



Omburu Solar Power Plant
Omaruru, Namibia



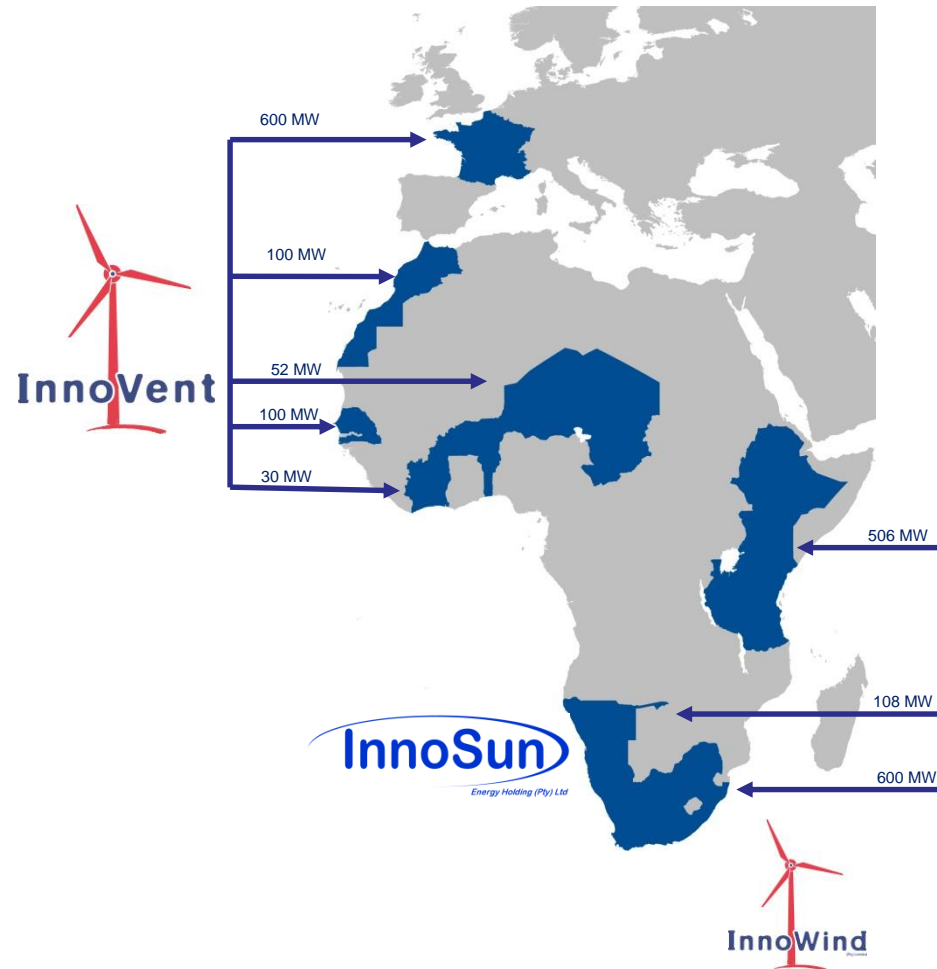
Le Portel Wind Farm, France

**EAN Energy Conference
November 2015**

InnoVent – InnoWind – InnoSun



3 MW Installed on Boulogne-sur-mer harbour, France
Spinning since 2002



InnoVent (Mother Company) – France

Created in 2001 by Mr. Grégoire Verhaeghe
(CEO)

Pioneered the wind sector in France

Family owned business (quick decision
making)

Core business = IPP (Independent Power
Producer)

Development, financing, construction, O&M
of renewable energy power facilities.

Projects portfolio of 530 MW

- **290 MW** in operation
- 110 MW in construction
- 130 MW in development



InnoWind – South Africa

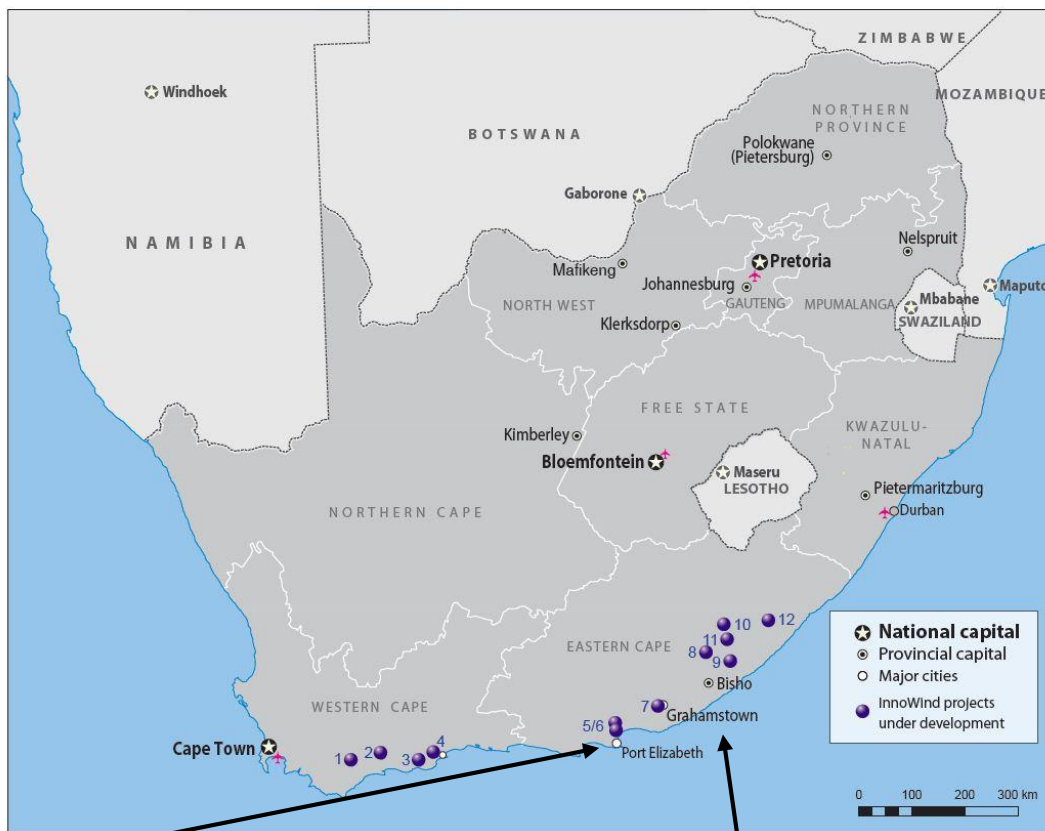
SOUTH AFRICA : 621 MW

Western Cape : 189 MW

- 1 : Swellendam/Vryheid : 30 MW
- 2 : Heidelberg : 15 MW
- 3 : Albertinia : 18 MW
- 4 : Mossel Bay/Proteus : 126 MW

Eastern Cape : 432 MW

- 5 : Coega IDZ : 60 MW
- 6 : Coega PPC quarry : 165 MW
- 7 : Grahamstown : 24 MW
- 8 : Thomas River : 80 MW
- 9 : Chaba : 21 MW
- 10 : Ncora : 40 MW
- 11 : Nqamakwe : 30 MW
- 12 : Qunu : 12 MW



Created in 2008

Project portfolio of
more than 620 MW of
wind farms

**105 MW wind farms
currently in
operation**

**Additional 30 MW
under construction**

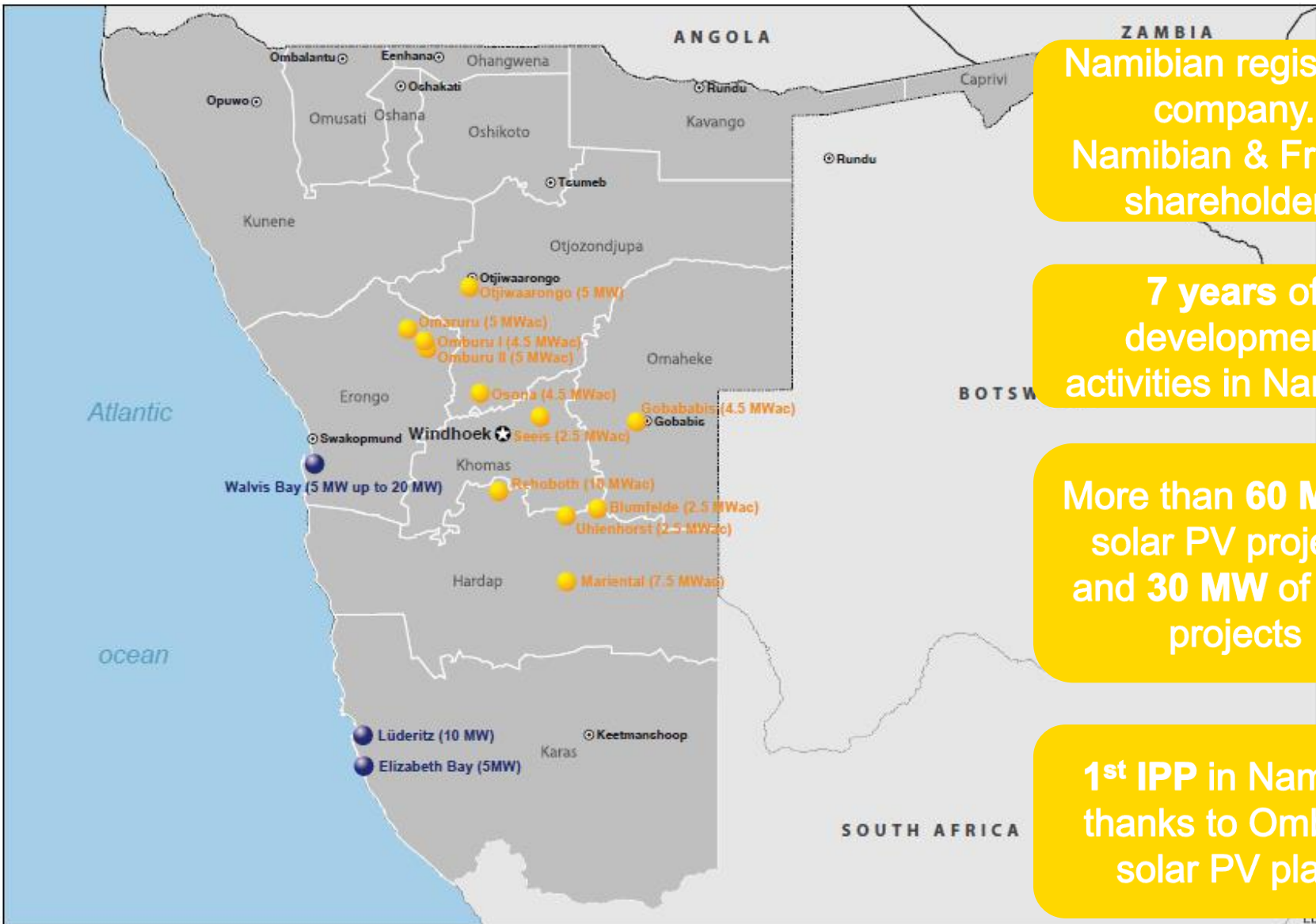


Wind farm in Port Elisabeth – 60 MW – in operation



Wind farm in Grahamstown – 24 MW – in operation





**Namibian registered company.
Namibian & French shareholders**

**7 years of
development
activities in Namibia**

**More than 60 MW of
solar PV projects
and 30 MW of wind
projects**

1st IPP in Namibia thanks to Omburu solar PV plant



Our expertise:

- Develop and design tailor made solar & wind power plants
- Complete project financing
- Procurement of the components and Construction of the solar or wind power plants
- Operate & Maintain the power plants and provide our clients with clean, competitive and reliable energy



Construction phase started on November 2014



Omburu was completed in 4 months. The construction involved 7 local Namibian companies and more than 70 Namibian workers.



- ✓4.5 MW installed capacity
- ✓33,000 solar panels
- ✓14 hectares footprint
- ✓Namibian decentralised adapted design
- ✓Tracking system: rotating system to increase energy yield
- ✓Clean, competitive and reliable energy

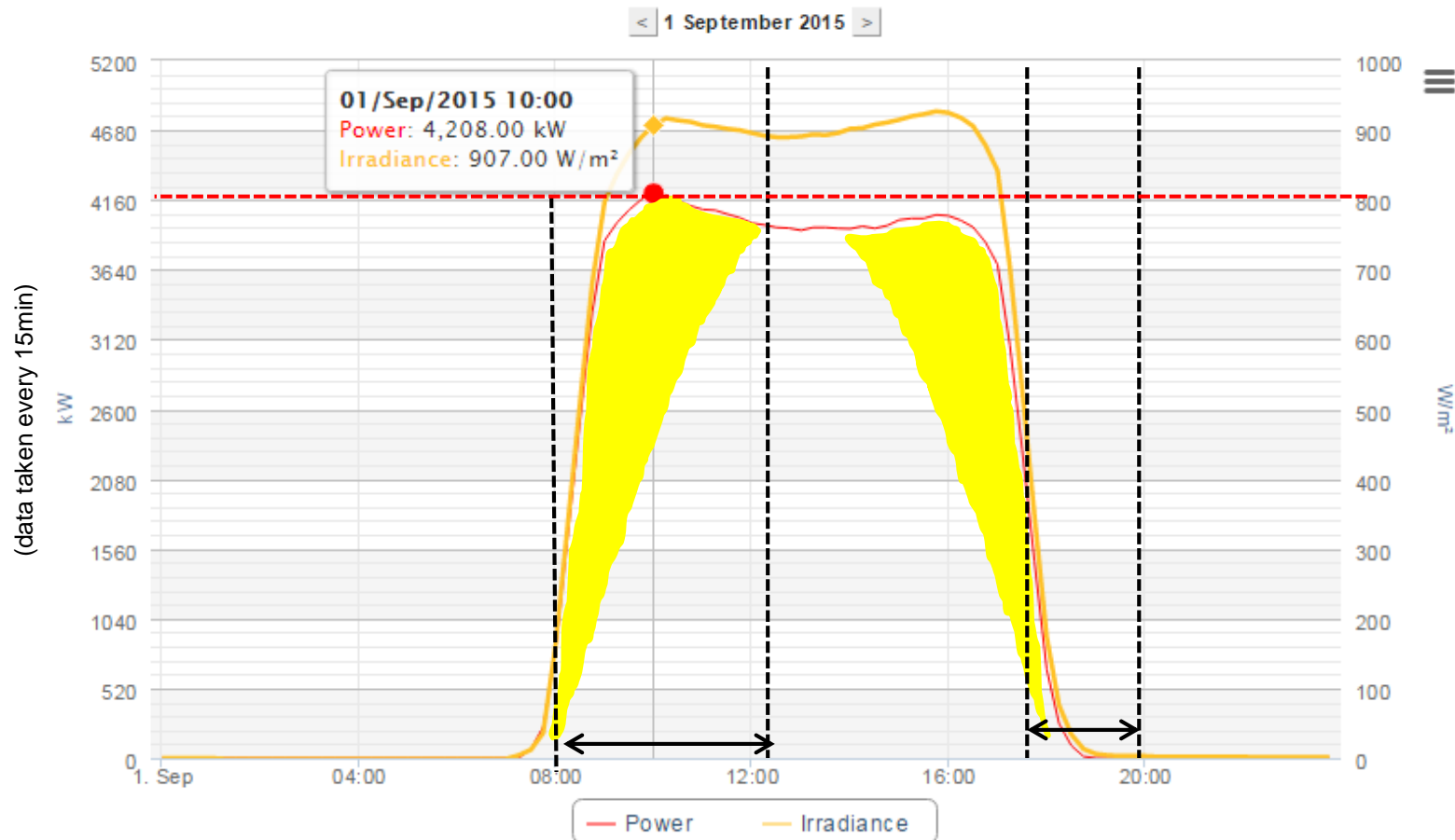


- 4th May 2015 -
1st kWh injected into the National Grid



Data collected over the first 6 months predicts a production of 13.5 GWh/year
Production curves show a daylight base-load power plant

Fixed PV versus Tracked PV : Omburu



- Increased energy production: +22%
- Base load production during daytime
- Production of electricity during peak time (when electricity is the most expensive)



Our vision for Namibia:

October 2015 : signature of 2 PPAs

- Osona solar plant 5MW (Okahandja)
- Ombepo wind farm 5MW (Lüderitz)

Construction begins early 2016

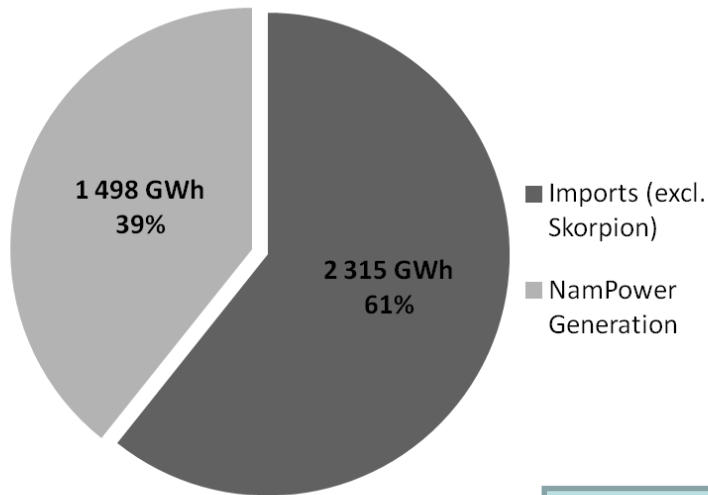
InnoSun has finalised the development of:

- 60 MW of solar power plants
- 30 MW of wind farms

InnoSun believes in a 100% renewable energy mix for Namibia

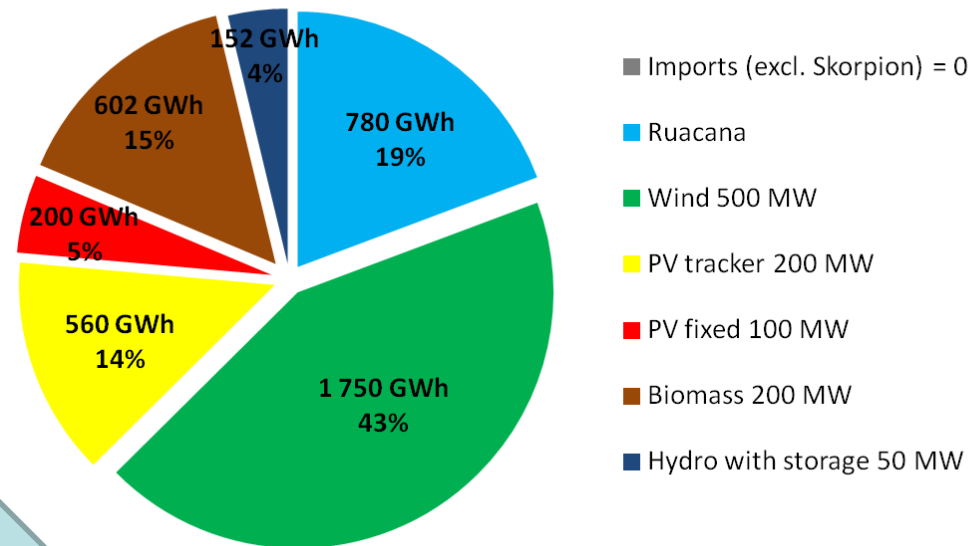
System input

Current Situation (based on 2014 data)



- High reliance on neighbour countries
- 2.6 bN\$ = cost of imports
- High reliance on Ruacana

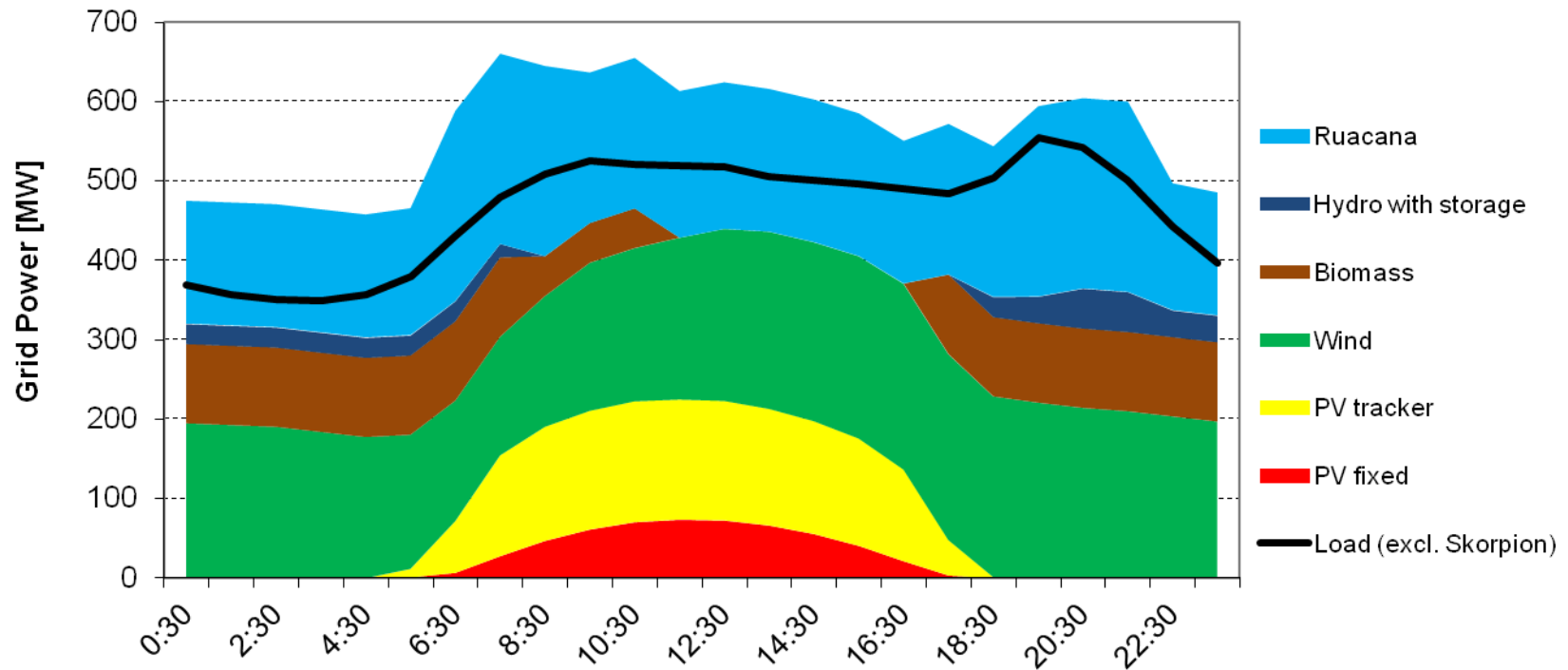
Energy generation through RE mix : distribution



- Local generation → **energy independent**
- Decentralized solution → less power losses
- Multiple power plants → if for instance 1 power plant is unavailable, others can take the lead
- **Competitive cost** of electricity + **predictable for the next 25 years**

Simulation: how to meet the National demand?

Renewable Energy mix vs National demand (2014)



Key notes for an efficient energy mix



1

Mix of different technologies is compulsory



2

Smart grid flexible



3

Energy mix is robust towards weather change



4

Grid development, stronger, with less power losses



5

Economical impact can be anticipated. Competitive cost of electricity



6

Equilibrium is met at any time

InnoSun has developed more than 15 solar power plants across the country

	Resource analysis	Pre-feasability study	Grid analysis	Land Lease Agreement	Environmental Impact Assessment	Generation License Application	Grid Connection Application	Power Purchase Agreement	Financing	Beginning of construction
1 Omburu Sun Energy										
2 Osona Sun Energy										1 months to begin construction
3 Erongo Photovoltaic Park										4 months to begin construction
4 Omaruru Photovoltaic Park										5 months to begin construction
5 Mariental Photovoltaic Park										4 months to begin construction
6 Seeis Sun Energy										4 months to begin construction
7 Karibib										6 months to begin construction
8 Okahandja										5 months to begin construction
9 Arandis										7 months to begin construction
10 Otjiwarongo										6 months to begin construction
11 Otjikoto										5 months to begin construction
12 Tsumeb										5 months to begin construction
13 Sores Energy										4 months to begin construction
14 Von Back Booster										7 months to begin construction
15 Rehoboth										4 months to begin construction

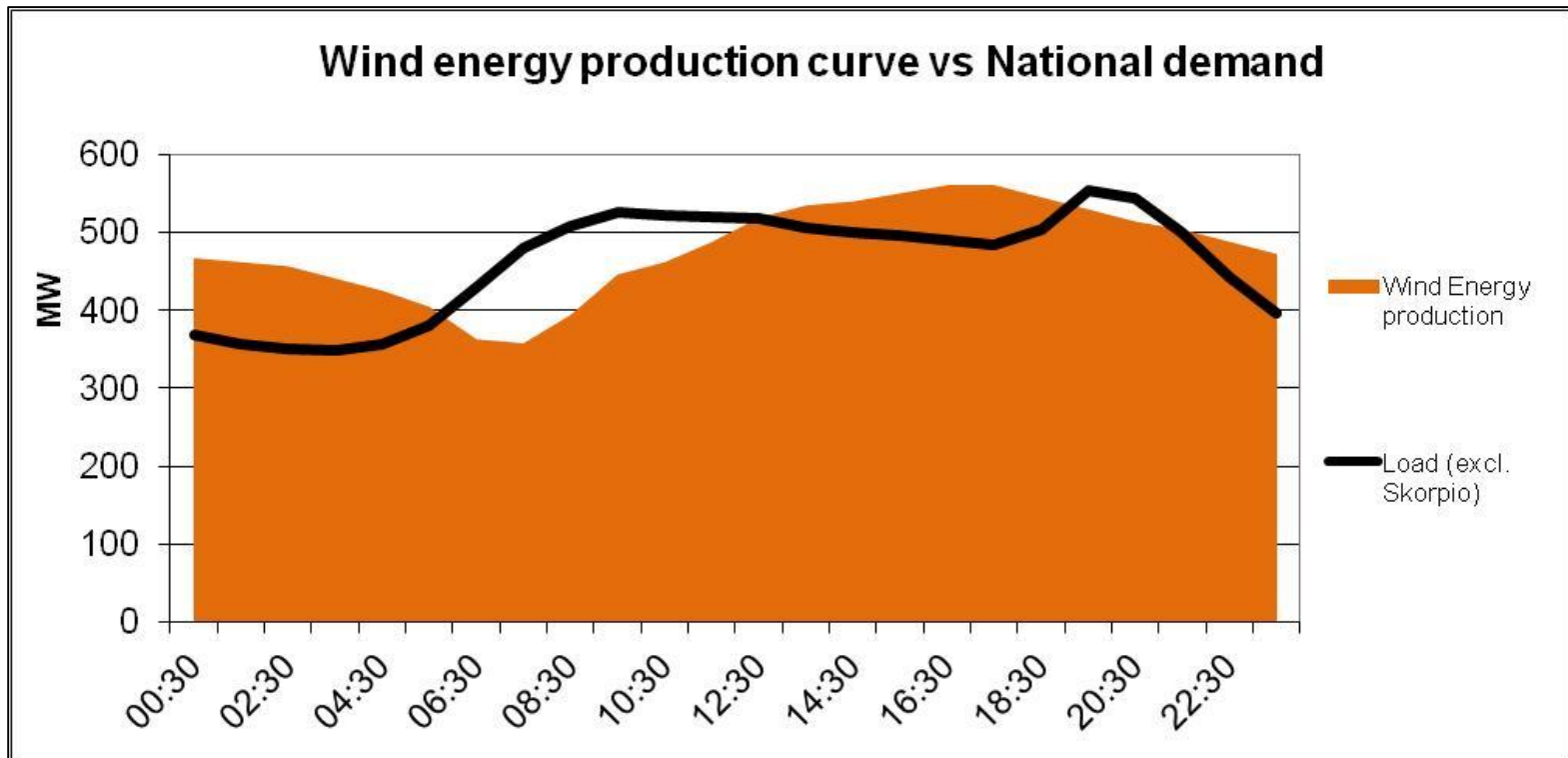
- Capacity: 5 to 20 MW each
- Ready to be constructed
- Letter of intent from financial institutions



The potential of wind in Namibia:

The advantages of the wind farms

- **Competitive and predictable electricity price**
 - 1 N\$/kWh
- **Wind profile matches the national electrical demand**



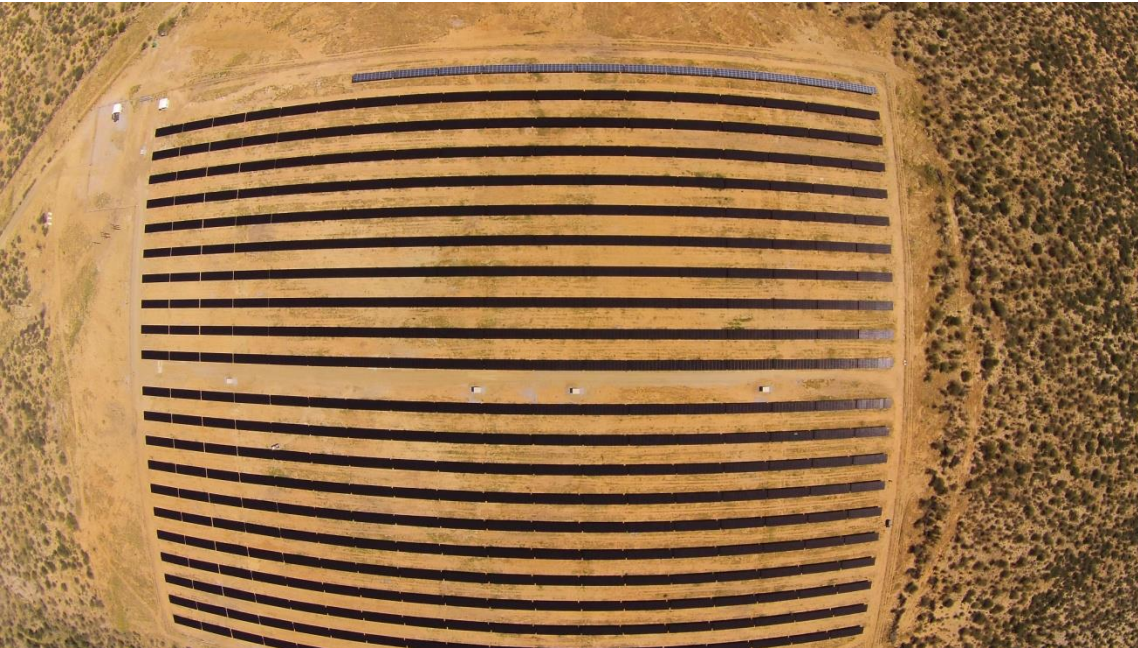
InnoSun has developed 3 scalable wind farms

		Resource analysis	Pre-feasibility study	Grid analysis	Land Lease Agreement	Environmental Impact Assessment	Generation License Application	Grid Connection Application	Power Purchase Agreement	Financing	Beginning of construction
1 Ombepo - Penguin wind farm	5 to 10 MW										3 months to begin construction
2 Ombepo - Seal wind farm	5 to 10 MW										4 months to begin construction
3 #oab - Elizabeth Bay - Jacqueline I	50 MW										7 months to begin construction
4 #oab - Elizabteh Bay - Jacqueline II	50 MW										7 months to begin construction
5 #oab - Elizabeth Bay - Blue Pixel I	90 MW										7 months to begin construction
6 #oab - Elizabeth Bay - Blue Pixel II	100 MW										8 months to begin construction
7 #oab - Elizabeth Bay - Blue Pixel III	190 MW										9 months to begin construction

- Excellent wind resource
- Ready to be constructed
- Strong support from financial institutions
- Strong support from local industries



The advantages of IPPs:



- Competitiveness
- Quick implementation
- Projects already developed

- No impact on national budget
- No Government Guarantee
- Long term stable cost of electricity





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