012, sales for street lights amounted to around 5 million ILS which represents 2% of NEDCO's total sales while collection for street lights was close to zero. The same year, sales for water pumps amounted to 16 million ILS which represents 8.9% of NEDCO's total sales while collection was also close to zero.
- **JDECO:** Collections from the Residential category are high but decreased rapidly in 2013 dropping to 86%. Based on anecdotal evidence, it is believed that some residential customers stopped paying their bills after learning that the IEC deducted non-payments from clearance revenues (Net Lending) in November 2012. Collections from the Commercial category are high (90-100%) and no collection problems are noticed within this category. This could be due to JDECO's ability to exercise its rights to disconnect electricity and take legal actions more easily against Commercial customers who are larger, easier to find and approach.

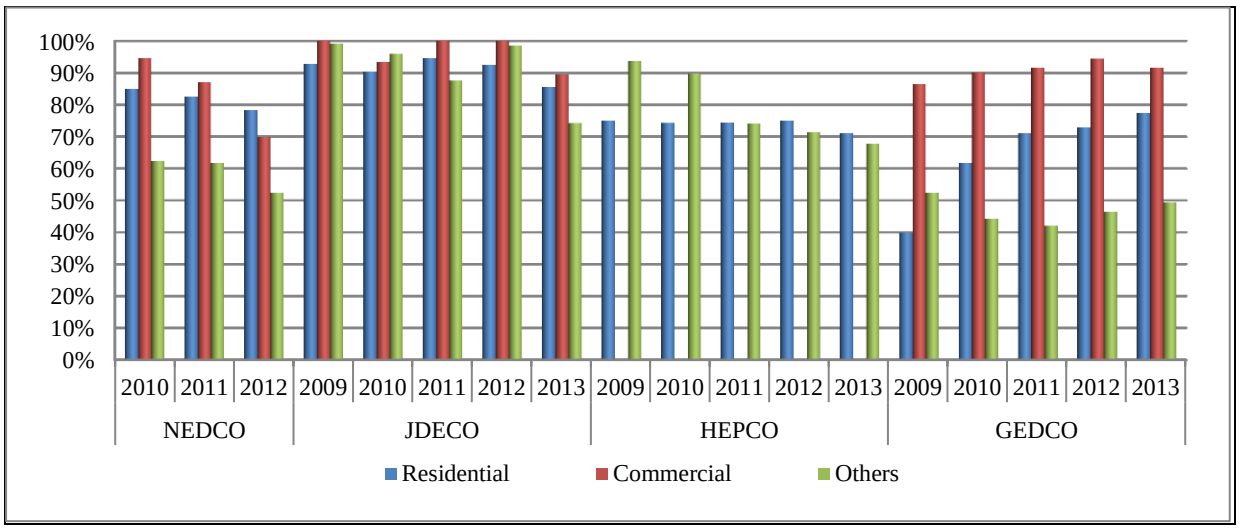
  Collections from the "Other" category are high except for 2013 which saw a sudden drop mainly due to the deterioration in the collection of payments from industrial medium voltage customers: non-payment of major PA water wells in Bethlehem area and military academy in Jericho.
- **HEPCO:** Collections from the residential category are low averaging between 71% and 75% during the period 2009-2013, with 2013 witnessing the lowest collection rate for the period.

  The collections from the "Other" category decreased gradually after 2010 due to the reduction in collection from street lighting and the governmental services[42]. Sales to municipalities for street lights in 2013 were about 6.7 million ILS which represented about 2.2% of HEPCO's total sales while collections for street lights reached around 57%. Sales for Governmental institutions amounted to around 6.2 million ILS which represented 3.1% of the total sales whilst the collection was close to nil.
- **GEDCO:** Collections from the residential category are low (62%-77%) but 2013 registered the highest collection rate. The yearly increase in collection could be partially explained by the automatic salary deductions implemented by the PA for civil servants in Gaza to cover part of their debt to GEDCO. The salary deductions from PA civil servants in Gaza amounted to 134 million ILS in 2013 representing more than 30% of the total collections. Similarly, the collection from commercial customers is relatively high, reaching 92% in the period 2011-2013 and the collection for the "Other" category[43] is average and reaching around 77% but steadily increasing by 2 to 3% yearly since 2010.

[41] No data received for 2013
[42] Includes buildings and schools.
[43] Others including "industrial users connected at low voltage level, industrial uses connected at medium voltage level, water pumps, agricultural areas, street lights and temporary services".

The chart[44] below shows the percentage of collection (ratio between yearly total collections to the value of yearly total sales) for the 3 major customer categories in NEDCO[45], JDECO, HEPCO[46] and GEDCO[47].

Chart 12: Collection percentage per customer category



3.4.3 Reasons for non-payment according to customers

In order to identify and understand the reasons and factors affecting non-payment from customers to Distributors, a survey was performed in the West Bank and Gaza. The results of the survey do not reflect actual personal payment behavior of customers, but their personal views on the reasons of non-payment in the country.

The vast majority of respondents believe the cost of electricity is high and this is the main reason for non-payment by customers. During the study, it was also possible to evaluate the proportion of household income that the monthly electricity invoices represented. This ratio reached 8.15% in the West Bank and 11.91% in Gaza. It is interesting to note that while respondents perceive electricity to be sold at a high costs, an EBRD research paper[48] dated 2005 provides "benchmarks used in measuring affordability from various sources" in different countries (IPA energy, WHO and WB) which range between 10-15% of the household income.

In the West Bank, other important reasons communicated to explain non-payment by customers were related to the low source of income, the fact that many do not pay and the refugee status.

In Gaza, in addition to the high cost of electricity, respondents indicated that non-payment was due to the low level of income in Gaza and the dissatisfaction of customer in the service provided.

The responses were analyzed by calculating the mean scores of responses based on a Likert scale of one to five with one being the strongest and five being the weakest. The tables below represent the strongest indicators for nonpayment. In addition a color coded system was employed to identify critical factors in the decision of respondents not to pay, which follows below:

- Black was a main or critical factor in non-payment
- Red was a strong factor in non-payment
- Yellow was a potential or weak factor in non-payment
- Green was a non-factor in non-payment

[44] SELCO has not been included due to unavailability of sufficient quality data.
[45] NEDCO was not in operation in 2009 so the data for this year is not included.
[46] The commercial customers' data are included in the data of the "other" customers as we could not obtain from HEPCO the split between the two categories.
[47] TEDCO data is not included in the chart as TEDCO sells most of the electricity to 18 villages on bulk meters and not directly to the end customers
[48] http://www.ebrd.com/downloads/research/economics/workingpapers/wp0092.pdf.

Table 13: Reasons for non-payment in West Bank

	West Bank
Refugee Status	2.83
Neighbor Doesn't Pay	2.73
High Cost of Electricity	1.72
Poor Service	3.62
Don't Receive Invoice	4.63
Irregular Payment of Salaries	3.66
Lack of Enforcement	3.44
No Penalties for Nonpayment	3.48
No Communication with Provider	4.31
No Source of Income	2.04

Table 14: Reasons for non-payment in Gaza

	Gaza Strip
Refugee Status	4.62
Neighbor Doesn't Pay	4.08
High Cost of Electricity	1.88
Poor Service	1.94
Don't Receive Invoice	4.69
Irregular Payment of Salaries	4.68
Lack of Enforcement	4.30
No Penalties for Nonpayment	4.21
No Communication with Provider	4.33
No Source of Income	1.55

While the analysis above provides an insight into participant's perceptions of the reasons for non-payment, it was also decided to evaluate the willingness of customers to pay for their invoices.

The analysis as reported in table below was inconclusive. There is no clear pattern for willingness to pay based on income, invoice or percentage of invoice to household income. It is likely that additional factors are most probably influencing the behavior of customers; such as a culture of non-payment. The table nevertheless, clearly illustrates that in areas where large amounts of pre-paid meters are installed (more than 70%); the willingness to pay by customers serviced with postpaid meters living in this area is very high.

Furthermore, Jerusalem and Ramallah (JDECO concession area) have the highest percentage of willingness to pay which could be explained by the prosecution action that is taken against offenders who are in arrears or by culture of payment in these areas. Jericho has the lowest percentage of willingness to pay but also the highest price rate compared to income. The main reason for low willingness to pay in this governorate can perhaps be explained by the high percentage that electricity bills represent on the household income for customers in this area.

To further challenge the results received from the analysis of electricity payment, we also included in the survey a few questions on payments to other utilities and basic services. The results of these questions were enlightening as they revealed that in the West Bank, over 80% of respondents stated that they regularly pay for other utilities such as water, telephone, and internet. In West Bank, the reasons cited for paying for these bills were related to the fear of penalty or punishment (56% of respondent) and the perception of the importance of the service itself (21.8%). In Gaza, 52% of respondents justified the payment of other utilities bills for fear of penalty or punishment (28.8%), to remain debt free (23.7%) and due to the perception of that the prices were acceptable (22.4%).

It is important to note that only those respondents served by postpaid meters are included in table 15. Respondents with pre-paid meters are required to pay for the electricity service in advance. Approximately 57.6% of all respondent are serviced by postpaid meters, with the balance of 42.4% serviced by prepaid meters.

Table 15: Willingness to pay survey results

Governorate	Income /Household Member (ILS)	Monthly Invoice (ILS)	Invoice as % of Income	Unwilling to Pay (Invoice, Excl. Prepaid Meter)	Willing to Pay (Invoice, Excl Prepaid Meter)	% of Prepaid Meters
Tulkarem	370.63	210.75	10.1%	69.2%	30.8%	56.6%
Qalqiliya	352.22	241.14	10.8%	0%	100%	92.0%
Hebron	516.59	208.26	6.5%	47.1%	52.9%	59.7%
Nablus	424.95	216.83	10.5%	38.9%	61.1%	51.3%
Salfit	563.33	212.00	6.3%	0%	100%	100%
Jenin	460.69	182.69	7.5%	25.0%	75.0%	70.4%
Tubas	329.83	208.75	10%	37.5%	62.5%	75.0%
Ramallah/Al Bireh	623.97	278.12	7.9%	17.2%	82.8%	43.0%
Jerusalem	738.26	378.48	8.5%	28.6%	71.4%	61.9%
Bethlehem	526.44	322.22	10.5%	85.7%	14.3%	53.3%
Jericho	389.90	296.75	15.4%	87.5%	12.5%	60.0%

Governorate	Income /Household Member (ILS)	Monthly Invoice (ILS)	Invoice as % of Income	Unwilling to Pay (Invoice, Excl Prepaid Meter)	Willing to Pay (Invoice, Excl Prepaid Meter)
North Gaza	190.5	135.8	9.6%	50.0%	50.0%
Gaza	164.5	154.9	12.9%	58.5%	41.5%
Deir Al Balah	194.69	153.79	10.53%	61.4%	38.6%
Khan Younis	158.91	149.71	13.54%	77.9%	22.1%
Rafah	160.66	159.02	12.79%	58.1%	41.9%

The next step towards understanding customers' behavior and defining the most suitable actions to implement to achieve an increase in collection was to identify the factors which can encourage customers to pay. While results differed slightly between the West Bank and Gaza, customers in both locations believe that flexibility in payment schedule – mainly related to the settlement of arrears - should encourage more customers to pay. In the West Bank survey respondents also indicated that the installation of pre-paid meters should settle the issue of non-payment. In the Gaza Strip respondents believe that enhancing the level of service –essentially uninterrupted provision of electricity - should certainly lead to an increase in payment.

Table 16: Factors to encourage payment customer survey results

Factors to Encourage Payment	West Bank Mean Score	Gaza Mean Score
Electronic Payment	4.32	4.51
Paying via Collector	3.72	4.30
Prepaid Meter	**2.14**	3.57
Other Payment Methods	4.36	4.41
Flexibility in Minimum Payment Amounts	**2.65**	**2.91**
Satisfactory Level of Service	3.11	**1.77**
Nothing	4.26	4.67

Payment behavior of civil servants

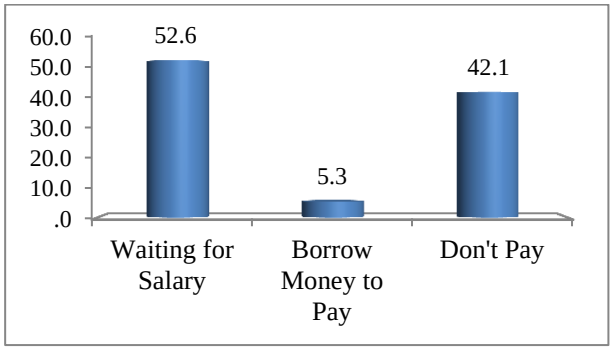
The survey also included questions on payment behavior, which captured civil servant's behavior and concluded that over half (52.6%) indicated they were compelled to wait for their salary before paying their bill,

- While 5.3% indicated they borrow money to pay their electricity bills.
- And over 42% however, stated that they simply don't pay because they can't.

The total number of respondents employed in the public sector that participated in this study was 82. Of the 82 respondents, 38 answered the question related to the irregular payment of salaries and how it affects their ability to settle their electricity invoices. The remaining respondents in this category were serviced through a prepaid meter for their electricity needs.

It should be noted that during the months where salary payments for Civil Servants are delayed, Distributors in West Bank typically give these employees a monthly credit of 50-100 ILS.

Chart 13: Actions Taken When Salaries are late



3.5 Tariff Analysis

One of the factors commonly attributed to the non-payment in the West Bank and Gaza is the high sales tariff for customers.

The sales tariff is calculated based on the purchase tariff from the IEC to which a markup is added according to an approved approach and methodology ("Cost plus" Approach). This approach should ensure that the operational cost of the DISCOs including acceptable levels of technical and non-technical losses, working capital needs and future investments, are covered and should allow for a limited profit

margin. The regulatory authority is entitled to set future benchmarks for certain Key Performance Indicators ("KPIs") for certain components such as technical and non-technical losses to be covered by the tariff.

To understand the impact of the tariff on the non-payment, this section will first analyze the purchase tariff, followed by the markup and finally look at the sales tariff including the governmental subsidy component.

3.5.1 Purchase Tariff

Most of the Distributors purchase electricity from the IEC at a tariff set by the Israeli Power Utility Authority (PUA), with the following main characteristics:

- It is a LV or MV bulk flat tariff for all connection points except for JDECO, where the Time of Use tariff (ToU) is applied;
- It is fixed by the PUA without any consultations with the Palestinian Distributors or Authorities.
- It is a tariff designed for the Israeli electricity market, not customized for the Palestinian market. It includes beside other components for example an unknown percentage[49] to cover the development of the renewable energy sector in Israel; which Palestinians recipients do not benefit from.

The tariff applied by the PUA in the Palestinian Territories is a **bulk tariff** for Low Voltage for connection points connected at the low voltage and is a medium voltage bulk tariff for connection points connected at the medium voltage:

Table 17: Israeli Tariff as 16.5.2013: Fixed rates – Agorot per kWh

Residential	General	Street lighting	Low Voltage bulk tariff	Medium Voltage bulk
54.03	55.61	47.63	**52.55**	45.27

The purchase tariff set unilaterally by the PUA is contested by the PA which considers that it does not reflect appropriate costs as it does not consider the Palestinian electricity Distributors as one unit. The PA believes that, as the largest single customer to the IEC, the tariff should be an export tariff which only includes the cost components applicable to the PA consumption and from which all other components such as the renewable energy component should be removed.

Payment conditions applied to Palestinian Distributors are the same as the ones applied to Israeli residential and commercial customers. They only have 11 days to pay the IEC after which they are imposed a late fee of 8.75%[50]. Palestinian Distributors, which purchase electricity with a yearly amount of over 2 billion ILS (560 million US$), believe that their payment conditions should be different from those from Israeli residential or commercial customers. It is recommended that payment conditions be revised to appropriate wholesale levels, recognizing the fact that Distributors are large companies with their own costs, and who need to read meters and issue invoices for thousands of customers, collect money from them and are only then in a position to pay the IEC.

The Palestinian Authority has been involved in talks with its Israeli counterpart for the past 10 years to negotiate a commercial agreement which should resolve the above mentioned issues and in particular agree on a special export tariff to the Palestinian Distributors with fair payment conditions. Unfortunately, progress on reaching an agreement has slow, and needs to be brought to a conclusion.

[49] The authors were not in a position to estimate the renewable component within the purchase tariff from IEC.

[50] The PUA stated that this interest is published by the Accountant General of the state of Israel and it currently stand for 8.75% annual nominal terms

3.5.2 Tariff margin[51]

A new tariff approach and methodology was approved by the BoD of PERC in 2011. Details of the approach are summarized below:

1- It is a cost plus tariff: the tariff must recover all the regulated expenses plus a profit equal to the Weighted Average Cost of Capital (WACC).

2- It includes the following 11 types of customers: residential, residential prepaid, commercial, commercial prepaid, industrial low voltage, industrial medium voltage, water pumps, agricultural, street lights, temporarily connection and temporarily prepaid connection. The tariff varies according to the customer category and the voltage level.

3- It is a 5 step tariff for residential customers with postpaid meter and flat for all other customer categories; with the exception of customers serviced through medium voltage for which the Time of Use (ToU) tariff applies. The residential step tariff is an ascending tariff with the first step having the lowest price.

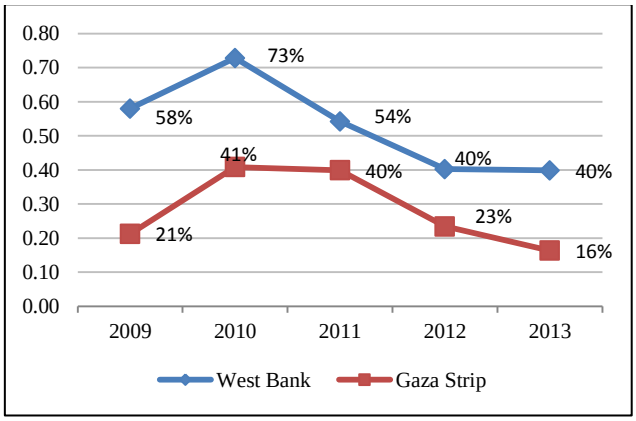
4- It includes Governmental subsidy.

5- It includes a threshold for total losses set at 22.5% the first year (2011) and gradually decreasing after.

The sales tariff was set to cover the cost of electricity purchased from IEC as well as the operational expenses and allow for an acceptable profit margin for Distributors.

Following implementation of the above methodology, the Tariff Margin reached 54% in the West Bank and 40% in Gaza in 2011. There was a sharp decrease in the margin in West Bank from 73% to 54% between 2010 and 2011 following the introduction of the regulated tariff. This decrease is commonly seen during transfers from non-regulated to regulated market. The margin continued to decrease in 2012 mostly due to the governmental decision to partly subsidize the tariff and not to increase the sales tariff to the customers. The margin remained in place for 2013.

Chart 14: Comparing purchase and sales tariff 2009-2013



The tariff margin has decreased in the West Bank between 2010 and 2013 going from 54% to 40% largely due to:

1- The high increase of the purchase cost ofelectricity from IEC, and

2- The subsidies included in the tariff which are mostly not repaid by the Government[52].

The removal of subsidy and decrease in losses threshold in the tariff should bring the tariff margin under 54%. While a fair tariff margin can be calculated at 50-52% for 2013 in the current context[53], it would be necessary for the PA to reach a fair commercial agreement with IEC to reach this goal.

During the period 2010-2013, the cost of electricity purchased from the IEC (estimations) increased by 62%. This increase was the result of the rise in the purchase tariff from the IEC by 34% during this period and the increase of the quantity of electricity purchased from the IEC by 22% during the same period.

[51] The difference between the sales and the purchase tariff is defined as the tariff margin.

[52] Governmental subsidies are detailed chapter 3.7.2 and Annex L provides details of governmental subsidies including repayment

[53] Comparing 2011 margin of 54% reduced by 2%-4% including reduced losses threshold in PERC tariff methodology and excluding any governmental subsidy.

The following paragraphs attempt to provide additional information to explain why the margin went down so dramatically:

The average purchase tariff from the IEC decreased by 12% from 2009 to 2010 while the sales tariff decreased by 3%. This explains the high percentage of collection to purchase[54] value in 2010 as shown in Chart 13. From 2011 to 2013 the purchase tariff increased steadily. In 2011 it increased by 7% compared to 2010. During the same time, the sales tariff decreased by 4%. 2012 was particularly challenging as the purchase tariff increased by 17% compared to 2011 while the sales tariff only increased by 6.5%.

The purchase tariff in Gaza is set by the IEC and is similar to the West Bank. However, the sales' tariff in Gaza is lower than the one in the West Bank and is set by GEDCO rather than by PERC (which still has not exercised its mandate in the Strip). The sales tariff in Gaza is 70% of the sales tariff in the West Bank. The sales tariff has not changed in Gaza for the last 3 years, largely due to:

1- Political reasons; and

2- A shortage of electricity supply to customers: GEDCO is not willing to increase the tariff for the costumers while daily electricity cuts last between 6-12 hours.

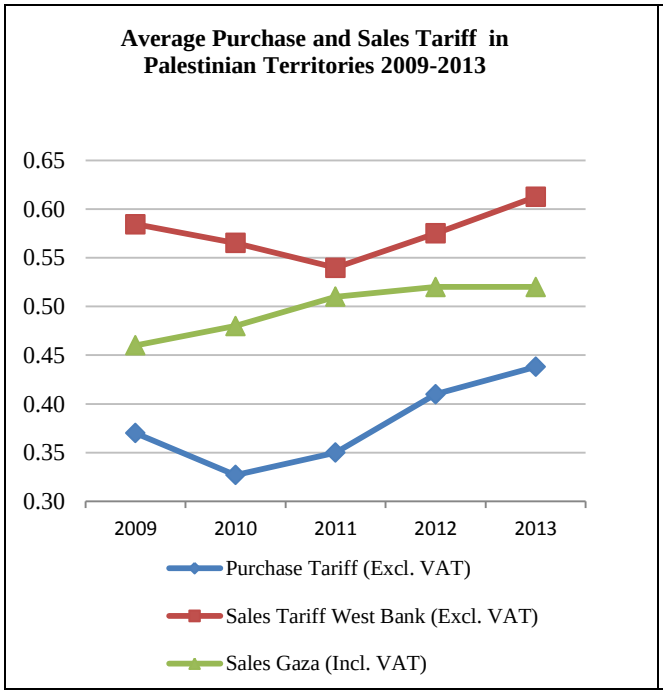
The tariff margin in Gaza is 16% in 2013, if PERC tariff methodology is applied in Gaza then the tariff margin should be increased to 50-52%. This means that the sales tariff in Gaza will be the same as in West Bank and requires the sales tariff to be increased by 36% without taking into consideration the high cost of generating electricity from Gaza power plant. Should this increase be implemented it must be conditioned at least with serious enhancement in the quality of the electricity service to the population in the Gaza Strip which would require an increase in the supply and the capacity of the grid.

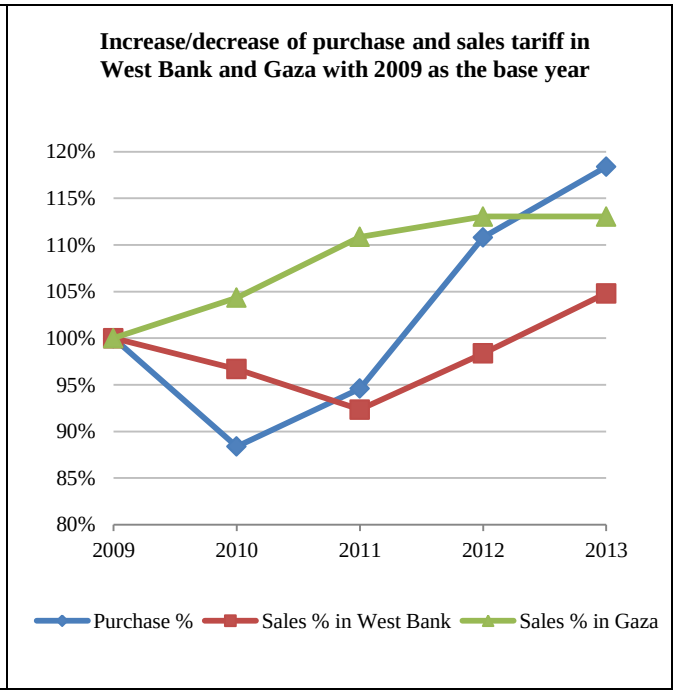
Given this, the PA has (with the support of the international community) plans to supply the Gaza Power Plant with natural gas to reduce the generating cost and to utilize collections from customers to pay for IEC invoices. In addition to reducing the costs, this action will also enable it to run at full capacity which will then reduce the power shortages in Gaza.

The following charts illustrate the average sales and purchase tariffs in West Bank and Gaza for the period 2009-2013 based on our analysis of the data received from the different Distributors.

Chart 15: Comparing purchase and sales tariff 2009-2013

[54] Total collection in ILS from each DISCO to the cost of purchased electricity from the IEC





While it is important to ensure that the mark up guarantees the payback of Distributor's costs and includes some profit, the tariff as currently implemented is standard and does not take into consideration the reality on the ground as shown below. The tariff currently implemented fails to take into consideration the following points:

- Collections reached around 81% in the West Bank in 2013 rather than 100% and this figure showed a drop from 90% in 2011, the first year the unified tariff was implemented.
- Technical and Non-technical losses are above the acceptable range to PERC of 22.5% reaching 25% in 2013.
- Governmental subsidies are not systematically paid although they amount to 4% of the electricity purchase value, and not all Distributors implement the subsidy scheme for specific social cases[55].
- Furthermore, although it is important to offer a life line tariff, this tariff should only target the poor customers and should not be applied to all customers as is the case presently.

The tariff for the prepaid meters would also need to be reviewed in particular for commercial customers. For this customer category the prepaid meters tariff has a fixed charge of zero and is 4.5% less than the tariff of the commercial customer with postpaid meter.

3.5.3 Sales Tariff

After analyzing the purchase tariff and the margin, it is also necessary to examine if the sales tariff implemented by Distributors follows the approved tariff methodology issued by PERC which should cover the operation costs of Distributors including the cost of IEC invoices.

The Palestinian Territories have a unified sales tariff which was approved by the Cabinet in 2011 and has only been applied in the West Bank since. The electricity sales tariff[56] is recommended by the PERC for all DISCOs - except for the East Jerusalem area where the tariff is set by the PUA directly - and for municipalities who adopt the PERC tariff following MOLG instructions.

[55] As detailed in the next sub-section **Governmental Subsidies in West Bank.**

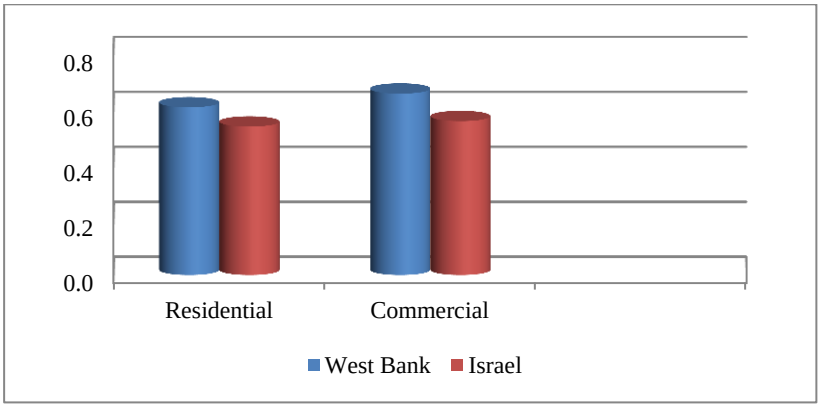
[56] The tariff is recommended by PERC to PENRA which approves it and transmits it to the cabinet for endorsement.

GEDCO does not apply the unified sales tariff introduced by PERC but rather sets its own tariff which has not changed for the last 3 years. The political situation in Gaza has not permitted PERC to exercise its mandate on GEDCO.

PERC issued the first unified tariff in the West Bank in mid-2011, and was mandated to review the tariff on a yearly basis[57]. One should note that the sales tariff prior to 2011 was determined individually by each utility since the electricity sector only started to be regulated after the issuance by PERC of the first unified tariff in West Bank which was then applied by all DISCOs.

The average sales tariff applied in the West Bank is higher than the average sales tariff for customers in Israel. The West Bank residential tariff is 11% higher than its Israeli equivalent and the commercial tariff in the West Bank is 15% higher than the Israeli commercial tariff. These figures corroborate customer's claims that electricity prices are too high. Chart 13 below illustrates these disparities.

Chart 16: Comparison between sales tariff in the Palestinian Territories and Israel



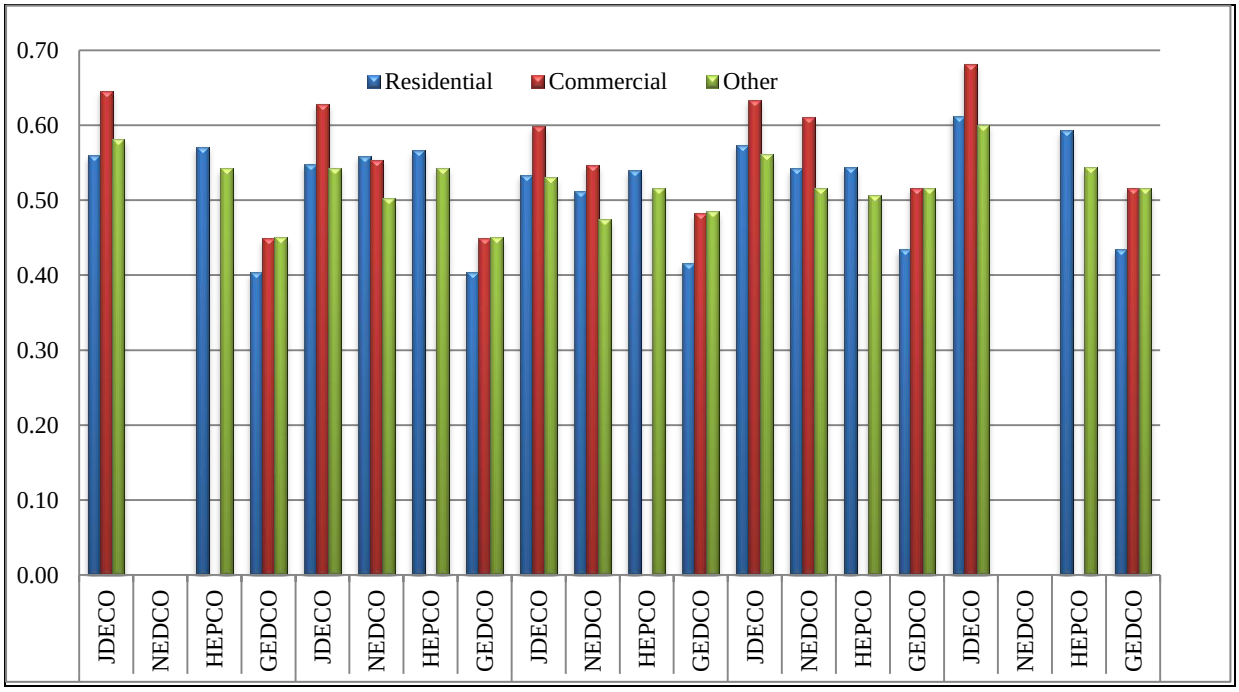
An in-depth analysis of the sales tariff for the different 3 customer categories was performed for the period 2009-2013 to assess tariff variations between the categories and whether this could partially explain the non-payment issue.

The analysis revealed variances in the value of the sales tariff within categories between different DISCOs as shown in the chart below. This is due to the fact that:

- The residential tariff is a step tariff and not a flat tariff. This results in variation based on consumption.
- Different tariffs are applied for customers with prepaid meters and customers with postpaid. The prepaid meter tariff does not include a fixed charge fee and is 4.5% lower than the postpaid meter tariff. As an example of the variation of these tariffs, we observed that the tariff for commercial customer with postpaid meter is 0.667 ILS/kWh whilst for a commercial customer with a prepaid meter it is 0.637 ILS/kWh. It is worth noting that in the past years, prepaid meters were installed in large quantities in the northern region of the West Bank as shown in Chart 11 Appendix I[58].

Chart 17: Tariff per customer category in ILS 2009-2013

[57] The detailed current tariff structure of PERC is included in Appendix C. The first tariff review since its application is currently been performed.
[58] Source: PCBS



3.5.4 Governmental Subsidies in West Bank[59]

Over the past few years, the PA has taken a number of tariff decisions to compensate for the various increases in IEC sales tariffs and to prevent high prices impacting on end use customers. These subsidies complement PERCs' initiative to implement a step tariff for residential areas with the first step being a life line tariff available for all but essentially aiming to give the poor people with low consumption a reduced tariff. The impact of these subsidies on non-payment needs to be assessed to determine their impact and allow appropriate action to be taken. It is also necessary to understand whether these subsidies have been paid to Distributors by the government.

The different subsidy tariff decisions were initiated in 2011 mostly at the initiative of the government and essentially to maintain public order and avoid public unrest after some demonstrations against increase in prices occurred in the West Bank in the midst of the "Arab Spring". The governmental subsidies did not take into consideration the actual cost of electricity and the capacity of the PA to cover the subsidies amounts. The subsidies approved by the cabinet during the period can be classified into the following categories:

Type 1: Subsidy for each kWh sold by DISCOs[60]

- *Cabinet Decision No. (4/94/13)* for the year 2011**:** PERCs' calculation of the end customer's tariff reflects losses which are estimated to reach 20%. The government commits to pay to DISCOs any amounts for losses which go beyond 20%, if any. This decision was valid from 20/06/2011 until 01/09/2012 in the West Bank.
- *Cabinet Decision No. (04/14/14)* for the year 2012: On 28 August 2012, following an increase in the purchase price from the IEC by 8.9% a new tariff was issued. The IEC price was only reflected up to 25% in the costumer tariff and the remaining 75% was covered by the government in the form of subsidies. Decision No. (4/94/13) mentioned above was cancelled the day Decision No. (04/14/14) was approved.
- *Cabinet Decision No. (7/45/14)* for the year 2013: approved on 5 March 2013. This decision concerned electricity debts related to local authorities and DISCOs and included among its articles "A

[59] The details of the Governmental subsidy for each DISCO is included in Appendix E
[60] Excluding Jericho

new tariff was issued, in line with the increase of 8.8% in the purchase price from the IEC. The government will subsidize 2.6 agora per kWh on this new tariff".

Type 2: Subsidy for each kWh sold to all customers in Jericho area as in the following decision

- *Cabinet Decision No. (14/04/14)* for the year 2012: Following an increase in the purchase price of electricity from Jordan for the Jericho area by more than 75% (from 33 agora to 57 agora), on 1st June 2012, PERC agreed not to reflect the increase in the sales price which was of 49 agora, and the government decided to subsidize the difference.

According to data provided by DISCOs, the PA only reimbursed 20% of the subsidies funds that they owed DISCOs according to the decisions approved by the cabinet between 2011 and2013 (see Table 18 below). The outstanding subsidy payment amounts (unpaid amounts) represents around 4% of the estimated cost of the purchased electricity for the period 2011-2013. This reveals the significant burden that unpaid subsidies are representing on the non-payment to IEC issue and questions the effectiveness of such a mechanism if the PA is not in a position to fund it. Annex L provides further details on the costs of subsidies and the government payment of subsidies for DISCOs.

The non-payment by the government of the subsidies also leads Distributors to reduce the subsidy amounts from their payments to the IEC. IEC in return collects this amount through Net Lending.

It should be noted that MOLG indicated that no municipality had been compensated through the subsidy mechanisms.

Table 18: Governmental subsidy 2011-2013 in ILS – excluding the subsidy for the social cases[61]

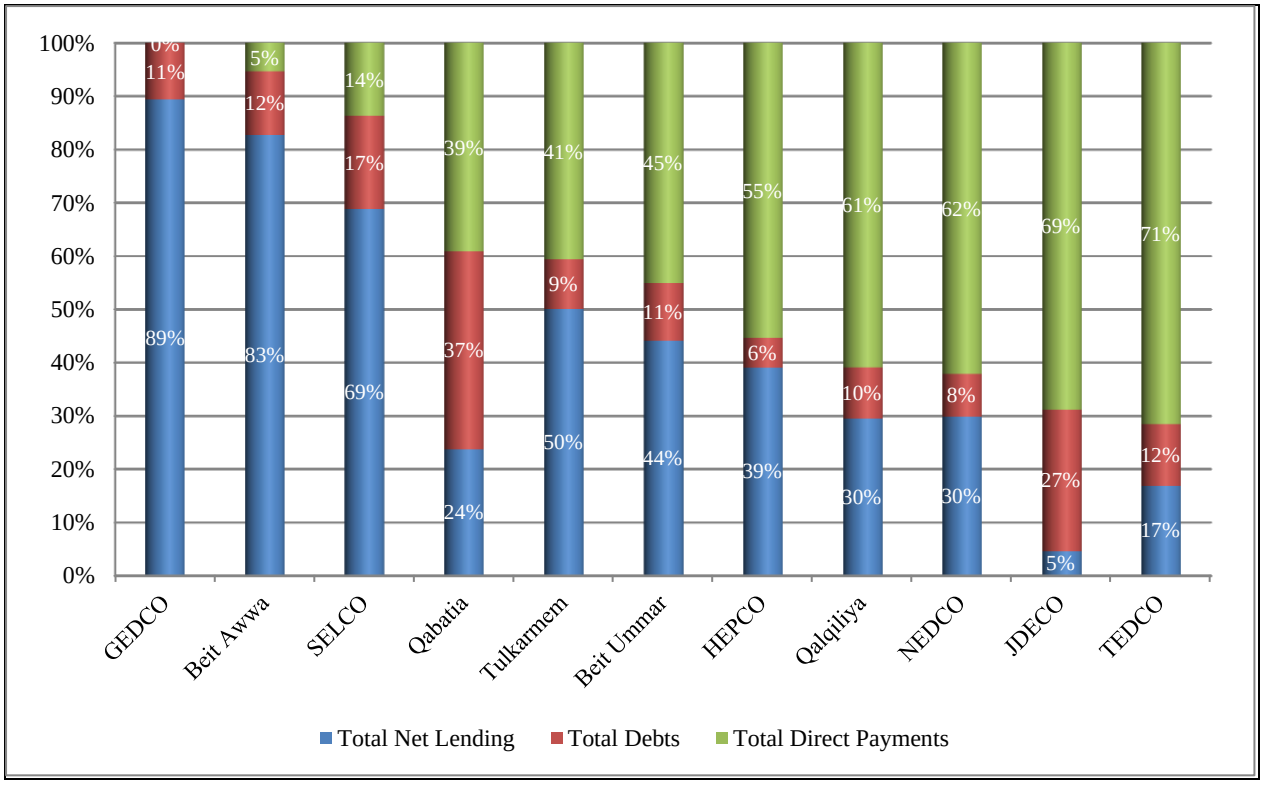
Year	Cost of Subsidies[62] ILS	Subsidy payments from the Government to DISCOs ILS	Subsidy outstanding Payments ILS
2011	33,574,195	20,757,124	12,817,072
2012	110,714,921	19,643,126	91,071,794
2013	57,926,784	-	57,926,784
Total	202,215,900	40,400,250	161,815,651

[61] Information was received from the DISCOs but was not validated by the Government
[62] As provided by DISCOs, and not confirmed by the Governments

3.6 Efficiency and transparency of Distributors

While the previous sections exposed GEDCO and JDECO as the main contributor to non-payment in absolute figures, it is important to highlight that in terms of percentage of payments to IEC invoice, municipalities are also not performing well. While GEDCO remains the largest non-payer in absolute value and percentage, 4 municipalities are presently part of the top 5 largest non-payers in the West Bank. Although the sections above have clearly identified significant factors affecting payment, it is important to understand whether municipalities and DISCOs are performing efficiently and are diligently paying for their invoices.

Chart 18: Largest 10 Non-Payers in West Bank plus GEDCO in % of payments



The information collected during the study has allowed the analysis to isolate the amount collected by West Bank Distributors from the Palestinian customers and not paid to the IEC. This is estimated to amount to **595,415,998 ILS in 2013** which represents **37% of the collected amount in that year**. This amount is probably disbursed by the different Distributors in the West Bank to cover the costs of:

- Operating expenses: to cover the operational costs of the Distributors such as salaries, network maintenance expenses, etc. are estimated at 0.065 ILS/kWh purchased based on a high level analysis on the public financial statements of JDECO, HEPCO and NEDCO amounted to 242,098,907 ILS (representing approximately 41% of the amount collected but not paid to the IEC).
- Capital expenses: Covering the cost of capital investment for network expansion of 120 million ILS (estimated at 20% of the amount collected and not paid to the IEC).
- Municipal finance and shareholder's finance: as defined in the introduction of the report amount to 242 million ILS which corresponds to the remaining amounts from the collection which are not paid to IEC (representing about 40% of the difference).

For Gaza, the difference amounts to **139,544,004 ILS which represents 34% of collection,** and is estimated to be utilized to cover:

- Operating expenses: Estimated at 0.065 ILS/kWh purchase amounting to 102,746,221 ILS representing 74% of the difference.

- Capital expenses: 20% of the difference amounting to 27,908,801 ILS.
- Other: The remaining amount of 8,888,982 ILS.

DISCOs and municipalities indicated they could not provide detailed descriptions for the "municipal finance and shareholder finance" amounts. Moreover, DISCOs and municipalities indicated they could not provide their audited financial statements for the previous year. It was therefore not possible to know for certain what the excess cash registered as "municipal finance and shareholder finance" was used for.

Nevertheless, DISCOs indicated that they use the excess cash for shareholder loans, advance dividend payments and other stakeholder payments. It is obvious that the system is not transparent and lacks proper procedures. The efficiency of DISCOs needs to be improved to ensure that amounts collected from customers to cover the cost of the electricity service include IEC payments, operational expenses, and capital expenses but exclude shareholder finance.

The lack of efficiency of municipalities has been pointed out by many stakeholders and it is widely believed that municipalities do not have segregated accounts. This makes it difficult to maintain distinct accounts for the different municipal services.

In addition, municipalities indicated that they do not systematically receive revenues from the PA for taxes transfers, subsidies and other services which then leads them to proceed with automatic compensation from funds collected from electricity services.

All the above clearly indicated that actions are required by the PA and from municipalities and DISCOs to improve the payments process and ensure its transparency.

3.7 Other reasons for non–payment

3.7.1 Analysis on Special areas

The purpose of this section is to observe whether certain areas contribute more to high losses (the total of technical and non-technical losses) and low collection. The areas selected represent all geographical areas and include different customer types such as refugee camps and other specific sensitive areas.

The customers in these areas are supplied with electricity from different DISCOs, but the collection behavior and volume of losses are different than for costumers outside the areas.

The analysis of the special areas did not reveal a common pattern for all these areas but rather showed that each area has specific issues which are detailed per area below.

- ***JDECO- Refugee Camps***

JDECO serves 13 camps within its jurisdiction, one of them is located in Jerusalem in area C[21] and the remaining camps are located in the West Bank in area A[21]. JDECO reported the following consumption characteristics in camps in 2013.

It is important to note that the average consumption per customer inside the camps is equivalent to 175% of the average customer outside the camps. This disparity is mainly due to electricity theft which leads to increased consumption without accompanying growth in the number of customers. It is believed that some small commercial facilities also contribute to the problem by opening businesses inside the camps, benefitting from the camp location to avoid payment of their electricity bills.

The table below shows that the uncollected sales from the camps reached around 29 million ILS in 2013, which represents 20% of the total JDECO uncollected sales for that year. Increasing the collection inside the camps from 30% to 95% would increase JDECOs' total collection from 83% to 87%, which equates to approximately 26.5 million ILS.

While customers in the camps only represent 5.3% of JDECO's total customers, their total losses[63] (63%) amount to around 21% of JDECO's total losses in 2013. Reducing the losses in the camps to a mere 20% would save JDECO around 37 million ILS/year.

Shuafat camp located in Jerusalem area has the highest collection rate reaching 75% while all the other camps located in West Bank have a collection rate in the range of 15%-20%. Although the collection rate is very high in Shuafat refugee camp electricity losses are very high, reaching 60% (believed to be non-technical losses essentially).

Table 19: JDECO Refugee camps consumption characteristics in 2013[64]

# of camps	13
# of Customers	12,491
Total Consumption (kWh)	166,795,957
Total Sales (kWh)	62,367,937
Losses %	63%
Cost of losses ILS	53,743,880
Cost of sales ILS (Incl. VAT)	50,525,039
Collection from customers (Incl. VAT) ILS	14,955,451
Collection %	30%
Outstanding debts as end of 2013 ILS	269,364,079
Consumption (kWh)/customer	13,353
Sales (kWh)/customer	4993

- ***NEDCO[65]- Refugee camps[66]***

While the average consumption per customer inside and outside the camps is almost similar, collection in the camps is very low and has been decreasing consistently. As is the case for HEPCO, the decrease in collection is mainly the result of a lack of punitive measures for non-payers due to NEDCO's inability to take legal actions against them. Increasing the collection rate in the camps to the same level as the average collection rate for NEDCO would result in a yearly revenue increase for NEDCO of around 9 million ILS (which represents 4% of the total sales).

Table 20: NEDCO – Refugee camps consumption characteristics

Year	# of Customers	Sales kWh	Sales ILS	Collection ILS	Collection %	Outstanding debts (ILS)	Sales kWh/Customer
2010	5,270	13,060,141	8,264,288	2,941,414	36%	5,322,875	2,478
2011	5,114	23,946,284	14,664,346	3,640,853	25%	16,346,368	4,682
2012	4,441	24,739,431	15,539,312	2,800,738	18%	29,084,941	5,571

- ***Focus groups in Balata (NEDCO)67 and Amari Refugee Camps (JDECO)[68]***

[63] The consumption of electricity by the camps is measured by monitoring meters installed by JDECO at each of the transformers supplying the camps. The reading of these monitoring meters is then compared to the reading of the customer's meters inside the camps to estimate the total losses (technical and non-technical losses).

[64] More historical data was not provided.

[65] NEDCO does not have monitoring meters installed at the transformers supplying the old city and therefore could not report on the total area consumption and losses.

[66] NEDCO serves 4 camps of which 3 are located in Nablus area A[21] and the 4th is located in Jenin. NEDCO reported the following consumption data for customers in these four camps in 2010-2013.

[67] 10 participants selected based on certain criteria including self-employment, and those with a view on utilities and electricity usage.

[68] 7 participants selected based on certain criteria including self-employment, and those with a view on utilities and electricity usage. In East Jerusalem the focus group was not conducted as the safety of the field researchers and the facilitator could not be assured following hostile demonstrations from participants towards them.

To further refine the analysis of non-payment in the refugee camps, focus groups were held to determine the motives of non-payment and understand the perception of the electricity Distributors in major camps. The overall perception of Distributors is negative as they are alleged to be solely profit oriented and failing or slow to meet the needs of their customers. Contributing factors to this perception included poor communication skills by Distributors, the lack of customer services, and the lack of concern showed by the Distributors to the residents of the camp.

Participants further complained about the high cost of electricity at a time of acute unemployment and dire economic situation. The lack of economic opportunities, the high taxation, and penalties all contribute negatively to the customer's willingness to pay for electricity bills.

The electricity network in both camps was reported to be in poor condition and technicians mandated to fix electricity problems were not only delayed but also reported to be lacking in courtesy. The lack of payment points for customers to go and settle their invoices as well as the absence of other basic customer services (i.e., recharging of prepaid meters) were also reported as points of concern.

Representatives of the Popular Committee[69] in the Amari Refugee Camp also reported that one of the byproducts of the accumulation of arrears was the impact on housing prices. For example, if someone owns a home valued at JD 20,000 in a refugee camp with JD 10,000 in accumulated arrears, the buyer would simply offset the difference between the value of the home and the amount of the arrears paying it directly to the Distributor. Finally, the unprofessional behavior of electricity Distributor technicians was also raised by the Popular Committee representatives who indicated that this behavior conveyed a negative image of the Distributor which then discouraged customers from paying or communicating with them.

- ***Gaza Strip Refugee Camps Focus Group***70

The perception of Distributors in the Gaza focus group was quite negative with comments such as: "poor service", "being solely profit oriented", "lacking empathy" and "having prices that are too high". Contributing factors to this perception included poor communication skills by Distributor employees including a lack of empathy towards ordinary citizens.

Participants overwhelmingly highlighted that electricity costs including payment of arrears represented a huge burden on households. In several instances, participants complained about the direct deduction from civil servants family members' salaries of 170 ILS/month. Participants also requested that amnesties be granted to customers with accumulated arrears.

Participants appealed for an organizational restructuring of GEDCO to improve customer services, revise electricity prices and pricing policies including perceived excessive taxation and penalties. GEDCO collectors were pointed out and criticized for receiving commissions on collections from end users.

- ***HEPCO- Hebron old City (H2)[71]***

Collection in H2[71] area has been decreasing consistently throughout the years. The decrease in collection is mainly as a result of weak law enforcement for non-payers due to HEPCO's inability to take legal actions against them in H2 area. Contributing to the issue is the fact that we believe that an increasing

In the south West Bank, the focus group was scheduled several times but no participants showed up.

[69] Popular Committees supervise projects sponsored by local and international institutions, donor entities/countries and UNRWA. They also seek to promote social interaction inside the camps, in addition to their coordination role with institutions working outside the camps.

[70] A total of 11 participants from various professional backgrounds participated in the focus groups.

[71] Following the 1995 Oslo Agreement and subsequent 1997 Hebron Agreement, Palestinian cities were placed under the exclusive jurisdiction of the Palestinian Authority, with the exception of Hebron, which was split into two sectors: H1 controlled by the Palestinian Authority and H2 controlled by Israel. Around 120,000 Palestinians live in H1, while around 30,000 Palestinians along with around 700 Israelis remain under Israeli military control in H2.

number of customers believe that the PA is directly paying for their invoices to IEC. If it were possible to raise the collection rate from the old city to average collection rate for HEPCO for 2013 of 95%, it would result in an increase of HEPCO's yearly revenue by 14 million ILS (which represents 7% of the total sales).

Table 21: HEPCO – Hebron Old City[72] consumption characteristics

Year	Number of Customers	Sales kWh	Sales ILS	Collection ILS	Collection %	Sales kWh/Customer
2009	8,671	68,554,869	43,676,441	30,122,623	69%	7,906
2010	8,729	75,988,012	48,180,222	32,725,237	68%	8,705
2011	8,743	81,280,607	48,809,120	31,065,244	64%	9,297
2012	8,757	87,238,069	52,159,714	31,670,462	61%	9,962
2013	8,765	86,248,385	55,957,512	30,648,695	55%	9,840

- ***NEDCO - Howwarah and Einabos Villages***

These 2 villages are located close to Nablus city in area A[21] and whilst they had high collection rates in 2010, this deteriorated in 2011 and 2012. In parallel with the drop in collection, electricity consumption increased rapidly during these years largely due to the access to free electricity.

Table 22: Howwarah and Einabos consumption characteristics

Year	# of Customers	Sales kWh	Sales ILS	Collection ILS	Collection %	Outstanding debts (ILS)	Sales kWh/Customer
2010	1,362	4,363,068	2,757,841	2,594,534	94%	105,671	3,203
2011	1,447	7,511,677	4,758,281	3,610,092	76%	1,253,860	5,191
2012	1,505	8,323,568	5,371,378	2,809,480	52%	3,815,757	5,531

The collection rate of these two villages has dropped significantly during the reported period. Unfortunately we could not immediately identify the reasons for this sharp decrease. A more thorough analysis including site visits would be necessary to understand the drop.

- ***NEDCO - Nablus old city***

Table 23: NEDCO – Nablus old city consumption characteristics

Year	# of Customers	Sales kWh	Sales ILS	Collection ILS	Collection %	Outstanding debts (ILS)	Sales kWh/Customer
2010	3,314	7,243,846	4,609,356	4,207,499	91%	192,407	2,186
2011	3,318	11,595,666	7,183,525	6,131,870	85%	490,770	3,495
2012	3,095	11,592,329	8,137,589	6,406,105	79%	784,843	3,746

The table above shows that collection rate from Nablus old city is high and the consumption per capita is in the national average. The old city of Nablus is under area A[21] which is fully controlled by the PA; this may explain the difference between Nablus old city which is under area A[21] and Hebron old city which is under area H2[71].

[72] The losses in Hebron old city are not reported. HEPCO does not have monitoring meters installed at the transformers supplying the old city and could therefore not report on the total area consumption and losses.

3.7.2 Subsidy and incentives

- ***Social cases***

Cabinet Decision No. (7/45/14) approved on 5 March 2013. This decision concerns electricity debts related to local authorities and DISCOs and included among its articles "The Government will cover the monthly cost of the first 150kWh for social cases registered at MOSA".

8,759 social cases, supplied by three DISCOs, benefited from the Governmental subsidy Decision during the reported period. While these DISCOs supplied the social cases with a monthly 150kWh free of charge, the Government has not yet compensated the DISCOs. The absence of governmental reimbursement is affecting DISCOs and contributes to the non-payment issue.

Table 24: DISCOs implementing assistance to social cases in the West Bank

DISCO	Number of beneficiary customers	Cost of subsidy ILS
NEDCO	2970[73]	3,564,645
TEDCO	1984	2,338,547
SELCO	3805	4,638,260
Total	8,759	10,541,452

- ***Incentives***

On 30/12/2012 the *Camps agreement* was adopted including the following: All debts starting January 2008 up to the end of December 2012 will be covered by the government for those costumers accepting this agreement.

Cabinet Decision No (7/45/14) for the year 2013: approved on 5 March 2013. This decision concerns electricity debts related to local authorities and DISCOs. The decision offered the following incentives for costumers to pay their bills.

  - Any customer committed to pay his invoice will be rewarded with a 10% deduction on his monthly invoice. This deduction will be subsidized by the government.
  - Any indebted customer who pays an additional 10% to his bill to reimburse his debt will be offered a 10% cancellation to his debt. This cancellation will be subsidized by the government.

The incentive schemes mentioned above and approved by the Government aimed to enhance DISCO's collections by targeting the camps and cancelling old debts in exchange of payments. These incentive schemes were contested by Palestinian Political Fractions and people outside the camps which were demanding that customers outside the camps should also benefit from these advantages. These protests led the government to extend these cabinet decisions to all customers outside the camps. Yet, the *camp agreement* was never implemented and the status quo continued.

Even without being implemented, these incentive schemes created discontent within the Palestinian population outside camps which is assumed to have impacted these customers' payments of electricity invoices.

[73] Estimated

4. Conclusion

4.1. Summary of analysis

In the past years, non-payment has reached unprecedented levels in the West Bank and Gaza and represents a significant financial burden for the Palestinian Authority. The previous sections of the report have analyzed in detail the data collected to understand the main causes of this non-payment. This concluding section summarizes the main findings related to the non-payment.

To present a consolidated representation of the non-payment situation issue, we have analyzed its impact throughout the end to end financial payment cycle:

1. Purchases from IEC and other Suppliers
2. Losses between quantity purchased and quantity invoiced (sold) to customers
3. Collected amount from sold electricity
4. Payments to IEC and other Suppliers
5. Non-Payment amount split between Net Lending and Debt

The graph below illustrates the financial impact of the payment shortages in the payment cycle as well as issues arising from the purchase and sales tariff levels.

Chart 19: Overview of non-payment in the West Bank in 2013 (in million ILS)

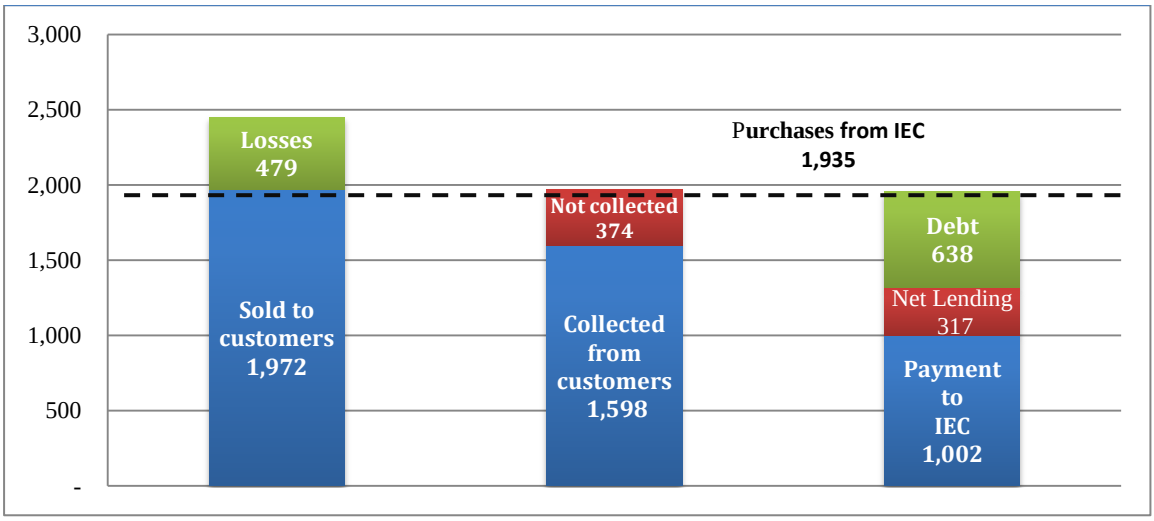
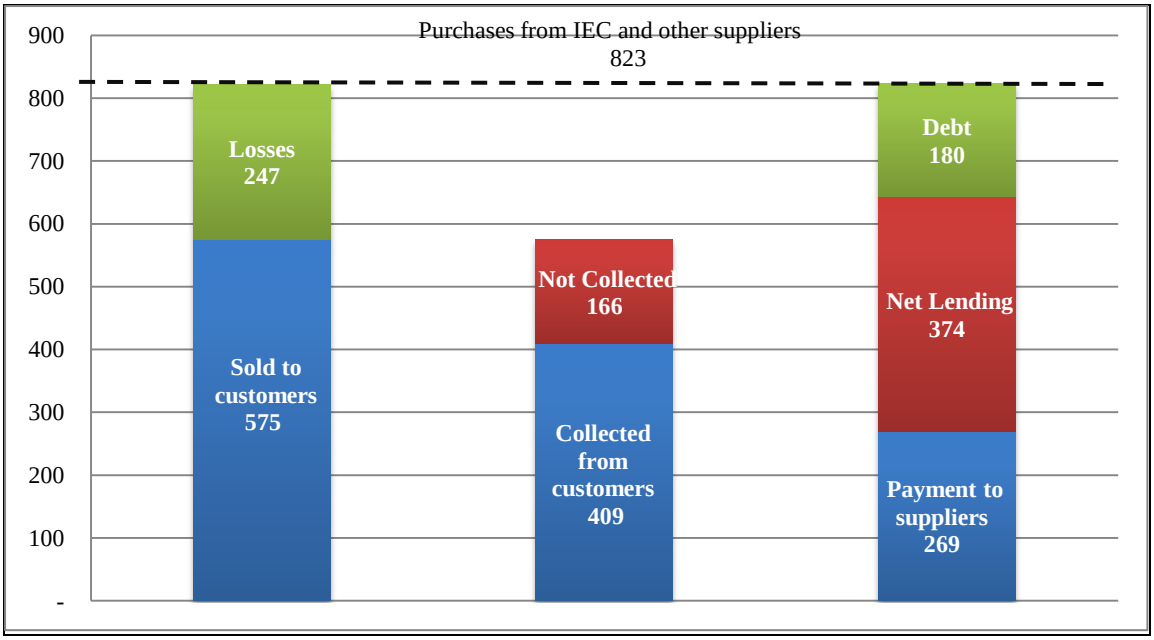


Chart 20: Overview of non-payment in Gaza in 2013 (in million ILS)



The analysis in the previous sections revealed that the 92% of the total contribution to non-payments during the period was caused by 10 Distributors in the West Bank + GEDCO. Out of the 92%, GEDCO and JDECO are the largest contributors to the non-payment representing 68% of the total non-payment of electricity in the West Bank and Gaza. GEDCO contributed to 55.4% of the total West Bank and Gaza Net Lending during the period while JDECO contributed to 68.7% of the total West Bank and Gaza debt up to February 2014.

Electricity losses are considered to be excessive although they remained stable throughout the period. In addition, it emerged that Distributors do not have the necessary tools to measure losses properly and that the split between technical and non-technical losses is mostly based on estimates. Due to losses amounting to 479 million ILS in the West Bank and 247 million ILS in Gaza in 2013, the invoiced electricity sales could barely cover the cost of electricity purchases.

The collections from customers continuously decreased with the exception of Gaza which has witnessed a constant increase mostly due to the deductions by MOF of the civil servant salaries. Nevertheless, the collection in Gaza is still lower than in the West Bank.

The sales tariff does not take into consideration the limitations of the market. The sales tariff includes a governmental subsidy which was only partially paid by the PA to the Distributors and the actual losses for most of the Distributors are higher than the lost threshold included in the tariff methodology. Regardless of these, the sales tariff to the Palestinian customer is still high and higher than the sales tariff to the Israeli consumers, which is mostly due to the high purchase tariff from the IEC.

Cash collected by Distributors from electricity invoices were not systematically utilized to cover electricity related matters. Distributors choose to cover their operational expenses and other expenses such as municipal finance and shareholder finance before settling their invoices to the IEC. These clearly reveal a governance issue within Distributors which needs to be urgently addressed to improve their efficiency and the level of payments to the IEC.

Special areas such as refugee camps exhibited most of the issues mentioned above, resulting in high levels of non-payment. Nevertheless, these areas did not contribute greatly to the overall non-payment as they only represent a small number of customers and a limited proportion of total invoiced amounts.

4.2. Invoice reconciliation and cycle

The analysis revealed that there are no procedures for the invoicing of electricity from the IEC to the Palestinian Distributors and that the process currently implemented is not harmonized for all Distributors and lacks transparency.

Distributors in various areas of the West Bank and in the Gaza Strip do not have access to meters and do not receive IEC invoices regularly. In the absence of information on electricity charges, many Distributors do not pay for electricity that has been delivered.

Furthermore, as the PUA does not provide detailed information on purchase price of electricity including the components of the tariff applied to Distributors in the West Bank and Gaza, the opacity of the invoice process becomes more acute.

In addition, the interest rate for late payment unilaterally set by the PUA is high and reflects that of a retail (residential/small commercial) customer rather than that of a wholesale customer represented by the Palestinian market.

Finally, the Israeli deductions from the clearance revenue are not implemented in a consistent and fully transparent manner and do not follow clearly agreed upon procedures, and are therefore difficult to predict. Debts should appear on the invoices and be reconciled with the payments.

The IEC has recently provided important data related to invoices to its Palestinian counterparts, which has enabled a much stronger reconciliation of net-lending accounts. IEC is now also regularly providing invoices, which is necessary for payment requirements to be understood. Further institutionalized regulated and transparent cooperation between the IEC, PUA and PETL is recommended, in order to improve information and payment flows.

4.3. Non-Payment from Distributors to the IEC

Between 2010 and 2013, Palestinian electricity Distributors in the West Bank did not pay 37% of their total bills to IEC and this figure reached 100% in Gaza.

The total contribution of the Top 10+1 (GEDCO) non-payers reached 92%. GEDCO is largest non-payer accounting for more than 1.7 billion (471 million US$) or 41.8% of the total non-payments to the IEC between 2009 and 2013 while it only purchased 21% of the total electricity sold by the IEC in 2013.

During the same period, JDECO was the second largest non-payer contributing to more than 1.1 billion ILS (297 million US$) or 26.3%e of the total IEC non-payments while accounting for around 40% of the total electricity purchases to the IEC in 2013.

The remaining 9 Distributors between them accounted for 1 billion ILS (271 million US$) or 24% of the total non-payment. The split between these Distributors is as follows: HEPCO: 7.4%, NEDCO: 7.2%, Tulkarem municipality: 3.5%, SELCO: 2.8%, Qalqiliya: 1.1%, TEDCO: 1%, Qabatia council: 0.2%, Beit Awwa village: 0.5%, Beit Ummar: 0.4%.

As mentioned previously, non-payment from GEDCO essentially comprises Net Lending while non-payment from JDECO mainly includes debts to the IEC. Substantial reduction in non-payment will only take place by ensuring that measures implemented target these two DISCOs and are tailored to respond to the specific issues and patterns found in the two utilities.

Non-payment during the period in the Palestinian Territory also constantly and rapidly increased. In 2010, 37% of the total electricity invoiced was not paid and this figure jumped to 58% in 2013.

The level and increase in non-payment can be attributed to a variety of factors as detailed in the report including losses, collection, tariff and efficiency of Distributors. The study nevertheless showed that non-payment from the Palestinian Distributors to IEC is not connected to the poverty level of the customers supplied by these Distributors.

4.4. Electricity Losses

Although the level of losses remained the same in the past years, its level is still above acceptable limits. Distributors do not have proper tools to measure losses and cannot differentiate between technical and non-technical losses. GEDCO, in particular, does not have the necessary tools to assess the losses on its grid and it cannot access the meters which would allow for proper measurement and classification of losses.

Losses in GEDCO and JDECO concession area are reported to reach significantly high levels and should be dealt with as a priority.

In the West Bank and the Gaza Strip, the levels of electricity losses result in significant revenue losses – these amounted to 726 million ILS. In the West Bank, due to losses, the amounts invoiced to end customers only cover the cost of purchases from the IEC and do not cover Distributor's costs such as operating costs, investments costs, profits or dividends. The amount invoiced for customers in Gaza only accounts for two thirds of the electricity purchases for the Strip while one third of the purchased quantity (247 million ILS) was lost either as a technical or non-technical loss.

4.5. Collection from customers

The overall collection rate in the West Bank and Gaza for the period between 2010 and 2013 is better than expected but the trend shows that customer payment has consistently been decreasing in the West Bank and increasing in the Gaza Strip. The increase in payment rate could be attributed to the successful implementation of an automatic deduction from civil servant salaries for electricity bills in Gaza.

Overall, the Special Areas and the Palestinian Authority are the poorest payers and their performances are suspected to negatively impact the payment behavior of other customers.

The main reasons attributed to the deterioration of the collection rate in the West Bank can be summarized as follows:

1. Israeli deductions from the clearance revenue which gives the impression that customer bills are paid for by the PA: for example, the collection rate for JDECO dropped to 83% in 2013 following the first Israeli deduction to cover parts of the JDECO debts to the IEC.
2. PA introduced incentives for customers committed to pay their bills and for the indebted customers to reschedule their debts. As an example JDECO deducted 14 million ILS from committed customers since starting this initiative and cancelled 8 million ILS of debt for indebted customers and yet the Palestinian Government did not compensate JDECO for these amounts.
3. Unpaid bills from the PA institutions in particular for water pumps. As a result, most of the DISCOs are calculating their debts to MOF with the unpaid consumption of the PA institutions and compensating themselves. This unilateral settlement between the DISCOs and MOF is not done consistently or systematically and is time consuming. The payment by the PA of its electricity consumption can raise the collection by 3%-5%.
4. Municipalities do not pay for their bills for municipal services like street lights and water pumping bills. Were these to be paid, it would increase the collection by 1.5%-2.5%.
5. The subsidy that is made available for social cases is not repaid by the government to the DISCOs which then contribute to a lower collection rate.
6. Low collection from special areas like camps and certain villages. If these could be increased to benchmark levels, collection rates would increase by 4%-6%.
7. Quality of the services received from Distributors in the West Bank and Gaza has been severely criticized by customers.

4.6. Tariff

The purchase tariff is set unilaterally by the PUA as a bulk tariff for medium or low voltage. This purchase tariff appears very high for the nature of the supply relationship, and with payment conditions that do not reflect this relationship. The purchase tariff is not fully transparency as it includes many unknown costs.

The Palestinian Authority has been involved in talks with its Israeli counterpart for the past 10 years to negotiate a commercial agreement. Progress on reaching an agreement has been slow and must be concluded to give appropriate and clear pricing of electricity sales.[74]

Starting 2011, PERC has been setting the sales tariff to the Palestinian customers based on a cost plus approach to cover the cost of electricity purchased from IEC as well as the operational expenses and acceptable profit margin for Distributors. The methodology stipulated that the tariff would undergo yearly reviews and amendments to include benchmarks for certain KPIs like losses and operating cost in order to enhance the efficiency of DISCOs. Unfortunately, the tariff has not been reviewed since its implementation. Nevertheless, PERC is currently in the process of reviewing the different tariff components including the impact of removing subsidies and the inclusion of certain financial and quality KPIs.

The difference between the sales and the purchase tariff, which is the tariff margin, reached 54% after the new tariff was implemented. When the tariff was first applied, this margin was considered to be sufficient to cover all the cost of Distributors and estimated to even allow them to earn small profits.

Since then, the tariff margin has decreased in the West Bank going from 54% to 40% between 2010 and 2013 largely due to:

1- The subsidies included in the tariff which are mostly not repaid by the Government; and

2- The high increase of the purchase electricity from IEC.

Distributors did not collect enough to cover all their financial obligations including electricity purchase and operating costs.

Therefore in order to avoid an increase of sales tariff, PETL should finalize the commercial agreement with the IEC, PERC should set benchmarks for Distributors to reduce operational expenses and Distributors should cooperate with relevant electricity authorities to improve their efficiency.

In Gaza, the average purchase tariff from all the sources is nearly equal to the average sales tariff. GEDCO should review at least its commercial tariff which is currently 20% less than West Bank commercial tariff.

With the support of the international community, the PA has plans to supply the Gaza Power Plant with natural gas to reduce the generating cost and to utilize collections from customers to pay for IEC invoices. In addition to reducing the costs, this action will also enable it to run at full capacity which will then reduce the power shortages in Gaza.

As mentioned above, in 2011 the PA introduced subsidies amounting to 200 million ILS up to the end of 2013 as part of the tariff. These governmental subsidies were adopted for political reasons essentially to satisfy customers. Unfortunately due to the weak financial situation of the PA, MOF only repaid 40 million ILS out of the 200 million ILS total. The non-payment of these subsidies created more deficits to Distributors which often chose to compensate for this cost by reducing their payments to the IEC. The subsidies outstanding payment (unpaid amounts) represents about 4% of the estimated cost of the purchase of electricity of West Bank Distributors during the period 2011-2013.

[74] The PA and IEC are willing to reach a commercial agreement, but IEC stated that paying the debt will facilitate the negotiations of the commercial agreement.

4.7. Efficiency and transparency of Distributors

According to the Electricity law only licensed Distributors can sell electricity to customers. The law was implemented in 2009 to compel municipalities to join DISCOs and reach the target of operation of four efficient DISCOs in the Palestinian Territories, three in the West Bank and one in Gaza. While many municipalities never joined DISCOs, the existing DISCOs (which built structures to serve complete regions) remained highly inefficient in the absence of functioning economy of scales. On the other hand municipalities kept their inefficient structure.

In addition to that Distributors (especially municipalities and village) have opaque financial systems with unclear payment mechanism and municipalities were reported not to proceed with segregation of accounts.

DISCOs also appear to be only moderately transparent showing an inability to report properly on their finances. They are considered to be highly influenced by the internal political environment in which they operate.

The analysis included in section 3.6 related to the efficiency and transparency of Distributors revealed that Distributors chose to cover operation costs, investment costs and payments to shareholders before paying invoices to the IEC which is one of the reasons for the Non-Payment in the West Bank. Distributors were reported to finance their shareholders through dividends and loans reaching 242 million ILS, although they did not complete their invoice payments to the IEC.

NEDCO, HEPCO and SELCO, in particular, indicated they use part of the collection and proceed with ad hoc payments to their municipal shareholders.

Municipalities on the other hand disburse funds collected from electricity sales to cover the payment of other services such as education health, project finance, rehabilitation projects, etc. All these payments are categorized under "municipal finance".

4.8. Others reasons for non-payment

The analysis of the special area revealed that collection in these areas is usually low, but significant differences in collection trend and behavior were nevertheless observed identified in these areas. In terms of absolute figures, the contribution of these areas to non-payment is quite low as they do not cover extensive areas or large numbers of customers For example; special areas in JDECO (refugee camps) only represent 21% of JDECO non-payment to IEC in 2013.

Nevertheless, in refugee camps, the consumption per capita reached unprecedented level and losses – believed to be non-technical - are significantly higher than in the rest of the Palestinian Territories.

Specific issues related to affordability and arrears in these areas were addressed by the PA through incentive and subsidy for social cases as detailed in section 3.7.2. Unfortunately, the subsidies for social cases were never paid by the government which negatively impacted the non-payment. Incentives to refugee camps on the other hand were never implemented due to refusal of refugee customer camps to pay for their electricity consumption.

The special arrears analyzed in this report (in particular the refugee camps and the old city of Hebron) are considered to be areas requiring special political attention to address issues related to non-payment. Law enforcement in these areas is challenging and requires endorsement of the highest authority from the PA as well as the representatives of these areas.

Distributors in coordination with the PA should nevertheless continue to address these issues, it is crucial for the utilities to also deal with the problem of public perception through media campaigns and customer engagement training for their employees

This focus on the special areas should not prevent the Distributors from acting to address non-payment in all other areas. For example, the JDECO refugee camps only contribute 27% of the total JDECO losses, meaning that 73% of the losses are actually located within the remaining area of JDECO jurisdiction.

5. PA action plans and current donor programs

Introduction

The development and implementation of an inclusive operational and financial action plan by all sector stakeholders is essential to address the issue of non-payment, losses and reduce "Net Lending" in the West Bank and Gaza.

This section looks to present and assess the various Palestinian stakeholders' action plans and the sectorial activities carried by donor programs to determine the extent to which these plans are addressing or will address non-payment of electricity and/or reduction of losses. In assessing each action proposed by these plans, we have also proposed amendments to the actions building on the analysis provided in the previous sections of this report. A summary of a revised action plan that builds on these actions and activities for the short, medium and long term is then presented.

It is essential to note that the proposed revised action plan builds on the existing plans of the PA and the current donor programs. Although anticipated to lead to improvements in payment performance, the different actions suggested in the revised action plan should be implemented as part of a cohesive broader plan monitored and regulated by a coordination entity comprising all sector stakeholders. The action plan recommends the development of the electricity sector through continued institutional reform combined with legal and regulatory improvements and supported by infrastructure development, particularly to consolidate and monitor electricity supply and strengthen PENRAs' capacity to enforce payments. Finally, the revised action plan builds on conclusions stemming from the analysis in this report and builds on current strategies and actions implemented by PENRA and the PA supported by the international donor community.

5.1. Stakeholders' existing and planned action plans

The current unstable fiscal situation in the Palestinian Territories has constrained the PA's abilities to intensify its actions and policies aimed at significantly reducing Net Lending which represents major burden on its finances. To reach this objective, with the support of donors, the PA adopted specific measures to increase collections and reduce debts from customers to Distributors and from Distributors to IEC.

In 2008 with the support of the World Bank, Norway, and the European Investment Bank, the PA initiated the "Electric Utility Management Project (EUMP)" with the overall objective of improving the efficiency and quality of electricity supply in the Palestinian areas through: (i) financing of critical investments for the strengthening and rehabilitation/ extensions of the transmission and distribution system in the West Bank and Gaza Strip and (ii) assisting with the implementation of sector reforms, capacity building and training. The intended outcome of this ongoing project is to contribute to a reduction in the non-payment issue in West Bank and Gaza. Under this program and with the support of the donor community, the PA initiated the following institutional and infrastructure developments:

- Establishment of PERC and funding of its startup operation cost for more than 3 years[75]
- Establishment of PETL and funding of its startup operation up to mid-2015[75]
- Establishment of NEDCO and partial coverage of its 2 years operation cost
- Promotion of renewable energy and energy efficiency programs
- Procurement and installation of large numbers of prepaid meters
- Rehabilitation of low voltage and medium voltage electricity network
- Construction of 4 high voltage substations and development of the associated distribution systems.

[75] Funded by the World Bank and by the European Commission.

With the support from the European Union, in 2011, the PA initiated the reform of the electricity sector including the restructuring of its institution as well as the building of the capacity of its employees.

In addition to these programs and in light of the deteriorating situation in the sector (namely a sharp drop in payments of electricity bills from Distributors and end-customers), the PA took a set of measures to expand its control over the sector and increase collection. The following measures were adopted and implemented in the last 2 years:

- In 2012, the PA (represented by the Prime Minister Dr. Salam Fayyad) agreed with the representatives of the refugee camp committees to start a new era of payments from the camps costumers. This agreement, detailed in Appendix J was based on incentives for costumers to pay their bills as well as penalties for electricity thefts. Nevertheless, following protests by customers outside camps and political factions the agreement was not implemented. Protestors had required the agreement to be extended from camp customers to all customers. To act in response to this demand, the cabinet proposed the implementation of measures to encourage customers to pay for their electricity debts by offering incentives to customers who were prepared to commit to paying for their invoices. In 2013, an agreement was signed with Distributors and endorsed by the cabinet offering deductions on monthly electricity bills to customers with no arrears and deductions on arrears for customers who accepted a schedule to settle their arrears. The cost of these deductions was to be covered by the PA in the form of subsidy. Although the agreement was implemented it did not have a major impact on the reduction of the non-payment.
- In 2012, the Palestinian President ratified an amendment to the Electricity Law to include punitive actions for electricity theft. This measure led Palestinian Courts to penalize offenders (i.e.: extract on court order from Al Quds newspaper).

أحكام جزائية تطال سارقي التيار الكهربائي والمتخلفين عن تسديد الفواتير

رام الله- أصدرت النيابة العامة الفلسطينية ، اجراءات قضائية واحكام جزائية جديدة طالت عددا من سارقي التيار الكهربائي والمتخلفين عن تسديد فواتير الكهرباء في مناطق امتياز شركة كهرباء القدس.

وأشارت الدائرة القانونية لدى شركة كهرباء محافظة القدس ، الى أن الأحكام الجزائية تمثلت ما بين الحبس لمدة ثلاثة شهور أو دفع مخالفات لصالح الشركة بالإضافة إلى دفع رسوم وتكاليف أتعاب المحامين، حيث صدرت عن للحكمة أحكاماً بحق كل من : للواطنة (أ.ف)، و للواطن (أ.ع) و (ح.ع) و (م.ح) من منطقة القدس ، بالإضافة إلى للواطن (أ.ج) و (ح.م) من منطقة رام الله، و للواطن (خ.م) و (م.ح) و (م.ج) من محافظة بيت لحم ، إلى جانب للواطن (ع.أ) من منطقة قبيا الذي حُكم عليه بالحبس لأكثر من ٣ أشهر.

وفي هذا السياق، قال مدير عام شركة كهرباء محافظة القدس م. هشام العمري: "أصبح من الضروري أن تتخذ الجهات القضائية والأمنية اجراءات أكثر صرامة على كل من يتعدى على ممتلكات الشركة وكل من يتلاعب بعدادات الكهرباء".

وأضاف أن هذه الظاهرة في تفاقم مستمر وتحتاج إلى وقفها بشكل فوري لما تسببه من خسائر للشركة وللمواطنين.

كما طالب العمري ، بإتخاذ اجراءات أكثر صرامة بحق للتخلفين عن الدفع من أجل حماية الشركة من التوقف عن العمل، خاصة في ظل زيادة الديون لصالح الشركة القطرية الاسرائيلية الأمرالذي يهدد استمرار تدفق الكهرباء للمواطنين الفلسطينيين.

وفي هذا السياق أشاد العمري بدور الأجهزة الأمنية والقضائية في ملاحقة المعتدين على ممتلكات الشركة، كما أكد حرص الشركة على التعاون مع تلك الاجهزة من أجل وضع خطط وآليات أكثر فعالية تهدف لوقف الجرائم المتعلقة بالكهرباء، واقتلاع هذه الظاهرة من جذورها.

Al-Quds newspaper 24/3/2014: Court orders against electricity fraud and non-paying electricity invoices in JDECO concessions area.

Criminal provisions affect electricity thieves and bill defaulters

Ramallah – The Palestinian Public Prosecutor issued new proceedings and provisions that affected a number of electricity thieves and electric bill defaulters that lagged behind in the payment of electricity bills in the concession areas of the Jerusalem Electricity Distribution Company.

The legal department of the Company indicated that the more strict actions on all those who misuse company assets and all those who tamper with electricity meters".

He also added that this pattern is in a constant increase and it needs to be stopped immediately for the losses it causes to both the Company and the customers.

Mr. Omari also requested that more strict actions will be

penal provisions were either imprisonment for three months or paying the fines to the company in addition to paying the lawyers' fees. This is after the court issued verdicts against: residents (A. F.), (A. A.), (H. A.), and (M. H.) from the Jerusalem area, as well as residents (A. J.) and (H. M.) from Ramallah, (K. M.), (M. H.) and (M. J.) from Bethlehem, and also resident (A. A.) from Qibya who was sentenced to more than 3 months in prison.

Within this context, Mr Hisham Al Omari, the general manager of the Jerusalem Electricity Distribution Company, stated: "It has become a necessity for the legal and Security authorities to take taken against those who default on payments in order to prevent the company from stopping operations, especially with the increase in the company's debt to the IEC, which threatens the continuity of the electricity flow to Palestinian residents.

Within this context, Mr. Omari highlighted the role of the security and the legal authorities in tracking down the company property offenders, he also emphasized the coordination that the company has with these authorities in laying down more effective plans and actions that aim towards stopping electricity related crimes and removing it from its source.

- On 9 February 2014, the Government established a Special Committee comprising members of MOF, MOLG, MOI, MOE and PENRA to solve the electricity debt issue. On 25 February 2014, following recommendations from the Special Committee, the cabinet issued a decision stating that:
    1. All electricity Distributors, within a maximum period of 30 days from the date of issuance of this decision, are required to reschedule the reimbursement of their debts to MOF which were deducted from the Ministry's clearing account for the benefit of the IEC.
    2. All electricity Distributors shall commit to pay for their electricity bills received from the IEC excluding the allotment corresponding to the governmental subsidy to support the electricity sector.
    3. The cabinet is empowered to proceed with lawsuits against representatives of Distributors in the case where it has been proven that public money has been compromised.
    4. All benefits and financial aids from the Ministry of Finance and/or any governmental body shall be halted to any electricity Distributors failing to abide by the rules and regulations set in this decision.
    5. All electricity Distributors are required to provide MOF and PENRA with their IEC billing and payment information within 3 business days of receiving the invoice or making payment to IEC.
    6. To ensure the successful implementation of the present agreement, all electricity Distributors must apply for a meeting with the special electricity committee, where the committee shall examine the status of each Distributor and propose tailored recommendations for approval by the cabinet.
    7. The special electricity committee will perform quarterly reviews of all rules and regulations included in this decision and will update and propose amendments to the cabinet whenever deemed necessary.

While the cabinet responses attempted to address the issue of non-payment, Palestinian institutions developed distinct operational actions plans to tackle the issue and proposed specific measures to reduce the Net Lending. Most of these actions are detailed in their action plans which with the assistance from the World Bank, were collected from the relevant institutions and are included in Appendix J of the report.

5.2. Assessment of Palestinian stakeholder's existing and planned action plans

To ensure a cohesive approach and understanding of the different measures implemented by the PA, the actions have been classified in line with the conclusions of the analysis.

The following section lists the different actions implemented by the PA in response to non-payment, provides a comprehensive description of these actions as well as an assessment detailing the impact of

these actions as reported in the top down and bottom up analysis of the report. The section also suggests future areas of focus to build on these actions.

5.2.1. Fundamental actions

Establishment of Special Committee comprising members of MOF, MOLG, MOI, MOE and PENRA to solve the electricity debt issue.

This cabinet decision is one of the most important recent actions from the PA to solve the non-payment issue. The Special Committee which took office early 2014 has already been very active in proposing different specific actions to improve payment results, as can be seen from the action list below.

Proposed improvement: Although the Committee had been mandated to make recommendations to the cabinet on actions to tackle the debt issue, it was strongly recommended that the mandate of this entity to deal with the issue of non-payment in a cohesive way should be increased further. The Committee should be empowered to lead all the activities related to non-payment and monitor the implementation of these activities. It is suggested that the Committee supervises and coordinates with all Palestinian stakeholders and donor communities the implementation of the revised action plan. In order to ensure the success of the Committee it is recommended to have a secretariat established to support the committee and perform daily tasks related to the mandate of the Committee. The expanded roles and responsibilities of the Committee will need to be developed and agreed with all sector stakeholders. The secretariat could be supported by the donor community.

5.2.2. Invoice reconciliation and cycle

Establish a central database between MOF, PETL and Distributors

This web-based database will connect the MOF with all Distributors providing a separate access to Distributors via secured login information system to enter the following data:

1- Scanned copies of IEC monthly invoices

2- Connection point codes and invoice amounts

3- Scanned copy of payments executed to IEC

4- Cost of electricity sales to PA institutions supplied by Distributors

This database will be linked to the MOF database to enable Distributors to monitor revenues that they are entitled to from the MOF and follow up on transfers. In addition, PETL will receive copies of monthly invoices from the IEC for all connection points and will record this data in the database and perform comparisons with the data entered by Distributors.

This database, currently being developed by USAID through its ICI project, is expected to be operational by July 2014. It will be an essential tool to monitor non-payment and take rapid corrective actions. A few challenges as detailed below await the effective operation of this database:

- Sustainability: The database is being designed through a donor funded project expected to terminate shortly. The Web-site source code will be delivered to the Ministry of Finance (MOF), hence the programing language will available to MOF. Therefore, MOF will be able to make any updates on the website after the one year warranty.
- Cooperation: The significance of this database relies exclusively on the full and continuous cooperation of all stakeholders including the IEC which should commit to provide PETL with a copy of monthly invoices and small villages which might not have the capability to transfer required information to the database.

Proposed improvement: It is recommended that with the assistance of the international donor community, the PA shall guarantee the sustainability of the operation and maintenance of this database by allocating the specialized personal and funds.

It is recommended for this database to be connected to the IEC which will require the full cooperation of the IEC, or to ensure the development of parallel database connecting PETL to the IEC for transfer of data and information between these entities on invoicing and payments. The on-going USAID-financed ICI project plans to have a screen for IEC on the website. The Palestinian MOF and PETL will be able to identify IEC authorities on this website.

In addition, it is recommended to establish a shared services centre to consolidate IT support processes from all Distributors into a standalone entity serving them back. As part of the consolidation, the processes should be reengineered and standardized to eliminate costs through economies of scale, eliminate redundant activities, reduce head count and delivery of high-quality services. The estimated cost of such a shared service centre is 3.5 million US$; however it is estimated to save about 2 million US$ of Distributor's operational costs each year.

5.2.3. Non-Payment from Distributors to the IEC

Commercial agreement between PETL and IEC

This action is included in both the action plans of the MOF and PENRA. The purpose of this commercial agreement is to ensure a transparent commercial relationship between PETL, the sole electricity buyer authorized by law and the IEC. The Palestinian counterpart to the agreement is aiming for a reduced price (export tariff) and improved payment conditions. The IEC, in return will require payment guarantees which could be provided through external support.. Currently the IEC only has bilateral supplier to customer relationships with each connection point owner.

This action is expected to significantly reduce non-payment as it is expected to

- Increase the DISCOs sales tariff margin and increase their ability to pay IEC invoices following the expected reduction in the purchase price.
- Secure continuous channel and flow of information with the IEC allowing for better monitoring of payments.
- Enhance the payment conditions for PETL which will in turn improve the Palestinian DISCOs payment schedule.

*Proposed improvement***:** This action will not only require the cooperation of the relevant IEC stakeholders including PUA, the IEC and the electricity officer from the Israeli Civil Administration but also the commitment of PETL to pay IEC invoices and provide guarantees for such commitment. This action should be monitored by the Special Committee.

Distributors to pay all invoices excluding government subsidies and to report to MOF and PENRA on IEC invoices and payments within 3 business days of receiving the invoice or making payment to the IEC.

This cabinet action driven by the Special Committee to solve the debt issue, demonstrates the governments' commitment to cutting back non-payment and ensuring that Palestinian financial obligations towards the IEC are met in due time.

Proposed improvement: While the impact of this action on the reduction of the non-payment is very promising, its success cannot be ensured as explained below. The action aims to induce Distributors to pay for their invoices but neglects to address the payment of subsidies. Whereas Distributors could pledge to pay, the subsidy share excluded from the equation would go unpaid and would add up as debt to the IEC anticipated to be deducted from the clearance revenue on behalf of the Distributors. According to anecdotal evidence, this decision seems to have been taken following MOFs' inability to comply with a previous cabinet decision requiring the ministry to proceed with the payment of subsidy to Distributors. It is recommended that the subsidy component is removed from this action to ensure its successful implementation.

The action further requires Distributors to report to MOF and PENRA on IEC invoices and payments. The establishment and maintenance of lasting communication channels for the transmission of information and reporting from Distributors is essential for proper monitoring of this action and it is recommended that this responsibility is transferred to the Special Committee rather than only involving MOF and PENRA.

This action will also need to be complemented by follow up legal actions in cases of non-payment as described in pillar 4 "legal pillar". The constant flow of information on payments from the Distributors will enable the PA to take quick legal actions against offenders and prevent payment of additional fees resulting from late payment. The analysis of the monthly direct payment data[76] from Distributors revealed that the absence of payment from NEDCO to IEC during the first half of 2013 led the utility to pay increased fees later in the year to compensate for late payment of invoices.

In light of the current political relations between West Bank and Gaza this action may not realistically apply to GEDCO for the immediate future.

Legal actions from Cabinet against Distributors not complying with the decision if proven that public money is compromised.

This action included in the action plans of MOF, MOLG & PENRA is in line with the cabinet decision "Approving the guarantees of electricity payments" issued in February 2014. The legal actions can lead to removal of municipal councils or requests to the anticorruption committee to investigate if non-payment to IEC is considered to be miss financial management and public money is compromised. In such an event the management of the Distributors can be brought to court.

Renewable Energy

One of the main objectives of the renewable energy projects included in the PENRA action plan is to diversity the supply of electricity and reduce the amounts purchased from the IEC thereby decreasing the energy dependence on the IEC.

During the last quarter of 2012 the cabinet approved the Palestinian Renewable Strategy up to 2020. The strategy aims to generate a total of 240GWh from the different renewable sources through a 2 phased approach. The first phase will run from 2012 to 2015 while the second phase will extend from 2016 to 2020. Phase I focuses on the promotion of renewable sources, the issuance of relevant regulations and the implementation of the Palestinian Solar Initiative (PSI) supporting the installation of 5 MW solar power on rooftops of buildings with 1,000 residential customers during the period 2013-2015. To ensure the implementation of the PSI initiative PERC issued the first Feed in Tariff (FIT) regulations and the project was launched early 2013. In the first half of 2013, the private sector expressed interest in installing solar power systems on rooftops. Unfortunately, shortly after, MOFs' inability to pay the FIT through DISCOs caused a major setback to the implementation of the initiative. To overcome this drawback, PERC proposed to the cabinet that the DISCOs should finance the FIT through their payment in concept of licensing fees that shall be transferred to MOF to finance PERC. This proposal was unsuccessful as only two DISCOs are licensed and some even took the initiative to suspend payments to customers.

Nevertheless, a few DISCOs chose to self-finance the initiative in some municipal buildings and public buildings in camps as an act of social responsibility.

Proposed improvement: A proposal to overcome this setback would be to accelerate the issuance of net metering regulations and finalize consultations between DISCOs and PENRA on this issue. In addition soft financing to encourage the energy renewable projects for the private sector similar to the Energy Efficiency initiative launched by the AFD[77] could be introduced to support the implementation of renewable projects.

[76] See Appendix D
[77] As detailed in Action II.4

This action is closely linked to the reduction of non-payment. Therefore to encourage the implementation of renewable projects it is recommended that:

- PERC/PENRA be encouraged to issue net metering regulations;
- A revolving fund is established to ensure the implementation of small size solar power project in public buildings, which could be financed by donors through this fund similarly to the AFD finance of the revolving fund for energy efficiency;
- Soft loans mechanisms are developed by Palestinian banks for the private sector to implement small size renewable projects; and
- Donors may assist the PA to achieve the objectives set in the renewable strategy by providing the necessary financing tools. The implementation of medium or large scale renewable projects by the private sector require the generation cost for these projects to be competitive with the IEC purchase price. If these prices are higher, it will require subsidy from the MOF or will result in an increase in the sales price of electricity to the Palestinian customers.

Energy efficiency measures

This action plan is introduced in the PENRA action plan. PENRA has set indicative targets for energy efficiency and proposed a 5% saving in the overall end user electricity demand by 2020. To support this aim, PENRA committed 4 million US$ of AFD funding to launch the second phase of a project to promote energy efficiency. This included the introduction of a revolving fund for implementing energy efficiency projects within public buildings and providing subsidized loans (with zero interest) for the private sector to implement energy efficiency projects, in addition to providing funds to operate a specialized energy efficiency unit at PENRA.

Energy efficiency projects should reduce amounts of electricity purchased from, as well as the payments made to the IEC which will contribute to a reduction in non-payments. In addition the revolving fund introduced for public buildings has proven to be successful as it has reduced the PA's electricity consumption invoiced by DISCOs, which in turn has led to a reduction in non-payments from the PA to DISCOs.

The World Bank has launched a tender to conduct a study aimed at improving PENRA's understanding of the Energy Efficiency potential in the West Bank and Gaza. This work will provide an assessment and an action plan to develop energy efficiency projects in the West Bank and Gaza in the short, medium and long-term. The action plan will incorporate a roadmap for the development of legal, regulatory, institutional and capacity-building initiatives to support this action plan.

Proposed improvement: It is nevertheless recommended that a comprehensive assessment of the revolving fund is performed to examine the possibility of increasing its current funding level and copying the model to support renewable energy programs.

5.2.4. Electricity Losses

Legal actions according to the amended electricity law

This action included in the JDECO action plan is in line with the amended electricity law which clearly classified electricity theft as a crime. JDECO is planning to initiate legal actions against 15,000 customers accused of stealing electricity or suspected of non-payment. This action is closely linked with the reduction of non-technical losses which represent a financial burden on all DISCOs and on the reduction of non-payment.

Proposed improvement: This action will require actual law enforcement

Installation of monitoring meters to measure non-technical losses

Monitoring meters will be fixed adjacent to transformers supplying multiple customers to enable Distributors to compare the measurements of these meters with the measurements of the meters of the

customers supplied by these same transformers. This technique is already being implemented by JDECO and enables the utility to identify high losses areas. PENRA is keen to extend this action to the widest possible area in the West Bank and Gaza by installing an additional 4,000 monitoring meters with the total cost of 3 million US$.

Proposed improvement: Exposing electricity theft can contribute to a reduction in non-payment if complemented by measures aimed at cutting these losses such as network inspections, disconnection of illegal connection and legal penalties.

Rehabilitation of electricity networks

This action developed in PENRA and DISCOs' action plans includes rehabilitating the network to reduce technical losses and removing networks considered hazardous for the public. PENRA and DISCOs have carried out a significant number of rehabilitation projects and intend to continue with this activity to further eliminate technical losses and remove all dangerous networks.

Proposed improvement: This action is highly related to the reduction of non-payment requiring it to be monitored with specific KPI's linked to loss reduction and to "Distributors project financing". It is recommended that the rehabilitation of electricity network to be used in the awareness campaign as examples of PA and donors efforts to reduce Net Lending.

5.2.5. Collection from customers

Installation of prepaid meters and smart metering systems

This action is introduced in DISCOs and PENRA action plans. Prepaid meters have been largely installed in the northern and southern areas of West Bank since 2006 and in fewer locations in the central area of West Bank. In 2013 GEDCO installed 5,000 prepaid meters as pilot project and following the success of their operation, GEDCO is interested in continuing with further installations.

The installation of prepaid meters assumed to increase the collection, have been creating difficulties for DISCOs which lack automatic integration systems between their billing systems and the systems of the various brands of meters. In addition, DISCOs are not inspecting the meters, only recharging customer's meter cards in their offices. It is highly recommended that DISCOs are incentivized to inspect and read the consumption readings of all prepaid meters as they do for postpaid meters.

DISCOs in an effort to reduce the non-technical losses have requested smart meter pilot projects which can communicate remotely with the DISCOs on customer consumption and behavior.

Proposed improvement: This action, highly related to the reduction of non-payment, should be accompanied by more frequent measurement and inspection of these meters by DISCOs, as well as a review of the tariff structure for these meters by PERC. PENRA needs to secure 3 million US$ to finance prepaid meters for Gaza and West Bank and to implement smart meters pilot projects. An assessment of the impact of prepaid meters is required before proceeding with the implementation of this work. It will also be necessary to proceed with a review of the tariff as is suggested in the updated action plan.

Conduct continuous awareness campaigns

This action included in the PENRA, PERC and DISCOs action plans is currently being implemented by PENRA and PERC who are running donor funded awareness campaigns for energy efficiency and prepaid meters. No assessment has yet been performed to measure the impact of these campaigns on the targeted audiences. DISCOs also regularly launch awareness campaigns on electricity theft, energy efficiency, etc.

PERC and PENRA have developed concepts for new awareness campaigns focusing on renewable energy, energy efficiency and prevention of electricity theft. The conduct of these campaigns is subject to donor funding.

Proposed improvement: Awareness campaigns against electricity theft will need to use unconventional messages and methods to impact the Palestinian population. Looking to tackle this issue by addressing thieves only will not be sufficient. The campaign will need to illustrate the various effects of electricity theft including power outages, tariff increases, and even casualties from electrocution following handling of illegal connections. The awareness campaign should address these issues in an integrated manner using suitable communication channels, through partnership with private sector, women unions, NGO's and governmental institutions. It should be held during a mid-term period and include seminars, workshops, lectures in schools. Only by utilizing a variety of means will the campaign significantly contribute to the reduction of non-payment.

5.2.6. Tariff

Consolidation of connection points into high voltage substations

This action included in PENRAs' action plan aims to consolidate all collection points into the 4 substations currently being built and intended to be controlled by PETL. This project involves the construction of associated distribution systems, and will offer the following advantages:

- A reduction in the number of connection points (70% of the connection points in the northern region and southern region will be consolidated into the substations in the north and the south and 10 connection points will be consolidated in the central substations).
- Enable PETL to benefit from a lower purchase price of up to 5% resulting from the shifting to a higher voltage.
- Enable PETL to act as a single buyer to the IEC operating under a commercial agreement with IEC.

In addition to the construction of the 4 substations financed by a loan from the EIB, PENRA and PETL are planning to construct a fifth substation in the central area of West Bank with costs estimated at around 16 million US$. This substation is needed to cover the load growth in the northern area of Ramallah and replace some of the existing connection points in that area.

Proposed improvement: The construction of the substations is crucial for the development of the electricity infrastructure in the Palestinian Territories. This improvement can only succeed if associated with the development of the distribution system associated with these substations to transfer electricity from the substations to the Palestinian load centers. PENRA is therefore requesting an additional 8 million US$ to be disbursed from donors to cover the cost of installation of the distribution system and the procurement of associated goods.

This project is expected to reduce the purchase price of electricity, and this could be further decreased should a commercial agreement be reached. This reduction is therefore likely to contribute significantly to the reduction of non-payment by having a sufficient tariff margin and transparent relation with the IEC.

To ensure success in this area it will also be necessary to provide PETL[78] with the required support to operate the substations. The consolidation of PETL will be a newly founded institution, and as such it is strongly recommended that technical and financial assistance for its operation is provided to guarantee the future sustainability of PETL.

5.2.7. Efficiency and transparency of Distributors

Transfer of electricity services from municipalities to DISCOs to be finalized.

This action included in the action plans of MOLG and PENRA is required by the electricity law. MOLG observed that to ensure the success of the transfers it was necessary to draw up a compensation mechanism for municipalities for the cash losses resulting from the transfers. MOLG noted that the transfer of the electricity services from Nablus and Jenin cities to NEDCO only came after an agreement

[78] The World Bank is financing starting and operation costs of PETL, but sustainability is not ensured unless PA or other donors step in.

between PERC, MOLG and MOF with these municipalities to transfer their electricity services to NEDCO in exchange of a monthly compensation from the MOF equivalent to 20% of their sales.

It should be noted that the transfer agreement also stipulated that debts from customers to these municipalities would be collected by NEDCO and later transferred to the municipalities after deducting NEDCO's collection expenses.

The establishment of DISCOs crucial for the development of the sector is required by the electricity law. The law is also expected to influence strongly the payments to DISCOs, as these organizations only deal with electricity services, and are not influenced by any other services.

Proposed improvement: This action will need to be supplemented by technical assistance to municipalities to allow them to engage in suitable municipal finance practices and secure other income generating sources such as license fees, different types of municipal taxes, etc.

In addition the compensation mechanism which has been approved for transferring municipalities needs to be assessed as its implementation has proven to be extremely costly. It would be necessary to evaluate the financial impact of the process and search for possible alternative compensation scheme.

Funding for municipal projects to be conditioned on payment of electricity invoices

This action is included in the action plans of the MOF, MOLG and PENRA. It stipulates that all benefits and financial aids to municipalities from the MOF and/or any other governmental entities shall be suspended should municipalities refuse to abide by the rules and regulations. Conditioning financing of projects to IEC payments and reporting is intended to demonstrate to municipalities that the non-payment of invoices affects the fiscal position of the PA with a manifest impact on the development of the country.

Proposed improvement: Exemption of vital projects related to health and education from this action will be determined following a transparent assessment process and should then be communicated to all. To ensure that this happens, it is highly recommended that the Special Committee is asked to monitor the implementation of this action.

This action which can contribute highly to the reduction of non-payments requires the cooperation and commitment of all Palestinian institutions as well as the reaching of an agreement with donors and MOPAD following extensive consultations.

5.2.8. Others reasons for non-payment

Government to cover the monthly cost of the first 150kWh for social cases registered at MOSA.

The action is included in PENRA's action plan as well as in MOSA's plan and is part of the cabinet decision "Endorsement of MOU between DISCOs and local authorities" issued on 5 March 2013[79].

MOSA reported multiple obstacles in the implementation of this action resulting from the fact that the transfer would go from MOF to the different Distributors, due to the following factors:

- The high number of stakeholders impacted by the action and the lack of a detailed comprehensive implementation mechanism resulted in multiple discordant interpretations for its application.
- Other fees imposed on social cases by some of the Distributors providing electricity such as collecting old debts or street lightening fees. This assistance might not be used to cover the electricity cost alone but some other fees requested by the Distributors.
- To benefit from this assistance social cases should be serviced through prepaid meters. In the West Bank, around 10,000 households out of approximately 50,000 social cases households are serviced through prepaid meters and can thus benefit from this assistance.

[79] Appendix E point 1.2.

In light of the above, MOSA has requested that the Cabinet modify the mechanism to add 50 ILS to the monthly cash transfer for MOSA of all social cases. This amendment should enable MOSA to overcome the obstacles faced implementing the assistance to the social cases. MOSA estimated that the cost of this mechanism would reach 30,000,000 ILS annually to cover 50,000 social case families in the West Bank.

This action is expected to contribute to the reduction of non-payment as part of the electricity bills from social cases will be covered by the PA. It is also expected that it will encourage social cases to settle the remaining amount which they owe.

Proposed improvement: In light of MOSA's observations concerning the flaws in the mechanism, some changes could be implemented to improve this action or for it to be replaced it by a more result based oriented action.
Suggestion 1: update action:

- The current sales tariff values the cost of 150 kWh to equate to around 100 ILS; subsidy to social cases is recommended to be 100 ILS rather than 50 ILS as proposed by MOSA. This would cover the first 150kWh that the government committed to cover on behalf of these social cases.
- While there is a high risk that MOF delays the subsidy payment to MOSA for social cases, it is recommended that DISCOs avoid disconnecting electricity from these cases if the non-payment is less than 6 months (i.e. 600 ILS).
- It is recommended that municipalities exempt social cases from street lighting fee payments.
- Installing prepaid meters for social cases, but if sufficient quantities of prepaid meters are not available within the different Distributors, then the Distributors shall implement the new mechanism until the prepaid meters are available.

Segregation of electricity accounts of municipalities and village councils.

This action included in the MOLG action plan requires municipalities distributing electricity to segregate their electricity accounts from all other municipal account and to utilize this segregated account solely for electricity services. MOLG noted that while this action was adopted in 2010 MOLG financial controllers failed to monitor its implementation and the MOF suspended the transfer of municipal revenues to these municipalities who then in turn ceased to operate with the segregated accounts principle.

Proposed improvement: This action will hopefully significantly reduce non-payments. With the implementation of this action, financial controllers will be in a position to report directly to the MOLG and the MOF on accounts segregation and cash flows related to electricity services.

5.2.9. To be frozen or canceled

Distributors to reschedule arrears to MOF in line with the deductions

This action was agreed by PA institutions and is included in the action plans of MOF, MOLG and PENRA. It is in line with the cabinet decision "Approving the guarantees of electricity payments" issued in February 2014[80]. The mechanism and criteria for rescheduling the arrears is not described, but it is assumed that it will be made on a case by case basis following discussions between MOF and Distributors and that it will take into account the amounts of MOF arrears to these Distributors for the supply of electricity to PA public buildings and services.

The PA is also expected to carefully define the rescheduling of arrears without undermining the Distributors' ability to pay for new IEC invoices and operate efficiently.

Proposed improvement: It is highly recommended that the Special Committee in coordination with PERC proceeds with an analysis of the impact of rescheduling on the Distributors' arrears. In the meantime the payments from the Distributors to MOF should be frozen for a period of one year before re-evaluating the situation.

[80] Appendix E point 1.4

Distributors to settle arrears through revenue deductions from MOF[81]

This action included in MOF's action plan proposes the settlement of Distributor's debts in West Bank in return for a reduction in the amounts that the Israeli Ministry of Finance is deducting from these entities for electricity bills to the IEC. This settlement, which should be transferred from the MOF to these entities, would be funded from the following revenue sources:

1- **Transportation fees:** MOF deducted 69 million ILS for these fees payable to municipalities for the period January 2011 to March 2014
2- **Property tax:** MOF deducted 72.9 million ILS for the taxes due to municipalities for the period January 2011 to March 2014
3- **Profession license fees:** MOF deducted 11.3 million ILS for these fees owed to municipalities for the period from January 2011 to March 2014
4- **Others:** MOF deducted 20.9 million ILS for the period January 2011to March 2014

This action enabled the MOF to compensate up to 173 million ILS for the period from January 2011 to March 2014 for the lack of collection from municipalities in West Bank. It also served as a tool for the MOF to pressure municipalities involved in electricity distribution to pay for their IEC bills.

Proposed improvement: The Special Committee in coordination with PERC should analyze the impact of the debt rescheduling on Distributors. In the meantime and for a period of at least one year, the debt from the Distributors to MOF should be frozen. In the meantime, MOF should ensure timely payments of future public services electricity bills to Distributors including the electricity bills of the water wells.

Incentives for customers to pay their debts and 100% of their invoices

This action, included in PENRA action plan, is in line with the cabinet decision "Endorsement of MOU between DISCOs and local authorities" issued on 5 March 2013[82].

DISCOs are currently implementing this decision but MOF has not been compensating the utilities accordingly. The impact of this action on the reduction of the non-payment is perceived to be negative as DISCOs are compelled to compensate for the loss from their revenues.

Proposed improvement: In the absence of proper compensation from MOF it is recommended that this action is cancelled.

5.2.10. New action suggested

Capacity building for PERC and PETL

Various actions in the Action Plan are dependent on the efficiency and capacity of PERC and PETL. It is therefore recommended that both institutions receive the required assistance to implement these actions. In addition, it is anticipated that the mandate of PERC and PETL will be extended to the Gaza Strip which will require additional costs to ensure these institutions operate efficiently in Gaza.

PERC:

- Operational costs including training costs to guarantee the sustainability of the institution, especially if the mandate of PERC is extended to cover Gaza.
- Technical Assistance to support with the preparation of the tariff review and benchmarking between the different DISCOs.
- Assist PERC in following up the implementation of the DISCOs KPIs.
- Technical Assistance to design information system to connect PERC to have a continuous flow of data with all the DISCOs.

PETL:

[81] Revenues to be transferred to municipalities and village councils from the Ministry of Finance
[82] Appendix E point 1.2.

- Operational costs to guarantee the sustainability of the institution, especially if the mandate of PETL is extended to cover Gaza.
- Technical and legal assistance for the commercial agreement with the IEC.
- Assistance to design a proper financial and technical IT system.

5.3. Conclusion of the assessment and revised action plan

The assessment of the different actions initiated by the PA reveals that all of the factors contributing to non-payment have been addressed by the different institutional stakeholders in a fragmented manner during the past years. These actions were nevertheless insufficient to reduce non-payment. The lack of success of these actions can be explained by internal and external political reasons as well as the fact the implementation of a few of these actions has recently started and will need time to show results. In addition, a few actions were found to have insignificant impact, some of them even resulting in increase in the non-payment; for example the governmental subsidies and incentives.

Concerning political reasons, one of the internal political reasons for the failure of some actions is the lack of comprehensive approach to non-payment by the PA by different Palestinian stakeholders - PENRA, MOF, MOLG and MOSA – taking independent actions without prior consultation or coordination amongst themselves and with other sector stakeholders.

In addition, until recently due to divergent opinions between the PA and some Distributors, there was no clear policy to compel Distributors to pay their invoices to the IEC before proceeding with the settlement of other internal expenses. PENRA indicated that following the cabinet decision to create the ministerial committee to deal with the debt positive signals were received from Distributors agreeing to increase their payments to the IEC.

The failure of the PA to negotiate the payment of invoices from the refugee camps is also highly dependent on internal Palestinian politics and requires high level political interventions.

The main external reason affecting the successful implementation of some actions is the slow progress between Palestinian and Israeli counterparts in reaching a commercial agreement on tariffs.

The suggested action plan developed below builds on the assessment of different action of the PA mentioned above. The plan proposes a comprehensive approach of the non-payment problem through propositions related to every cause of non-payment identified in the analysis as follows:

- Invoice reconciliation and cycle
- Non-payment from Distributors to IEC
- Electricity losses
- Collection from customers to Distributors
- Tariff
- Efficiency of Distributors
- Others – Special areas

The updated plan further ranks the actions according to their level of priority (high – medium –low) and the level of involvement of donors requested for its implementation (financial and non-financial support).

An outline of the suggested plan below summarizes the actions to be implemented according to cause and priority.

Category	Action	Ref
Fundamentals	Governmental special committee for non-payment	F.1
	Capacity building for PETL and PERC	F.2
Non-payment	Legal actions according to the amended electricity law leading to less losses and non-payment	III.1
	Distributors to pay all invoices and report to MoF and PENRA	III.3
	Renewable Energy	II.2
	Energy efficiency measures - Non payment	II.3
	Commercial agreement between PETL and IEC	I.1
Invoice Cycle		
	Establish a web database between IEC and PETL	I.2
Special Areas	Government to cover monthly cost of the first 150kWh for social cases registered at MOSA	III.4
Distributors Efficiency	Establish an IT shared service center for Distributors Efficiency	II.1
	Finalize the transfer of electricity services from municipalities and village councils to DISCOs	I.9
	Distributors projects financing - Efficiency	I.10
	Segregation of electricity accounts for municipalities and village councils	III.5
	Legal actions from cabinet against distributors not complying with the decision if proven that the public money is compromised	III.6
Tariff	Completion of the high voltage substations with the associated distribution system in West Bank and installation of a new substation	I.7
	Commercial agreement between PETL and IEC	I.1
	Infrastructure to supply natural gas to Gaza Power Plant	I.8
Collection	Installation of prepaid meters and smart metering system	I.5
	Conduct continuous awareness campaigns	I.6
	MOF to implement solid policies for payment of PA electricity consumption invoices to distributors	III.2
	Government to cover monthly cost of the first 150kWh for social cases registered at MOSA	III.4
Losses	Installation of additional monitoring meters to measure the non-technical losses in West Bank and Gaza	I.3
	Rehabilitation of electricity networks in West Bank and Gaza	I.4
	Law enforcement and implementation of the Legal actions according to the amended electricity law	III.1

High Priority	Medium Priority

The table is divided by priority:

- **Fundamental actions - High Priority:** This action is a pre-requisite to ensure the successful implementation of the plan. It is necessary to ensure that all actions proposed in the plan are implemented in a cohesive manner and are properly supervised and monitored.
- **Level I actions – High Priority requiring donor involvement:** Actions with significant expected impact on the reduction of non-payment to be implemented with the financial or political support of donors.
- **Level II actions – Medium Priority requiring donor involvement:** Actions with moderate expected impact on the reduction of non-payment to be implemented with the financial or political support of donors.
- **Level III actions – High Priority PA stakeholder sole involvement:** Actions with significant expected impact on the reduction of non-payment which are to be implemented by PA stakeholders without any assistance or support

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
FUNDAMENTAL ACTIONS- HIGH PRIORITY					
Action F.1: Governmental Special committee for non-payment					
Overall impact on all conclusion aspects To lead and monitor all the activities related to the reduction of non-payment To supervise and coordinate with all Palestinian stakeholders and donor communities the implementation of the revised action plan	Palestinian Cabinet	• To have a clear mandate • To include a secretariat to assist the committee and monitor actions • To be chaired by PENRA and include representatives of MOF, MOLG, MOI, MOE • To be empowered by the cabinet to propose and monitor implementation of actions • To define and operate under clear policies and procedures	To be implemented rapidly and to operate until the issue of non-payment is contained Initial operation for 3 years	1.5 million US$ for 3 years	The PA established a committee for the Net Lending[83]. The mandate of this committee needs to be expanded and it needs to be empowered by the cabinet and recognized by all sector stakeholders and donors

[83] As detailed in 5.1.2.1. Fundamental actions

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Action F.2: Capacity building for PETL and PERC					
Overall impact on all conclusion aspects To reinforce the capacity of PERC and PETL to operate and monitor the sector	PERC and PETL	• Sustainability of PERC and PETL • Assistance to PERC to review the impact of the subsidy and recommend to the Government a new tariff structure excluding subsidy • Assistance to PERC to review the sales tariff for West Bank and Gaza • Support PETL with commercial agreement • Support to PERC and PETL daily operations	36 months	3	1.5 million US$ for each institution
LEVEL I ACTIONS – High priority requiring donor involvement					
Action I.1: Commercial agreement between PETL and IEC					
Invoice cycle: **accord on invoice to be included** Non-payment: **expected decrease in purchase tariff to impact payment to IEC** Tariff: **decrease in purchase tariff**	PETL and IEC	• Supervision of the implementation of this action by the special committee mentioned in Action 1. • Cooperation of relevant IEC stakeholders including PUA, IEC and electricity officer the Israeli Civil Administration; • Commitment of PETL in paying to IEC the amounts of the invoices and to provide guarantees on this commitment.	6 months	Included in cost of F.2	Clause in the agreement between PENRA and IEC signed in 2012 for the construction of the substation includes reaching a commercial agreement within 6 months of the construction Donors should assist in facilitating the negotiations between the Palestinian and Israeli parties If request donors' possible provision of financial guarantees to the IEC on behalf of the PA

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Action I.2: Establish a web database between IEC and PETL					
Invoice cycle: **Timely transfer of invoices and payments** **Monitoring of invoicing and payment by stakeholders**	Special Committee and IEC	• Sustainability of finance of operation and maintenance of the database. • Cooperation of IEC and all Palestinian stakeholders • To be managed and maintained by the Special Committee secretariat	To be implemented rapidly Indefinitely		Operation and sustainability to be assessed USAID financed an initial PA stakeholder Additional financing will be needed at a later stage for its expansion, operation and maintenance
Action I.3: Installation of additional monitoring meters to measure the non-technical losses in West Bank and Gaza					
Losses: **Identify and quantify extent and location of non-technical losses to take appropriate actions**	Distributors	• Requires continuous network inspection • Monitoring of loss findings and reporting to management • Taking necessary legal actions based on the findings of inspection and reports such as disconnection of illegal connections and prosecuting electricity thieves. • Implementation to be coordinated and supervised by the Special Committee • Requires cooperation of Israeli Authorities for entrance of materials in the West Bank and Gaza	Procurement and installation period of 9 months Monitoring indefinitely	0.5	In 2012, Norway funded 0.5 million US$ for installation of such meters in West Bank and Gaza JDECO has already installed some which have proven to be successful to locate and determine non-technical losses
Action I.4: Continuing consolidation and Rehabilitation of electricity networks in West Bank and Gaza					

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Losses: **Reduction of technical losses**	Distributors	• To be prioritized according to technical loss reduction impact and removal of danger for the West Bank and Gaza • Implementation to be coordinated and supervised by the Special Committee • Requires cooperation of Israeli Authorities for entrance of materials in the West Bank and Gaza	To be implemented in phases of 12-18 months for procurement and installation	3 per phase	Ongoing financing by World Bank and Islamic Development Bank in Gaza of rehabilitation of grid in Gaza up to 16 million US$
Action I.5: Installation of prepaid meters and smart metering systems					
Collection: **increase collection and timely payment from customers**	Distributors	• Required frequent inspection of the prepaid meters • Continuous monitoring and reporting of customers with meters who do not buy electricity. • Integration with the existing billing system • To implement Smart Meters the legal, regulatory and technical frameworks should be implemented • Maintenance agreements with the suppliers • GEDCO to prepare a strategy for the installation of prepaid meters	Procurement 9-12 months Installation: 12 months	3	Donors have been financing pre-paid meters since 2006 Smart meter project need to be preceded by pilot project Experience from some DISCOs of customers by-passing pre-paid meters
Action I.6: Conduct continuous awareness campaigns					
Collection: **Change the culture of non-payment**	Special Committee	• Cooperation of all PA stakeholders and Distributors • To tackle all the problems resulted from electricity theft and non-payment in an integrated manner. • To use of all appropriate communication channels, including unconventional. • To combine efforts of stakeholders with participation of NGOs and private sector.	24 months	0.5	Awareness campaigns funded by AFD and implemented by PERNA and PERC are currently taking place

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Action I.7: Completion of the high voltage substations with the associated distribution system in West Bank and installation of a new substation					
Tariff: **According to existing Israeli tariff structure the higher the level of the connection point the lower the purchase tariff from IEC**	PETL	• The sustainability of PETL who will operate the substations in terms of long term financing and capacity building. • The timely construction of the associated distribution system. • Reaching a commercial agreement with IEC	36 months	24	• 8 million US$ for connecting the substation under construction with existing connection points • 16 million US$ for new proposed substation in Ramallah area
Action I.8 Infrastructure to supply natural gas to Gaza Power Plant					
Tariff: **It will reduce the cost of generated electricity from the power plant and increase the supply to Gaza**	PENRA	• Cooperation from the Israeli government • Gas pipeline and required infrastructure at the power plant • Gas supply agreement to be reached in reasonable timeframe	12-24 months Variation subject to origin of gas	15	Requires political support from donors
Action I.9 Finalize the transfer of electricity services from municipalities and village councils to DISCOs					

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Efficiency of Distributors: **to increase the monitoring capability on Distributors and reduce number of Distributors**	PENRA and MOLG	• Municipalities have to transfer their assets to DISCOS and only four DISCO should operate in the Palestinian Territories • No municipality should be allowed to sell electricity to customers • Technical assistance for municipal finance and municipalities to secure other income generating sources such as license fees, different types of municipal taxes, etc. • Law enforcement to secure transfer process	unknown	0	According to electricity law should have been completed latest 2012
Action I.10: Distributors Projects financing- Efficiency					
Efficiency of Distributors: **tool to compel Distributors to pay for invoices.**	Special Committee	• Agreement of all donors and MOPAD not to finance projects from Distributors not complying with Special Committee decisions • Cooperation and commitment of all PA institutions • Monitoring of any project by the Special Committee • Any exemption must be transparent and communicated to all avoiding exemption for individual cases.	Continuously	0	
LEVEL II ACTIONS – Medium priority requiring donor involvement					
Action II.1: Establish an IT shared service center for Distributors - Efficiency					

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Efficiency of Distributors: **reduce operational cost of DISCOs**	DISCOs	• Agreement and cooperation of all DISCOs[84] • Training • Sustainability of the IT SSC	At least 24 months	3.5	Cost estimated based on the IT feasibility study on IT shared service center
Action II.2: Renewable Energy- Non payment					
Non-payment: **reduces purchases from IEC**	PENRA	• Issuance of net metering regulations • Establishment of revolving fund for financing small projects in public buildings and soft loan mechanism for financing private sector projects • Financing of Private sector subsidies	Continuously	3	PENRA is requesting this amount for small and medium scale renewable projects
Action II.3: Energy efficiency measures – Non payment					
Non-payment: **reduces purchases from IEC**		• Sustainability of energy efficiency unit • External assessment for the achievements and success of the financed projects through the revolving fund and the soft loan mechanism.	Continuously	1.5	AFD is currently financing Phase II of energy efficiency measures for a total amount of 3 million US$ including revolving fund and subsidies interest loans
LEVEL III ACTIONS – High Priority Palestinian stakeholders sole involvement					
Action III.1: Law enforcement and implementation of the Legal actions according to the amended electricity law : Losses and non-payment					

[84] Under the EU Electricity Sector Reform, PwC prepared feasibility study on IT shared service center

Link to conclusion	Owner	Key success factors	Estimated time level of execution	Cost Million $	Comments
Losses: **Reduction of non-technical losses through prosecution** Non-payment: **increase collection through prosecution**	Distributors	• Monitoring of implementation by the Special Committee • Reducing non-technical losses through taking legal actions against electricity thieves.	Continuously	0	Ongoing implementation by the DISCOs monitored by the Special Committee JDECO set the goal of prosecution 10,000 cases mostly for non-payment
Action III.2: MOF to implement solid policies for payment of PA electricity consumption invoices to Distributors -					
Collection: **increase in level of collection for all Distributors expected**	MoF	• To include all PA services including the electricity bills of the water wells • To be monitored by the Special Committee	Continuously	0	
Action III.3 Distributors to pay all invoices and report to MOF and PENRA					
Non-payment: **reduces non-payment to IEC through compulsory and monitoring measures**	Distributors	• To be monitored by the Special Committee		0	Currently implemented with Distributors required to transfer to the PA copies of bank statements for proof of payment of IEC invoices.
Action III.4: Government to cover monthly cost of the first 150kWh for social cases registered at MOSA.					

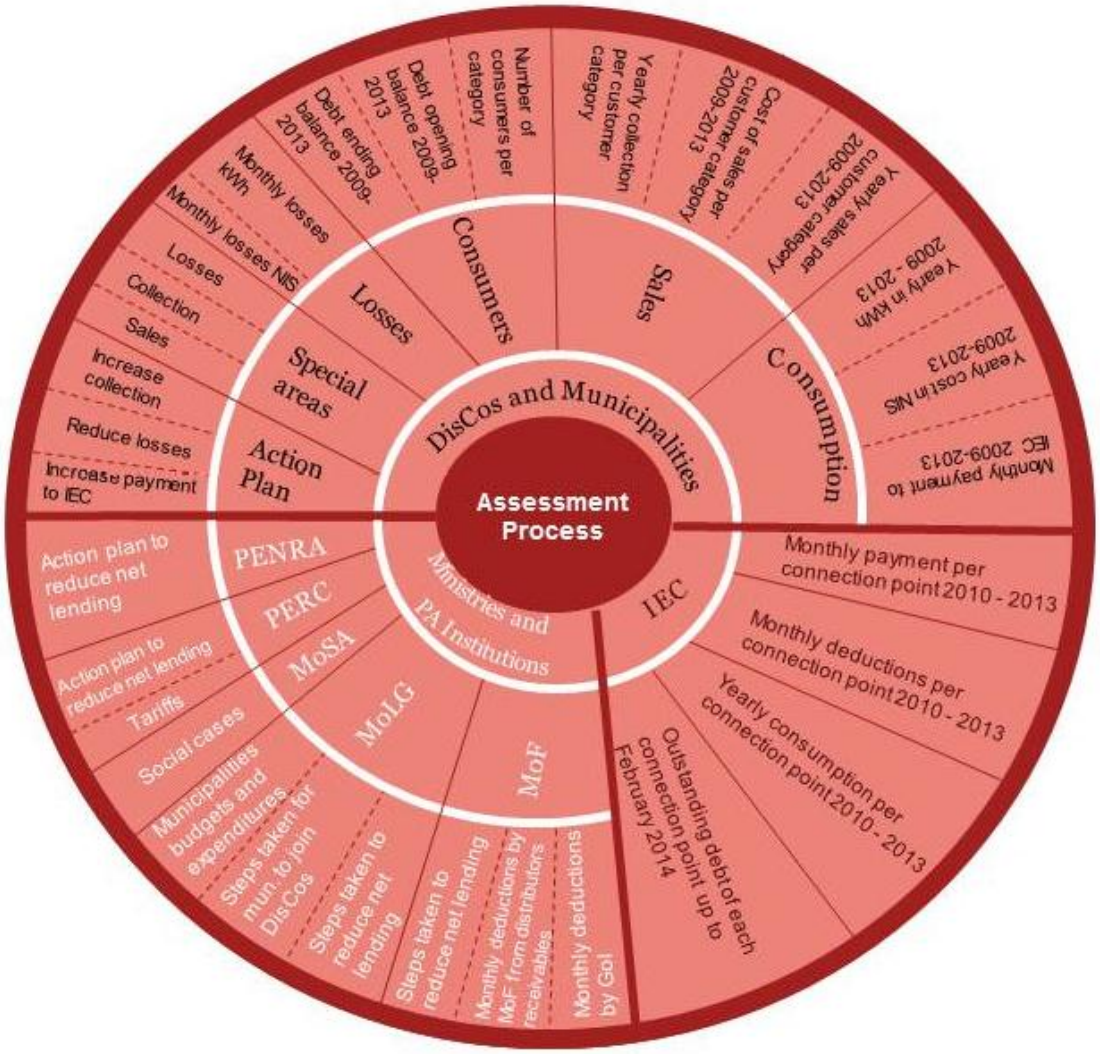
Collection: **Increase collection supported by MOF** Other reasons – special areas	MoF and MOSA	• The assistance to the social cases shall be 100 ILS not 50 to cover the cost of 150kWh. • DISCOs shall not disconnect electricity for these beneficiaries if the non-payment is less than 6 month (i.e. less than 600 ILS). • The municipalities should exempt the social cases from the street lighting fees • MoF to provide timely funds to Distributors to cover payments • Prepaid meters may be installed to social cases but the unavailability of these meters shall not prevent any Distributor from implementing it.	Continuously	17 per year	
Action III.5: Segregation of electricity accounts for municipalities and village councils					
Efficiency of Distributors: **Ability to secure and monitor that cash collected for electricity services is only utilized to cover electricity related payments.**	MOLG	• To be monitored by the Special Committee		0	
Action III.6: Legal actions from Cabinet against Distributors not complying with the decision if proven that public money is compromised					
Efficiency of Distributors:	Distributors	• Frequent monitoring of the payments from each Distributors to IEC	Continuously	0	

Appendices

Appendix A Assessment process for the study

The diagram below provides a comprehensive representation of the assessment process for the study.

Diagram 5: Assessment process for the study



1. Data gathering

The analysis presented in this report was prepared following an extensive data gathering process[85] which was made possible by the generous contribution from several Israeli and Palestinian stakeholders[86]. The data gathering process was carried out using the following method:

[85] During this data gathering exercise, the authors noted that the IEC did not provide the PA with detailed information related to deductions, purchase cost and consumption between September 2009 and early 2014. This data was provided to PA in September 2013, following World Bank intervention. Recommendations to improve information flow between stakeholders is provided later in the report in the Action plan section (Section 4)

[86] IEC, PA, Distributors

Step 1: Data gathering "Top-down" from Israeli utility, IEC

The World Bank with authorization from PENRA initiated a process of high level discussions with the Israeli parties including:

- Meetings with the Israeli Ministry of Foreign Affairs, Israeli Ministry of Finance and IEC.
- Drafting a list of required data from the IEC.

Following these discussions, the IEC agreed to provide the World Bank with the following data items:

- Monthly deduction made from the clearance revenue on each connection point –i.e. its contribution to the Net Lending- from January 2010 up to December 2013 in ILS.
- Direct payments made by each connection point to the IEC to cover the cost of electricity purchased or part as from January 2010 up to December 2013 in ILS.
- Outstanding debt owed to the IEC for each connection point as of February 2014 in ILS.
- Yearly consumption in kWh for each connection point for the years 2010, 2011, 2012 and 2013.

Data on yearly invoiced cost of electricity sold to each connection point was not available which led the authors of this report to proceed with estimations to complete missing areas of information.

Step 2: Data gathering from Palestinian Distributors: "Bottom-up approach"

With the assistance of the World Bank, data for the period 2009-2013 was collected from the following Distributors:

1. DISCOs: JDECO, NEDCO, GEDCO, HEPCO, SELCO and TEDCO.
2. Municipalities and village councils: Tulkarem, Qalqiliya, Yabed, Illar, Bani Naim, Salfit, Jayyus, Sa'ier, Tarqumia, Beit Awwa and Ithna.

The data collected from these Distributors included:

- Monthly IEC data from 01/2009 to 12/2013 on: purchase from the IEC in ILS and kWh, payments to the IEC in ILS and outstanding debt owed to the IEC in ILS.
- Annual Customer category data from 2009 to 2013 on: number of customers per category, sales per customer category in ILS and kWh, and outstanding debt.
- Data for special areas of low collection and/or high losses.
- Data outlining losses for the period 2009-2013.
- Governmental subsidy data.
- Data on low consumption customers.

The municipalities and village councils of Salfit, Jayyus, Sa'ier, Tarqumia, Beit Awwa and Ithna did not respond to the requests and did not provide any data[87].

The remaining municipalities and village councils provided only partial data claiming that the requested data could not be extracted from their billing system in the required format.

DISCOs provided most of the data requested with the exception of GEDCO who could not provide information on purchase data from the IEC as it had not received IEC bills. Finally data received from SELCO was not utilized in the report as it appeared to contain a certain number of inconsistencies.

The data received from both the IEC and different Palestinian stakeholders was crossed checked to ensure the robustness of both sets of data. After a few reviews and the receipt of updated data from stakeholders, no further serious discrepancies were uncovered.

[87] Official requests on 20 February 2014 and subsequent went unanswered

Step 3: Collection of action plans on means to improve non-payments of electricity services and reduce Net Lending from the Palestinian institutions

Action plans from Palestinian Institutions involved in the sector were collected, including: PENRA, PERC, MOF, MOLG and MOSA. The content of these actions plans and proposed updates were discussed with stakeholders during follow up meetings.

Step 4: Administration of 1038 customer survey questionnaire to electricity customers

A customer survey and focus groups were conducted in areas with the highest levels of non-payment of electricity bills to collect detailed information on the nature and reasons of customers' non-payment to their electricity providers in West Bank and Gaza. Activities completed included:

- **Focus groups:** Three focus group meetings were held (One in the North of the West Bank, one in the South of the West Bank, and one in the Gaza strip).
- **Subscribers' questionnaire:** A questionnaire was prepared to collect data on the socio-economic profiles of subscribers, subscribers' utilities and obligations, electricity usage and consumption, and efficiency of electricity providers. The survey was initially piloted with 35 customers to ensure its clarity and robustness.
- **Survey:** The survey covered a representative household of Palestinian customers in areas with high level of non-payment.

2. Data analysis

a. High level data analysis

Following the completion of the information and data collection phase, preliminary high level analysis began to identify the areas and connection points with high non-payment behavior. The analysis was based on clear KPIs such as consumption cost, payment to the IEC, collection rate, outstanding debt to the IEC for electricity purchases and high losses.

Finally, a comparison of the information and data received from the different Palestinian electricity Distributors and stakeholders with the data received from the IEC was carried out to cross check and highlight any discrepancies.

b. Customers survey analysis

Following completion and collection of the questionnaires, a process of coding and data entry with SPSS (Statistical Package for Social Sciences) software was used to reflect and illustrate the customers' answers. Descriptive statistics such as cross tabulations were employed to measure the relationships between certain variables and to develop a better understanding of the reasons for non-payment for electricity services.

3. Identifying external factors

A desk review of previous studies, published information, and other data and information on micro-economic factors affecting the Net Lending was performed. This included specific data, research and documents from the Palestinian Central Bureau of Statistics library.

Finally, the survey questionnaire included questions which could provide insights on micro-economic factors affecting the Net Lending. These questions were related mainly to pricing of alternative energy sources, affordability of electricity, household income and poverty, and regularity of payment of salaries.

4. Strategies and action plan

a. Assessing PA's existing and planned strategies

The Palestinian stakeholders' action plans and the sectorial activities carried by donor were also assessed to determine the extent to which these plans are addressing or will address non-payment of electricity or reduction of losses. Each action was individually assessed and proposed amendments to each specific action have been suggested based on the analysis from the collected data.

b. Revised Action Plan

Following the completion of the above activities, a summary of the key actions were set out in an overall action plan, for execution over three distinct time periods:

1- Short term actions (< 12 months)
2- Medium term actions (12 to 36 months)
3- Long term actions (> 36 months)

Appendix B: Data Received from the World Bank

No.	Data Received
1.	JDECO connection points, total purchase 2010- June 2013, monthly purchase per connection point 2010- June 2013, non-technical losses for some areas in Ramallah district for year 2010- June 2013, and camps consumption's, sales & total losses for years 2010- May 2013.
2.	JDECO's electricity consumption in kWh for the period stretching from 2010 – 2012 per area, customer, and type on monthly basis.
3.	NEDCO's sales and purchases for 2011, collections for collection cycles from 207 - 218, in addition to the number of customers in 2011 and the number of connection points for NEDCO.
4.	HEPCO's Electricity purchases in kWh and ILS on monthly basis for the period stretching from Jan 2010 – July 2013.
5.	Total deductions (Net Lending) per month for each connection point except for JDECO's for the year 2010.
6.	Total deductions (Net Lending) per month for each connection point except for JDECO's for the year 2011.
7.	Total deductions (Net Lending) per month for each connection point except for JDECO's for the year 2012.
8.	Total deductions (Net Lending) per month for each connection point except for JDECO's from January 2013 – July 2013.
9.	Total payments in ILS (Direct + Net Lending) per month per connection point excluding JDECO's for the year 2010
10.	Total payments in ILS (Direct + Net Lending) per month per connection point excluding JDECO's for the year 2011.
11.	Total payments in ILS (Direct + Net Lending) per month per connection point excluding JDECO's for the year 2012.
12.	Total payments in ILS (Direct + Net Lending) per month per connection point excluding JDECO's from January 2013 – June 2013.
13.	Total payments in ILS for the years (2010/2011/2012/2013) including all the direct payments and non-direct payments excluding JDECO.
14.	Total deductions (Net Lending) for the years (2010/2011/2012/2013) in ILS.
15.	Debts from April 2013 to June 2013 in ILS excluding JDECO.
16.	Payments per connection point from paid by the connection point owner to IEC through the Cairo Amman Bank.
17.	Total amount of Net Lending (payments from the Palestinian Ministry of Finance for electricity) from 2010 to June 2013.
18.	Total payments (from all sources such as MOF, DISCOs, etc…) from 2010 till June 2013.
19.	KWh supply per connection point excluding JDECO for the years 2010, 2012, until June 2013.
20.	JDECO's annual SCADA report for 2012.
21.	A CD which included all the above mentioned data in addition to a file containing JDECO's kWh consumption for 2010, 2011, 2012, and 2013, in addition to the connection points of JDECO with the IEC and the losses incurred in refugee camps for 2011 and 2012, and the losses for the

	Ramallah area till end of August 2012 and for May 2013. The file also includes the annual report for the year 2012 of JDECO and the total consumption of high voltage and low voltage connection points of JDECO from 2010 till August 2013. The World Bank has provided a preliminary analysis of the data provided as well.

Appendix C: Overall data gathered by DISCOs and municipalities

Table 25: Overall data gathered from DISCOs for 2012[88]

	NEDCO	TEDCO	JDECO	HEPCO	GEDCO
Purchased electricity from IEC (kWh)	478,879,017	81,454,320	1,863,386,610	369,219,480	899,384,165
Purchased electricity from Jordan (kWh)	N/A	N/A	82,274,000	N/A	N/A
Purchased electricity from Egypt (kWh)	N/A	N/A	N/A	N/A	124,521,333
Purchased electricity from Gaza Power Plant (kWh)	N/A	N/A	N/A	N/A	391,966,790
Electricity sales to customers (kWh)	392,500,906	68,335,483	1,421,259,762	299,837,140	598,860,735
Cost of purchased electricity from IEC ILS (incl. VAT)	225,501,236	40,223,677	922,715,772	177,293,502	443,846,085
Cost of purchased electricity from Jordan ILS	-	-	37,409,988	-	-
Cost of purchased electricity from Egypt ILS	-	-	-	-	29,137,992[89]
Cost of purchased electricity from Gaza Power Plant ILS	-	-	-	-	254,972,224[90]
Electricity sales to Residential customers ILS (incl. VAT)	126,258,501	22,653,543	496,045,611	121,857,662	400,835,236
Electricity sales to Commercial customers ILS (incl. VAT)	71,542,421		278,739,677	64,056,596	46,878,136
Electricity sales to Other customers ILS (incl. VAT)	52,447,593	11,555,381	181,804,218		151,147,363
Collection from Residential customers(incl. VAT)	98,954,736	25,761,052	459,407,287	91,523,606	291,911,923
Collection from Commercial customers (incl. VAT)	50,003,692		285,659,308	45,678,494	44,286,540
Collection from Other customers (incl. VAT)	27,455,709	10,014,416	179,164,708		70,239,381
Number of Residential customers	67,269	14,156	182,874	34,823	166,098

[88] This is a representative year as NEDCO did not provide data for 2013
[89] Estimated based on the kWh price o.45 Egyptian Pound
[90] Based on the actual payments from GEDCO for the Power Plant and for the fuel

Number of Commercial customers	13,640		35,690	1,849	11,468
Number of Other customers	2,266	18	5,667		10,754

Table 26: Overall data gathered for municipalities for 2012

	Qalqiliya	**Tulkarem**	**Illar**	**Bani Naim**
Purchased electricity from IEC (kWh)	66,827,840	125,209,520	15,257,960	16,310,640
Cost of purchased electricity from IEC ILS (incl. VAT)	32,418,537	65,416,482	7,350,520	7,965,431
Payment to IEC ILS (incl. VAT)	13,851,975	22,731,707	7,077,340	
Number of Residential customers	9,654	14,336	4,000[91]	3,203
Number of Commercial and Other customers	1,857	3,584		156
Electricity sales for Residential customers (kWh)	38,700,107	93,907,140[92]	12,511,527[93]	6,805,771
Electricity sales for Commercial and Other customers (kWh)	13,271,984			4,537,181
Electricity sales for residential customers ILS	22,183,252	56,344,284[94]	7,256,688	3,981,373
Electricity sales for commercial and Other customers ILS	8,456,271			2,654,248
Collection from Residential customers ILS	23,386,834	N/A	7,256,688	N/A
Collection from Commercial and other customers ILS	8,112,359	N/A		N/A

[91] Estimation
[92] Assumed at 25% losses
[93] Assumed at total losses = 18%, as Illar estimates MV losses at 9%
[94] Assumed at sales tariff of 0.6 ILS/kWh

Appendix D: List of connection point owners

Contract number	Customer name	Location (If available)	District
4939938	A - Naqoura		NABLUS
4785912	Abd Rabbo al-Mahdi	Residential home, Beit Awwa	HEBRON
4952245	SELCO	Abu al-'Urqan village	HEBRON
4785767	SELCO	Abu Asja village	HEBRON
4688129	Agricultural School al- Aarrob, SELCO	Alon Shvut	HEBRON
4688249	Agricultural Station	Beita Foka, Nablus area	NABLUS
4688269	Ajansiniya village		NABLUS
4952310	Ajja village		JENIN
4688264	Akrabaniya village	Between Nablus and Hamra	NABLUS
4785787	Al - Hijra village	Hebron area	HEBRON
4803041	Al Burj village	Hebron	HEBRON
4785867	Al Fandakumiya village	near Geva, after Homesh	JENIN
4946378	Al Fasael village	Jordan valley	JERICHO
4803066	Al Funduq village	Funduqumiya village	QALQILYA
4688344	A'lar village council		TULKARM
4803031	Al-bira village	Hebron area	HEBRON
4803011	Al-Fawar village	Hebron area	HEBRON
4952235	Al-Ghashi company	Hebron area, Beit Kahil, concrete factory	HEBRON
4952250	Almajd village -SELCO	Hebron area	HEBRON
4803076	Amin Rashid Abd Salam	Azzun, olive oil factory	QALQILYA
4785902	A-Nasariya village	Nablus district, near Yosef camp	NABLUS
4952365	Anin Electric Association	Jenin	JENIN
4952305	Anza Village		JENIN
4688239	Aqraba village	Migdalim Road	NABLUS
4803086	Araba council	Ariel, near Dotan-Jenin camp	JENIN
5056870	Arabuna village council		JENIN
4688374	Arane village		JENIN
4688169	A-Rihiya village	Hebron district	HEBRON
4688199	A'sala village	Hirbet Asala village	BETHLEHEM
4803171	A-Salam investment group	Hebron area, above Telem, gas farm	HEBRON
4785832	A-Sawiya village	Nablus district	NABLUS
4803116	A-Sharq elitne li'sanat aluminum	Kusin area	NABLUS
4939823	A-Shuyukh council	Heron disrtrict	HEBRON
4803131	A'ssisa village	Asisa village, Aziz village, Samriya	JENIN
4809441	A'til village council	Baka al-Gharbiya	TULKARM
4803101	Awarta village	Near Nablus, near the Muhtar	NABLUS

4688209	A-Zawiya	Tulkarm area	SALFIT
4688304	Azbat Salman village	Tulkarm district	QALQILYA
4952320	Azmut village		NABLUS
4688214	Azun council	Tulkarm district	QALQILYA
4785842	Azzoun council	water well, Azzoun village	QALQILYA
4803081	Azzun Atme village		QALQILYA
4939973	Badran Hosni Mohamed Younis	Baka a-Sharkiya gas station	TULKARM
4785922	Baka A-Sharkiya village council		TULKARM
4939898	Bal'a council		TULKARM
4939903	Bal'a council	Water drill	TULKARM
4688224	Bal'a village	Bal'a village council	TULKARM
4785752	Bani Na'im village council		HEBRON
4688134	Baraka hospital	Alon Shvut	BETHLEHEM
4803186	Bardala village		TUBAS
4785877	Bayta Foqa village	Nablus district, near the Muhtar	NABLUS
4803061	Bazariyeh	Samariya	NABLUS
4785807	SELCO	Beit A-Rosh Alfoka	HEBRON
4939918	Beit Amarin village council		NABLUS
4688334	Beit Amin	Azon, Atme, Beit Amin, west of Sha'arei Tikva	NABLUS
4688179	SELCO	Beit Arush Al-Tahta - Hebron	HEBRON
4803006	Beit Awla council	Hebron area	HEBRON
4939858	Beit Awwa village		HEBRON
4803106	Beit Furik council		NABLUS
4939928	Beit Hassan village	Between Nablus and Hamara	NABLUS
4785762	Beit Kahil village	Hebre area	HEBRON
4708704	SELCO	Beit Marsam South-west of Negohot	HEBRON
4802996	Beit Omar municipality	Migdal Oz	HEBRON
4785937	Beit Qad North	Jenin area	JENIN
4803176	Beit Qad South		JENIN
4939838	Beit Ula council	Hebron area, west of Kiryat Arba	HEBRON
4688244	Beita Tahta village	Nablus district, Huwara area, near the Muhtar	NABLUS
4688204	Bidya village		SALFIT
4688259	Burin village		NABLUS
4939913	Burqa village	Nablus district	NABLUS
5315502	Daghmon Company Ltd.	Otniel, A-Samo'u-Otniel road (quarries)	HEBRON
4939853	SELCO	Deir Razeh - Hebron	HEBRON
4688369	Deir Abu Daif, near Jenin	Jenin area	JENIN
4939923	Deir al Hatab council		NABLUS

4785802	SELCO	Deir al-'Assal Foqa village	HEBRON
4785797	SELCO	Deir al-'Assal Tahta village	HEBRON
4785927	Deir Al-Ghusun municipality		TULKARM
4803056	Deir Ballut village	Tulkarm district	SALFIT
4688364	Deir Ghazala		JENIN
4785852	Deir Istiya village	Tulkarm area	SALFIT
4803036	Deir Samet village	Hebron area	HEBRON
4956458	SELCO		HEBRON
4952275	Diq and Burkin	Tulkarm district	SALFIT
4785812	Duma village	Alon road, Migdalim	NABLUS
4803026	SELCO	Dura Concil	HEBRON
4785917	East Barta'a association		JENIN
4803181	Ein al Bayda village	after Bardala	TUBAS
4688189	Ein Shibli village	Argaman	NABLUS
5878798	Farid Rajeh	Hamra, Water drill	NABLUS
4688349	Ghawisha village council		TULKARM
4939848	Hadab village -SELCO	Hebron area	HEBRON
4939888	Hares village	Samariya	SALFIT
4939833	Hasaka village	Hebron area	HEBRON
5082300	Hebron Arab Quarries	A-Samo'u, Hebron district	HEBRON
4959015	HEPCo		HEBRON
5611063	HEPCo	Adura,refugee camp pumping station	HEBRON
4939968	HEPCo		HEBRON
4688149	HEPCo	Hebron, HaShalom road	HEBRON
4688144	HEPCo		HEBRON
5349389	HEPCo	Hashalom road, Hebron	HEBRON
4688139	HEPCo	Hebron, water well	HEBRON
4688164	HEPCo	connection from Hebron substation	HEBRON
4688329	Hija-Imatin village	"French project", Nablus districit, a group of 4 villages in the area	QALQILYA
5920945	Ibisi Hisham	Hamra, Water drill	NABLUS
4785957	Ibrahim Haddad	Shib'in area, Jenin district	JENIN
4785792	Idna village	Hebron district	HEBRON
4803016	SELCO	Imreish village (+Abda)	HEBRON
5315512	Intermediate Chemical and Plastic Industries	Kusin	NABLUS
4939908	Jaba village	Jenin area, near Sanur	JENIN
4688324	Jabara village	South-west of Avney Hefets	TULKARM
4952270	Jaber Hatem Mohammed Jaber	Argaman, Ein Shibli, flour mill	NABLUS
4688359	Jalame municipality	Jenin area	JENIN

4939893	Jamma'in council		NABLUS
4688289	Jarar Kamel	Nablus-Jenin road, near Jaba village	JENIN
4803136	Jat village	near Kdumim	QALQILYA
4803161	Jayyus village	"French project", 7 villages	QALQILYA
4939873	Jericho Marketing Cooperative	Jordan Valley road, packing house	JERICHO
4803166	Jiftlik village	Masu'a	JERICHO
4785932	Jilbun village, through Jenin	near Jenin	JENIN
4803071	Jinspot village		QALQILYA
4979000	Ka'abne village -Azzuwidin	Ka'abne, Um AlDaraj, Hebron area	HEBRON
4803091	Kabatia council	Jenin district	JENIN
4809431	Kafel Hares village		SALFIT
4952355	Kafin village council	Baka al-Gharbiya	TULKARM
4785837	Kafr-a-Labad village council	near Tulkarm	TULKARM
4785772	SELCO	Karame village	HEBRON
4785942	Kardala village - near Meholah	Jordan valley	TUBAS
5315507	Khaled Sudqi Sadeq Assi	Kusin, tile and block factory	NABLUS
4688154	Kharas village municipality	Hebron area	HEBRON
4939843	Khirbet Khilat al-Miya	Hebron area	HEBRON
4688159	Kom al-Marj		HEBRON
4688309	Laqif village		QALQILYA
4952280	Lubban Sharqiya village	in front of the entrace	NABLUS
4803096	Lutfi Saleh Alawani	Anza village, appartment	JENIN
4688254	Madama village	Nablus district	NABLUS
4939878	Mahmoud A'lan Daman	Jiftlik, Nablus area (agricultural farm)	JERICHO
4803046	Majdal Bani Fadil village	Nablus district	NABLUS
5045853	Marj al-Ghazal village	Argaman	JERICHO
4688184	Marj a-Naja	Argaman	JERICHO
4688219	Marka/Marda village	Samariya	SALFIT
4939883	Mas'ha village		SALFIT
4952265	Masri Anad Adaf Omar	Pumping station near Maso'ah	JERICHO
4952300	Nabi Elias village	Hirbat A-Nabi Elias, on the right	QALQILYA
4952325	Nablus Nylon and plastics	Plastics factory, Beit Iba	NABLUS
4939943	National Company Ltd	Beit Iba, concrete factory	NABLUS
4688354	Nazlat Issa village council		TULKARM
4952360	NEDCO	Jenin	JENIN
4844762	NEDCO	Anabta	JENIN
4688279	NEDCO	Quseen Village	JENIN
5732867	NEDCO	Anin	JENIN

4688194	NEDCO	Nablus municipality, near Kusin	NABLUS
4939933	NEDCO	Howara	NABLUS
4785827	NEDCO	Askar	NABLUS
5410530	NEDCO	Nablus muncipality, Jenid neighborhood (Sarra)	NABLUS
4688284	NEDCO	Nablus municipality	NABLUS
4803146	NEDCO	Fahma	QALQILYA
4688294	NEDCO	Jenin - Maythalon	TULKARM
4785872	Nisf Jubeil	Between Beit Umarin and Sebestiya	NABLUS
4785757	Nuba village	Hebron area	HEBRON
4785887	Odala village	Nablus distrit	NABLUS
4803111	Ousrin village		NABLUS
4688229	Padesco compnay	Burqa, Gas station before Homesh	NABLUS
4939983	Pakua village council	Ma'ale Gilboa	JENIN
4969470	Gaza Strip	Kisufim, supply to Deir AlBalah	GAZA
4688379	Gaza Strip	Erez, Kna'an line	GAZA
4688384	Gaza Strip	Erez, Grizim line, Palestinian Authority	GAZA
4969465	Gaza Strip	Nahal Oz, supply to Gaza, near checkpoint	GAZA
4952308	Gaza Strip	Nahal Oz, supply to Gaza, northern entrance	GAZA
4704814	Gaza Strip	supply to Rafah, through Kerem Shalom	GAZA
4803211	Gaza Strip	Nahal Oz, supply to Gaza, central entrance	GAZA
4802532	Gaza Strip	Nir Oz, supply to Abasans and Han Younis	GAZA
4803216	Gaza Strip	Kisufim, supply to Gaza strip	GAZA
5182527	Gaza Strip	Erez, Eival line	GAZA
4803236	Palestinian Authority	Um A-Reihan	JENIN
5886833	Gaza Strip	GAZA	GAZA
4974845	Palestinian Authority Kofr Sur	Kafr Sur, near Sal'it	TULKARM
4688394	Palestinian Authority - Tulkarem	Tulkarm	TULKARM
4803226	Palestinian Authority - Alras	A-Ras	TULKARM
4939863	Palestinian Authority, Ministry of Communications- Jerusalem	Beit Nabala-Atarot road	JERUSALEM
4939868	Palestinian Authority, Ministry of Health - Jericho	Jiftlik medical clinic	JERICHO
4952340	Palestinian Water Authority - Bani Naim	Bani Na'im junction	HEBRON
4952330	Palestinian Water Authority - Si'ir drill	Si'r drill, Hebron area	HEBRON
4688234	Qabalan village		NABLUS
4952350	Qadum village council	Kdumim	QALQILYA

4946448	Illar	TULKARM - ILLAR	TULKARM
4956463	Qarawat village	Qarawat Bani Hassan	SALFIT
4939948	Qaryut village	Judea and Samriya headquarters	NABLUS
4952295	Qira village		SALFIT
4952260	Qusra village	Nablus district, Migdalim	NABLUS
4803021	SELCO	Rabud Council	HEBRON
4688314	Rafat council	Tulkarm area	SALFIT
4688319	SELCO	near Eshkolot and Eshtamo'a	HEBRON
4803121	Rashid Muhammad Amin R. Azzuni	Kusin, factory for filling gas	NABLUS
4785882	Rujeib village	Nablus area	NABLUS
4736819	Rumana municipality		JENIN
4785892	Salem village council	Ariel	NABLUS
4785857	Salfit municipality	near Tulkarm	SALFIT
4785777	Samu' council	Hebron disrict	HEBRON
4803141	Sanur village		JENIN
4952290	NEDCO	Sarra Village	NABLUS
4785847	Sarta viilage council		SALFIT
4952315	Sebastia village		NABLUS
5028708	SELCO	Dhahiriya, A-Siqa, west of Negohot	HEBRON
5593394	Shaheen Sadiq Muhammad Yusuf	Hamra, water drill	NABLUS
5138530	Shufa village	south of Avney Hefets	TULKARM
4939828	Si'ir village	Hebron area	HEBRON
4785862	Silat al-Dahr village	Jenin district	JENIN
4803126	Smana Ahmad	Kusin, Beit Iba-Kusin road, block factory	NABLUS
4803001	Surif village	Hebron district	HEBRON
4688274	Tamimi Abdel Rahim	Kusin, factory for filling gas	NABLUS
4952240	Tarama village, SELCO		HEBRON
4785742	Tarkumiya village	Hebron Mount south	HEBRON
4688174	SELCO	Tawas village	HEBRON
4688299	Tubas municipality	Jenin district	TUBAS
4785782	Tufah village, Hebron district	Hebron district	HEBRON
4785952	Tulkarm district association of municipalities	Baka al-Gharbiya	TULKARM
4952380	Tulkarm municipality		TULKARM
4803241	Tulkarm municipality	Nur A-Shams + Iktaba	TULKARM
4939963	Um -Lasfa village, Yatta	Hebron disrict	HEBRON
4803051	UNRWA	Jiftlik village, Nablus area	JERICHO
4785897	Urif village	Nablus district	NABLUS
4694694	Wadi Sajane village -SELCO	Hebrew area	HEBRON
4802991	West Bank headquarters, Ministry of	Alon Shvot, Al-Arub	HEBRON

	Agriculture		
4952335	Ya'bad village	"French project", Jenin district, a group of 12 villages	JENIN
4803156	Yasuf village, Civil Administration	Salfit area, Tulkaren district	SALFIT
4952285	Yatma Village Council	-	NABLUS
5675416	SELCO	Hebron area	HEBRON
4952345	Zahrat al Finjan	Fahma, landfill site, south of Arabe	JENIN
4785822	Zbeidat village	After Argaman	JERICHO
5923878	Supply Column T 485 / 22		JERICHO
4969740	Electricity Supply Column NS 11/72		JERICHO
4939978	Zeita municipality, Tulkarm district	-	TULKARM
5898035	JDECO	Beit Safafa	Jerusalem
5728256	JDECO	Rakefet	Jerusalem
5897955	JDECO	Ramallah	Jerusalem
5898020	JDECO	Al-Ram	Jerusalem
5726696	JDECO	Pereg	Jerusalem
5869898	JDECO	Rama1	Jerusalem
5613154	JDECO	Bethlehem (Gilo 1)	Jerusalem
5726706	JDECO	Talpiot	Jerusalem
5726711	JDECO	Abu-Dis	Jerusalem
5714717	JDECO	Hatsav	Jerusalem
5898050	JDECO	Moor (Shakid)	Jerusalem
5869923	JDECO	A-Tur	Jerusalem
5726701	JDECO	Mishoor Adomim	Jerusalem
5869933	JDECO	Shufat (Gilo2)	Jerusalem
5613219	JDECO	Zayem	Jerusalem
5869918	JDECO	Ramallah	Jerusalem
5613234	JDECO	Qalandia	Jerusalem
5613169	JDECO	Barid	Jerusalem
5869868	JDECO	Hana	Jerusalem
5900735	JDECO	Pizgat Zaeav (Eshel)	Jerusalem
5717392	JDECO	Al Nashash	Jerusalem
5714747	JDECO	Vered (Aqabet Jaber)	Jerusalem
5726721	JDECO	Sinjel	Jerusalem
5717387	JDECO	Beit Fajar	Jerusalem
5898025	JDECO	Nabi Saleh	Jerusalem
5869928	JDECO	Nabi Samuel	Jerusalem
5898055	JDECO	Bab Al-Khalil (Homa)	Jerusalem
5869938	JDECO	Beit Horon	Jerusalem

5714722	JDECO	Erfat (Itzhak)	Jerusalem
5714757	JDECO	Ein Samia	Jerusalem
5726676	JDECO	Beit Eil	Jerusalem
5898030	JDECO	Habeid 22	Jerusalem
5613159	JDECO	Arart	Jerusalem
5726636	JDECO	Jabaa	Jerusalem
5898040	JDECO	Tqoaa	Jerusalem
5613164	JDECO	Armenian Quarter	Jerusalem
5897985	JDECO	Barkai Electricity Company	Jerusalem
5726626	JDECO	Zakaria Junction	Jerusalem
5869873	JDECO	Havid 30	Jerusalem
5898010	JDECO	French Hill	Jerusalem
5869863	JDECO	Mossad Pillar	Jerusalem
5898005	JDECO	Barman	Jerusalem
5726716	JDECO	Arabic Mosque	Jerusalem
5898015	JDECO	Bar Oun	Jerusalem
5726731	JDECO	Pre Amal	Jerusalem
5726656	JDECO	Hayozma 11	Jerusalem
5613199	JDECO	Pirrart	Jerusalem
5714777	JDECO	Jewish Temple	Jerusalem
4688266	TEDCo	TEDCo	TUBAS
5563289	NEDCO	Jalame	Jenin
5726646	JDECO	Jerusalem	Jerusalem
5848454	NEDCO		NABLUS
5875002	JDECO	Jerusalem	Jerusalem
4785907	Zuhar Kimhiyeh	Kusin, factory for stone cutting	NABLUS

Appendix E: Monthly comparison MOF versus IEC Net Lending data

Difference between MOF and IEC 2011													
ILS	**Jan/11**	**Feb/11**	**Mar/11**	**Apr/11**	**May/11**	**Jun/11**	**Jul/11**	**Aug/11**	**Sep/11**	**Oct/11**	**Nov/11**	**Dec/11**	**Total**
Difference	8,085,930	5,587,070	5,167,253	45,000,000	(35,195,931)	,182,586	4,842,425	(2,429,749)	7,743,404	27,431,359	65,000,000	(69,683,831)	69,730,518

Difference between MOF and IEC 2012													
ILS	**Jan/12**	**Feb/12**	**Mar/12**	**Apr/12**	**May/12**	**Jun/12**	**Jul/12**	**Aug/12**	**Sep/12**	**Oct/12**	**Nov/12**	**Dec/12**	**Total**
Difference	(183,660)	8,889,185	6,395,827	(2,946,135)	19,911,875	3,298,323	1,677,908	17,060,167	(25,871,936)	(49,278,473)	220,127,120	(217,932,589)	(18,852,389)

Difference between MOF and IEC 2013								
ILS	**Jan/13**	**Feb/13**	**Mar/13**	**Apr/13**	**May/13**	**Jun/13**	**July - Dec 2013**	**Total**
Difference	4,362,195	(7,551,323)	5,012,210	5,560,034	(3,472,307)	3,810,268	(239,387)	7,481,690

Appendix F Payment flow to the IEC

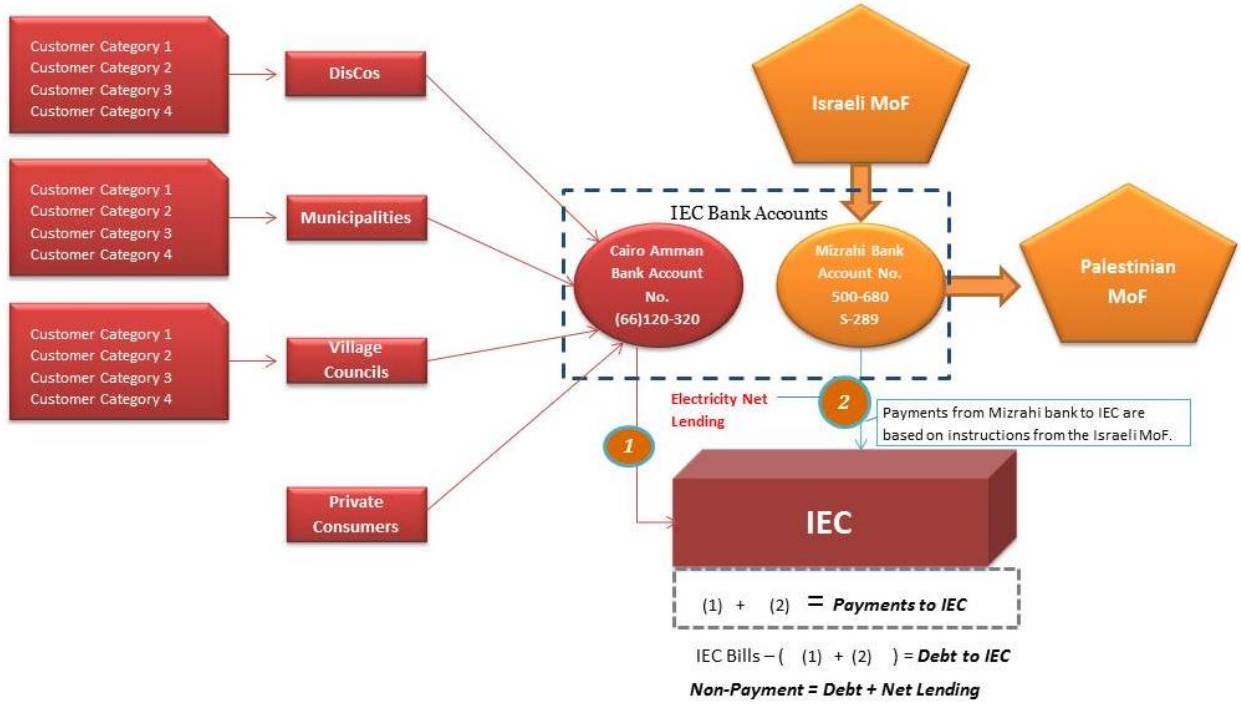
Palestinian Distributors behave in three ways after receiving monthly electricity bills from IEC (see diagram 3): (i) they pay in full the total amount; (ii) they pay part of the bill; or (iii) they do not pay the bill at all. If partial or no payment is made then the IEC either deducts the unpaid amount or part of it from the Clearance revenue or registers the remaining amounts as debt on the connection point.

From the IEC's perspective, the payment on each of the connection points is done through direct payment from the connection point owner and through the transferred amount from the Clearance revenue, which has been deducted by the Israeli Ministry of Finance ("Net lending").

The diagram below illustrates the flow of payments for IEC through two main channels:

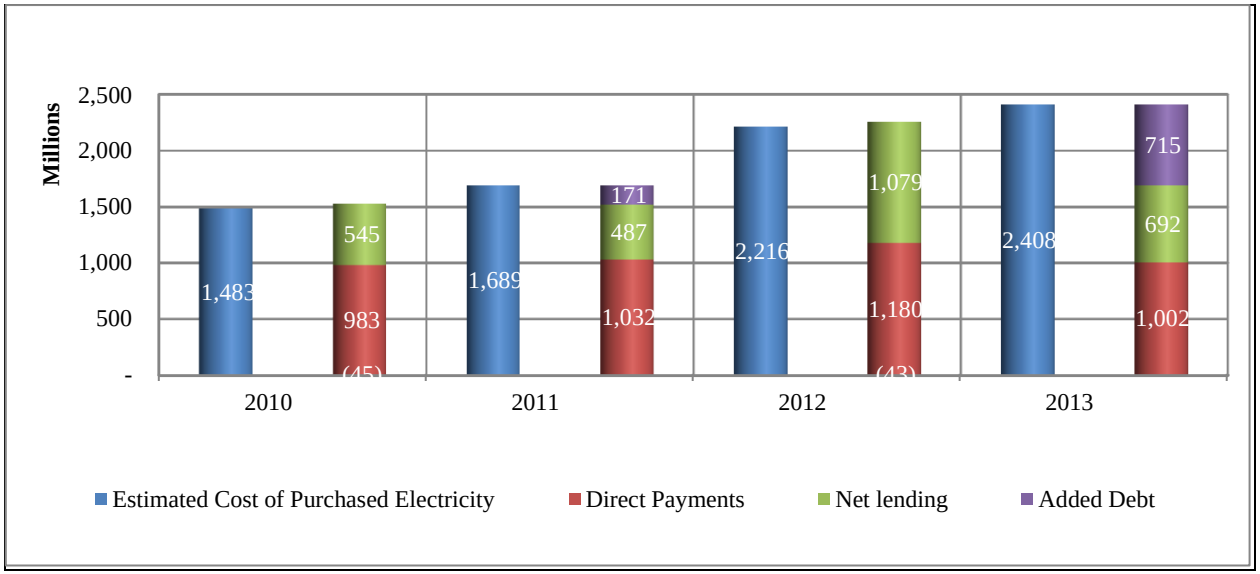
1. **Direct channel:** payments are made directly by the owner of the connection point (DISCOs, Municipality, Village council and private sector) to an IEC bank account at Cairo Amman Bank. A small number of connection point owners pay directly to IEC offices with checks or cash.
2. **Indirect channel:** payments are made through deductions from the Clearance revenue by the Israeli Ministry of Finance (Net Lending). The IEC informs the Israeli Ministry of Finance of the amounts due by Palestinian electricity Distributors. The Israeli Ministry of Finance deducts these amounts from PA's clearance revenues and transfers the funds to the IEC.

Diagram 6: Payment Flow to IEC



Appendix G: Cost of electricity purchased from IEC vs. payments and Net Lending in ILS for 2010-2013

Chart 21: Cost of electricity purchased from IEC vs. payments and Net Lending in ILS for 2010-2013[95]



The Chart shows that in 2013, the Palestinian electricity Distributors accumulated debt to IEC reached 715 million ILS [96](193 million US$ equivalent).

The Chart clearly shows that the cost of purchased electricity has increased between 2010 and 2013 by 62%. It also reveals that up to 2012 direct payments from Palestinian Distributors were gradually increasing although they never reached the level of the actual cost of purchase electricity. In 2013, the direct payment decreased by 178 million ILS (48 million US$ equivalent). Some sector stakeholders believe that this decrease was the result of the substantial amount (1,079 million ISL - 292 million US$ equivalent) which was deducted by the Israeli Ministry of Finance from the clearance revenue for the benefit of the IEC and which led the people to believe that their unpaid bills could be taken care of by the Palestinian Authority.

[95] The estimated cost of the purchased electricity does not include the interest added to the late payment
[96] The authors were not able to assess the evolution of the outstanding debt overtime due to data unavailability

The Chart finally clarifies that deductions by the Israeli Authorities through the Clearance revenue is not systematic or regular. Net Lending figures vary throughout the years between 2010 and 2013 and not clear pattern can be found.

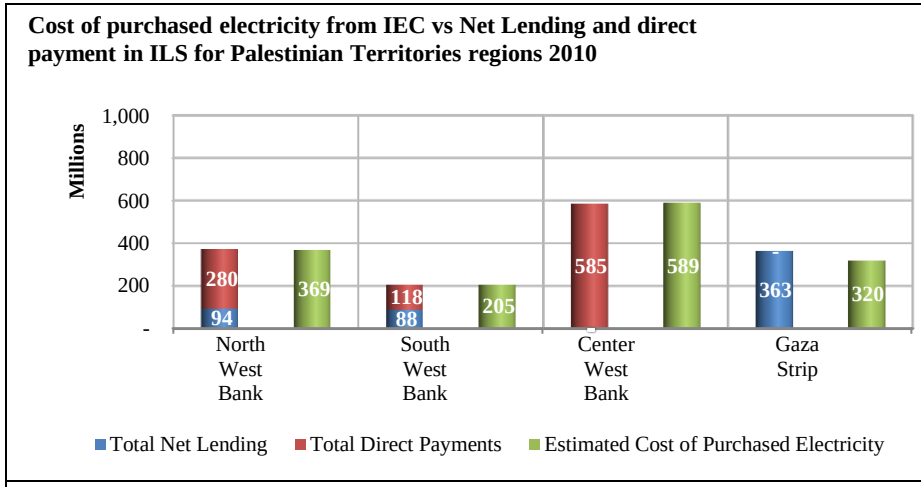
Analyzing the yearly figures in the Chart shows that in 2010 the payment received by the IEC (direct payment and the Net Lending) exceeded the estimated cost of the purchased electricity by 45 million ILS. This indicated that during that year, funds were transferred to the IEC through the clearance mechanism to compensate for what is believed to be part of the pre 2010 debt. In 2010 the Net Lending represented **37%** of the estimated cost of purchased electricity and there was no accumulated debt from the previous year, therefore, the 37% is also the percentage of total non-payment for 2010. The non-payment in 2010 totaled 545 million ILS.

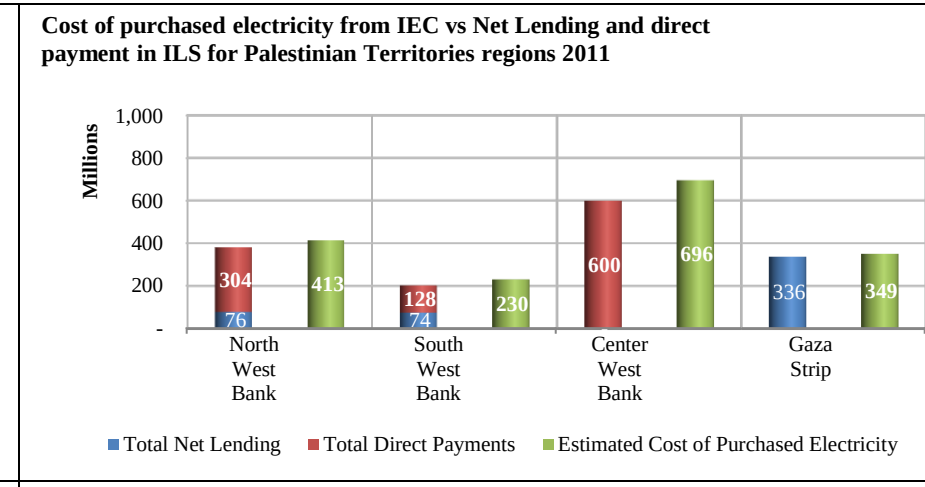
In 2011, IEC recovered 487 million ILS (132 million US$ equivalent) of non-paid amounts by Palestinian Electricity Distributors through Net Lending (representing 29% of estimated cost of purchased electricity). However, the IEC still had 171 million ILS of outstanding debt from Palestinian electricity providers, which carried over the following year. In 2011 the Net Lending represented 29% of the estimated cost of purchased electricity and the added debt represented 10% of the estimated cost of purchased electricity; therefore the non-payment in 2011 was **39%** of the estimated cost of the purchased electricity, which equates to **658 million ILS**. The estimated cost of purchased electricity in 2011 increased by 14% compared to 2010.

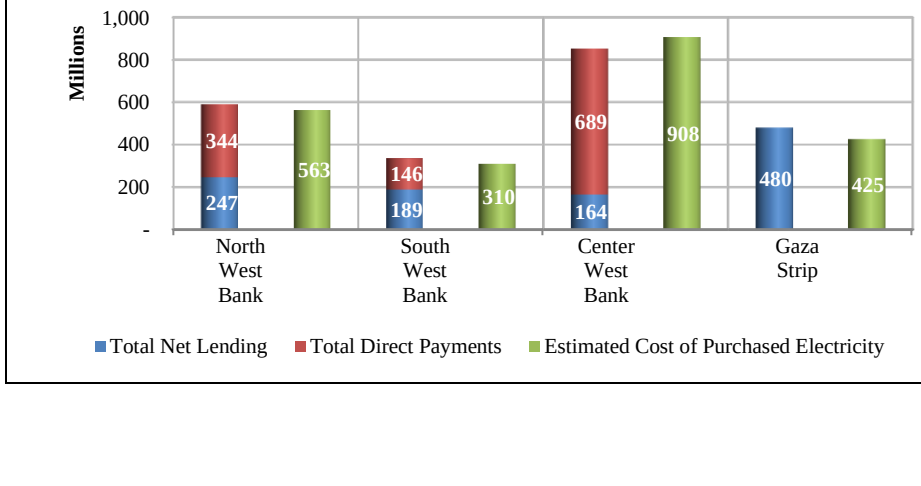
In 2012 the payment received by the IEC (direct payment and the Net Lending) exceeded the estimated cost of the purchased electricity by 43 million ILS which meant a reduction of the accumulated debt to the IEC by this amount. In 2012 the Net Lending represented **49%** of the estimated cost of purchased electricity. This percentage is considered as the non-payment percentage as no additional debt was added that year. The non-payment in 2012 was equal to **1,180 million ILS**. Based on these values, the non-payment increased by 10% in 2012 compared to 2011 and by 12% compared to 2010. The estimated cost of purchased electricity increased by 31% compared to 2011 and by 49% compared to 2010.

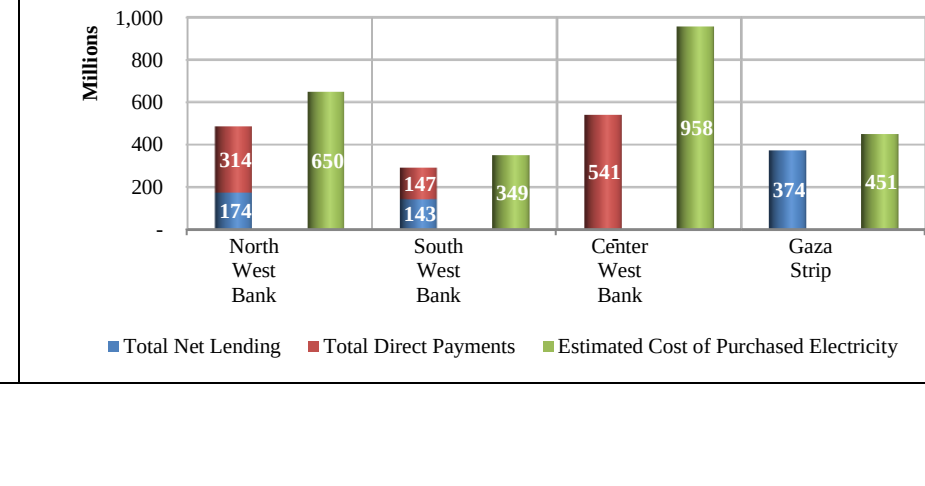
In 2013 the payment received by the IEC (direct payment and the Net Lending) was 1,694 million ILS. This was 715 million ILS less than the estimated cost of the purchased electricity which meant that the debt to the IEC increased by this amount. In 2013 the Net Lending represented 29% of the estimated cost of purchased electricity and the added debt represented 30% of the estimated cost of purchased electricity therefore the non-payment in 2013 was **58%** of the estimated cost of the purchased electricity and is equal to **1,406 million ILS**. This shows that non-payment increased by 10% in 2013 compared to 2012 and by 12% compared to 2011. The estimated cost of purchased electricity increased by 9% compared to 2012.

Chart 22: Cost of purchased electricity from IEC (estimated) vs. Net Lending and direct payment in ILS for Palestinian Territories regions 2010-2013









Appendix H: Customer survey and focus group –profile of respondents

The study's respondents were chosen from areas with the highest levels of electricity bill non-payment. In the West Bank, 615 questionnaires were administered in 103 localities within 11 governorates while in the Gaza Strip, 423 questionnaires were administered in 23 localities within 5 governorates.

The criteria for selecting the sample were as follows:
1- Jurisdictions where high level data collection and analysis was performed
2- For JDECO area: survey areas with losses above 30%
3- Coverage of all refugee camps within DISCOs.
4- Coverage of all major cities
5- All Distributors supplying more than one city, village or camp to be included in the survey

Table 27: Sample selection for survey

Area	Sample
GEDCO	All Gaza Strip
JDECO	• Refugee camps • Villages around Ramallah, Bethlehem, and Jerusalem with high losses • Cities of Ramallah, Bethlehem, Jerusalem and Jericho
NEDCO	• Refugee camps (Balata, Askar and Ein AlMayyah) • Cities of Nablus and Jenin • Villages of Hawarah, Yamoon, Deir Sharaf, Salem
HEPCO	Hebron including the old city and Halhul city
SELCO	Dura, Yatta and AlDaherya cities
Municipalities outside DISCOs	Northern West Bank : Tulkarm, Qalqiliya, Tubas, Salfit, Qabatia Southern West Bank : Saier, Idna, Beit Awwa,
Villages outside DISCOs	Ajja, Al-Nasariya from the northern region of West Bank Deir Samet from the southern region of West Bank
Area C[21]	Jericho area: Zbeidat, Jiftlik
Refugee camps outside DISCOs	AlFawar camp

In the West Bank: Hebron, Jerusalem and Ramallah/Al-Bireh included the bulk of the respondents, slightly more than 62%. 58 localities were covered in the West Bank: 11 localities for Hebron, 36 for Ramallah/Al-Bireh and 11 for Jerusalem.

In the Gaza Strip: Gaza, North Gaza, and Deir Al Balah governorates represented 72.58% of the respondents. 14 localities were covered (3 in Gaza, 5 in North Gaza, and 6 in Khan Yunis) out of a total of 23 Gaza Strip localities.

The study also recorded the demographic profiles of Palestinian respondents. The criteria consisted of age, education level, employment status and sector, number of household members, and working household members, as well as the average monthly income at a household level. The completed profiles of the study respondents can be summarized as follows:

- West Bank respondents: 38.14 years on average with secondary education level[97]. Bethlehem, Tubas and Ramallah/Al-Bireh governorates displayed the highest average education levels while Nablus, Qalqiliya, and Tulkarem showed the lowest.
- Gaza Strip respondents: 45.07 years on average with primary and secondary education levels with only slight variations between governorates[98].

West Bank respondents are more likely to be active in the labor market than Gaza Strip respondents. West Bank respondents showed a higher propensity to be employed in the private sector or self-employed while Gaza Strip respondents tended to be unemployed or retired, and thus, less active in the labor force.

West Bank respondents have on average 5.86 members per household, with an average of 1.43 employed. In the Gaza Strip, this figure rises to 7.34 persons per household with only 0.78 employed or working.

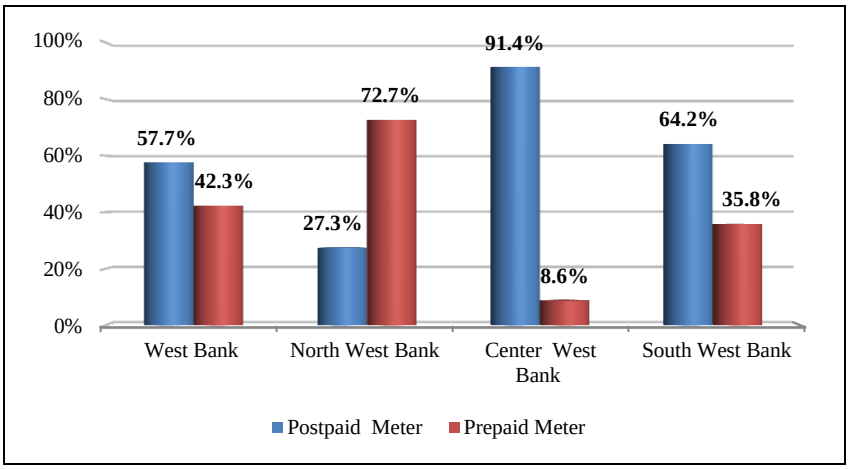
The information related to the profile of the respondent could explain some of the answers received and needs to be taken into consideration when suggesting possible future actions to increase the collection rate from customers. It is reasonable to believe that the behavior of customers varies according to age, employment situation and number of household members. Specific media campaigns addressing the customer non-payment issue should be tailored to address the different population categories, and look to mainly target the most commonly found customer profile.

[97] The study's respondents were distributed equally, for the most part, as females comprised 50.9% of respondents whereas males accounted for 49.1%.

[98] The study's respondents tended to be male amongst respondents from the Gaza Strip, as females only comprised 36.6% of respondents whereas males accounted for 63.4%.

Appendix I: Percentage Distribution of Households by Region and Type of Electricity Meter Used- January 2011

Chart 23: Percentage Distribution of Households by Region and Type of Electricity Meter Used, January 2011



Appendix J: Palestinian stakeholders action plans

1. Palestinian Authority (PA) Decisions

1.1. "Camps agreement" issued on December 30, 2012 between the Prime Minister and the Representative Committees of camps

Late 2012 the Palestinian government approved a decision known as the "**Camps agreement**" in which the government addressed electricity debts of refugees' camps. The decision proposes incentives for customers to pay their bills as well as penalties for electricity thefts. This agreement can be summarized as follows:

- All arrears of customers who agree to pay for their actual and upcoming electricity bills will be cancelled;
- Tariff for the first 150 KWh for residential customers will be at cost;
- Utilities will cover electricity bills of some public institutions in the camps.
- The electricity tariff in the camps will be aligned with the tariff for regular customers
- Camp representatives in collaboration with MOSA will review all social cases in the camps
- PENRA will provide utilities with performing equipment and goods to rehabilitate the electricity networks in the camps.
- Utilities will install prepaid meters for customers
- If more than one customer is connected to the same meter they will be separated and the utility will install a prepaid meter for each customer at no cost.

1.2. Cabinet Decision Number (*م.و/س.ف/14/45/07*) of 2013 issued on 5 March 2013 "Endorsement of MoU between DISCOs and local authorities"

This decision concerns electricity debts related to local authorities and DISCOs. The decision offers incentives for customers to pay their bills and penalties for electricity thefts.

- Any customer committed to pay his invoice will be rewarded with a 10% deduction on his monthly invoice. This deduction will be subsidies by the government.
- Any indebted customer who pays an additional 10% to his bill to reimburse his debt will be offered a 10% cancellation to his debt. This cancellation will be subsidies by the government.
- The Government will cover the monthly cost of the first 150kWh for social cases registered at MOSA.

1.3. Cabinet decision "formulation of special committee to follow up the electricity debts number (*م.و/ر.ح/16/06*)"

The Cabinet on 9 February 2014 established a special committee to handle the electricity debts. This committee chaired by PENRA and includes members from MOI, MOLG, MOE and MOF is responsible for proposing to the Prime Minister recommendations on solving the electricity debt issues.

1.4. Cabinet decision "Approving the guarantees of electricity payments"

On 25 of February 2014 the Cabinet took the decision (م.و/ر.ح/16/21/05) "Approving the Guarantees of Electricity Payments", which states the following:

8. All electricity distributing entities have to and within a maximum of 30 days from the date of the issuance of this decision: reschedule all debts due on them for the Ministry

of Finance which is resulted from the electricity deduction from the Ministry's clearing account to the IEC.

9. All electricity distributing entities have to shall commit to paying all of the IEC bill deducted of it the government's support percentage of the monthly electricity bill which is approved by the government to support the electricity sector.
10. The cabinet and in accordance with the recommendations of the electricity Special Committee, have the right to take all legal actions against the representatives of any electricity distributing entity in the case where it has been proven that the public money has been compromised.
11. All benefits and financial aids from the Ministry of Finance and/or any governmental body shall be halted to any electricity distributing entity not abiding by the rules and regulations set in this decision.
12. All electricity distributing entities have to supply the Ministry of Finance and the Palestinian Natural Resources Authority with the supporting documents to pay any amounts due from them to the IEC in a date maximum of 3 working days from the date of payment.
13. Any electricity distributing entity and to enforce its ability to carry out the rules and regulations of this decision, has to apply for a meeting with the special electricity committee, where the committee shall study the case of the distributing entity and submits recommendation for each case separately to the ministers cabinet; and the cabinet will decide on the case.
14. The special electricity committee has to review all the rules and regulations of this decision every three months and has to give recommendations about it for the minister's cabinet.
15. Any rules and regulations going against this decision shall be cancelled.

2. Ministry of Finance action plan

The MOF in cooperation with all relevant Palestinian stakeholders is working towards increasing level of payments to IEC and reducing the Net Lending by taking the following measures:

1- MOF is member of the ministerial committee that is working on following up the electricity debts.

2- MOF is currently working on establishing an interactive data base to include comprehensive information on Net Lending where this database will be connected with the MOF financial system and managed by MOF to ensure sustainability where information will be gathered from municipalities, PENRA, DISCOS, PETL, and IEC. This data base should be able to provide us with all missing and needed information that is needed to have a clear picture about the Net Lending situation, the database is supposed to be ready by July 2014. MOF will consult the relevant international partners (including the World Bank) to get feedback about the structure and functions of this database.

3- MOF is following up with the GoI through the Palestinian- Israeli joint committee to get full detailed information about the deductions from the clearance against electricity and health. This information will be validated with relative PA institution and will be used in the data base.

4- The council of ministries has recently issued a decree about the settlement of the electricity debt by the relevant utilities, Distributors, where MOF is involved in following up this decree to ensure its implementation, while doing so MOF is working with different institutions to study the financial effect of the different government decisions about the

electricity subsidies. Besides that MOF will continue its pressure on municipalities to reschedule and reconcile the dent to MOF and will consider some measurements to encourage municipalities to do so.

MOF has provided data concerning the settlements that is done between MOF and the various municipalities, DISCOs and village councils in West Bank in exchange of the reduction that Israeli Ministry of Finance is doing on these entities electricity bills to IEC. The settlement is made on four different revenue sources which should be transferred from MOF to these entities, as follows:

5- **Transportation fees:** MOF has deducted 69 million ILS in the period January 2011-March 2014
6- **Property tax:** MOF has deducted 72.9 million ILS in the period January 2011-March 2014
7- **Profession license fees:** MOF has deducted 11.3 million ILS in the period January 2011-March 2014
8- **Others:** MOF has deducted 20.9 million ILS in the period January 2011-March 2014

This indicates that MOF could only collect back from the different electricity Distributors an amount of 173 million ILS in the period January 2011-March 2014.

3. Ministry of Local Government action plan

The MOLG efforts to reduce the Net Lending focus on two areas:

1- Improve collections in the local councils and increase their payments to IEC.
2- Assist in the process of establishing DISCOs with actions to encourage local councils to join electricity distribution companies.

To improve the collection and the payment to IEC from the local authorities, MOLG is taking the following actions:

- Ordering the local councils to separate the electricity financial accounts from other accounts and to exclusively disburse from this account to pay for electricity services. The account being under the responsibility of the electricity department. This order has been valid and operational since 2009;
- Placing financial supervisors at local councils who did not follow this order to ensure its execution;
- Monitoring the commitment of the local councils to settle electricity payments, issue monthly payment statements and send these statements to the directorates of the Local Governments;
- Instructing MOF to pay transportation expenses only to local councils who settle the payment of at least 10 monthly bills of electricity a year. MOF has engaged to commit to this instruction;
- Encouraging the local councils to install prepaid meters to improve their electricity collections, to issue self-financed bids, and to follow up on this matter with PENRA to secure the supply of prepaid meters to the local councils;
- Dissolving municipal councils who did not commit to pay their electrical bills to the supplier, and assigning Special Committees from the public sector to manage these municipalities;

1. Circulating tariff decisions and supervising their implementation through MOLG supervision teams;
2. Auditing the unpaid electricity while performing assurance on the payment slips;

3. Requesting the local councils to propose electricity debt payment schedules and in cooperation with MOF, monitoring their commitment to this schedule;
4. Linking local councils projects to the electricity debt payment and releasing the project funds upon clearance from MOF on the approved settlement of these payments;
5. Binding the local councils to schedule their subscribers debts through the prepaid meters to improve the collection and enable them to pay their monthly supplies bills and their scheduled debts;
6. Rejecting approvals of budgets of councils who have not initiated a debt scheduling scheme.

While to support the transfer of the electricity service from the local authorities to DISCOs, MOLG is taking the following actions:

- Requesting the local councils to transfer their electricity services to DISCOs as stipulated in the general electricity law;
- In cooperation with PENRA, promoting the integration of local councils electricity services to DISCOs in workshops;
- Facilitating and accelerating the transfer of electricity services from the local councils to DISCOs;
- Signing of numerous special agreements with relevant governmental bodies (MOF, PENRA, Organizing and Local Governance Council)to transfer the electricity services from the local councils to DISCOs;
- Encouraging the local councils to join DISCOs by performing a financial analysis measuring the impact of the transfer of the electricity distribution services from the local councils to DISCOs;
- MOLG assisted with the transfer of the electricity department employees from the local councils to DISCOs such as Nablus and Jenin electricity services to NEDCO;
- MOLG followed up on the matter of the local councils that have joined the distribution companies getting their compensations due from the MOF, though the MOF did not commit to paying the due amounts which led to a decline in the local council's desire in joining the distribution companies.

4. Ministry of Social Affairs action plan

MOSA actions in the West Bank essentially consist of ensuring the implementation of Cabinet decision dated 5 March 2013 related to the endorsement of MoU between the local authorities and DISCOs (ref: 3.5.2 bullet point 3: The Government will cover the monthly cost of the first 150kWh for social cases registered at MOSA). The implementation of this decision has faced multiple obstacles due to factors as listed below:

- High number of stakeholders involved suggesting different interpretations and implementation mechanisms for the decision.
- The number of local councils receiving electricity through local cooperative associations which are reluctant to cooperate on this decision.
- Other fees imposed by some of the Distributors that distribute electricity such as collecting old debts or street lightening fees.
- A number of local councils officially informed the Ministry of their refusal to implement the decision as they collect other services fees through the electricity bills.
- To benefit from this assistance social cases should have prepaid meters installed. Unfortunately, only around 10,000 households out of approximately 50,000 social cases

families in the West Bank have pre-aid meters and could thus benefit from this assistance.

In light of the above, MOSA has requested the Cabinet to modify the mechanism to add 50 ILS to the monthly cash transfer for MOSA beneficiaries who have prepaid meter installed. This amendment should enable MOSA to extend the electricity support to all households with pre-paid meters in West Bank cities, villages and refugee camps. MOSA estimated the cost of this mechanism to reach 30,000,000 ILS annually to cover 50,000 social cases families in the West Bank.

MOSA reported that the current mechanism is only implemented by three DISCOs who have not yet been compensated by MOF as shown in the table below

DISCOs implementing assistance to social cases in the West Bank

DISCO	Number of benefited cases	Cost ILS
NEDCO	2970[99]	3,564,645
TEDCO	1984	2,338,547
SELCO	3805	4,638,260
Total	8,759	10,541,452

The above table shows that the average monthly payment for each social case is 100 ILS (not 50ILS as proposed by MOSA).

5. Palestinian Electricity Regulation Council (PERC) action plan

PERC action plan to reduce the Net Lending is summarized below.

Government's role

1- Government to pay all its financial commitments to the Distributors
2- To limit the government subsidy to social case

PERC's role

1- Continue monitoring the performance of the electricity Distributors according to PERC approved KPIs
2- Review the tariff methodology and subsidy decisions
3- Follow up with DISCOs on action plan to reduce losses and increase collection, and consider the investment required within the tariff.
4- Cooperate with all stakeholders to implement the Cabinet decisions and the creation of electricity database within the PA institutions.
5- Attempts to include GEDCO within the work of PERC and start implementing PERC regulations in Gaza.
6- Cooperate with MOSA to determine the proper basis for including social cases in the Governmental subsidies including the refugee camps.
7- Cooperate with all stakeholders to complete the establishment of DISCOs in the north and south.
8- In cooperation with all DISCOs, implement a media awareness campaign against the electricity theft.
9- Cooperate with relevant parties, especially judiciary parties to fight against electricity theft.

[99] Estimated

10- Cooperate with all stakeholders to reduce the purchase electricity price from IEC and reach a fair commercial agreement.
11- Encourage the use of renewable energy and energy conservation.

6. Palestinian Energy and Natural Resources Authority action (PENRA) plan

PENRA action plan to reduce the Net Lending is organized in two main pillars.

Pillars 1- Institutional measures:

1- Follow up the implementation of Cabinet decisions
2- Finalize the establishment of PETL to operate as single buyer from IEC
3- Transfer the responsibility on all existing connection points with IEC from the local authorities and DISCOs to PETL.
4- Follow up with the judicial system the enforcement of penalties for electricity theft.
5- Reach a commercial agreement with IEC
6- Follow up with the nominated stakeholders the creation of the electricity database.
7- Ensure the completion of the establishment of DISCOs in the north and south of West Bank

Pillar 2 – Physical investment to reduce losses, increase collections and diversity of supply

1- Install additional prepaid meters in the West Bank and Gaza
2- Rehabilitate the electricity network to reduce losses
3- Complete the construction of the four high voltage substations in the West Bank and start the preparation for constructing of the fifth one
4- Develop the distribution systems in the north and south of West Bank to transfer the power from the high voltage substations to the Palestinian load centers which will replace most of the existing connection points with IEC.
5- Implement energy efficiency and renewable projects.
6- Build control center and SCADA systems

The three year investment plan for PENRA is as follows

Component	Budget (million US$)	Available (million US$)	Needed to be secured (million US$)	Notes
Institutional measures				
PETL operational costs	4	-	4	
Physical measures				
Installation of prepaid meters and smart meters	3	0	3	
Rehabilitation of medium voltage networks	12	2.6 (EURO)	9.4	
Development of the Northern and southern distribution systems – materials	26	23 from Italian government 3 through Norwegian fund	26	

Development of the Northern and southern distribution systems – installation	8	0	8	Top priority
Reconfiguration of JDECO distribution system (North Ramallah)	4	0	4	
Renewable energy including the PSI			1	
Energy efficiency	8	5.3 (AFD +WB)	2.7	
SCADA	8	-	8	
Total	**73**	**32.9**	**40.1**	

7. Distributors (DISCOs and local authorities) action plan

All visions and action plans submitted by DISCOs and local authorities have similar objectives and list of actions to be implemented as follows:

- Improve meter and network inspection procedures.
- Initiate legal procedures against electricity theft.

Criminal provisions affect electricity thieves and bill defaulters

Ramallah – The Palestinian Public Prosecutor issued new proceedings and provisions that affected a number of electricity thieves and electric bill defaulters that lagged behind in the payment of electricity bills in the concession areas of the Jerusalem Electricity Distribution Company.

The legal department of the Company indicated that the penal provisions were either imprisonment for three months or paying the fines to the company in addition to paying the lawyers' fees. This is after the court issued verdicts against: residents (A. F.), (A. A.), (H. A.), and (M. H.) from the Jerusalem area, as well as residents (A. J.) and (H. M.) from Ramallah, (K. M.), (M. H.) and (M. J.) from Bethlehem, and also resident (A. A.) from Qibya who was sentenced to more than 3 months in prison.

Within this context, Mr Hisham Al Omari, the general manager of the Jerusalem Electricity Distribution Company, stated: "It has become a necessity for the legal and Security authorities to take more strict actions on all those who misuse company assets and all those who tamper with electricity meters".

He also added that this pattern is in a constant increase and it needs to be stopped immediately for the losses it causes to both the Company and the customers.

Mr Omari also requested that more strict actions are taken against those who default on payments in order to prevent the company from stopping operations, especially with the increase in the company's debt to the IEC, which threatens the continuity of the electricity flow to Palestinian residents.

Within this context, Mr Omari highlighted the role of the security and the legal authorities in tracking down the company property offenders, he also emphasized the coordination that the company has with these authorities in laying down more effective plans and actions that aim towards stopping electricity related crimes and removing it from its source.

أحكام جزائية تطال سارقي التيار الكهربائي والمتخلفين عن تسديد الفواتير

رام الله- أصدرت النيابة العامة الفلسطينية ، اجراءات قضائية واحكام جزائية جديدة طالت عددا من سارقي التيار الكهربائي والمتخلفين عن تسديد فواتير الكهرباء في مناطق امتياز شركة كهرباء القدس.

وأشارت الدائرة القانونية لدى شركة كهرباء محافظة القدس ، الى أن الأحكام الجزائية تمثلت ما بين الحبس لمدة ثلاثة شهور أو دفع مخالفات لصالح الشركة بالإضافة إلى دفع رسوم وتكاليف أتعاب المحامين، حيث صدرت عن المحكمة أحكاماً بحق كل من : للواطنة (أ.ف)، و للواطن (أ.ع) و (ح.ع) و (م.ح) من منطقة القدس ، بالإضافة إلى للواطن (أ.ج) و (ح.م) من منطقة رام الله ، و للواطن (خ.م) و (م.ح) و (م.ج) من محافظة بيت لحم ، إلى جانب للواطن (ع.أ) من منطقة قبيا الذي حُكم عليه بالحبس لأكثر من ٣ أشهر.

وفي هذا السياق، قال مدير عام شركة كهرباء محافظة القدس م. هشام العمري: "أصبح من الضروري أن تتخذ الجهات القضائية والأمنية اجراءات أكثر صرامة على كل من يتعدى على ممتلكات الشركة وكل من يتلاعب بعدادات الكهرباء".

وأضاف أن هذه الظاهرة في تفاقم مستمر وتحتاج إلى وقفها بشكل فوري لما تسببه من خسائر للشركة وللمواطنين.

كما طالب العمري ، بإتخاذ اجراءات أكثر صرامة بحق المتخلفين عن الدفع من أجل حماية الشركة من التوقف عن العمل، خاصة في ظل زيادة الديون لصالح الشركة القطرية الاسرائيلية الأمرالذي يهدد استمرار تدفق الكهرباء للمواطنين الفلسطينيين.

وفي هذا السياق أشاد العمري بدور الأجهزة الأمنية والقضائية في ملاحقة المعتدين على ممتلكات الشركة، كما أكد حرص الشركة على التعاون مع تلك الاجهزة من أجل وضع خطط وآليات أكثر فعالية تهدف لوقف الجرائم المتعلقة بالكهرباء، واقتلاع هذه الظاهرة من جذورها.

Al-Quds newspaper 24/3/2014: Court orders against electricity fraud and non-paying electricity invoices in JDECO concessions area.

- Invest in prepaid meters and smart meters to help detect thefts and monitor customer performances;
- Increase productivity of collectors;
- Launch awareness campaigns and build solid partnerships with customers to assure added-value service, customer satisfaction, customer loyalty and commitment, and continue improving public image through media;
- Upgrade billing & financial systems, new CRM (Customer Relationship Management);
- Install split prepaid meters in refugee camps.
- Install monitoring meters near distribution substations to monitor & calculate the losses.
- Rehabilitate old medium voltage and low voltage networks and remove networks that constitute danger to the public.

Appendix K: Governmental Subsidy for DISCOs (in ILS)

	JDECO			SELCO			HEPCO		
Year	Cost of subsidy	Actual payments ILS	Outstanding Payments ILS	Cost of subsidy	Actual payments ILS	Outstanding Payments ILS	Cost of subsidy	Actual payments ILS	Outstanding Payments ILS
2011	11,860,626	11,860,626	-	1,443,743	1,443,743	-	9,537,989	6,627,818	2,910,171
2012	55,749,738	12,217,388	43,532,350	4,686,433	253,301	4,433,132	24,976,084	-	24,976,084
2013	40,459,124	-	40,459,124	3,217,599	-	3,217,599	11,940,557	-	11,940,557
Total	108,069,488	24,078,014	83,991,474	9,347,776	1,697,044	7,650,732	46,454,630	6,627,818	39,826,812

	NEDCO			TEDCO		
Year	Cost of subsidy	Actual payments ILS	Outstanding Payments ILS	Cost of subsidy	Actual payments ILS	Outstanding Payments ILS
2011	6,698,719	824,937	5,873,782	4,033,119	-	4,033,119
2012	18,951,035	7,172,437	11,778,598	6,351,630	-	6,351,630
2013				2,309,504	-	2,309,504
Total	25,649,754	7,997,374	17,652,380	12,694,253	-	12,694,253

Appendix L: Main features of West Bank and Gaza Electricity

Table 28: West Bank electricity main characteristics for 2010-2013

	2010	2011	2012	2013
Electricity purchased from all sources (kWh)[36]	3,067,365,370	3,379,691,651	3,752,652,024	3,724,598,572
Electricity losses %	23%	26%	24%	25%
Electricity sales kWh	2,361,871,335	2,500,971,822	2,852,015,538	2,793,448,929
Collection rate	90%	90%	89%	81%
Uncollected invoices kWh	236,187,134	250,097,182	313,721,709	530,755,296
Collected invoices kWh	2,125,684,202	2,250,874,640	2,538,293,829	2,262,693,632
Electricity purchase tariff ILS/kWh (incl. VAT)	0.38	0.41	0.48	0.52
Cost of electricity purchase ILS	1,163,092,301	1,338,749,697	1,780,515,266	1,957,097,167
Electricity sales tariff ILS/kWh (incl. VAT)	0.65	0.62	0.65	0.71
Electricity sales ILS	1,541,475,327	1,546,350,877	1,861,367,941	1,972,384,452
Invoice not collected ILS	154,147,533	154,635,088	204,750,474	374,753,046
Invoice collected ILS	1,387,327,794	1,391,715,790	1,656,617,467	1,597,631,406
Payment to IEC ILS	982,753,383	1,031,720,184	1,179,997,070	1,002,215,408
Non-payment ILS	180,338,918	307,029,513	600,518,196	954,881,759
Difference between collection and payment to IEC ILS	404,574,411	359,995,606	476,620,397	595,415,998

Table 29: Gaza Electricity main characteristics

	2010	2011	2012	2013
Electricity purchased from all sources (kWh)[36]	1,260,237,920	1,519,645,360	1,415,872,288	1,580,711,097
Electricity losses %	30%	30%	30%	30%
Electricity sales kWh	882,166,544	1,063,751,752	991,110,602	1,106,497,768
Collection rate %	59%	65%	68%	71%
Electricity uncollected kWh	361,688,283	372,313,113	317,155,393	320,884,353
Electricity collected kWh	520,478,261	691,438,639	673,955,209	785,613,415
Electricity purchase tariff ILS/kWh (incl. VAT)	0.45	0.39	0.50	0.52

	2010	2011	2012	2013
Cost of electricity purchase ILS	569,013,065	594,814,963	713,849,666	822,506,837
Electricity sales tariff ILS/kWh (incl. VAT)	0.48	0.51	0.52	0.52
Electricity sales ILS	423,439,941	542,513,394	515,377,513	575,378,839
Sales not collected ILS	173,610,376	189,879,688	164,920,804	166,859,863
Sales collected ILS	249,829,565	352,633,706	350,456,709	408,518,976
Payment to IEC and Egypt ILS	-	-	-	-
Payment to electricity generated from Gaza Power Plant	222,579,405	216,569,938	254,972,224	268,974,972
Difference between collection and payment to electricity suppliers	27,250,160	136,063,767	95,484,484	139,544,004

Appendix M: PERC Current Tariff Structure

مجلس تنظيم قطاع الكهرباء الفلسطيني PALESTINIAN ELECTRICITY REGULATORY COUNCIL	
التعرفة(ILS/KWh) Tariff	الشرائح (حسب الاستهلاك) Steps according to consumption
القطاع المنزلي- فاتورة (Residential Postpaid)	
0.4900	0 – 160 KWh
0.5283	161 – 250 KWh
0.6350	251 – 400 KWh
0.6650	401 – 600 KWh
0.7350	600 اعلى من KWh
10	اقتطاع شهري ثابت (Monthly fixed charge)
القطاع المنزلي- مسبق الدفع (Residential Prepaid)	
0.5650	تعرفة مستوية (Flat tariff)
0	اقتطاع شهري ثابت (Monthly fixed charge)
القطاع التجاري – فاتورة (Commercial Post-paid)	
0.6670	تعرفة مستوية (Flat tariff)
20	اقتطاع شهري ثابت (Monthly fixed charge)
القطاع التجاري - مسبق الدفع (Commercial Prepaid)	
0.6370	تعرفة مستوية (Flat tariff)
0	اقتطاع شهري ثابت (Monthly fixed charge)
القطاع الصناعي - الضغط المنخفض (Industrial Low Voltage)	
0.5366	تعرفة مستوية (Flat tariff)
30	اقتطاع شهري ثابت (Monthly fixed charge)
القطاع الصناعي - الضغط المتوسط (Industrial Medium Voltage)	
0.4866	تعرفة مستوية (Flat tariff)
120	اقتطاع شهري ثابت (Monthly fixed charge)
قطاع مضخات المياه (Water Pumps)	
0.5370	تعرفة مستوية (Flat tariff)
30	اقتطاع شهري ثابت (Monthly fixed charge)
القطاع الزراعي (Agricultural)	
0.4970	تعرفة مستوية (Flat tariff)
10	اقتطاع شهري ثابت (Monthly fixed charge)
قطاع انارة الشوارع (Street Lights)	
0.5030	تعرفة مستوية (Flat tariff)
10	اقتطاع شهري ثابت (Monthly fixed charge)
قطاع الخدمات المؤقتة- فاتورة (Services – Post-paid)	
0.8366	تعرفة مستوية (Flat tariff)

20	اقتطاع شهري ثابت (Monthly fixed charge)
قطاع الخدمات المؤقتة- مسبق الدفع (Services Prepaid)	
0.8366	تعرفة مستوية (Flat tariff)
10	اقتطاع شهري ثابت (Monthly fixed charge)