

Outline

- The Project
- Key Challenges
- The Role of Public Finance
- Key Risk Arrangements
- Early Findings on Effectiveness



Concentrated Solar Power - Upington South Africa

The Upington CSP Project

Tower/central receiver, 100 MW, 9-12 hours storage, 60+% capacity factor. USD 1200 million plant developed by Eskom, South Africa's state-owned utility.



Stakeholder overview – who's involved?



Upington CSP: The Role of Public Finance

- Eskom developing Upington CSP as 'demonstration' plant. Not typical.
- Public lending: encourage the climate-diversification of Eskom's energy portfolio, reduce its reliance on coal, support future CSP projects in SA, global benefit of project.
- Reduced impact of the project on the asset base (existing mainly of cheap coal).
- Currency cost high: lending in USD/EUR, returns in ZAR.



Upington CSP: Key Financing Challenges

Challenges

- Limited funds available to diversify.
- → Competing energy objectives
- Innovative project.
- \rightarrow Technology risk
- Balance sheet finance.
- \rightarrow Limited E/D options
- Club lending.
- \rightarrow Admin risk
- O CLIMATE POLICY INITIATIVE

Impact

- Other options cheaper in short-term for energy security.
- Uncertain cost/timeline, lack of experience, lack of tech. providers.
- Longer process raising additional financing, delays.
- Lending requirements, loan guarantees, currency risk.

Response

- Demonstrate technology, learn and bring cost down.
- Engineering Project
 Management (Owner Engineer, EPC),
 including training.
- Club lending from several DFIs necessary.
- Meeting requirements.
 Internalising currency risk.

Upington CSP: Key Risk Arrangements (Draft/TBC)



Upington CSP: Early Findings on Effectiveness

- What is the CTF 'catalytic effect'? First lender into innovative/'nonbankable' project to provide, signal to Eskom, future lenders, and ministries.
- Parallel public financing (inc. CTF) in IPP private CSP process: to help bring CSP closer to market/costs down through capacity build.
- SA Benefits: in-house capacity building, helping future CSP projects, changing the perception of traditional utility away from coal-based investment, taking advantage of unexploited resources.

At the same time...

- Eskom needed to adjust intenal admin/tech procurement processes in line with lenders, and manage the interaction with policy.
 - Poses challenges for immature technology, need procurement and standards to be adapted to fit
 how many tech providers are there?
 - Needs better interaction with national policy to avoid requirement conflicts (e.g. Competition Act).

Thank you for listening. rodney.boyd@cpivenice.org



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Backup: Full timeline

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WB approve USD 200 million for CIP Eskom CSP.	
Public lenders GEF grant to Eskom for CSP feasibility study	
BRD approve USD 195 million for Eskom CSP.	
Af DB approve USD 220 million loan to Eskom CSP.	
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Policy 1998 White Paper on Energy Policy: five point objectives for energy sector.	Early 2018
2001 Cabinet Decision: new energy generation investment to be 70% by Eskom, and 30% by new players.	
2003 DoE White Paper on Renewable Energy Policy: target to generate 10,000 GWh from renewable sources by 2013.	
Regulation 2004 National Ene/2006 Electricity Regulation Act NERSA guideline REFITs (wind, PV, Ia REFITs reviewed	
2008 Cabinet Decision: Long-term Mitigation Scenario (LMS) Strategy.	
UNFCCC COP15: GoSA conditionally commit to 34% reductions in BAU emissions by 2020, 42% by 202	1
DoE initiates Integrated Resources Plan (IRP) 2010-2030.	
DeE IRP 2010-2030 approved and promulgated into law.	
REFIT replaced by REBID - IPP Procurement Programme	
IRP 2010 updated. Increa	ed CSP allocat

Back-up: Comparisons of Eskom and IPPs

Eskom is different from IPPs:

- State-owned vs private
- Policy responsible vs independent
- Regulated vs non-regulated
- (*typical*) risk averse vs risk takers
- Large asset value vs small niche players
- No experience with non-hydro RE vs RE developers
- Asset-based revenues (policy approach) vs guaranteed PPA (business approach).

Upington is different from IPPs:

- Tower + molten salt storage vs others
- Concessional debt/regulated equity vs large equity
- High capacity factor vs lower output
- Largest storage + tower vs smaller/less storage
- Demonstration plant vs commercial

Backup: Investors

Sourcetype(USDm)Share (%)CurrencyApprovedDebtCTF - IBRDLoan20017%USD2010CTF - AfDBLoan504%USD2010WB/IBRDLoan19516%USD2011AfDBLoan22018%USD2011KfWLoan1008%EUR2012-2013AFDLoan13011%EUR2012-2013		Financing	Amount					
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KfW Loan 100 8% EUR 2012-2013 AFD Loan 130 11% EUR 2012-2013	AfDB	Loan	220	18%	USD	2011		
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Equity								
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Eskom <i>sheet</i> 227 19% ZAR 2013-2014	Eskom	sheet	227	19%	ZAR	2013-2014		
TOTAL PROJECT COST 1,197								