Indonesia’s Clean & Renewable Energy Overview and Prospects

Medco Power Indonesia
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MedcoEnergi is an integrated energy & natural resources company

MedcoEnergi 2020’s Production: Oil and Gas of 100 mboepd, gross power of 3.6 GW, and mining stockpile of 96 Mlbs copper, 42 Koz gold
Medco Power is gearing up for the next energy transition

Becoming Clean Independent Power Producer (IPP) and Reliable Operation & Maintenance (O&M) Services Company of Choice

1. Gas as Transition
2. Decarbonisation
3. Higher Electrification
4. Energy Storage
5. Digitalization
6. Decentralization

Gas to Power
Geothermal
Renewables
O&M
Fundamentally, Indonesia is well positioned to cultivate its renewable energy sector.

### 1. Renewable Energy Potential in Indonesia

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Potential (GW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geothermal</td>
<td>23.9</td>
</tr>
<tr>
<td>Hydro</td>
<td>94.5</td>
</tr>
<tr>
<td>Solar</td>
<td>207.9</td>
</tr>
<tr>
<td>Wind</td>
<td>60.6</td>
</tr>
<tr>
<td>Biomass</td>
<td>32.6</td>
</tr>
<tr>
<td>Ocean</td>
<td>17.9</td>
</tr>
</tbody>
</table>

### 2. Indonesia’s Population 2020 – 2050F

<table>
<thead>
<tr>
<th>Year</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
<th>2035</th>
<th>2040</th>
<th>2045</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td>273</td>
<td>287</td>
<td>299</td>
<td>310</td>
<td>318</td>
<td>326</td>
<td>331</td>
</tr>
</tbody>
</table>

### 3. Indonesia Energy Mix, Mtoe

<table>
<thead>
<tr>
<th>Year</th>
<th>2020</th>
<th>2025</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>39%</td>
<td>31%</td>
<td>25%</td>
</tr>
<tr>
<td>Crude Oil</td>
<td>20%</td>
<td>23%</td>
<td>24%</td>
</tr>
<tr>
<td>Gas</td>
<td>20%</td>
<td>22%</td>
<td>20%</td>
</tr>
<tr>
<td>Renewables</td>
<td>11%</td>
<td>30%</td>
<td>25%</td>
</tr>
</tbody>
</table>

### 4. Available resources for renewables

Optimistic
- Growing population and economy
- Available resources for renewables

Moderate
- Government’s target for renewables capacity

Government’s policy on renewable
- Replacement of BOOT scheme with BOO scheme
- Renewable tariffs

Source: Fitch Solution, EMIS, EIA, DEN, SKK Migas, IESR, MEMR, MPWPB, RUPTL 2021-2030, World Bank, MPI analysis
Power Market in Indonesia

Planned Renewable Generation Capacity
Additional Capacity (MW)

Planned Power Plant Generation Capacity
% 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030

Retail (Solar Rooftop) Power Plant Capacity
Projected Capacity (MW)

Note: Others are Biomass, Waste, Tidal

Source: RUPTL 2021-2030, IESR, HEESI, MPI analysis
Renewable challenges in Indonesia

Renewable Challenges

Preference of short-term low cost energy sources
Renewable energy tariff
Regulatory & policy uncertainty
Land acquisitions

Gas to Power
Geothermal
Solar
Wind
Hydro

Infrastructure and scattered demand
Complex stakeholder structure
Exploration risk
Social resistance and water usage in national park
Local content requirements
Land acquisition
Demand-resource matching
EPC experience
Bankability (e.g., mini hydro)
Permitting issues

However, with the government of Indonesia putting efforts to solve issues on renewables, these challenges can also be viewed as opportunities for the power players.
Extensive experiences working with IFC & Japanese companies

Riau CCPP (275 MW, COD 2021)

- Shareholders: Medco Power, RATCH
- Lenders: IFC, ADB, SMBC, MUFG

Sarulla Geothermal (330 MW)

- Shareholders: INPEX Corp, ITOCHU Corp, Kyushu Electric, Ormat and Medco Power
- Lenders: JBIC, Commercial Japanese Banks, ADB, SocGen, ING

Donggi Senoro LNG

- Shareholders: Mitsubishi Corp, Korea Gas Corp, Pertamina (Persero) and Medco Energi
- Lenders: JBIC, MUFG, Mizuho Bank, Ltd., SMBC, and Korea Exim Bank

 expectations

Technology

Financing

New Business Opportunities
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