Financial Instruments to scale up investment in Geothermal Power. A Mexican approach.

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Outline

• Introduction, our approach

• The view of investors

• The view of donors/authorities
The point of view of the investor: a risk-adjusted-return approach

**RETURN**

- Increase income
  - Feed in tariffs
  - Premiums for PPAs
  - Carbon CERs

- Decrease costs
  - Grants and rebates
  - Tax credits/ deductions
  - Soft loans
  - Equity

**RISK**

- Risk sharing/mitigation
  - Credit enhancement
  - Total or partial production or savings guarantees
  - Insurance for specific risks
  - Local currency finance
• A developer, leveraged by a financial institution, pays a fee/insurance premium that covers financing during the exploration stage
• A developer, leveraged by a financial institution, invests in geothermal exploration
• In case of a successful exploration, developer re-finances the loan, pays principal and interests and a success fee to Fund.
• In case of failure, the insurance company/Fund covers the loan.
Impact of insured loan for investors

Expected capital flow is not significantly different for successful projects with or without the insured loan, breakeven dates are delayed but not by much.

<table>
<thead>
<tr>
<th>Simulation results</th>
<th>VAR</th>
<th>NPV in case of success</th>
<th>IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without the loan</td>
<td>9.3</td>
<td>93</td>
<td>15%</td>
</tr>
<tr>
<td>With the loan, Fund pays interest rate</td>
<td>4.6</td>
<td>81</td>
<td>17%</td>
</tr>
<tr>
<td>With the loan, Fund pays interest rate and 25% of the insurance premium</td>
<td>4.6</td>
<td>85</td>
<td>18%</td>
</tr>
<tr>
<td>With the loan, Fund pays interest rate and 100% of the insurance premium</td>
<td>4.6</td>
<td>86</td>
<td>18%</td>
</tr>
</tbody>
</table>

Lower NPV, Higher return, Lower value at risk
Insured/convertible loan: Financing scheme

EXPLORATORY DRILLING

Drilling (well 1)

Succeeds

Fails

Drilling (well 2)

Succeeds

Fails

CONFIRMATION AND PRODUCTION DRILLING

Drilling (well 3)

Succeeds

Repays loan

Fails

Drilling (well 4)

Fails

Repays loan

Fails

Drilling (well 5)

Fails

Repays loan

Fails

Drilling (well n)

Succeeds

Fails

NAFIN / BID / CTF

Munich RE

Mexican Government

Plant construction and operation

Drilling (well 4)

Repays loan

Drilling (well 5)

Repays loan

Repays loan

FINANCING SCHEME

FINANCING I: Exploration loan

FINANCING II: Refinancing (Financing I)

FINANCING III: Refinancing (Financing II)
The point of view of Governments and donors

• The use of public resources:

  a) **EFFICIENCY IN TERMS OF IMPACT:** Modeling the impact of access to finance at early stage
  b) **MINIMIZING RISK:** Moral hazard, risk sharing, minimum capital, support capped per project
  c) **MAXIMIZING REVOLVING NATURE OF THE FUND:** Modeling the sustainability of the fund, the Mexican case
Modeling the sustainability of the fund

Cash Flows

- Risk premiums and grant recovery of successful projects
- Interest income
- Paid out guarantee for failed projects

Fund

Fund size 15 years out

Million USD

50% chance of loss
50% chance of profit

- $14
- $23
CONCLUSION

• Geothermal Finance in Mexico

  – SHORT TERM urgency requires

    • SPEED helping Governments scale up investment
    • LEVERAGE = EFFICIENCY: blending Government, IDB and international climate finance resources in innovative ways, to scale up private and PPP investment

  – LONG TERM requires

    • structuring DEMAND, helping bring old CFE projects out of the closet
    • helping design POLICY, assisting in the drafting of the new Geothermal Law
    • Using National Development Banks to promote SUSTAINABLE FINANCING by PRIVATE BANKS AND CAPITAL MARKETS