



Ministry of Energy and Mineral Resources
The Hashemite Kingdom of Jordan

Oil Shale in Jordan



Introduction

- Oil shale is defined as sedimentary rock (mostly carbonates; chalk marl and shale) whose solid immature organic content is insoluble in organic solvents, but forms liquid oil-like hydrocarbons when exposed to destructive distillations of temperatures up to 500-600°C.
- Jordan owns more than 116 billion tons of oil shale, and that it is located under more than 60% of Jordanian territory.
- Jordanian Oil Shale varies in quality, thickness , depth , oil content and specifications.
- The average oil content of Jordanian oil shale reach to 10.5 wt%.

Oil Shale Utilization

Surface Retorting Methods to produce oil could be upgraded & refined to produce petroleum.

In-situ heating Process to produce Oil.

Power generation by Direct Combustion of Oil Shale.

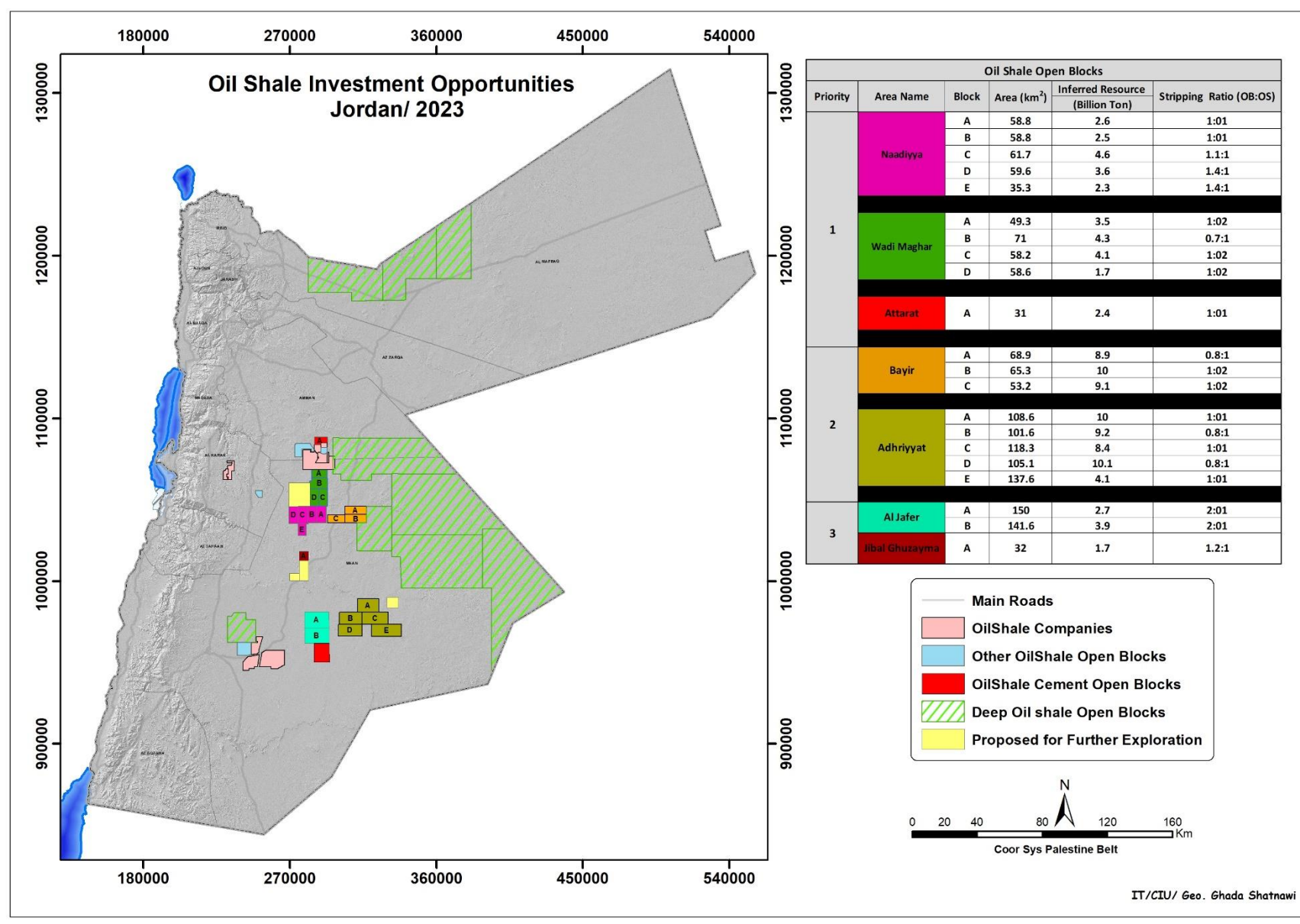
Retorted oil to could be utilized in Petrochemical industry to produce (plastic, rubbers, chemicals...etc).

Sulphur exists in retorted oil could be recovered for uses of industry.

Heavy metals in the spent shale & ash could be recovered (vanadium, chromium, nickel, lanthanum and cobalt).

Spent Shale and Ash could be used in the Cement Manufacturing.

Oil Shale Investment Opportunities



Oil Shale Application Form Procedure



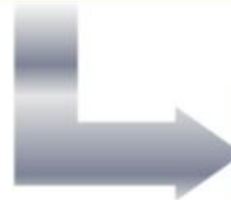
The applicant is obliged to fill the application form according to the proposed project scope with attaching the requested documents.

MEMR will study, assess and evaluate the submitted application up on its Criteria.

If the applicant achieve a score less than 60% , then the application will be considered un-qualified.

If the applicant achieve a score of 60% or more, then the application will be considered successful and qualified.

Signing MOU or Production Sharing Agreement (PSA) depending on the the stage of work.



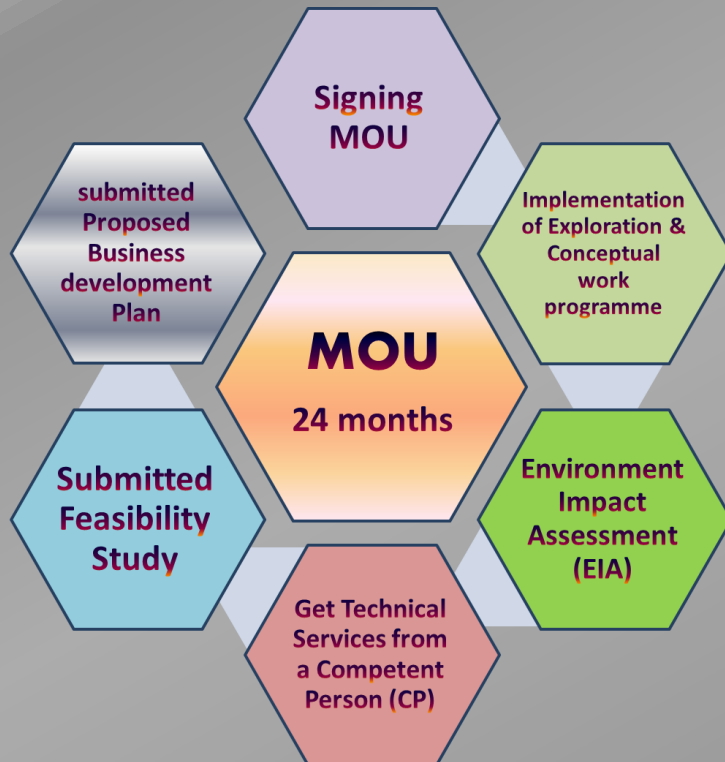
Oil Shale Direct Proposal Request Evaluation Criteria

Criteria	Description	Max Score
Technical Qualifications	Area of expertise and scope of the proposal project.	25
Financial Capability	<ul style="list-style-type: none">- The allocated budget to the proposed project.- Possible Source of funding for the proposed project & information about the applicant cash reserve.	40
Main Working Team	The technical staff working with applicant.	10
Preliminary Work Program	A proposal preliminary exploratory work plan & the timetable for the proposed project	10
Technology Access	The applicant owns relevant technology that it has successfully applied, or can get access to technology from a third party.	15

Types of Agreements for Oil Shale Investment

**MOU (Memorandum of Understanding)
(Exploration Phase)**

**Production Sharing Agreement (PSA)
(Production Phase)**



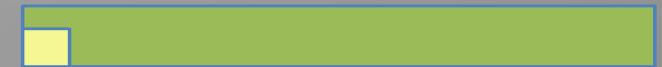
Production Sharing Agreement

Predevelopment Phase



- Conduct Predevelopment Operations.
- Predevelopment Programme Guarantee & The Minimum Expenditure Commitment.
- Training of Nationals & The Sustainable Development Payment.
- 4 Years + 2 Years

Development Phase



- Conduct Development Operations.
- Environment compliance, water usage & Remediation Activities.
- Petroleum Tax, Royalty & Bonus.
- 40 Years + 10 Years