AFRICAN DEVELOPMENT BANK GROUP

PROJECT COMPLETION REPORT

OF

P-EG-FAA-012

El-Kureimat 750 MW Combined Cycle Power Plant Project

(Kureimat 3)

Energy, Environment and Climate Change Department (ONEC)

February 2013

COMPLETION REPORT of PROJECT P-EG-FAA-012

A. PROJECT DATA AND KEY DATES

I. BASIC INFORMATION

Project Number	Project Name	Country (ies)	
P-EG-FAA-012	El-Kureimat 750 MW Combined Cycle Power Plant Project	Arab Republic of Egypt	
ID Number of all Lending Instrument(s)		Department	Environmental Classification
2000120000570		ONEC	Category I
Original Commitment Amount	Amount Cancelled	Amount Disbursed	Percent Disbursed
Euro 175,910,000	Euro 1,752,625.28	Euro 174,157,375	99.0%
Borrower			
Government of Egypt (GoE)			
Executing Agency(ies)			
Upper Egypt Electricity Production Company (UEEPC) / Egyptian Electricity Holding Company (EEHC)			
Co-financers and other External Partners			
Upper Egypt Electricity Production Company (UEEPC): Euro 175.54 million			

II. KEY DATES

Project Concept Note Cleared by Ops. Com.	Appraisal Report Cleared	Board Approval
NA	22 April 2005	27 July 2005
Restructuring(s)		
NA		

	Original Date *MM/DD/YY*	Actual Date *MM/DD/YY*	Difference in months
EFFECTIVENESS	02/07/06	11/06/06	9.1
MID-TERM REVIEW	NA	NA	NA
CLOSING	12/31/10	For ongoing projects enter date of 98% disb. rate 06/30/12	18.2

III. RATINGS SUMMARY

CRITERIA	SUB-CRITERIA	RATING
PROJECT OUTCOME	Achievement of Outputs	4
	Achievement of Outcomes	3
	Timeliness	3
	OVERALL PROJECT OUTCOME *[Score is calculated as an average of the ratings]*	3
BANK PERFORMANCE	Design and Readiness	4
	Supervision	3
	OVERALL BANK PERFORMANCE *[Score is calculated as an average of the ratings]*	4
BORROWER PERFORMANCE	Design and Readiness	4
	Implementation	2
	OVERALL BORROWER PERFORMANCE *[Score is calculated as an average of the ratings]*	3

IV. RESPONSIBLE BANK STAFF

POSITIONS	AT APPROVAL	AT COMPLETION
Regional Director		Mr. Jacob KOLSTER
Sector Director	Mr. A. Rakotobe	Ms. Hela CHEIKHROUHOU
Sector Manager	Mr. N. Matondo-Fundani	Mr. Engedasew NEGASH HABTEMICHAEL
Task Manager	Mr. Bizuneh Fikru	Mr. Khaled EL-ASKARI
PCR Team Leader		Mr. Khaled EL-ASKARI
PCR Team Members		Ms. Tanja FALLER Ms. Eloise FLUET Mr. Ayman ALGINDY Ms. Amira SOBHI

B. PROJECT CONTEXT

Summarize the rationale for Bank assistance. State:

-what development challenge the project addresses,
-the Borrower's overall strategy for addressing it,
-Bank activities in this country (ies) and sector over the past year and how they performed, and
-ongoing Bank and other externally financed activities that complement, overlap with or relate to this project.

Please cite relevant sources. Comment on the strength and coherence of the rationale.

[250 words maximum. Any additional narrative about the project's origins and history, if needed, must be placed in Annex 6: Project Narrative]

The power sector in Egypt has achieved remarkable progress with access to electricity being almost universal throughout the whole country. Demand for electricity was increasing at a rate of 7 – 8% per year owing to rapid annual GDP growth, population increase and shift towards urbanization. Due to the important catalytic role that the sector plays in furthering economic development and social advancement in Egypt, the government put the expansion and reinforcement of the power infrastructure among its top priorities within the fifth National Development Plan (2002 – 2007). In this regard, the Egyptian Electricity Holding Company (EEHC) developed a power generation expansion plan in order to provide the country with sufficient resources to accommodate the expected increase in demand for electricity and maintain the 99% access level. The plan aimed at adding 7000 MW of new generation capacity by 2012, including the Kureimat 3 Power Plant Project. With a capacity of 750 MW, Kureimat 3 was planned to contribute 10.7% of the total targeted capacity increase. Although the Kureimat project itself was financed by the Bank and government only, the generation plan was supported by other development partners including the World Bank, European Investment Bank (EIB), Islamic Development Bank, and the Kuwaiti and Arab Funds, among others. The government (EEHC) provided about 40% of the plan's total investment cost, whereas the rest was provided by the development partners.

The Kureimat 3 project was a continuation of the Bank's long fruitful cooperation with the energy sector in Egypt, which by 2004 (just prior to Kureimat) resulted in increasing the generation capacity by 31% and connecting three towns and close to 200 villages. Currently, the Bank is co-financing three other power generation projects in Egypt with a cumulative commitment of about $1.2 billion. When completed, they will contribute about 26% of the 12,400 MW total generation capacity increase targeted by 2017. Furthermore, the Bank is helping Egypt's energy sector in terms of 'green growth' by supporting two wind and solar energy projects, for which the Bank is mobilizing CTF resources to the sum of $100 million. In collaboration with other development partners, the Bank continues to build on its fruitful cooperation with the energy sector in Egypt to ensure sustainable economic development for the benefit of all Egyptians.

C. PROJECT OBJECTIVES AND LOGICAL FRAMEWORK

1. State the Project Development Objective(s) (as set out in the appraisal report)

The objective of the project was to increase the power generation capacity in the Egyptian national grid to partly meet the electricity demand in the short-to-medium term. The project was to contribute towards making available sufficient and reliable power to the various consumers including the households, agriculture, business and industries to improve the quality of life of the population and promote economic growth. It was to contribute to GDP growth, which was forecast to increase by an average of 5-6% per annum between 2005/06 and 2008/09.

2. Describe the major project components and indicate how each will contribute to achieving the Project Development Objective(s).

The project comprises the following main components:

A) Construction of 750 MW combined cycle power plant (Kureimat 3): this component involves the supply and installation of two gas turbines (2x250 MW), two heat recovery steam generators and one steam turbine generator

(1x250 MW) together with their accessories and the necessary civil works, in the complex of El-Kureimat Power Plant, about 90 km south of Cairo. The electricity generated by this new power plant is fed into the national grid; hence is made available to various types of consumers nationwide. The project contributed 10.71% of the 7000 MW targeted additional capacity to meet the anticipated demand for electricity.

B) Environmental monitoring: this component involves the supply and installation of environmental monitoring equipment at the project site to ensure compliance with environmental standards both at the construction stage and subsequently during operation. The importance of this component is to ensure that the project causes minimum environmental impacts and therefore contributes to sustainable development.

C) Project wrap-up insurance: this component aims at reducing some of the risks associated with project construction, start-up, testing and commissioning by providing insurance against such risks. In fact, this component proved to be vital for this particular project since it contributed to covering part of the costs of overcoming the technical problem that was encountered during project testing and commissioning.

D) Project management: this component supports the project executing agency through the provision of the services of an international engineering consultant to help in the design, construction supervision and overall project management to ensure successful and timely completion of the project.

3. Provide a brief assessment (up to two sentences) of the project objectives along the following 3 dimensions. Insert a working score, using the scoring scale provided in Appendix 1.

PROJECT OBJECTIVES DIMENSIONS		ASSESSMENT	WORKING SCORE
RELEVANT	a) Relevant to the country's development priorities	The project is very relevant to the country's development priorities as it helps provide the infrastructure necessary to support economic development and social advancement.	4
ACHIEVABLE	b) Objectives could in principle be achieved with the project inputs and in the expected timeframe	Although the design of the project draws lessons from previous similar projects, including non-Bank financed, the project suffered from cost overruns due to unforeseen market changes which significantly increased the cost of material and equipment. It also had some delays during the testing and commissioning stage due to technical problems, which were partially exacerbated by the Egyptian revolution starting early 2011.	3
CONSISTENT	c) Consistent with the Bank's country or regional strategy	The project overlapped two Bank's country strategies for Egypt; the 2005 CSP Update and the subsequent 2007-2011) full CSP. Both CSPs focused, among others, on improving physical infrastructure, including the expansion of public utilities such as the electricity infrastructure, as pre-requisites for economic development. The CSPs were aligned with the country's 5th (2002-2007) and 6th (2007-2012) National Development Plans; hence the project was consistent with both.	4
	d) Consistent with the Bank's corporate priorities	The Bank's first Strategic Plan (2003-2007) was built around four core objectives including the support to productivity growth and poverty reduction. At country levels, although strategic priorities were agriculture and rural development, water and sanitation; private sector and infrastructure development were also targeted,	4

		albeit at a lower priority. Nonetheless, the Bank's MTS (2008-2012) placed clearer emphasis on directing a significant proportion of its commitments to infrastructure, including power.	

4. Summarize the log. frame. If a log. frame does not exist, complete the table below, indicating the overall project development objective, the major components of the project, the major activities of each component and their expected outputs, outcomes, and indicators for measuring the achievement of outcomes. Add additional rows for components, activities, outputs or outcomes if needed.

COMPONENTS	ACTIVITIES	OUTPUTS	EXPECTED OUTCOMES	INDICATORS TO BE MEASURED
A) Construction of 750 MW combined cycle power plant	Construction of civil works	Civil works constructed	The project contributes 750 MW to the grid-connected installed capacity by June 2009. The grid-connected installed generation capacity increases from 18,369 MW in 2003/04 to 26,064 MW by June 2009. The project contributes to increased electricity supply to the grid by 4,843 GWh per year starting June 2009. National electricity generation capability increases from 94,067 GWh in 2003/04 to 134,803 GWh by June 2009.	Total nameplate capacity of the project's installed equipment. Growth in grid-connected installed capacity. Annual net energy generation by the project. Growth in annual net energy generation.
	Installation of Gas Turbine Generators	2x250MW Gas Turbine Generators installed		
	Installation of Steam Turbine Generator	1x250MW Steam Turbine Generator installed		
	Installation of Heat Recovery Steam Generators	Two Heat Recovery Steam Generators installed		
	Construction of 500 kV Switchyard	500 kV Switchyard constructed	Number of consumers connected to the national grid increase from 20 million in 2003/04 to 24 million in 2009.	Growth in number of consumers
B) Environmental monitoring	Installation of environmental monitoring instruments in project site	Environmental monitoring instruments installed	Environmental and social safeguards are observed	Environmental/social incidents and related complaints
C) Project wrap-up insurance	Conclusion of contract for project wrap-up insurance	Wrap-up insurance contract signed before construction	Project construction completed successfully	Incidents requiring insurance coverage
D) Project management	Recruitment of international engineering consultant	Engineering consultant recruited	Timely and effective project implementation	Technical problems faced during implementation. Actual project implementation

				schedule.

5. For each dimension of the log. frame, provide a brief assessment (up to two sentences) of the extent to which the log. frame achieved the following. Insert a working score, using the scoring scale provided in Appendix 1. If no log. frame exists, score this section as a 1 (one).

LOG. FRAME DIMENSIONS		ASSESSMENT	WORKING SCORE
LOGICAL	a) Presents a logical causal chain for achieving the project development objectives	The project outputs, outcomes and developmental objectives are linked in a logical way.	4
MEASURABLE	b) Expresses objectives and outcomes in a way that is measurable and quantifiable	All objectives and outcomes used in the log frame are measurable using data that is routinely collected by various government institutions.	4
THOROUGH	c) States the risks and key assumptions	Some of the risks indicated are not directly related to the expected project outcomes, but rather relate more to the power sector at large.	3

D. OUTPUTS AND OUTCOMES

I. ACHIEVEMENT OF OUTPUTS

In the table below, assess the achievement of actual vs. expected outputs for each major activity. Import the expected outputs from the log. frame in Section C. Score the extent to which the expected outputs were achieved. Weight the scores by the activities' approximate share of project costs. Weighted scores are auto-calculated by the computer. The overall output score must be calculated as the sum of the weighted scores. Override the calculated score, if desired, and provide justification.

MAJOR ACTIVITIES		Working Score	Share of Project Costs in percentage (as stated in Appraisal Report)	Weighted Score
Expected Outputs	Actual Outputs			
A1) Civil works constructed	All the civil works for the project have been constructed	4	13.4	0.536
A2) 2x250MW Gas Turbine Generators installed	2x250MW Gas Turbine Generators installed	4	37.6	1.504
A3) 1x250MW Steam Turbine Generator installed	1x250MW Steam Turbine Generator installed	4	20.1	0.804
A4) Two Heat Recovery Steam Generators installed	Two Heat Recovery Steam Generators installed	4	15.7	0.628
A5) 500 kV Switchyard constructed	Expansion of existing 220 kV switchyard done instead for cost efficiency	4	5.7	0.228
B) Environmental monitoring instruments installed	All targeted environmental monitoring instruments have been installed	3	0.4	0.012
C) Wrap-up insurance contract signed before construction	Wrap-up insurance contract was signed in Dec 2006	4	0.9	0.036
D) Engineering consultant recruited	Engineering consultant was recruited in Sep 2005	4	6.3	0.252
			OVERALL OUTPUT SCORE [Score is calculated as the sum of weighted scores]	4

Check here to override the calculated score

Provide justification for over-riding the calculated score	
Insert the new score or re-enter the calculated score	4

II. ACHIEVEMENT OF OUTCOMES

1. Using available monitoring data, assess the achievement of expected outcomes. Import the expected outcomes from the log. frame in Section C. Score the extent to which the expected outcomes were achieved. The overall outcome score must be calculated as an average of the working scores. Override the calculated score, if desired, and provide justification.

OUTCOMES		Working Score
Expected	Actual	
1) The project contributes 750 MW to the grid-connected installed capacity by June 2009.	The project was able to contribute only 500 MW (simple cycle) to the grid capacity by June 2009 (66.67% achievement). The full 750 MW became available in August 2011 (representing 10.7% of the total increase targeted by 2012).	3
2) The grid-connected installed generation capacity increases from 18,369 MW in 2003/04 to 26,064 MW by June 2009.	The grid-connected installed generation capacity increased to 23,502 MW by June 2009 (90% achievement), but reached 27,049 MW in 2011 when the project was fully operational.	3
3) The project contributes to increased electricity supply to the grid by 4,843 GWh per year starting June 2009.	The project contributed 2,760 GWh in FY 2009/10 (57% achievement). It was able to contribute 4,666 GWh in FY 2011/12 (96% achievement).	2
4) National electricity generation capability increases from 94,067 GWh in 2003/04 to 134,803 GWh by June 2009.	National electricity generation capability increased to 139,000 GWh by June 2009 (103% achievement).	4
OVERALL OUTCOME SCORE [Score is calculated as an average of the working scores]		3

Check here to override the calculated score

Provide justification for over-riding the calculated score	
Insert the new score or re-enter the calculated score	3

2. Additional outcomes. Comment on the project's additional outcomes not captured in the log. frame, including cross-cutting issues (e.g., gender).

One of the most significant and direct positive social impacts of the project is its contribution to income-generation. It has created around 1,500 temporary jobs during construction, of which 60% of the unskilled labor was sourced locally while most of the skilled construction labor came from Upper Egypt, where poverty is highest. Finally, the project created 300 new permanent posts, including 14 women, at UEEPC for the operation of the Kureimat 3 power plant.

The project created other direct and indirect income-generation opportunities, ranging from sub-contractors, suppliers, and other services (e.g. repair and maintenance, security, cleaning services, transport, food and catering, accommodation), some of which were managed by women in the community. Overall, in line with similar projects in the country, it is estimated that about 30% of the total project costs must have been expended locally, contributing mostly to the communities in the neighboring city and towns of the Giza and Beni Suef Governorates. (More details are in Annex 6)

3. Risks to sustained achievement of outcomes. State the factors that affect, or could affect, the long-run or sustained achievement of project outcomes. Indicate if any new activity or institutional change is recommended to help sustain outcomes. The analysis should draw upon the sensitivity analysis in Annex 3, where appropriate.

Although the combined cycle technology selected for the Kureimat 3 project is more efficient than other generation technologies, it requires very strict routine maintenance in order to ensure efficient and reliable operation of the units.

The spare parts necessary for the requirements of five year operation and maintenance have already been procured with the project. Nonetheless, the ability of the utility to sustain the required routine maintenance over the 40 years plant's life time will be highly dependent on the utility's financial capability, which is in turn dependent on the revenues from energy sales, among others. In this regard, the GoE has already taken steps to gradually improve the financial sustainability of the electricity sector by introducing reforms to the electricity tariff for the various types of consumers to reach a cost-reflective tariff at minimum.

E. PROJECT DESIGN AND READINESS FOR IMPLEMENTATION

1. State the extent to which the Bank and the Borrower ensured the project was commensurate with the Borrower's capacity to implement by designing the project appropriately and by putting in place the necessary implementation arrangements. Consider all major design aspects, such as extent to which project design took into account lessons learned from previous PCRs in the sector or the country (please cite key PCRs); whether the project was informed by robust analytical work (please cite key documents); how well Bank and Borrower assessed the capacity of the implementing agencies and/or Project Implementation Unit; scope of consultations and partnerships; economic rationale of project; and provisions made for technical assistance.

[200 words maximum. Any additional narrative about implementation should be included at Annex 6: Project Narrative]

The appraisal of the Kureimat 3 project took into consideration the project's feasibility study that was prepared by EEHC and the Bank's long experience with the power sector in Egypt through financing five power generation projects before Kureimat 3, among others. The lessons learned from those previous Bank operations, as well as other similar projects implemented by EEHC, influenced the design of the Kureimat 3 project in several ways: (i) the cost estimation for the Kureimat 3 project took into consideration the relatively large fluctuations in the costs of similar projects implemented before Kureimat due to similar fluctuations in international material prices; (ii) procurement of the project components was structured to be through a small number of procurement packages to simplify the procurement process and avoid implementation delays; (iii) the project procurement plan was designed taking into consideration the long lead time for the manufacturing of Bank financed components, thus, the Bank approved an Advance Procurement Action to start procurement of those components in due time that would achieve the targeted project completion date; and (iv) in order to ensure high levels of financial management, the Kureimat 3 project executing agency was requested to hire external independent auditors acceptable to the Bank to audit the project's accounts and financial statements to overcome the shortcomings experienced with the audits submitted in previous projects.

The capacity of the project executing agency (EEHC/UEEPC) was carefully assessed during project appraisal and reasonable measures were built into the project design. For example, a Project Implementation Team comprising the right mix of skills was appointed from the existing staff of EEHC/UEEPC to supervise the implementation of the project. Furthermore, an engineering consultant was hired to support the executing agency in the project supervision and management.

2. For each dimension of project design and readiness for implementation, provide a brief assessment (up to two sentences). Insert a working score, using the scoring scale provided in Appendix 1.

PROJECT DESIGN AND READINESS FOR IMPLEMENTATION DIMENSIONS		ASSESSMENT	WORKING SCORE
REALISM	a) Project complexity is matched with country capacity and political commitment.	The design and technology used for the Kureimat 3 project is similar to projects that were successfully implemented before in Egypt, and the executing agency therefore had good experience and capacity. However, frequent changes in some of UEEPC's project staff affected the smooth continuity of the work. The project was fully aligned with the	3

		government political commitment as outlined in the country's fifth National Development Plan (2002 – 2007).	
RISK ASSESSMENT AND MITIGATION	b) Project design includes adequate risk analysis.	The project design included reasonable risk analysis, including sector-wide risks that could potentially impact the sustainability of the utility, especially the financial sustainability. The project included some covenants to try to mitigate those risks.	3
USE OF COUNTRY SYSTEMS	c) Project procurement, financial management, monitoring and/or other systems are based on those already in use by government and/or other partners.	Given the large size and technical complexity of the project's procurement packages, ICB had to be used. Nonetheless, the Bank provided the necessary waivers to adapt to some country specific needs such as the use of the two-envelope procurement process.	4

For the following dimensions, provide separate working scores for Bank performance and Borrower performance:			WORKING SCORE	
			Bank	Borrower
CLARITY	d) Responsibilities for project implementation were clearly defined.	The Project Implementation Team was appointed by the executing agency before Board approval and its composition and responsibilities were clearly defined.	4	4
PROCUREMENT READINESS	e) Necessary implementation documents (e.g. specifications, design, procurement documents) were ready at appraisal.	The project feasibility study, some technical specifications and tender documents were already ready before/during project appraisal, and procurement of some project packages started before Board approval. However, due to the nature of such a project, the detailed design was finalized after appraisal, and some small design modifications were made to optimize the project.	4	4
MONITORING READINESS	f) Monitoring indicators and monitoring plan were agreed upon before project launch.	The project log frame was discussed and agreed upon with the executing agency during appraisal and was captured, including the monitoring indicators. No mid-term indicators were used though, mostly due to the relatively short implementation duration foreseen for the project.	3	3
BASELINE DATA	h) Baseline data were available or are were collected during project design.	The baseline data was available either in the feasibility study or was collected during appraisal and was captured in the appraisal report.	3	3

F. IMPLEMENTATION

1. State the major characteristics of project implementation with reference to: adherence to schedules, quality of construction or other work, performance of consultants, effectiveness of Bank supervision, and effectiveness of Borrower oversight. Assess how well the Bank and the Borrower ensured compliance with safeguards.

[200 words maximum. [Any additional narrative about implementation should be included at Annex 6: Project Narrative.]

Implementation of the Kureimat project progressed relatively smoothly, especially during the construction phase, with good performance by the contractors. However, it suffered from a relatively long delay during the testing and commissioning phase due to a technical problem which required some lengthy inspections and repairs. As a result, the project was fully completed two years later than originally planned, and is now functioning successfully as designed. Progress of and coordination with other related works, e.g. transmission infrastructure, was good and did not cause any delay.

The project executing agency (UEEPC) and engineering consultant (PGESCo) provided professional and effective construction supervision and project management which helped maintain the project on the right track. The interfacing between some contractors however provided some challenge.

The Bank supervised the project nine times during its 5.6 years effective implementation period, averaging 1.6 supervisions/year. In addition, EGFO provided continuous follow-up and guidance to the PIU.

The executing agency complied with most of the project's reporting requirements, but was consistently late in submitting the annual audit reports in a format acceptable to the Bank.

2. Comment on the role of other partners (e.g. donors, NGOs, contractors, etc.). Assess the effectiveness of co-financing arrangements and of donor coordination, if applicable.

The Kureimat 3 project was not co-financed with other development partners (DPs), however coordination with the DPs that are supporting the energy sector in Egypt was still instrumental for the project. The Kureimat 3 was implemented slightly later than Kureimat 2 project, which was supported by the EIB. The design of the Kureimat 3 project was modified at the early stages of project construction in order to benefit from some components that were already being constructed under Kureimat 2. Those components became therefore common to both projects. In addition, the two projects used the same PIU in order to provide for better coordination between the two projects, and between the executing agency and the DPs. On the other hand, the Bank coordinated with the World Bank on allowing the use of a special procurement system in the project as described below.

3. Harmonization. State whether the Bank made explicit efforts to harmonize instruments, systems and/or approaches with other partners.

In order to align itself with some of the common practices in Egypt, and harmonize with other development partners, the Bank approved the Borrower's request to procure the critical project components (i.e. Gas Turbine Generators, Steam Turbine Generator, Heat Recovery Steam Generators and Switchyard) through ICB, but using a two-envelope system (instead of the Bank's single envelope system). The two-envelope system implies submitting bids in two separate envelopes, one technical and one financial. The technical envelopes are opened and evaluated first, and then the financial envelopes of those bids that are found technically responsive get opened and evaluated. The system is crucial for the Borrower in case of large and complicated procurements, such as power plants components, as it ensures that bids are evaluated on pure technical merits and evaluations are not influenced by the prices. The World Bank had allowed the use of that system in the Tebbin Power Project, which was processed slightly ahead of Kureimat. The two banks agreed to use the same set of safeguards in the two projects to ensure that implementation of the two-envelope system conforms with the procurement principles for ICB.

4. For each dimension of project implementation, assess the extent to which the project achieved the following. Provide a brief assessment (up to two sentences) and insert a working score, using the scoring scale provided in Appendix 1.				
PROJECT IMPLEMENTATION DIMENSIONS		ASSESSMENT		WORKING SCORE
TIMELINESS	a) Extent of project adherence to the original closing date. If the number on the right is: below 12, "4" is scored between 12.1 to 24, "3" is scored between 24.1 to 36, "2" is scored beyond 36.1, "1" is scored	Difference in months between original closing date and actual closing date or date of 98% disb. rate. 18.2	The delay occurred at the last stages of project implementation (testing and commissioning), mainly due to a technical problem, but was also exacerbated by the unrest following the 2011 revolution.	3
BANK PERFORMANCE	b) Bank complied with:			
	Environmental Safeguards	The Bank ensured that environmental safeguards were taken into consideration by putting measures related to the implementation of the ESMP in the Loan Agreement.		3
	Fiduciary Requirements	The Bank requested the Borrower to conclude a Subsidiary Loan Agreement with UEEPC, with the same terms and conditions of the Loan Agreement to ensure that the Loan will be used for the purpose it was intended to. In addition, it requested actions by EEHC to improve its financial position.		4
	Project Covenants	The project covenants were well articulated and used wisely to ensure fulfillment of certain actions while at the same time not constrain project progress.		4
	c) Bank provided quality supervision in the form of skills mix and practicality of solutions	The project was field-supervised nine times over its five years implementation period. The composition of the supervision teams included the right mix of skills. In addition, the Bank's Office in Egypt provided continuous follow-up and participated in all supervision missions.		3
	d) Bank provided quality management oversight	The response of the Bank to project needs was efficient.		3
BORROWER PERFORMANCE	e) Borrower complied with:			
	Environmental Safeguards	Overall, the implementation of the ESMP is satisfactory, although it is not without its shortcomings (more details are in Annex 6)		2
	Fiduciary Requirements	The project was consistently late in submitting the annual financial audit reports, despite continuous reminders by the Bank.		1
	Project Covenants	The Borrower fulfilled most of the project covenants, but some with delay.		3
	f) Borrower was responsive to Bank supervision findings and recommendations	The Borrower was generally responsive to Bank supervision findings and recommendations, except in cases of delayed report submissions (especially audits).		3
	g) Borrower collected and used monitoring information for decision making	The Borrower consistently collected useful information both during project construction and operation that was useful in decision making.		3

G. COMPLETION

1. IS THE PCR DELIVERED ON A TIMELY BASIS, IN COMPLIANCE WITH BANK POLICY?			
Date project reached 98% disb. Rate (or closing date if applicable)	Date PCR was sent to pcr@afdb.org *MM/DD/YY*	Difference in months	WORKING SCORE if the difference is 6 months or less, a 4 is scored. If the difference is 6.1 or more, a 1 is scored
06/30/12	02/27/13	7.1	1

2. Briefly describe the PCR Process. Describe the Borrower's and co-financers' involvement in producing the document. Highlight any major differences of opinion concerning the assessments made in this PCR. Describe the team composition and confirm whether a site visit was undertaken. Mention any major collaboration from other development partners. State the extent of field office involvement in producing the report. Indicate whether comments from Peer Reviewers were received on time (provide names and positions of Peer Reviewers).

[100 words maximum]

The PCR mission was carried out in Egypt from 8 to 18 Oct 2012. The mission comprised Mr. Khaled El-Askari, Senior Energy Officer (EGFO/ONEC.2), Ms. Tanja Faller, Senior Energy Economist (ONEC.2), Ms. Eloise Fluet, Socio-economist (ONEC.3), Mr. Ayman Algindy, Procurement Officer (EGFO), Ms. Amira Sobhi, Disbursement Assistant (EGFO), and Mr. Adel Beshara, Energy Consultant. The Mission reviewed all project documents (PAR, ESIA, progress reports, supervision reports & contracts) and met with EEHC, UEEPC & PGESCo to exchange views on the project and collect the necessary information for the PCR. A site visit was undertaken, which included fact-finding sessions with the site's staff. UEEPC/PGESCo were still in the process of preparing their PCR at the time of the mission, but all the data was readily available. The PCR mission Aide Memoire consolidated all the main mission findings and lessons learned from the project. The Aide Memoire was extensively discussed and agreed to with EEHC/UEEPC.
The PCR was peer-reviewed during 10 to 18 January 2013 by Mr. Alemayehu Wubeshet-Zegeye, Chief Power Engineer (ONEC2), Mr. Yasser Ahmad, Principal Country Program Officer (ORNA), Ms. Gehane El Sokkary, Principal Socio-economist (EGFO/OSHD). They provided valuable comments and suggestions for the report, which were incorporated in this final version.

H. LESSONS LEARNED

Summarize key lessons for the Bank and the Borrower suggested by the project's outcomes

[250 words maximum. Any additional narrative about lessons learned, if needed, must be placed in Annex 6: Project Narrative]

Project implementation start-up: Although the project agreement was signed 2.7 months after loan approval, it became effective after 15.3 months. This long delay is partly attributed to government procedures, but also to the long period required for procuring the project main components due to their complexity. In fact, the first project disbursement was made 3.2 months after effectiveness, which clearly shows that the long period taken for effectiveness did not delay project progress.

The Bank's procurement flexibility on Advance Contracting could offer part of the solution by allowing borrowers to start procurement of complicated project components early enough to ensure timely loan effectiveness and disbursement. It is therefore recommend that both the Borrower and the Bank carefully assess the feasibility of using this procurement flexibility in future projects of similar nature.

Project cost estimation: The Kureimat 3 project suffered from a relatively high cost overrun. The experience from the new power generation projects in Egypt, including Kureimat, show that project costs are highly dependent on international market prices for equipment and material and on the world economic situation and related market demands. Although the Kureimat project executing agency managed to raise the additional resources required to cover the cost increase in a timely manner, the need to mobilize additional resources for the project during implementation typically challenges the ability to mobilize the best resources available due to the time constraint.

It is recommended that project cost estimates be based on forward-looking projections, in addition to the traditional analysis of the actual costs of previous projects. The projections would include wider issues such as the forecast for world economic growth, and the potential impact on demand for equipment and material, during the period of procuring the main project components.

Project procurement: Procurement of Bank-financed components under the Kureimat 3 project followed ICB, but with a special waiver for the use of the two-envelope system. The safeguards used with the two-envelope system, as harmonized with other development partners, were adhered to by the executing agency and ensured that the process went smoothly.

The experience from the Kureimat 3 project concerning the use of the two-envelope system with ICB was therefore satisfactory.

Project components: The Kureimat 3 project was designed with a relatively small number of components (eight). This achieved some benefits such as fewer procurement packages, reduced construction management effort and risks related to the coordination and interfacing among the contractors. However, it did not provide sufficient flexibility to EEHC/PGESCo to optimize the project design and hence its cost.

The experience from other power projects in Egypt suggests that breaking the projects into more smaller components provided greater flexibility in the design and construction, leading to a potential 15 – 20% cost reduction.

Assessing project impacts on local manufacturing: The Kureimat project used EEHC' bidding documents and contracts as approved by the Bank. One disadvantage for those documents is that they do not lend themselves to easily track the scope of work that is fulfilled locally in order to assess the benefits to the local economy and the potential for promoting local manufacturing.

It is recommended that the Bank's new harmonized standard bidding documents (SBD) be used in future projects since they provide for the added benefit of the possibility for tracking the portions of the contracts that are executed locally, which in turn would support the assessment of project impacts on local manufacturing (and indirect job creation).

Wrap-up insurance: This component proved to be very vital in the case of the Kureimat 3 project as it helped cover part of the costs associated with the remedy of the technical problem faced during the testing of some facilities. All power generation projects include an insurance component.

Capacity building needs: The recruitment of an engineering consultant to support EEHC/UEEPC in the design, construction supervision and project management has helped strength those aspects of the project.

It is recommended that future projects consider other capacity building needs for UEEPC, especially in the areas of project monitoring and evaluation as well as reporting on environmental and social issues during project construction.

I. PROJECT RATINGS SUMMARY

All working scores and ratings must be found in the relevant section in the PCR. For example, please insert the "Overall Output score" in Section D.I. in the "Achievement of Outputs" box below.

CRITERIA	SUB-CRITERIA	WORKING SCORE
PROJECT OUTCOME	Achievement of outputs	4
	Achievement of outcomes	3
	Timeliness	3
	OVERALL PROJECT OUTCOME SCORE *(score average)*	3
BANK PERFORMANCE	Design and Readiness	
	Project Objectives were relevant to country development priorities	4
	Project Objectives could in principle be achieved with the project inputs and in the expected time frame	3
	Project Objectives were consistent with the Bank's country or regional strategy	4
	Project Objectives were consistent with the Bank's corporate priorities	4
	The log frame presents a logical causal chain for achieving the project development objectives	4
	The log frame expresses objectives and outcomes in a way that is measurable and quantifiable	4
	The log frame states the risks and key assumptions	3
	Project complexity was matched with country capacity and political commitment	3
	Project design includes adequate risk analysis	3
	Project procurement, financial management, monitoring and/or other systems were based on those already in use by government and/or other partners	4
	Responsibilities for project implementation were clearly defined	4
	Necessary implementation documents (e.g. specifications, design, procurement documents) were ready at appraisal	4
	Monitoring indicators and monitoring plan were agreed upon during design	3
	Baseline data was available or were collected during design	3
	PROJECT DESIGN AND READINESS SUB-SCORE *(score average)*	4
	Supervision:	
	Bank complied with:	
	Environmental Safeguards	3
	Fiduciary Requirements	4
	Project Covenants	4
	Bank provided quality supervision in the form of skills mix provided and practicality of solutions	3
	Bank provided quality management oversight	3
	PCR was delivered on a timely basis	1
	SUPERVISION SUB-SCORE *(score average)*	3
	OVERALL BANK PERFORMANCE SCORE *(score average)*	4

BORROWER PERFORMANCE	Design and Readiness	
	Responsibilities for project implementation are clearly defined	4
	Necessary implementation documents (e.g. specifications, design, procurement documents) are ready at appraisal	4
	Monitoring indicators and monitoring plan are agreed upon	3
	Baseline data are available or are being collected	3
	PROJECT DESIGN AND READINESS SCORE *(score average)*	4
	Implementation	
	Borrower complied with:	
	Environmental Safeguards	2
	Fiduciary Requirements	1
	Project Covenants	3
	Borrower was responsive to Bank supervision findings and recommendations	3
	Borrower collected and used of monitoring information for decision-making	3
	IMPLEMENTATION SUB-SCORE *(score average)*	2
	OVERALL BORROWER PERFORMANCE SCORE *(score average)*	3

J. PROCESSING

STEP	SIGNATURE AND COMMENTS	DATE
Sector Manager Clearance	Mr. Engedasew NEGASH HABTEMICHAEL	01/22/2013
Country Manager Clearance	Mr. Sibry TAPSOBA	02/14/2013
Regional Director Clearance	Mr. Jacob KOLSTER	02/06/2013
Sector Director Approval	Ms. Hela CHEIKHROUHOU	02/27/2013

APPENDIX 1

Scale for Working Scores and Ratings

SCORE	EXPLANATION
4	Very Good - Fully achieved with no shortcomings
3	Good - Mostly achieved despite a few shortcomings
2	Fair - Partially achieved. Shortcomings and achievements are roughly balanced
1	Poor - Very limited achievement with extensive shortcomings
NA	Non Applicable

Note: The formulas round up or down for decimal points. Only whole numbers are computed.

LIST OF ANNEXES

ANNEX 1 Project Costs and Financing

A. Project costs by component

The table below provides a comparison between the project component costs anticipated at appraisal (including contingencies) and the actual costs at project completion. It is to be noted that the project cost at completion accounts for some items that were not included at appraisal such as 50% of the cost of the water and wastewater treatment component, which was constructed as part of Kureimat 2 project to serve both Kureimat 2 & 3, as well as the non-investment costs such as the salaries of the UEEPC project staff and cost of financing incurred during the construction period.

Kureimat 3 Project Costs by Component (million Euros)

Component	Appraisal			Actual			Ratio (Actual/Appraisal)
	F.C.	L.C.	Total	F.C.	L.C.	Total	
Civil Works	€ 8.76	€ 23.96	€ 32.72	€ 12.12	€ 44.36	€ 56.49	173%
Gas Turbine Generators	€ 86.54	€ 5.47	€ 92.01	€ 116.97	€ 2.96	€ 119.94	130%
Steam Turbine Generator	€ 45.38	€ 3.76	€ 49.14	€ 54.65	€ 4.81	€ 59.46	121%
Heat Recovery Steam Generators	€ 29.76	€ 8.55	€ 38.31	€ 55.73	€ 9.09	€ 64.82	169%
Switchyard	€ 13.67	€ 0.24	€ 13.91	€ 7.44	€ 1.90	€ 9.34	67%
Environmental Monitoring	€ 0.56	€ 0.47	€ 1.03	€ 0.00	€ 0.08	€ 0.08	7%
Wrap-up Insurance	€ 1.80	€ 0.37	€ 2.17	€ 2.14	€ 0.55	€ 2.69	124%
Project Management (Engineering Consultant)	€ 8.54	€ 6.85	€ 15.39	€ 9.74	€ 10.38	€ 20.13	131%
Water and Wastewater Treatment (50% of cost)	-	-	-	€ 2.34	€ 0.84	€ 3.18	-
UEEPC salaries	-	-	-	€ 0.00	€ 0.83	€ 0.83	-
Financing cost	-	-	-	€ 0.00	€ 12.74	€ 12.74	-
Total	€ 195.01	€ 49.67	€ 244.68	€ 261.15	€ 88.55	€ 349.70	143%

* Applied exchange rates: 1 EUR = 1.394 USD = 7.8 EGP

Accordingly, the total project cost at completion is Euro 105 million higher than the cost anticipated at appraisal, implying 43% cost increase. The cost increase is not only due to the additional cost items accounted for at completion as explained above, but also due to high increase in equipment prices as a result of high market demand and rise in international material prices during 2005 & 2006 when the project components were being procured. Nonetheless, the total capital cost of the Kureimat project is comparable to the costs of other combined cycle power plants constructed during the same period in Egypt as demonstrated in the following table.

Capital Costs of Combined Cycle Power Plants Installed in Egypt Around the Same Time as Kureimat 3

Project	Capacity (MW)	Tendering/Contracting Year	Capital Cost (Million Euros)	Euro/kW
Nubaria (1&2)	1500	2003/2004	381.94	254.63
Kureimat 2	750	2005/2006	236.69	315.59
Kureimat 3	750	2006/2007	303.09	404.12
Nubaria 3	750	2007/2008	340.29	453.72

B. Financing by sources of funds

The table below provides a comparison between the project financing plans at appraisal (including contingencies) and at project completion. Due to the cost increase, a revision of the original financing plan was necessary in order to reallocate the ADB resources according to the actual component costs and help improve the flow of resources to optimally serve project needs.

Kureimat 3 Financing Plan by Project Components (million Euros)

Component	Appraisal			Final		
	ADB	UEEPC	Total	ADB	UEEPC	Total
Civil Works	€ 0.0	€ 32.72	€ 32.72	€ 0.00	€ 56.49	€ 56.49
Gas Turbine Generators	€ 86.54	€ 5.47	€ 92.01	€ 80.98	€ 38.96	€ 119.94
Steam Turbine Generator	€ 45.38	€ 3.76	€ 49.14	€ 49.09	€ 10.37	€ 59.46
Heat Recovery Steam Generators	€ 29.76	€ 8.55	€ 38.31	€ 44.09	€ 20.73	€ 64.82
Switchyard	€ 13.67	€ 0.24	€ 13.91	€ 0.00	€ 9.34	€ 9.34
Environmental Monitoring	€ 0.56	€ 0.47	€ 1.03	€ 0.00	€ 0.08	€ 0.08
Wrap-up Insurance	€ 0.0	€ 2.17	€ 2.17	€ 0.00	€ 2.69	€ 2.69
Project Management (Engineering Consultant)	€ 0.0	€ 15.39	€ 15.39	€ 0.00	€ 20.13	€ 20.13
Water and Wastewater Treatment (50% of cost)	-	-	-	€ 0.00	€ 3.18	€ 3.18
UEEPC salaries	-	-	-	€ 0.00	€ 0.83	€ 0.83
Financing cost	-	-	-	€ 0.00	€ 12.74	€ 12.74
Total	€ 175.91	€ 68.75	€ 244.68	€ 174.16	€ 175.54	€ 349.70

C. ADB loan disbursement

All disbursements from the ADB loan to the project were effected through direct payments to the contractors. The first disbursement was made on 12 February 2007, while the last disbursement was made on 3 August 2012. The final allocation of the Bank loan and total disbursements for each Bank-financed component are as given in the table below. The project has achieved 99% disbursement rate.

Kureimat 3 Total Disbursements from ADB Loan by Project Components (million Euros)

	Loan Allocation		Loan Disbursement	Disbursement %
Component	Appraisal	Final		
Gas Turbine Generators	€ 86.54	€ 82.01	€ 80.98	98.7%
Steam Turbine Generator	€ 45.38	€ 49.71	€ 49.09	98.7%
Heat Recovery Steam Generators	€ 29.76	€ 44.19	€ 44.09	99.8%
Switchyard	€ 13.67	€ 0.0	-	-
Environmental Monitoring	€ 0.56	€ 0.0	-	-
Total	€ 175.91	€ 175.91	€ 174.16	99.0%

Kureimat 3 Total Annual Disbursements from ADB Loan

Year	Disbursements	
	Euro	%
2007	49,770,628.20	28.3%
2008	55,659,012.75	31.6%
2009	31,132,293.49	17.7%
2010	23,147,490.25	13.2%
2011	683,365.86	0.4%
2012	13,764,584.17	7.8%
Total	174,157,374.72	99.0%
Loan	175,910,000.00	100.0%

ANNEX 2 Bank Inputs

No.	Mission	Period	Composition	Profession
1.	Supervision	November 13-26, 2006		
2.	Supervision	December 06-17, 2007	Mr. Emmanuel Nzabanita	Principle Power Engineer
			Mr. Daniel Lekoetje	Senior Public Utilities Economist
			Mr. Jan Malan	Financial Analyst
			Mr. A. Khaled	Infrastructure Expert
3.	Supervision	May 17-30, 2008	Mr. Emmanuel Nzabanita	Principal Power Engineer
			Mr. Noel Kulemeka	Principal Socio Economist
			Mr. Daniel Lekoetje	Senior Public Utilities Economist
			Mr. Khaled El-Askari	Infrastructure Expert
			Mrs. Amira Sobhy	Disbursement Assistant
4.	Supervision	December 13-18, 2008	Mr. Daniel Lekoetje	Senior Public Utilities Economist
			Mr. Bocar Cisse	Power Engineer
			Mr. Khaled El-Askari	Infrastructure Expert
			Mrs. Amira Sobhy	Disbursement Assistant
			Mr. Ashraf Ayad	Procurement Assistant
5.	Supervision	July 07-24, 2009	Mr. Emmanuel Nzabanita	Principle Power Engineer
			Mr. Y. Vyas	Lead Environmentalist
			Mr. V. Zongo	Chief Financial Analyst
			Ms. Mutambatsere	Socio-Economist
			Mr. Khaled El-Askari	Infrastructure Expert
6.	Supervision	October 26-Nov. 4, 2009	Mr. Emmanuel Nzabanita	Principle Power Engineer
			Mr. Khaled El-Askari	Infrastructure Expert
7.	Supervision	April 20-29, 2010	Mr. Khaled El-Askari	Infrastructure Expert
			Mrs. Amira Sobhy	Disbursement Assistant
8.	Supervision	December 17-23, 2010	Mr. Emmanuel Nzabanita	Division Manager Designate
			Mr. Khaled El-Askari	Infrastructure Expert
			Ms. Sandrine Alissoutin	Financial Analyst
			Mrs. Awatef Fourati	Senior Environment Expert
9.	Supervision	December 18-22, 2011	Mr. Khaled El-Askari	Senior Energy Officer
			Mr. Ayman El-Gindy	Procurement Officer
			Mrs. Amira Sobhy	Disbursement Assistant
10	PCR	October 8 – 18, 2012	Mr. Khaled El-Askari	Senior Energy Officer
			Ms. Tanja Faller	Senior Energy Economist
			Ms. Eloise Fluet	Socio-economist
			Mr. Ayman El-Gindy	Procurement Officer
			Mrs. Amira Sobhy	Disbursement Assistant
			Mr. Adel Beshara	Energy Consultant

ANNEX 3 Financial and Economic Analyses

A. Changes in the financial model

The reassessment of the economic and financial analyses is based on data collected from project implementation (disbursement schedule, real investment costs) as well as from the first year of the plant operation (i.e. technical specifications and availability factor). In addition, macroeconomic and financial data have been updated where more recent data become available (i.e. the inflation rate). The improved characteristics has a significant positive impact on the Economic IRR and Financial IRR. A list of all updated data is provided below.

Macroeconomic assumptions:

Inflation rate

- EGP: Updated from 3.5 to 5% (source: Updated financial data, IMF).

Technical specifications (Plant Characteristics):

Availability factor

- Increased to 85.3% from 80% based on an average of first year of operation (source: Collected operations data from UEEPC)

Auxiliary consumption

- Decreased to 2.59% (source: Collected operations data from UEEPC)

Net plant heat rate (Btu/kWh)

- Increased to 6,644 (source: Collected operations data from UEEPC)

Financial Data:

- Commitment charge (%) decreased to 0.00% (source: AfDB Financing Terms, Project Loan Agreement)

Cost schedule:

- The investment costs have been adjusted with the actual investment costs. Actual investment costs were 143% higher than expected. In addition, actual investment costs occurred about 2 years later than expected, leading actual investment costs up to 2012. (Source: AfDB, UEEPC and Project Consultant (PGESCo).
- The Loan disbursement has been updated with the actual Loan disbursement data as per realized disbursement schedule. Actual loan disbursement started two years later than expected (in 2007). (Source: AfDB).
- Variable costs were adjusted based on UEEPC financial data. Overall, the spare parts and other fixed costs remained higher than expected, versus the variable, non-fuel costs remained significantly lower than expected. (Source: UEEPC)

B. Updated Cash Flow Statements

TOTAL INVESTMENT PERSPECTIVE, 2005 PRICES (million EGP)

BENEFITS	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030	2033	2035	2040	2045	2047	2048
System off-peak cost savings	0	0	0	0	432	562	562	559	573	572	560	561	559	558	556	545	531	510	338	493	477	462	460	0
System peak cost savings	0	0	0	0	216	286	285	283	282	288	284	283	281	280	279	275	267	257	169	248	240	232	229	0
Other benefits	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	336
Total Benefits	**0**	**0**	**0**	**0**	**649**	**848**	**846**	**842**	**855**	**860**	**844**	**844**	**840**	**838**	**835**	**821**	**798**	**767**	**507**	**741**	**717**	**694**	**689**	**336**
COSTS																								
Investment Costs	0	0	835	934	522	377	12	469	0	0	0	0	0	0	0	0	0	0	819	0	0	0	0	0
Operating Costs																								
Fuel costs	0	0	0	0	263	349	349	350	342	345	344	344	345	332	335	334	326	318	201	302	292	284	284	0
O&M	0	0	0	62	68	68	68	68	114	68	68	68	68	114	68	68	68	68	24	68	68	68	68	0
Labor	0	0	0	8	9	9	9	9	9	9	9	9	9	9	9	9	10	10	10	10	10	11	11	0
Change in working capital	0	0	0	39	-5	-2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	-14	-20
Total Costs	**0**	**0**	**835**	**1,043**	**856**	**800**	**437**	**895**	**465**	**422**	**420**	**421**	**421**	**456**	**412**	**411**	**403**	**395**	**1,056**	**379**	**370**	**362**	**348**	**-20**
NET RESOURCE FLOW	**0**	**0**	**-835**	**-1,043**	**-208**	**48**	**409**	**-53**	**390**	**438**	**424**	**423**	**419**	**382**	**423**	**410**	**395**	**372**	**-549**	**362**	**348**	**333**	**342**	**355**

NPV, real (million EGP) @ EOCK:	**10%**	**529.9**
EIRR:		**12.7%**
Levelized Energy Cost, real (US cent/kWh)		**2.55**

INFLOWS	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030	2033	2035	2040	2045	2048
System off-peak cost savings	0	0	0	0	299	391	390	388	395	393	386	387	385	384	382	376	366	352	232	340	329	318	0
System peak cost savings	0	0	0	0	134	176	176	175	174	177	175	174	173	172	171	169	164	158	104	153	148	143	0
Other revenues	0	0	0	0	56	75	75	75	73	74	74	74	74	71	72	72	70	68	43	65	63	61	308
Total Inflows	**0**	**0**	**0**	**0**	**489**	**642**	**641**	**638**	**642**	**644**	**635**	**635**	**632**	**627**	**625**	**617**	**600**	**578**	**379**	**558**	**540**	**522**	**308**
OUTFLOWS																							
Investment Costs	0	0	780	873	488	353	11	438	0	0	0	0	0	0	0	0	0	0	819	0	0	0	0
Operating Costs																							
Fuel costs	0	0	0	0	189	251	251	252	246	248	247	248	248	239	241	240	235	229	144	217	210	204	0
O&M	0	0	0	70	76	76	76	76	137	76	76	76	76	137	76	76	76	76	27	76	76	76	0
Labor	0	0	0	8	9	9	9	9	9	9	9	9	9	9	9	9	9	10	10	10	10	10	0
Change in working capital	0	0	0	86	-3	2	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	6
Total Outflows	**0**	**0**	**780**	**1,037**	**760**	**691**	**350**	**777**	**395**	**336**	**335**	**336**	**336**	**388**	**330**	**329**	**323**	**317**	**1,004**	**306**	**299**	**294**	**6**
NET CASH FLOW BEFORE FINANCING	**0**	**0**	**-780**	**-1,037**	**-271**	**-49**	**291**	**-139**	**247**	**308**	**300**	**299**	**296**	**239**	**296**	**289**	**277**	**261**	**-625**	**251**	**240**	**228**	**302**
Add: loan disbursement	0	0	392	430	236	172	5	98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Less: Loan repayment + fees + charges	0	0	0	17	36	46	130	124	123	117	111	106	101	96	91	86	65	3	3	3	3	2	2
NET CASH FLOW AFTER FINANCING	**0**	**0**	**-388**	**-624**	**-71**	**77**	**166**	**-166**	**125**	**191**	**188**	**193**	**195**	**143**	**205**	**202**	**212**	**258**	**-628**	**249**	**237**	**226**	**300**

FNPV, real (million EGP) @ ROE:	**6%**	**995.8**
FIRR:		**11.4%**
Levelized energy cost, real (US cent/kWh)		**1.84**

Annual Debt Service Coverage Ratio (ADSCR) = Net system savings over project debt repayments	**2.24**	**-1.12**	**2.02**	**2.63**	**2.69**	**2.82**	**2.93**	**2.50**	**3.25**	**3.35**	**4.26**
Debt Service Capacity Ratio (DSCR) = PV of net system savings over PV of project debt repayments	**2.46**	**2.48**	**2.95**	**3.07**	**3.13**	**3.19**	**3.24**	**3.29**	**3.43**	**3.46**	**4.26**

C. Selected updated sensitivity analyses

SENSITIVITY TEST: UTILIZATION FACTOR (%)

	FINANCIAL ANALYSIS			ECONOMIC ANALYSIS		PROJECT DEBT SERVICE						UTILITY DEBT SERVICE					
	FNPV (EGP million)	FIRR (%)	Financial Unit Cost (US$ cent/kWh)	ENPV (EGP million)	Economic Unit Cost (US$ cent/kWh)	ADSCR 2011	ADSCR 2012	ADSCR 2013	DSCR 2011	DSCR 2012	DSCR 2013	ADSCR 2011	ADSCR 2012	ADSCR 2013	DSCR 2011	DSCR 2012	DSCR 2013
	995.8	**11.4%**	**1.84**	**529.9**	**2.55**	**2.24**	**-1.12**	**2.02**	**2.46**	**2.48**	**2.95**	**0.61**	**0.63**	**0.17**	**0.52**	**0.50**	**0.48**
85.0%	307.6	7.7%	2.02	6.3	2.80	1.79	-1.59	1.54	1.88	1.89	2.34	0.60	0.62	0.15	0.52	0.50	0.48
90.0%	536.9	8.9%	1.95	180.8	2.71	1.94	-1.43	1.70	2.08	2.09	2.54	0.61	0.62	0.16	0.52	0.50	0.48
95.0%	766.3	10.1%	1.89	355.3	2.63	2.09	-1.28	1.86	2.27	2.29	2.75	0.61	0.62	0.16	0.52	0.50	0.48
100.0%	995.8	11.4%	1.84	529.9	2.55	2.24	-1.12	2.02	2.46	2.48	2.95	0.61	0.63	0.17	0.52	0.50	0.48
105.0%	1,225.2	12.6%	1.79	704.5	2.49	2.39	-0.97	2.18	2.65	2.68	3.15	0.62	0.63	0.17	0.52	0.50	0.48
110.0%	1,454.1	13.8%	1.75	878.4	2.42	2.54	-0.82	2.34	2.84	2.87	3.35	0.62	0.64	0.18	0.53	0.50	0.48
115.0%	1,683.1	15.1%	1.71	1,052.2	2.37	2.69	-0.66	2.49	3.03	3.07	3.55	0.63	0.64	0.18	0.53	0.51	0.48

SENSITIVITY TEST: INFLATION RATE, EGYPT (%)

	FINANCIAL ANALYSIS			ECONOMIC ANALYSIS		PROJECT DEBT SERVICE						UTILITY DEBT SERVICE					
	FNPV (EGP million)	FIRR (%)	Financial Unit Cost (US$ cent/kWh)	ENPV (EGP million)	Economic Unit Cost (US$ cent/kWh)	ADSCR 2011	ADSCR 2012	ADSCR 2013	DSCR 2011	DSCR 2012	DSCR 2013	ADSCR 2011	ADSCR 2012	ADSCR 2013	DSCR 2011	DSCR 2012	DSCR 2013
	995.8	**11.4%**	**1.84**	**529.9**	**2.55**	**2.24**	**-1.12**	**2.02**	**2.46**	**2.48**	**2.95**	**0.61**	**0.63**	**0.17**	**0.52**	**0.50**	**0.48**
0.0%	1,033.3	11.6%	1.830	535.6	2.55	2.25	-1.36	2.04	2.60	2.62	3.04	0.74	0.74	0.21	0.55	0.52	0.49
1.0%	1,022.9	11.5%	1.833	534.6	2.55	2.25	-1.29	2.03	2.55	2.58	3.01	0.71	0.71	0.20	0.55	0.52	0.50
2.0%	1,012.3	11.5%	1.836	533.1	2.55	2.25	-1.22	2.03	2.52	2.54	2.99	0.67	0.68	0.19	0.54	0.52	0.49
3.0%	1,001.3	11.4%	1.839	531.1	2.55	2.24	-1.16	2.02	2.48	2.50	2.96	0.63	0.65	0.17	0.53	0.51	0.49
3.5%	995.8	11.4%	1.840	529.9	2.55	2.24	-1.12	2.02	2.46	2.48	2.95	0.61	0.63	0.17	0.52	0.50	0.48
4.0%	990.1	11.3%	1.842	528.7	2.55	2.24	-1.09	2.01	2.44	2.46	2.93	0.60	0.61	0.16	0.51	0.49	0.47
6.0%	967.0	11.2%	1.849	522.4	2.56	2.23	-0.98	2.00	2.37	2.39	2.89	0.52	0.54	0.13	0.46	0.45	0.43
8.0%	942.8	11.0%	1.855	514.4	2.56	2.22	-0.88	1.99	2.31	2.32	2.84	0.44	0.46	0.09	0.41	0.39	0.38
10.0%	917.6	10.9%	1.862	504.7	2.56	2.21	-0.78	1.98	2.25	2.25	2.80	0.36	0.39	0.06	0.34	0.34	0.33
12.0%	891.4	10.7%	1.870	493.3	2.57	2.21	-0.70	1.97	2.19	2.19	2.76	0.28	0.31	0.02	0.28	0.27	0.27

SENSITIVITY TEST: INFLATION RATE, US (%)

	FINANCIAL ANALYSIS			ECONOMIC ANALYSIS		PROJECT DEBT SERVICE						UTILITY DEBT SERVICE					
	FNPV (EGP million)	FIRR (%)	Financial Unit Cost (US$ cent/kWh)	ENPV (EGP million)	Economic Unit Cost (US$ cent/kWh)	ADSCR 2011	ADSCR 2012	ADSCR 2013	DSCR 2011	DSCR 2012	DSCR 2013	ADSCR 2011	ADSCR 2012	ADSCR 2013	DSCR 2011	DSCR 2012	DSCR 2013
	995.8	**11.4%**	**1.84**	**529.9**	**2.55**	**2.24**	**-1.12**	**2.02**	**2.46**	**2.48**	**2.95**	**0.61**	**0.63**	**0.17**	**0.52**	**0.50**	**0.48**
0.0%	995.8	11.4%	1.84	529.9	2.55	2.24	-1.12	2.02	2.46	2.48	2.95	0.61	0.63	0.17	0.52	0.50	0.48
1.0%	995.8	11.4%	1.84	529.9	2.55	2.24	-1.12	2.02	2.46	2.48	2.95	0.61	0.63	0.17	0.52	0.50	0.48
2.0%	995.8	11.4%	1.84	529.9	2.55	2.24	-1.12	2.02	2.46	2.48	2.95	0.61	0.63	0.17	0.52	0.50	0.48
2.5%	995.8	11.4%	1.84	529.9	2.55	2.24	-1.12	2.02	2.46	2.48	2.95	0.61	0.63	0.17	0.52	0.50	0.48
3.0%	995.8	11.4%	1.84	529.9	2.55	2.24	-1.12	2.02	2.46	2.48	2.95	0.61	0.63	0.17	0.52	0.50	0.48
4.0%	995.8	11.4%	1.84	529.9	2.55	2.24	-1.12	2.02	2.46	2.48	2.95	0.61	0.63	0.17	0.52	0.50	0.48
6.0%	995.8	11.4%	1.84	529.9	2.55	2.24	-1.12	2.02	2.46	2.48	2.95	0.61	0.63	0.17	0.52	0.50	0.48
8.0%	995.8	11.4%	1.84	529.9	2.55	2.24	-1.12	2.02	2.46	2.48	2.95	0.61	0.63	0.17	0.52	0.50	0.48

SENSITIVITY TEST: INFLATION RATE, EU (%)

	FINANCIAL ANALYSIS			ECONOMIC ANALYSIS		PROJECT DEBT SERVICE						UTILITY DEBT SERVICE					
	FNPV (EGP million)	FIRR (%)	Financial Unit Cost (US$ cent/kWh)	ENPV (EGP million)	Economic Unit Cost (US$ cent/kWh)	ADSCR 2011	ADSCR 2012	ADSCR 2013	DSCR 2011	DSCR 2012	DSCR 2013	ADSCR 2011	ADSCR 2012	ADSCR 2013	DSCR 2011	DSCR 2012	DSCR 2013
	995.8	**11.4%**	**1.84**	**529.9**	**2.55**	**2.24**	**-1.12**	**2.02**	**2.46**	**2.48**	**2.95**	**0.61**	**0.63**	**0.17**	**0.52**	**0.50**	**0.48**
0.0%	1,034.7	12.0%	1.83	515.9	2.56	2.44	-1.17	2.10	2.23	2.20	2.62	0.62	0.63	0.17	0.52	0.50	0.48
1.0%	1,013.2	11.7%	1.84	523.2	2.56	2.33	-1.14	2.05	2.33	2.33	2.77	0.62	0.63	0.17	0.52	0.50	0.48
2.0%	995.8	11.4%	1.84	529.9	2.55	2.24	-1.12	2.02	2.46	2.48	2.95	0.61	0.63	0.17	0.52	0.50	0.48
2.5%	988.2	11.2%	1.84	533.2	2.55	2.20	-1.12	2.01	2.53	2.57	3.04	0.61	0.63	0.17	0.52	0.50	0.48
3.0%	981.3	11.1%	1.84	536.3	2.55	2.17	-1.12	2.00	2.60	2.65	3.15	0.61	0.63	0.17	0.52	0.50	0.48
4.0%	969.3	10.9%	1.85	542.3	2.55	2.12	-1.11	2.00	2.77	2.85	3.38	0.61	0.63	0.17	0.52	0.50	0.48
6.0%	950.2	10.6%	1.85	553.3	2.54	2.06	-1.13	2.02	3.18	3.32	3.93	0.61	0.63	0.17	0.52	0.50	0.48
8.0%	935.9	10.4%	1.86	562.9	2.54	2.03	-1.16	2.07	3.70	3.91	4.62	0.61	0.63	0.17	0.53	0.50	0.48

SENSITIVITY TEST: SUBSIDIZED COST OF GAS (EGP/m3)

	FINANCIAL ANALYSIS			ECONOMIC ANALYSIS		PROJECT DEBT SERVICE							UTILITY DEBT SERVICE					
	FNPV (EGP million)	FIRR (%)	Financial Unit Cost (US$ cent/kWh)	ENPV (EGP million)	Economic Unit Cost (US$ cent/kWh)	ADSCR 2011	ADSCR 2012	ADSCR 2013	DSCR 2011	DSCR 2012	DSCR 2013	ADSCR 2011	ADSCR 2012	ADSCR 2013	DSCR 2011	DSCR 2012	DSCR 2013
	995.8	**11.4%**	**1.84**	**529.9**	**2.55**	**2.24**	**-1.12**	**2.02**	**2.46**	**2.48**	**2.95**	**0.61**	**0.63**	**0.17**	**0.52**	**0.50**	**0.48**
0.12	727.7	9.9%	1.64	529.9	2.55	2.08	-1.28	1.82	2.23	2.25	2.70	2.24	2.18	0.89	1.56	1.48	1.40
0.141	810.5	10.4%	1.70	529.9	2.55	2.13	-1.23	1.88	2.30	2.32	2.78	1.74	1.70	0.67	1.24	1.18	1.12
0.16	885.4	10.8%	1.76	529.9	2.55	2.18	-1.19	1.94	2.37	2.39	2.85	1.28	1.27	0.46	0.95	0.90	0.86
0.18	964.2	11.2%	1.82	529.9	2.55	2.22	-1.14	1.99	2.43	2.45	2.92	0.81	0.81	0.25	0.64	0.62	0.59
0.20	1,043.1	11.6%	1.88	529.9	2.55	2.27	-1.10	2.05	2.50	2.52	2.99	0.33	0.35	0.04	0.34	0.33	0.32
0.22	1,129.8	12.1%	1.94	529.9	2.55	2.32	-1.04	2.11	2.57	2.60	3.07	-0.20	-0.15	-0.20	0.00	0.01	0.02
0.26	1,279.6	12.9%	2.05	529.9	2.55	2.40	-0.96	2.22	2.70	2.73	3.20	-1.11	-1.01	-0.60	-0.58	-0.54	-0.50
0.30	1,437.2	13.7%	2.17	529.9	2.55	2.49	-0.86	2.34	2.83	2.87	3.35	-2.06	-1.92	-1.02	-1.19	-1.11	-1.04
0.35	1,634.3	14.7%	2.31	529.9	2.55	2.61	-0.75	2.48	2.99	3.04	3.52	-3.26	-3.06	-1.56	-1.95	-1.83	-1.72
0.40	1,831.4	15.8%	2.46	529.9	2.55	2.72	-0.63	2.62	3.16	3.21	3.70	-4.45	-4.20	-2.09	-2.72	-2.55	-2.40

ANNEX 4 Procurement Plan

Kureimat 3 Project Procurement Plan (million Euros)

Project Packages	Appraisal				Actual			
	ICB		Non-Bank Funded	Total	ICB		Non-Bank Funded	Total
	Total	ADB			Total	ADB		
Civil Works	0.00	0.00	32.72	32.72	0.00	0.00	56.49	56.49
Gas Turbine Generators	92.12	86.53	0.00	92.12	119.94	80.98	0.00	119.94
Steam Turbine Generator	49.14	45.37	0.00	49.14	59.46	49.09	0.00	59.46
Heat Recovery Steam Generators	38.31	29.76	0.00	38.31	64.82	44.09	0.00	64.82
Switchyard	13.91	13.68	0.00	13.91	0.00	0.00	9.34	9.34
Environmental Monitoring	1.03	0.57	0.00	1.03	0.00	0.00	0.08	0.08
Wrap-up Insurance	0.00	0.00	2.17	2.17	0.00	0.00	2.69	2.69
Project Management (Engineering Consultant)	0.00	0.00	15.39	15.39	0.00	0.00	20.13	20.13
Total	194.49	175.91	50.28	244.77	244.22	174.16	88.72	332.94

ANNEX 5 List of Supporting Documents

- Project Appraisal Report
- Monthly Project Progress Reports
- Project ESIA Report
- Project supervision reports
- EEHC Annual Reports
- UEEPC/PGESCo Project Completion Report

ANNEX 6 Environmental and Social Impacts

A. Implementation of the ESMP

The summary of the Environmental and Social Impact Assessment (ESIA) was disclosed on the AfDB website and distributed to the Board on 4 February 2005. In Egypt, the ESIA and Environmental and Social Management Plan (ESMP) were made available for viewing in January 2005 at a number of publicly accessible locations in Kureimat, the UEEPC offices in Giza (Greater Cairo). The project did not engender any economic or physical displacement. The power plant is located in a relatively isolated area, at the very South of the Giza Governorate, adjacent to the Beni Suef Governorate. The site is approximately 5 km away from the nearest villages (Kureimat and Ezbet El-Hagg).

All mitigation measures outlined in the ESMP have been implemented. The air quality monitoring stations are operational and emissions of NOx, CO_2 and SO_2 are monitored by an online system as well as portable emission measurement analyzers. The average emissions since January 2012 are under national standards. The site contains a comprehensive treatment plant with laboratories. Process water quality is monitored by an online system that ensures water specifications are under the limits recommended by the Egyptian Environmental Affairs Agency before it is discharged in the Nile. The project also has a water cooling system and a sewage treatment unit. Solid waste from the plant (hazardous, biomedical and commercial waste) is managed by licensed contractors to designated waste disposal sites. The solid wastes are collected at the site, segregated, stored and disposed of via licensed contractors. Sewage is discharged to the sewer treatment system of the power plant which is then managed by the municipal authority of Beni Suef. The plant complies with rigorous health and safety standards. The plan includes a fire alarm and safety system as well as a health clinic. Security trainings have regularly been conducted for all workers during construction activities, a practice that will continue for permanent employees during the operation of the plant.

Overall, the implementation of the ESMP is satisfactory, although it is not without its shortcomings. A key weakness has been the inconsistent reporting on environmental and social issues, with only two progress reports submitted to the Bank over the project implementation period. Moreover, the high turnover of the environmental manager position has also limited the continuity of information about the performance of the ESMP. Finally, there has been little follow-up on the implementation of the ESMP by the concerned Egyptian authorities.

B. Social impacts of the project

The project generated positive socio-economic impacts through the improvement of living conditions of beneficiaries as well as the generation of direct and indirect employment opportunities.

Contributing to economic growth and better living conditions

The Kureimat 3 power plant feeds into the national grid, and as such its direct beneficiaries are electricity consumers throughout Egypt, which is characterized by a highly urbanized population and a high growth rate of electricity demand. The provision of affordable and reliable commercial energy is key to improve the effective delivery of public services and raise the standards of living of households. Additionally, the project contributes to economic growth, as the expansion of the electricity generation facilities is imperative to meet the energy demand of growing industries and services.

Job and wealth creation

One of the most significant and direct positive social impacts of the project is its contribution to income-generation. While the project did not reach the employment figures stated in the appraisal report, which estimated that around 2,000 temporary construction jobs and 800 permanent jobs would be created, it nevertheless achieved an important job creation impact. Although there was no reporting mechanism to track employment headcount and the place of origin of the labor force, it is possible to estimate from the project's monthly progress reports that around 1,500 people were employed at peak construction times by contractors and PGESCo. Discussion with PGESCo indicated that around 60% of the unskilled labor was sourced locally while most of the skilled construction labor came from Upper Egypt. Finally, as far as permanent jobs are concerned, the project contributed to the creation of 300 new posts at UEEPC for the operation of Kureimat 3.

The project generated other direct and indirect income-generation opportunities, ranging from sub-contractors, suppliers, and other services (e.g. repair and maintenance, security, cleaning services, transport, food and catering, accommodation). Unfortunately, it is not possible to elaborate on this impact, as no monitoring mechanism was put in

place to track this information. Moreover, the absence of a reporting mechanism has limited our capacity to assess the project's local social impacts. Overall, in line with similar combined cycle projects in the country, it is estimated that about 30% of the total project costs must have been expended locally, contributing mostly to the communities in the neighboring city and towns of the Giza and Beni Suef Governorates.

Impact on gender

While the project did not translate directly into job opportunities for women, its impact on gender is nevertheless positive. As part of society as a whole, women will benefit from the economic growth and improved quality of public services - in particular health- sustained in part by a reliable energy supply. Moreover, affordable electricity will ease the burden of household chores, traditionally executed by women. As for direct employment generated by the project, no women was reported to have been involved in construction activities, and only 14 women were hired out of the 300 new positions created for the operation of the plant. The physical intensity of construction work, the remote location of the plant and the social practices of the area explain to a great extent the low representation of women in employment figures.