

REPUBLIC OF IRAQ
EMERGENCY ELECTRICITY PROJECT
Project Information Document (PID)

Project Name	IRAQ: Emergency Electricity Project
Recipient(s)	Ministry of Electricity
Implementing Agency	Ministry of Electricity
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Expected Approval Date	Tbd

A. BACKGROUND

Country Background

1. Large oil reserves and abundant natural and human resources enabled Iraq to attain the status of a middle-income country in the 1970s. Income per capita rose to over US\$3,600 in the early 1980s. However, successive wars and a repressive, state-dominated economic system have stifled growth and development and debilitated basic infrastructure and social services. Iraq's human development indicators are now among the lowest in the region, and per capita income dropped to about US\$770-1,020 by 2001. Although there is a scarcity of reliable economic data, 2003 GDP is estimated at about US\$13-17 billion, or about US\$480-630 per person.

2. Since the mid-1980s, years of conflicts, misdirected resources, and the effects of Iraq's centralized command economy have stifled economic growth and development, curtailing Iraq's ability to invest in new infrastructure and maintain existing facilities. Conflicts, looting, and sabotage have also resulted in direct damage to buildings, pipelines, communication equipment, and transportation links. Billing systems and associated revenues that maintain operations have collapsed. Today most Iraqis have limited access to essential basic services, including electricity, water supply, sanitation, and refuse collection. Serious environmental and health risks associated with contaminated water supplies, inappropriate handling of solid waste, and disposal of sewage threaten to further burden the already stressed health system. Electricity supply remains unreliable.

Electricity Sector

3. The Ministry of Electricity (MoE) is responsible for policymaking and electricity supply throughout the country. MoE is the successor of the Commission of Electricity (CoE), which was established by the Revolutionary Command Council Decree No. 195 on June 21, 1999. Under the Decree, the sector remained a Government monopoly with CoE responsible for the supervision and management of all activities related to electricity. CoE provided corporate services and operated the National Dispatch Center. Three regional generation and transmission companies (400kV and 132kV), four regional distribution companies and four other companies responsible for construction, manufacturing of equipment and IT were reporting to CoE. MoE was recently re-organized into a number of directorates largely maintaining the CoE structure, but power generation, transmission and distribution operations are now reorganized into 18 geographically based directorates which report to a Senior Deputy Minister. Total staff is estimated at about 43,000. The two electricity departments in Kurdistan (Sulymania and

Duhok and Erbil Governorates), which are not connected with the main grid, report to another official in MoE and have an estimated 7,300 employees.

4. In 1990, prior to the Gulf War, the total installed generating capacity was 9,295MW with a peak demand of about 5100 MW. Approximately 87% of the population had access to electricity. A combination of wars, lack of maintenance, sanctions, looting and vandalism has however severely affected the entire power system infrastructure in Iraq. During the 1991 Gulf War the electricity system suffered severe damage. Several transmission lines were put out of service and substations were damaged. However, the power generation equipment was the most severely affected. The available capacity was reduced to 2,325MW and power cuts of up to fifteen hours or more were common. In some areas there was no supply at all. Three 132kV interconnections to the three northern Governorates were removed. Erbil and Sulaimaniya had to rely on supply from the hydro power stations at Dokan and Derbandikhan. Dohuk was able to obtain limited power from Mosul.

5. While some of the damage of the 1991 war was repaired and about 4,500MW of generating capacity was available in 2002, power supply remained unreliable throughout the nineties and load shedding and unplanned power outages were frequent. After the most recent conflict, the situation deteriorated again and only 3,300MW of generating capacity was available. Power cuts became more frequent, particularly during the summer of 2003 when demand was at its peak. Per capita consumption of electricity dropped from about 1,700 kWh before 1991 to about 700 kWh in 2003.

6. Recent reconstruction efforts have increased the available generating capacity to about 4,700MW. However, the old generating equipment frequently fails, fuel supply is often interrupted and the transmission and distribution system remain highly unreliable. Demand for power has reportedly increased by about 30 percent, mainly from domestic customers because of the increased availability of electric appliances. Over the summer, on average there has been only about 12 hours of supply per day, because of load shedding and continuing equipment failures. Billing of consumers has started, but collection remains difficult because of the security situation.

7. MoE plans to increase available generating capacity to about 6,000MW by the end of 2004, but the security situation may make it difficult to achieve this target and insufficient resources are available to carry out all necessary repairs in the transmission and distribution system. Also, equipment prices have soared due to the lack of security throughout the country.

8. A master plan for the power sector was completed in July 2004 with financing from USAID. The recommended strategy is to expand generating capacity with gas based generation, by capturing the substantial volume associated gas, which is now being flared and by developing independent proven gas resources to fuel new power plants. In the short run more resources are being made available for repairs of the transmission and distribution system to help improve reliability of supply. However, the available financial resources, far outstrip the financial needs of the power sector. (Estimated to be about US\$13 billion up to 2007.) One of the key issues to be addressed is the adjustment of energy prices to improve cost recovery and to ensure that the right economic investment choices are made.

The International Response

9. Following the invasion of Iraq in 2003, the international community was quick to recognize the need for a multilateral approach to the reconstruction and development of Iraq. At the request of the international community, the World Bank and the United Nations Development Group worked closely to produce an assessment of Iraq's reconstruction needs. The [United Nations / World Bank Joint Iraq Needs Assessment](#) (October 2003) estimated total needs for the period 2004-2007 to be US\$55 billion,

comprising US\$35.8 billion for the fourteen sectors covered by the Needs Assessment,¹ and US\$19.4 billion estimated by the then Coalition Provisional Authority (CPA) for other sectors including security and oil. The Joint Needs Assessment served as a basis for an international donors' conference held in Madrid in October of 2003, where donors pledged about US\$32 billion for the period 2004-2007. Two follow-up conferences were held in Abu-Dhabi and Doha in March and May of 2004, respectively, to review and approve the lists of priorities submitted by each ministry. The next donors' meeting will take place in Tokyo on October 13th, 2004, to assess the progress made one year after the Madrid meeting.

10. To ensure swift, flexible, and coordinated donor financing for priority investments identified in the Needs Assessment, the World Bank and the UN designed an International Reconstruction Fund Facility for Iraq, consisting of two trust funds—a World Bank Iraq Trust Fund (ITF) and a UNDG Iraq Trust Fund—with mechanisms for close coordination. About US\$1 billion have been pledged for the UN and the World Bank Trust Funds for 2004/2005. Projects presented for funding under the Trusts Funds are submitted for approval to the Iraqi Strategic Review Board (ISRB), chaired by the Ministry of Planning and Development Cooperation, to ensure projects are in-line with country priorities, and that no duplication occurs.

11. Most of the US\$32 billion pledged for Iraq's reconstruction would be channeled bilaterally. The United States (US) is the single largest contributor to Iraq's reconstruction and to infrastructure rehabilitation in particular. The US\$18.4 billion supplemental appropriation approved by US Congress in late 2003 includes US\$5.5 billion for electricity and US\$4.3 for public works and water, but part of the funding was recently reallocated. The US has awarded several major contracts for physical and social infrastructure rehabilitation, leading to some improvement in basic infrastructure services. However, despite the US funding, Iraq faces a large gap in financing for emergency reconstruction and capacity building. Inadequate infrastructure service delivery remains a critical problem that lowers the quality of life in Iraq, contributes to poor security, and thwarts economic recovery and development.

12. The UN, which has experience working in Iraq under the Oil-For-Food program, is also expected to play an important role in addressing infrastructure needs. It currently has 23 agencies working in Iraq with local staff, and, like the World Bank, has established an operational presence in Amman for international staff. The UN and the World Bank sectors of intervention may overlap, making it essential that respective project teams work closely together to ensure that each institution capitalizes on its comparative advantages.

B. RATIONALE FOR BANK INVOLVEMENT

13. The proposed project is fully consistent with the [World Bank's Interim Strategy Note for Iraq](#) (January 2004), which emphasizes the need for rapid rehabilitation of critical infrastructure and services, short-term employment generation, and institutional capacity building as prerequisites for long-term sustainable recovery.

14. There are important reasons for the Bank to be involved at this stage in rehabilitating Iraq's infrastructure:

¹ The sectors are: education; health; employment creation; water and sanitation; transport and telecommunications; electricity; housing and land management; urban management; agriculture, water resources, and food security; finance; state-owned industries; investment climate; mine action; and government institutions. The crosscutting themes are: gender, environment, and human rights.

- Despite relatively large amounts of financing for infrastructure from bilateral donors, there remains a huge financing gap for infrastructure rehabilitation, which remains one of the biggest obstacles to economic recovery. Bank financing can complement the ongoing large-scale infrastructure investments;
- The Bank is in a position to share international experiences and best practices based on the Bank's considerable international experience with infrastructure reconstruction projects in conflict-affected areas (including Bosnia-Herzegovina, Ethiopia, West Bank and Gaza, and Afghanistan);
- Bank financing, unlike the financing of many other donors, will be implemented by Iraq through the country's own institutions (ministries and agencies), which will ensure Iraqi ownership and build Iraq's institutional capacity, both crucial for the country's sustainable development; and
- The Bank will couple financing for rehabilitation with policy advice, assisting the Government with urgent policy decisions, while laying the ground for sector restructuring that is essential for long-term sustainability of infrastructure investments.

Applying Lessons Learned

15. The Bank's increased role in post-conflict reconstruction over the past decade has provided a wealth of experience on which to draw. Now guided by OP2.30 Development Cooperation and Conflict, the Bank's reconstruction efforts put a premium on early but selective engagement, flexibility in design and implementation, capacity building, coordination with donors and other partners, and close monitoring and evaluation. Notwithstanding the broadening into multi-sectoral assistance, OED has recognized the Bank's continued comparative advantage in rebuilding physical infrastructure².

16. On the question of working in insecure environments, OP2.30 recognizes that even in countries in conflict the Bank should "continue efforts at poverty reduction and maintenance of socioeconomic assets" and in developing a program for a country in transition from conflict may become involved incrementally. The Bank's recent experience in Afghanistan provides the clearest precedent where selective assistance was mobilized ahead of, and in support of, a fully developed transitional support strategy.

17. In line with these lessons, the project will be kept flexible to permit a quick response to changing circumstances. In addition, the Bank has conducted generic training, including project management, procurement, financial management, and environmental and social safeguards, for staff members of ministries associated with infrastructure. Further capacity building will take place in the coming months to ensure client readiness in project implementation. Early and effective collaboration with other donor agencies has also proven vital in previous emergency operations, such as Afghanistan. Accordingly, the project team is in close contact with other external partners, including the United States, United Nations, EU, United Kingdom, and Japan. The project team is also in regular discussion through videoconferences with representatives of line ministries and their advisors; and several face-to-face meetings have taken place outside of Iraq.

C. THE PROJECT

18. The proposed project represents the second phase of the Emergency Infrastructure Reconstruction Program, described in the PID of April 21, 2004, which intends to cover the five sectors of water supply

² OED, *The World Bank's Experience with Post-conflict Reconstruction* (1998)

and sanitation, electricity, urban rehabilitation, transportation, and telecommunications. In view of the limited availability of funds at the World Bank Iraq Trust Fund, and the expressed interest of donors for certain sectors, the available funds will first be used for urgent water supply, sanitation and municipal infrastructure needs of cities outside Baghdad and a companion water supply and sanitation project for Baghdad, given the Capital City's independent status, its historical responsibility for infrastructure services within its boundary, and the severity of the physical and environmental damages to its facilities during the last conflict.

Project Objectives

19. The principal objective of the proposed electricity project is to help improve the reliability of electricity supply through: (a) the reconstruction and rehabilitation of existing facilities, and (b) providing capacity building support through training and technical assistance. The project will complement support by other donors that focuses largely on the reconstruction of major generation and transmission facilities and supply of goods. The project will also create vitally needed short-term employment and help build Iraq's capacity to manage large-scale reconstruction.

Project Description

20. The project addresses the urgent needs of the power sector including the provision of urgently needed spare parts and transmission and distribution equipment throughout the country. It provides support to MoE to better manage projects at the design, supervision, operation and maintenance stages by building the capacity of its staff. It may also include further assistance to improve accounting, billing and metering and institutional development depending on funding availability. Project components and their estimated total costs³ are summarized in Table 1 below.

Component 1: Provision of spare parts for the Al-Quds gas turbine power station (US\$10.4 million)

The Al- Quds power station is located about 40 km from of Baghdad city center. This power station consists of four relatively new gas turbine units of 125 MW capacity, open cycle configuration, Frame 9E, General Electric (GE)/ Europe. The first two units were commissioned and synchronized to the grid on May 16, 2002 and July 9, 2002 respectively. The other two units are under commissioning and expected to start operation in late 2004. These units were designed to burn both natural gas and gas oil with the former as a base fuel. So far, mainly gas oil was used and in extraordinary cases, crude oil. Once completed, the capacity of this power station (500 MW) would represent about 12% of the total available capacity in Iraq and the plant supplies thousands of customers. In the absence of availability of spare parts, appropriate maintenance cannot be carried out and plant availability may suffer. The spare parts are urgently needed to maintain the plant in good condition. The power station is critical for meeting the growing demand in the Baghdad area.

Component 2: Provision of spare parts for the Al-Taji gas turbine power station (US\$3.3 million)

The Al- Taji gas turbine power station includes: (i) 7 units of 20 MW each installed in 1974; (ii) 4 units of 10 MW each installed in 1981; (iii) 4 units of 15 MW each installed in 1981 and (iv) 2 units of 12.5 MW each installed in 2002 (total design capacity of 265MW). JICA and UNDP (with financing from the Iraq

³ The estimated total costs include physical and price contingencies but they are still subject to further due diligence. The capacity building and training component may be expended depending on availability of funding and further discussions with MoE.

Trust Fund) will be financing the replacement/overhaul of the older units. The proposed project is to finance the supply of spare parts and rehabilitation of the two ALSTOM units of 12.5 MW (currently derated to about 7.5MW each). In addition, the proposed project would finance the cost of equipment for the electrical and mechanical workshop, which will serve all generating units.

Component 3: Supply of power transformers for substations 132/33/11KV (US\$11.9 million)

In many of the existing 132/33/11KV substations, the power transformers, which were either damaged due to war or vandalized or looted after the war, are not functional. The required transformers are planned to be installed in substations in Baghdad, Basra, Anbar, Diala, and Tikrit Governorates. This project component will replace 20-power transformers of 63 MVA capacities; four of which are 132/33 KV transformers; and 16 of which are 132/33/11 KV transformers. The new transformers would reduce overloading and improve reliability of the system. MoE estimates that about one million consumers would benefit from this project component.

Component 4: Completion of the Mosil-Mansoor substation 132/33/11KV (US\$1.8 million)

This substation is located in Mousil city and it connects with Al- Mansoor gas generating plant. Once completed, it will improve the reliability of the transmission and distribution systems at Mousil area as well as reducing the bottlenecks in the power system and maintain stability and reliability of the electrical network. This substation is an Air Insulated Substation type comprising 3 x 63 MVA transformers of 132/33/11 KV. It includes 6 X 132 KV line feeders (11 bays) outdoor type, 15 x 33 KV outgoing feeders (Indoor metal clad switchgear), 18 x 11 KV outgoing feeders (Indoor metal clad switchgear), complete with all AC/DC auxiliary equipment, protection devices, communication, control and metering equipment. Construction of this substation started in 2000 and was about 70% completed. It was looted and damaged during the war and could not be completed.

Component 5: Supply of 33/11 KV Mobile Substations for the Distribution Networks (US\$10.8 million)

Mobile substations are, sometimes, used to fill in for regular substations when conditions are not normal, or when load increases cannot be matched with additional supply capacity in the distribution network. Many of the existing 33/11 KV substations, which were used to supply customers all over Iraq have been damaged during the Gulf Wars. In addition, loads have increased to levels exceeding substation and feeder capacity. This combined effect requires the replacement of several mobile 33/11 KV substations in the interim period to replace the damaged substations and / or to feed the increased demand for electric power. This component provides for the purchase and installation of 21 units of 33/11 KV mobile substations with 16 MVA transformer and 4-11 KV feeders each, and 4 units of 33/11 KV mobile substations with 10 MVA transformer and 3-11 KV feeders each. These mobile substations will be allocated to all governorates of Iraq to replace the damaged ones or to serve on an emergency or temporary basis.

Component 6: Supply of Materials for the Rehabilitation and Expansion of Distribution Networks (US\$ 33.2 Million)

According to the Ministry of Electricity, there are 527 33/11 KV substations and 75900 11/0.4 KV substations in Iraq. Furthermore, 33 KV lines (both underground and overhead) have a length of 12300 km while 11 KV lines (underground and overhead) are around 71000 km long. The network requires urgent rehabilitation and replacement and/or addition to improve the reliability of supply. The quantities of equipment and parts were estimated based on surveys of the existing distribution network, damage assessments and a survey of materials available in stores.

Component 7: Rehabilitation and Development of Baghdad and Mosul Training Centers (US\$ 17.6 million)

Staffs working presently working in the electricity sector need to be trained in order to upgrade their skills, increase their productivity and efficiency and to acquaint them with the particulars of the new equipment, which is being installed in the sector. Moreover, There is a need for professional training in accounting, project management, inventory management, procurement and contract management and sound commercial utility practices.

The proposed project covers the rehabilitation and refurbishment of the two existing training centers (one in Baghdad and one in Mosul) and includes: This component consists of: (i) civil engineering works to remodel, partition and develop classrooms, meeting rooms, workshops, offices, laboratories, library, etc (ii) equipment for classrooms, workshops and laboratories; (iii) operation and maintenance of the centers for 12 months.

Component 8: Supply of Maintenance and Testing Equipment (US\$ 16.6 million)

This component consists of the supply of maintenance and testing equipment specifically for the generation directorates. In particular, the required goods include 10 mobile cranes, 5 loaders 8 tanker trucks, and various maintenance, testing tools and safety facilities.

Component 9: Technical Assistance and Capacity Building⁴ (US\$ 5.5 million)

This component is essential to ensure the proper implementation of the project and to train staff on efficient utility practices. It may also include the following activities:

- Consulting services for support to complete final designs and tender documents;
- Consulting services for construction supervision
- Capacity building and training in specific technical areas
- Design and implementation of appropriate accounting and commercial systems, information management, tariff design, billing and collection etc.
- International audits
- Consultants support to the project management team and
- Feasibility studies and final design for follow up projects

⁴ / This component needs further discussion with MoE and the scope will be adjusted taking into account available funding and items covered by other donors

Grant Costs by Components

Component	Total Cost	% of Total
1. Supply of spare parts for maintenance of Al-Quds GTS	9,500,000	
2. Supply of spare parts for maintenance of Al-Taji GTS	3,000,000	
3. Power Transformers	10,800,000	
4. Completion of Mousil - Mansour 134/33/11/KV Substation	1,633,136	
5. Supply of Mobile 33/11 KV substations	9,800,000	
6. Supply of goods for the rehabilitation of distribution networks	30,215,000	
7. Rehabilitation and development of Baghdad and Mousil Training centers	16,000,000	
8. Supply of maintenance and testing equipment	14,600,000	
9. Technical Assistance	5,000,000	
Total Base Cost	100,548,136	
Price Contingencies (US\$)	4,919,407	
Physical Contingencies (US\$)	4,919,407	
TOTAL	110,386,950	
Financing: To be decided		

Project Financing

21. The total cost of the above-mentioned components is estimated at about US\$ 110 million. Until now, no funding is available from the World Bank Iraq Trust Fund. The MoE has agreed in principle to cover the cost of Iraqi staff seconded to the Project Management Team (PMT), and the cost of its staff involved in installation of equipment. utility costs and other operating costs not specified above.

D. INSTITUTIONAL ARRANGEMENTS AND IMPLEMENTATION

22. The institutional arrangements for the project would be similar to those adopted by the recently approved projects under the World Bank Iraq Trust Fund. The Ministry of Planning and Development Cooperation will serve as the overall coordinator of the project. The MoE would be the implementing agency and the direct recipient of the Grant. A few other Iraqi institutions such as the Ministry of the Environment would be associated indirectly with the project for clearances and reviews in accordance with national requirements.

Implementation Arrangements

23. Project works will be grouped into large sector contracts for equipment supply and civil works to simplify implementation and permit direct disbursement of funds. The preferred method of disbursing funds is direct payment by the World Bank to suppliers upon the instruction of the implementing agency and in accordance with the contract between the implementing agency and the supplier.

Procurement

24. Procurement for this Project will be carried out in accordance with the World Bank's "Guidelines: Procurement Under IBRD Loans and IDA Credits" dated May 2004; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, and the provisions stipulated in the Legal Agreement.

25. The PMT will closely coordinate its daily activities with the different departments of the MoE. It is critical that at least two qualified procurement staff members are selected for the PMT prior to the Grant effectiveness.

Financial Management and Disbursements

26. The Bank's strategy in Iraq is to implement projects through the Iraqi ministries, working together to strengthen the Ministries' controls, at the same time putting in place other measures to provide assurance that funds have been used for their intended purpose. The MoE would maintain an appropriate and adequate financial management system, including records and accounts, and prepare financial statements that reflect the operations, resources and expenditures. The Grant Agreement would also stipulate a commitment that the recipient to have the accounts, records, and financial statements of the grant to be audited each fiscal year by a qualified auditor acceptable to the Administrator (Bank) with scope and standards accepted internationally. Lastly, the Trust Fund Agreement imposes the presence of an independent Monitoring Agent that will ensure that funds have been used for their intended purposes.

Environmental Aspects

27. The Project will be processed as an Emergency Recovery Project. The Project is rated as a category "B," because it will be limited to the rehabilitation and reconstruction of existing damaged facilities, as opposed to category "A" projects with high environmental impacts. The project will be processed in accordance with the Environmental and Social Screening Assessment Framework (ESSAF) for Iraq, which should be disclosed by the Recipient before appraisal. This framework entails that: (a) all components be screened by the Recipient through a checklist attached in the ESSAF; (b) that a code of practice be included as part of civil work contracts as well as of purchase and installation of equipment contracts; (c) and that capacity building is undertaken on the environmental issues and on corrective environmental measures in order to enable the grant recipient, and particularly the Ministry of Environment, to address any potential aspects that may arise during the screening and implementation of the components.

28. It is anticipated that land acquisition and resettlement will be kept to a minimum and all land acquisition and resettlement will be carried out in accordance with these guidelines set forth in the ESSAF. Component proposals that would require demolishing houses or acquiring productive land will be carefully reviewed to minimize or avoid their impacts through alternative alignments. Proposals that require more than minor expansion along rights of way will be reviewed carefully. No land or asset acquisition may take place outside of the ESSAF guidelines.

E. FINANCIAL AND ECONOMIC JUSTIFICATIONS

29. The financial and economic justification for the project would be completed during appraisal, but the project would be expected to bring about significant benefits as it aims to help improve the reliability and efficiency of electricity supply throughout the country and improve utility operations.

F. POTENTIAL RISKS

30. The proposed project is subject to substantial risks, including: (i) security issues; (ii) political risks; (iii) limited institutional and implementation capacity; (iv) project sustainability (financial); and (v) unfamiliarity with Bank safeguards and procedures (accountability, financial management, and procurement). To mitigate these risks, the project design of each module would be kept simple and straightforward. The project would include training and capacity building components to minimize fiduciary risks. The project, which would consist mainly of reconstruction and rehabilitation works, is not expected to impose major strains on the government's budget for maintenance. The project would be designed to assist Iraq to operate the rehabilitated facilities in a cost effective, efficient, and sustainable manner.

Monitoring and Evaluation

31. Annual reviews by the MOPDC and the MoE would be carried out to track compliance with Grant conditions and highlight lessons from implementation. Furthermore, an independent Monitoring Agent will be appointed to assess compliance with the Grant Agreement, as stipulated in the Trust Fund Conditions. Performance indicators for each component of the project would be established during project appraisal and measured annually during supervision. Performance indicators will be determined during appraisal.

G. PROPOSED PREPARATION SCHEDULE

32. If funding would become available, appraisal could be concluded during November 2004 with negotiations conducted shortly thereafter.