Sarulla Geothermal PP, Indonesia

Second Geothermal Dialogue

Randy Rakhmadi, Analyst

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Background of Sarulla

- Largest geothermal plant in the world (~320 MW)
- 20 years to reach financial close
- Falls under pre-Law 2003 regime

**Timeline:**
- **1993:** Unocal signed JOC and ESC
- **1997:** Project halted due to Asian Financial Crisis
- **2004:** Unocal sold interest in Sarulla to PLN
- **2006:** Consortium awarded with Sarulla project
- **2014:** Financial Close
- **2016:** COD Unit 1 Sept 16
- **2018:** COD Unit 3 Feb 18
- **2048:** COD Unit 3 Feb 18

**Key Events:**
- **1993:** Unocal signed JOC and ESC
- **1997:** Project halted due to Asian Financial Crisis
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**Phases:**
- **Exploration**
- **Field development and construction**
Project Structure

Drilling Contractor (Halliburton)
EPC Contractor (Hyundai & Medco Affiliate)
Concession Owner (Pertamina)
Regulator (Government of Indonesia)
Offtaker (PLN)
Sponsors
• Itochu
• Kyushu
• Medco
• Ormat

ADB (+ CTF & CCF)
JBIC
Commercial Banks
Political Risk Guarantee

Loan + Mezzanine
BVGL
ESC
JOC
EPC Contract
Drilling Contract
Equity + Contingent Equity
## Financing Structure

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<tbody>
<tr>
<td></td>
<td><strong>Debt</strong></td>
<td></td>
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</tr>
<tr>
<td>JBIC</td>
<td>Loan Public</td>
<td>492 mn</td>
<td>30.4%</td>
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<tr>
<td>ADB</td>
<td>Loan Public</td>
<td>250 mn</td>
<td>15.4%</td>
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<tr>
<td>Commercial banks</td>
<td>Loan Private</td>
<td>329 mn</td>
<td>20.3%</td>
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<tr>
<td>CTF &amp; CCF</td>
<td>Mezzanine Public</td>
<td>100 mn</td>
<td>6.2%</td>
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<tr>
<td></td>
<td><strong>Equity</strong></td>
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<tr>
<td>Itochu, Kyushu, Medco &amp; Ormat</td>
<td>Equity Private</td>
<td>~ 350 mn</td>
<td>21.6%</td>
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<tr>
<td></td>
<td><strong>Other</strong></td>
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<tr>
<td>Pre-Completion Revenue</td>
<td></td>
<td>~ 100 mn</td>
<td>6.2%</td>
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<tr>
<td></td>
<td><strong>Total Project Cost</strong></td>
<td></td>
<td>~ 1.6 bn</td>
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Government provides certainty to developers and lenders with long term Feed-in-Tariff

Note:
This graph is produced by CPI based on CPI’s own assessment, public data and interviews with Sarulla stakeholders.
Lenders provide loan with competitive market rates and long tenor

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This graph is produced by CPI based on CPI’s own assessment, public data and interviews with Sarulla stakeholders.
Sarulla’s lenders had a surprising appetite for risk

<table>
<thead>
<tr>
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<th>Development</th>
<th>Operation</th>
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<tr>
<td></td>
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<td>Off-take risk</td>
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<td>Gol</td>
<td>Lenders</td>
<td>Developer</td>
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<td>Resource risk</td>
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<td>Cost overrun</td>
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<td>Construction risk</td>
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Resource risk

Loan risk

Off-take risk

Resource risk
Sarulla GPP: Early Takeaways

Challenges
• Resource risks
• Tariff at low-end range & access to financing at suitable rates and tenors

Responses
• Detailed due diligence & resource analysis and coordinated drilling & construction program
• 30-year offtake, 20-year Government Guarantee (BVGL) + JBIC’s Political Risk Guarantee
Discussion Points

Project Context:
• Is the **financial structure scalable and replicable** to other projects in Indonesia / other regions of the world?
• What is the **role of international public financial institution** to ensure feasibility of this type of project and to scale-up geothermal development?

Policy Context:
• What can be improved to **increase private sector’s participation** in geothermal development in Indonesia going forward?
• How do recent **regulatory/Feed in Tariff changes impact** future development in Indonesia?
Thank You!