Challenges in Financing Geothermal Projects

case studies for developing countries

31st October to 6th November 2016

United Nations Conference Centre - (UNCC - AA), Addis Ababa, Ethiopia
Project & Financing Stages

1. Start-up

2. Exploration

3. Confirmation

4. Construction

5. Operation


7. Equity & Project Fin.

Venture Capital

Equity

Developers IPPs

Geothermal wildcatters VCs

Private Equity

Public Markets

Financial Partners

Private Equity Strategic Partners

Banks & Funds

Financial Players

Large IPPs

Tax Equity
# Financing Options by Stage

<table>
<thead>
<tr>
<th>Project Development Stage</th>
<th>Early Stage: Surface Exploration, Test Drilling, Initial Production Drilling</th>
<th>Middle Stage: Resource Confirmation, Field Development, Complete Production Drilling</th>
<th>Late Stage: Power Plant Engineering, Construction, and Commissioning</th>
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</thead>
<tbody>
<tr>
<td>Risk of Project Failure</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
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<tr>
<td>Typical Financing Sources</td>
<td>• Balance sheet financing by a large developer</td>
<td>• Balance sheet financing, corporate debt or bonds issued by a large developer</td>
<td>• Construction debt</td>
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<td>• Private equity (project finance) possible but with high risk premium</td>
<td>• Public equity issuance</td>
<td>• Long-term debt from commercial sources</td>
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<td>• Government incentives (capital cost sharing, soft loan or guarantee)</td>
<td>• Construction (short-term) debt</td>
<td>• Long-term debt from IFIs</td>
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<td>• Concessional funds from international donors</td>
<td>• Loan guarantee by government</td>
<td>• Partial risk guarantee or partial credit guarantee instruments to attract or improve tenor and terms of commercial debt</td>
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<td></td>
<td></td>
<td>• Long-term debt or guarantees from IFIs</td>
<td>• Export credit agency financing</td>
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Project Finance Characteristics

👍 Good News

• Debt provided for project development solely based on Projects’ perceived risks & expected future cash flows

• Debt providers either have no recourse or only limited recourse to parent company that develops or “sponsors” project (Project Sponsors)

• For equity investors--equity returns maximized, significant liabilities moved off balance sheet, key assets protected, & opportunities for tax financing

👎 Bad News

• Document intensive, time consuming, many players, and expensive to execute & close

• High administrative & closing costs—fees to debt providers, consultants, & attorneys

• Imposes significant operating restrictions on Project company—ability to make equity distributions to Project Sponsors (dividend block) prior to payment of operating expenses, debt service, & possible sweeps (in bank deals to prepay debt)
Typical Project Finance Schematic

- Project Sponsors
- Equity Investors
- Lenders

Project Company (Borrower)

- EPC Construction Agreements
- Operation & Maintenance (O&M) Agreements
- Power Purchase Agreements
Potential Funding Sources

Equity

– Potential strategic partners—selected based on timing, size, financial strength, & skill set
– Local partners—government & other contacts
– Possible portfolio investors—local venture capital funds or stock exchange listing

Debt

– Multilateral Agencies—(MLAs)—World Bank, IFC, AfDB, etc
– Decouples sourcing & finance—political risk mitigation not tied to export of goods from specific country—as required by Export Credit Agencies (ECAs)
– Preferred creditor status—not subject to rescheduling due to lack of foreign currency
– High political exposure & importance—Project Sponsors & host country gain valuable political prestige
Debt (cont’d)

– Export Credit Agencies (ECAs)
  – Couples sourcing & finance--political risk mitigation tied to export of goods from specific country (max. 85% value)
  – More capable than most banks in evaluating political risks due to direct government to government relations
  – Major ECAs recently have been more willing to absorb commercial risks
  – Sourcing of equipment, timing of approach, & understanding of ECA concerns key in maximizing participation
  – Overseas Development Credits to Govt. and on-lent

– Commercial Banks
  – Most likely only to take residual risks associated with ECAs and/or MLA financing
  – More likely to accept commercial risks if Project sound
Debt (cont’d)

Capital Markets
—Capacity to finance very large transactions
—Access to incremental investor pools--fund managers, mutual funds, insurance companies, pension funds, etc
—Good for “story” credits in emerging markets
—Rapidly advancing ability to invest in complex transactions & take political risk
—Hungry for yield for right projects--quality of Project Sponsors & sound Project economics important
—Cash flow emphasis--less restrictive covenants.

Local Sources
—Helps finance local costs
—Usually short term (5 years) & high yield (17-20% interest rate)
## Financing geo projects in Developed and Developing Countries

| Are any major differences in the way we finance projects in both regions? |
| Why we have more options for financing projects in Developing Countries? |
| How to deal with “Political Risks”? |

### State owned developers/competitors – pros and cons (only in Developing Countries)

- Vague regulations, slow moving Governments and “social aspects”

### The Big Elephant in the room – transparency and equal dealing
Thank you!

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