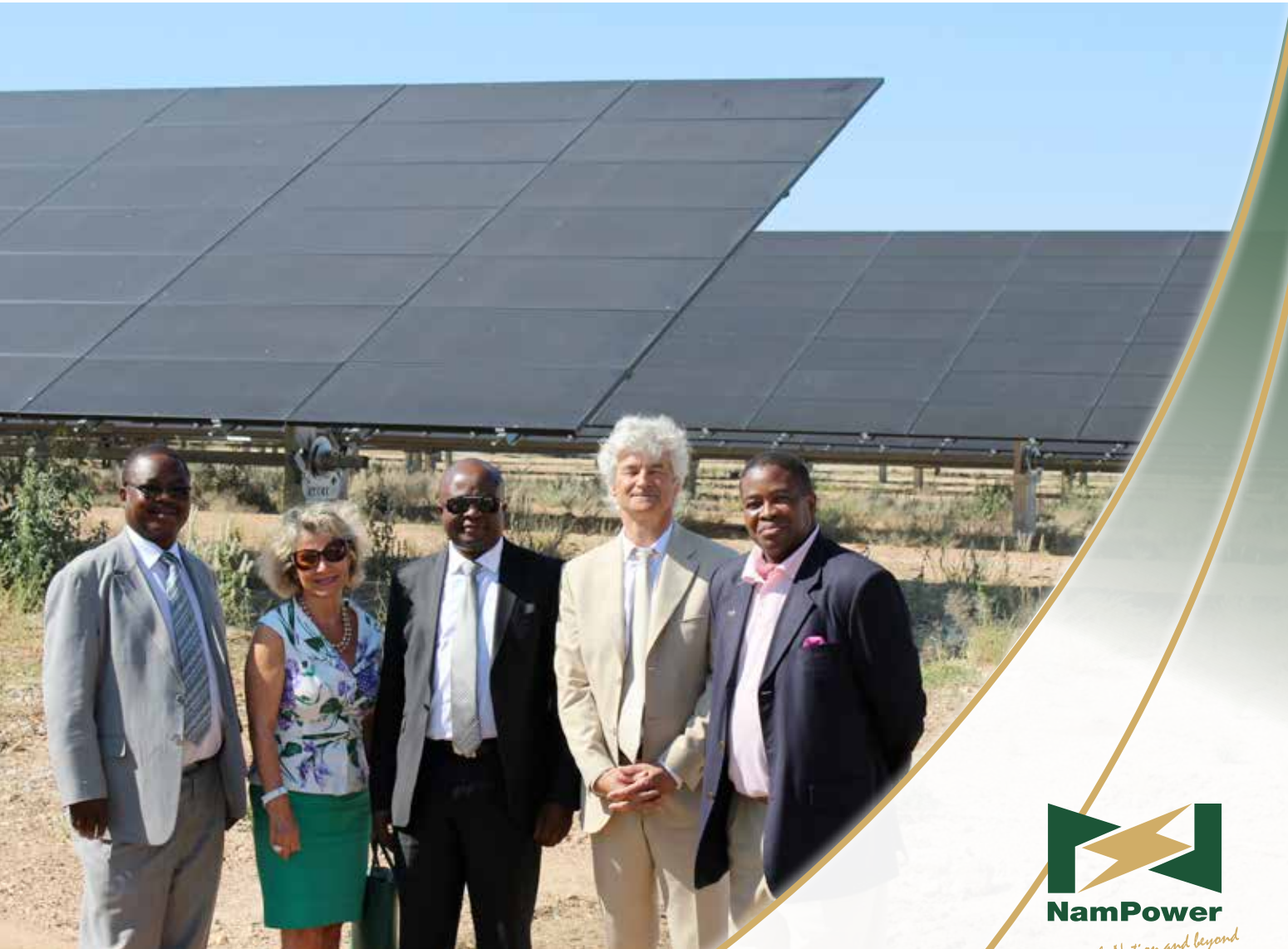


WattsOn

The Official Newsletter of
NamPower
Edition #1 2015

Omburu Solar Power Plant Officially Inaugurated



Powering the Nation and beyond

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Power Supply Situation in Namibia



In light of the ongoing power crisis in the SADC region, NamPower has strategically implemented short and medium term initiatives to address the power supply shortage in Namibia. On the current power supply situation in Namibia, the peak demand recorded on 5 March 2015 was 524 MW (excluding Skorpion Zinc Mine), against a peak supply of 300 MW recorded from local generation sources.

As the shortfall between demand and supply continues to increase, NamPower has executed Short Term Critical Supply (STCS) initiatives to ensure power security until a base load power station is commissioned in 2018.

These STCS initiatives include the recommissioning of Van Eck power station from mid 2015; the rolling out of Demand Side Management programs(DSM),

(such as the free distribution of 1 million LED bulbs and the subsidized installation of 20 000 solar water heaters) in the second quarter of 2015; and the renewal of the 80 MW power purchase agreement between NamPower and ZPC (Zimbabwe).

The most critical period will be from August 2016, when an additional generation capacity will be needed to ensure security of supply.

NamPower proudly holds a legacy of no load shedding, and maintains a trusted reputation derived from its ability to keep the lights on in Namibia. As we continue to commit ourselves to ensuring security of supply, we call on all our customers to support our power supply programs, and to use electricity sparingly by reducing usage during peak hours, from 06h00-09h00am and 18h00-21h00pm.

Kudu gets Cabinet backing

NamPower Managing Director, Paulinus Shilamba, says that the Kudu Gas Project is well on track. Cabinet has committed support to the project by approving the strategic support package submitted via the line ministry.

In the national budget presentation 2015/16, the Minister of Finance, Calle Schlettwein, allocated N\$4.93 billion over the Medium Term Economic Outlook to support the balance sheets of NamPower and NamCor for the Kudu Gas-to-Power project. In addition, Schlettwein said the state will provide a guarantee for the financing that will be sourced outside the budget. An estimated N\$14.8 billion is required for the project.

NamPower has concluded EPC (Engineering and Procurement Contract) negotiations with Shanghai Electric as a preferred bidder and LTSA (Long Term Service Level Agreement) with Siemens as OEM (Original Equipment Manufacturer). Standard Bank Namibia has been appointed MLA (Mandated Lead Arranger).

Zambian Power utility Copperbelt Energy Corporation has already signed a Joint Development Agreement with NamPower to develop Kudu power project and buy power commensurate with their share holding and denominated in USD. Discussions are being held with Eskom to off-take between 100 and 300 MW during mid-merit and peak periods.

NamPower currently holds a 100% equity interest in Kudu Gas, established to design, build and own the power station at Uubvlei, located 25km north of Oranjemund.



kudu

power project

Milestone achievement for runner replacement project



The team at Ruacana installing thrust bearing pads.

As part of its Short Term Critical Supply (STCS) initiative, NamPower is in the process of replacing turbine runners, the Penstock Inlet Valve (PIV) Hydraulic Oil Unit and major turbine components on Units 1, 2 and 3 at Ruacana Power Station. Projects under the STCS initiative aim to ensure security of power supply until a base load power station is established.

The objective of the runner replacement project is to increase unit power output to 85 MW, and most importantly, to improve vibration characteristics and efficiency.

With this in mind, 12 December 2014 saw the successful commissioning and handing over of Unit 1's turbine to National Control, following reliability and performance tests.

The dismantling of the turbine started in June 2014 and was concluded approximately 5 weeks later. This was the first time that the turbine was completely dismantled since its commissioning in 1980. The assembly began in October 2014 following three months of part refurbishments on site and off site, and was completed in early December 2014.

Due to wear and tear over the years, the traditional turbine runners on Unit's 1-3 experienced hydraulic instability and as a result, created high vibrations caused by vortex flow in the draft tube when operating at part-load. Vibrations at draft tube level exerts significant forces on the civil and mechanical structure which can reduce the plant's life cycle in the long term.

In comparison to Unit's 1-3, Unit 4 has lower vibration levels due the new X-blade runner design, which exhibits reduced cavitation and vortex flow at all operating ranges. The new turbine runner for Unit's 1-3 will also be the X-blade type and will have similar performance characteristics to Unit 4.

On Unit 1, the Penstock Inlet Valve (PIV) was upgraded from a low pressure hydraulic system to a high pressure system, similar to that of Unit 4. NamPower appointed Andritz Hydro in 2011 to carry out a Computational Fluid Dynamics (CFD) study and conduct a scale model testing of a prototype runner blade design. Andritz Hydro was awarded the tender to design, manufacture and supply major components of the turbines.

Key components such as the shaft, guide vanes,

guide vane top sleeves and draft upper part 2 were sent to DCD Heavy Engineering workshops in Vereeniging, Johannesburg, for refurbishment due to a lack of handling capacity in Namibia.

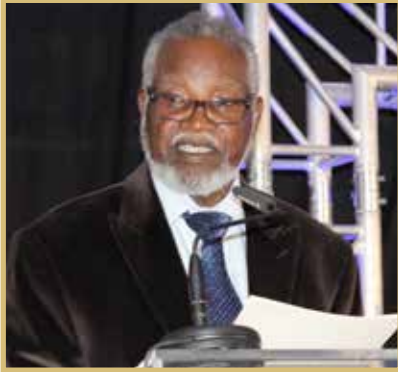
The new turbine no longer requires aeration to break down vortex flow in the draft tube as the new runner does not create a vortex at all which normally produces a colossal vibration in the bottom part of the turbine. In addition, the elimination of the aeration compressor lowered the auxiliary consumption by 132 KW and also power house noise levels. The improved efficiency is especially significant in the best optimum operation range, which is between 70 - 83 MW.

The runner replacement and PIV upgrade project will continue on unit 2 and 3 as soon as the river flow recedes to low flow season levels, which should occur as from May/June 2015.

This project presents an ideal opportunity to train the next generation of engineers, technicians and artisans who are going to maintain and carry out further upgrades on the power generating units in future.



Omburu Solar Power Plant Launch



Founding President Dr Sam Nujoma



Minister of Mines and Energy, Obed Kandjoze



NamPower MD, Paulinus Shilamba

The Omburu solar power plant was inaugurated by Founding President Dr Sam Nujoma, on 13 May 2015. The inauguration was held a mere six months after its ground breaking in November 2014. The Omburu solar power plant, owned by Franco-Namibian company InnoSun, is the country's first multi-million dollar solar power plant. It is also the first local Independent Power Producer (IPP) NamPower has signed a power purchase agreement (PPA) with.

In his key note address, the Founding President said the opening of the plant is an indication that Namibia is an oasis of peace for foreign direct investment (in collaboration with local shareholders) to forge joint ventures that complement and assist each party on a win-win basis. He further encouraged government to invest in alternative energy sources, and to harness the abundant energy of the sun.

NamPower Managing Director Paulinus Shilamba said, "The Omburu solar power plant is a clear testimony of the fact that IPP's can work in Namibia and NamPower is more than willing to enter into PPA's with IPP's". Shilamba further went on to commend InnoSun CEO Gregoire Verhaeghe, for his determination and professionalism towards the realization of the project, "InnoSun went out into the world to find partners for financial support. Other IPP's should learn from this good example and equally source partnerships to support their projects".

The solar panels at Omburu are installed on a single axis horizontal tracking system, which follow the sun from East to West. Sunlight is converted into electricity when reaching the solar panel. The capacity of the Omburu solar power plant is 4.5 MW. It will generate about 13 500 000 kWh of electricity per year, which represents 1% of the electricity generation in Namibia, and caters to the basic domestic consumption of 20 000 Namibian households.



NamPower MD Paulinus Shilamba, French Ambassador to Namibia Madam Jacqueline Bassa-Mazzoni, Minister of Mines and Energy, Obeth Kandjoze, InnoSun CEO Gregoire Verhaeghe and, CenoRed CEO Mburumba Appolus.



An aerial view of the Omburu solar power plant and the Omburu sub station.

NEEEP country wide information sessions

NamPower recently conducted country wide information sessions in order to personally meet with potential and existing business people, and, provide information and clarity on the NamPower Equitable Economic Empowerment Policy (NEEEP).

A team consisting of Penda Kiiyala, NamPower Board Member, Monica Nashandi, Divisional Manager of Strategy, Corporate Communication and Electrification, Teckla Uwanga, NEEEP Compliance Officer and Pendapala Kakololo, Procurement Engineer, formed the delegation that visited Ongwediva, Rundu, Katima Mulilo and Luderitz.

The BEE Policy

The NamPower Board of Directors, on 25 September 2014, approved the NamPower Equitable Economic Empowerment Policy (NEEEP), which replaced the BEE Policy of 2004. NEEEP is implemented in conjunction with the NamPower Tender and Procurement policy.

The new policy aims to encourage an increased participation from previously disadvantaged Namibians (PDN) through relaxing some requirements that proved to be a challenge for PDN's in the past.

A few of the new features include lenient registration requirements, and no tender bond/security of tenders below N\$10 million (if it can be demonstrated that it will not result in increased financial or operational risk for NamPower).



The business community present at the NEEEP information sessions

However, it should be noted that the NEEEP and its 'relaxed' conditions will not result in the sacrifice of the quality of goods and services, NamPower Managing Director Paulinus Shilamba stressed during the policy's official launch. He also stated that, in its totality, the NEEEP's purpose is to readdress economic imbalances and create equal opportunity for all to tender for business with NamPower.

NamPower will, through its NEEEP policy, foster job creation, rural development, poverty alleviation and skills development for PDN's, as, in the year 2014 alone, NamPower spent N\$1.3 billion in procurement.

To view the full policy, please visit www.nampower.com.na



NamPower prepares to roll out 1 million free LED bulbs, 20 000 solar water heaters

NamPower is forging ahead with its plan to roll out the free distribution of 1 million LED bulbs and the subsidizing of 20,000 Solar Water Heaters (SWHs) as part of its gigantic Demand Side Management (DSM) campaign.

Procurement for the 1 million LED bulbs and preparation for the 20,000 solar water heaters are at an advanced stage and the rolling out of these programmes will happen by the third quarter of 2015.

NamPower plans to install free LED bulbs in residential houses to replace the incandescent bulbs which are most likely to be switched on during peak demand times. The 1 million LED campaign is expected to reduce the peak demand by up to 30MW.

The benefit of this campaign is the reduction of the lighting load during peak demand times, as well as the stimulation of the local energy efficient lighting market.

NamPower had initially identified the towns of Mariental, Otjiwarongo and Walvis Bay as the locations for the pilot phase, and if successful, the installation of the LEDs will proceed to the remaining towns in Namibia.

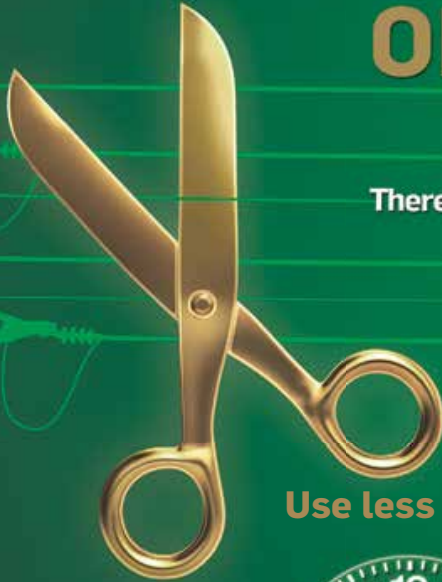
NamPower is also planning to replace 20 000 electrical water heaters (EWHs) with SWHs in residential houses, a move which will contribute to reducing the national peak demand by approximately 10MW.

The intention is for NamPower to incentivise the exchange of electrical water heaters by providing a rebate of around 10 percent of the installation cost to replace an EWH with a SWH.

The campaign is to be implemented in close collaboration with the local banking fraternity as well as the Solar Revolving Fund under the Ministry of Mines and Energy and the Environmental Investment Fund, who are expected to complement the rebate by availing favourable loans to end-users to procure and install SWHs.

THE POWER OF KNOWING

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



Use less electricity during peak times



6 - 9 AM



6 - 9 PM

Please avoid using washing machines, dishwashers, pool pumps, irons, air conditioners and all other appliances you do not need to use during these times.

Let's work together and use electricity sparingly.

Let's work together and use electricity sparingly.



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Walvis Bay power supply upgrade

The port's expansion, mining activity and the mass housing developments at the coastal areas are contributing factors to the increasing electricity demand in the Erongo region. Rapid socio-economic development in the region has seen the demand for energy grow significantly over the past 10 years.

With the increasing rift between supply and demand, Erongo Red and NamPower signed an agreement in February 2013 for the upgrade of power supply at Walvis Bay. Upgrading the Walvis Bay substation involves 3 x 40MVA Transformers and 3 x 11kV feeders which make provision for an 80MVA (N-1) power supply. The 2 x 66kV lines will be replaced with 2 x 132 kV High Voltage Tx lines with a transfer capacity of 80MVA per line.

The integration of Anixas and Paratus Power Stations at Walvis Bay are also integral parts of the upgrading project and requires additional 2 x 40MVA transformers and 3 x 11kV feeders in relation to work at the new Walvis Bay substation.

NamPower will also invest in strengthening the 220kV transmission backbone and the upgrade of the Kuiseb substation from 66kV to 132kV. The existing 120MVA transformer at Kuiseb station will be replaced with 2 x 160MVA transformers.

The estimated completion date for the 132kV lines from Kuiseb substation to Walvis Bay is July 2015, while the new 132kV 80MVA Walvis Bay substation will be completed and energised by January 2017. The total cost for the Walvis Bay upgrade (including the Kuiseb Substation upgrade) is estimated at N\$500 million, of which Erongo Red has to contribute proportionally an estimated N\$120 million.



The new Walvis Bay-Kuiseb double 132 kV power line will use steel monopole structures (left) and run parallel to the existing double 66 kV wooden-pole power line (right) (photo credit:Ann Scott).



NamPower makes power lines bird friendly

World Migratory Bird Day, observed on 9 & 10 May, highlights the importance of applying energy technologies that will prevent, minimise and mitigate the impact on migratory birds and their habitats. This year, the day is focused around the theme, “Energy-Make it Bird Friendly”.

As an active role player in nature conservation, in partnership with the Namibia Nature Fund, NamPower is set to mark a key section of the new parallel Walvis Bay-Kuiseb 132kV power line as a mitigation against collisions of wetland birds.

Findings derived from the Environmental Impact Assessment (EIA) for the construction of the Walvis-Kuiseb power lines have pointed out that four kilometers of the line route runs through an area known as Bird Paradise, highlighting it as a potential high collision risk. The affected birds include the Red Data intra-African migrant species such as the Lesser Flamingo, Greater Flamingo, and nomadic species namely the Great White Pelican, Black Stork, Caspian Tern, Hatlaub’s Gull and the Maccoa Duck.

Flamingo’s are at risk of power line collisions due to their habits of flying low, at night, in poor light and in groups. Bustards are large and heavy with limited manoeuvring, and limited by a blind spot when flying.

In addition, Walvis Bay is closely associated with

several important bird areas (IBA’s), as the Walvis Bay wetlands (Lagoon) is regarded as one of the most important coastal wetlands in the southern Sub-Saharan region and in Africa.

NamPower has undertaken to using a combination of marking devices (alternating double loop bird flight diverters and “flag” bird flight diverters) to make lines more visible. “Flag” bird flight diverters is a device with contrasting black and white components that move with the wind, increasing visibility under poor light conditions.

NamPower/Namibia Nature Foundation’s strategic partnership was launched in 2008 in order to address wildlife and power line interactions in Namibia.



Standard double loop bird flight diverter (BFD; made by Preformed Line Products/PLP).



The NamPower Foundation

-a helping hand.

The NamPower Foundation is NamPower's Corporate Social Investment arm, aimed at contributing to the socio-economic upliftment of communities and stakeholders. The article below highlights a few of many donations that took place in 2015 thus far.



Jan Jonker Afrikaaner High School in Windhoek, became the recipient of a new school bus, valued at N\$250 000. School Principal, Jason Johannes, expressed his profound gratitude to the NamPower Foundation and stated that if other organizations and private entities emulated NamPower's example, every Namibian child would be afforded the best quality of education and life. Lucia Hiveluah, Head of NamPower Foundation, handed over the bus to the principal and members of the school board.



The NamPower Foundation generously built a class room at Immanuel Shifidi School in Windhoek. The class room is valued at N\$ 209 700, and is an addition to the class rooms in the Science Block. Khomas Education Inspector, Milton Ya Otto, mentioned that, it is a sad reality that in the Khomas region, there are approximately 1440 children who are still taught in army tents because of a lack of classrooms. He commended the NamPower Foundation for its donation. *"There is no telling how many lives will be changed and transformed because of this classroom, now and in generations to come. Thank you NamPower."*

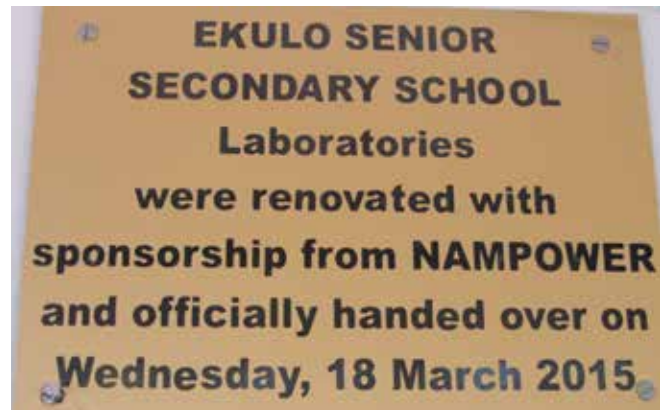


The Ekulo Senior Secondary School in Oshikoto received four renovated science laboratories and science equipment totalling N\$ 570 538,00.

The school, including the laboratories were built by Government in 1997. As the years progressed, the laboratories became outdated and worn down, prompting the school management to seek assistance from the NamPower Foundation to renovate the science laboratory and the request was approved.

The Acting Principal, Kalipi Nauyoma, expressed gratitude on behalf of the principal, management and students, and vowed to use this blessing to ensure that students are empowered in the areas of science.

In the pictures, Head of NamPower Foundation, Lucia Hiveluah cutting the ribbon; students seated in the laboratory; and, the plaque displayed at the school.



Establishing a National Institutional Legal And Regulatory Framework For Electrical Workers And Electrical Contractors in Namibia



Group photo taken during the 2nd national stakeholder workshop at Heja Lodge in October 2014.

Background

Prior to gaining independence in 1990, a regulatory framework based on the South African Bureau of Standards (SABS) was legally binding in Namibia. Immediately after independence, each and every institution set or adopted their own standards, which resulted in different levels of standards in the Namibian electricity supply industry with no mutual or reciprocal recognition of operational licences issued by the different authorities within Namibia.

To date, the industry sits with a situation where, for example, an electrical worker authorized by the City of Windhoek to perform electrical installations for a given category, is not necessarily authorized to do the same work in Erongo RED, NamPower, CENORED or NORED. The absence of a nationally accepted reference standard was not only perceived to be unsustainable, but a gross violation of the Safety Code gazetted in 2011. The legitimacy of the existing problem and the need to urgently address it was further supported by documented evidence of recommendations previously made independently by various key stakeholders. These comprise; a) The 2008 ECB report on the accreditation, certification and qualification requirements for Electrical workers in Namibia, b) Reports on stakeholder engagements involving key players in the Electricity Supply Industry (ESI) such as NamPower, REDs and City of Windhoek.

Project Commissioning

After recognizing the need to address the negative impacts of the existing fragmentation and lack of a structured regulatory and legal framework for Electrical Workers and Electrical Contractors in the country, the Electricity Supply Industry (ESI), jointly with the Ministry of Labour and Social Welfare, the National Training and Accreditation Institutions and other national stakeholders, commissioned a project to streamline and harmonize the operational environment for Electrical Workers and Electrical Contractors in Namibia. This followed a broad voluntary national consultative process, after which the parties agreed to establish a National Stakeholder Working Committee (NSWC) to drive the process.

The main aim of the working committee is to transform the current Wireman's Licence, into a National Wireman's Licence in alignment with Vision 2030 and to ensure that all current installation Contractors/Technicians obtain their wireman's licences, which are recognised on a National level; registered and regulated by a National Electrical Contractors Regulatory Body or Institution; and which is internationally accepted. Going forward, the working committee has also identified the need for a National Testing Centre which will ensure that the standards in the electricity supply industry are harmonised and which will also ensure a pool of certified and licensed contractors and certified electrical installation inspectors.

Apart from playing specific roles allocated by virtue of the legal mandate, NSWC member institutions continue to support the project through collectively committing dedicated staff and financial contributions totalling N\$ 2 million, the total budget required to complete the project by the end of 2016 as per adopted operational plan.



THE POWER OF KNOWING

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

ENERGY SAVING TIPS

Geyser

- A geyser accounts for up to 40% of your electricity bill.
- Ensure that the thermostat is set to no more than 55 Degrees Celsius.
- Wrapping your geyser in an insulating blanket can reduce power consumption by half.

Let's work together and use electricity sparingly.



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NamPower Earth Day Fun Run/Walk

NamPower commemorated Earth Day by hosting an Earth Day Fun Run/Walk on 25 April at Trustco Sports Field. This event was the first ever Earth Day celebration in Windhoek, since the establishment of Earth Day, 45 years ago.

Earth day aims to inspire awareness and appreciation of the earth's environment. It aims to motivate and encourage communities to conserve and improve the environment through acts of service towards the environment. The proceeds made from the Fun Run will be used to set up a vegetable garden at Morêson Special School in Windhoek.

The event was well supported and thoroughly enjoyed by all. NamPower hopes to make Earth Day an annual event on its social calendar.







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For contributions, queries or for additional information,
Contact us:

MarketingCorpComm@nampower.com.na

Production: NamPower Corporate Communications Section

Tel: (061) 205 2355

P.O. Box 2864

NamPower, Windhoek