3. Summary of Activities 2 (Pilot Projects for Distribution)

(15) Financial & Economic Analysis 1

(1) Assumption and Condition

Project Period	Project Commissioning in 2013. 2years construction and 30years operation
Sales Energy	Growth rate up to 2013 for each area (Forecast): ✓ West Alex: 8.0% ✓ North Dakhalia: 11.2% ✓ El Helmya: 3.3%
Technical loss	Technical loss is increased in corresponding to the sales energy growth up to the commissioning, and; After the commissioning, technical loss will be maintained at the same level
Non-Technical loss	Non-technical loss will be maintained at the level in 2009
Benefit Estimation	Following benefits are estimated in 2013 basis, applying the above scenario. ✓ Decrease of electricity loss (GWh) by reduction of technical loss ✓ Decrease of electricity loss (GWh) by reduction of non-technical loss ✓ Increment of electricity sales (GWh) by reduction of outage duration, and; The estimated benefit in 2013 basis is assumed to sustain during the operation period. For the West Alex, sales energy growth up to 2020 is also considered due to the area's feature (newly developing area)
Tariff	Tariff is increased by 5% annually until 5th operational year (i.e. 2017).
O&M Cost & Spare Parts	O&M cost is not considered during operation period, since the O&M is needed in any case "With" or "Without" the project, and; Spare parts cost is considered.

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3. Summary of Activities 2 (Pilot Projects for Distribution)

(16) Financial & Economic Analysis 2

(1) Assumption and Condition (cont.)

■ Tariff & Purchase Price (Current)

	AEDC	NDEDC	NCEDC
Tariff averaged	0.138 LE/kWh (+3.415 cent/kWh)	0.264 LE/kWh (+3.709 cent/kWh)	0.2091LE/kWh (+3.636 cent/kWh)
Purchase Price averaged	0.119 LE/kWh (+2.164 cent/kWh)	0.146 LE/kWh (+2.655 cent/kWh)	0.149LE/kWh (+2.705 cent/kWh)

Note:
◆Exchange rate: 5.5LE/US$
◆Assumption: Tariff is increased by 5% annually until 5th operational year (i.e. 2017).

■ Project effect

	West Alex	North Dakhalia	El Helmya
Technical Loss Reduction	△44%	△28%	△41%
Non-Technical Loss Reduction	△70%	△70%	△35%
Reduction of outage duration	△ 115minutes	△340 minutes	△367 minutes
Note:			

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3. Summary of Activities 2 (Pilot Projects for Distribution)

(17) Financial & Economic Analysis 3

(2) Economic & Financial Evaluation (Model Study)

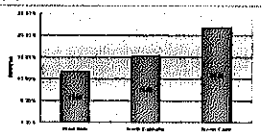

Fig.3(17)-1: EIRR

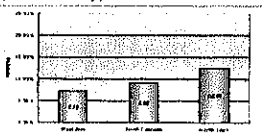

Fig.3(17)-2: FIRR

Project Cost (million US$)	101	130	172
EIRR	11.6%	15.2%	21.7%
FIRR	7.1%	9.0%	12.4%

Note:
◆ EIRR was calculated considering;
✓ Decrease of electricity loss by reduction of technical loss and saving the fuel consumption at gas thermal plant
The benefit was estimated applying the international fuel price (7US$/MMBTU)
✓ Decrease of electricity loss by reduction of non technical loss.
✓ Increment of electricity sales by reduction of outage duration
The benefit was estimated applying 2,000$/MWh with taking account of energy intensity
◆ FIRR was calculated considering;
✓ Decrease of electricity loss by reduction of technical loss.
✓ Decrease of electricity loss by reduction of non technical loss.
✓ Increment of electricity sales by reduction of outage duration
◆ For economic evaluation, tax and price escalation are excluded.
◆ For financial evaluation, price escalation and IDC are excluded.

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3. Summary of Activities 2 (Pilot Projects for Distribution)

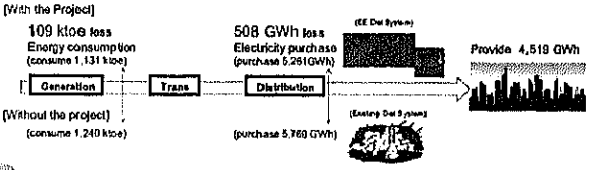
(18) Cont, Financial & Economic Analysis 4

■ Saving the fuel consumption at Thermal Plant (GAS) by reduction of Distribution losses

Return Period (Average yearly benefit)	8.0 years (13mil US$)	8.3 years (14mil US$)	7.0 year (24mil US$)
Decrease of electricity loss by reduction of technical loss	172 GWh/year	146 GWh/year	376 GWh/year

Note:
◆Equivalent Power Plant was calculated assuming 60% of Plant Factor.

<With and Without Comparison: The Case of Helmya (CNEDC) around the year 2013>



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10. Next Step

Given the very smooth procedures in the Egyptian and the Japanese side, the following schedule can be assumed as the fastest plan.

	2009	2010						
	12	1	2	3	4	5	6	7
Workshop	▼							
Final Report		(Construction) ▼						
GOE's request for the JP ODA loan			▼					
JICA's Appraisal (Incl. Study team support activities)								
Pledge							▼	
E/N, L/A								▼

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END

Thank you

Appendix 5:

Appendix 5.4 EEHC Project PP

IDENTIFICATION OF PROJECT SCOPE FOR DISTRIBUTION SECTOR UNDER JAPANESE ODA LOAN

March 2010

Japan International Cooperation Agency (JICA)

Tokyo Electric Power Services Co., Ltd. (TEPSCO)

1.PRINCIPALS FOR JAPANESE ODA LOAN PROJECT

- Conditions, amount for the Loan shall be decided between Government of A.R.E (GoE) and Government of Japan (GoJ) in later stage.
- Procurement shall be through competition basis, ICB (International Competitive Bidding) is recommended. Local preference is not accepted.
- All procedure of the project shall be followed to JICA's guidelines and sample documents; to have good consultant is recommended.

2.PRINCIPALS FOR PROCUREMENT/ CONTRACT LOT

- Making each lot large enough to attract a number of companies
- Avoiding a creation of large number of small amount lots
- Easy contract management

3.PRINCIPALES OF COST ESTIMATION

Cost shall cover the followings

- CIF basis to Alex port
- Inland Transportation
- Site installation
- Testing & Commissioning

In addition to the above, the followings shall also be considered:

- Consulting services
- Price escalations
- Contingencies

} To be discussed in later stage

In budget preparation stage, suitable margin to the cost shall be considered to avoid cost over run in implementation stage. Actual procurement will be made after a couple of years.

4.MAIN OBJECTIVES OF THE PROJECT

- To reduce Losses (Technical & Non-technical)
- Thus, contribute to the Cool Earth Partnership

5.GENERAL MEASURES TO TECHNICAL LOSSES

a. Augmentation of feeders and Distribution Points (DPs)
b. Upgrading to higher voltage
c. Addition of new feeders
d. Changing transformers to low loss type
e. Improving of LV phase unbalance
f. Balancing feeder loads
g. Improving power factor

6.GENERAL MEASURES TO NON-TECH LOSSES

a. Anti Theft
b. Metering and Billing
c. Collection of Tariff
d. Accounting
e. Integrated Information System
f. Total Management

7-1.PROPOSED PROJECT SCOPE FOR WEST ALEX

	General Measures	What to be done
a	Augmentation of feeders and Distribution Points (DPs)	– (Not applicable)
b	Upgrading to higher voltage	–
c	Addition of new feeders	–
d	Changing transformers to low loss type	①DT (Distribution Transformer) replacement
e	Improving of LV phase unbalance	②DMS (Distribution Management System)upgrading
f	Balancing feeder loads	②DMS upgrading
g	Improving power factor	④Capacitor installation (Controlled and monitored by DMS)
h	Non-technical loss	DMS and ③AMR (Auto Meter Reading)installation

7-2.PROPOSED PROJECT SCOPE FOR North Dakhalia (N-Delta)

	General Measures	What to be done
a	Augmentation of feeders and Distribution Points (DPs)	– (Not applicable)
b	Upgrading to higher voltage	–
c	Addition of new feeders	①Const. 11kV Feeders
d	Changing transformers to low loss type	②DT (Distribution Transformer) replacement
e	Shorting of LV feeder lengths	③Install small DTs
f	Balancing feeder loads	–
g	Improving power factor	④Capacitor installation (Controlled and monitored by DMS(Distribution Management System))
h	Non-technical loss	DMS and ⑤AMR (Auto Meter Reading) installation

7-3.PROPOSED PROJECT SCOPE FOR HELMYA (N-Cairo)

	General Measures	What to be done
a	Augmentation of feeders and Distribution Points (DPs)	– (Not applicable)
b	Upgrading to higher voltage	–
c	Addition of new feeders	–
d	Changing transformers to low loss type	①DT (Distribution Transformer) replacement
e	Improving of LV phase unbalance	②DMS (Distribution Management System)
f	Balancing feeder loads	②DMS (Distribution Management System)
g	Improving power factor	④Capacitor installation (Controlled and monitored by DMS)
h	Non-technical loss	DMS and ③AMR(Auto Meter Reading) installation

8.PROPOSED PROCUREMENT PACKAGE

- Full Turn Key basis for all proposed scope mentioned in item 7

- Participation of Joint Venture/ Consortium of Internationally Reputable Management Company, manufactures, local manufacturers and local construction companies is expected.

9-1.TOTAL PROJECT COST FOR WEST ALEX

Items	Foreign (MUS$)	Local (MUS$)
① DT replacement	30.0	3.0
② DMS upgrading	33.5	3.3
③ AMR installation	24.0	1.2
④Capacitor	5.6	0.4
⑤Anti-Theft	?	?
⑥Communication	Included in②	
Total	93.1	7.9

Cost for communication system upgrading shall be covered by DMS upgrading.

9-2.TOTAL PROJECT COST FOR North Dakhalia

Items	Foreign (MUS$)	Local (MUS$)
① Const. 11kV feeders	-	(50.2)
② DT replacement	10.2	1.1
③ Small DTs installation	3.2	0.3
④Capacitor and SVR installation	8.0	0.8
⑤AMR installation	74.0	7.4
⑥Anti-Theft	?	?
⑦Communication upg.	1.0	0.1
Total	96.4	9.7

9-3.TOTAL PROJECT COST FOR HELMIA NCEDC

Items	Foreign (MUS$)	Local (MUS$)
① DT replacement	32.0	3.2
② DMS upgrading	16.2	1.6
③ AMR installation	74.0	3.7
④Capacitor	17.4	0.7
⑤Communication upg.	7.0	0.7
⑥Anti-Theft	?	?
Total	146.6	9.9

9-4.TOTAL PROJECT COST

Items	Foreign (MUS$)	Local (MUS$)
① AEDC	93.1	7.9
② NDEDC	96.4	9.7
③ NCEDC	146.6	9.9
Total	336.1	27.5

Cost for anti-theft instrument should be added to the above.

In addition to the above, the followings are considered:

✓Training
✓Consulting Services
✓Escalation
✓Contingency

All details related to the cost shall be discussed and mutually agreed in later stage

10. Anti-Theft Measures

- AMR system can trace tapping and bypassing, if WHM has interfaced detector with radio wave device .
- Manual detection by using instruments such as "CableCop300" cable detection system is suggested. This System can detect the followings:
  - Location of lines in ceilings, walls and floors
  - Location of line interruptions, switches and fuses
  - Location of short circuits
  - Location of earth faults in three-phase systems
  - Detection of bottlenecks in conduits
  - Tracing of underground cables that are buried in the ground up to a depth of 3 m
  - Tracing of conduits, water and heating pipe lines Sorting of installed lines
- The cost is approx. US$1,500-2,000/ instrument.
- How many numbers of the instrument is required?

Road to Project Implementation

- Basic Design by Consultant (JICA will hire soon) and Appraisal Mission by JICA with further consideration (Apr - Jul, 2010)
- Request for Japanese ODA loan by GOE
- Governmental Dialogue and Commitment by GOJ (by Oct. 2010)
- Exchange of Note (E/N) between GOE and GOJ and Loan Agreement (L/A) (by Dec. 2010)
- Selection of Consultant (2011)
- Detailed Design, PQ, Tendering (2012)
- Commence the Project Implementation (2013)

END

Appendix 5:

Appendix 5.5 AEDC Project PP

IDENTIFICATION OF PROJECT SCOPE FOR DISTRIBUTION SECTOR IN AEDC UNDER JAPANESE ODA LOAN

February 2010

Japan International Cooperation Agency (JICA)

Tokyo Electric Power Services Co., Ltd. (TEPSCO)

1.PRINCIPALS FOR JAPANESE ODA LOAN PROJECT

- Conditions, amount for the Loan shall be decided between Government of A.R.E (GoE) and Government of Japan (GoJ) in later stage.
- Procurement shall be through competition basis, ICB (International Competitive Bidding) is recommended. Local preference is not accepted.
- All procedure of the project shall be followed to JICA's guidelines and sample documents; to have good consultant is recommended.

2.PRINCIPALS FOR PROCUREMENT/ CONTRACT LOT

- Making each lot large enough to attract a number of companies
- Avoiding a creation of large number of small amount lots
- Easy contract management

3.PRINCIPALES OF COST ESTIMATION

Cost shall cover the followings

- CIF basis to Alex port
- Inland Transportation
- Site installation
- Testing & Commissioning

In addition to the above, the followings shall also be considered:

- Consulting services
- Price escalations
- Contingencies

} *To be discussed in later stage*

In budget preparation stage, suitable margin to the cost shall be considered to avoid cost over run in implementation stage. Actual procurement will be made after a couple of years.

4.MAIN OBJECTIVES OF THE PROJECT

- To reduce Losses (Technical & Non-technical)
- Thus, contribute to the Cool Earth Partnership

5.GENERAL MEASURES TO TECHNICAL LOSSES

a. Augmentation of feeders and Distribution Points (DPs)
b. Upgrading to higher voltage
c. Addition of new feeders
d. Changing transformers to low loss type
e. Improving of LV phase unbalance
f. Balancing feeder loads
g. Improving power factor

6.GENERAL MEASURES TO NON-TECH LOSSES

a. Anti Theft
b. Metering and Billing
c. Collection of Tariff
d. Accounting
e. Integrated Information System
f. Total Management

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7.PROPOSED PROJECT SCOPE FOR WEST ALEX

	General Measures	What to be done
a	Augmentation of feeders and Distribution Points (DPs)	– (Not applicable)
b	Upgrading to higher voltage	–
c	Addition of new feeders	–
d	Changing transformers to low loss type	①DT (Distribution Transformer) replacement
e	Improving of LV phase unbalance	②DMS (Distribution Management System)upgrading
f	Balancing feeder loads	②DMS upgrading
g	Improving power factor	④Capacitor installation (Controlled and monitored by DMS)
h	Non-technical loss	DMS and ③AMR (Auto Meter Reading)installation

8

8.PROPOSED PROCUREMENT PACKAGE

- Full Turn Key basis for all proposed scope mentioned in item 7

- Participation of Joint Venture/ Consortium of Internationally Reputable Management Company, manufactures, local manufacturers and local construction companies is expected.

9

9.COMPONENT OF EACH PROJECT SCOPE ① DT Replacement

- 1,000KVA type
- 970@US$21,500=21MUS$ (budget basis for ICB)

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9.COMPONENT OF EACH PROJECT SCOPE ② DMS Upgrading

- DMS system (control center): hardware, software
- Replacing MRTU at distribution substation*8
- Installing RTU in Kiosk equipment*2,000
- RMU with automatic mechanism*600(new)+ 126(Modify)
- Total proposed cost=US$34 Million (budget basis for ICB)

Existing MRTU and RTU might be used. In case using the existing one, detailed examination is required before the project implementation. And responsibility of the contractors shall be cleared in advance.

Replacement is recommended.

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9.COMPONENT OF EACH PROJECT SCOPE ③ AMR installation

- Internationally acceptable WHM with standard communication devise, PT, CT and switch shall be procured.
- 200,000@US$120=24MUS$ (budget basis for ICB)

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9.COMPONENT OF EACH PROJECT SCOPE
④ Capacitor installation

- To improve power factor, reasonable numbers of Capacitor is recommended to be installed.
- 300K VAR @ 100 units and modification of existing one (175 units)
- 5.6MUS$ (budget basis for ICB)

9.COMPONENT OF EACH PROJECT SCOPE
⑤ Anti-Theft

- AMR system can trace tapping and bypassing, if WHM has interfaced detector with radio wave device .
- Manual detection by using instruments such as "CableCop300" cable detection system is suggested. This System can detect the followings:
  - Location of lines in ceilings, walls and floors
  - Location of line interruptions, switches and fuses
  - Location of short circuits
  - Location of earth faults in three-phase systems
  - Detection of bottlenecks in conduits
  - Tracing of underground cables that are buried in the ground up to a depth of 3 m
  - Tracing of conduits, water and heating pipe lines Sorting of installed lines
- The cost is approx. US$1,500-2,000/ instrument.
- How many numbers of the instrument is required?

9.COMPONENT OF EACH PROJECT SCOPE
TO INSTALL/UPGRADE DMS OR AMR.
COMMUNICATION SYSTEM SHALL BE PREPARED

- The communication system shall have capable for upgraded DMS
- This subject shall be discussed whether this shall be included to the Japanese ODA loan project or not
- Using optical fiber when adding or replacing power cable is recommended for underground network.
- Using optical fiber is recommended in order to secure reliability and stability. The leased line / GPRS is options (to be discussed).

10.TOTAL PROJECT COST FOR WEST ALEX

Items	Foreign (MUS$)	Local (MUS$)
① DT replacement	21.0	2.1
② DMS upgrading	33.5	3.3
③ AMR installation	24.0	1.2
④Capacitor	5.6	0.4
⑤Anti-Theft	?	?
Total	84.1	7.0

In addition to the above, the followings are considered:

✓Training
✓Consulting Services
✓Escalation
✓Contingency

All details related to the cost shall be discussed and mutually agreed in later stage

Road to Project Implementation

- Basic Design and Appraisal Mission by JICA with further consideration (Apr - Jul, 2010)
- Governmental Dialogue and Commitment by GOJ (by Oct. 2010)
- Exchange of Note (E/N) between GOE and GOJ and Loan Agreement (L/A) (by Dec. 2010)
- Selection of Consultant (2011)
- Detailed Design, PQ, Tendering (2012)
- Commence the Project Implementation (2013)

END

Appendix 5:

Appendix 5.6 NDEDC Project PP

IDENTIFICATION OF PROJECT SCOPE FOR DISTRIBUTION SECTOR IN North Delta DC UNDER JAPANESE ODA LOAN

February 2010

Japan International Cooperation Agency (JICA)

Tokyo Electric Power Services Co., Ltd. (TEPSCO)

1.PRINCIPALS FOR JAPANESE ODA LOAN PROJECT

- Conditions, amount for the Loan shall be decided between Government of A.R.E (GoE) and Government of Japan (GoJ) in later stage.
- Procurement shall be through competition basis, ICB (International Competitive Bidding) is recommended. Local preference is not accepted.
- All procedure of the project shall be followed to JICA's guidelines and sample documents; to have good consultant is recommended.

2

2.PRINCIPALS FOR PROCUREMENT/ CONTRACT LOT

- Making each lot large enough to attract a number of companies
- Avoiding a creation of large number of small amount lots
- Easy contract management

3

3.PRINCIPALES OF COST ESTIMATION

Cost shall cover the followings

- CIF basis to Alex port
- Inland Transportation
- Site installation
- Testing & Commissioning

In addition to the above, the followings shall also be considered:

- Consulting services
- Price escalations
- Contingencies

} To be discussed in later stage

In budget preparation stage, suitable margin to the cost shall be considered to avoid cost over run in implementation stage. Actual procurement will be made after a couple of years.

4

4.MAIN OBJECTIVES OF THE PROJECT

- To reduce Losses (Technical & Non-technical)
- Thus, contribute to the Cool Earth Partnership

6

5.GENERAL MEASURESTO TECHNICAL LOSSES

a. Augmentation of feeders and Distribution Points (DPs)
b. Improving of voltage-drop
c. Addition of new feeders
d. Changing transformers to low loss type
e. Shortening of LV feeder lengths
f. Balancing feeder loads
g. Improving power factor

8

6.GENERAL MEASURES TO NON-TECH LOSSES

a. Anti Theft
b. Metering and Billing
c. Collection of tariff
d. Accounting
e. Integrated Information System
f. Total Management

7.PROPOSED PROJECT SCOPE FOR North Dakhalia

	General Measures	What to be done
a	Augmentation of feeders and Distribution Points (DPs)	– (Not applicable)
b	Upgrading to higher voltage	–
c	Addition of new feeders	①Const. 11kV Feeders
d	Changing transformers to low loss type	②DT (Distribution Transformer) replacement
e	Shorting of LV feeder lengths	③Install small DTs
f	Balancing feeder loads	–
g	Improving power factor	④Capacitor installation (Controlled and monitored by DMS(Distribution Management System))
h	Non-technical loss	DMS and ⑤AMR (Auto Meter Reading) installation

8.PROPOSED PROCUREMENT PACKAGE

- Full Turn Key basis for all proposed scope mentioned in item 7

- Participation of Joint Venture/ Consortium of Internationally Reputable Management Company, manufactures, local manufacturers and local construction companies is expected.

9.COMPONENT OF EACH PROJECT SCOPE
① Construction of 11kV feeders

- UG: 60 feeders
- OH: 80 feeders
- 60*0.3*5.1=91.8MLE/5.5=16.7MUS$
- 80*0.13*17.7=184.08MLE/5.5=33.5MUS$
- Total: US$ 50.2M
- This can be done by Egyptian side. Accordingly excluding form ODA loan project .

9.COMPONENT OF EACH PROJECT SCOPE
② DT Replacement

- 500KVA
- 600@US$14,600=US$ 8.8M
- Total: US$ 8.8M (budget basis for ICB)

9.COMPONENT OF EACH PROJECT SCOPE
③Small DT for shortening LV lines

- 50kVA type @ 200 = US$ 2.9M
- Total US$ 2.9M (budget basis for ICB)

9.COMPONENT OF EACH PROJECT SCOPE
④ Capacitor and SVR installation

- To improve power factor, reasonable numbers of Capacitor is recommended to be installed.
- 300K VAR Capacitor @ 70 = 3.5MUS$
- To secure voltage drop, SVR is required.
- 500kVA type @ 150 = US$ 3.6M
- Total: US$ 7.10M (budget basis for ICB)

9.COMPONENT OF EACH PROJECT SCOPE
⑤ AMR installation

- Internationally acceptable WHM with communication devise, PT, CT and switch shall be procured.
- 500,000@US$120=60MUS$ (budget basis for ICB)

9.COMPONENT OF EACH PROJECT SCOPE
⑥ Anti-Theft

- AMR system can trace tapping and bypassing, if WHM has interfaced detector with radio wave device .
- Manual detection by using instruments such as "CableCop300" cable detection system is suggested. This System can detect the followings:
  - Location of lines in ceilings, walls and floors
  - Location of line interruptions, switches and fuses
  - Location of short circuits
  - Location of earth faults in three-phase systems
  - Detection of bottlenecks in conduits
  - *Tracing of undergrounf cables that are buried in the ground up to a depth of 3 m*
  - Tracing of conduits, water and heating pipe lines Sorting of installed lines
- The cost is approx. US$1,500-2,000/ instrument.
- How many numbers of the instrument is required?

9.COMPONENT OF EACH PROJECT SCOPE
Upgrading Communication Systems

To Install AMR, Upgrading/Renovating Communication System is Required

- The communication system shall be capable for AMR
- This subject shall be discussed whether this shall be included to this Japanese ODA loan project or not
- Installing optical fiber when adding new cable or replacing old power cable to new one is recommended for underground network.
- Using optical fiber is recommended in order to secure reliability and stability. The leased line / GPRS is options (to be discussed).
- As for communication method for AMR, it is important to consider the operational cost of GPRS, that will not be cheap since your company must continuously pay connection fee to the telephone company.

10.TOTAL PROJECT COST FOR North Dakhalia

Items	*Foreign* (MUS$)	*Local* (MUS$)
① Const. 11kV feeders	-	(50.2)
② DT replacement	8.8	0.8
③ Small DTs installation	2.9	0.3
④Capacitor and SVR installation	7.1	0.7
⑤AMR installation	60.0	6.0
⑥Anti-Theft	?	?
Total	78.8	16.9 +(50.2)

In addition to the above, the followings are considered:

✓Training
✓Consulting Services
✓Escalation
✓Contingency

All details related to the cost shall be discussed and *mutually agreed in* later stage

Road to Project Implementation

- Basic Design and Appraisal Mission by JICA with further consideration (Apr - Jul, 2010)
- Governmental Dialogue and Commitment by GOJ (by Oct. 2010)
- Exchange of Note (E/N) between GOE and GOJ and Loan Agreement (L/A) (by Dec. 2010)
- Selection of Consultant (2011)
- Detailed Design, PQ, Tendering (2012)
- Commence the Project Implementation (2013)

END

Appendix 5:

Appendix 5.7 NCEDC Project PP

IDENTIFICATION OF PROJECT SCOPE FOR DISTRIBUTION SECTOR IN North Cairo DC UNDER JAPANESE ODA LOAN

February 2010

Japan International Cooperation Agency (JICA)

Tokyo Electric Power Services Co., Ltd. (TEPSCO)

1.PRINCIPALS FOR JAPANESE ODA LOAN PROJECT

- Conditions, amount for the Loan shall be decided between Government of A.R.E (GoE) and Government of Japan (GoJ) in later stage.
- Procurement shall be through competition basis, ICB (International Competitive Bidding) is recommended. Local preference is not accepted.
- All procedure of the project shall be followed to JICA's guidelines and sample documents; to have good consultant is recommended.

2.PRINCIPALS FOR PROCUREMENT/ CONTRACT LOT

- Making each lot large enough to attract a number of companies
- Avoiding a creation of large number of small amount lots
- Easy contract management

3.PRINCIPALES OF COST ESTIMATION

Cost shall cover the followings

- *CIF basis to Alex port or other nearest port*
- Inland Transportation
- Site installation
- Testing & Commissioning

In addition to the above, the followings shall also be considered:

- Consulting services
- *Price escalations*
- Contingencies

} To be discussed in later stage

In budget preparation stage, suitable margin to the cost shall be considered to avoid cost over run in implementation stage. Actual procurement will be made after a couple of years.

4.MAIN OBJECTIVES OF THE PROJECT

- To reduce Losses (Technical & Non-technical)
- Thus, contribute to the Cool Earth Partnership

5.GENERAL MEASURES TO TECHNICAL LOSSES

a. Augmentation of feeders and Distribution Points (DPs)
b. Upgrading to higher voltage
c. Addition of new feeders
d. *Changing transformers to low loss type*
e. Improving of LV phase unbalance
f. Balancing feeder loads
g. Improving power factor

6.GENERAL MEASURES TO NON-TECH LOSSES

a. Anti Theft
b. Metering and Billing
c. Collection of tariff
d. Accounting
e. Integrated Information System
f. Total Management

7.PROPOSED PROJECT SCOPE FOR HELMYA

	General Measures	What to be done
a	Augmentation of feeders and Distribution Points (DPs)	– (Not applicable)
b	Upgrading to higher voltage	–
c	Addition of new feeders	–
d	Changing transformers to low loss type	①DT (Distribution Transformer) replacement
e	Improving of LV phase unbalance	②DMS (Distribution Management System)
f	Balancing feeder loads	②DMS (Distribution Management System)
g	Improving power factor	④Capacitor installation (Controlled and monitored by *DMS*)
h	Non-technical loss	DMS and ③AMR(Auto Meter Reading) installation

8.PROPOSED PROCUREMENT PACKAGE

- Full Turn Key basis for all proposed scope mentioned in item 7

- Participation of Joint Venture/ Consortium of Internationally Reputable Management Company, manufactures, local manufacturers and local construction companies is expected.

9.COMPONENT OF EACH PROJECT SCOPE
① DT Replacement

- 1,000KVA type
- 1500@US$21,500=32MUS$ (budget basis for ICB)

9.COMPONENT OF EACH PROJECT SCOPE
② DMS upgrading

- DMS system (control center): hardware, software
- Distribution substation (MRTU)*14 SS
- Installing RTU in Kiosk equipment*2280
- Modification of existing manual SW in Kiosk*1400
- Total proposed cost=US$16.2 Million (budget basis for ICB)

9.COMPONENT OF EACH PROJECT SCOPE
③ AMR installation

- Internationally acceptable WHM with communication devise, PT, CT and switch shall be procured.
- 600,000@US$120=72.0MUS$ (budget basis for ICB)

9.COMPONENT OF EACH PROJECT SCOPE
④ Capacitor installation

- To improve power factor, reasonable numbers of Capacitor is recommended to be installed.
- 300K VAR @ 424 units and modification of existing one (42 units)
- 17.4MUS$ (budget basis for ICB)

9.COMPONENT OF EACH PROJECT SCOPE
⑤ Anti-Theft

- AMR system can trace tapping and bypassing, if WHM has interfaced detector with radio wave device .
- Manual detection by using instruments such as "CableCop300" cable detection system is suggested. This System can detect the followings:
  - *Location of lines in ceilings, walls and floors*
  - Location of line interruptions, switches and fuses
  - Location of short circuits
  - Location of earth faults in three-phase systems
  - Detection of bottlenecks in conduits
  - Tracing of underground cables that are buried in the ground up to a depth of 3 m
  - Tracing of conduits, water and heating pipe lines Sorting of installed lines
- The cost is approx. US$1,500-2,000/ instrument.
- How many numbers of the instrument is required?

9.COMPONENT OF EACH PROJECT SCOPE
Upgrading Communication Systems

To Install/Upgrade DMS or AMR, Upgrading/Renovating Communication System is Required

- The communication system shall be capable for upgraded DMS
- This subject shall be discussed whether this shall be included to this Japanese ODA loan project or not
- Installing optical fiber when adding new cable or replacing old power cable to new one is recommended for underground network.
- Using optical fiber is recommended in order to secure reliability and stability. The leased line / GPRS is options (to be discussed).

10.TOTAL PROJECT COST FOR HELMIA NCEDC

Items	Foreign (MUS$)	Local (MUS$)
① DT replacement	32.7	3.2
② DMS upgrading	16.2	1.6
③ AMR installation	72.0	3.6
④Capacitor	17.4	0.7
⑤Anti-Theft	?	?
Total	138.3	9.1

In addition to the above, the followings are considered:

✓Training
✓Consulting Services
✓Escalation
✓Contingency

All details related to the cost shall be discussed and mutually agreed in later stage

Road to Project Implementation

- Basic Design and Appraisal Mission by JICA with further consideration (Apr - Jul, 2010)
- Governmental Dialogue and Commitment by GOJ (by Oct. 2010)
- Exchange of Note (E/N) between GOE and GOJ and Loan Agreement (L/A) (by Dec. 2010)
- Selection of Consultant (2011)
- Detailed Design, PQ, Tendering (2012)
- Commence the Project Implementation (2013)

END

Appendix 5:

Appendix 5.8-1 Minute of Meeting - AEDC Project

Appendix 5.8-1 Minute of Meeting - AEDC Project

Minutes of Meeting
Follow-up for Energy Efficiency Study in Egyptian Power Sector conducted by JICA

Date: February 21, 2010
Venue: Alexandria Electricity Distribution Company (AEDC) meeting room
Attendance: as attached
Purpose: To re-confirm project scope and those costs

JICA follow-up team (TEPSCO, EPS) made a presentation based on attached power points.
During the presentation, AEDC and the follow-up team discussed and concluded as follows:
[Project scope and cost issues]

1. Cost of Distribution Transformer shall be revised to 30MUS$ in total considering current market price with some margin for implementation.
2. Upgrading existing communication shall be included to the project scope. Currently AEDC has a plan for the upgrading to 5 channels with digital radio wave system (UHF). The cost shall be covered/ included by cost for DMS upgrading.
3. Numbers of instruments for Anti-Theft to be applied shall be decided after consultation with Dr. Awad, EEHC chairman.
4. Other than the above, AEDC has no objection to the presentation contents. Accordingly, the project scope and cost is summarized as below:

Items	Foreign (MUS$)	Local (MUS$)
① DT replacement	30.0	3.0
② DMS upgrading	33.5	3.3
③ AMR installation	24.0	1.2
④Capacitor	5.6	0.4
⑤Anti-Theft	?	?
⑥Communication	Included in②	Included in ②
Total	93.1	7.9

[Special Notes]
AEDC expressed its intension/willingness that total schedule until project implementation shall be minimized in order to avoid situation changes.

S. Komatsuzaki (TEPSCO)

T. Hadi
AEDC

(End)

AEDC headquarter 21st Feb, 2010

Attendee:

1-	Nazineh Gamal EL-Din Eassa	Deputy chairmain for Technical Affairs
2-	Abdel salame Mostafa Mohamed	head sector projects
3-	Mohamed ELhussiany Aly	chairman Technical office
4-	gaylan Salah EL Hawary	Manager of syste Manager comm.
5-	Mohammed Abd ElMonem	Net work Vice President.
6-	Mahmoud Barakat	Hard ware Manager Supervisor control Center
7-	Ata Rezkalla	Manager Accoment
8-	Galal Sayed Ahmed	Galal Sayed
9-	Nagy ABD El Messeeh	Operation head Sector
10)	Mohsen Fattoh	Gereral Manger of Control Centers
11)	Wadia Elshenawi	head of meter sector
12)	Reda Mohamed Hasan	general manger of meters
13)	Takuro Tukeuchi	JICA
14)	Mayada Magdy	"
15)	Shigeru Komatsuzaki	TEPSCO
16)	Ibrahim Mad.	chairman
17)	Waheed Elnageem	EES
18)	Amina [illegible]	[illegible]

Appendix 5:

Appendix 5.8-2 Minute of Meeting - NDEDC Project

Appendix 5.8-2 Minute of Meeting - NDEDC Project

Minutes of Meeting
for
Follow-up
for
Energy Efficiency Study in Egyptian Power Sector conducted by JICA

Date: February 23, 2010
Venue: North Delta Electricity Distribution Company (NDEDC) meeting room
Attendance: as attached
Purpose: To re-confirm project scope and those costs

JICA follow-up team (TEPSCO, EPS) made a presentation based on attached power points.
During the presentation, NDEDC and the follow-up team discussed and concluded as follows:
[Project scope and cost issues]

1. Extension/Construction of 11kV feeders shall be excluded from Japanese ODA loan project.
2. Cost of Distribution Transformer shall be revised to 10.2MUS$ in total considering current market price with some margin for implementation.
3. Small Distribution Transformer shall be 100kVA type and cost shall be revised to 3.2MUS$ in total.
4. Cost of Capacitor and SVR shall be revised to 8.0MUS$ in total considering current market price with some margin for implementation.
5. AMR installation sites shall be 600,000 and the cost shall be revised to 72.0MUS$ in total. In addition to the cost, cost for the system shall be considered as 2.0MUS$. Accordingly, the total cost for AMR system shall be 74.0MUS$.
6. Upgrading existing communication shall be included to the project scope. Current NDEDC's communication system is 8 channels of analogue radio wave system (VHF). This should be upgraded to the digital type as minimum. The cost of the upgrading shall be considered to the loan as 1.0MUS$.
7. NDEDC would like to have Anti-Theft instrument, but numbers of the instruments shall be decided after consultation with Dr. Awad, EEHC chairman.

A.MMA
Madeeh · Abdu
M Samir
eng · A · Ammar
Saeed Wahba
Eng- Mah Said

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8. Other than the above, NDEDC has no objection to the presentation contents. Accordingly, the project scope and cost is summarized as below:

Items	Foreign (MUS$)	Local (MUS$)
① Const. 11kV feeders	-	-
② DT replacement	10.2	1.1
③ Small DTs installation	3.2	0.3
④Capacitor and SVR installation	8.0	0.8
⑤AMR system installation	74.0	7.4
⑥Anti-Theft	?	?
⑦Communication upgrading	1.0	0.1
Total	96.4	9.7

(End)

(for NDEDC)
Saeed Wahdan
Eng. Mahmoud Said
Eng. A.MMA
MADeeh .Abdo
Eng. A/Mamoun
M. BAKR

(for TEPSCO)

(for EPS)

* Eng. Mohamed Ali Bakr chairman of North Delta elec. dist. Company
1- Eng. ELsaeed Wahdan general manager of studies & development
2- Eng. AbdElroof Thany Amamou P.C
3. Eng. AbdelAziz M. AbdelAal Chief of control, protection and Communication Sector.
3 Eng. Mohamed said Abdel Kader general manager of protection

4 - Eng. Madeeh. Abd. Fattah. general manager T. Affai North Dalkalic

5. Eng. Mohamed samir Abd-El Razek. (Tech. Affairs. Dept.)

6- Waheed El hagaan EPS
7- Mona Gazy EPS
8 Shigeru Komatsuzaki TEPSCO
9 Takuro Takeuchi JICA

Appendix 5:

Appendix 5.8-3 Minute of Meeting - NCEDC Project

Appendix 5.8-3 Minute of Meeting - NCEDC Project

Minutes of Meeting for
Follow-up for Energy Efficiency Study in Egyptian Power Sector conducted by JICA

Date: February 24, 2010
Venue: North Cairo Electricity Distribution Company (NCEDC) meeting room
Attendance: as attached
Purpose: To re-confirm project scope and those costs

JICA follow-up team (TEPSCO, EPS) made a presentation based on attached power points.
During the presentation, NCEDC and the follow-up team discussed and concluded as follows:
[Project scope and cost issues]

1. Regarding AMR system, in addition to the cost of AWHM (Advanced Watt Hour Meter) installation, cost for the system shall be considered as 2.0MUS$. Accordingly, the total cost for AMR system shall be 74.0MUS$.
2. Upgrading existing communication shall be included to the project scope. Current NCEDC's communication system is analogue radio wave system, UHF (for Cairo East area 4 channels are available while Helmya area 2 channel are available). In part of Shobra area, currently communication system by using GPRS is being established by Korea support as a pilot project. The cost of communication system shall cover upgrading from analog to the digital type with increasing number of channel as well as GPRS. The cost of the upgrading shall be considered to the loan as 7.0MUS$. However, communication upgrading method shall be decided in detailed design stage in consideration of site situation (after carrying out site investigation).
3. NCEDC would like to have Anti-Theft instrument, but numbers of the instruments shall be decided after consultation with Dr. Awad, EEHC chairman.
4. Other than the above, NCEDC has no objection to the presentation contents. Accordingly, the project scope and cost is summarized as below:

Items	Foreign (MUS$)	Local (MUS$)
① DT replacement	32.0	3.2
② DMS upgrading	16.2	1.6
③ AMR installation	74.0	3.7
④Capacitor	17.4	0.7
⑤Communication upgrading	7.0	0.7
⑥Anti-Theft	?	?
Total	146.6	9.9

EPS

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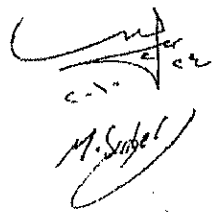
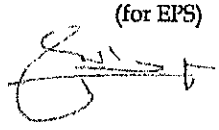
[Other issues]

1. NCEDC would like to know how consultant is hired. The follow-up team made brief in line with JICA's rule and guidelines.
2. NCEDC would like to have JICA's guidelines, sample documents and other related documents to the project. The follow-up team promised to convey this message to JICA.

(End)

(for NCEDC) (for TEPSCO) (for EPS)





NCEDC 24 Feb., 2010

Eng. Mohamed Abdel Sadek Haleby (NCEDC) North Cairo Electricity D.C.
Eng.: Samia Ahmed Abou Hegga (NCEDC)
" : Salah Ibrahim El Ashmawy (")
Eng: Mead Mohamed Aly (NCEDC)
Waheed El Hageen EPS
Ms. Mayada Magdy JICA
Mr. Takuro Takeuchi JICA
Shigeru Komatsuzaki TEPSCO
Eng. Ahmed Mahmoud Abdel Samed NCEDC
Eng. Ahmed Hafiz Ahmed Hafiz NCEDC