

Olkaria III Geothermal Power Plant

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CLIMATE
POLICY
INITIATIVE

Study for Climate Investment Funds

... on the **effective use of public finance** to scale up geothermal development in **developing countries**.



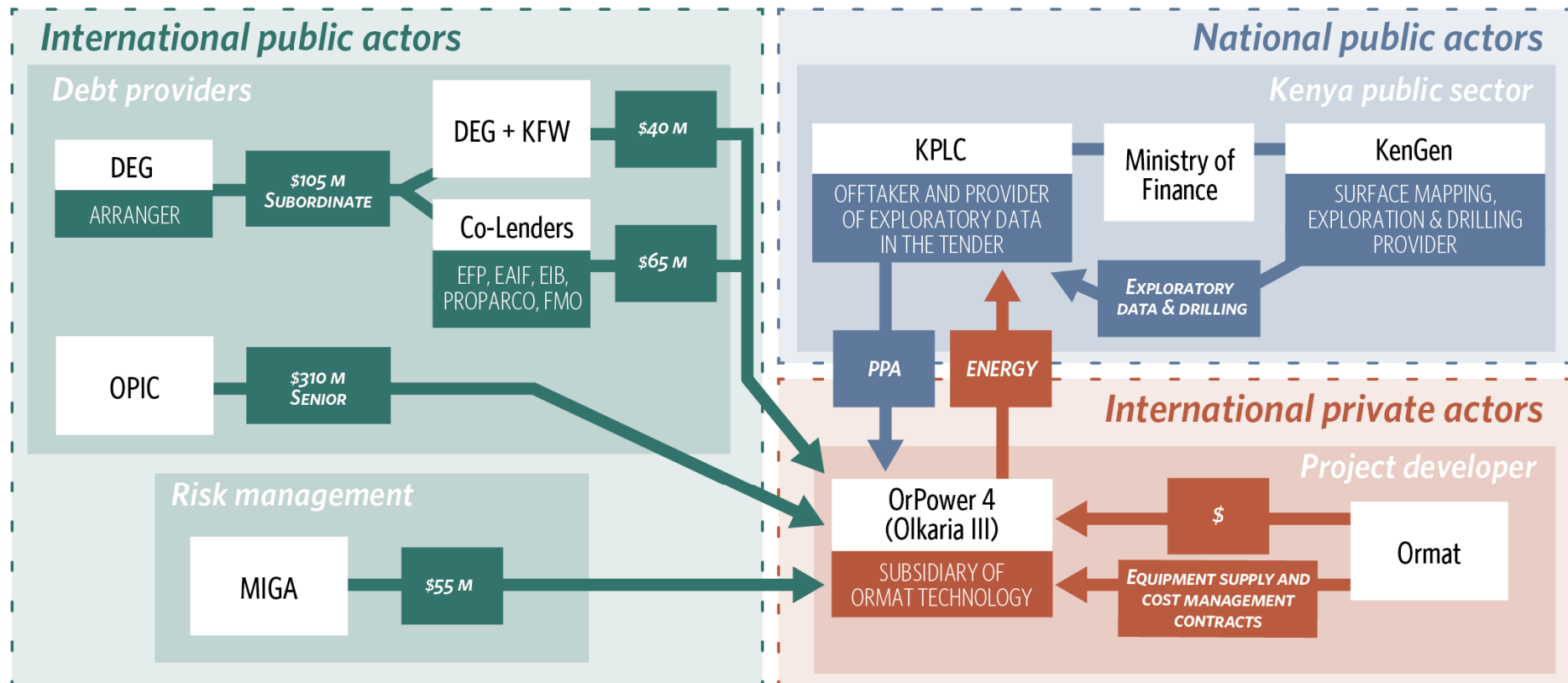
CLIMATE
INVESTMENT
FUNDS



How was the project structured?

Stakeholders

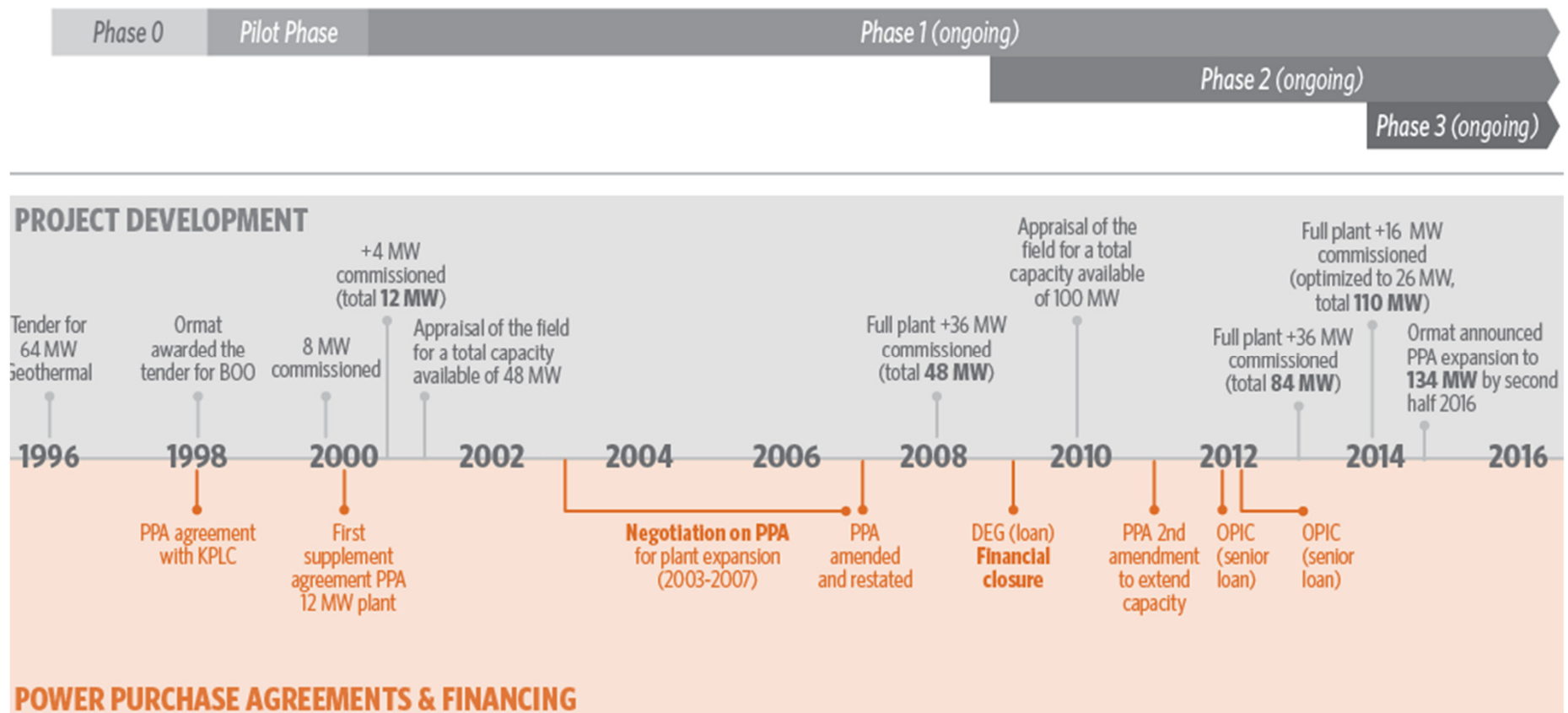
Mapping Olkaria III stakeholders and their contributions to the project



Source: Ormat Technologies (2014); OPIC (2011). Ormat operates the plant through its wholly owned subsidiary Orpower 4 Inc. More details on the stakeholders of the project can be found in Annex I of this paper.

16 years to reach full capacity

- Generation was expanded in **three phases**
- Refinancing of equity and financing of subsequent project development was **dependent on public guarantees**



An evolving financial structure

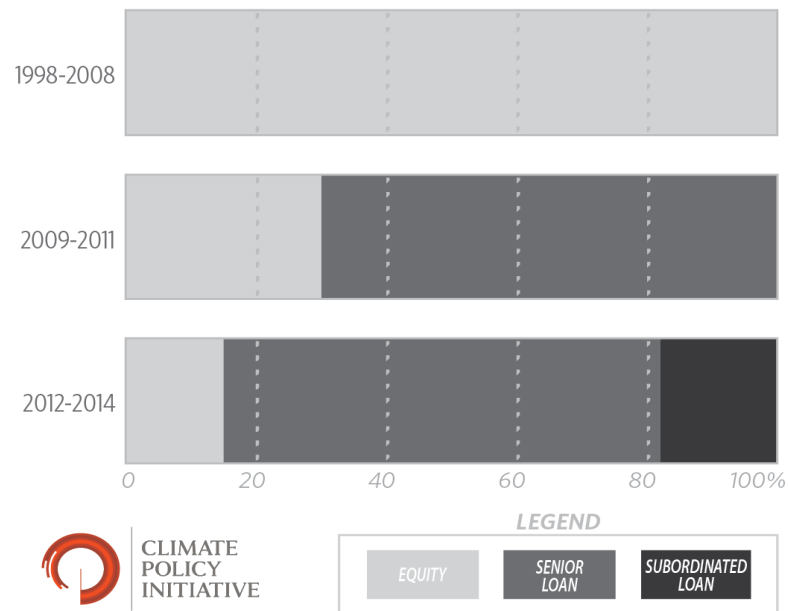
- Phase I was entirely financed with **Equity** from Ormat Technologies
- International development actors supported **refinancing** of equity and financing of subsequent project development

FINANCIAL SOURCES				PHASE OF EXPANSION (MW ADDED)				TOTAL FINANCIAL INPUTS	
ACTORS	TYPE	INSTRUMENT	YEARS DISBURSMENT	PHASE I		PHASE II	PHASE III	FINANCE MOBILIZED	PROJECT COSTS (EXCLUDING REFINANCING)
				12 MW	+36 MW	+36 MW	+16 MW (OPTIMIZED TO 26 MW)		
ORMAT	PRIVATE	EQUITY	1998 - 2014	40	110	43	27	220	220
DEG AND CO-LENDERS	PUBLIC	SENIOR (/ SUBORDINATED) LOAN (REFINANCING)	2009	105		---	---	105	---
OPIC	PUBLIC	SENIOR LOAN (REFINANCING)	2012	85		---	---	85	---
OPIC	PUBLIC	SENIOR LOAN	2012 - 2013	---		180	45	225	225
TOTAL								635	445

An evolving financial structure

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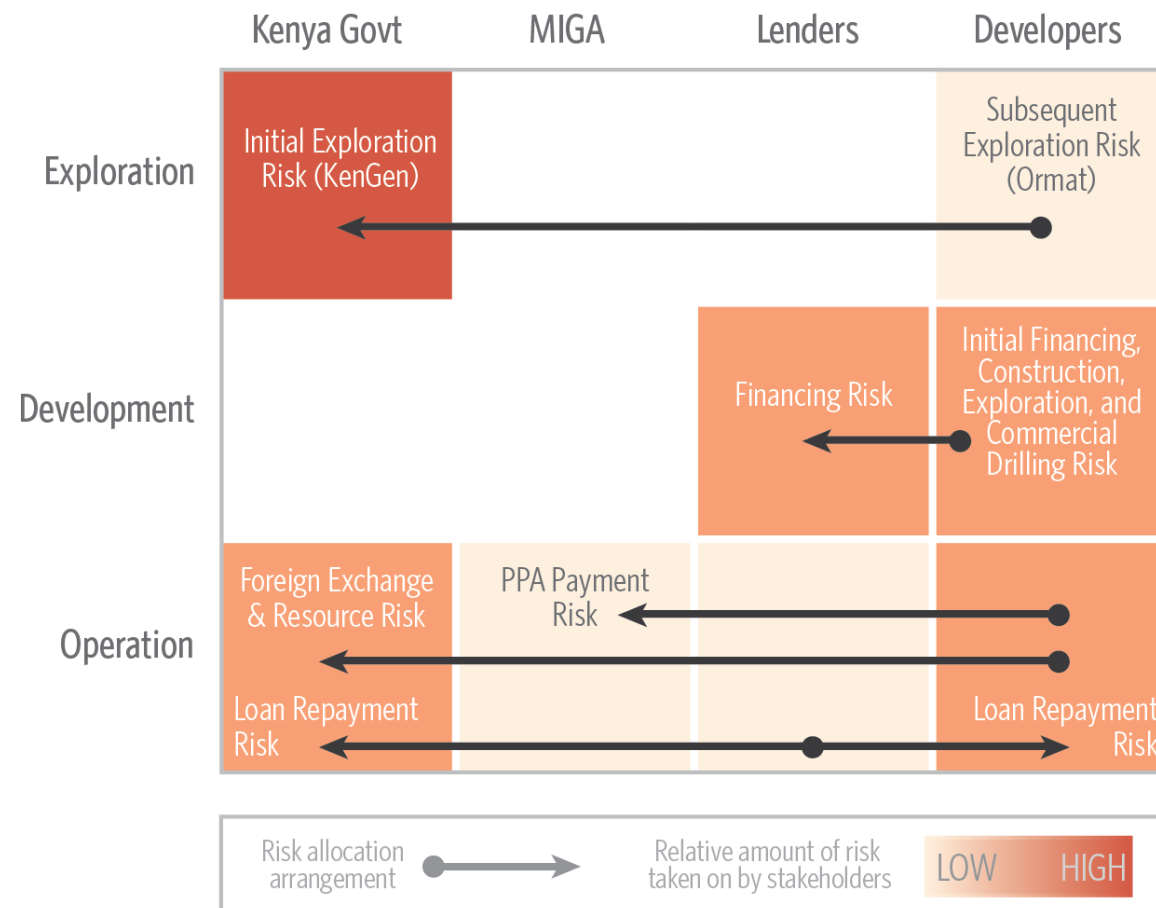
Evolution of financing structure of Olkaria III over time (net of refinancing)



How did public finance impact the project?

Public sector focused on key risks

In Olkaria III, the private party benefited from the **mitigation of credit risk and geothermal risk**, particularly during exploration and early stage development.

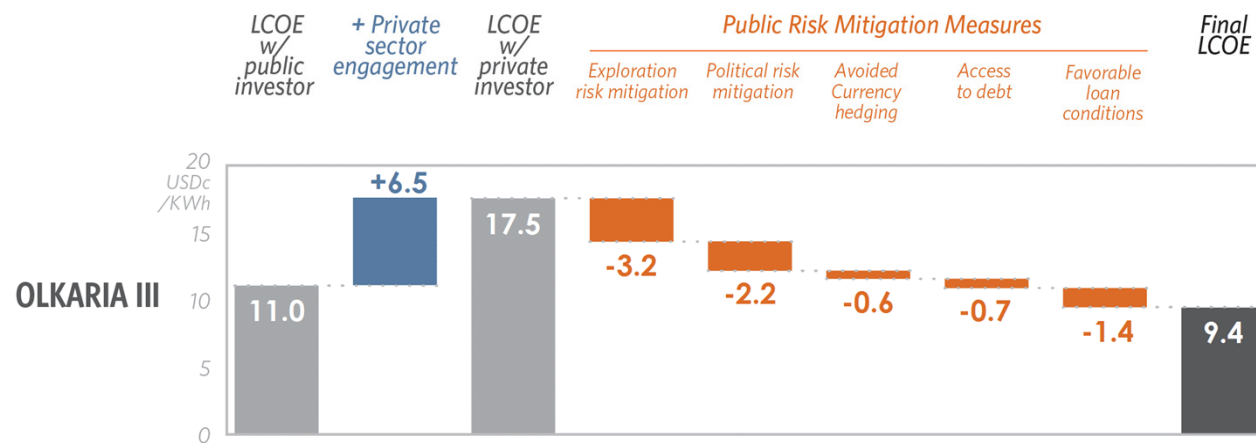


..this allowed the private sector to meet their return expectations

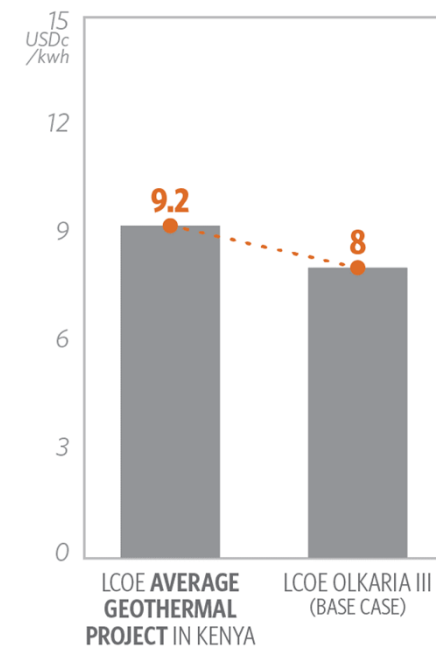
16% IRR is aligned with investments expectations in the country, generally ranging from 15% to 23% for geothermal projects

EQUITY IRR	ENTIRE PROJECT (110 MW)
PROJECT CASE	16%
W/O IN-KIND	13%
W/O REFINANCING	14%
W/O FAVORABLE COMMERCIAL TERMS OF THE LOANS	12%
W/O ANY OF THE ABOVE	10%

...and helped lower end-user tariffs



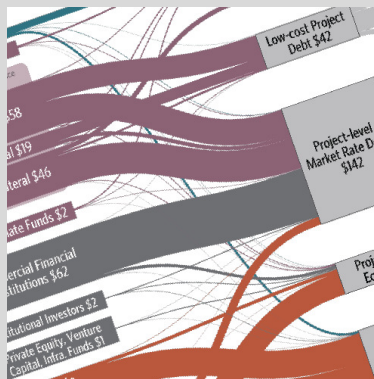
The LCOE of Olkaria III was **13%** lower than the average LCOE for geothermal projects in Kenya



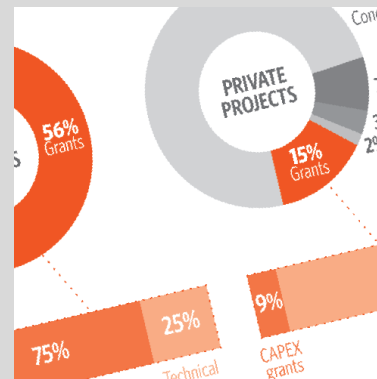
Thank you for your attention!

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TRACKING FINANCE



EFFECTIVE FINANCE



TRANSFORMATIVE FINANCE



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