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South African National Energy
Development Institute (SNC) Ltd.



Derisking Renewable Energy Investment

**A framework to support policymakers in selecting public instruments
to
promote renewable energy investment in developing countries**


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 SANEDI

 3 Questions

 Then - Darling National Wind Farm Demo (5.2 MW)

 Derisking RE in South Africa

 Now – Government: RE IPP PP (3 725 MW)

 Future



- 🇳🇷 SANEDI assists the State in achieving its strategic objectives as set out in the National Energy Act, 2008 (No. 34 of 2008):
 - 🇳🇷 Promote diversification of energy supply
 - 🇳🇷 Ensure emerging energy technologies are incubated & commercialised
 - 🇳🇷 Ensure appropriate human capital is developed to support new industries
 - 🇳🇷 Stimulate innovation in energy R&D, introduce next wave of generation capacity in SA

3 Questions



- What is the cost of Renewable Energy Technology?
- What is the renewable energy practical potential?
- What is the Reliability of Renewable Energy?

Then: Darling National Demo Wind Farm



- 🌱 Learn by doing
- 🌱 Started 1996 (5.2 MW)
- 🌱 Low electricity price
- 🌱 No bulk RE IPP's
- 🌱 Nascent RE Energy Policy, Legal and Regulatory Framework
- 🌱 RE IPP EIA “new
- 🌱 Project development funding DANIDA, DBSA
- 🌱 Innovative funding package (debt, equity, grant)
- 🌱 Negotiations PWA with Eskom, PPA with City of Cape Town (GEF Guarantee)
- 🌱 Voluntary Green premium cannot sustain market
- 🌱 Upscale - Need Government intervention
- 🌱 Commissioned May 2008

Derisking RE in South Africa



- 🇿🇦 August 1997 South Africa ratified UNFCCC – eligible for GEF funding
- 🇿🇦 Dec 1998 White Paper on Energy Policy
- 🇿🇦 July 2002 South Africa acceded to the Kyoto Protocol (developing country)
- 🇿🇦 Nov 2003 White Paper on Renewable Energy Policy - *Target of 10 000 GWh (0.8 Mtoe) renewable energy contribution to final energy consumption by 2013, to be produced mainly from biomass, wind, solar and small-scale hydro- This is approximately 4% (1667 MW) of the projected electricity demand for 2013 (41539 MW)*
- 🇿🇦 July 2006 Electricity Regulation Act (No 4 of 2006) – Access to the grid, new generation capacity
- 🇿🇦 July 2007 Industrial Policy Action Plan (IPAP) 2007 - Implementation of SA's Industrial Policy – incorporates renewable energy

Derisking RE in South Africa cont.



- Feb 2008 UNDP-GEF funded South African Wind Energy Programme (SAWEP) implemented (Wind Atlas for South Africa (WASA) initiated with Embassy of Denmark co-funding, Wind turbine and component IEC standards adopted, Capacity Credit of Wind Generation in South Africa (funded by GIZ) etc)
- May 2008 Darling National Demonstration Wind farm commissioned
- July 2008 Long Term Mitigation Scenarios (LTMS) – Cabinet adopted a peak, plateau and decline trajectory. Emissions to peak between 2020 and 2025, remain flat for a decade, and decline in absolute terms from 2030-35 onwards
- 2008 Energy Act (No 34 of 2008) – establish SANEDI
- 2009 NERSA approved REFIT
- May 2011 Integrated Resource Plan promulgated – 2010 – 2013, 42% (17.8 GW) new built to come from RE (8.4 GW wind, 8.4 GW PV, 1 GW CSP) *“At the very least, it is expected that the IRP should be revised by the Department of Energy (DoE) every two years, resulting in a revision in 2012”*

Derisking RE in South Africa cont.



- 🇿🇦 2011 Legal issues (procurement) with REFIT
- 🇿🇦 August 2011 Dept of Energy launched the RE IPP Procurement Programme (REIPPPP). RE IPP sign PPA with Eskom.
- 🇿🇦 Oct 2011 South African Renewable Energy Initiative (SARI) - Aims to design and facilitate arrangements needed to enable a critical mass of renewables be developed with public, private, domestic and international funding, but without incurring unacceptable incremental cost burdens on South Africa
- 🇿🇦 March 2012 Deputy Minister of Energy launched WASA Verified Numerical Wind Atlas for South Africa (1112 - registered users, 50 - countries) www.wasa.csir.co.za, www.wasaproject.info
- 🇿🇦 Dec 2012 Dept of Environmental Affairs launched National Wind (making use of WASA data and tools) and Solar PV SEA study – identification of RE development zones (REDZ) - submission for Cabinet approval by 2014
- 🇿🇦 Mature Renewable Energy Industrial Associations (SAWEA, SASTELA, SAPVIA, SABA etc)
- 🇿🇦 Mature and well development banking sector

Now RE IPP Procurement Programme



Price Competitive RE Procurement Programme (REIPPPP)

Technology (MW)	ReBid 1 (Nov 12)	Rebid 2 (May 2013)	Rebid 3 (July 2014)	Total	Target	%
Wind	634.1	562.5		1196.6	1850	65
Solar PV	706.8	417.1		1123.9	1450	78
Solar CSP	50	0		50	200	100
Solar Trough	100	50		150		
Small hydro	0	14.3		14.3	75	19
Biomass					12.5	0
Biogas					12.5	0
Landfill gas					25	0
Small IPP					100	0
	1490.9	1043.9		2534.8	3725	68%

Additional 3200 MW by 2020



- 🌱 REIPPPP success on the ground
- 🌱 Socio-economic development, localisation, job creation etc
- 🌱 SARI implementation (market certainty)
- 🌱 Practical RE potential confirmed
- 🌱 RE generation Capacity contribution confirmed
- 🌱 Grid access and scheduling
- 🌱 Water usage and availability for power generation
- 🌱 Policy and Regulatory framework for self generation, willing buyer, willing seller, net metering etc (opportunities outside the REIPPPP)

Keep learning by doing!!!



Thank You

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