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An electricity strategy for **South Africa**

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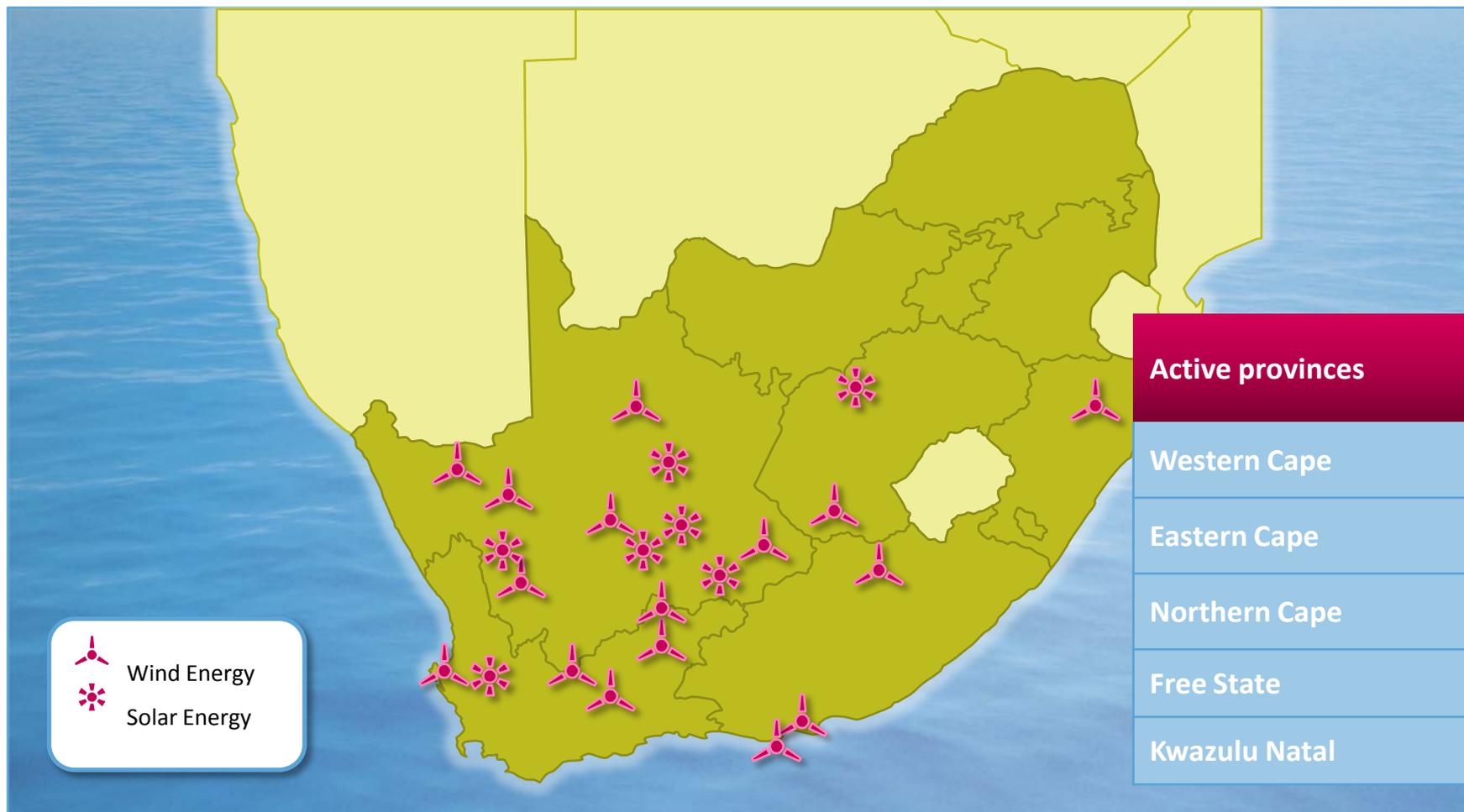


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Mainstream's global presence



South African projects



A clear opportunity

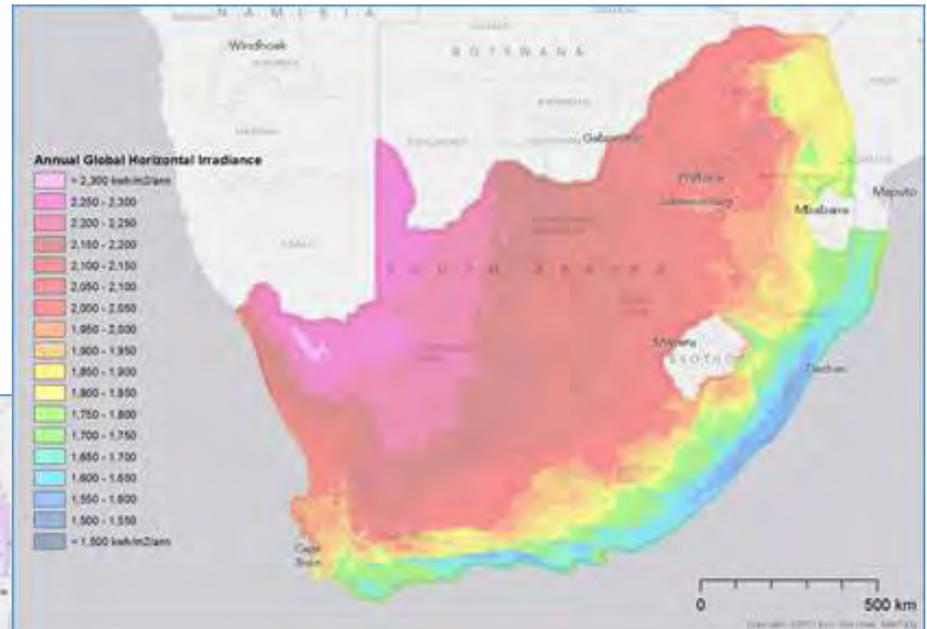
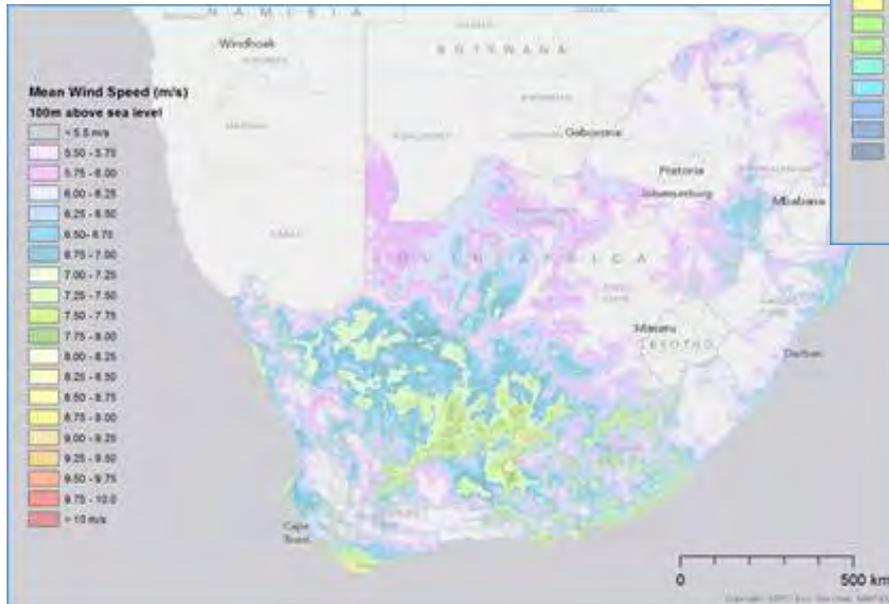
- Vast renewable energy resources could provide South Africa with 40 GW of new capacity by 2035, and up to 100% of the country's electricity by 2050.
- In 3 years the REIPPPP has delivered a pipeline of 3300MW of new power plant with 1600MW connected to the national grid.
- REIPPPP projects have delivered new power on time and on budget and at a lower cost than new coal, gas or nuclear.
- Latest REIPPPP - Round 3 - projects provide cheaper power than new coal or gas (25% cheaper for wind and 5% cheaper for solar). Round 4 would be even more competitive.

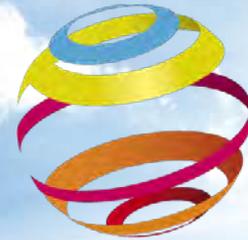
A clear opportunity (2)

- 3 opportunities for South Africa
 - Delivery today of construction jobs and new electrical capacity onto the national grid at a time of minimal reserve margins
 - Delivery tomorrow of direct and indirect jobs in manufacturing with the creation of local supply chains
 - Delivery in the medium term of infrastructure to feed a renewable energy sector across Africa
- This will require
 - Consistency of policy – 2GW procured every year for 20 years
 - No race to the bottom – place a floor price for new renewables, and increase other targets – Value for money.
 - Fair access to the grid – let new generation enter the market.

The resource – world leading

South Africa's solar and wind resources are among the best in the world.





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Renewable energy and the South African economy

- Manufacturing jobs will come to South Africa if:
 - There is long term certainty on volume
 - There are clear public procurement rules (REIPPPP)
- How many jobs?
 - Germany and Denmark – 9 jobs/MW installed
 - South Africa – a 20 year programme @2GW a year – 360,000 jobs
 - Current REIPPPP commitments made reflects global figures.
- What kind of manufacturing?
 - Wind – blades, towers, gearboxes, electrical switchgear, civil works
 - Solar – panels, tables, electrical switchgear, civil works
 - Existing sectors of the economy: glass (blades), steel (towers), concrete, construction, electrical contracting
 - Other economic sectors – finance, logistics, engineering, and other services

Renewable energy and the economy (2)

- A typical renewable energy plant – 140MW wind farm
 - Time to build and supply power to national grid – 18 months
 - Rapid delivery of new electricity at a time of energy shortage
 - Significant pipeline of projects across South Africa
 - Cost of energy lower than new fossil equivalent
 - Local construction and related jobs – 700 during construction
- Local procurement would include:
 - Towers for the wind turbines – steel or concrete
 - Blades for the turbine – glass fibre
 - Electrical switchgear and gearboxes
 - Electrical cabling
 - Construction and logistics
- Decentralised plant – new solar and wind plant located across the country
 - Economic benefits in areas of low economic activity

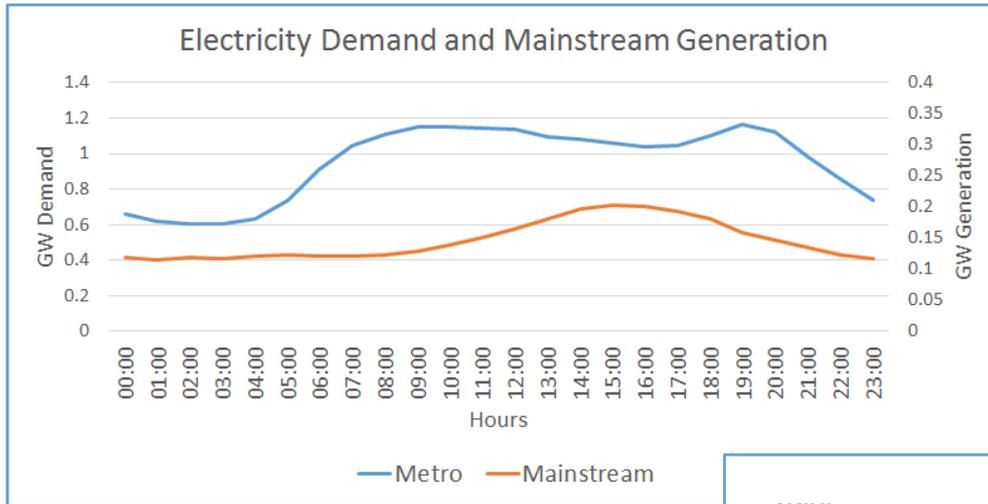
Public and private

- What is the best balance?
 - Government should set a long term policy framework (IRP/ NDP)
 - Government can procure electricity on behalf of the consumer (REIPPPP)
 - Government can set the rules for the supply and transmission of electricity to customers
 - Private companies can compete to win supply tenders
 - Private companies can enter into local partnerships with government to develop the manufacturing supply chain
 - Private companies can work with government on skills development and training
 - Government is best placed to set a long-term goal and procure the power
 - Private companies are best placed to take and manage the risk of development, construction and operation of the plant

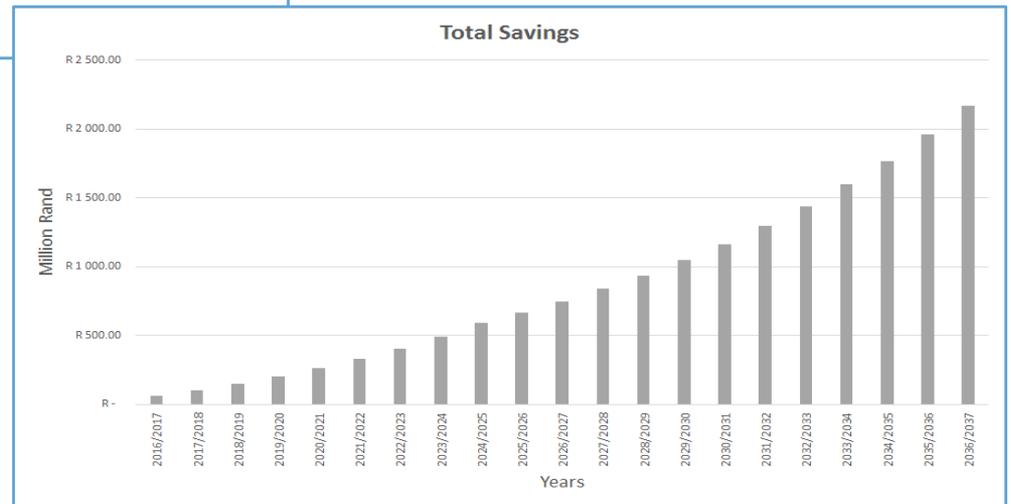
Case study: distributed renewables and municipalities

- Shortage of electricity generation capacity
 - Soaring debts at Eskom prevent necessary investment
 - Municipalities consume a large portion of electricity generated by Eskom, especially at peak times
 - Households and businesses struggle to pay high cost of electricity
 - Municipalities unable to pay Eskom
- Long term contracts for renewable energy can provide municipalities with low-cost electricity that will isolate them from Eskom's tariff increases.
- Substantial opportunity to further reduce municipalities' energy costs through energy efficiency:
 - Replacing street lights with LEDs will reduce energy demand by up to 80% and save municipalities 50-80% on lighting costs.

Case study: benefits to Nelson Mandela Bay from transition to 30% renewables



Wind energy generation (supplying 30% of demand) and average demand profile



Annual savings by switching to 30% wind energy

The world is moving

Solar (energy) is for keeps. The more it expands, the cheaper it gets as economies of scale kick in. It is true that solar makes up just 3pc of (the world's) electricity, but once costs are consistently below coal, the switch becomes an avalanche.

A Evans Pritchard UK *Daily Telegraph* May 2014

- COP 21 – a global price on carbon
 - Carbon fines, cross border carbon tariffs
 - “The carbon bubble” – the IEA estimates 2/3 of global fossil fuel assets will become stranded
 - South Africa is exposed – 95% of energy from carbon intensive resources.
- Energy security and competitiveness
 - Wind and solar are free and indigenous natural resources – they will not run out
 - Buying renewable energy on long term fixed price contracts lowers the wholesale cost of electricity and hedges against the rising costs of fossil fuels

The path forward

- Will South Africa set a global lead and become the renewable energy powerhouse for Africa?
- Review the draft IRP and commit to: -
 - A new 20 year target to add an additional 2GW of new wind and solar capacity every year
 - Revise the REIPPPP pricing mechanism to insert a floor price
 - Either pass the ISMO Bill or give IPPs a regulated right of access to the grid – or to build their own grid
- In return the renewable energy sector can: -
 - Deliver new MWs very quickly, for a cost less than new coal, gas or nuclear
 - Provide consistent power when it is most needed
 - Create a supply chain in South Africa and the jobs and manufacturing sector to underpin it.

Thank you

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