



Major Investment Opportunities in the Energy Sector in Jordan

May 2007



Energy Resources

- **Oil** : (not existing)
- **Gas** : Small local gas reservoir
(Risha)
Import from Egypt
- **Oilshale** : Abundant quantities
- **Renewable** : Good potential



The main Features of the energy sector

- Jordan has almost no indigenous energy resources.
- Jordan is highly dependent on imported energy and the cost of energy imports has been a major burden to the economy.
- High growing of primary energy demand to cope with sustainable development .



Primary Energy Demand

- The growth rate of primary energy demand in 2006 was about 4% .
- The demand is expected to continue growing about 5% growth rate up to year 2020.

Year	2007	2010	2015	2020	Growth (%)
Quantities (000 TOE)	6849	8101	9793	13953	5



Electricity Demand

- The electricity demand growth rate was 10.1% in 2006.
- The demand is expected to continue growing during the period (2007 -2020) with an average growth rate of 6.2% annually

Year	2007	2010	2015	2020	Growth (%)
Peak Demand (MW)	1975	2452	3269	4033	5.6
Electricity Demand (GWH)	12469	15783	21503	27132	6.2

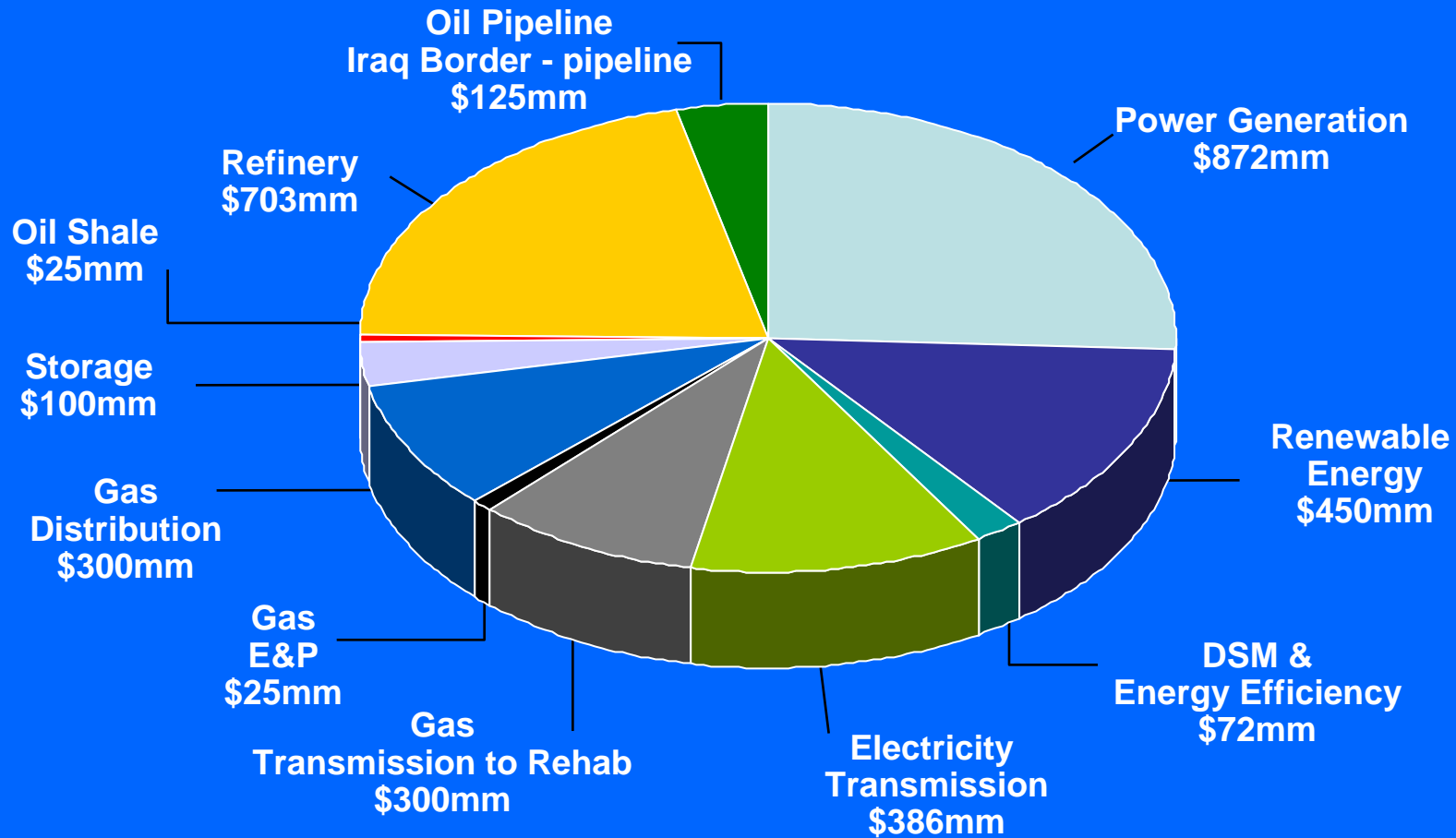


Energy Master Plan Strategy

- To Meet the energy demand and the challenges of the energy sector a comprehensive Energy Strategy was approved by the Cabinet in December 2004 to provide a vision for development of energy sector over the next ten years .
- The Strategy studied all options and alternatives for securing all types of energy from the following points of views:-
 - ✓ The optimal options to cope with the energy demands and its investment cost.
 - ✓ Reforming and restructuring the energy sector to open the market for competition



According to the Master Plan the required investment in the energy sector is around \$3 billion over the next ten years





Main Energy Sector Projects and Opportunities

- ▶ Investment in Refining.
- ▶ Reform of the Refined Products Sector
- ▶ Crude Oil Transportation Infrastructure.
- ▶ Development of Gas Distribution Networks.
- ▶ Oil and Gas Exploration.
- ▶ Development of Risha Gas Field and infrastructure
- ▶ Investment in Electricity Generation Plants and Electricity Sector Privatization.
- ▶ Investment in Oil Shale.



The investment opportunities in petroleum sector

1. Fourth Expansion Project of Jordan Petroleum Refinery.

- ✓ To meet growing local petroleum demand .
- ✓ To comply with quality trends (products quality improvements).
- ✓ To convert surplus fuel oil to marketable products.

- The expected project cost is approx. MUS\$ 703 (based on 2004 prices).





- The refinery completed all the technical and financial studies related to this project.
- Citigroup has been hired by JPRC to be as a financial advisor to help the refinery in selecting the strategic investor.
- The strategic investor will be selected at the latest by the third quarter of 2007.
- Expected completion date of the project is 2011 .





2. Reform of the refined products sector.

Upgrading the refinery is only part of the sector reform in addition to a number of new companies which will be formed:

- ✓ A logistic company to manage storage and products handling and operating on an open access logistic regime
- ✓ A 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.

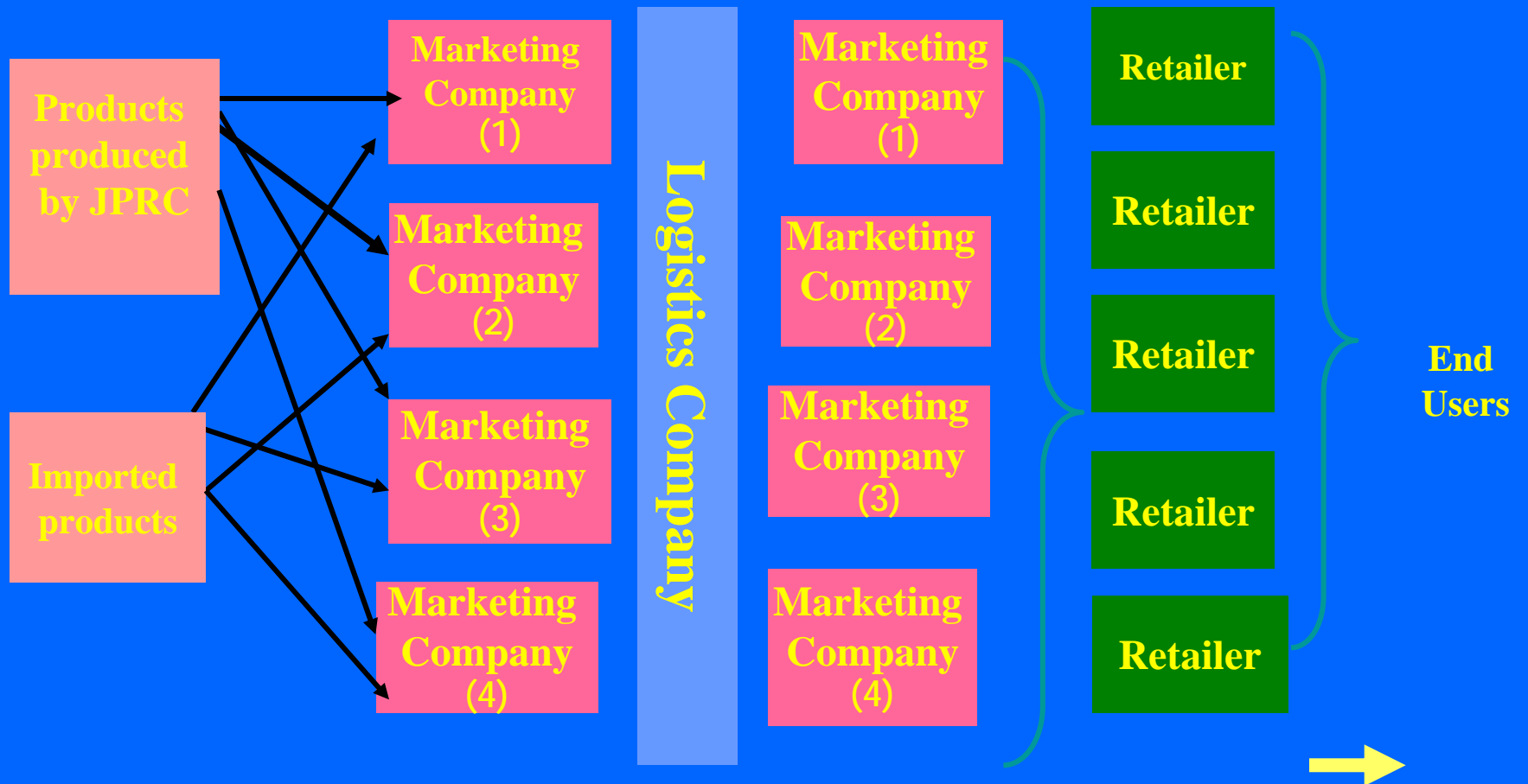




- Tenders to establish the logistic and marketing companies will be issued in second half of 2007.
- The Downstream petroleum law will be issued and approved in second quarter of 2007.

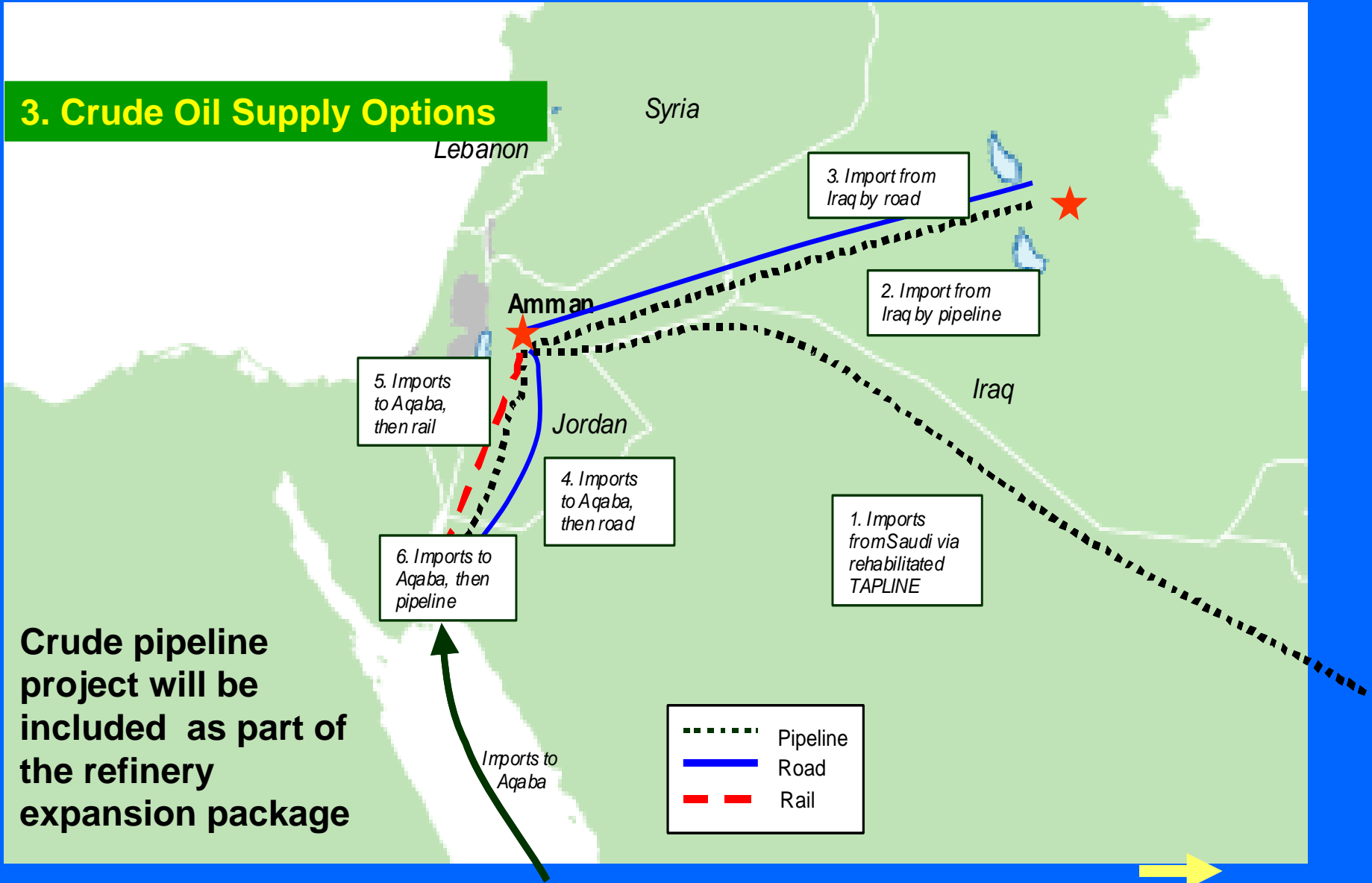


Proposed Petroleum Sector Structure





3. Crude Oil Supply Options

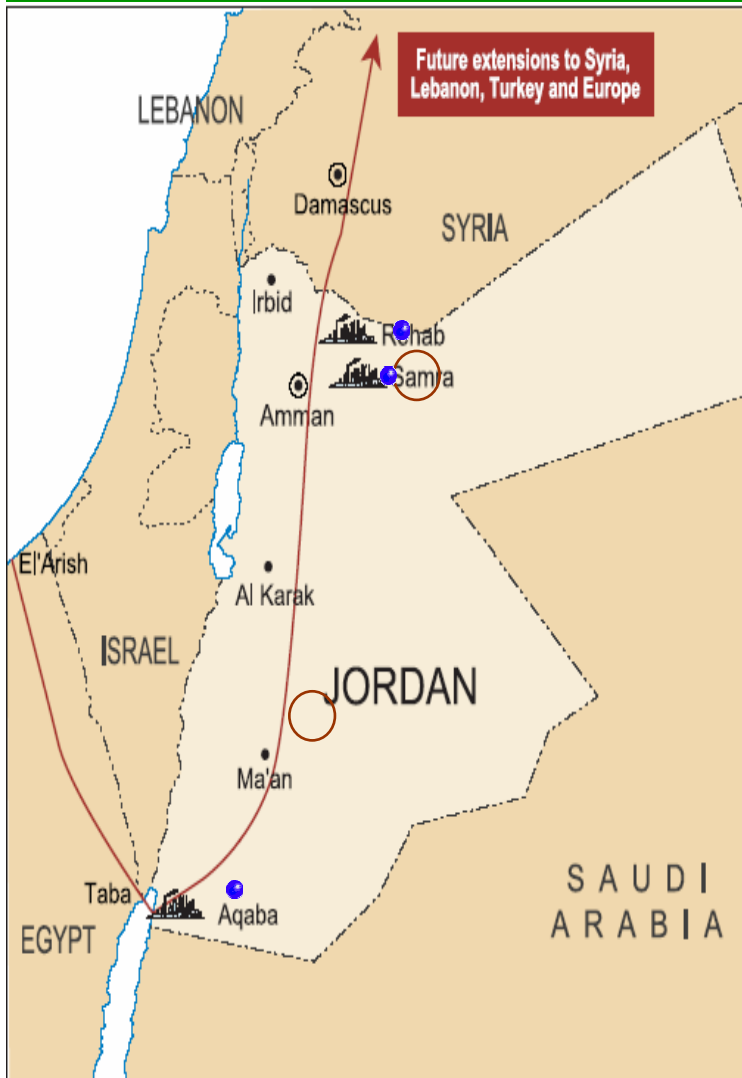


Crude pipeline project will be included as part of the refinery expansion package



Investment Opportunities in the Gas Sector

JGTP Schematic



- ✓ The first and second phases of Arab Gas Pipeline were completed and now Natural Gas is fuelling 70% of total installed capacity in Jordan (Aqaba, Samra and Rehab Power Stations).
- ✓ Large industries conversion program to burn Natural Gas is anticipated to be completed by end of 2008 .
- ✓ Construction of the gas distribution network in Amman, Zarqa and Aqaba is expected to be started in the second half of 2008 , and supplying gas to customers will be started in the second half of 2009.
- ✓ Investment opportunities exist in constructing Car Gas fuel stations after the completion the gas distribution network .
- ✓ Establishing a factory for supplying the distribution project with the materials needed for the distribution network and conversion of end user appliances to burn NG



Project Phases

Phase-III
Jordania/Syrian borders –
Homs-Lebanon-Turkey /
Europe

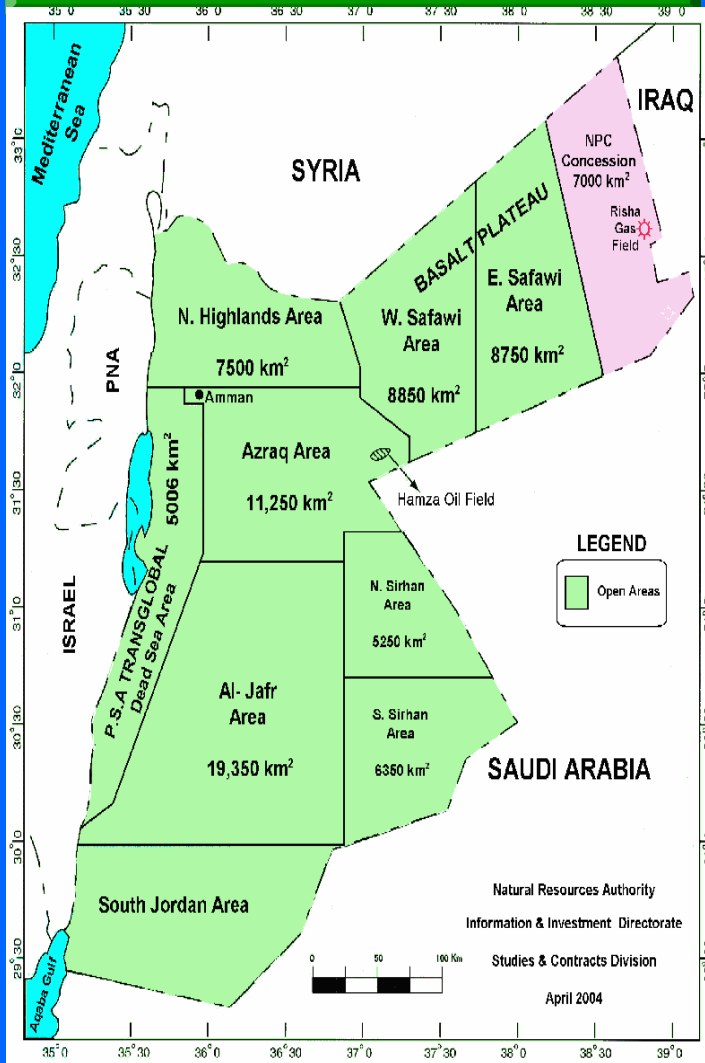
Phase-II
Aqaba-Rehab
(In operation since
February 2006)

Phase-I
Arish-Taba-Aqaba
Inaugurated in July 2003





Jordan's Oil and Gas Licenses

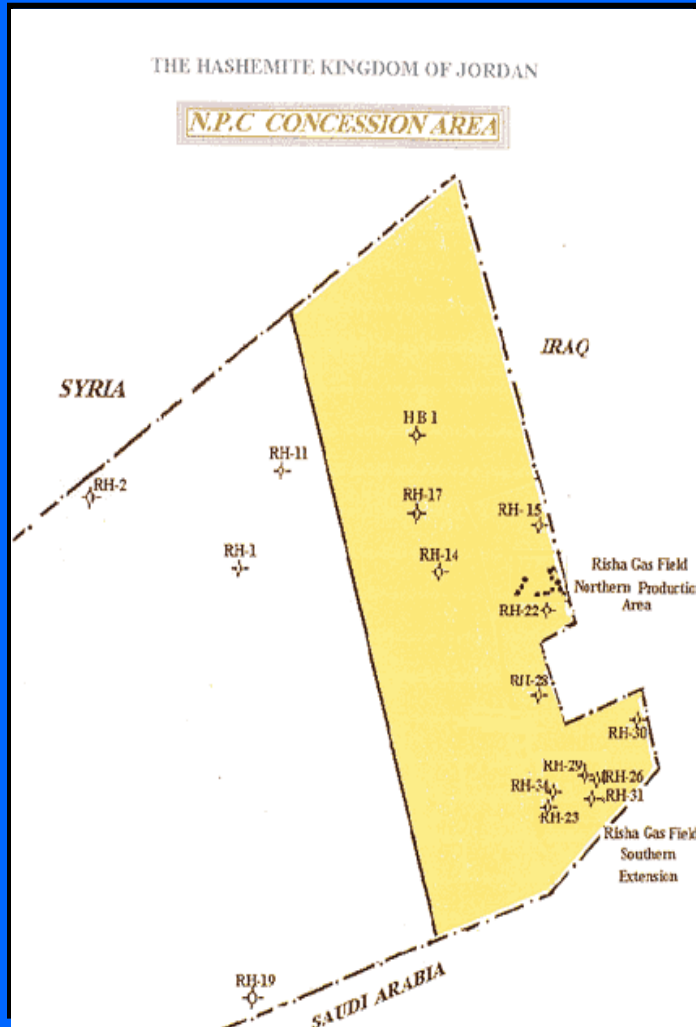


The Investment in Oil and Gas Exploration

- ✓ The Kingdom is divided into 9 blocks according to its geological features.
- Six blocks are currently under concession agreements (NPC at Risha block and Porosity Ltd /TransGlobal at Dead Sea block , Ireland Petril at East Safawi block, Indian British Petroleum at West Safawi block, American Sanoran at Azraq block and Indian Universal at Sarhan block).
- One block is under MOU by Coarwatia ENA Company in Northern Highlands area.
- One block is opened for exploration by interested companies in Al-Jafer area.



The investment opportunities in development and exploitation of Risha Gas Field



- Risha is a large complex gas reservoir.
- Current production is 25 million cubic feet per day.
- However there is still potentially significant undeveloped gas
- Therefore NPC is seeking a joint venture partner to develop Risha Field.



The Main Investment Opportunities in Electricity Sector

- New generation plants with a capacity of 1068MW will be needed during the period (2005–2015). The approximate cost is about MUS\$ 843.
- These investments will be implemented by private sector based on BOO basis .
- MEMR and other concerned parties have signed the agreement for the first IPP/ East Amman power project with AES Jordan PSC, with a project capacity of 370 MW in Al-Manakher /East Amman with an estimated cost MUS\$ 300 . The construction phase started on March 27th 2007 and the project will be in operation in 2008/2009
- MEMR will start the tendering process of the second new IPP project with a capacity of (280-400) MW in June 2007, this project will be in operation during 2010/2011 .





Electricity Sector Privatization

- Power Sector Privatization Programme is Ongoing:-
 - The intention is to sell up to :-
 - (51%) of CEGCO + 9% for SSC.
 - (100%) of EDCO .
 - (55.4% Gov. Shares) of IDECO.
 - The privatization programme is underway and is expected to be completed by 2007.



The Investment Opportunities in the Jordanian Oil Shale

- Surface Oil Shale reserves in Jordan is estimated to be more than 40 billion metric tons.
- The Government has invited a short-list of 14 companies who already expressed their interest in Oil Shale to submit proposals for the Development of Oil Shale Surface Retorting Plant . 7 proposals were received .





➤ Three MOU's were signed on November 5th 2006 at Al- Al-Lajoun area with the following companies:-

- International Corporation for Oil Shale Investments, INCOSIN.
- Oil Shale Energy Jordan, OSEJ .
- Jordan Energy and Mining Limited, JEMML.

➤ MOU No. 4 was signed on Feb. 23rd 2007 with Petrobras(Brazil) at Atarat area.

➤ The aim of these MOUs' is to prepare a bankable feasibility study (F.S.) for the exploitation of oil shale reserves in the Al-Lajoun and Al-Atarat areas.

➤ Commercial contracts will be concluded based on the results of the successful F.S.





➤ Deep Oil Shale

- ✓ MOU was signed with Shell company on June, 12th , 2006 to evaluate, develop and exploit the deep Oil Shale resources for extraction of oil through a process called In-Situ Conversion Process (ICP).
- ✓ During this MOU , GOJ & Shell will enter into negotiations on Concession Agreement (CA) that provides Shell the right to explore and produce Oil Shale within an area of about 20000 km²) . This project will go through several phases over the next 12-18 years , which will include exploration, appraisal , a pilot test, detailed design, contracting for the commercial phase.
- ✓ Currently the GOJ and Shell are on negotiation of the CA , which is expected to be concluded before the end of 2007



The Investment Opportunities in Jordanian Wind Energy

- The Ministry of Energy and Mineral Resources in cooperation with a Danish Consulting Firm, conducted a Feasibility Study for a commercial Wind Park Project for electricity generation .
- Two promising site were selected for this study, these are Al-Kamshah near Jarash and Al-Harir near Tafila.
- The results of this study showed that a wind project of about 30- 40 MW can be installed at Al-Kamshah and a capacity of about 100 MW for Al-Harir site.





- BOO Bidding process will start med June 2007 for Al-Kamshah Project to be followed by the Al-Harir project .
- A consultant will be hired through GEF grant during the second half of 2007 to prepare the tender documents for the 60 MW wind power project at Fujeij site/Shoubak . The tendering process supervised by the World Bank is expected to be launched late 2007.



Summary

- Jordan's energy sector is growing and is developing rapidly.
- There are many interesting investment opportunities in energy sector.
- We welcome your interest and participation in these important projects.