

Enabling private geothermal development

Valerio Micale, Analyst

June 2015



CLIMATE
POLICY
INITIATIVE

BRAZIL
CHINA
EUROPE
INDIA
INDONESIA
UNITED STATES

Isola di San Giorgio Maggiore, 8
Venezia, 30124
ITALY
climatepolicyinitiative.org

The cases we studied

Gömsky , Turkey : *The first time the private sector financed exploration of an unproven geothermal field in the country*

Olkaria III, Kenya: *The first privately funded and developed geothermal project in Africa*

Sarulla, Indonesia: *The largest single contract geothermal power plant in the world*

Private sector investment needs

1: Revenue certainty over a project's lifetime

Supportive **regulatory frameworks** and clear deployment targets are the basic conditions for geothermal growth

FiT design can engage the private sector if:

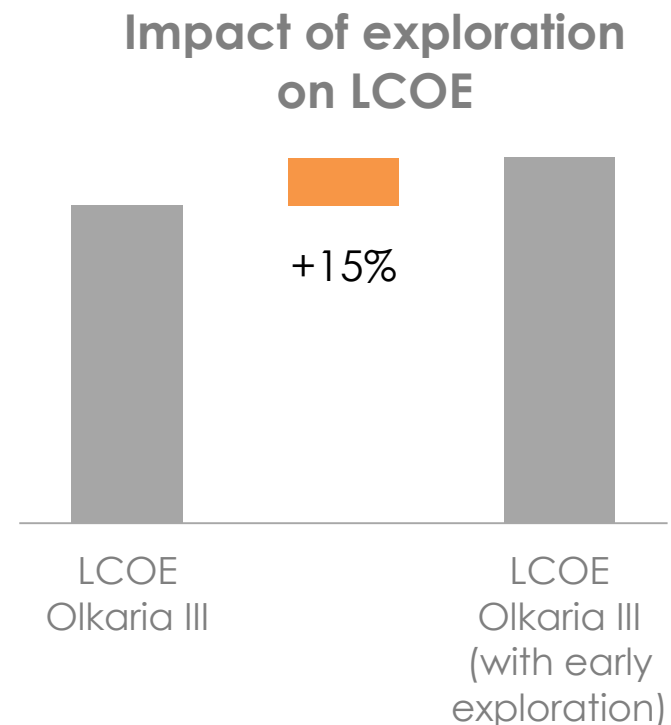
- It is aligned as much as possible with the project's **lifetime** and **financing liabilities**
- It is able to shift **operational risks** considered critical by the private sector

2: Differentiated support in the exploration phase

Early public exploration and tendering of **proven fields** can attract private sector investment.

Private exploration should be incentivized if:

- The private sector can manage these risks at the **lowest cost**
- **Survey data** can be provided to support the exploration phase
- **Tariffs can be increased** to reflect the developer's exploration costs



3: Long-term, low-cost debt

It **frees equity resources** enabling investment in further geothermal projects and capacity

It **decreases financing costs**, and, in certain cases, ensures projects' financial viability

	Gümüşköy Turkey	Olkaria III Kenya	Sarulla Indonesia
After tax Equity IRR	16%	16%	14-16%*
After tax Equity IRR (w/o favourable loan terms)	15%	12%	10-12%

(*) range based on geothermal projects in Indonesia, comparable with the project's IRR.

4: Risk mitigation to unlock financing

Government guarantees for **off-takers** seem to be crucial where there are concerns about their creditworthiness

DFIs' provision of **political risk mitigation** tools can unlock and further lower the cost of capital

DFIs can facilitate the acquisition of **technical capacity** to bridge lenders' knowledge gaps

Questions for participants

Questions

- What is the **best FiT structure** from the private and public sector point of view? What operational risks are appropriate to shift on the public sector?
- How should the private sector be involved in the **exploration phase**? Does it depend on the maturity of the field or the private market? Are countries with regulated electricity bills able to increase FiTs to incentivize private exploration?
- How can **debt finance** be engaged earlier in the project? With which risk mitigation instruments?

Thank you



CLIMATE
POLICY
INITIATIVE

BRAZIL
CHINA
EUROPE
INDIA
INDONESIA
UNITED STATES

Isola di San Giorgio Maggiore, 8
Venezia, 30124
ITALY
climatepolicyinitiative.org