

**Electricity Sector reform Workshop and regulation Road Map
For the Iraqi Ministry of Electricity/Planning and Studies department
directorate**

June 17-19, 2013

Crown Plaza Hotel

Amman, Jordan

Workshop Report

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1. Introduction

This three days' workshop was one of several workshops that aimed at supporting the government of Iraq to initiate an electricity reform program. The workshop was attended by five senior officials from the Ministry of Electricity in Iraq (Laith Hasan, Amer Saleh, Ban Ibrahim, Hisham Abdel Al-HAdi, and Hazim Hana), US State Department (Mr. Wally Sabih) and two Jordanian consultants working with Deloitte (Isam Mustafa, and Imad Nejdawi), and two Deloitte employees (Bachir Michelle, and Dan Potash). The workshop started with a short welcoming delivered by US State Department Contractor (Mr. Wally Sabih), Mr. Laith Hasan/Ministry of Electricity Iraq, and Dan Potash/Deloitte. Mr. Sabih made it clear that the main objective of the workshop is to come up with a road map on reform representing next steps to follow. The workshop was organized by Sameera Qadoura/Jordanian outreach and events management specialist.

2. Activities

a. Presentations:

- i. Dan Potash delivered series of presentations on reform during which he defined the purpose of reform is to have a better performance in supplying reliable power, and that each country is unique and therefore may require different set of reform approaches. To have a meaningful reform the government commitment is a prerequisite and the cost recovery and assuring payment issues should be carefully addressed. The experiences of several countries (Oman, Jordan, Morocco, Bhiwandi, and Georgia), from all over the world were presented. Moreover, the standard model for reform was explained. The model consists of six stages (corporatization & commercialization, regulation, IPPs, unbundling, privatization, and competition). Also offered were examples of best practices and some pitfalls and lessons learned from power sector reform undertaken around the world.
- ii. Eng. Amer Rajab Saleh from the Ministry of Electricity in Iraq delivered a presentation during which he highlighted the regulatory environment and reform issues in the electricity sector. He listed the priorities in the distribution system namely: billing system, O&M, loss reduction, rehabilitation, and capacity building & HR. On the energy efficiency front he listed the DSM measures namely: demand response (temporary reduction in of peak, load shifting, and reduction of total kWh). On demand side management the priorities include awareness, efficient light bulbs, efficient appliances, and utilization of solar and wind

energy. In the area of regulation he suggested that a regulatory department should be established. Finally Eng. Saleh presented the following immediate requirements:

- Develop the regulatory department within the planning and studies office / MoE in order to ultimately have an independent commission in the future. It should be done in steps and gradually. This is one of key issues to bring private sector participation in the electricity sector.
- There is a need for a long term consultant to train staff on regulatory issues with intensive experience about the experiences of the countries in the region.
- Get the staff exposed to international experiences in the regulatory field through study tours.
- Drafting the following codes
 - Distribution code
 - Metering code
 - Renewable energy code

b. Field visits

- i. **CEGCO/Central Electricity Generation Company (www.cegco.com.jo)**: Mr. Omar Al Daour/CEO gave a very brief presentation on the development of the company, the relationship with ERC (focuses on exchange of information that enable ERC to monitor performance according to a pre-determined set of KPIs). As a response to the O&M problems in Iraq he expressed his willingness to cooperate with the Iraqi side in order to assist in O&M activities.
- ii. **ERC/Electricity Regulatory Commission (www.erc.gov.jo)**: The chairman/Prof. Mohammad Hamed explained briefly the historical background of ERC establishment, its role in regulating the electricity sector, its structure, codes available (generation, distribution), codes under development (renewable energy), financing (self-financing), and reporting lines (the chairman currently reports directly to the prime minister). He also expressed his willingness to extend support to Iraqis in their endeavor to develop their electricity regulatory system.
- iii. **NEPCO/National Electric Power Company-Dispatch Center (<http://www.nepco.com.jo/>)**: Eng. Ali Malkawi Operations manager and his assistant delivered brief presentation on the electricity system in Jordan (Generation, Transmission and distribution. This was followed by describing the methodology used in projecting electricity load (load forecasting). Then they

talked about the extra number of employees available at NEPCO and how this affects the productivity and profits of NEPCO. They also mentioned the expansion plans of the generation system to meet projected load. What was interesting is that NEPCO is going to purchase diesel units (the largest in the world according to them) that can be run on gas and fuel oil(!). Finally they explained how the dispatch center works.

- iv. **JEPCO/Jordan Electric Power Company** (www.jepco.com.jo): Eng. Hassan Abdullah/Head of assets management department and his deputy explained the historical development of JEPCO which was established in the thirties, problems the company is facing (government decisions – for example the company needs to adopt smart systems within 7 years from now which is seen as a short period by JEPCO), the level on non-technical losses that cannot be exceeded – 12.6%/according to JEPCO non-technical losses exceed 14% and in this case they have to pay penalty). The company expressed its willingness to cooperate with the Iraqis in the future.

c. Jordanian consultants

Both Isam Mustafa and Imad Nejdawi participated in the field visits and in the discussions that took place in the workshop during which they have focused on the Jordanian experience in the power sector reform process and in the areas of energy efficiency and renewable energy utilization. They have also emphasized the importance of sending the right pricing signals through cost based electricity tariff and the provision of direct subsidies to those in need of it. Furthermore they delivered these messages directly in Arabic and from the point of view of a neighboring country.

3. Road Map for Reform

The following table outlines the recommended course of actions/road map towards creating the appropriate governance for initiating the power sector reform in Iraq. These actions were discussed with the Iraqi delegation and agreed upon during the workshop.

RECOMMENDATIONS DEVELOPED JUNE 2013 AT AMMAN WORKSHOP OF CONSULTANTS AND DELEGATION FROM IRAQ MINISTRY OF ELECTRICITY ON STRUCTURES FOR IRAQ ELECTRICITY SECTOR REFORM ROAD MAP	
ISSUE	RECOMMENDATION AND REASON
Corporatization	Corporatize all existing operating entities now. Corporatization is the necessary initial step to assure accountability for operations, accountability and responsibility for management control, and accountability and transparency of all financial accounts. While other national systems that have reformed differ widely in nearly all respects, corporatization to assure responsibility is the universal first step. It should be done as quickly as mechanically possible under law.
Form of Corporatization	Joint stock company (corporation to be duly organized under existing Iraqi law, initially with one shareholder which is contemplated to be Ministry of Electricity). A joint stock form is preferred since it will impose a requirement of financial accounting of a form recognizable for other financial purposes. As a principal purpose of the reform is commercial viability, imposing proper financial instruments at the outset is very useful to demonstrate a seriousness of purpose, and to gain confidence of investors or other potential stakeholders. However, the choice of initial corporate form, (as joint stock company or as a state corporation of some form) is of lesser importance than the fact of corporatizing, in a manner that requires clear definition of management responsibility and financial controls.
Ownership of Transmission Company (Transco)	Create a single national high voltage transmission company. The piece of a grid that is shared by all users is the high voltage transmission system. An integrated and coordinated grid is also a fundamental aspect in creating the most reliable and least cost power system. Therefore creating and control of a single national grid, as a national company, is a common and useful feature, even in many otherwise fully open and competitive power systems. The Transco might be considered for privatization after the initial period and after robust regulatory structures is in place.
Operation of System Dispatch	Initially, System Dispatch within Transco jurisdiction. Initially close coordination between the Dispatch Operator and Transmission Operator will be required, and might be indistinguishable acts in practice. Later, as the system has become more reliable, as better and accurate metering is in place, as system losses and theft have been reduced, and as reliable billing systems have become developed, then the functions may be separable. Also, following those events, if and when a wholesale market is designed, the placement of the Dispatch Operator could change, reflecting that design.
Institutional	By the Transco. The Transco has the most information on all

Location of Transmission Reliability Planning, and Operational Reliability Planning.	aspects of system current and expected future operations. Therefore, the Transco should do operational planning for reliability of transmission operations, and of design of preferred generation equipment mix to assure available plant for dispatch to meet expected loads.
Institutional Location of Definition of Reliability Standards.	By an independent regulator, subject to statutory criteria. Reliability standards are not simply an engineering issue. Meeting them also implies costs, and those costs are very serious costs. Therefore reliability standards are also an important fact affecting tariffs. Setting tariffs is a regulatory issue. However, definition of reliability standards is also a policy issue. Therefore, provided that adequate means exist to assure that cost consequences are taken to account, a Ministry can also define reliability standards.
Ownership of Existing Generation (3 Gencos are considered: North, South, and Middle)	A single national generating company (Genco). Placing all existing generation into a single national generating company is probably the simplest administrative and management step to carry out, which can be done the fastest, while assuring accountability. At later stages, such as if a wholesale market is later designed for generation, then ownership of the Genco or its reorganization, can be considered then.
Ownership of Existing Distribution (4 Discos are considered: North, South, Middle, and Baghdad).	Make the distribution entities (Discos) regional. One key to any reform is effective remedies to problems of reliability and of billings, metering and collections by the distribution entity. After corporatization, devolve the distribution directorates to the responsibility of the regional Governors to appoint a majority of the Board of each. The criteria for setting tariffs should be stated separately in a law, and regulated by a national regulator, subject to the criteria and standards also stated in that law. If a Province wishes to set tariffs below the levels allowed by the criteria of law, they may elect to pay additional subsidies adequate to allow that result. (See separate entries for all those issues). By placing responsibility for Discos at the province, then the ability of Governors or other local politicians to avoid tariff and fiscal responsibility is reduced. Also, different provinces may have very different political preferences as to how ownership of critical infrastructure should be managed and owned. The regions might elect to hire management contractors for some period, at their option By allowing local decisions, and then the most stable long term configurations are most likely to be reached.
Long Term Form of Discos	Allow the regions to decide the long term form of each Disco, by exercising a vote of the Board. The long term options, and their timing, might be stated by a reform law, and might range from continued state control to full privatization.
Commercial Viability	Assure Commercial Viability Within Five Years. Commercially viable means, paying all normal operations costs including fair profits when private operators are involved, from the tariffs changed to consumers. Whatever combination of policy, law or regulation, should assure that all operating entities are made fully commercially viable in not more than five years.

<p>How to Pay for Subsidies</p>	<p>Subsidies Should Be Avoided. But if used, subsidies should be clearly targeted, clearly designed as subsidies, and paid preferably by reduced cost of fuels (absorbed by government). A law should clearly state that all operating companies in the power sector are entitled to tariffs that fully recover their normal operating costs including fair profits. That law should therefor also require that whatever is the entity that sets tariffs, must design tariffs which recover a normal annual revenue requirement. All differences from commercial viability (all differences from a normal annual revenue requirement) at all stages, whether before or after five years, must be fully and clearly identified by policy choices. A law implementing the reform should require that any differences from commercially viable tariffs must be clearly covered by funded subsidies. Payments of cash subsidies allow the greatest opportunities for corruption and for miss-direction of funds and of benefits. Therefore, subsidies should be applied, if at all, only by devices that do not require cash payments, and in manners that are directly absorbed into government budgets. The best device that allows this with least opportunity for corruption in cash flow, is therefore by reducing fuel costs for those generating units using hydrocarbon fuels (oil or natural gas) supplied by a government company or a Ministry. Other devices can be considered.</p>
<p>Determination of Retail Tariffs.</p> <p>This activity is underway by MoE.</p>	<p>An Independent Regulator Should Set Retail Tariffs, Following Standards and Procedures Determined by Law. Tariffs are the most publically obvious and thus publicly sensitive, part of the power sector. They also affect the commercial viability of all operating entities. Therefore, they must be made the least susceptible to political control. The nearly universally adopted solution to design an institution which manages a politically difficult topic in a least political way, is an independent regulator, that must follow statutory standards both for how prices are set, and for fully transparent open public processes to do so. Such a body should be designed and created by law. The Law should also attribute to that entity the standard list of regulatory duties such as issuance of appropriate regulations, issue of licenses, oversight of licensees, and dispute resolution between licensees and between consumers and licensees.</p>
<p>Interim Regulator</p>	<p>A Special Division of the Ministry of Electricity acts as Interim Regulator for a Fixed Period. If necessary, an interim phase, such as five years, might be designed in which a part of the Ministry acts as a regulator in that transitional period. That Interim Regulator should follow to the greatest extent possible, the same procedures and requirements as the law would impose on a regulator.</p>
<p>Consequences for Retail Non-Payment</p>	<p>Mandatory cut off of supply for Non-Payment. The law should require payment for billed electricity (at the tariff rates), and should require the operating companies to cut off delivery to any customer who has not paid in full for all supply delivered within not more than 30 days from delivery of the invoice for payment.</p>
<p>Determination of Wholesale Power Prices</p>	<p>Wholesale Power Prices Must Cover the Full Real Costs of Generation, including Capital Costs and Fuel Costs. The level of such prices should also be set by an independent regulator,</p>

to the GoI Genco	subject to a commercial viability standards also stated in a law. If all subsidies are set via fuel cost reductions to generators, then also, proper cost accounts must be in place to assure the mechanisms of subsidies are properly computed and reach the proper tariff classes.
Role of Private Generation	Private Owned and Operated Generation by Any of IPP, PPP, or Their Variants Should be Allowed. The choice of mechanism in each case can be decided by the entity that is the buyer. The critical issue for private operation is that the operator has full confidence that they will be paid, in a timely manner, and that the payments will cover the full costs including fair profits. Therefore, the critical issue is the credibility of the buyer, and of the specific payment arrangement. Credible buyers might be the government, if sellers will believe that, or the Transco, or the Discos. Or other buyers, such as major industrials, if allowed by law.
Single Buyer Option	Make the Transco the Single Buyer for First Five Years. (See Day 1 Slides for Definitions). Private generators such as IPP's must know who will buy their power, and have credible arrangements in place to do so. Initially there will be no credible arrangements in place for shipment to buyers other than the Transco. Therefore initially, the only credible buyer s the Transco. The Transco will be a Government entity; therefore, the Government is the effective guarantor of payment to the Generators. The Government must be prepared to put in place credible guarantee arrangements to new private generators (such as contracted under PP, IPP or any variants). Therefore the Government, via the Transco should consider taking partial risk guarantees from the World Bank or similar institutions, to assure that new generation is contracted and actually constructed. While the arrangements for new generation may change after Year 5, agreements signed in the first five years should have terms appropriate to the generation forms contracted, and may last longer than five years. The transition at five years will therefore need to assure continued payments on the initial contracts for the lives of those contracts.
Consequences for Generation Supply Non-Payment	The Consequence for Non-Payment for Supply of Electricity or Supply Electrical Capacity From a Generator, from the Genco, or from the Transco-Single-Buyer, Should be Mandatory Cut-off of Supply, or Curtailment to the Amount Representing the Percentage Paid. The law should require payment for all supply, at the tariff or contracted rates. The Law should require the seller (whether the Transco, the Genco, or a private generating company) to cut off delivery to any customer (including to any Disco) who has not paid in full for all supply delivered within not more than 30 days from delivery of the invoice for payment. The Law should require that all invoices be delivered within 15 days of the close of the billing cycle or Calendar month of delivery, whichever is longer. If and when a wholesale market is created, then the rules of that market can govern commercially reasonable terms.
Disposition of Existing Small Direct Sale Generators	To Apply To Small Generators that Exist and Have Viable Customers the Day Before the Draft Reform Law is Made Public. The Law should require that the Single Buyer begin purchasing all supply from the small generation networks within not more than 12 months from passage, and that no new small

	generators can be created after the law has passed. Concurrently, as small generators begin to sell to Trancso, the Discos should be required to coordinate and begin delivery of supply at least as reliable as what the small generator did, to all customers of that small generator. Such customers will then henceforth make supply payments to the Disco at the tariff rate for that Disco.
Management Contractors for Genco and Transco	The Ministry of Electricity Should Consider Hiring Management Contractors for the Transco and the Genco. After appointing Boards of Directors for the corporatized Genco and Transco, the Ministry of Electricity should ask each Board to assess the management of each company and advise the Ministry if a Management Contractor is required for each. If advised, and the Ministry agrees, the Board should proceed to tender for a management contractor for each company. The Boards should be given not more than three months to advise on the choice. If a contractor is recommended, then they should be given not more than six months to tender for and hire such contractor.
Employee Retention Policy	Require Retention of all Legal Employees of any Operating Entity, as Identified or Proved on Day Before the Reform Law Was First made Public, to be retained for at Least 1 Year. Operating Companies must have the option of rationalizing their work force within a reasonable time. Commercially Viable tariffs can pay for all legitimately required employees, but cannot be a basis for ad hoc employment of staff beyond that required for operating a normally efficient and effective company. The transition plan for the Reform might also offer alternative training for staff, and assistance in placement into other jobs, or buyouts for a cash payment for voluntary early departures.
Capacity Development	Plan a Strong Capacity Development Program for the Interim or Permanent Regulator Staff. This should begin the day the Reform program is adopted by the Ministry and proposed to whoever outside of the Ministry must receive such proposal.
After Year 5	In Year Three set a Mandatory Redesign Event to Consider Period After Year 5. Power markets are always evolving, and conditions affecting them change. In this Reform, many events are scheduled which will change the structure of relationships profoundly, if successful. Those may make possible to design a wholesale power market for example, or to allow larger industrial consumers to contract for their own power and assure reliable shipping. Those kinds of issues should therefore be considered at that time.

4. Next steps

Based on the discussions that took place during the workshop the following activities represent potential next steps for the Iraqi Ministry of Electricity:

- Designing a comprehensive Long term capacity building program in the area of regulatory reform. Consider long term consultancy in the design.
- Drafting codes needed for the operation of the electricity sector as reform takes place (green codes, Distribution code, Metering code, and Renewable energy code), and reviewing existing codes.
- Learning from international experiences in the area of reform.
- Assessing solar and wind potential.
- Preparing long term investment renewable energy strategy based on the assessment mentioned above.
- Energy & renewable energy management capacity building program.
- Designing and implementing EE awareness program.
- Assessing the need for Creating ESCOs, and designing a program for creating them.
- Coordination with other donors. This document will be shared with the World Bank as a segue to their support program which is focused on the distribution sector in Iraq.

5. Closing: In a closing session the workshop was completed by signing the letter below.



Workshop Meeting Minutes – Amman, Jordan, June 17-19, 2013

June 19, 2013

This is to acknowledge and express mutual appreciation upon the wrap-up workshop on Iraq Electricity Reform Road Map Workshop.

In 2012 and 2013, the U.S. Embassy Baghdad worked with USAID/Baghdad and concerned Iraqi government officials to conduct a series of workshops intended to support the Government of Iraq's design of an electricity sector reform program. These workshops covered 1) general topic of best practices in electricity sector reform, 2) distribution reform, 3) legal and regulatory issues, and 4) generation and transmission issues.

The final wrap-up workshop was held June 17-19, 2013 in Amman Jordan. This workshop began with a basic review of prior workshop materials, since all attendees weren't able to attend each workshop. This material comprised a survey of key issues in power sector reform, best practices, and lessons learned from worldwide practices. Members of the Iraqi delegation from Ministry of Electricity gave a presentation, entitled "Highlighting the Regulatory Environment & Reform Issues in the Electricity Sector."

On Days 2 and 3, participants engaged in structured sessions on power issues in a logical sequence of discussion, based on consultant's "Outline of Recommended Structures for Iraq Electricity Sector Reform Road Map." During Days 2 and 3, participants made site visits, as follows:

- CEO, Electricity Regulatory Commission
- Director of Assets Management Department, Jordanian Electric Power Company (JEPCO), distributor
- Operations Manager, National Electric Power Company (NEPCO), transmission company
- CEO, Central Electricity Generating Company (CEGCO), generator

The Jordanian counterparts were able to echo many of the points made in the materials presented from the prior day's workshop, and also speak from the experience of a neighboring country that went through the reform process and found benefit therein.

Wrap-up Workshop Letter

June 19, 2013

Overall, amongst many points and details agreed upon, some of the key [emanating from this workshop are:

- Capacity building is a priority, and will be pursued vigorously by Ministry of Electricity
- Developing the regulatory department, within the planning and studies office, is vital.
- Discussions with officials in neighboring countries, and visiting other places that successfully solved similar challenges in the power sector is vital and very helpful.

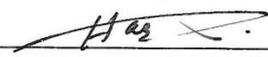
A final report on this workshop will be made and distributed to participants, and with a copy of the "Outline of Recommended Structures for Iraq Electricity Sector Reform Road Map," to be revised as per discussion.

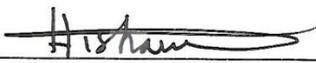
The following persons contributed to the workshop:


Eng. Laith Hamed Hasan, Director General , Planning and Studies Office, Iraqi ministry of electricity

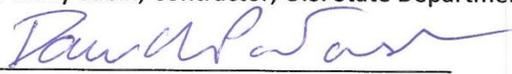

Eng. Amer Rajab Saleh, Expert/ Planning and Studies Office, Iraqi ministry of electricity

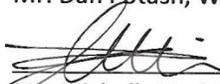

Ms. Ban Khalil Ibrahim, Manager/ Generation Office, Iraqi ministry of electricity

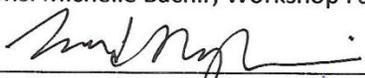

Eng. Hisham Abed Al-Hadi Hamoodi, Expert/ Distribution Office, Iraqi ministry of electricity


Eng. Hazim Gilyana Hana, Senior Engineering Manager/ Transmission Office, Iraqi ministry of electricity


Mr. Wafiq Sabih, Contractor, U.S. State Department Baghdad


Mr. Dan Potash, Workshop Leader, Deloitte Consulting LLP


Ms. Michelle Bachir, Workshop Facilitator, Deloitte & Touche LLP


Mr. Imad Nejdawi, Regulatory Expert Independent Consultant, Deloitte Consulting LLP


Mr. Isam Mustafa, Energy Expert Independent Consultant, Deloitte Consulting LLP