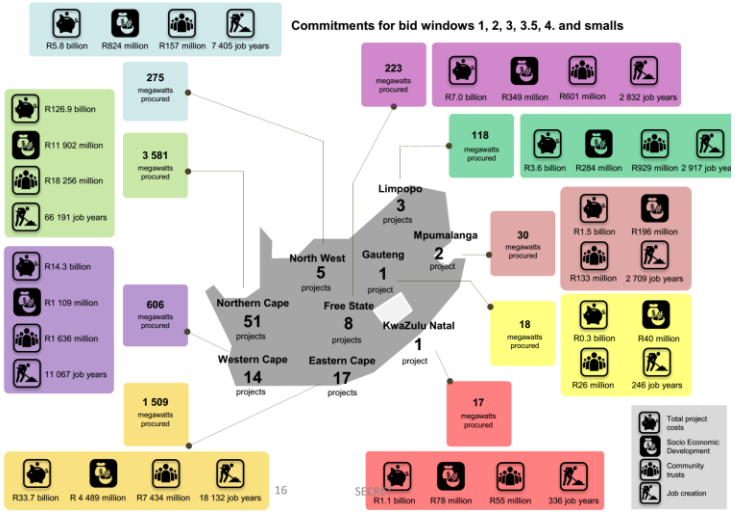
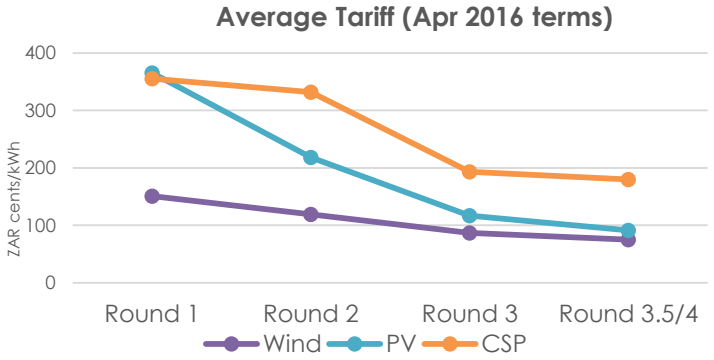
Financing CSP Projects in South Africa

A Developer's Perspective
November 2018

South African Renewable Energy IPP Program (REIPPP)

- Started in 2011, the REIPPP is widely recognized as one of the most successful renewable energy procurement models in the world.
- Over 5 progressive rounds of competitive bidding, South Africa has procured more than 6,300 MW of renewable energy capacity across 92 projects
- Significant progress has been made in terms of
  - Tariff reduction, investments and job creation
- 600 MW of CSP Capacity has been procured. ACWA Power developed and built the 50 MW Bokpoort CSP project in Round 2 and is currently developing the 100 MW Redstone CSP project as part of Round 3.5

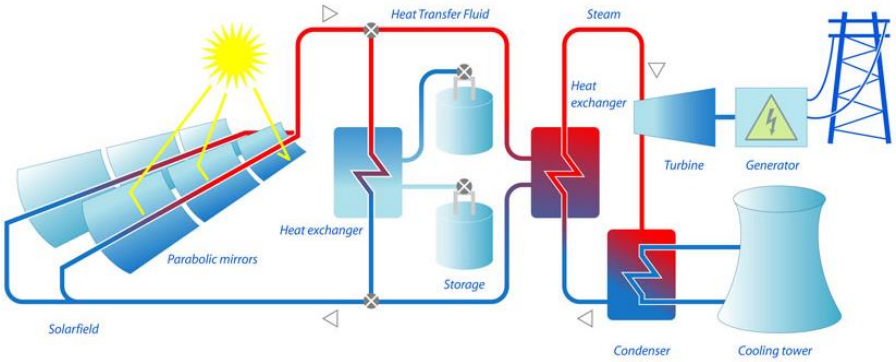




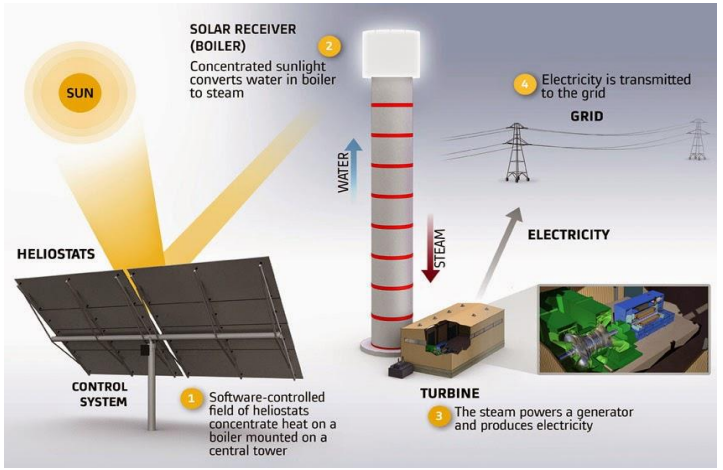
	BW 1		BW 2		BW 3		BW 3.5		BW 4		Total	
Technology	Capacity (MW)	No. of projects	Capacity (MW)	No. of projects	Capacity (MW)	No. of projects	Capacity (MW)	No. of projects	Capacity (MW)	No. of projects	Capacity (MW)	No. of projects
Wind	649	8	559	7	787	7	0	0	1,362	12	**3,357**	**34**
Solar PV	627	18	417	9	435	6	0	0	813	12	**2,292**	**45**
CSP	150	2	50	1	200	2	200	2	0	0	**600**	**7**
Landfill gas	0	0	0	0	18	1	0	0	0	0	**18**	**1**
Biomass	0	0	0	0	17	1	0	0	25	1	**42**	**2**
Small hydro	0	0	14	2	0	0	0	0	5	1	**19**	**3**
Total	**1,426**	**28**	**1,040**	**19**	**1,457**	**17**	**200**	**2**	**2,205**	**26**	**6,328**	**92**

Concentrated Solar Power (CSP)

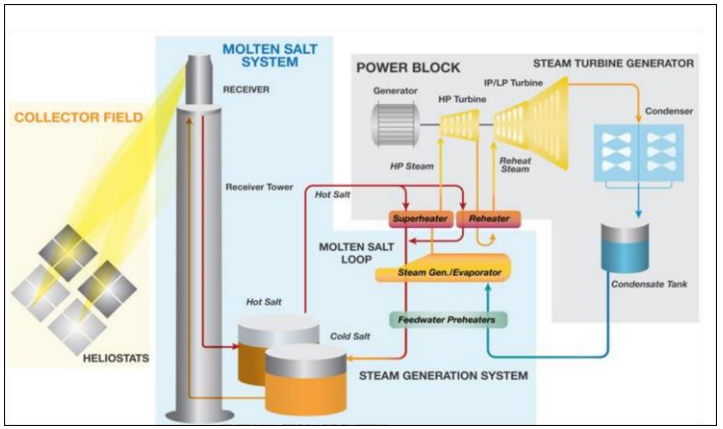
- Fundamentally, CSP technology involves concentrating solar energy using a reflective surface to produce heat which is then converted into electricity using conventional equipment (boiler/turbine/generator)
- Worldwide c. 5,500 MW of installed CSP capacity
- Different types of CSP technologies are currently available –
  - Parabolic trough – one of the oldest and most widely adopted. Almost 90% of the CSP installed capacity is PT
  - Steam central receiver – utility scale projects in US, South Africa
  - Molten salt central receiver (MSCR) – utility scale projects in US, Spain, Morocco
  - Linear Fresnel – little deployment on commercial scale
  - Dish collector – little deployment on commercial scale
- In South Africa, 50 MW of steam tower CSP, 450 MW of parabolic trough and 100 MW of molten salt tower (Redstone CSP project) have been built/developed so far under the REIPPP.



Parabolic trough CSP



Steam Tower CSP



Molten Salt Tower CSP

Financing Market Landscape in South Africa

Debt

- Large commercial banks (Standard Bank, Nedbank, Absa, First Rand, Investec), institutional lenders (IDC, DBSA, PIC) and commercial asset managers/pension funds have been extremely active in the project finance market in South Africa
- In addition, DFIs (IFC, AfDB, EIB, FMO etc.) have been active but in a limited way
- Due to limitations under the REIPPP, foreign currency debt has so far not been employed in any meaningful manner
- Local banks/institutions have provided roughly R 150 billion in debt funding to the projects – "liquidity" so far has not been a challenge
- Commercial banks take the lead in structuring the transactions and negotiating documentation and underwrite debt which gets distributed to pension funds/asset management companies.

Equity

- Projects typically have an anchor developer/sponsor (international/local) who also takes equity in the projects
- Institutional investors like PIC, Old Mutual are also present in the equity space
- Funding for BEE shareholders is generally available from IDC, PIC and IDC and in some cases, from commercial banks.

Financing CSP Projects in South Africa

- From a financing standpoint, CSP is still considered "relatively" riskier than other mainstream renewable energy technologies.
- Especially true for emerging CSP technologies like steam tower, molten salt central receiver.
- Financing challenges include –
  - Liquidity – CSP Projects typically have capex that is 8-10 times that of PV projects (on a per MW basis). This makes it imperative that a large financier group is assembled
  - Availability of financing - commercial banks have so far only supported PT based projects. For steam tower, MSCR based projects, financing has been raised from DFIs or multilaterals.
  - Cost of funding – Debt financing terms for CSP projects are typically more onerous. Lower gearing, higher interest rates, shorter tenors, higher contingencies etc.
  - Stricter covenants – the financing documents are relatively onerous on provisions related to distributions, mandatory prepayments linked to the performance of the plant, coverage ratios etc.
  - Extensive due diligence – scrutiny of contractors in terms of their ability to build or operate the projects, extensive due diligence on security provisions of the contracts
- The situation on the equity front is also challenging – finding interested equity investors and meeting the return thresholds are key issues.

Financing CSP Projects in South Africa – Challenges going forward

- **Policy Uncertainty –**
  - Limited support for CSP in the current draft IRP
  - Significant delays in REIPPP itself
- **Liquidity Issues –**
  - Without foreign currency funding, the options for funding of CSP projects are limited
- **Performance issues –**
  - The performance of operational/under construction projects will color the perspective of potential financiers
- **Tariff reduction –**
  - Developers need to find ways to bring down tariffs. Higher CSP tariffs put a question mark on the viability of projects

Thank you

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