



energy
[r]evolution

A SUSTAINABLE WORLD ENERGY OUTLOOK

GREENPEACE



ERC

RENEWABLE ENERGY SECTOR UPDATE

WHERE ARE WE?

WHERE SHOULD WE BE?

WHERE SHOULD WE BE GOING ?

- This scenario is based on the global energy scenario produced by Greenpeace International, which demonstrates how energy-related global CO2 emissions can be reduced by 80% by 2050 based on 1990 levels.
- The South African scenario provides an exciting, ambitious and necessary blueprint for how emission reductions can be made in the energy and transport sectors and how South Africa's energy can be sustainably managed up to the middle of this century.

WHAT SHOULD WE BE DOING ?

- Create greater equity in the use of resources
- Implement renewable solutions, especially through decentralised energy systems
- Respect the natural limits of the environment
- Phase out dirty, unsustainable energy sources
- Decouple economic growth from the consumption of fossil fuels

FROM PRINCIPLES TO PRACTICE

In the past five years, coal burning was responsible for 70% of the record CO2 emission growth, and it causes 44% of global fossil CO2 emissions.

Most proven reserves of fossil fuels must stay in the ground,

“THE STONE AGE DID NOT END FOR LACK OF STONE, AND THE OIL AGE WILL END LONG BEFORE THE WORLD RUNS OUT OF OIL.” *Sheikh Zaki Yamani, former Saudi Arabian oil minister*

There's now 10 times more solar photovoltaic, 6 times more concentrating solar thermal power and 3 times more wind power capacity in the world than in 2007, when the previous IPCC Assessment Report was published. Solar PV grew from 10 GW to 100 GW, while the annual growth rate of wind power capacity averaged 25%, resulting in 283 GW

THE 3 STAGES

1) Energy Efficiency

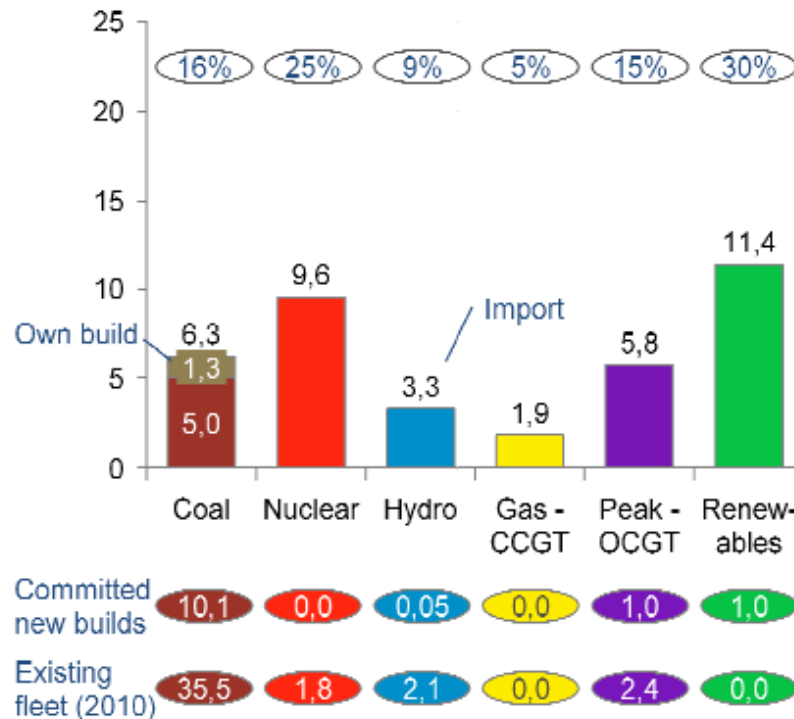
2) Decentralised Energy

a) Changing business model for
Municipalities

3) Optimized integration - renewables 24/7

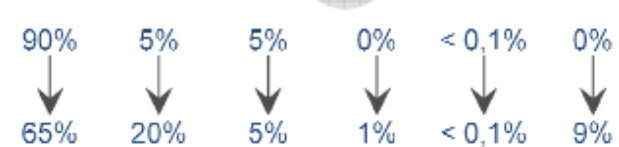
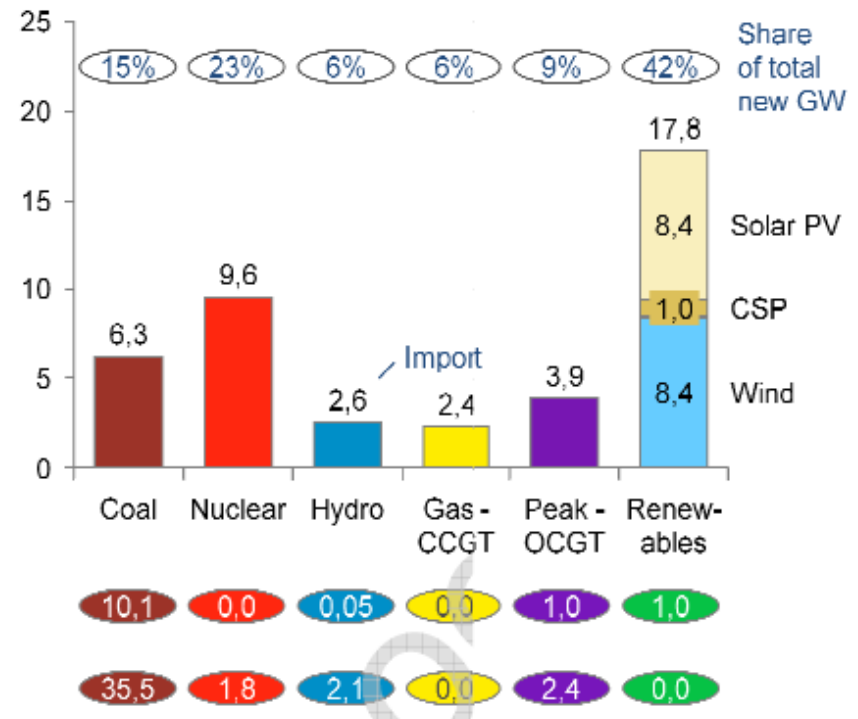
Before consultation process: Revised Balanced Scenario (RBS)

Total additional new capacity
(without committed) until 2030 in GW



After consultation process: Policy-Adjusted IRP

Total additional new capacity
(without committed) until 2030 in GW



PV MW	Phase I	Phase II	Phase III
Awarded	632 MW	417 MW	
Allocated			401 MW

WHAT DOES IT LOOK LIKE ?

- PV Allocation from the Department of Energy was initially (2011) set to 1450 MW, and eventually broken down between the 3 first Bid Windows:
 - At the end of 2012, PV was granted a further 1075 MW through the Minister's Second Determination securing visibility on the future of the REIPPPP
 - Further it has been made clear that there will be only one bidding round per year going forward (likely in August)
 - Annual allocations of ~500 MW for PV will likely be made available per Bid Window

- The “REBID” scheme was launched by DoE on 3 August 2011
 - The first programme phase was designed to add 3 725 MW of renewables to the energy mix, with allocations awarded through 3 successive bid windows (Nov 2011 – Aug 2013)
- * An additional 1,075 MW of PV capacity was announced in Oct 2012
- The entire capacity to be grid connected by 2016

Technology	MW
Onshore wind	1 850
Concentrated solar thermal	200
Solar photovoltaic *	1 450
Biomass	12.5
Biogas	12.5
Landfill Gas	25
Small hydro	75
Small Projects	100
Total	3 725

THE TARIFF STRUCTURE

- In order to ensure tariffs remain competitive, all project allocations is subject to public tender with the selection criteria

70% weight - Price

30% weight - Economic Development (inter alia Black Economic Empowerment, Local Content & Job Creation)

- Anticipated direct capital investment under the Programme is 112bn Rand (11.2bn EUR)

**Renewable
Energy Power
Generator
(IPP)**

Generating
Licence

**National
Energy
Regulator of
South Africa
(NERSA)**

Implementati
on
agreement

**PP
A**

Electricity

Regulates national
tariffs,
enables cost pass
through

**Department
of Energy**

Mone
y

**Single Buyer
Office ESKOM**

National Treasur

Mone
y

**Guarantee
PPA
Payment**

Electricity

**Consumer
s**

WHATS HAPPENED THUS FAR

Round 1

28 projects were given preferred bidder status amounting to 634 MW of wind (8 projects), 150 MW of CSP (2 projects) and 631.5 MW of solar PV (18 projects).

WHATS HAPPENED THUS FAR

Round 2

As with the first round, wind and solar technology dominated with 9 projects totalling 417.1 MW for solar PV and 7 projects totalling 562.5 MW for wind. In addition, 2 small hydro projects totalling 14.3 MW and 1 CSP project totalling 50 MW were also given preferred bidder status. The 19 projects together represent 1 043.9 MW of a total of 1 225 MW allocated for the second round.

COMING UP ... ROUND 3

- Bid submission took place on 19 August this year
- The Bid-Window was several times oversubscribed
- PV Tariff Capped at 1.4 Rand / Kwh
- Banks were selective in whom they backed
- Results to be announced by the end of October...

The Department will also request proposals for smaller-scale renewable energy projects with capacities of below 5 MW

THE GOOD

South Africa had objectives other than the procurement of electricity when implementing the REIPP program. This included a minimum local shareholding, local content requirements as well as annual contributions to social and economic development causes

Tendering a competitive process which brought the prices down rapidly.

RE at GRID PARITY even PV was lower than 1.4kWh in Round 3
Wind was already at 89ckWh in Round 1 and went even lower.
Kusile Nersa suggests 97ckWh while Standard Bank estimate 1,38/kWh in 2019

CHALLENGES/ CONCERNS

- Large number of international players , local content mostly in the construction and labour and not project management.
- Muscled out the smaller players
- Very secretive process/ confidentiality clauses in process
- Cumbersome process (The lawyers made a killing some bids cost as much as R80million)

REFIT/REBID?

There are merits with both systems but there is no need for one to exclude the other.



ANY QUESTIONS?

**More information
Renewable Energy Report
Advanced energy revolution
Green job report
True cost of coal
True cost of nuclear**

[www.greenpeaceafrica.org]