Chuditch Gas Discovery, Offshore Timor-Leste

6 March 2022

Andy Butler
Introduction to SundaGas and Chuditch

- SundaGas founded in 2016, with focus on gas in Asia
  - SundaGas shareholder is now UK-listed Baron Oil Plc
  - Office and team established in Dili
- SundaGas operates TL-SO-19-16 PSC, with 75% WI; TIMOR GAP is JV partner with carried 25% WI
- Chuditch-1 drilled by Shell (1998) in 64m water
  - Discovered gas in good quality Plover reservoirs
  - LNG-scale; Contingent Resources 1.1 Tcf\(^1\), Prospective 2.1 Tcf\(^2\)
- Evaluation status
  - completed extensive 3D seismic reprocessing and CPR
  - Planning for Chuditch appraisal drilling
  - Seeking investment partners to participate in project

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\(^1\) CPR prepared by ERCE, February 2023
\(^2\) SundaGas management estimates
Chuditch-1 revealed gas potential – but how much?

- Top Gas at 2891.1m
- Gas-Water Contact interpreted at 2920.0m

**Good quality reservoir in gas interval**
- Net to Gross (= % reservoir): 89.0%
- Ave. Net pay porosity: 12.4% (up to 18%)
- Ave. Net pay permeability: 195mD (up to 1 D)
- Gas saturation: 85.5%

- Poorly imaged on earlier seismic data
- 108m “known”
- ~52m “unknown”
- 160m structural relief
- -2760m crest
- -2920m FWL

- 2999m Base logged Plover
- 2891m Top logged Plover / GUT
- -2900m
- -2800m
- -2891m Top logged Plover / GUT
- Chuditch-1 discovery well
- Top of Plover Reservoir
- Gas-Water Contact
- Gas Interval

Key:
- Porosity
- Gas
- Claystone
- Sandstone

108m thickness of good quality Plover Formation sandstones reservoirs
Seismic Reprocessing: What has been achieved...?

The data Shell had available...

- Difficult data
- 1993 Time data
- 2920m
- Upper Cretaceous & Tertiary
- Gas-Water Contact

The new 3D PSDM data... enables Chuditch to be properly imaged

- New interpretation across Chuditch (Gherkin for scale)

Data shown courtesy of TGS
Chuditch Main Mapping in Detail

Data shown courtesy of TGS
Material Contingent and Prospective Gas Resources

**Chuditch-1 Discovery**
- Proven gas, >20km structure updip from well

**Chuditch NE Prospect**
- ...en route to Sunrise, needs further 3D data

**Chuditch SW Prospect**
- lower relief structure, several culminations

**Quokka Prospect**
- simple structure, extends beyond 3D and off block

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### ERCE CPR Feb 2023

<table>
<thead>
<tr>
<th>Contingent Resource</th>
<th>Gas Resource (Bcf)</th>
<th>Risk POSg</th>
<th>SundaGas</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>P90 (1C)</td>
<td>P50 (2C)</td>
<td>P10 (3C)</td>
</tr>
<tr>
<td>Chuditch Main</td>
<td>481</td>
<td>999</td>
<td>2050</td>
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<table>
<thead>
<tr>
<th>Prospective Resource</th>
<th>Gas Resource (Bcf)</th>
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<td></td>
<td>P90 (1U)</td>
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<td>P10 (3U)</td>
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<tr>
<td>Chuditch NE</td>
<td>167</td>
<td>527</td>
<td>1587</td>
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<tr>
<td>Chuditch SW - Alpha</td>
<td>139</td>
<td>326</td>
<td>729</td>
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<tr>
<td>Chuditch SW - Beta</td>
<td>107</td>
<td>238</td>
<td>505</td>
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<tr>
<td>Chuditch SW - total</td>
<td>246</td>
<td>564</td>
<td>1234</td>
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<tr>
<td>Quokka</td>
<td>41</td>
<td>142</td>
<td>469</td>
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<tr>
<td>Total</td>
<td>1651</td>
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<tr>
<td>Total CR + PR</td>
<td>2816</td>
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**Note:** resources are gross, not net attributable to PSC
Preliminary design for a Chuditch appraisal well

- Up-dip appraisal drilling planned
- Preliminary well design study completed
  - original vertical well missed up dip gas zone
  - Well locations under review on new PSDM 3D
  - target c.150m gas column, >1 TCF resource
  - plan to flow test well to prove commerciality
  - well cost estimate US$24m including test *

* Well costs based on AGR study Jan 2022. Costs exclude mobilisation
How could Chuditch be developed?

- Simpler phased development concept
- Plateau of c.300 MMscfd of sales gas assumed (i.e., net of CO₂) to optimise export options
  - Equivalent to approximately 2.0 MMtpa of LNG
- Three phases assumed, all for first gas in 2028
  - Phase 1 = Chuditch main
  - Phase 2 = Chuditch NE
  - Phase 3 = Chuditch SW and Quokka
Where will it go? Potential export options for Chuditch gas

**Pipeline to LNG**
- Beaço LNG (via Sunrise)
- Darwin LNG (via multiple routes)

**Standalone**
- Floating or Platform LNG (or hybrid)

Chuditch CO₂ expected to be re-injected into aquifer or exported to Bayu Undan
Export option example: via Sunrise to Timor-Leste LNG

- **Concept:** Pipe gas to Timor-Leste LNG
  - via Greater Sunrise
  - CO₂ reinjected as CCS, with alternative option for export to Bayu Undan CCS

- **Opportunity:** Simple phased development
  - Timor-Leste only, no need to cross borders
  - Simplified development, some processing at Sunrise?
  - Woodside and Sunrise JV partners undertaking concept selection exercise including gas export and sales arrangements
Fastest Development and Export option: Hybrid FLNG

- **Concept: Standalone LNG solution**
  - hybrid Floating / Platform LNG
  - CO$_2$ reinjected as CCS, with alternative option for export to Bayu Undan CCS

- **Opportunity: Expedited development**
  - no long pipelines or border crossings
  - in situ gas and condensate processing
  - leverage shallow water to place some facilities on modular platforms
Chuditch Gas: Key Messages

- Significant gas resources in excellent Plover sands
- 3D reprocessing finally delineated Chuditch field
- Chuditch-1 Pmean Contingent Resource of 1.1 Tcf
- Additional Pmean Prospective Resources of 2.1 Tcf
- Planning for appraisal drilling and DST
- Shallow water development of high value gas
- Multiple commercially viable LNG export options
- Contact andy.butler@sundagas.com for more info

1 CPR prepared by ERCE, February 2023
2 SundaGas management estimates