Olkaria III Geothermal power plant, Kenya

Second Geothermal Dialogue

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Why Olkaria III?

- First and only privately funded and developed geothermal project
- Staged development expansion of the plant power capacity
- Private financing with long-term support from Development Finance Institutions provided once proven the commercial operation
Financing of the project

- Phase I entirely financed with Equity by Ormat Technologies
- International development actors supporting refinancing of equity and financing of subsequent project development

<table>
<thead>
<tr>
<th>Financial structure Olkaria III</th>
<th>Detail per Phase, USDm</th>
<th>Total contribution, USDm</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Phase I</td>
<td>Phase II</td>
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<tr>
<td></td>
<td>12 MW</td>
<td>36 MW expansion</td>
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<tr>
<td>Kengen</td>
<td>In Kind donation</td>
<td>Public 24</td>
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<tr>
<td>Ormat Technologies</td>
<td>Equity</td>
<td>Private 40</td>
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<tr>
<td>DEG and KfW</td>
<td>Syndicated Loan - Refinancing</td>
<td>Public 105</td>
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<tr>
<td>OPIC</td>
<td>Senior Loan - Refinancing</td>
<td>Public 85</td>
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<tr>
<td>OPIC</td>
<td>Senior Loan</td>
<td>Public 180</td>
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</tbody>
</table>

Total Finance mobilized, USDm 635
Total Project Costs (excluding refinancing), USDm 445

Source: CPI elaborations
Project Cash Flow

Source: CPI elaborations

Olkaria III Geothermal power plant
Risk Allocation and Mitigation

• What was the role of the public sector in risk allocation?
• How did the private developer manage the risks?

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<thead>
<tr>
<th>Exploration</th>
<th>Development</th>
<th>Operation</th>
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<tr>
<td>Kenya Govt</td>
<td>MIGA</td>
<td>Lenders</td>
</tr>
<tr>
<td>Initial exploration risk (KenGen)</td>
<td>Financing Risk</td>
<td>Forex risk and resource risk</td>
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<td>PPA payment Risk</td>
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<td>Loan repayment risk</td>
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Olkaria III: Early Takeaways

**Challenges**

- Improve overall risk management
- Exploratory and early stage risks
- Financing for plant expansion

**Responses**

- Modular approach for plant development
- Drilling data by local public actor and + 8 MW wells to initiate the plant
- GoK security package enabled refinancing of Phase I & debt financing to build Phase II & III
Thank you!
Questions for discussion

• What are the **lessons learned** from this project that the Kenyan Government could consider for its geothermal development strategy going forward?

• How has the local **regulatory framework** influenced the development and financing of Olkaria III?

• What has been the **role of international public financial institution** to ensure feasibility? What has influenced their engagement and how could they get engaged differently?

• Were all **risks allocated** to those best suited to manage them?

• What are the elements of the plant development approach that could be **replicated** in other context?

• What strategies to **increase private sector’s participation** in geothermal development in Kenya to achieve its 5000 MW goal by 2030?