The Petroleum Potential of Timor-Leste

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Roles

• Energy and Mineral Resources Directorate (EMRD) administers all areas on- and offshore Timor-Leste, outside of the JPDA

• Timor Sea Designated Authority (TSDA) administers the J PDA
Petroleum Sector of Timor-Leste

Timor Sea Treaty

Ministerial Council

Joint Commission

Timor Sea Designated Authority

Ministry for Development & Environment

SECRETARY OF STATE for ENERGY & MINERAL RESOURCES

Energy & Mineral Resources Directorate

Secretary of State for Tourism Environment & Investment

SEntry of State for Tourism Environment & Investment

East Timor Revenue Service

Timor Sea Tax Division

Prime Minister
Dr. Mari Alkatiri

Ministry of Planning & Finance

Secretary of State for Tourism Environment & Investment

Office of Macroeconomic Policy

Timor Sea Office
The NORAD/ NPD project

• **The project:** Assistance in developing the management of the petroleum sector in Timor-Leste government

• **The goal of the project:** That the public sector petroleum administration in Timor-Leste will be capable of managing the upstream petroleum activity without significant use of foreign advisors

• **How we do that:** Cooperation between Norwegian Petroleum Directorate and MDE and other units, offer Norwegian and international experience for a period of six years with a budget of 4.7 MM USD
Petroleum in Timor-Leste

- Timor-Leste has known petroleum occurrences in all its territories, both onshore and offshore
- The petroleum geology of T-L is almost identical to what is found on the Australian Northwest shelf
- Petroleum has been explored for and produced for more than 100 years in T-L
Petroleum systems

- Today, world-class oil and gas discoveries have been made in the Timor Sea (J PDA)
- Well documented petroleum systems are found onshore T-L, wells, seeps and petroleum combusting
- The area between the island and the J PDA is now being mapped in preparation for licensing later this year
New developments

• T-L has acquired more than 6,600 kms of modern 2D seismic in 2005, which will be the data for the first exploration licensing round in the country.

• The areas offered will be the sovereign T-L offshore area between the JPDA and Timor island. Including the deepwater Timor Trench.
What does the new areas look like?

- The geology is very similar to the prospective geology in the JPDA (Bayu Undan, Sunrise etc.)
- The areas under the TT looks particularly attractive
- Areas South of TT may have avoided leaking of hydrocarbons
Open areas, JPDA
Conventional view of Timor Geology showing
1) Oceanic Crust to North of Island
2) Continental Crust Underlies both Island and Trough
3) Mesozoic Rocks of Same Facies as Australian Equivalents
1997 Seismic
(N. Hoffmann, 2003)
2004 regional 2D seismic
Seismic Traverse Sunrise NW Prospect

Kelp High

Sunrise NW Prospect
Gravity map Timor-Leste

Contour interval 10 mGal. Reduction density 2670 kg/m³

The Petroleum Potential of East Timor
Figure 8: Bouguer gravity of Timor
(Kaye & Millsom, 1968)
Tim Charlton, 2003
Onshore petroleum potential
Site Work - Harvesting System
Schematic
Site Work - Membrane Sealing Arrangement

IMPERMEABLE MEMBRANE

EXIT DUCTING

PERIMETER TRENCH BACK-FILLED WITH SILT/CLAY

TIMBER LENGTHS TO ASSIST MEMBRANE TENSIONING

TYPICAL CROSS-SECTION
NDT TO SCALE
Site Work - Installed Harvesting System
Interpretation of results
(PRELIMINARY pending gas analysis)

**Natural Flow**

- Say 1 ft³/s
- Equates to between 130 & 275 kW Generation
  Dependant upon quality of gas (pending analysis)
- Which is electricity for between 1300 & 2750 homes
  Assuming low usage (100W / home)

**Forced Flow**

- Say 5 ft³/s
- Equates to between 650 kW & 1.300 MW Generation
  Dependant upon quality of gas (pending analysis)
- Which is electricity for between 6500 & 13,000 homes
  Assuming low usage (100W / home)
Timelines, offshore Timor-Leste

- **1Q05** - 2D seismic acquisition, first data available

- **2Q05** - Block size and numbers decided
  - Petroleum and tax laws, model PSC’s approved
  - Final seismic datapackage ready (ticket)
  - Road shows (Houston, Singapore, London)
  - 1st expl. License round opens

- **3Q05** - Technical conference for potential bidders
  - Industry interpret data

- **4Q05** - Bid deadline (yearend)

- **1Q06** - Bid awards
Conclusions

• Timor-Leste has a number of highly potential areas for petroleum, with proven petroleum systems and low geological risk, both onshore and offshore
• There is strong industry interest for both areas
• However, there is strong regional competition for investor’s funds
• The proposed T-L commercial and legal regime is considered competitive in SE Asia and Australasia, and should not be a deterrent to investors
• The timely passing of the petroleum laws is of the greatest importance, without those we cannot proceed!!