

# **IRENA – South Africa's Renewable Energy's Economic Impact**

**Presentation  
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# Content

**1. ECONOMIC DEVELOPMENT DRIVERS**

**2. LOCAL CONTENT**

**3. EMPLOYMENT OPPORTUNITIES**

**4. COMMUNITY**

**5. SKILLS TRANSFER**

**6. TOURISM DEVELOPMENT**



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# Economic Development Drivers

- Policy Environment:
  - In line with Government's international obligations
  - Long term renewable policy – energy mix
  - Up-front local content – upward sliding scale
  - Up-front Socio-Economic Development
  - Upfront Enterprise Development
  - Inter-Ministerial cooperation
  - Three levels of Government cooperation
- Offtake period
- Skills development
- Infrastructure development
- Scientific/ Research base



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# Investing In The Green Economy

- The Green Economy is a key focus area for the SA Government
- The New Growth Path sets a goal of creating 5 million jobs by 2020
- The Green Economy is identified as an area of growth that could contribute significantly to job creation
- The Green Economy Accord – signed in 2011 and identifying specific opportunities for the Green Economy



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# The Green Economy Accord

- Identifies various priority areas including:
  - Rollout of 1 million solar-water heating systems
  - ***Increasing investment in the green economy through public and private investors (including the Industrial Development Corporation)***
  - ***Procurement of renewable energy as part of energy generation plan***
  - Promotion of biofuels for vehicles
  - Promoting energy efficiency across the economy
  - Waste management and recycling
  - Reducing carbon-emissions on the road – a shift to rail for freight-transport
  - ***Economic development in the green economy – promote localisation, youth employment, cooperatives and skills development***



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# The Policy Environment

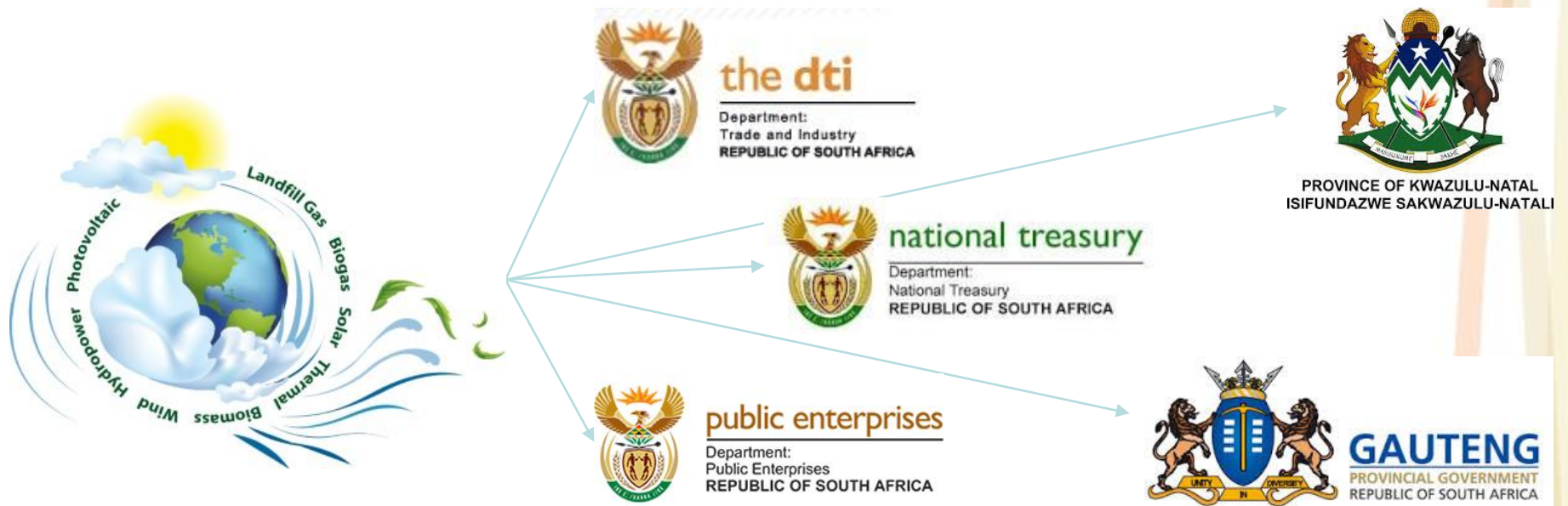
- Department of Trade & Industry adapted the Industrial Policy Action Plan to include the Green Economy as a key priority
- Study by the Industrial Development Corporation identified that most green jobs would be created through manufacturing of key components and equipment for the renewable energy industry
- Various measures to create an enabling environment – developing technical and physical infrastructure; developing standards for wind and solar power industries; designate certain components
- Local content requirement is a policy measure implemented and monitored by the dti – certain percentage of local content for each bidding round
- This has contributed directly to investment in manufacturing capacity in the renewable energy sector



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...and beyond procuring electricity, what has the REIPPPP demonstrated?...



*Incredibly successful intra-governmental collaboration and coordination....*



## Green Economy Subsectors

- Renewable energy: wind, solar, biogas, biomass - focus on manufacturing of components
- Waste Management and Waste to Energy
- Energy efficiency and demand management initiatives
- Biofuels



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## Renewable Energy

- REIPPP has led to **investment of more than ZAR190 bn** (approximately US\$13bn) in the first four rounds of the programme.
- In the **Climatscope 2014** report released by Bloomberg New Energy, **SA was ranked third**, after China and Brasil, for investment in clean energy, accounting for more **than 90% of these investments in Sub-Saharan Africa**
- South African REIPPP won the **2013 Green Infrastructure Project of the Year Award** at the 6th Global Infrastructure Leadership Conference
- International manufacturers of components have established a presence or declared their intentions to establish
- Local content requirements incentivises local manufacturing
- Investors include Jinko Solar, Art Solar, DCD Dorbyl, GRI, SMA



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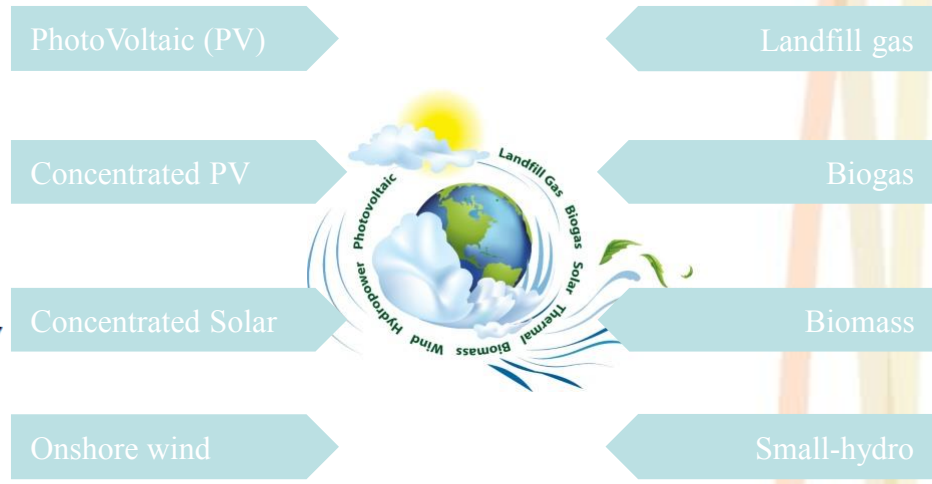
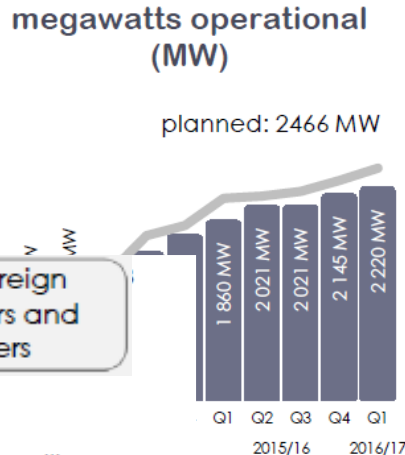
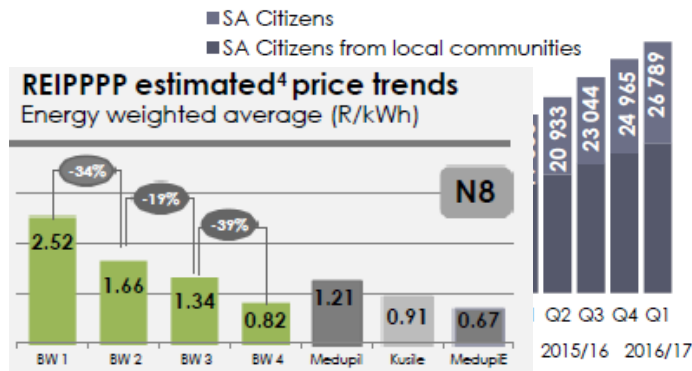
# So, what is the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP/ REI4P)?...

**Committed investments**  
Bid window 1, 2, 3, 3.5, 4 & 1S2 (R billion)

**194.1**  
Rand billion

Committed (total project costs<sup>1</sup>) for IPP development in BW 1, 2, 3, 3.5, 4 & 1S2

**R53.4 billion** from foreign investors and financiers



## What have we already achieved?

- **R17 bn investment** in the Western Cape since 2011
- **>2500 new direct jobs** created
- **60%** of successful REIPPPP projects developed here
- **70%** of successful renewable energy manufacturing here
- **Atlantis greentech hub** established – incentives for local manufacturing and services
- **SARETEC** providing local skills for the industry
- **1<sup>st</sup> African CleanTech** cluster invited to join the world leading regions
- **>600 Member** companies of the cluster
- **16 Municipalities** using GreenCape's Energy regulations

# Employment Opportunity

- Direct on site
- National grid
- Local content fabrication
- Services- hospitality, engineering, environmental

# REIPPP Investment And Local Content

	Round 1	Round 2	Round 3	Round 4	MW remaining capacity
Approved bids	28	19	17	13	
Value of approved projects	US\$3.2bn	US\$2bn	US\$2.4bn	US\$1,6bn	
Local content value	US\$0.8	US\$0.8bn	US\$1.1bn	US\$0.7bn	
Local content % (average for all technologies)	23.7%	46.85%	47,2%	49,2%	
MW Approved	1 415.6	1 044	1 456	1121	1488

Department of Energy



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# Local Content Requirements

TECHNOLOGY	FIRST BID		SECOND BID		THIRD AND FOURTH BID	
	Current threshold	Current target	Threshold	Target	Threshold	Target
ONSHORE WIND	25%	45%	25%	60%	40%	65%
SOLAR (PV)	35%	50%	35%	60%	45%	65%
SOLAR CSP <i>(without storage)</i>	35%	50%	35%	60%	45%	65%
CSP <i>(with storage)</i>	25%	45%	25%	60%	40%	65%
BIOMASS	25%	45%	25%	60%	40%	65%
BIOGAS	25%	45%	25%	60%	40%	65%
LANDFILL GAS	25%	45%	25%	60%	40%	65%
SMALL SCALE HYDRO	25%	45%	25%	60%	40%	65%



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# Local Content

Industry/ Sector		Local Content
Solar PV components	Laminated PV modules	15 %
	Module frame	65 %
	DC combiner boxes	65 %
	Mounting structure	90 %
	Inverter	40 %
Electrical	Steel power pylons	100 %
	Steel substation	100 %



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# Investment Opportunities

- The investment requirement associated the IRP2010-2030 for solar and wind energy capacity amounts to **R180bn by 2020** and over **R400bn by 2030**.
- Manufacturing opportunities

WIND	SOLAR
Wind tower manufacturing	PV cells and modules
Wind turbine blade manufacturing	PV inverters
Gearboxes	Controllers
Electronic controls	Batteries
Pitch and yaw systems	Transformers
Nacelle housing and cooling	



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## What “industrialization” has happened and what does it look like?...

South African manufactured wind towers leaving Atlantis industrial area



Source: GreenCape member



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## What “industrialization” has happened and what does it look like?...



**Absolute Rigging– 100% local logistics player  
in REIPPPP**

SUNPOWER®



Solar  
**Jinko**



**Gestamp  
Renewables**

Source: GreenCape member



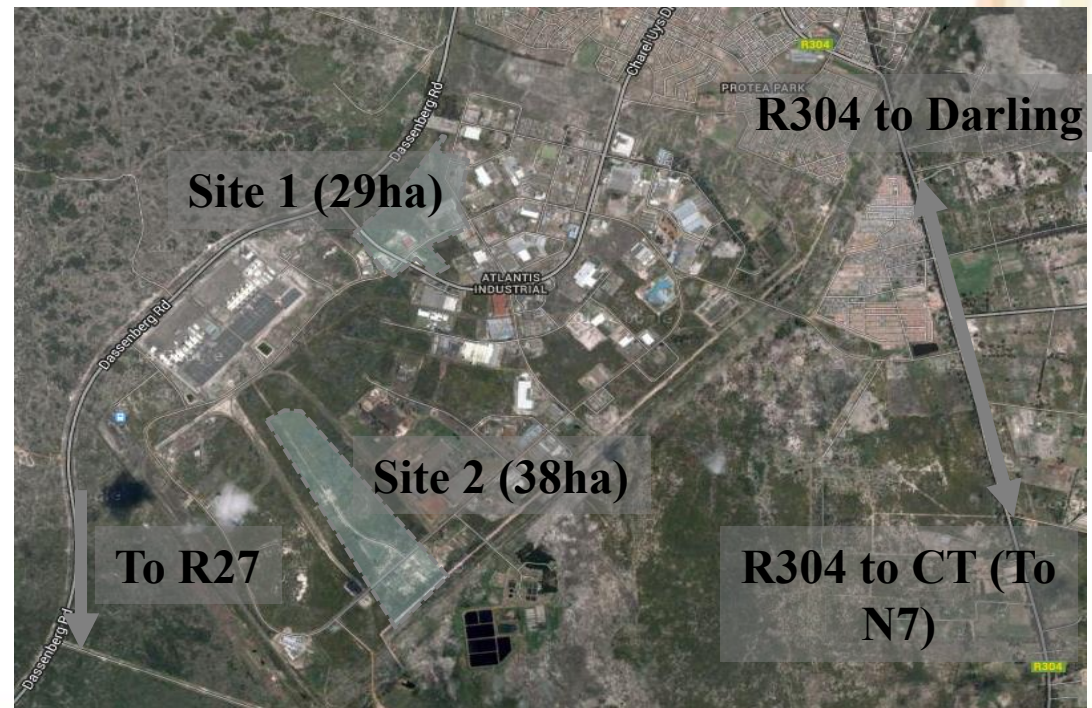
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A lot of work has gone into ensuring that industrialization *can* happen... for example

- Development of Atlantis SEZ
- In line with national dti SEZ programme
- Processes in place to ‘land’ potential investments



Source: Google maps, Deloitte analysis

# Community

- Partnerships
- Infrastructure
- Economic Development objectives:
  - Job creation
  - Local content
  - Ownership
  - Management control
  - Preferential procurement
  - Enterprise development
  - Socio-economic development (school, clinic, etc)



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# Community

- To date communities will earn income of 8.2 AED bn over 20 years
- Northern Cape – 74 MWp solar PV Plant:
  - 300 jobs – 60 % local employees
  - 120 South African companies benefitted
  - 188 AED million was spent with qualifying businesses
  - 6 AED million only on women-owned businesses



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# Community

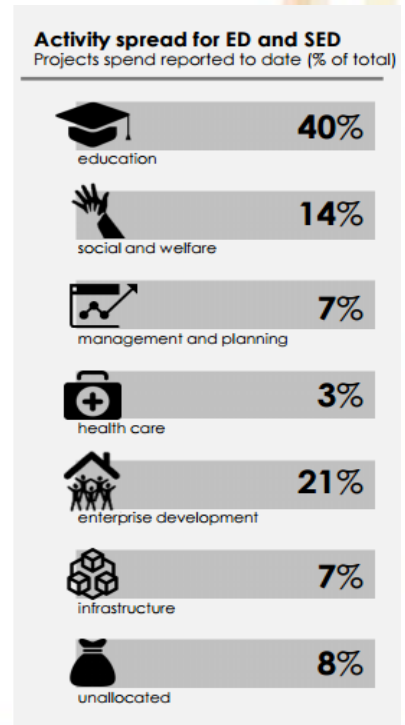
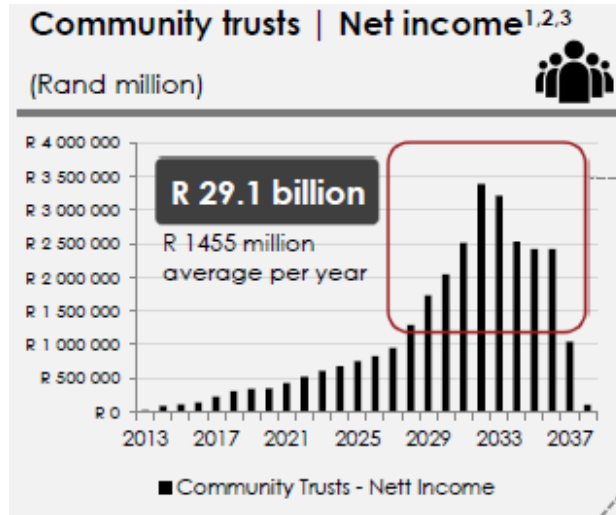
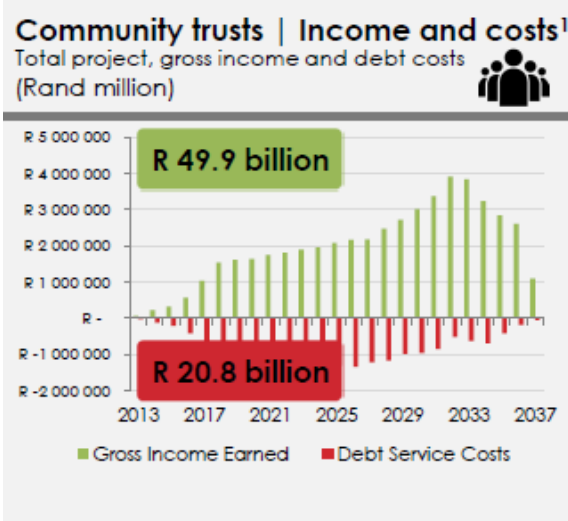
- Increase in knowledge, decrease in cost of technology = indirect benefits
- Example of school:
  - Central water purification system – softer water
  - 20 x 300 l high pressure solar water heaters
  - 20 cubic meter biogas digester – linked to kitchen
  - Before system replaced 275 geyser elements/ year
  - Before system replaced 110 thermostats/ year
  - After system only 30 geyser elements, none in solar geysers



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# Impacts have gone beyond kWhs and Rands invested, directly into local communities...



## Socio-economic development spending

Source: IPP Office



# Skills Transfer, R&D

- Solar, wind and other map development
- SARETEC: The South African Renewable Energy Technology Centre
  - Wind turbine services technicians
  - Solar photovoltaic service technicians
- Universities
- Council for Scientific Research (CSIR)
- Commercialisation of innovation
- Localisation studies – the dti – for wind for example:
  - 1 -5 wind tower manufacturing facilities
  - 1 blade manufacturer
  - 1 assembly plant for hubs & nacelles



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# Tourism Development

- Developed infrastructure – roads
- Developed accommodation & restaurants
- Increased hospitality skills
- Tourism to replace construction phase
- Renewable energy sites becomes important for knowledge sharing



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