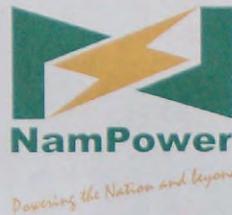
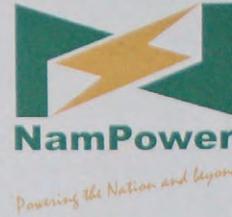
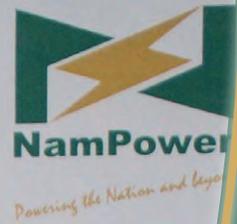


# WattsOn

Newsletter of NamPower - Leading Energy Company in Namibia

1st Edition 2013



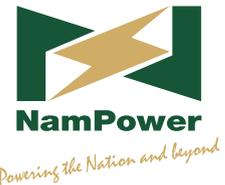
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Watts On is the official newsletter of Namibia Power Corporation (Pty) Ltd. (NamPower), published by the Marketing and Corporate Communications Department. (Opinions expressed in the publication do not necessarily represent the views of the Directors or Management of the company.)

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# Kudu Gas to Power Project Development gains momentum



During the past few years NamPower has taken significant steps towards securing power supply for the future of the Namibian nation. The Kudu Power Project, which has the potential of tripling NamPower's generating capacity counts amongst the largest of the company's future projects.

The project gained momentum when NamPower and the National Petroleum Corporation of Namibia (NAMCOR), recently signed Kudu Gas to Power Project Development Agreement (PDA).

The PDA brings together the upstream (offshore development) and the downstream (power station development) to ensure that each aspect proceeds through engineering and design to a final investment decision in a coordinated manner.

The PDA also includes Gas Sales Agreement (GSA) heads of terms and provides the basis for further commercial negotiations pertaining to a final GSA following upstream completion of Front End Engineering and Design (FEED).

On signing the PDA, the upstream partners issued FEED Invitations to Tender for both

subsea facilities and the Floating Production System and awarded a contract for an offshore survey of the field area and pipeline route. The FEED work will result in a refined cost estimate for the project, which is critical information to enable all stakeholders to make a final investment decision.

NamPower has issued the pre-qualification tender for the Engineering, Procurement and Construction of the 800MW Kudu Power Station, with the EPC tender negotiations with the successful bidder expected to be finalized towards the end of 2013.

Power Export Agreement negotiations with secondary off-takers, namely Eskom, South Africa and the Copperbelt Energy Corporation (CEC), Zambia are still on-going. CEC has started Joint Development Agreement negotiations with NamPower for possible equity participation in the Kudu Power Station, in addition to its intent to off-take 300MW power from the Kudu Power Station.

With regards to the financing of the project, NamPower has received keen interest from international development funding agencies as well as commercial banking institutions. The procurement of the Lead Arranger is expected to commence in June 2013.

Local sub-contractors are being encouraged to take advantage of the various opportunities that the project will be offering through the provision of goods and services particularly during the three years construction period of the gas field infrastructure and the power station.

NamPower will be responsible for its transmission integration. From the 800MW, 400MW will be reserved for local consumption.

The 800MW power station is expected to be in operation by 2017/18.

## FACTS

### UPSTREAM

- NAMCOR has 54% equity interest in Production licence 003, together with partners Tullow Kudu Limited (31% Operator) and CIECO Namibia (15%).
- The 4,567km<sup>2</sup> licence includes the Kudu gas field located 130 km offshore the south-west coast of Namibia.

### DOWNSTREAM

- NamPower currently holds a 100% equity interest in KuduPower Company (Proprietary) Limited (KuduPower), a company established to design, build and own the KuduPower Station at Uubvlei, 25km north of Oranjemund.
- NamPower intends to reduce its equity in Kudu Power with the introduction of strategic partners.
- NamPower will be the sole buyer of electricity from KuduPower and will enter into power export agreements for the sale of electricity that is surplus to Namibian requirements.

## Farewell message from Board Chairperson, Leevi Hungamo



I'm stepping down as Chairperson of the NamPower board after eight and a half years, a journey which I trust has contributed to the success of the company and which I acknowledge has enhanced my own professional growth and development. It is not by chance, but more by design that the company maintains such a strong brand presence in the market. Through the years I became very well aware of just how many sacrifices the men and women of NamPower make in order to ensure security of supply to the nation.

I would therefore like to thank my highly professional fellow board members and the entire workforce for being instrumental in modeling NamPower into the stable and strong company that it is today. These patriotic men and women have an inherent sense of duty to keep the lights burning brightly apart from the numerous challenges facing the electricity supply industry. They have much to do with making sure the engine of the economy continues to move forward and have everything to do with making sure that you and I can continue to enjoy all the modern conveniences of having electricity available instantaneously and reliably, through the various distributors in the country.

It is for this reason that I regard NamPower as an excellent example of what proud and patriotic Namibians can achieve if they work together in an environment of mutual respect, self-discipline and hard work. From the board to the entire management, this is one company where color, creed or race do not play a role. It has been a real privilege for me to have been associated with them over the years and not for a moment do I have a single regret for having accepted the appointment as Chairman in 2004.

Looking to the future, I have absolute trust and confidence that the management and entire workforce of NamPower will continue to be a shining example of a well-managed parastatal, embracing high ethical standards and good corporate governance in all its business relations. From my side, I shall continue to advocate and take a NamPower viewpoint at different forums where discussions about energy may come about, and will always feel a part of the NamPower family.

My final message is that the NamPower board and family do not rest on their laurels, but rather intensify and build on their achievements to make NamPower achieve even greater heights.

And may NamPower continue to Power the Nation and Beyond.

## Maria Nakale takes the reigns

Following the resignation of Andries Leevi Hungamo from the NamPower Board in March, the Minister of Mines and Energy, Isack Katali appointed Maria Nakale as the new Board Chairperson until end December 2013. Nakale has been a board member since 2011. She is currently the General Manager of Provident Funds at NAMFISA.

### Nakale's vision for NamPower

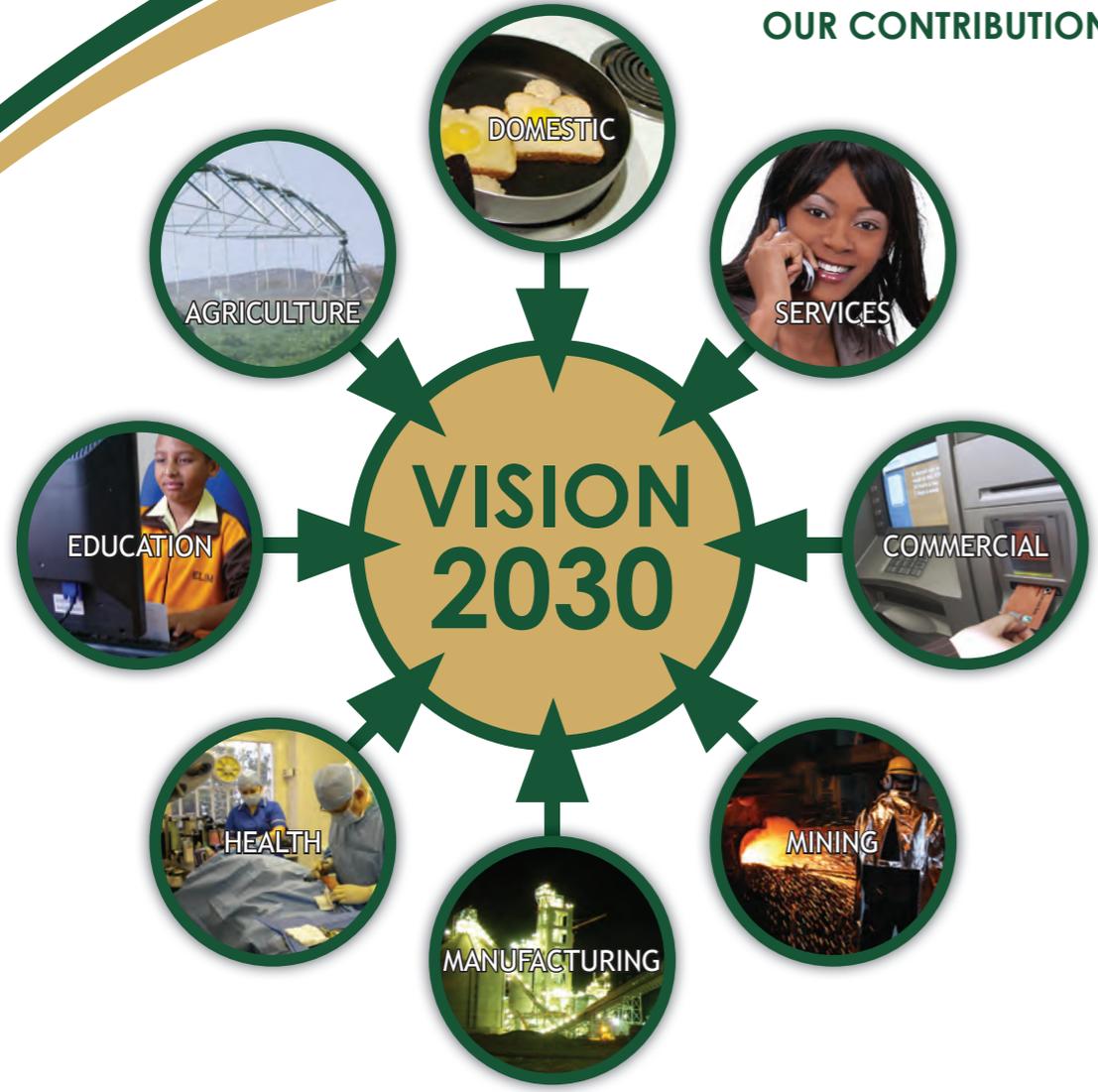
"I want NamPower to remain financially stable and be in a financial position that can support the company's infrastructural projects so that it can meet its mandate of providing cost effective, reliable supply of energy through Generation, Transmission and Energy Trading in support of the realisation of Vision 2030 and NDP goals."

Her vision for NamPower is for the company to be able to generate enough electricity for Namibia and become an exporter of electricity to other countries in the region.



# The power of KNOWING

## OUR CONTRIBUTION TO VISION 2030



All sectors of the economy make a significant contribution towards the attainment of the noble objectives of Vision 2030. Achieving these objectives calls for proper planning. Knowledge of the power supply situation is therefore key to any sector's planning.

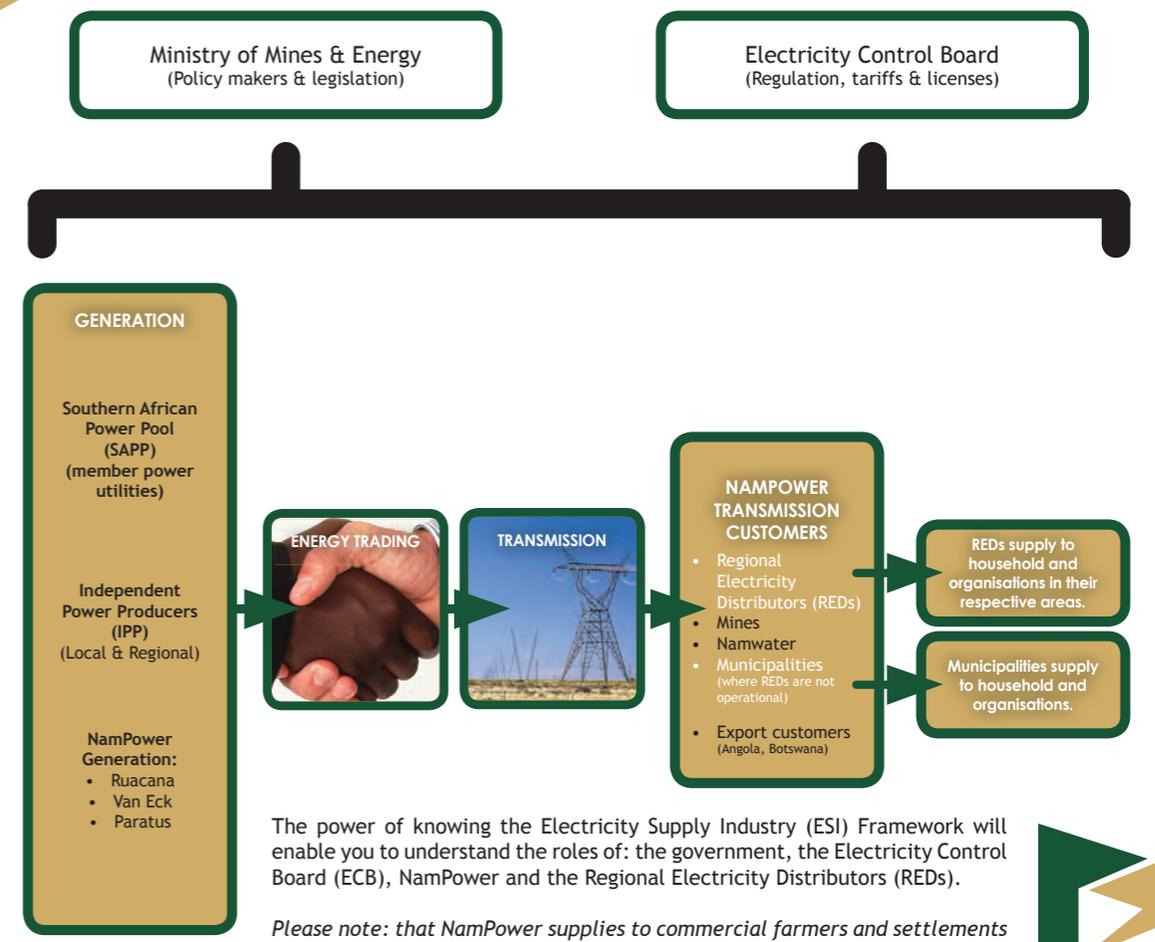
NamPower takes pride in enabling all sectors of the economy to contribute to the attainment of Vision 2030.



Powering the Nation and beyond

# The power of KNOWING

## NAMIBIA'S ELECTRICITY SUPPLY INDUSTRY FRAMEWORK



The power of knowing the Electricity Supply Industry (ESI) Framework will enable you to understand the roles of: the government, the Electricity Control Board (ECB), NamPower and the Regional Electricity Distributors (REDs).

Please note: that NamPower supplies to commercial farmers and settlements where REDs are not operational.



Powering the Nation and beyond

# Van Eck gets a new lease of life



**V**an Eck Power station has been out of operation since October 2012 for rehabilitation work. This is after the NamPower Board took cognisance of the fact that the power station can play an important role in meeting the short to medium term supply of electricity for the country. The Technical Services Business Unit was then tasked to find the most suitable solution to give the power station a new lease of life.

An American company, Black and Veatch, was contracted to do the study and they submitted their findings in October last year after investigating three options to rehabilitate the power station.

**Option 1:** To extend the life span of the station by 5 years. This option would involve the on-going maintenance and repair with the replacement of some critical components only.

“The end result would have been that only two units at a nominal output of 27MW each could be operated continuously at a low level of reliability. The time for implementing these repairs would have been 18 months at a cost of N\$86 million,” explains Simson Haulofu, Divisional Manager – Generation.

**Option 2:** To extend the life span of the station by 10 years. This option involves the replacement and renewal of most of the major components of the power station and to fully automate its functions.

Haulofu says this option would result in a much more reliable power station, meeting its design output of 120MW and a guaranteed output of three of the four units running continuously at an output of 90MW.

“The automation of the power station would also mean that the boilers could be controlled more optimally resulting in better unit efficiency,” he said.

**Option 3:** To extend the life span of the station by 25 to 30 years. This option involves replacing some major components such as the Steam Turbines and Generators with state of the art machines capable of much higher efficiencies.

It also involves major modifications to the boilers as well as the full automated control system for the power station.

“When completed the power station would be as good as new with a major improvement in efficiency and an improved output from the four generating units. The time for implementing this option would be 3 to 4 years at a capital cost of N\$1,09 billion,” he clarifies.

Option 2 was recommended as most favourable as it would yield the lowest generation cost of the three alternatives considered. It was also the option that could be implemented in a relatively short timespan to meet the pressing need for electricity in the short term.

Rehabilitation work is currently underway on Turbine 3. The turbine has been stripped and inspection has been done. Both the Low Pressure and High Pressure rotors are in South Africa for repairs.

Work to strip and inspect Turbine 2 has also commenced and is expected to be completed soon, after which repairs will be carried out based on the inspection report presented by the contractor to NamPower.

Other works under way is the installation and commissioning of the water treatment plant, sootblower refurbishment and overhauling of all the valves. The rehabilitation of the power station should be completed in 24 months. The project will cost about N\$300 million.

The US Trade and Development Agency - USTDA, offered NamPower a grant of US\$ 400 000 to conduct the study.



NamPower Managing Director (middle) Paulinus Shilamba signs a contract with MBH Energy (Pty) Ltd the company that will do major works on the Van Eck Power Station Boilers 1-4.

# Upgrading and Construction of substations

NamPower's Construction Division in the Technical Services Business Unit has embarked on the upgrading and construction of a number of substations countrywide. These include the upgrading of the Gobabis Substation from a 5MVA to a 10MVA substation.

The upgrading was necessitated by the town's sharp increased demand for power in 2012. This situation was not favourable as it could have resulted in frequent supply outages and risk load shedding to the end user due to transformer overload.

The Construction division split up into various teams in order to complete the many projects that were scheduled to be completed in the first half of the year.



NamPower staff working hard to complete the Efundja-132kV/66kV Substation near the town of Helao Nafidi in the Ohangwena Region.

The Efundja 132/66kV was commissioned and energized in March, the Omuthiya 132/22kV and Copper 132/132kV Substations are expected to be commissioned soon.

Petrus Shovaleka, NamPower's Northern District Area Manager said "the construction and upgrading of substations was necessitated by the increased demand for power in southern Angola, and the rapid growth of the Helao Nafidi and Omuthiya towns as well as the expansion of the Tsumeb Copper mine."

"Custom Smelter Namibia is busy installing a second oxygen plant. By the end of 2014 a sulphuric acid plant and bigger converters will be installed and in 2015 an electric furnace will be added. Therefore they will push up consumption to about 32MVA. Their existing supply line is not able to cope with that demand, hence the new Copper substation."

Other teams have started with the upgrading of Von Bach Base, Von Bach Booster1 and Von Bach Booster2 66/11kV substations which is aimed at facilitating demand for power by Namwater. These projects are expected to be energized in July. Another team has commenced with the construction of Naruchas 132/66kV substation near Rehoboth to strengthen the power supply to that town.

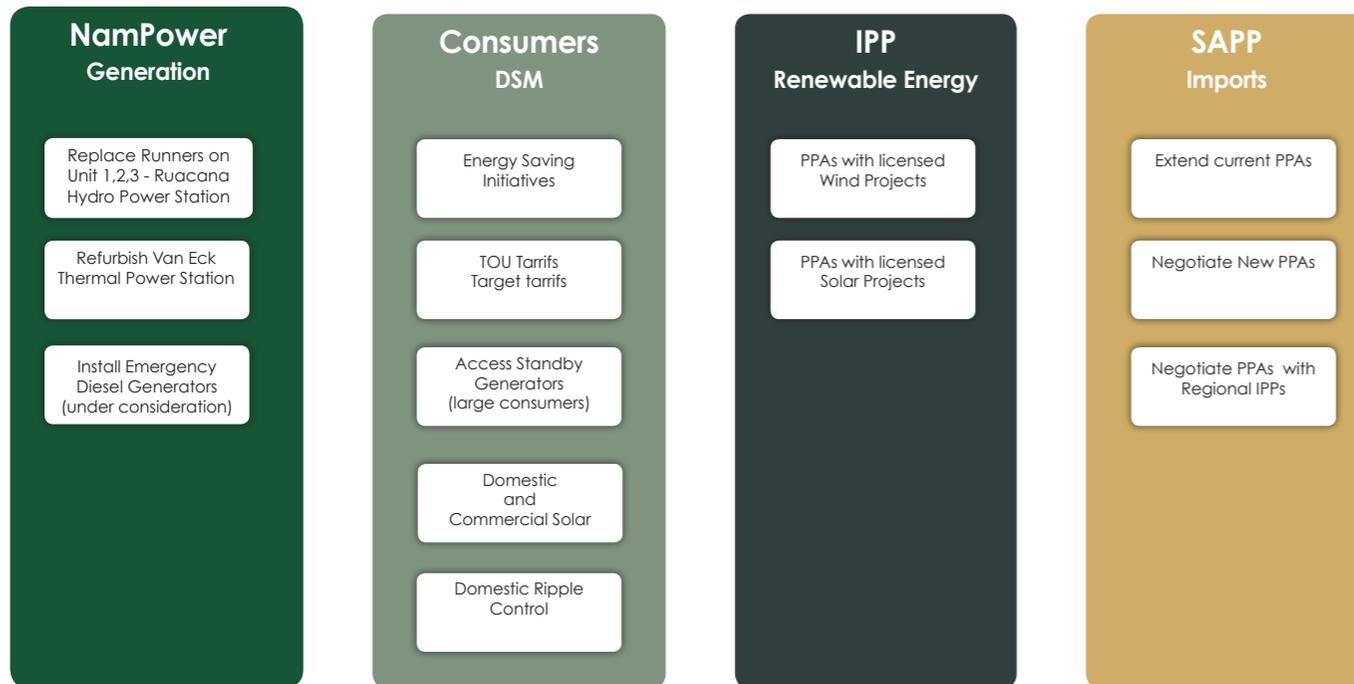
Besides the upgrading and construction of power lines the construction teams have refurbished the Walmund/Swakopmund/Tamarisk 66kV line in the Erongo region that was commissioned in March. The team is now busy with refurbishing parts of the Kuiseb/Walvis Bay 1 and 2 - 66kV lines.

These upgrades form part of the NamPower Transmission Master Plan 2012 that will enable the development of the Transmission network for the next two decades.



Construction team doing finishing touches at the Omuthiya 132/22kV Substation.

## OUR SHORT- TERM CRITICAL SUPPLY INITIATIVES



### ABBREVIATIONS

- SAPP - Southern Africa Power Pool
- IPP - Independent Power Producer
- DSM - Demand Side Management
- PPA - Power Purchase Agreement
- ToU - Time of Use



## Drought affects power generation

The Ruacana Power station this year will not be able to generate sufficient power for the country's needs as it has not been spared from the prevailing drought in the country. Generation of power at this station is dependent on the flow of the river which this year recorded the lowest flow of 38.9 m<sup>3</sup>.

The last time NamPower found itself in this situation was in 1995 – 1996. “At that time Eskom which was the main power exporter in Southern Africa had a surplus to supply NamPower without any problem, but the situation is different now as they first have to supply their customers. Apart from Eskom, all power utilities in Southern Africa do not have a surplus,” says Cosmos Auckmeb, Senior Trader at Energy Trading.

This situation has forced NamPower to operate the Ruacana power station at full-load (all four units) at peak hours from 06h00–09h00 and partial load (three units only) during the rest of the day. Currently all the units are taken off load during the night to accumulate more water in the diversion weir dam. During this time NamPower has to rely on power imports, which are cheaper at night.

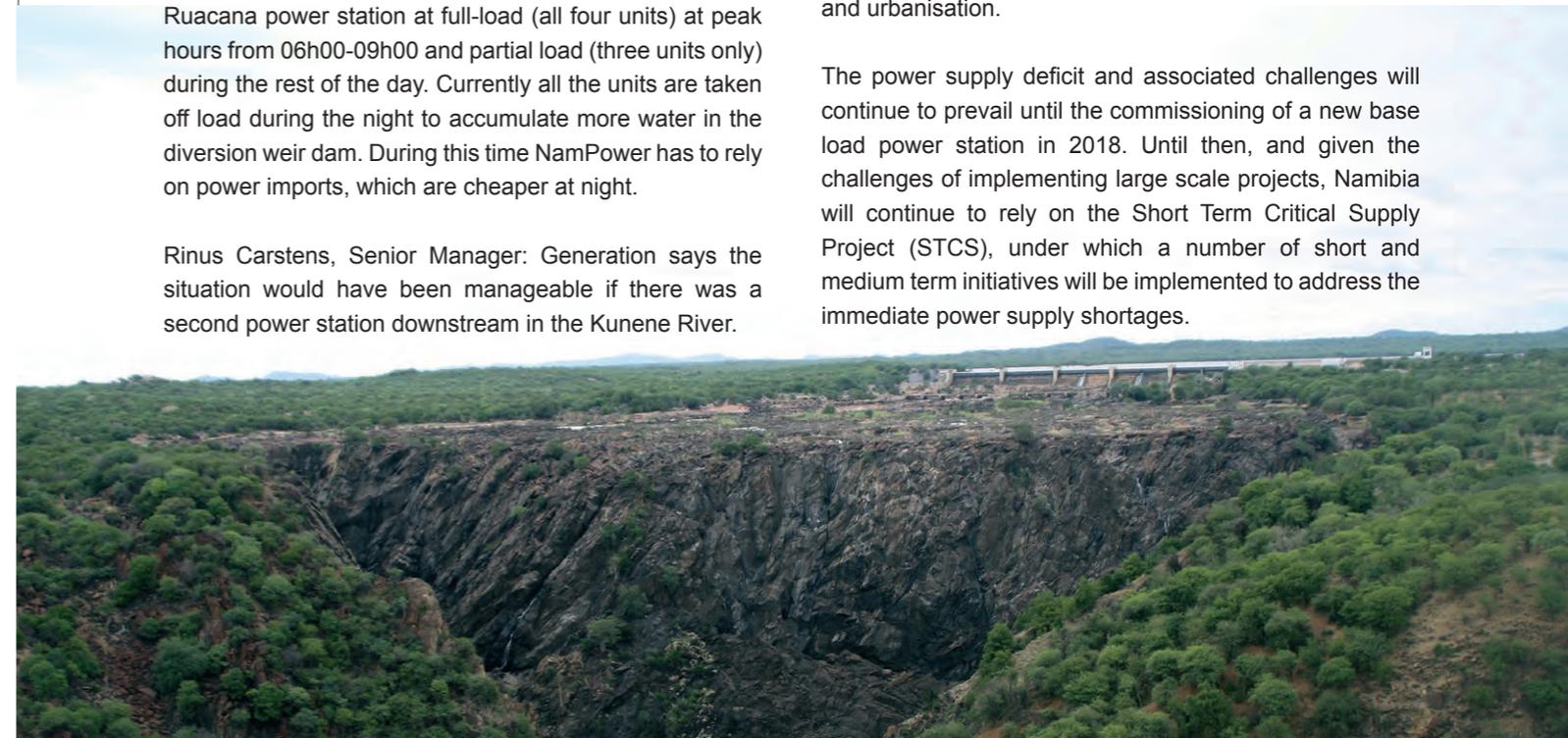
Rinus Carstens, Senior Manager: Generation says the situation would have been manageable if there was a second power station downstream in the Kunene River.

“If we had the Baynes power station down stream of the river, the effect would have been less because Baynes is planned to have a big reservoir (water storage facilities). This would have allowed us to do water management and to alternate power generation between the two power stations.”

For the country to avoid any power deficits, NamPower continues to advise high power consuming industries to shift their production loads to low peak times and the rest of the population to institute power savings measures.

The current situation is expected to result in a cost increase in power imports especially during the winter periods, May to July. Namibia's demand for power has been on an increase over the years which saw the power demand rising to a new record high of 512 MW in March. The power increase is attributed to the increase of economic activities and urbanisation.

The power supply deficit and associated challenges will continue to prevail until the commissioning of a new base load power station in 2018. Until then, and given the challenges of implementing large scale projects, Namibia will continue to rely on the Short Term Critical Supply Project (STCS), under which a number of short and medium term initiatives will be implemented to address the immediate power supply shortages.



# NamPower Signs a Power Purchase Agreement with Aggreko Mozambique

In its continued efforts to ensure security of supply, NamPower signed a Power Purchase Agreement (PPA) with Aggreko Mozambique, a private developer, on 8 March 2013 in Windhoek for the supply of 90 MW Mid Merit Firm Power to Namibia. The power will be wheeled through the EDM (Electricidade de Mozambique) and Eskom transmission networks. The power, which will be supplied from Aggreko's interim gas-fired power station in Mozambique will be available from 1 June 2013 until the end of August 2015, with an option of further extension subject to the availability of gas.

It is a well known fact that the SADC region is facing a shortage of power, a situation that will continue to prevail for the next three to four years. As for Namibia, the power supply deficit and associated challenges will continue to prevail until the commissioning of a new base load power station by 2017/18.

This PPA is therefore important to Namibia as it forms part of the short-term initiatives under the Short Term Critical Supply programme of NamPower, aimed at ensuring security of power supply for the country. Power Purchase Agreements such as this one are important given the fact that the country will continue to rely on imports for the next four to five years, while working on the implementation of our own generation projects.

The next few years will remain critical for Namibia in terms of power supply. As a result, NamPower will continue to appeal to its customers and the public at large to reduce their electricity usage to help manage the current power supply situation, while NamPower continues to pursue various power supply options.

The signing of this agreement marks an important milestone in the development of the Namibian power sector. It is not only the first new PPA signed by NamPower since the adoption of the STCS programme in 2011, but it is also the first time in history that the company has entered into a PPA with a foreign-based Independent Power Producer.

With due consideration of the credibility and good standing of both Aggreko and NamPower in their respective areas of operation, NamPower is confident that the agreement will be beneficial to both companies and by extension our electricity customers.

Aggreko is a reputable and financial sound company which is publicly listed on the London Stock Exchange. No capital expenditure or investment is required by NamPower as part of this agreement.



James Shepherd of Aggreko shakes hands with NamPower's MD Paulinus Shilamba after signing the agreement.

# The power of KNOWING

## HOW MUCH YOU PAY FOR ENERGY

Knowing how much energy each appliance consumes will help you save electricity.



Formula:  
How to calculate the cost of using electrical appliances!

On your appliance you will see the amount of WATTS that the appliance uses. This amount is usually stamped underneath or at the back of your appliance.

An iron for example uses 1500 WATTS. This is 1.5 KILOWATTS.

(to change WATTS to KILOWATTS move the comma three spaces to the left, i.e. 1500 WATTS = 1.5 KILOWATTS).

You then multiply the amount of KILOWATTS by the price of one unit of electricity, for example N\$1.20.

(1.5 KILOWATTS x N\$1.20 = N\$1.80)

This is the cost of using an iron for 1 hour.



Powering the Nation and beyond

# Enabling Internet access via Transmission Lines

NamPower recently entered into an agreement with Telecom Namibia and MTC to lease out some dark fibres installed on its transmission lines thereby generating some additional income.

With the evolution of technology more mutually beneficial uses for transmission power lines have been identified. One of these is the ability to transmit data via an optic fibre cable embedded into the overhead earth wire primarily used to protect the phase conductors from direct lightning strikes. Now it has become possible to provide ICT technologies such as internet access in remote areas and between load centres through which the transmission lines are built.

Due to the demand for access to information technology, NamPower is in the process of retrofitting some of its high voltage power lines with Optical Ground Wire (OPGW) or Metallic Aerial Self-Supported (MASS) conductors where it is required. MASS conductor contains the same number of fibres but is fitted below the phase conductors. It therefore requires less steel as it is not exposed to direct lightning strikes.

Such retrofits ensures that NamPower is able to provide continuous east-west and north-south fibre routes within Namibia, but also allows both Telecom and MTC to provide a better data service to its clients as redundant communication routes are provided.

The retrofits include the 132 kV Otjikoto –Okatope – Omatando line and will eventually be extended from

Omatando Substation up to Ruacana. The refurbishment of the 220 kV Walmund – Rössing line in the Erongo region will also see this line being fitted with the OPGW. Under the Telecom and MTC agreement the gaps between Omburu – Gerus, Caprivi Link Regen 1 – Kombat and Walmund – Swakopmund were closed.

The capital costs were shared between the three parties. Most of the new 132 kV and above transmission lines are already fitted with OPGW. A resolution was already taken by the NamPower Board in 1999 to equip all future lines, 132kV and above, with OPGW. Amongst the new lines fitted with the OPGW are the Caprivi Link Interconnector, Naruchas and the Auas-Omaere-Ghanzi line.

NamPower primarily uses the optic fibres for protection and communication purposes as well as interrogations during system disturbances and remote maintenance. Optic fibre cables usually contain a multiple of fibre strands. Depending on NamPower's requirements these are either 12, 24, 48 or 96 fibres. Because of some spare capacity of fibres.

Since transmission lines cross rural areas and other small settlements, the fibre connection can also allow for the drop off of some fibres at certain locations within those areas which will allow connectivity to modern communication technology such as data and telephony at minimal costs.

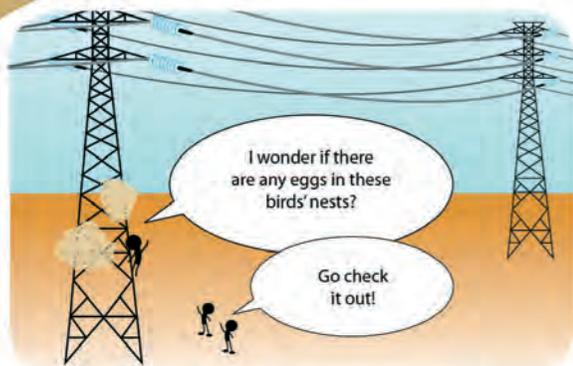
This fibre optic system was also connected to the West Africa Cable System (WACS) at Swakopmund, Namibia's first ever undersea fibre optic link to the global submarine cable networks that landed on its shores last year.

The fiber route now runs from Swakopmund (WACS landing point) through the NamPower transmission network to Katima Mulilo making a direct connection to Zambia, Zimbabwe and Botswana for further distribution. The retrofitting of the transmission lines form part of the NamPower Transmission Master Plan 2012 that will enable the development of the Transmission network for the next two decades.



The 400kV line in southern Namibia is among the few transmission lines that are already fitted with OPGW.

## ELECTRICITY AND SAFETY



Climbing onto any power structure is dangerous and can cause electrocution when you come into contact with live wires. All power structures must be treated as live at all times.



Power lines are a national asset and meant for our benefit. Vandalising them may cause a power outage and huge financial expenses in repairs.



Residing under power lines is dangerous because if conductors break or power lines fall onto dwellings, it can cause serious damage and loss of life through electrocution.



It is illegal and dangerous to share electricity with your neighbours.



## Helping to keep our environment clean



NamPower once again demonstrated its commitment to the protection of the environment by sponsoring various activities which were part of the FNB Namibia Global United Climate Kick 2013 initiative.

NamPower sponsored N\$50,000 towards this initiative and availed transport to the Global United Climate Kick team for their activities at the coast. Global United Climate Kick is an initiative of the Global United Football Club, the first non-profit football club which consists of renowned worldwide football legends that are committed to sustainable, social climate protection and to fighting the increasingly devastating effects of climate change.

The team led by former professional football player, Lutz Pfannenstiel, aim to get people to realise how important it is to care for mother nature and what each individual can do to support the climate-balancing factors including biodiversity.

Among the activities to raise awareness were the cleaning up of the Independence beach in which over fifteen staff members of NamPower based at the coastal towns of Walvis Bay and Swakopmund participated in. The donation

of recycling stations to the Duneside High School and an exhibition football match between Global United FC and Coastal All Stars, was held at the Jan Wilkens Sports Stadium. Over 50 bags of refuse was collected with items ranging from glass, plastic, paper and a variety of other items. After the clean up campaign NamPower also had an educational street theatre for the children with the message of keeping the environment clean and energy saving.

Last year, NamPower sponsored one of the promotional green activities relating to "Waste Not, Want Not", an initiative of the Global United Climate Kick which included the UNPACK YOUR SHOPPING initiative at the Maerua Super Spar, Windhoek. NamPower provided 200 reusable shopping backs to discourage the use of plastic bags by shoppers.

"The theme of "Waste Not, Want Not", ties in with the United Nations Green Economy drive as well as our own Ministry of Environment's sustainable energy drive. It also ties in with NamPower's energy savings initiatives, which encourages the nation to use electricity sparingly.

# FAMILY FUN DAY 2013



# FAMILY FUN DAY 2013



# Inter Power Games 2013



The NamPower sports men and women extended the company's stranglehold in Pool and ladies 4 x 100m & 4 x 400m relay at the annual Inter Power Games, held in Maseru, Lesotho recently when they returned home with gold medals for the second consecutive year.

The soccer and volleyball sports codes won silver medals, while the golf team won bronze.

Other games played at the IP games included darts, netball, table tennis, lawn tennis, Marabaraba – known

as xoros, ogoro, onjune, owela, otjitoto, wera, thuskae, Lochspiel in our various languages.

Inter Power Games are held annually and are aimed at promoting networking opportunities and foster stronger ties between power utilities in the region.

Other participating utilities are CENTLEC (Bloemfontein), Botswana Power Corporation, Lesotho Electricity Company, Swaziland Electricity Company and Lesotho Highlands Development Authority.



The mens' pool team celebrate their gold medals



The womens' 400m x 4 relay team celebrate their gold medals



The volleyball team celebrate their silver medals

# THE POWER OF KNOWING



There is a thin line between what you use and what we are able to supply.

## Ensuring security of power supply

### Our role:

Strong economic growth and development in the country has resulted in an increased demand for electricity. The situation has prompted NamPower as the country's power utility to implement various solutions under its Short-term Critical Supply Project (STCS) to address the shortage of electricity and ensure a constant supply in the country.

While NamPower is busy with the implementation of the STCS project, we would like to appeal to the nation to help us ensure security of supply by using electricity sparingly.

### Your role:

To encourage you to save electricity, NamPower will through its Power of Knowing campaign continue to communicate various energy savings measures. We're convinced that if every one of us adopts these savings measures making it part of our daily routine we can save greatly.

**Let's work together and use electricity sparingly.**



*Powering the Nation and beyond*