AFSIA
Africa Solar Industry Association

NOA

WHEELING

a progressive model toward Net Zero ESG goals in South Africa and the rest of our continent

Showcase with NOA Group

Derik Coetzer

Co-Founder
& Head of Sales

Tuesday
September 12

10.00am to
10.30am CAT

AFSIA
Africa Solar Industry Association

AFSIA services

Member's resources and benefits

afsiasolar,.com

Market Intelligence

01. Company database
02. Project database
03. Tender database

Capacity Building

01. B2B match-making
02. Job portal
03. Business inquiries

Events

01. Events promotion and management
02. Webinars
03. Showcases

Marketing & visibility

01. Who’s who interview
02. Branding featured in various supports
03. Share PR

AFSIA distinguished members

AFSIA
Africa Solar Industry Association

FOUNDING

AIM
AFRICAN INFRASTRUCTURE INVESTMENT MANAGERS

HUAWEI

enea CONSULTING

UL Solutions

Trinasolar

LONGi

akuoenergy

CROSSBOUNDARY ENERGY

STRATEGIC

ACERD

ALER

AGSI

STIFTUNG SOLARENERGIE
SOLAR ENERGY FOUNDATION

REIAMA

PARTNER

DASOLAR

INFINITY Power
A MASDAR INFINITY COMPANY

JOH

ASTRONERGY

Solplanet

SEETEK
皓见科技

nextracker

solis
inverters

AFSIA
Africa Solar Industry Association

AFSIA CORPORATE MEMBERS

afsiasolar.com

THE TEAM

AFSIA
Africa Solar Industry Association

Eugénie

Events Coordinator

Aline

Market Intelligence Manager

Vestine

Digital Comms Manager

Josée

Community Manager

Kersy

Research Associate

John

CEO

AFSIA EVENST & ACTIVITIES 2023

	Prime events	Regular events	External events
JAN	18 JAN | Launch Annual Outlook report 2023		16-18 JAN | World Future Energy Summit (Abu Dhabi)
FEB			8-10 FEB | Solar Power Africa (Cape Town)
MAR		21-22-23 MAR | Green H2 e-conference	7-9 MAR | Africa Energy Indaba (Cape Town) 27-29 MAR Powerlec Nigeria (Lagos)
APR			
MAY	4 MAY | Launch of PUE Catalog		16-18 MAY | ENLIT Africa (Cape Town)
JUN		6-7 JUN | STORAGE e-conference	31 MAY & 1 JUN | Unlocking Solar Capital (Kampala)
JUL		WEEKLY | Digital Summer Series	
AUG		WEEKLY | Digital Summer Series	31 AUG | Solar+Storage Next Gen (Istanbuk)
SEP			19-21 SEP | Nigeria Energy (Lagos)
OCT	4-6 OCT | Renewables Investment Forum (Nairobi) 5 OCT | AFSIA Solar Awards 2022 (Nairobi)		04-06 OCT | Powerlec Kenya (Nairobi)
NOV		15 NOV | White Paper Net-metering & Wheeling for Africa	
DEC	30 NOV – 12 DEC | COP 28 (Dubai)		

Upcoming Webinars

- Solar e-waste management
- Focus on PUE – Solar refrigeration
- Focus on PUE – Trending PUE applications
- Focus on PUE – Solar irrigation
- Focus on C&I – Solar for telecom
- Focus on C&I – Solar for mining
- Solar Street Lighting
- MG in Nigeria
- Carbon Credit Mechanisms

ONLINE EVENTS | PHYSICAL EVENTS | AFSIA PRESENCE

Derik Coetzer

Co-Founder
& Head of Sales

- 20+ years experience in strategy consulting and investment banking (Bain, Deutsche Bank, Sanlam Private Investments)
- Serial entrepreneur (Energy Partners, Whole Moon Holdings, vertX)
- Advisory to set up GreenCape Finance Desk

AFSIA
Africa Solar Industry Association

Wheeling: A progressive model toward Net Zero goals

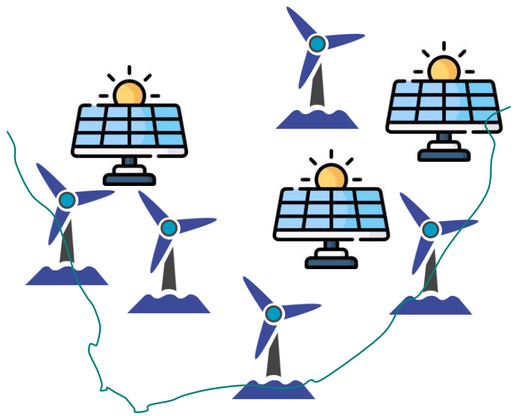
AFSIA

12 September 2023

What is wheeling?

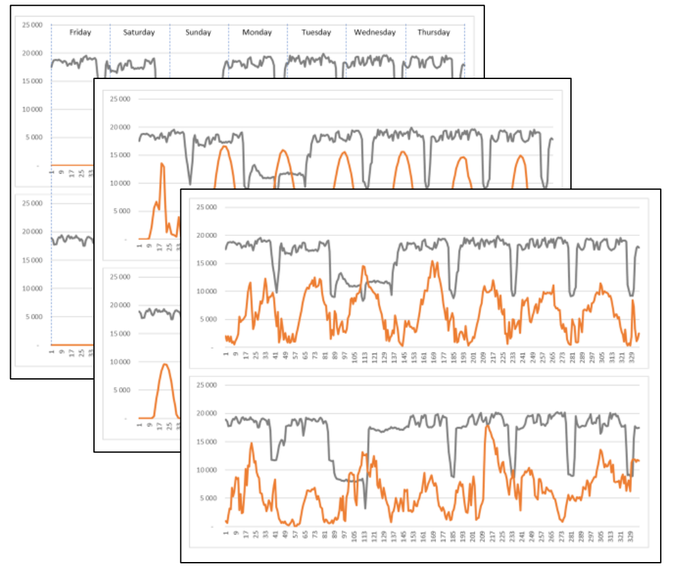
Using Eskom's grid to provide off-takers with electricity from a portfolio of distributed generation assets (consisting of both Wind and Solar power plants)

Generation plants



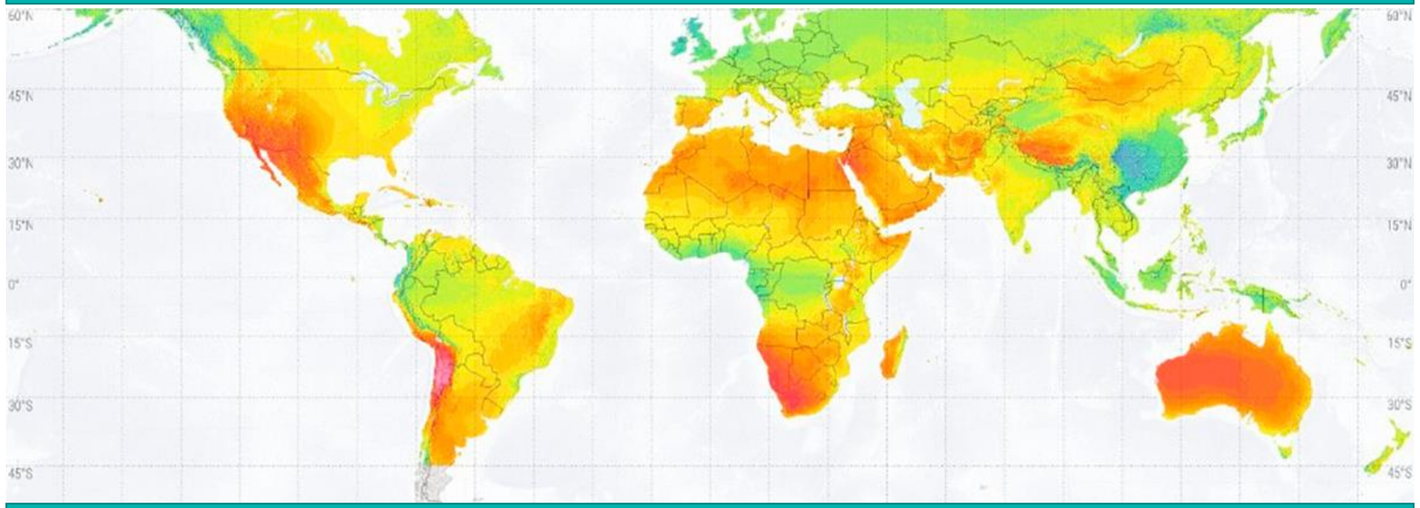
Wheeling Renewable Power through Eskom Grid

Serving multiple Customers
(Different sizes & Demand needs)

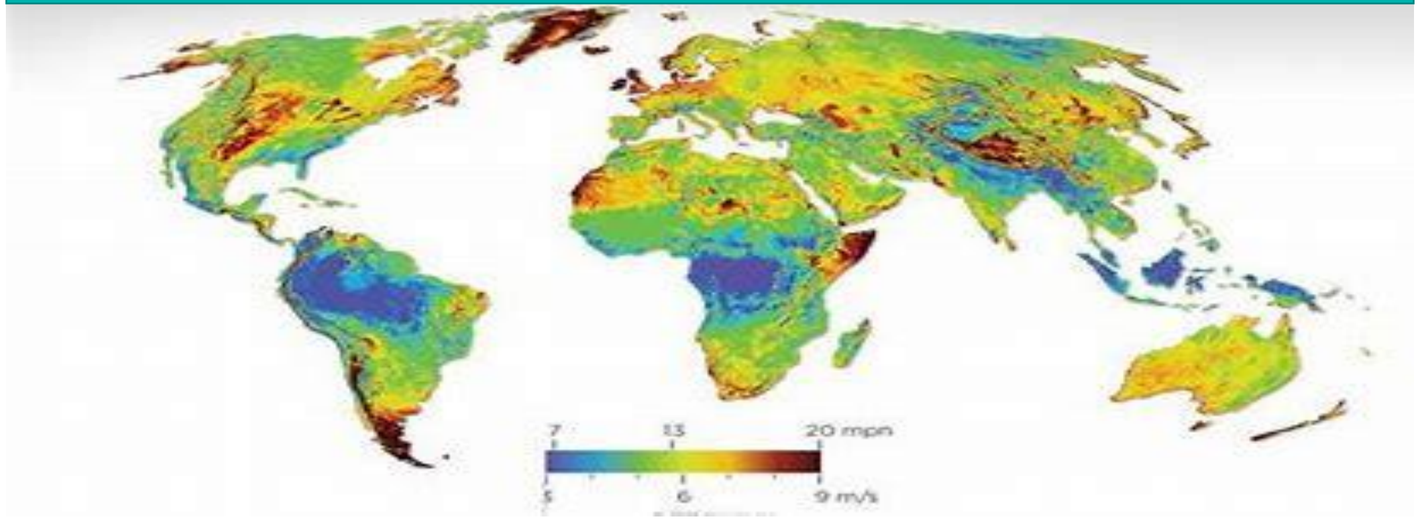


SA is fortunate to be one of the best combined solar & wind resource countries in the world

Solar irradiation



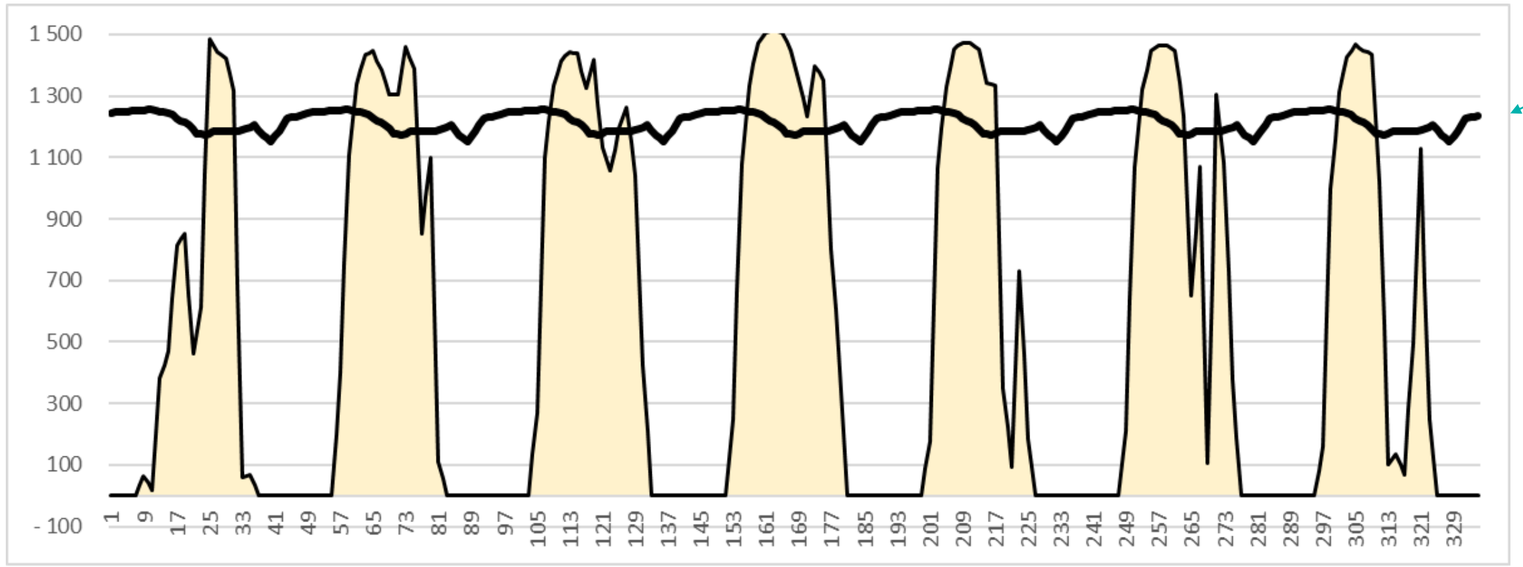
Wind potential



Combination of Solar & Wind resource potential, combined with available land, should enable South Africa (and Namibia) to cost effectively produce significant renewable energy

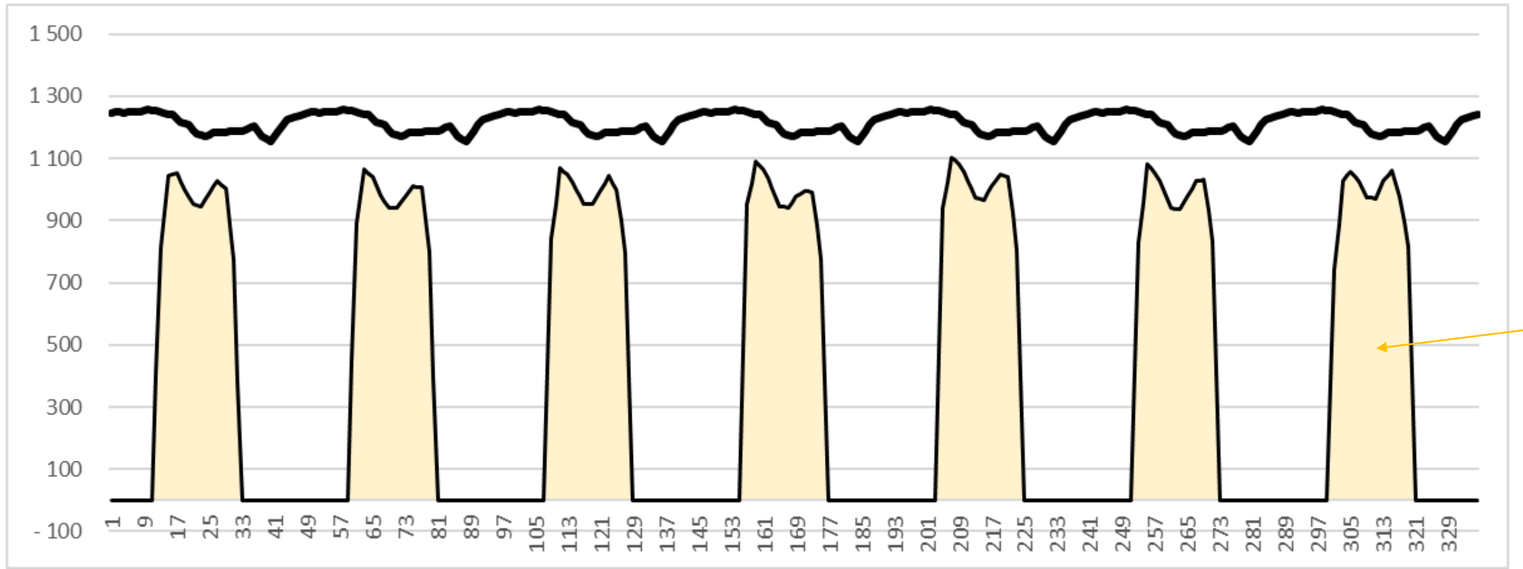
With solar-only generation one can supply ~30-40% of a client's load

Summer week



Customer load with a "flat demand" (like a smelter or a data centre)

Winter week

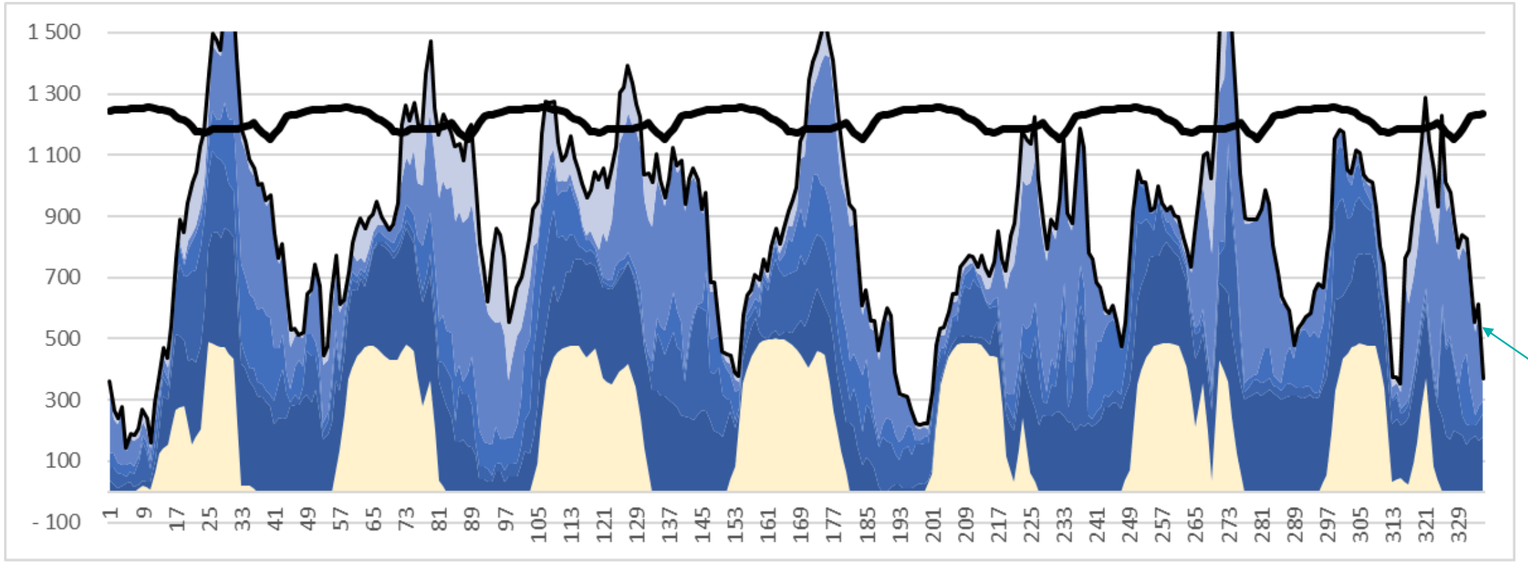


***Solar generation** with east-to-west tracking systems (to get max solar exposure)*

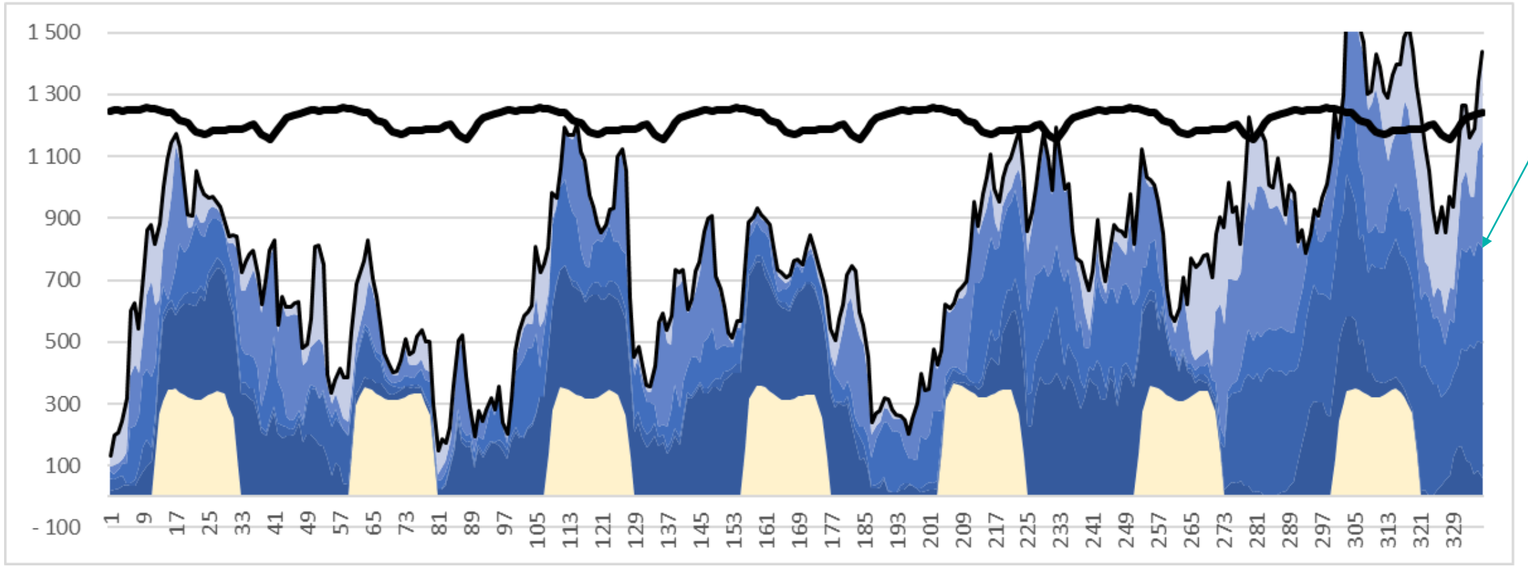
Assumed load profile

By adding wind-generation, one can supply ~70% of the load

Summer week (8-14 Jan)



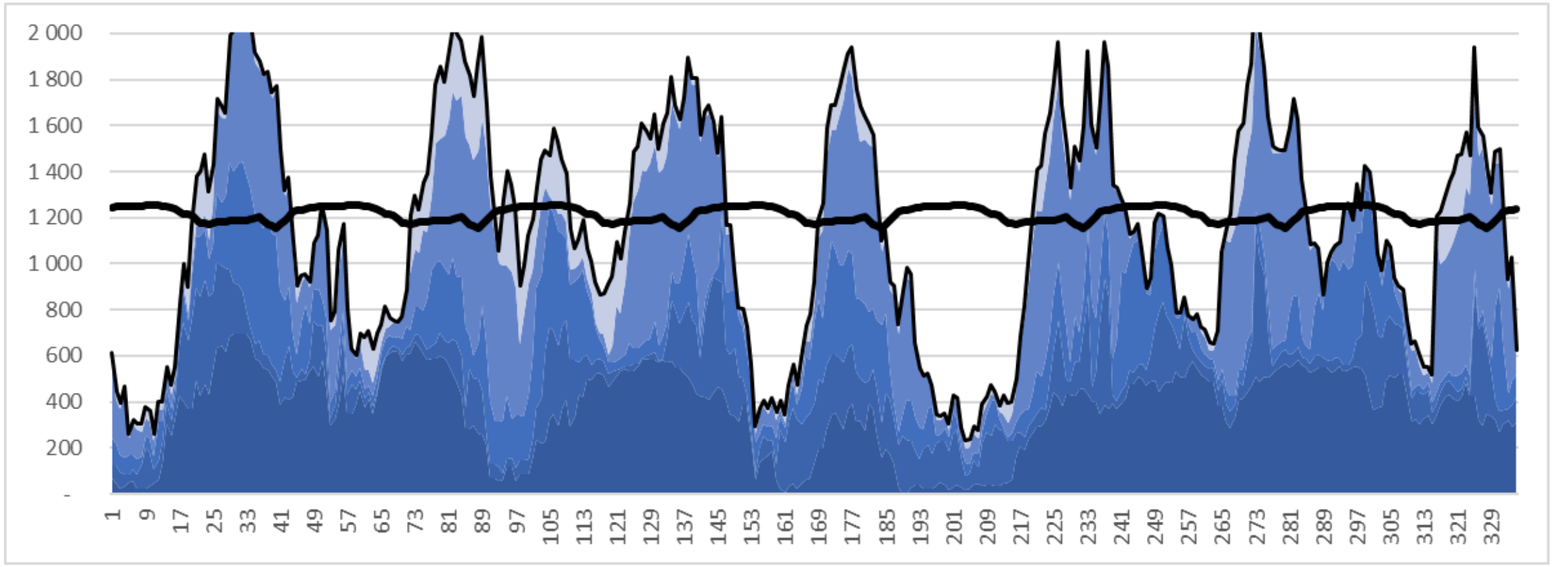
Winter week (2-8 Jul)



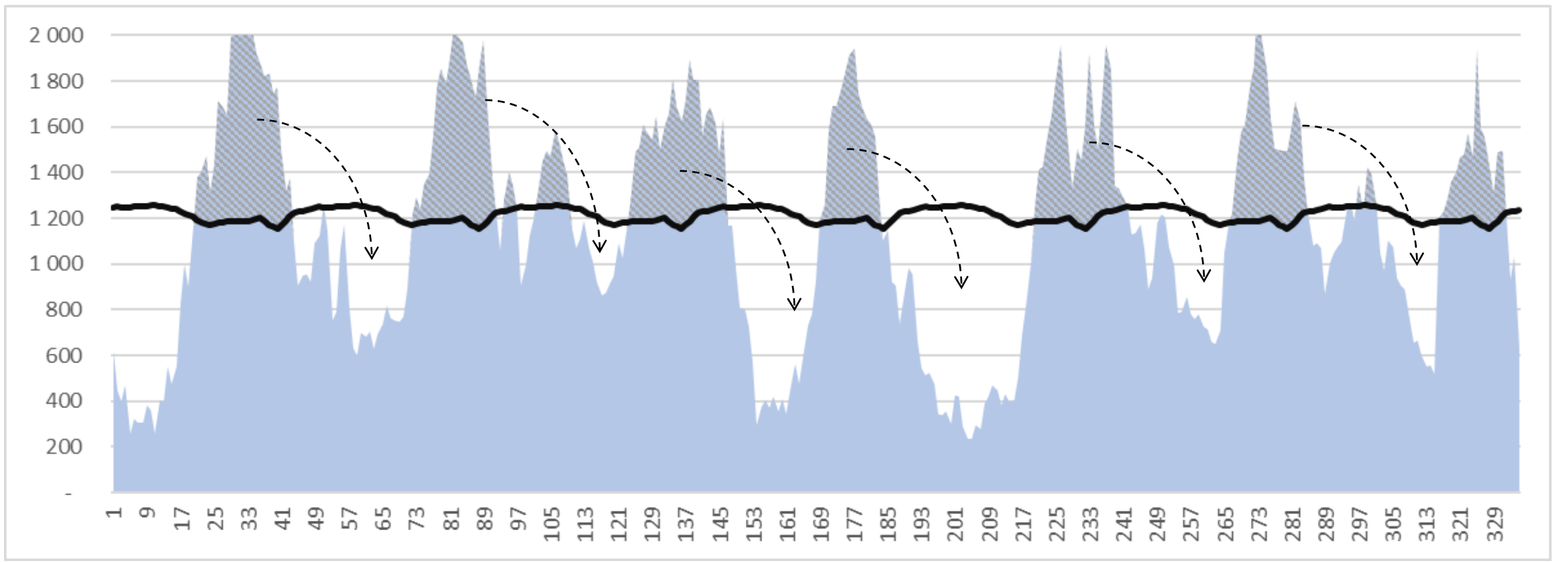
Wind generation *from multiple wind farms (to get diversification)*

Assumed load profile

Eskom currently allows “monthly reconciliation” of supply and demand, which means over-production can be consumed elsewhere in the same month



Since overproduction will not be wasted, but can be “banked” for future use, we can build a much bigger system with much more overproduction



This over production can then be used by the client during other periods of “underproduction”

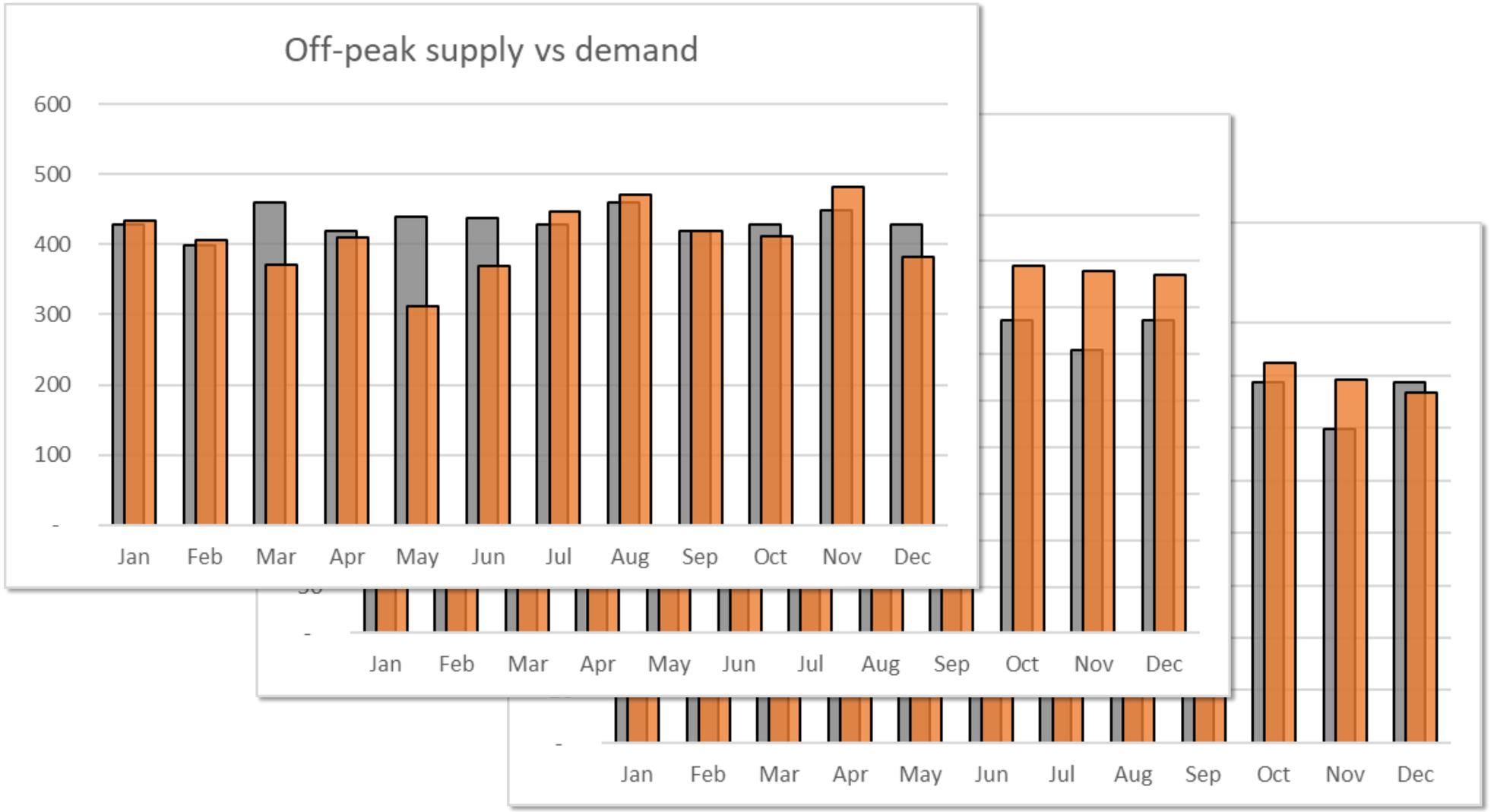
(These periods must be in same month and must be the same ToU periods)

Energy consumed when generated

Energy banked for later use

Assumed load profile

With Wind, PV and “monthly recons” one can supply over 90% of a client’s load



Assumed load profile

Pricing is a function of many variables, with all solutions providing significant discount to Eskom WEPS

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Wheeling clients will receive a credit on their electricity bill

Client Bill		
Other Charges	R	1 870 507
Total Energy	kWh	3 754 034
Energy Cost	**R**	**4 866 015**
Eskom Blended Energy Charge	R/kWh	1.296
Total Bill	**R**	**6 736 522**
Eskom Total R/kWh	R/kWh	1.794
Wheeling Energy	kWh	3 554 853
Rebate (WEPS Rate)	R/kWh	1.169
Wheeling Credit	**R**	**(4 156 984)**
Wheeling Administration Charge	R	23 468
Affordability Subsidy	R	(261 993)
Wheeling Total Credit	**R**	**(4 395 509)**
Eskom Bill After Wheeling	**R**	**2 341 013**

Energy Supplied by NOA

Consumer credited at WEPS rates. These rates are the same for all customers, however the blended rate may vary

This is the only new **cost** to Customer

WEPs/Megaflex rates excluding losses - Non-munic		
Megaflex/WEPs rates less losses (non-munic)	High	Low
Peak (c/kWh)	482.42	157.42
Standard (c/kWh)	146.12	108.31
Off Peak (c/kWh)	79.37	68.72

The rate that Eskom charges the client is not the same as what they reimburse

WEPs/Megaflex rates excluding losses - Non-munic		
Megaflex/WEPs rates less losses (non-munic)	High	Low
Peak (c/kWh)	482.42	157.42
Standard (c/kWh)	146.12	108.31
Off Peak (c/kWh)	79.37	68.72

WEPS Rates are **Independent** of customer **voltage** or **location**. All customers are reimbursed at the same rate.

This is not true for their normal Eskom Charges

Transmission Zone	Voltage	High			Low		
		Peak	Standard	Off Peak	Peak	Standard	Off Peak
≤ 300 km	< 500 V	542.79	165.14	90.17	177.74	122.64	78.19
≤ 300 km	≥ 500 V & < 66 kV	534.27	161.85	87.91	174.26	119.96	76.10
≤ 300 km	≥ 66kV & ≤ 132 kV	517.35	156.71	85.12	168.78	116.13	73.72
≤ 300 km	> 132 kV	487.58	147.68	80.22	159.10	109.47	69.46
> 300 km and ≤ 600 km	< 500 V	547.21	165.80	90.02	178.52	122.91	77.98
> 300 km and ≤ 600 km	≥ 500 V & < 66 kV	539.60	163.45	88.76	176.05	121.14	76.85
> 300 km and ≤ 600 km	≥ 66kV & ≤ 132 kV	522.43	158.24	85.91	170.41	117.29	74.42
> 300 km and ≤ 600 km	> 132 kV	492.47	149.21	80.97	160.63	110.53	70.11

The customer will get two bills to reflect wheeling arrangement

Client Bill		
Other Charges	R	1 870 507
Total Energy	kWh	3 754 034
Energy Cost	**R**	**4 866 015**
Eskom Blended Energy Charge	R/kWh	1.296
Total Bill	**R**	**6 736 522**
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Wheeling Energy	kWh	3 554 853
Rebate (WEPS Rate)	R/kWh	1.169
Wheeling Credit	**R**	**(4 156 984)**
Wheeling Administration Charge	R	23 468
Affordability Subsidy	R	(261 993)
Wheeling Total Credit	**R**	**(4 395 509)**
Eskom Bill After Wheeling	**R**	**2 341 013**

NOA bill to Client		
Total Energy Wheeled	kWh	3 554 853
Tariff	R/kWh	0.924
Total Cost	**R**	**3 284 684**

Client Savings		
Eskom Bill Before Wheeling	R	6 736 522
Eskom Bill After Wheeling	R	2 341 013
NOA Bill	R	3 284 684
Total Cost of Energy	**R**	**5 625 697**
Total Cost of Energy	R/kWh	1.499
Total Savings	**R**	**1 110 825**
Savings		16%
Renewable Coverage		95%

In addition to saving on costs, companies are facing pressure to reduce their carbon footprint

- The EU recently launched their Carbon Border adjustment mechanism to come into force in 2026

- The exemption phase of the SA Carbon Tax Act 2019 has been extended to the end of 2025. Our research indicates that the carbon tax rate is expected to be R308/tCO_2-e in 2026, increasing to R462/tCO_2-e in 2030

- Many South African companies or local subsidiaries have made specific carbon reduction commitments, and/or commitments to achieve carbon neutrality

There is currently no "carbon neutral" product available from Eskom i.e. companies can only meet these goals through private deals

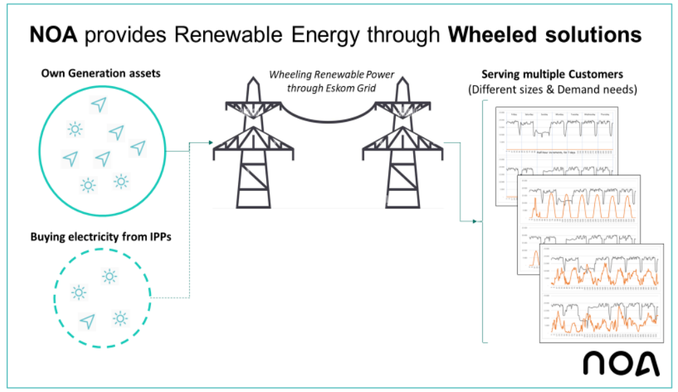
NOA’s main shareholder is AIIM, Old Mutual’s infrastructure arm

AIIM has invested in over **30 RE Projects**, totaling in excess of **2GW** of generation capacity

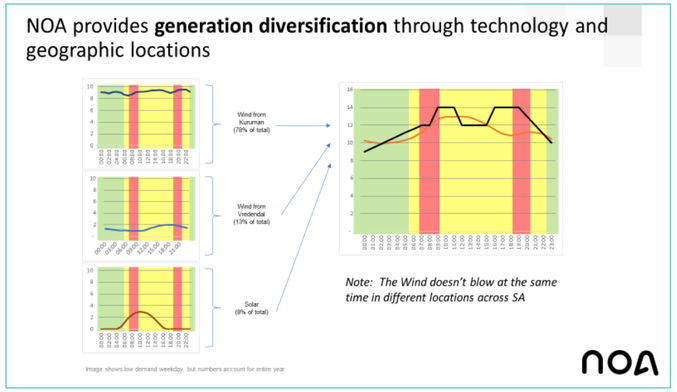
AIIM has seeded NOA with equity capital of ~ R3b to build our platform

NOA's Business Model is predicated on 4 foundational building blocks which have been verified and tested in the market

1. Multiple generators supplying multiple customers through a trader interface on a wheeled basis

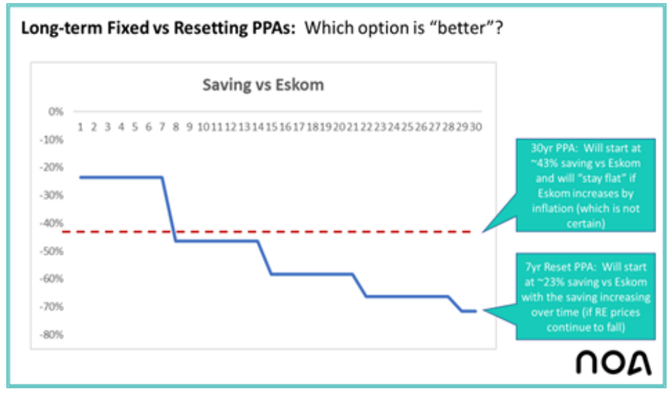


2. Diversification in Generation through technology and geography

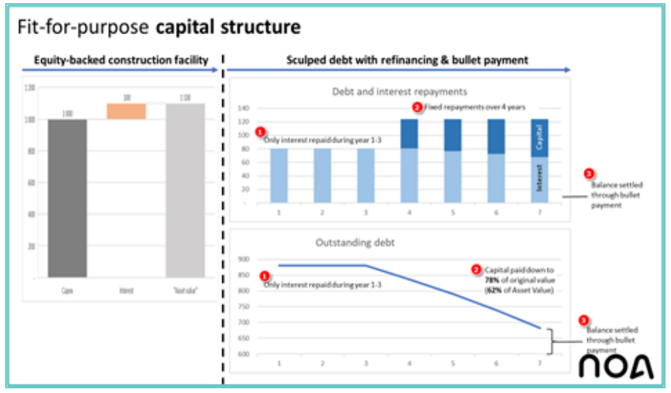


1 2 3 4

3. Flexible PPAs Tenors with renegotiation provisions and less stringent security packages



4. Fit-for-purpose capital structure



The model offers significant advantages to clients

- It allows NOA to offer clients significant flexibility in terms of contract tenor, since we have a pool of off-takers that are willing to purchase any surplus clean energy available
- Since NOA is constantly expanding its portfolio of sites, NOA can provide clients with more certainty on electron availability
- By providing clients with both solar PV and wind electrons NOA can displace a bigger portion of Eskom energy
- Clients can contract for small energy amounts – 10MW of wind energy for example - that would typically not be economically feasible in an exclusive, bilateral contract
- NOA requires the minimum amount of security, given the protection provided by other off-takers in the portfolio


Thank you
www.noagroup.africa