Jordan's Energy Master Plan

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Abstract

The Government of Jordan, has developed an integrated and comprehensive Energy Master Plan for the development of the energy sector over the next 20 years. The plan was approved by the Council of Ministers in December 2004 and requires investment of over $3 billion. Implementation of the plan should yield a net increase in GDP of $250 million per year for the Jordanian economy and will create a number of investment opportunities, which will be structured to encourage and promote private sector participation.

Background

Jordan has almost no indigenous energy resources and energy imports account for nearly 10% of GDP. Due to economic growth and increasing population energy demand is expected to increase by at least 50% over the next 20 years, and therefore the provision of reliable energy supply at reasonable cost is a crucial element of economic reform.

Over the last decade, the energy sector of Jordan has undergone significant transformation, however, in the near to medium term there are several additional challenges:

- The concession agreement for the refinery will expire in 2008
- Commercial gas imports from Egypt will have substantial impact on the primary energy supply to Jordan.
- The move to gas and changes in historic subsidised supplies of crude from Iraq will have a substantial impact on the refinery
- Current energy pricing regimes do not reflect international market prices, and numerous, complex subsidies exist.

In addition, demand growth requires a number of policy initiatives: increased emphasis on energy efficiency; diversification of energy supplies to reduce risk; development of improved energy supply infrastructure; development of the gas industry and increased use of indigenous energy resources. The investment opportunities arising from the Energy Master Plan are described below.

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Electricity Sector

Over the last 5 years Jordan's electricity sector has been undergoing significant reform. This will continue and over the next 20 years 2100 MW of new gas fired generating capacity, costing some $870 million, will be built to meet demand growth and replace old generating assets. In addition $386 million will be invested in transmission assets and the development of regional electricity markets and interconnection capacity will be encouraged.

Refined Products Sector

Demand for refined products will to grow strongly, particularly for diesel and gasoline. while demand for fuel oil will decline as this is displaced by gas in the power sector. Currently the Jordan Petroleum Refining Company (JPRC) has a monopoly on most of the value chain including importing products, refining, logistics and customer supply however the concession awarding this monopoly will expire in 2008 and the refined products sector will be extensively reformed.

To meet the requirements for the changing product mix, the refinery will be upgraded to produce lighter products and improve product specification. JPRC are investigating a range of options to make the required $700 million investment, including partnering with strategic and financial investors. Following the end of the concession agreement, JPRC will operate on a commercial basis and will continue to play a major role in the refined products sector.

Upgrading the refinery is only part of the sector reform. In addition a number of new companies will be formed:

- a logistics company to manage storage and products handling
- new marketing companies – which will buy products from JPRC refinery or import products and supply to wholesale and larger customers.
- retail companies – which will purchase products from marketing companies and operate retail stations to supply customers

Price restructuring will also be undertaken and refined product prices will be based upon international parity prices. In the short term prices will be regulated, but as the market matures prices will, as far as possible, be set be competition. As part of the process of price reform there will be a transition period and price subsidies will be phased out over 4 – 5 years.

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Crude and Product Supply Infrastructure

The existing method of crude supply to Jordan via Aqaba port and transportation by road is expensive and inefficient. The best alternative is to invest in a crude supply pipeline from Iraq, but other alternatives such as refurbishment of the tap-line from Saudi Arabia, construction of a crude oil pipeline from Aqaba and refurbishment of the rail system in Jordan are under consideration. In addition, refurbishment of crude and product handling and storage facilities at Aqaba port and at key locations in Jordan will be undertaken. Investments of up to $400 million will be required.

Gas Sector

The Arab Gas Pipeline has been successfully delivering gas to Aqaba Thermal Power Station since July 2003. Expansion of pipeline to the north of Jordan will be complete by the end of 2005 to supply power and industrial customers.

The GOJ will encourage further development of the gas sector and gas distribution networks will be established to supply smaller customers. Detailed studies will be undertaken in major cities during 2005, and gas distribution concessions will be awarded by tender in 2006. Investment requirements are estimated to be $300 million.

Development of Jordan's Indigenous Energy Resources

Jordan is committed to development of its indigenous energy resources. Further development of the Risha gas field in N.E Jordan is planned and the National Petroleum Company is considering options to finance this investment including joint venturing.

Jordan is also committed to continued exploration for oil and gas. 3 new exploration blocks (Azraq, Sirhan and Northern Highlands) will be offered in 2005, and GoJ is reviewing fiscal terms to encourage exploration and development.

In additional to conventional oil and gas, Jordan has oil shale resources with estimated reserves reaching as high as 40 billion tonnes. The GoJ is committed to continued investigation of commercial exploitation methods and is seeking international partners to assist in this effort.

Under the Energy Master Plan the proportion of energy from renewable resources will increase and a number of studies are underway to remove barriers to exploitation of renewable energy, particularly wind, solar and biomass. In order to reach 2% of Jordan's Primary Energy from renewable resources by 2015 an investment of $450million will be required.

Investment Requirements and Financing

The Energy Master Plan provides a clear and comprehensive vision for the development of the energy sector in Jordan and requires over $3 billion of investment over the next 10 years. In order to achieve this investment the GoJ will use multiple financing sources and encourage private sector participation where possible. Legal and regulatory reform will continue to provide a stable and attractive investment environment.

Figure 8 – Likely Investment Opportunities in Jordan's Energy Sector

Project	Investment Opportunity
Refinery Upgrade	Investment in refinery upgrade to meet Jordan's long term requirements for refined products. Refinery to operate on a commercial basis in a restructured sector with transition period to secure development. Investment requirement $700 million
Marketing Companies / Retail Companies	Marketing companies will be established to import products (or buy from refinery) and supply customers in Jordan. Marketing companies may also invest in the retail sector. Marketing companies to jointly invest in refined products logistics company. Retail sites to be improved Investment requirement $100 million
Crude Supply Infrastructure	Development of crude supply pipelines and port infrastructure . Investment requirement $125 – 300 million
Gas Distribution	Development of gas distribution networks in major cities to supply gas to smaller customers. A number of concessions to be awarded by tender. Investment requirement $300 million
Electricity Generation & Transmission	New power generation on an IPP basis. Investment in New Transmission Assets. Investment requirement $1250 million
Renewable Energy	Development of wind power stations. Development of solar potential (for power and domestic heating). Investment requirement $450 million
Oil and Gas	New exploration opportunities – Azraq, Sirhan and Northern Highlands Development of Risha – development partner sought. Investment requirement $100 million
Indigenous resources / Energy Efficiency	R&D / development of oil shale. Encourage Energy efficiency and demand side management. Investment requirement $100 million