Business Model for Geothermal Experience in Indonesia

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Ministry of Finance of Indonesia
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Outline

Business Structure

Government Support

Current Regulation
Business Structure

• Geothermal business model is developed as IPP
  • 100% private
  • Project finance

• Tendering process is done before exploration drilling
  • Government plays a limited role in exploration risk
  • Expecting private to accept resource risk

• PLN (SOE in electricity) acting as single buyer
  • Tariff is determined in tendering process
  • PLN sells in lower price, government subsidizes to fill the gap
  • PLN financially depends on govt subsidy
# Government Supports

<table>
<thead>
<tr>
<th></th>
<th>Exploration</th>
<th>Construction</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Import Duty Facility</td>
<td>✔ ✔ ✔</td>
<td>✔ ✔ ✔</td>
</tr>
<tr>
<td>2</td>
<td>Income Tax Facility</td>
<td>✔ ✔ ✔</td>
<td>✔ ✔ ✔</td>
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<tr>
<td>3</td>
<td>VAT Facility</td>
<td>✔ ✔ ✔</td>
<td>✔ ✔ ✔</td>
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<tr>
<td>4</td>
<td>Geothermal Fund Facility</td>
<td>✔ ✔ ✔</td>
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<tr>
<td>5</td>
<td>Government Guarantee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>PPP Project (Through PT IIGF)</td>
<td>--</td>
<td>✔ ✔</td>
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</table>

**Law Base:**
- 1, 2, dan 3 : MOF Regulation 21 /2010;
- 4 : MOF Regulation 03 /2012;
- 5.a. : MOF Regulation 139 / 2011;
## BVGL Progress

<table>
<thead>
<tr>
<th>No</th>
<th>Project</th>
<th>Project Cost</th>
<th>BVGL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PLTP Muara Laboh (2 x 110 MW)</td>
<td>USD635 million</td>
<td>S – 152/MK.011/2012 dated 2 March 2012</td>
</tr>
<tr>
<td>2</td>
<td>PLTP Rajabasa (2 x 110 MW)</td>
<td>USD653 million</td>
<td>S – 151/MK.011/2012 dated 2 March 2012</td>
</tr>
<tr>
<td>3</td>
<td>PLTP Rantau Dedap (2 x 110 MW)</td>
<td>USD645 million</td>
<td>S – 833/MK.011/2012 dated 21 November 2012</td>
</tr>
<tr>
<td>4</td>
<td>PLTP Sarulla 1 (3 x 110 MW)</td>
<td>USD1,606 million</td>
<td>S-285/MK.011/2013 dated 10 April 2013</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No</th>
<th>In the Process</th>
<th>Project Cost</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PLTP Ijen (2 x 55 MW)</td>
<td>-</td>
<td>Negotiation phase</td>
</tr>
</tbody>
</table>
Current Regulation

• New Law (Law 21/ 2014)
  – Classifying geothermal as non-mining activity ➔ more opportunity to drill in conservation forest
  – Central government has authority in utilizing geothermal to be power plant

• Regulation in tariff
  – 2012 ➔ feed in tariff ➔ Minister of Energy regulation No. 22/2012
  – 2014 ➔ ceiling price based on COD year and region ➔ Minister of Energy regulation No. 17/2014

<table>
<thead>
<tr>
<th>COD Year</th>
<th>Ceiling Price (sen USD/kWh)</th>
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<tbody>
<tr>
<td></td>
<td>Region I</td>
</tr>
<tr>
<td>2015</td>
<td>11.8</td>
</tr>
<tr>
<td>2016</td>
<td>12.2</td>
</tr>
<tr>
<td>2017</td>
<td>12.6</td>
</tr>
<tr>
<td>2018</td>
<td>13.0</td>
</tr>
<tr>
<td>2019</td>
<td>13.4</td>
</tr>
<tr>
<td>2020</td>
<td>13.8</td>
</tr>
<tr>
<td>2021</td>
<td>14.2</td>
</tr>
<tr>
<td>2022</td>
<td>14.6</td>
</tr>
<tr>
<td>2023</td>
<td>15.0</td>
</tr>
<tr>
<td>2024</td>
<td>15.5</td>
</tr>
<tr>
<td>2025</td>
<td>15.9</td>
</tr>
</tbody>
</table>

- Region I: Sumatera, Jawa and Bali;
- Region II: Sulawesi, Nusa Tenggara Barat, Nusa Tenggara Timur, Halmahera, Maluku, Papua, and Kalimantan;
- Wilayah III: region located in Region I or Region II were isolated and meeting the needs of most of the electrical power obtained from the power plant to fuel oil
Geothermal Development

**SUMATERA**
- **13.3 GWe**
- **Resources (7.001 MWe):**
  - Speculative: 4925 MWe
  - Hypothetical: 2076 MWe
- **Reserve (6.378 MWe):**
  - Possible: 5983 MWe
  - Probable: 15 MWe
  - Proven: 380 MWe

**SULAWESI**
- **2.3 GWe**
- **Resources (1.127 MWe):**
  - Speculative: 1000 MWe
  - Hypothetical: 127 MWe
- **Reserve (1.220 MWe):**
  - Possible: 992 MWe
  - Probable: 150 MWe
  - Proven: 78 MWe

**MALUKU**
- **0.9 GWe**
- **Resources (588 MWe):**
  - Speculative: 545 MWe
  - Hypothetical: 43 MWe
- **Reserve (341 MWe):**
  - Possible: 341 MWe
  - Probable: -
  - Proven: -

**JAWA**
- **10 GWe**
- **Resources (3.881 MWe):**
  - Speculative: 1935 MWe
  - Hypothetical: 1946 MWe
- **Reserve (6.115 MWe):**
  - Possible: 3415 MWe
  - Probable: 885 MWe
  - Proven: 1815 MWe

**NUSA TENGGARA**
- **1.5 GWe**
- **Resources (699 MWe):**
  - Speculative: 340 MWe
  - Hypothetical: 359 MWe
- **Reserve (762 MWe):**
  - Possible: 747 MWe
  - Probable: -
  - Proven: 15 MWe

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High temperature geothermal zone, large potential, and found many other types of energy

High temperature geothermal zone, large-small potential, and lack of other energy types

Low-temperature geothermal energy zone, small-medium potential, and lack other types of energy
Geothermal Fund Facility

**Definition**
- Intended to fund geothermal exploration that provides sub-surface data before tendering process

**Regulation**
- MOF Decree No. 3 Year 2012

**Objective**
- Increase the contribution of renewable energy resources, especially geothermal energy in the energy mix
- To make the geothermal project become financially viable and bankable by providing exploration data which is verified by reputable international institutions

**Eligibility**
- For local government to increase the data sufficiency of geothermal working areas before tendering
- Loan for geothermal developers to do exploration

**Size & Executing Agency**
- Rp 3 Trillion in 2013, managed by Government Investment Unit (PIP)

Diagram:
- GFF
  - Provide proven capacity data
  - Loan
    - Local government
    - IUP holders
    - PT PGE