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Windhoek Republic of Namibia

Directors: J. Hansen (Chairman)# CEO: N.T. Brückner H.Maier J d

NEC Power & Pumps (Pty) Ltd.

J de Klerk Olga Hansen

#Swedish

COMPANY PROFILE

1. General Information

NEC Power & Pumps was founded as a family business in 1958, first called South West Engineering, then known as SWE and renamed to NEC in 1990. Initially SWE was focusing on sales and engineering solutions for Pumps and Power Generator.

Then later NEC extended its Pumping portfolio and added bulk water storage and solar water heating and Solar PV electric to our offerings. Today offering the full basket of Sales, Engineering and Service on our four main product lines for Water Pumping, Bulk Storage, Water heating and PV Electric Solar solutions both on- and off-grid, supported by Backup Generators.

Over the years the company branched out to steel fabrication and construction and later armature rewinding with the customer base again being largely the mining industry, although quite a few custom made structures like towers, telescopes bridges (amongst others) have been built over the years. The size and lifting capacity of the steel factory has given NEC a competitive edge in Namibia, having been involved with most of the major infrastructure, mining, industrial, commercial and rural developments in Namibia.

With the unfolding energy crisis renewable energies have grown in importance over the years and now form a core component of NEC's business.

In 2007 the company achieved the strategic aim of broadening its capital base, by the Swedish ITTUR group taking up a majority stake in NEC. In 2012 ITTUR acquired the remainder of the shares from the Brückner family. At the same time the group disinvested from the armature rewinding activity.



2. Organizational Structure

The following operations resort under **Namibian Engineering Corporation (Pty) Ltd.** as subsidiaries with a 55% shareholding in each, with the remaining 45% in each being held by the Desert Stone Fund - an Investment trust largely owned by the GIPF (Government Institutions Pension Fund):



NEC POWER & PUMPS (Pty) Ltd.

This division is located in Windhoek and is responsible for equipment and parts sales, application engineering as well as service and repair work for the below mentioned franchised products. Adequate equipment and spare part stocks are held at Windhoek, where well-equipped repair workshops with testing facilities exist. Factory trained and qualified fitters maintain, service and repair our equipment, also in the field. Power &Pumps markets and supports its' products through the following divisions:-

POWER PRODUCTS DIVISION

Power Products Division sells, installs and maintains diesel driven plants such as generating and pump sets mainly with John Deere motors, as well as uninterrupted power supply (UPS) units and batteries sourced from INVT.

PUMPING DIVISION AND SECTIONAL STORAGE TANKS
 This division designs, sells, constructs, erects and maintains pumping installations, irrigation plants and similar
 projects mainly with the flagship Grundfos range.
 Complementary to the pumping division the bulk sectional storage tanks from Abeco provide for the storage
 of the pumped water especially in remote areas.

This division supplies and installs:

- raw water sewerage pumps to transfer raw sewerage from the balancing tank in town to new treatment works as well as end suction pumps to transfer semi purified water to storage facilities for later use
- fire water storage tank
- ground level reservoirs, borehole extraction pumps as well as a gas chlorine dosing system
- fire booster pump set and water softener
- borehole pumps



• RENEWABLE ENERGY DIVISION

This Division designs, assembles and installs alternative energy plants, driven mostly by solar power. The Division also sells components and loose items, and specialises on Solar Water heating systems with the world renowned Solahart geysers. In 2012 the division has expanded into the so-called solar grid-feed systems and is playing an active role in the rapid development of the renewable energy sector in Namibia.

Among the Divisions well know installations in Namibia's first solar PV park, Omburu, near Omaruru. As well as Osona, Gobabis and Aussenkehr MW parks. NEC Solar division is also leading in the design and installation of rooftop PV installation, some of the well now projects are Windhoek's Maerua Mall, the National Control Centre of Nampower, as well as Fruit and Veg and Ocean View Spar in Swakopmund.

 OPOMWENE NEC POWER & PUMPS (PTY) Ltd NEC has been the Namibian agent for Liebherr Mobil Harbour cranes since 1995, and supplies the harbours at Walvis Bay and Lüderitz with equipment and after sales services, with a permanent office and store in Walvis Bay.

3. Company Particulars

Employee's Compensation Reg. No.:

Company Name: Company Address:	NEC Power & Pumps Pty (Ltd) 21 Joule Street, Southern Industrial P.O. Box 5052, Windhoek, Namibia
Tel:	+264 (61) 236 720
Fax:	+264 (61) 232 673
Email:	necpp@nec-namibia.com
Web:	http://www.nec-namibia.com
Company registration No.:	2010/0693
Income Tax registration No.:	0061817-01-1
VAT Registration No.:	5345520-01-1
Social Security Reg. No.:	20132955

00004797





4. NEC Solar/Photovoltaic Division

Our team provides a wide range of Power Solutions:

- Grid-tied Photovoltaic systems
- Off-grid systems for daytime demand, or for 24hr demand by adding battery storage to a system
- Solar / Wind / Battery / Generator / Hybrid Systems to provide Clients with 24/7 off-grid power
- All systems are controlled by State of the Art Controllers to facilitate seamless integration of energy sources.

The completed projects' installation, including civil works and security fencing is handled by our team. Solar PV Systems are installed on clients' flat or pitched roofs, as well as ground mounted on demand, on to free-field stands if installation has to be in the open land.

NamPower National Control Centre, Windhoek, Namibia: 103 kWp system	

5. Products and Services

NEC offers the following Renewable Energy services and products in the Solar Grid-feed and Off-grid division:

- Planning and engineering of PV Solar power Systems (grid-feed or complete off-grid solutions)
- Installations, operations and maintenance
- Training
- Our unparalleled product range for solar panels, inverters, mounting structures and accessories include the very best products from the world's most respected manufacturers
- Newest technology in energy storage, first to introduce Supercap batteries to the Namibian market
- Good workmanship to ensure a reliable and sustainable solutions
- Consultations to meet the individual demands and personalised quotations to ensure customer satisfaction
- Domestic, Commercial, Industrial and National projects



6. Reference List of selected PV system installations by NEC in the last years

Commercial - Project Name	Location	Date	Specific role in project
Emcon Consulting Engineers (4.2 kWp)	Windhoek	Nov '13	EPC & installation
Vineta Ocean View Spar (243 kWp)	Swakopmund	Apr '14	EPC & installation + O&M
Nampower Head Office, Whk (103 kWp)	Windhoek	Oct '14	EPC & installation
Omburu Solar Park (5 400 kWp)	Omaruru	Nov'14 - Mar'15	Civil & Full Construction
Fruit and Veg City (208 kWp)	Swakopmund	Mar '15	EPC & installation + O&M
Oshakati Spar (143 kWp)	Oshakati	Apr '15	EPC & installation + O&M
Maerua Mall (1 040 kWp)	Windhoek	Sep '15	EPC & installation + O&M
SCE Consulting Engineers (51 kWp)	Windhoek	Sep '15	EPC & installation
Electronic Control Board (ECB) – 17kWp	Windhoek	Feb '16	EPC & installation
Osona Solar Park (6 700 kWp)	Okahandja	Apr – Aug'16	Civil & Full Construction
Susanne Grauheim Old Age Home (90 kWp)	Windhoek	Sep '16	EPC & installation + O&M
Gobabis Solar Farm (2 x 5 800 kWp)	Gobabis	Mar – Aug '17	Civil & Full Construction
Omuthiya Police Station (200kWp)	Omuthiya	Jul '17	EPC & installation
Aussenkehr Solar Farm (6 400 kWp)	Aussenkehr	Apr – Nov '17	Civil & Full Construction
The Wood Connection (118 kWp)	Windhoek	May '18	EPC & installation
Zimmermann Garage (90 kWp)	Windhoek	June '18	EPC & installation
Kokerboom Solar Farm (10 000 kWp)	Keetmanshoop	May – Nov '18	Electrical Scope
Fresh Produce Market (406 kWp)	Windhoek	Oct '18	EPC & installation
Standard Bank (150 kWp)	Windhoek	Dec '18	EPC & installation
Sonop Staff Village (85k Island & 90 kVA battery backup)	Sossusvlei	Feb '19	EPC & installation
Deutsche Höhere Privatschule (104 kWp)	Windhoek	May '19	EPC & installation
Uis Guesthouse (21 kWp Island & 36.2 kWp battery backup)	Uis	June '19	EPC & installation
Mashare Development Institute (100kWp)	Mashare	Oct '19	EPC & installation
Farm Okongeama (17kW grid + 5kW Island)	Near Windhoek	Feb '20	EPC & installation
Namwater Desalination Plant (120kW hybrid)	Grünau	Mar – Nov '20	Civil & Full Construction
Nedbank (138 kWp)	Windhoek	June '21	EPC & installation + O&M
Namibia University of Science&Technology (20kW island)	Groot Aub	Mar '21	EPC & installation
Waldburg Lodge (286 kWp with 600 kWh Backup)	Dordabis	Sep '21 – Nov '22	EPC & installation
Namib Poultry Industry Solar Park (3 087 kWp)	Brakwater	Sep '21 – Feb '22	Civil & Full Construction
Debmarine (85 kW Island with 600 kWh Backup)	Kerbehuk	Jan '22 – Feb '22	EPC & Installation











Fresh Produce Market, Prosperita, Windhoek 406kWp





7. SUPERCAPS as the latest way of storing electricity effectively - ideal for Renewables

Sirius Supercapacitor based storage is enabling a meaningful transition away from fossil fuels. Supercaps are offering new and diverse solutions to the world's complex energy problems.

They have the following advantages over Lead Acid / Lead Carbon and Lithium Ion (LiFe) Batteries:

- Longer Service life, 40+ years expected life time (Electronic cards in Battery can be exchanged separately)
- **Tolerance against higher Ambient temperature** (environment of up to 45 °C does not affect battery capacity or lifetime significantly, can work in conditions up to 80 °C)
- Up to **10 Cycles per day**, and still get to design **life time of more than 40 000 cycles**
- Charging Battery from 10% 100% in less than 30min
- 100% depth of discharge is possible without damage (90-95% daily DoD is preferred)
- **No memory** effect. Therefore a depleted unit at 10% can be stored for a month, and then just charged again without any effect on the unit life expectancy.
- Non-toxic, non-flammable, environmentally friendly 90% recyclable
- **No chemical reaction**, therefore inherently more stable than LiFe. Higher energy density then most technologies.





8. Reference List of selected Tank and Pump installations by NEC

Tank installations:

- 1. Finkenstein Estate NEC supplied, delivered and installed a 250m³ elevated tank on a 25m stand.
- 2. For Oshakati Town Council supplied, installed and delivered for 6 new developments a combination of 500m³ ground reservoirs, a booster pump sets and a 250m³ elevated reservoirs on a 20m stand.
- 3. At the new SAB Brewery at Okahandja 2 x 300m³ circular reservoirs were installed for their fire protection water storage as well as a 150m³ ground reservoir for domestic and process water.
- 4. The new FNB HQ in Windhoek Supply, delivery and installation of a divided tank and supply booster pumps for the process, waste water as well as domestic and irrigation booster pumps.

Pump Installations:

- 1. For SAB Breweries in Okahandja NEC Power & Pumps has equipped 2 boreholes to extract ground water as a back up to the municipal supply.
- 2. For Vivo Energy at their Tsumeb Depot Supply, delivery and installation of 2 diesel driven fire booster pumps and a jockey pump.
- 3. For Namdeb in Windhoek at their HQ Supplied, delivered and installed a fire booster pump set.









9. Reference List of selected Solahart installations by NEC

NECPP has been associated with Solahart (made in Australia) since the early 1990's. The 30 year of track record of this product has led to be a major contributor in the solar water industry in Namibia.

Apart from the countless systems installed country wide on domestic applications, NECPP also caters for solar water heater solutions in the commercial sector. Some of the recent projects completed are:



Domestic Solahart geyser installation in Windhoek. Suitable for all over Namibia, also at the coast



Solahart

80 x 300L Solahart geysers Polytech Windhoek

12 x 300L Solahart geysers SAB Miller Okahandja





Vooruitsig School in Rehoboth, 47x 300L Solahart geysers

Gomoti Lodge, Okavango Delta, Botswana 27 x 300L Solahart geysers







Deutsche Höhere Privatschule – 104 kWp

10. Short overview of expertise and Qualifications

CEO – NEC Power & Pumps

Name: Date of Birth: Languages: Highest Qualification: Cellphone: ID: Niko Brückner 5th August 1964 English; German; Afrikaans Electrical Engineer Technician 081 124 4740 6408050100411

RENEWABLE ENERGY DIVISION

Head of Renewable Energy and Senior Project Engineer

Name: Joring von Gossler Date of Birth: 31st July 1980 English; German; Afrikaans Languages: **Highest Qualification:** MScEng (Mechanical) - University of Stellenbosch, RSA (2006) BEng (Mechanical) - University of Stellenbosch, RSA (2004) Project Engineer for all projects in the Solar/PV-Division of NEC since 2013 Major Projects: Responsible for submitting Tenders and quotations for grid-feed and off-grid **PV-solutions**. 081 734 3184 Cellphone: ID: 800731000064



Project Engineers for Renewable Energy

The sector of th	67
Name:	Justin Julius
Date of Birth:	17th April 1990
Languages:	English; Afrikaans
Highest Qualification:	B.Eng (Mechanical) - University of Stellenbosch, RSA (2012)
Major Projects:	Project Engineer for all projects in the Solar/PV-Division of NEC
Cellphone:	081 253 7775
ID:	9004175085086
Name:	Sven Grüttemeyer
Date of Birth:	28 th March 1988
Languages:	English; German; Afrikaans
Highest Qualification:	B.Tech (Electrical) – Central University of Technology (2013)
Major Projects:	Project Engineer for all projects in the Solar/PV-Division of NEC
Cellphone:	081 200 3045
ID:	88032800937
Name:	Torsten Martens
Date of Birth:	24 th October 1991
Languages:	English; German; Afrikaans
Major Projects:	Junior Engineer for all projects in the Solar/PV-Division of NEC
Cellphone:	081 775 9809
ID:	911024 0008 4

These leading Project Engineers and Site Supervisors are supported by our team of qualified and experienced Electricians and Installers.

PUMPS AND SECTIONAL STORAGE TANKS

Division Head - Sectional Storage Tanks

Name:	Wilhelm Genis
Date of Birth:	21 st October 1972
Languages:	English; Afrikaans
Highest Qualification:	N Dip Mechanical Engineering – Pretoria Technicon (Now TUT)
Major Projects:	Swakopmund Municipality, Bank of Namibia, Groot Aub, Namdeb, Outjo
	Hospital, Nkurenkuru Town Council
Cellphone:	081 127 8487
ID:	72102100014
Division Head - Pumps	
Name:	Tinus Smit
Date of Birth:	20 th April 1986
	•
Languages:	English; Afrikaans
Languages: Highest Qualification:	English; Afrikaans N6 Certificate
Languages: Highest Qualification: Major Projects:	English; Afrikaans N6 Certificate Unam, Divundu Vision School, Ministry of Lands, Rossing Uranium , Aveng
Languages: Highest Qualification: Major Projects:	English; Afrikaans N6 Certificate Unam, Divundu Vision School, Ministry of Lands, Rossing Uranium, Aveng Water Treatment
Languages: Highest Qualification: Major Projects: Cellphone:	English; Afrikaans N6 Certificate Unam, Divundu Vision School, Ministry of Lands, Rossing Uranium , Aveng Water Treatment 081 335 8900
Languages: Highest Qualification: Major Projects: Cellphone: ID:	English; Afrikaans N6 Certificate Unam, Divundu Vision School, Ministry of Lands, Rossing Uranium , Aveng Water Treatment 081 335 8900 86042000330





Maerua Mall, Windhoek, Namibia: 1 040 kWp Grid tied system, installed by NEC





Offering complete off grid storage solutions with Lithium Ion batteries in a custom built container as for Sonop Lodge, 20kW island system

11. Contact details



Niko Brueckner (CEO – NEC Power & Pumps) email: <u>Niko.Brueckner@nec-namibia.com</u>

Or

Joring von Gossler (Head of Renewable Energy and Project Engineer) email: <u>Joring.vonGossler@nec-namibia.com</u>

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JOHN DEERE



