

# SOUTH AFRICA'S Renewable Independent Power Producer Procurement Programme (REIP4) Overview



TEM Bonn – June 2015



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- The 2003 Renewable Energy policy envisages 10,000 GWh of RE contribution to the energy mix by 2013
- National Energy Act of 2008
- Energy policy of 1998
- Government began exploring REFIT in 2009
- Integrated Resource Plan 2010 included climate change concerns



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# Background

Technology	REFIT 2009 ZAR/MWh	REFIT 2011 ZAR/MWh	Change (%)
Wind	1250	938	-24.9
Solar PV (>1MW)	3940	2311	-41.3
Landfill gas	900	539	-40.1
Small hydro	940	671	-28.6
CSP through w/storage	2100	1836	-12.6
CSP trough, no storage	3140	1938	-38.8
CSP tower w/storage	2310	1399	-39.4
Biomass solid	1180	106	-10.1
Biogas	960	837	-12.9

Technology	REFIT (ZAR / kWh)		REIPPPP (ZAR/kWh)		REIPPPP (US c/kWh)
	2009 Tariff	2011 Tariff	Bid Cap	Round 1	Round 1
Wind	1.25	0.94	1.15	1.14	14.3
Photovoltaic	3.94	2.31	2.85	2.76	34.5
Concentrated solar trough with storage	3.14	1.84	2.85	2.69	33.6

Source: Ebehard et. al

Note: 8 ZAR/USD.



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# From REFIT to REIPPPP ("REBID") in 2011

- 4 Windows of competitive bidding completed, 5<sup>th</sup> window in design phase
- Selection criteria included detailed indicators on contribution to Sustainable Development
  - Job-creation
  - Local-content
  - Ownership
  - Management control
  - Procurement
  - Enterprise development
  - Socio-economic Development
- Independent institutional arrangement for the evaluation and management of the process



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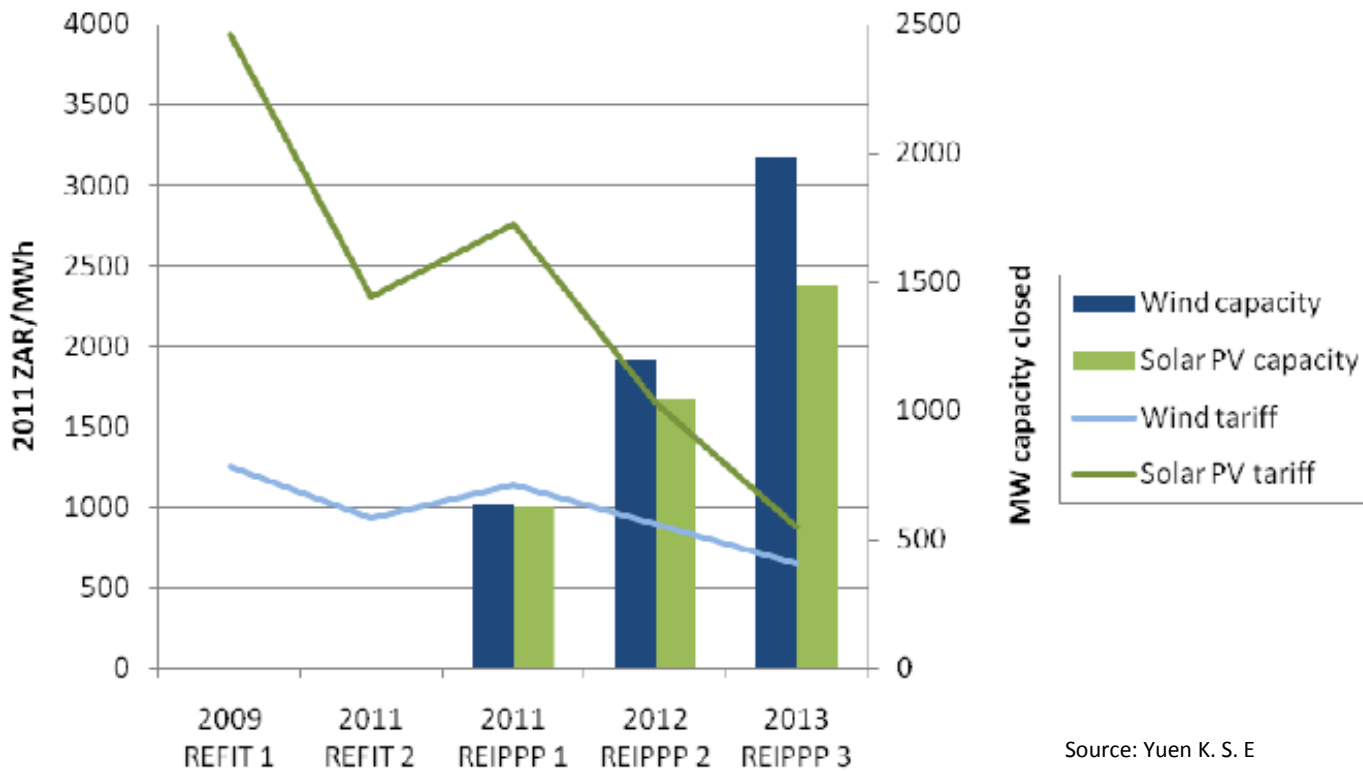
## Summary of REIPPPP

	Wind	PV	CSP	Hydro	Biomass	Biogas	Landfill	Total
<b>WINDOW 1</b>								
Capacity offered (MW)	1850	1450	200	75	12.5	12.5	25	3625
Capacity awarded (MW)	634	631.5	150	0	0	0	0	1415.5
Projects awarded	8	18	2	0	0	0	0	28
Average tariff (SAc/kWh)	114	276	269	N/A	N/A	N/A	N/A	N/A
Average tariff (USc/kWh) ZAR8/\$	14.3	34.5	33.6					
Total investment (ZAR mill)	13312	23115	11365	0	0	0	0	47792
Total investment (USD mill) ZAR8/\$	1664	2889	1421					5974
<b>WINDOW 2</b>								
Capacity offered (MW)	650	450	50	75	12.5	12.5	25	1275
Capacity awarded (MW)	562.5	417.1	50	14.3	0	0	0	1043.9
Projects awarded	7	9	1	2	0	0	0	19
Average tariff (SAc/kWh)	90	165	251	103	N/A	N/A	N/A	N/A
Average tariff (USc/kWh) ZAR7.94/\$	11.3	20.8	31.6	13				
Total investment (ZAR mill)	10897	12048	4483	631	0	0	0	28059
Total investment (USD mill) ZAR7.94/\$	1372	1517	565	79	0	0	0	3534
<b>WINDOW 3</b>								
Capacity offered (MW)	654	401	200	121	60	12	25	1473
Capacity awarded (MW)	787	435	200	0	16	0	18	1456
Projects awarded	7	6	2	0	1	0	1	17
Average tariff (SAc/kWh)	74	99	164	N/A	140	N/A	94	N/A
Average tariff (USc/kWh) ZAR9.86/R	7.5	10	16.6		14.2		9.5	N/A
Total investment (ZAR mill)	16969	8145	17949	0	1061	0	288	44413
Total investment (USD mill) ZAR9.86/R	1721	826	1820		108		29	4504
<b>TOTALS</b>								
Capacity awarded (MW)	1984	1484	400	14	16	0	18	3915
Projects awarded	32	23	5	2	1	0	1	64
Total investment (ZAR mill)	40590	42130	33797	631	1061	0	288	120263
Total investment (USD mill)	4683	5085	3806	79	108	0	29	14011

## Bidding Windows 1 -3 summary:

- **64 projects selected**
- **Combined installed capacity of 3,915 MW**
- **Total private investment of 1.5 billion USD**





Source: Yuen K. S. E

**MAKING TOP 10**

*Twice*

**OVER**

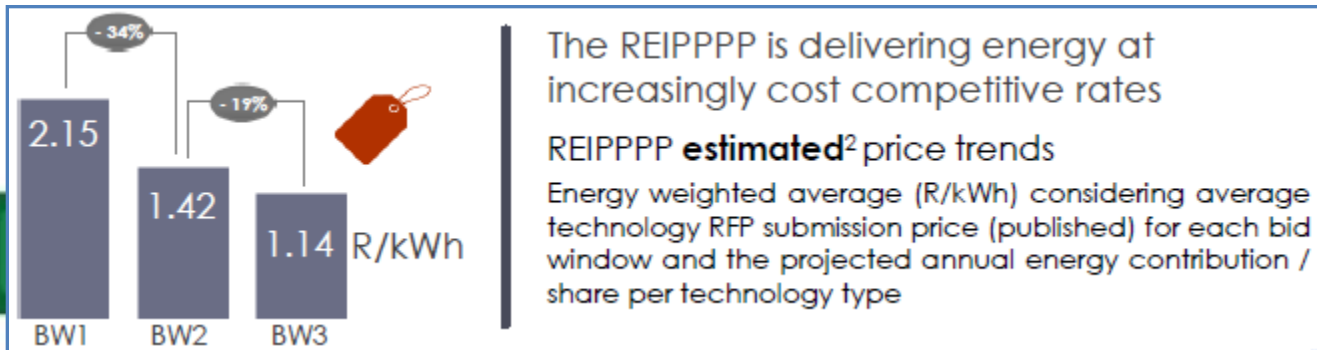
**1** **South Africa enters solar power world top 10**

With respect to established utility scale capacity (installations of 5MW and larger)<sup>2</sup>

- South Africa info, www.southafrica.info; July 2014

**2** **Amongst top 10 RE investing countries in 2014**

UNEP's 9th Global Trends in Renewable Energy Investments, 2015<sup>3</sup>



# REIPPPP ACHIEVEMENTS



# 187

## megawatts

generation capacity started commercial operation during the last quarter

with a total of **1 709MWs** operational by Q 4 | 2014/15



**15%** of the Renewable Energy production is available during system peak time (as defined by the Megaflex tariff)

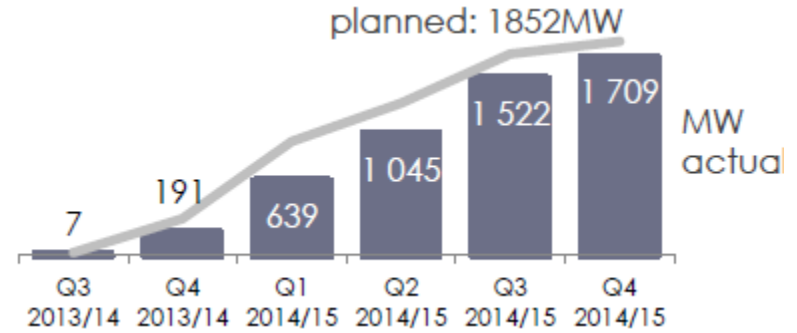
### Energy access and security

### 3 270GWh

REIPPPP <sup>1</sup> Actual energy contributed to National Grid

of which

- **1 486GWh**  
*Wind (45%)*
- **1 753GWh**  
*Solar PV (54%)*
- **24GWh**  
*CSP (0.7%)*
- **6GWh**  
*Small hydro (0.1%)*



### R 7.0 billion

REIPPPP Total payment to all IPPs for energy generated since inception

Source: DoE

Already reduced **carbon emissions<sup>3</sup>** as a result of energy generated from RE sources (vs national grid) towards the global climate change imperative – a number that will only grow as production increases

# 3.3

M ton CO<sub>2</sub>



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# REIPPPP ACHIEVEMENTS

- **Accelerated roll-out** of large-scale RE generation capacity
- Shift from FIT to **competitive bidding & multiple windows** contributed to learning and lowering prices over-time
- **Attracted significant funding** from both local institutions and international investors
- Promoted a **business-friendly atmosphere**
- An South African **fit-for-purpose programme**
- RE programme carried out in the **context of SD**



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# SUCCESSSES & LESSONS LEARNT



What can be done with international Support ?

Each 1000 MW is equivalent to about **9 MT CO<sub>2</sub>** reductions/yr

	BW 1	BW 2	BW 3	Going-forward	
R/kWh	2.15	1.42	1.14	1	1
Government R/kWh	1.5	0.77	0.49	0.35	0.35
MW	1 315.15	1 043.19	1 456	1 000	500
kWh/yr	11.5 billion	9 billion	12.8 billion	8.8 billion	4.4 billion
R/yr	17.3 billion	7billion	6.3 billion	3 billion	1.5 billion
Rand over 20 yrs	346 billion	141 billion	125 billion	614 billion	307billion
USD over 20 yrs	26.6 billion	10.8 billion	9.6 billion	<b>4.7 billion</b>	<b>2.4 billion</b>
Total USD in 20 yrs	<b>47 billion</b>				



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# SCALE-UP POTENTIAL

# THANK YOU

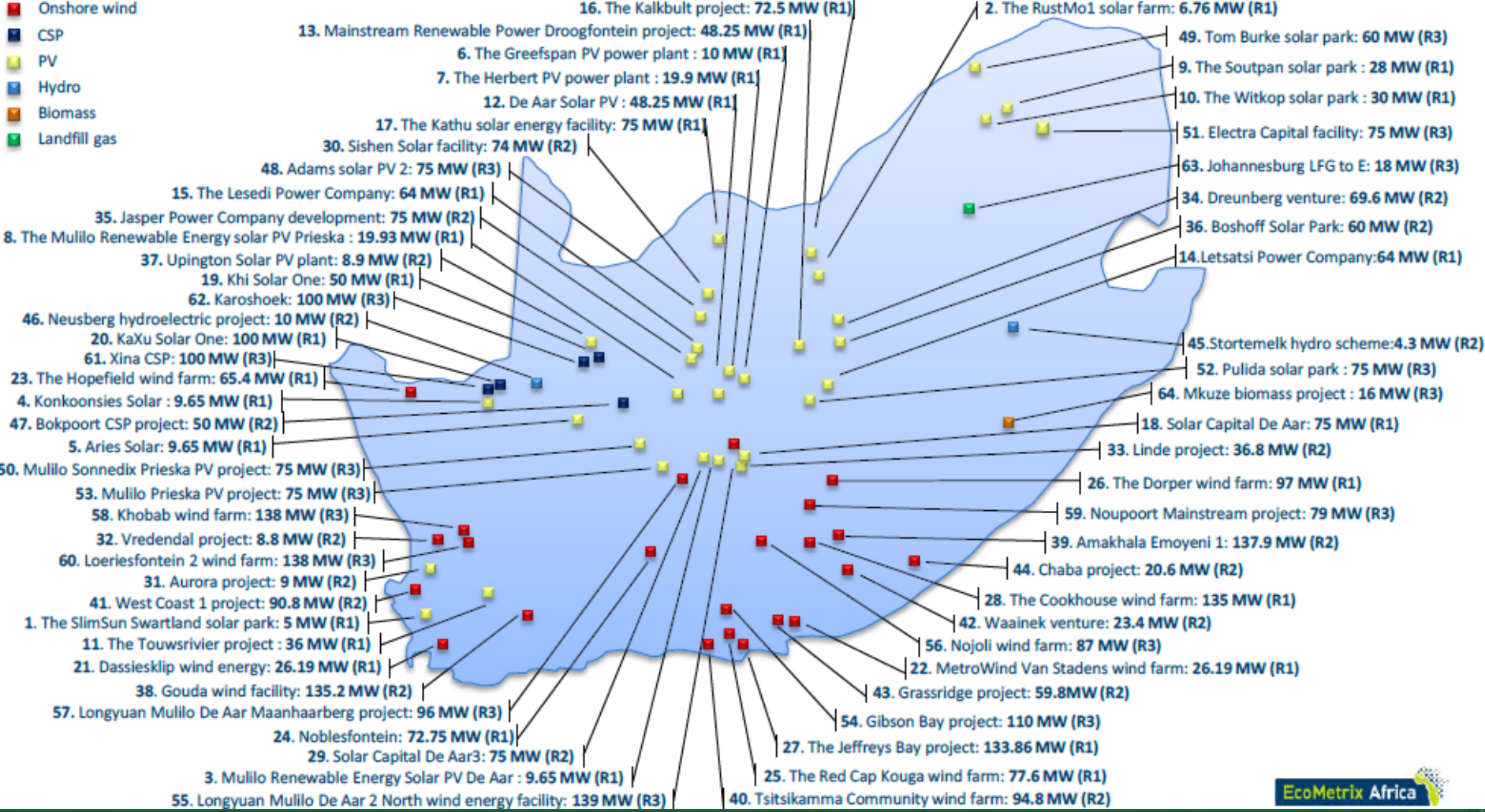
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- Onshore wind
- CSP
- PV
- Hydro
- Biomass
- Landfill gas



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