



Etango

Namibia's Leading Renewable Energy Technologies
Magazine

SEPTEMBER-OCTOBER 2021

OUTAPI SOLAR FACELIFT



Namibia aims to become
Africa Green Hydrogen hub



Hunt for Renewable Energy
investors at Dubai Expo



Taatisolar pushes solar
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**CORPORATE AND
INVESTMENT BANKING**

Game-changing Energy Storage Rules

Energy Storage, widely seen as a game-changer for the Renewable Energy sector, is dominating debate at the moment.

With the potential to dramatically reduce operational system costs and end consumers' electricity costs, energy storage is fast emerging as an economically viable and easy to implement energy solution to address the pressing challenge of today's rapidly changing grid landscape.

The surging interest in Energy Storage systems is being driven by a number of key factors. Among them;

- The increase in the deployment of renewable generation and the need to balance fluctuations in supply;
- The drive towards an alternative to costly grid upgrades; and
- The need to improve grid resilience in areas prone to outages.

For Namibia, large scale Energy Storage has also become a topical issue as intermittent renewable energy becomes more prevalent in the country. Storage to complement intermittent renewables, if they are to replace base-load capacity, must be able to meet demand over many days, not simply hours.

At household level, behind the meter, battery storage is also being promoted as it reduces grid demand.

To this end the Electricity Control Board (ECB) has taken the lead to develop Energy Storage Regulations for Namibia. The new rules, which include the proposed approach to the licensing of Energy Storage, are now in the final stages of being drafted and should be ready for endorsement by the Minister of Mines and Energy before the close of 2021.

The ECB should be applauded for widely consulting energy stakeholders in the country and beyond to come up with the best possible regulations for Namibia. We believe these rules will be a win-win for all players in the energy sector and will provide the much-needed guidance in the development of this emerging sector, aided by the falling costs of renewable and storage technologies.

Additionally, Energy Storage has been identified as a key to climate change mitigation. Globally, only 3% of power capacity is being stored. To limit global warming to below 2°C, energy storage capacity needs to triple by 2050.

The electricity grid is a complex system in which power supply and demand must be equal

at any given moment. Constant adjustments to the supply are needed for predictable changes in demand, such as the daily patterns of human activity, as well as unexpected changes from equipment overloads and storms. Energy Storage plays an important role in this balancing act and helps to create a more flexible and reliable grid system.

We believe that the benefits of Energy Storage are immense as the technology can act as a generation, transmission or distribution asset – in one single asset. By using Energy Storage during brief outages, businesses can also avoid costly disruptions and continue normal operations.

As our energy supply mix gets cleaner with low- and no-carbon resources, Energy Storage will without a doubt help that supply mix evolve more easily and reliably.

More on this hot topic inside.

Happy Reading!
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Cover picture:

OUTAPI SOLAR PLANT REFURBISHMENT: The 5 megawatt solar plant at Outapi, in the Omusati Region, recently underwent a thorough refurbishment done by one of the country's leading solar companies, Light Systems Namibia (LSN). The plant, one of the largest in northern Namibia, has been supplying power to the grid since 2018. Photo: Light Systems Namibia

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GH&A PUSH ... National Planning Commission Director General Obeth Kandjoze and Finance Minister Iipumbu Shiimi recently engaged the American business community on the sidelines of the United Nations General Assembly (UNGA) on Namibia's prospects of becoming a green hydrogen hub on the continent.

Namibia aims to become Africa Green Hydrogen hub

Namibia is pulling out all the stops to make green hydrogen the game changer for the country's economy.

A high-powered government delegation, led by President Hage Geingob, recently engaged the American business community on the sidelines of the United Nations General Assembly (UNGA), on Namibia's prospects of becoming a green hydrogen hub on the continent.

During networking events hosted by the Atlantic Council Global Energy Center, a nonpartisan organisation that galvanizes US leadership and engagement in the world to shape solutions to global challenges, and the World Economic Forum, Namibia's green hydrogen potential future industries featured high on the agenda of the discussions.

"Potential Green Hydrogen & Ammonia (GH&A) nascent industries in Namibia are taking institutional global investors by storm. Interest in Namibia's offering was truly phenomenal. Side events and networking lunches on GH&A at the UNGA were attended in great numbers," said National Planning Commission (NPC) Director General Obeth Kandjoze.

President Geingob said Namibia was poised to tackle climate change, by establishing a green economy that

will drive economic recovery as envisioned through the African Union Continental Green Recovery Action Plan.

"To produce green hydrogen competitively a country would need world-class transmission infrastructure, international port facilities, world-class wind and solar resources, access to sustainable sources of clean water (without displacing existing consumers), lots of lands and a conducive legislative environment. These are all ingredients that Namibia has. Already, our country is home to the largest desalination plant in Southern Africa, meaning that the conditions for producing abundant clean water in a desert country are conducive," he said.

The President said once Namibia has successfully incubated the green hydrogen economy, it will enable the country to become a supplier of energy, rather than an importer. Judging from the scale of the initial proposals submitted to Namibia by interested investors, the renewable projects, relative to the size of the country's economy, will be greatly transformative to the economy.

During the networking event hosted by the Atlantic Council Global Energy Center on September 24,

various speakers discussed the potential for green hydrogen to advance African decarbonisation and the expected impact of energy innovation on socio-economic development.

Mines and Energy Minister Tom Alweendo highlighted government's efforts to support green hydrogen development by creating a healthy economic environment that will attract foreign direct investment.

He invited international partners to invest in Namibia's clean energy future and to support the region's socio-economic development.

NPC DG Kandjoze said Namibia's climatic conditions were ideal for producing solar and wind power at high availabilities and that if the country was to harness its renewables potential it could decarbonise its power sector and serve as a springboard for global hydrogen exports.

Namibia approaches green hydrogen as an emerging market opportunity with the potential to spur national and regional economic growth. As such, the government is currently focused on stimulating public-private relationships to support domestic green hydrogen development.

Finance Minister Shilumbe affirmed that Namibia aims to become a net exporter of energy.

"For the first time we are seeing capital shifting into projects supporting carbon neutrality...we also want to tap into this market and take advantage of green bonds to build supporting infrastructure to support these industries," he said.

In response to this influx of investment, Namibia has



KEEN INTEREST ... Some of the members of the American business community who attended the engagements with the Namibian delegation

created the Green Hydrogen Council, chaired by Kandjoze, which will work to ensure funding translates into genuine project development that advances strategic national goals. A request-for-proposal has been issued and investors have begun surveying Namibia's coastal deserts for shovel-ready project opportunities.

Green hydrogen's many use cases provide Namibia with an opportunity to expand its industrial sector, and create

national and regional employment. As more renewable energy capacity comes online, clean electricity and green hydrogen can be used to diversify the economy in cultivating new industries like domestic steel production and zinc processing.

In its effort to establish a green hydrogen hub in Southern Africa, Namibia hopes to partner with global development organisations for financial and technical support.



BREAKING NEW GROUND ... Martin Andjaba, Namibia's ambassador to Germany, Federal Research Minister Anja Karliczek and the Commissioner for Green Hydrogen in the BMBF, Stefan Kaufmann, following the signing of the joint communiqué of intent (JCoi) to establish the German-Namibia hydrogen partnership. Photo: Hans-Joachim Rickel (BMBF)

Namibia, Germany forge N\$700 million Green Hydrogen Partnership

Germany has jumped onto Namibia's Green Hydrogen bandwagon, offering to pump in 40 million euros (about N\$705 million) towards helping Namibia develop the energy carrier of the future.

German Federal Research Minister Anja Karliczek and National Planning Commission (NPC) Director General (DG) Obeth Kandjoze in August signed a joint communiqué of intent (JCoi) to establish a German-Namibian hydrogen partnership. Namibia sees great potential in the development of green hydrogen, which the country's Presidency considers as the key to transforming the country's economy.

The new partnership with Germany, hailed as the first of its kind, comes just days after President

Hage Geingob launched requests for proposals (RFP) for the development of green hydrogen and green ammonia (GH&A) projects in the //Kharas region, south of the country. It is estimated that Namibia has the potential to produce in excess of 2, 5 million metric tonnes of GH&A annually, attracting over US\$6 billion in foreign direct investment and over US\$800 million in annual revenues.

Germany, which expects to face a huge deficit in green hydrogen available to the country, sees Namibia as best placed to develop and export green hydrogen to the European country. Namibia has enormous potential for scaling up a green hydrogen industry. A good wind resource along the southern coastal areas means that the generation of

wind power is particularly profitable. Solar power harbours an even greater potential thanks to over 3, 500 hours of sunshine per year. This is almost twice as much as Germany has to offer.

Commenting on the Namibia-Germany partnership Minister Karliczek said: "The global race for the best hydrogen technologies and the best sites for hydrogen production is already on. We believe that Namibia has an excellent chance of succeeding in this competition. We want to take this chance together. I am proud that Germany is the first country to officially form a hydrogen partnership with Namibia."

Germany will provide over N\$700 million in funding from the economic stimulus package for cooperation



The global race for the best hydrogen technologies and the best sites for hydrogen production is already on. We believe that Namibia has an excellent chance of succeeding in this competition. We want to take this chance together.”

within the framework of this partnership.

“We therefore think that one kilogramme of hydrogen from Namibia will eventually cost between €1.50 (N\$26.50) and €2.00 (N\$35.30). This would be the most competitive price in the world which would be a huge locational advantage for hydrogen ‘made in Namibia’. The National Hydrogen Council estimates that hydrogen demand of German industry alone (excluding refineries) will amount to 1.7 billion tons per year – and this demand is likely to grow further. This estimate underlines that we need large amounts of hydrogen and we need it quickly and at low cost. Namibia can provide both,” said Karliczek.

Namibia is one of the first countries in Southern Africa to recognize the potential of a green hydrogen industry and will present its own hydrogen strategy in November.

NPC DG Kandjoze, who is also the Chairperson of the Green Hydrogen Council (GHC) of Namibia, hailed the partnership with Germany, saying it would go a long way in helping mitigate the effects of climate change.

“Namibia is particularly susceptible to climate change, two thirds of our existing installed generation capacity relies on hydroelectricity, which in turn relies on rain and the flowing rivers at Ruacana. According to the latest labor force survey, 23% of our eligible workers depend on agriculture - prolonged droughts such as the one we recently experienced are a harbinger of catastrophic news for many of our fellow citizens. We have to take action today,” he said.

Dr Stefan Kaufmann, Germany's Innovation Commissioner for Green Hydrogen and Member of the Bundestag, said a hydrogen-based economy can only be a reality if joint action was taken at international level to unlock the potential of hydrogen as an energy carrier of the future.

“Only then will we be able to deliver on the climate goals of the Paris Agreement. This is why

international cooperation in research and innovation for green hydrogen technologies is such a central pillar of the German government's National Hydrogen Strategy. Namibia and Germany are combining strengths to advance the green hydrogen economy for mutual benefit,” said Kaufmann, who has already visited Namibia in his official capacity.

The two countries are planning to carry out a feasibility study and use its results to implement joint pilot projects and to strengthen capacity building for training skilled professionals on the ground. The feasibility study is aimed at exploring the potential of a green hydrogen industry, including innovative seawater desalination technologies in Namibia as well as possibilities of hydrogen export to Germany.

Kaufmann said based on the outcome of the study, the two countries will use pilot projects to test schemes for green hydrogen production in Namibia and for hydrogen transport. A particular focus will be placed on seawater desalination, while at the same time looking into the opportunities offered by innovative seawater electrolysis where green hydrogen is generated directly from seawater.

The two countries will also implement exchange programmes for students and experts, as well as scholarships for Namibian students, to promote the generation and exchange of expert knowledge.

The Federal Ministry of Education and Research (BMBF) is providing funding for the identification of suitable sites for green hydrogen production in Africa within the framework of the Atlas of Green Hydrogen Generation Potentials in Africa.

While Namibia has ideal conditions for the production of green hydrogen, the country is also the most arid in sub-Saharan Africa, hence the focus on seawater desalination.

Namibia intends to be able to export green hydrogen by 2025.

SCHEDULE OF THE APPROVED ELECTRICITY TARIFFS FOR THE FINANCIAL YEAR 2021/2022



The Electricity Control Board (ECB) has recently approved NamPower's request for the NamPower Distribution Tariffs to increase with 1.9% for the financial year 2021/2022. The ECB Levy and NEF levy will remain at 2.12 cents per kWh and 1.6 cents per kWh, respectively. Kindly note that the Net Metering Avoided Cost has increased to N\$1.1200 per kWh.

In accordance with section 27, subsection (2) of the Electricity Act 4 of 2007, 'The Board may from time to time, upon application by a licensee, revise the schedule of approved tariffs of the licensee concerned and may require the licensee to submit such information as the Board may require for that purpose'.

SCHEDULE OF APPROVED DISTRIBUTION TARIFFS FOR THE FINANCIAL YEAR 2021/22 (N\$) Excluding VAT

SMALL POWER USERS	TARIFF 2020/21	TARIFF 2021/22	LARGE POWER USERS	TARIFF 2020/21	TARIFF 2021/22
NET METERING avoided cost - c/kWh	107.57	112.00	NET METERING avoided cost - c/kWh	107.57	112.00

PREPAID RATES

DOMESTIC			COMMERCIAL		
Charge per unit - c/kWh	221.00	229.00	Charge per unit - c/kWh	221.00	229.00
ECB Levy	2.120	2.120	ECB Levy	2.120	2.120
NEF Levy	1.600	1.600	NEF Levy	1.600	1.600

VILLAGE TARIFFS

DOMESTIC			BUSINESS		
Charge per unit - c/kWh	199.00	204.00	Charge per unit - c/kWh	199.00	204.00
Capacity Charge - N\$/Amp/month	5.60	5.60	Capacity Charge - N\$/Amp/month	5.60	5.60
ECB Levy	2.120	2.120	ECB Levy	2.120	2.120
NEF Levy	1.600	1.600	NEF Levy	1.600	1.600

POSTPAID - RE-DISTRIBUTORS, COMMERCIAL, WATER PUMPING, MINING, FARMERS, FARMS ADDITIONAL, AGRICULTURE, PLOTS & MISCELLANEOUS

SMALL POWER USERS			LARGE POWER USERS		
Charge per unit - c/kWh	219.00	219.00	Charge per unit - c/kWh	122.00	129.00
Service Charge - N\$/month	541.00	541.00	Maximum Demand - N\$/kW per month	267.00	267.00
Capacity Charge - N\$5.60/Amp/month			Maximum Demand - N\$/kVA per month	244.00	244.00
11.5 kVA - 1 x 50 Amps	280.00	280.00	Capacity Charge - N\$5.60/Amp/month	5.60	5.60
16 kVA - 1 x 70 Amps	392.00	392.00	Rental - N\$/month	Customer specific	Customer specific
23 kVA - 2 x 50 Amps	560.00	560.00	Tariff Rebate (N\$/kW or N\$/kVA)	2.00	2.00
32 kVA - 2 x 70 Amps	784.00	784.00	Service Charge - N\$/month	1351.00	1351.00
25 kVA - 3 x 40 Amps	672.00	672.00			
50 kVA - 3 x 80 Amps	1344.00	1344.00	ECB Levy - c/kWh	2.120	2.120
75 kVA - 3 x 120 Amps	2016.00	2016.00	NEF Levy - c/kWh	1.600	1.600
125 kVA - 1 x 541 Amps	3029.60	3029.60			
Rental - N\$/month	Customer specific	Customer specific			
ECB Levy - c/kWh	2.120	2.120			
NEF Levy - c/kWh	1.600	1.600			

POSTPAID - EXPORT

SMALL POWER USERS			LARGE POWER USERS		
Charge per unit - c/kWh	228.00	-	Charge per unit - c/kWh	128.00	134.00
Service Charge - N\$/month	541.00	-	Maximum Demand - N\$/kVA per month	248.00	248.00
Capacity Charge - N\$5.60/Amp/month			Capacity Charge - N\$5.60/Amp/month	5.60	5.60
11.5 kVA - 1 x 50 Amps	280.00	-	Rental - N\$/month	Customer specific	Customer specific
16 kVA - 1 x 70 Amps	392.00	-	Tariff Rebate (N\$/kW or N\$/kVA)	2.00	2.00
23 kVA - 2 x 50 Amps	560.00	-	Service Charge - N\$/month	1351.00	1351.00
32 kVA - 2 x 70 Amps	784.00	-			
25 kVA - 3 x 40 Amps	672.00	-	ECB Levy - c/kWh	2.120	2.120
50 kVA - 3 x 80 Amps	1344.00	-	NEF Levy - c/kWh	1.600	1.600
75 kVA - 3 x 120 Amps	2016.00	-			
Rental - N\$/month	Customer specific	-			
ECB Levy - c/kWh	2.120	-			
NEF Levy - c/kWh	1.600	-			

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Website: www.nampower.com.na     NamPower

Namibia seeks energy investors at Dubai Expo

Namibia is going all out to promote itself as a renewable energy hub for Southern Africa at the World Expo 2020, currently under way in Dubai, United Arab Emirates, under the theme: *“Connecting Minds, Creating the Future”*, with the aim of luring big investors in the sector.

Namibia is amongst 192 nations attending this world-class event, hosted for the first time in the Gulf region. The Expo 2020 Dubai is expected to attract 25 million visitors during its six-month duration and further unlock innovations, attract investment, promote trade opportunities for every nation.

Mines and Energy Minister Tom Alweendo, who officiated at the official opening of the Namibian pavilion on 7 October together with the Minister of Industrialisation & Trade Lucia Ipumbu, said Namibia was open to private investors ready to invigorate the country's energy sector, in particular renewable energy.

“I want to stress that Namibia is open for business, and we welcome renewable energy sector investments,” he said, adding that the country was embracing the new global approach to supply clean and sustainable energy in efforts to reduce the effects of fossil fuels.

“Renewable energy is a climate solution, that massively cuts on carbon emissions and helps mitigate climate change. It represents a valuable economic resource for the world at large, and Namibia in particular,” Alweendo said.

The Minister said Namibia boasts the world's second highest solar irradiation regime, while the country's wind resource was equally exceptional.

However, Alweendo said Namibia was not only seeking investments into the country's energy sector, but also the development of local expertise and innovation.

Namibia envisages to add 255 MW of new installed generation capacity mainly using renewable energy resources, during the Harambee Prosperity Plan second phase (HPPII), between 2021 and 2025.

Trade and Industrialisation Minister Ipumbu said in line with the country's theme: “Preserving and Utilising Natural Treasures for Future Generations”, Namibia will be promoting its natural resources to attract sustainable investments, as well as partnerships of mutual benefit across the globe.

“The Namibian pavilion will be promoting the country through carefully selected sectors such as renewable energy, mining, tourism, education, manufacturing, blue economy, health, logistics and agriculture,” said the Trade Minister.



INVESTMENT PROMOTION DRIVE ... Mines and Energy Minister Tom Alweendo, Namibia Investment Promotion Board CEO Nangula Uaandja, Trade and Industry Minister Lucia Ipumbu and Namibia's Expo 2020 Dubai Commissioner General Ambassador Simon Maruta



OFFICIALLY OPEN ... Mines and Energy Minister Tom Alweendo and Trade and Industry Minister Lucia Ipumbu officially opening the Namibian Pavilion at the Expo 2020 in Dubai



New Energy Storage Regulations Inch Closer

The Electricity Control Board (ECB) has entered the final stages in the development of Energy Storage Regulations for Namibia.

Consultations with energy stakeholders on the Draft Regulatory Instruments for Energy Storage are now complete and the final draft of the regulations will be presented to stakeholders on 22 November before being submitted to the Minister of Mines and Energy for endorsement. Promulgation of the new regulations is expected to take place before the end of January 2022.

The development of the energy storage regulations was led by a consortium of consultants made up of Emcon Consulting Group, Africa Power Ventures and Suntrace.

The intermittent nature of renewable energy resources prevents the larger uptake of renewables in Namibia. Energy Storage thus presents a great opportunity for power to be captured when it is available and released on demand. It is widely believed that cost-effective Energy Storage can potentially unlock the limitation of using intermittent

renewable generation which will create additional avenues for the integration of intermittent generation sources into the generation mix.

Energy Storage Technologies convert energy into a form that can be stored and subsequently converted into useful energy as and when required. The energy can be stored in any form, including as electrical energy, thermal energy and gravitational potential energy.

Namibia has experienced a renewable energy revolution over the past few years, with more developments in the sector envisaged to follow soon. Energy Storage is thus expected to play a significant role in the successful integration of renewable energy into the national grid in the foreseeable future.

It is believed that Energy Storage costs are expected to decline over the next few years therefore making the technology more viable.

According to the International Renewable Energy Agency, battery storage systems are emerging as one of the key solutions to effectively integrating high shares of solar and wind power within global energy systems. In addition to increasing installed power generation capacity, developing systems that offer a consistent and reliable power supply is a top priority for African nations. Accordingly, Energy Storage has a significant role to play in supporting stable electricity grids by augmenting generation capacity, facilitating a continent-wide energy transition and spurring growth within the renewable sector and beyond.

Energy Storage developments offer a vital solution for the security of renewable energy supply. However, one of the key challenges regarding renewable power generation concerns reliability of supply, in which natural disruptions, such as drought or lack of wind,

are known to cause supply disruptions. The utilisation of Energy Storage technologies, therefore, presents an opportunity for capturing and storing energy that can be released to meet demand on an as-needed basis. Energy Storage provides a continuous flow of clean energy during periods of high demand or when renewable energy is unavailable.

Additionally, Energy Storage offers enhanced power accessibility for the majority of Africa's population that lives in remote locations with limited access to national grids. The development of these storage technologies can enable the storage of vast amounts of electricity both on- and off-grid, offering improved methods for storing and dispatching power.

The Economic Association of Namibia (EAN), together with Renewable Energy Industry Association of Namibia (REIAoN), recently launched a study on the utilisation of Energy Storage Technologies in Namibia.

EAN and REIAoN believe that Namibia must prepare for the arrival of cost-competitive storage technology, including the legal, regulatory and statutory provision. Energy Storage is expected to affect the business models of all electricity utilities. While Namibia's storage market is small, solutions that reduce the cost of energy hold further potentials.

A variety of energy storage systems exist. Typical applications include electrical storage in consumer products,

thermal storage in solar water heaters and building materials, electrical storage used in solar home systems and uninterruptable power supplies, large-scale battery storage systems supporting transmission and distribution grids, pumped storage facilities used to generate electricity, storage uses in large thermal power stations and numerous others.

The main energy storage types include:

1. mechanical storage, such as pumped hydro-electric storage, compressed air storage, flywheels,

gravitational energy storage systems and others;

2. electro-chemical storage, such as found in batteries, for example lead-acid, lithium-ion, sodium-sulphur and flow battery energy storage systems;

3. electrical storage, such as capacitors and superconducting magnets;

4. thermal energy storage, such as heat storage systems; as well as;

5. thermo-chemical and chemical energy storage, including fuels such as biomass, coal, hydrogen, liquid petroleum and its gases and many others.



Expression of Interest

Project Title: GREEN PEOPLE's ENERGY PROJECT
Program: RESULT-BASED FINANCING PROGRAM (RBFP):

Call for proposals to interested rural commercial enterprises to benefit from the Productive Use of Energy with Light Systems Namibia through GIZ Green People's Energy project.

GIZ through the **RBFP** is availing support for the development of Solar PV Systems for Productive use in Rural Commercial Enterprises. The programme is aimed at providing access to sustainable electrical power for off-grid businesses, to replace carbon intense power sources (e.g. diesel generators) and increase the overall efficiency of grid-tied businesses in rural Namibia.

If you are a **farmer, farming corporative** or **SME** located in a **RURAL AREA**, you can qualify for support through this program.

Contact our sales consultants
Ms. Maria and Mr. Clark on our landlines **+264 61 555 000 (Windhoek)**
+264 65 238 860 (Ongwediva) or
our email info@LSN.com.na for more information.



SKILLS DEVELOPMENT Some of the key stakeholders who came together to kickstart the process of developing a Bachelor of Technical and Vocational Education and Training (BTJET) degree in Renewable Energy

NEI/SOLTRAIN push for introduction of Renewable Energy degree programme at NUST

The Namibia Energy Institute (NEI) has joined hands with the Department of Technical and Vocational Education and Training (DTJET) to collaboratively develop and offer a Bachelor of Technical and Vocational Education and Training (BTJET) degree in Renewable Energy.

The degree programme, which would be offered by the Namibia University of Science and Technology (NUST) satellite campus in Eenhana, Ohangwena region, will have a special focus on Solar Technologies System Applications.

A consultative workshop, funded by SOLTRAIN as part of the project capacity building and awareness-raising activities and strengthening Government's initiatives to achieve its objectives in the field of Solar Thermal took place in Windhoek on 14 and 15 October. It brought together key stakeholders from the solar industry, NUST community, SOLTRAIN project, Ministry of Higher Education, Training and Innovation (MHETI), Namibia Training Authority (NTA), GIZ ProVET, GIZ Namibia Green People's Energy (GPE) project, Eenhana VTC, Ministry of Mines and Energy, Renewable Energy Industry Association of Namibia (REIAoN), NamPower, NamWater and the Electricity Control Board (ECB).

All the stakeholders who participated in the

consultative workshop registered their support towards the efforts to introduce a degree programme on Renewable Energy.

In 2012, NEI, through the SOLTRAIN project and the support of GIZ, assisted the NTA to develop the Unit Standards in Solar Energy Technologies (for installers of Solar Home Systems, Solar Water Heater and PV Pumping) for the Vocational Training Centres (VTCs).

Although the Unit Standards have been developed up to Namibia Qualification Framework (NQF) Level 5, to date the curriculum is only implemented at the Eenhana Vocational Training Centre (EVTC) up to NQF Level 3. Furthermore, upon completion of their studies at EVTC, the artisans have limited options to progress to higher education as none of the Namibian universities offer such qualifications.

In addition, there is a need for highly qualified trainers to offer training at the VTCs and for them to be involved in research and innovation.

These challenges are seen to severely impact the quality of TVET training in Namibia and hamper the development of the critical workforce required to drive the country's economy. A higher degree TVET qualification, with a strong practical, research and innovation focus, is therefore required to address these challenges.

The consultative workshop aimed to create a network of



stakeholders to direct concerted efforts on renewable energy training, research and innovation, as well as to identify universities that will be suitable partners for developing a double degree in BTJET and Renewable Energy.

It also sought to discuss the focus of the BTJET in Renewable Energy programme, higher level qualifications and short courses that can be offered through DTJET in collaboration with other partners in the network and also to identify research and innovation projects in renewable energy to drive the development of rural communities in the country.

Dr Leena Kloppers, Acting Director for Institutional Planning at NUST said the proposed BTJET degree programme could be introduced from as early as 2023 if the necessary approvals were granted on time.

Various speakers at the workshop emphasised the need for Namibia to develop the necessary skills needed for the country to be able to fully exploit the abundant renewable energy resources.

Mr Paulus Mulunga, the Managing Member of Light Systems Namibia (LSN) and an Executive Member of REIAoN, gave an insight into the skills gaps currently existing and the needs of the renewable energy industry. He said the industry currently lacked locally-trained technicians equipped to think and come up with solutions to clients various needs.

Mr Conrad Roedern, a founder member of REIAoN and partner in Electric Vehicles Namibia, emphasised the need to equip the students with the foundation on renewable energy potential and the basics of electricity, before they were able to specialise in their chosen fields in their final year at university.

Dr Andrew Niikondo, NUST Deputy Vice-Chancellor for Academic, said the TVET degree programme in renewable energy, which he said would be the first of its kind in Namibia, was long overdue.

"Namibia has excellent conditions for electricity generation from renewable energy resources, but yet

we continue to face a huge energy deficit and rely heavily on imports from neighbouring countries, which is unsustainable," he said.

He emphasised the need to capacitate young Namibians with the required skills in the field of renewable energy in order to address the country's energy needs.

During a panel discussion on the Role of Technical and Vocational Education and Training (TVET) for the Future of Renewable Energy in Namibia, Professor Wilfried Zörner from the Faculty of Mechanical Engineering, Institute of New Energy Systems (InES), Technische Hochschule Ingolstadt, Germany, said although Namibia has excellent resources for renewable energy, coupled with vast land, there was a need to build capacity in RE to facilitate energy transition in the country.

He said NUST was well equipped to plug the skills deficiency gap and will provide his support were required.

Mr Werner Weiss, the SOLTRAIN Project Head from the AEE INTEC in a presentation made on his behalf by Helvi Iлека, the acting Head of NEI, emphasised the need to have practical oriented training and proposed that the country needs to consider introducing "Training Venues". He shared the experience of SOLTRAIN in the region and opportunities existing, as well as relevant policy developed through the SOLTRAIN project.

REIAoN Chairperson Jan Barend Scheepers said Namibia needs to focus more on the low hanging fruits existing in the renewable energy sector, such increasing the generation capacity of wind and solar plants.

"While Green Hydrogen presented exciting potential there was no guarantee that it will take off as anticipated. We need to look at what's realistic within our country's abilities," he said.

Mr Hafeni Motsi, Technical Adviser for the GiZ GPE project, said the introduction of a Bachelor's Degree in RE was a welcome initiative as it will position the graduates to exploit the natural resources that Namibia is endowed with.

"Namibia needs to put itself in the position where the graduates are able to look at value addition in the electricity sector. It's important for us to view our resources as a source for competitive advantage," he said.

Mr Abraham Hangula, the acting Director in the Energy Directorate, MME, said there was need for government to balance development and sustainability.

He spoke about the regulatory framework in place that seeks to promote the uptake of renewable energy technologies, driven by the need to secure the security of supply.

Namibia aims to meet 70% of energy needs from renewable energy locally by 2030.

He expressed hope that the envisaged BTJET programme will also produce graduates who are able to help the government to resolve some of the complex issues related to energy goals, policies and regulations.

At the end of the workshop there was a unanimous consensus and a sense of breakthrough among the stakeholders on how to position the BTJET programme in order to fill the identified gaps in the current VTC set-up and provide a path of articulation for VTC graduates, while avoiding a duplication of what is currently offered in the engineering training programmes.

In concluding the meeting, Mr Benhardt Kauteza from the NUST TVET Department provided a consolidated programme design model that will inform and guide the way forward in the development of the planned degree programme.



Camelthorn Project Manager JB Scheepers with Paulus Mulunga, the LSN Project Manager

Outapi 5MW solar plant undergoes refurbishment

The 5 megawatt solar plant at Outapi, in the Omusati Region, recently underwent a thorough refurbishment done by one of the country's leading solar companies, Light Systems Namibia (LSN).

The complex and delicate exercise, which took a record month-and-a-half to complete, involved the connection of new 1.6MWp bi-facial solar panels, 21 x 60kW new inverters, restringing between inverters, relocating all 78 x 60kW inverters to face a certain direction, laying of new AC cables from the solar park to the control room, installing DC combi boxes for the new inverters and commissioning of the plant.

The Outapi solar plant is jointly-owned by Camelthorn Business Venture No Two (Pty) Ltd (CBV2) and the Outapi Community Trust. CBV2 is 70% owned by InnoVent SAS and operated by InnoSun Energy Holding (Pty) Ltd. The solar park has been supplying power to the grid since 2018.

"The project provided a new challenge to our team as this was the first time to work inside a solar park in Namibia. The team, however, embraced the challenges presented, and there were a number raging from time constraints, integration of new inverters to the system as well as ensuring safety standards are upheld," said LSN Managing Member and Project Manager Paulus Mulunga. CBV2 was granted a generation licence by the Electricity Control Board (ECB) in 2014 and was enrolled in the national REFIT programme a year later in 2015.

Meanwhile, the Outapi Town Council is delighted to be home to one of the largest solar plants in northern Namibia. The town's Chief Executive Officer, Matheus Nashilongo Ananias, was recently quoted saying the town was happy to be generating clean energy.

He said the town was considering installing solar street lights as these would help increase visibility at night and reduce crime and road accidents.

"We are planning to set up our own solar plant so that it will provide electricity to houses within our town, and this will provide more job opportunities to the youth of Outapi," said Ananias.

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Taatisolar Scales up Adoption of Solar Refrigeration in Off-Grid Areas

Taatisolar, a company that seeks to bring access to energy plus water and sanitation solutions to the off-grid urban and rural communities in Namibia, has launched a project aimed at expanding the use of solar refrigeration appliances in areas of the country which do not have access to grid electricity.

Taatisolar will scale-up sales of solar refrigeration to rural and peri-urban households and institutions, facilitated by financing options such as micro-lending and hire-purchase solutions.

The project aims to sell at least 250 solar refrigeration units in off-grid communities. At full scale, the project expects to save 46 MWh per year and reduce over 900 tCO₂e emissions.

The groundbreaking project supported by the Energy and Environment Partnership Trust Fund (EEP Africa), a clean energy financing facility hosted and managed by the Nordic Development Fund (NDF) with funding from Austria, Finland and NDF, will enable Taatisolar to reach rural clients and health clinics.

Taatisolar's Managing Director Moira Alberts, told Etango that the project will certainly contribute to raising awareness about the advantages of using DC energy-efficient appliances in the rural off-grid households compared to AC refrigeration appliances powered by solar PV systems. Using solar energy for fresh produce cooling and preservation in remote areas aiming at productive use of energy, underpins the vast impact technology can have on the livelihoods of people.

The innovative refrigeration technology being rolled out by Taatisolar to the off-grid areas can be used for a wide range of services, from food preservation to vaccine storage. The project will also pilot refrigeration solutions in 25 Namibian rural health clinics.

Solar-powered refrigeration has been seen as playing a key role in rolling out critical health services, such as the administration of vaccines, to remote areas on the continent, including Namibia. Most vaccines must be stored between 2°C and 8°C and this is a daunting challenge in areas where electricity is unavailable or unreliable.

Health facilities in remote areas with limited electricity have long relied on gas-powered "absorption type" refrigerators. Solar-powered refrigerators are more reliable and efficient. Photovoltaic refrigerators with batteries store energy from solar panels for later use. In this way power is



INCOME GENERATION ... The Kavango Livestock Marketing Cooperative is using the solar refrigeration units supplied by Taatisolar to sell offal for income generation.



OUTREACH ...Taatisolar has been instrumental in providing solar power to Namibians in off-grid areas.



INSTALLATION ... *Charity Thebuho Taatisolar PV engineer on the roof inspecting a solar installation.*

available even on cloudy days or at night, or (for grid-connected clinics) during a power outage.

Taatisolar will engage women's cooperatives to promote stand-alone solar refrigeration, and will target women-run micro-shops as potential clients. EEP Africa financing will enable the company to reach rural clients and health clinics with novel marketing approaches.

Local women will be trained by Taatisolar as DC solar technicians, creating green jobs and promoting the role of women in the energy sector.

EEP Africa recently launched a new cohort of 26 projects promoting productive use of energy and circular economy on the continent.

The new portfolio stems from a 2020 competitive call for proposals on Clean Energy Powering Green Growth. From among 357 applications submitted, 26 companies were awarded a total of 8.3 million Euro (about N\$145 million) in financing for projects to be implemented in 12 countries across Southern and East Africa.

The new grantees are mainly start-up companies (81%), with a significant share of locally-led (62%) and women-led (38%) enterprises.

"We see many clean energy start-ups developing sustainable solutions to stimulate green growth in rural communities. However, it is a well-known fact that there is a severe lack of flexible and early-stage financing for such innovators, especially for local and women-led companies. EEP Africa is proud to be one of the leading funders willing to take risks and catalyse investment in new technologies and business models," said Jussi Viding, EEP Africa Fund Manager.

The new portfolio demonstrates the growing trend of integrating energy services along the entire agricultural value chain.

It includes projects that are bringing solutions to market in solar irrigation and cooling, agro-processing, waste-to-energy and e-mobility. Grant funding is needed to test and demonstrate new products and business models in these areas.

It also allows companies to expand asset financing and financial inclusion, which increases uptake of productive use assets in last-mile communities.

The new projects aim to enhance access to energy for both household and productive use purposes. Collectively, they expect to create 2,600 new jobs (43% for women) and result in 7.7 million Euro (about N\$134, 6 million) in annual savings on energy-related expenditures.

The call primarily attracted applications for stand-alone appliances and services, rather than large-scale power plants, but even so the new projects are projected to generate 25,000 MWh of clean energy per year and reduce or avoid 105,000 tonnes of CO₂e emissions annually.

"Clean energy has a critical role to play in fostering sustainable rural economic development. Market entry for new products and technologies can be very challenging. EEP Africa serves as a catalyst to enable promising small and medium enterprises at the early stages of the financial growth cycle to test and refine their business models in view of becoming bankable," said Henrik Franklin, Director of Portfolio Origination & Management, Nordic Development Fund.

NamPower builds new N\$630m Auas-Gerus 400 kV transmission line

NamPower has begun construction work on the new 400 kV transmission line between Auas and Gerus. The 287 kilometre long transmission line will ensure that NamPower maintains pace with the evolving electricity needs of the country.

The contractor, Power Line Africa, was appointed through a process of Open International Bidding, conducted by the Central Procurement Board of Namibia. The accepted Contract Amount for the construction of the transmission line was N\$629,801,144.44.

The line will run from Auas substation near Dordabis, to Gerus substation near Otjiwarongo. The transmission line is part of NamPower's investment in expanding its transmission infrastructure backbone by more than 800 kilometers.

"The construction of the transmission line is a testament of NamPower's ambition to deliver sustainable security of supply and a least-cost tariff path that will support economic growth and maintain the company's financial sustainability," the power utility said in a media announcement.

To ensure that NamPower maintains pace with the evolving electricity needs of the country, the line will allow the utility to serve an increased number of customers through access to its existing Independent Power Producers (IPPs) and prospective solar, hydro, biomass, wind and other generation plants, thereby enhancing accessibility to clean energy in the country.

"Further to that, the line will also allow for an increased transfer capacity to NamPower's transmission customers to alleviate challenges currently experienced in ensuring continued electricity

supply. The new transmission line will enhance NamPower's ability to trade electricity between other countries within the South African Power Pool (SAPP)," NamPower said.

It is also envisaged that the new transmission line will benefit Namibian consumers through an increased access to data services, as NamPower currently avails its fibre-optic network through its subsidiary, the GridOnline, to licensed telecommunication service providers.

The construction of the line is expected to be conducted using primarily the lightweight Cross-Rope Suspension Tower with the conductors in a compact delta configuration. This tower uses a reduced amount of steel and blends into the surroundings with the aim to minimise the environmental impact, as well as to reduce pollution. In addition, it aims to minimise the impact on bird life, as certain identified sections on the structure will be marked with bird flight diverters.

The line route will traverse the Khomas and Otjozondjupa Regions. The alignment of the line is expected to cross the B6 road to the west of the Hosea Kutako International Airport, as well as the B1 south of Otjiwarongo and the C38 between Otjiwarongo and Outjo. The project is expected to be completed by the second half of 2022.

Over and above its continued investment in new generation capacity, NamPower will implement further projects to expand its transmission capacity to ensure that it can continue to deliver on its mandate of providing reliable electricity for the future needs of Namibia.

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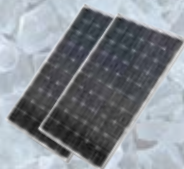
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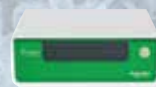
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Battery: Solar battery stores electricity safely

Bethanie, Grünau solar and wind powered desalination plants bring relief to residents

NamWater's Pilot Rural Brackish Water Desalination plants at the settlements of Grünau and Bethanie, in the Karas Region, are expected to bring relief to residents who for decades had to make do with sub-standard drinking water.

The two plants are the first rural pilot desalination plants in the country to be powered by hybrid renewable energy (solar and wind).

NamWater's initiative aims to enhance Namibia's ability to adapt to the effects of climate change from a technological perspective and to address the negative social and health implications associated with the consumption of poor quality groundwater among many rural communities. If found successful, the technologies will be replicated in other small communities in Namibia facing similar water quality challenges.

Clarissa Jansen, a 36-year-old resident of Bethanie village, said residents had already started noticing a difference in the quality of water.

"Our water has always been very salty and the people of Bethanie were known to be the people with the yellow teeth. But now there is difference in the taste of the water. It is much cleaner and purer," she said.

The plant at Bethanie was constructed at a cost of N\$36 million, while the one at Grünau cost N\$15, 5 million. They were funded through the United Nations Adaptation Fund. The pilot projects will give an indication of the cost of producing desalinated groundwater, as well as the reliability and viability of such plants.

The proposal for the two projects was developed by NamWater as the executing entity and approved during the Adaptation Fund's 30th board meeting held on 12 and 13 October, 2017, in Bonn, Germany. The project was also endorsed by the Environment Commissioner of Namibia.

It is considered essential to pilot two plants in a rural setting, where the water demand of the communities differs by an order of magnitude. This would allow the opportunity to establish how plant size affected aspects such as operation, management and maintenance requirements, the unit cost of water produced, the involvement of beneficiaries; and the interest of stakeholders.

The objective of the project is to pilot the treatment by reverse osmosis (RO) of poor quality local groundwater to a level that complies with the national standards for drinking water, using the sun and wind energy to power



NamWater's initiative aims to enhance Namibia's ability to adapt to the effects of climate change from a technological perspective and to address the negative social and health implications associated with the consumption of poor quality groundwater among many rural communities. If found successful, the technologies will be replicated in other small communities in Namibia facing similar water quality challenges.

the process. Execution of the project will yield a wide range of information and knowledge on both technical and social aspects of establishing and operating such treatment and power plants.

The acquired information, knowledge and skills will then be communicated to stakeholders in the water supply sector in order that the applied technology could be mainstreamed and replicated elsewhere in the country. In addition, data and information collected from the pilot projects will be collated to inform future water, energy strategies, and decision-making.

Namibia relies heavily on groundwater for the supply

of water, and the predicted increase in both temperature and rainfall variability due to climate change will increase this reliance. However, in many areas the dissolved solids content of the locally available groundwater exceeds the approved threshold for human consumption. Decreased aquifer recharge due to periods of lower rainfall caused by climate change is likely to cause an increase in total dissolved solids in groundwater, which will exacerbate the water quality situation.

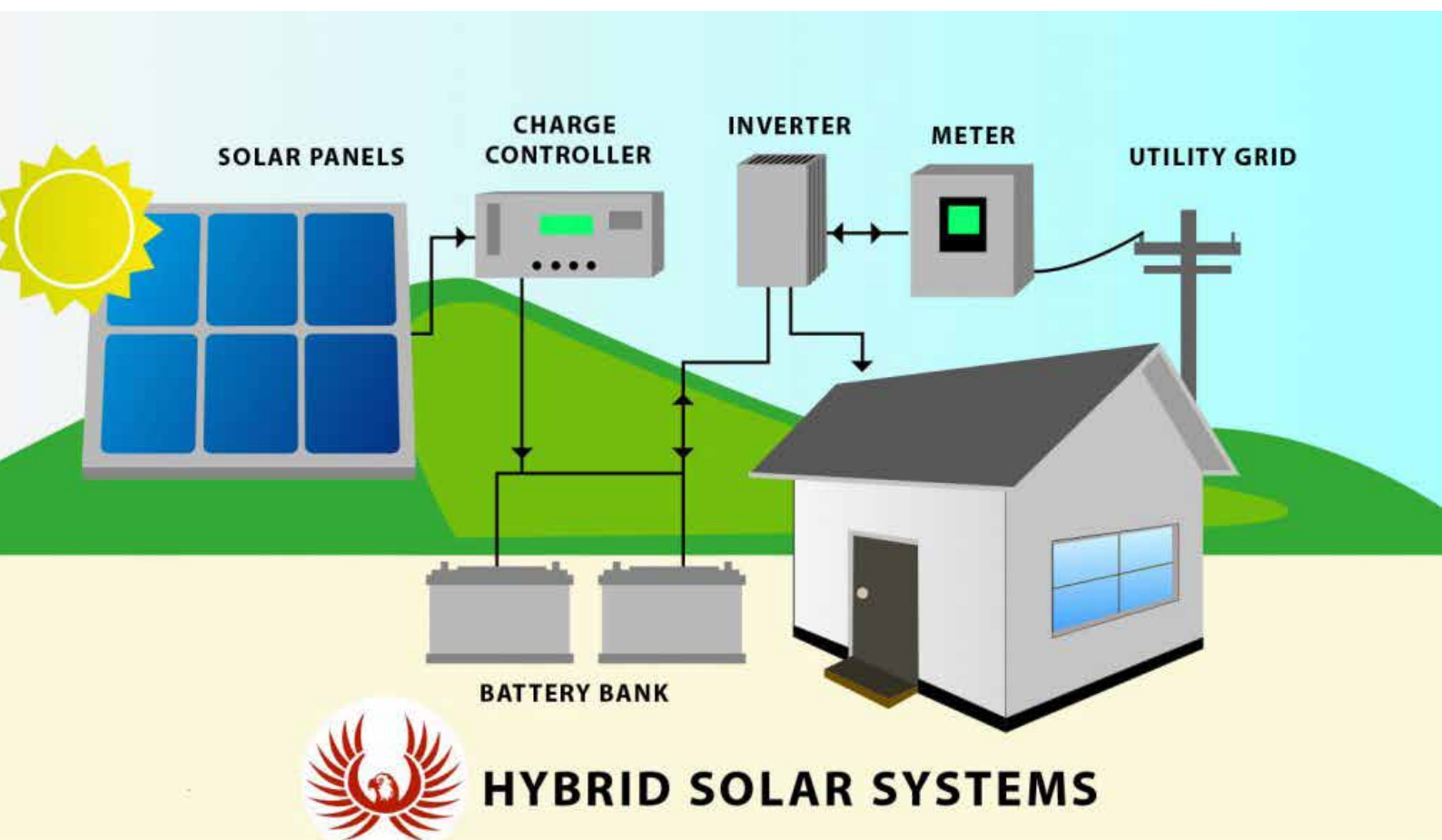
Pumping water over long distances from other water sources is not a feasible option for supplying small communities with good quality water. An alternative is to improve the quality of locally abstracted groundwater by applying treatment techniques. These techniques require energy in the form of electricity, but many of the small communities are not coupled to the national electricity grid. It is also considered that the energy needs for treatment should be met by sustainable and environmentally sound resources.

Bethanie and Grünau are located in a very arid region where vegetation and surface freshwater are scarce. However, this is no exception in Namibia. Thousands of people in this region face difficulties in accessing safe drinking water. The locations of Bethanie and Grünau are therefore being used as a test site for the project, which was presented to the 2018 Conference of the Parties (COP 24) in Katowice, Poland.

The Adaptation Fund, which was established under the Kyoto Protocol of the UN Framework Convention on Climate Change, has committed US\$438 million in 67 countries since 2010 to climate adaptation and resilience activities. The Desert Research Foundation of Namibia (DRFN) is the implementation agency of the project.



PILOT PROJECT ... The Groundwater Desalination Plant at Grünau, in the //Kharas Region. **Photos:** Kuchling Consulting Engineers



THE FUTURE ... Home generation using solar panels and batteries has become a growing success story.

Decentralised Renewable Energy Could Meet Africa's Vast Needs

Africa has long been an energy paradox, a continent with both immense unmet power needs and immense untapped natural resources.

Despite the number of people with access to electricity doubling between 2000 and 2019, nearly 600 million still live without power, making universal access something of a holy grail. The power that does exist is often intermittent and comes at a high cost, a significant barrier to economic growth and development.

Complicating the situation further is the ongoing reliance on fossil fuels, which is likely to continue for at least the next decade. Fossil fuels made up more than half of the continent's energy mix in 2018 and nearly 40% in sub-Saharan Africa.

Across Africa, therefore, countries are confronted with three challenges: providing a reliable electricity supply to more people; ensuring affordability; and reducing widespread reliance on high carbon-emitters – not least from burning firewood and using diesel generators for lighting and cooking.

Though daunting, this 'energy trilemma' – finding the

balance between access, affordability and sustainability – could be solved in the medium term.

Just as the continent 'leapfrogged' fixed-line telecommunication infrastructure to move straight to mass mobile phone use, decentralized power generation using renewable energy could well be the answer for more widespread and decarbonized electrification.

The continent with the richest solar resources on earth has only installed five gigawatts of solar power – less than 1% of the global total.

"When we visited off-the-grid villages in Africa in February 2020, we felt that people had high hopes for the future of energy," says Eiji Takahashi, project manager at MHI Engine & Turbocharger (MHET), part of Mitsubishi Heavy Industries (MHI) Group.

Home solar to hybrid systems

Much of the progress in electrification so far consists of expanding traditional grid connections and centralized power distribution. However, the continent has also seen a rapid rise in the deployment of off-grid systems where



The strategy of some countries is to expand the grid through their regions from large power plants, but there seem to be many countries planning to construct small, distributed power plants to form relatively large microgrids

centralized grids cannot easily bridge the gap.

“The strategy of some countries is to expand the grid through their regions from large power plants, but there seem to be many countries planning to construct small, distributed power plants to form relatively large microgrids,” says Takahashi.

Home generation using solar panels and batteries has become a growing success story. Around five million people gained access to electricity through solar home systems in 2018, for example, alongside local micro-grids using a variety of technologies.

Mini rooftop solar installations typically consist of a small solar panel and a rechargeable battery that provides electricity for lights, radio and a phone charger. Rather than demanding up-front payments for the equipment, these systems operate on a pay-as-you-go basis. Users pre-pay for electricity with their mobile phones, and the electricity is cut off when funds run out.

At a slightly larger scale, micro-grids and mini-grids provide power for entire communities. For example, hybrid systems such as MHIET's Eblox combine renewable energy such as solar power with a reciprocating engine generator for backup and a battery for storage. Eblox can produce enough kilowatts to power between 500-2,000 households. If more output is needed, several of these systems can simply be linked together.

In addition, a growing number of heavy energy users, including mines, are replacing diesel generators with solar farms. Similarly, telecoms provider Orange has built its own solar power plants for cleaner, cheaper and more reliable power.

By combining renewable power, a back-up generator and battery storage, MHI Group's Eblox offers a flexible and continuous supply of energy.

Not only could Africa jump ahead of the developed world in moving directly to decentralised power generation, but it could also make a vital leap in renewable energy. Renewables are set to play a leading role in meeting the continent's growing demand, as potentially the least expensive way to achieve universal electricity in many areas that grids won't easily reach.

To date, the continent with the richest solar resources on earth has only installed five gigawatts of solar power – less than 1% of the global total.

However, as costs continue to fall, the International Energy Agency (IEA) expects double-digit growth from both utility-scale and distributed solar energy and other renewables. By 2040, the IEA projects solar power could overtake hydropower and natural gas to become the largest electricity source in Africa in installed capacity, along with wind energy.

A handful of nations are also beginning to tap into the continent's vast potential for wind power. The latest data from the Global Wind Energy Council (GWEC) shows South Africa leading in installed capacity in the Middle East and Africa, after a significant ramp-up in 2020. The only other sub-Saharan country among the top five wind energy leaders in the region is Ethiopia, following a major installation sprint in 2019. Senegal racked up the second-highest number of new roll-outs after South Africa.

High-potential future markets for wind energy include Namibia, Ivory Coast, Nigeria, Botswana, Cameroon and Mozambique. And these figures only cover land-based (onshore) wind power, not offshore potential.

Aside from wind and solar, Africa has another trump card: the East African Rift System, one of the largest geological rifts in the world and rich in geothermal energy. It stretches across central and southwest Africa, including Kenya, Tanzania, Mozambique, DR Congo and Ethiopia – offering those and any neighboring countries another energy source.

With all the potential for addressing Africa's energy supply gap sustainably and cost-effectively, the question is: How can electrification be accelerated?

The IEA suggests two strands of development: One is connecting more renewable energy sources such as solar and wind farms to the grid; the other is deploying decentralized solutions such as micro-and mini-grids, especially in rural areas, where the majority of the unserved live, and where grid access can be difficult to build out.

To succeed, Africa needs a significant scale-up in electricity sector investment, for which it currently ranks among the lowest in the world. This will require a mix of local and international commitment.

The rapid growth in green and sustainable finance could be an important catalyst for channeling development resources in the right direction.

It will take time, but momentum is building for Africa to take a big leap. – **Forbes**



GREEN INVESTMENT ... Old Mutual has invested US\$12.4 billion in solar projects around Zimbabwe that will generate a combined 25 MW of clean power.

Old Mutual Zim solar projects to light up thousands of homes

Old Mutual Zimbabwe – a subsidiary of Old Mutual – has poured US\$12.4 million (over N\$188 million) into solar projects around the country, which will generate a combined 25 MW upon completion.

Zimbabwe currently does not have sufficient energy and imports at least 300 MW from South Africa's Eskom, while other imports are coming from Mozambique's Cahora Bassa.

OMZim says its investment activities are now focused on activities that will “help the economy recover and grow as well as helping our clients preserve value for their investments”. The company said it will continue to recognise and support sectors such as sustainable energy, agriculture, and other green climate projects.

While OMZim's portfolio has been anchored on insurance and investment in the major cities, it explained that the group's new strategy is to “diversify away from city buildings and venture into private infrastructure and equity investments, specifically in the energy sector”.

“We have invested US\$12.4 billion into solar projects around Zimbabwe that will generate a combined 25 MW upon completion and also contribute in feeding electricity into the national grid,” the financial services giants said.

Among other projects, OMZim has invested in is a 5.4 MW solar farm at Cross Mabale in Dete, Matabeleland North province. The investment, which is a joint venture between Old Mutual Investment Group and Solgas Energy, was expected to go live on at the end of August.

“The farm has been under construction since 2019, with Old Mutual investing US\$7.3 million on the project, which is made of 16 000 solar panels,” OMZim said.

Another solar project OMZim is invested in is Harava Solar, which is building a 20 MW solar farm in Seke just outside of Harare. The initial phase of 6 MW is done and the company plans to complete the project by November this year. The plant will provide power to 45 000 households, according to officials.

OMZim has also funded the installation of solar-powered irrigation equipment to assist water reticulation and small-scale agriculture at 26 schools.

According to CEO Samuel Matsekete, OMZim's investments in alternative assets continue to track well.

“We closed ahead of the targets that we set at the beginning of the year,” Matsekete said during the company's annual general meeting.

Matsekete also stated that they sustained investments in infrastructure, projects such as those in green energy or investments in the real estate sector.

“While some of these projects were derailed by Covid-19-induced lockdowns, a few were completed during the period under review. We continued to deploy capital in new projects and in initiatives aimed at making the business more effective and efficient in serving our customers,” he said.

The investments in solar by Old Mutual come as more and more Zimbabwean companies are turning to solar energy for power supplies.

Zimplats, the Zimbabwean unit of Impala Platinum (Implats), plans to build two solar power plants with generation capacity of 185 MW to power its operations. Zimplats currently depends on electricity supply from Cahora Bassa's hydro station in Mozambique, but the company is adding solar to secure reliable supply and earn more sustainability credits.

IRENA urges Botswana to do more for Renewables to take off

The International Renewable Energy Agency (IRENA) says Botswana needs to take short-to-medium term actions in the areas of policy, regulation, risk and investment in order to create a more conducive environment for the development of renewables.

Significant wind and solar potential and abundant biomass residues present considerable opportunities for Botswana to enhance domestic energy security and increase access to modern energy services, states IRENA in a recent assessment report.

The “*Renewables Readiness Assessment: Botswana*” report, developed in close co-operation with the Ministry of Mineral Resources, Green Technology and Energy Security, complements the recently adopted Botswana National Energy Policy. The policy aims to substantially increase the penetration of renewable energy in the country.

Botswana aims to source 15% of its energy from renewables by 2030, and 36% by 2036. At the end of 2020, Botswana only had 6 MW of installed renewables capacity.

“The release of this assessment coincides with parliament’s recent adoption of a National Energy Policy, a prominent objective of which is to achieve a substantive penetration of new and renewable energy in order to support energy self-sufficiency and energy security. This study augments ongoing national efforts to achieve this goal,” said Lefoko Moagi, Botswana’s Minister for Mineral Resources, Green Technology and Energy Security.

Around a third of Botswana’s population does not have access to electricity and the country’s power system is characterised by unreliable power supplies and high service costs. To meet its peak power demand, Botswana



UNLOCKING POTENTIAL ... IRENA’s report on Botswana identifies critical actions that could significantly impact universal energy access in the country.

currently relies on coal and imported petroleum products from South Africa and imports up to 15% of its electricity from neighbouring countries.

The IRENA report notes domestic renewable resources can be harnessed to meet rising power demand, reduce dependency on power imports, and diversify the country’s generation mix, while mitigating climate change and increasing access to clean, reliable electricity.

“Botswana has a significant endowment of renewable energy resources that if fully developed could stimulate sustainable, economy wide gains that benefit all Botswana,” said IRENA Director-General Francesco La Camera.

Promoting and facilitating the implementation of a clear long-term vision for renewable energy development with binding commitments supported by data from pre-feasibility studies can help address investment risks and attract private sector participation, according to the report.

The assessment also points to the integration of renewable energy beyond the power sector by developing well-aligned strategies for renewable energy

in agriculture, transport, heating, cooling, and cooking.

The report identifies additional critical actions that could significantly impact the energy transition in Botswana. Such as;

- Revision of the tariff-setting structure.
- A clear regulatory framework to manage risks involved in private sector participation.
- Performance of a location-specific (pre-feasibility) study for renewable energy generation and streamline permitting processes.
- Conducting a study on the capability of the grid to absorb power from variable renewable energy sources.
- Integration of rural electrification strategies into a single, comprehensive document and consolidate rural electrification activities.
- Support for the growth of solar rooftop and home systems through strong incentives and policy instruments.
- Development of local human capacities along the project value chain.

African governments, policymakers must prioritise off-grid solar

African governments and policymakers have been urged to focus on off-grid solar solutions to accelerate inclusive and sustainable economic development post the Covid-19 pandemic.

A new report by Bboxx and UCL's Engineering for International Development Centre titled "Off-Grid Energy and Economic Prosperity", uncovers the wealth of evidence on the relationship between access to off-grid electricity and economic prosperity in sub-Saharan Africa.

Bboxx is a next generation utility, transforming lives and unlocking potential through access to energy. It manufactures, distributes and finances decentralised solar powered systems in developing countries.

The University College London (UCL's) Engineering for International Development Centre (EIDC) seeks to address infrastructure provision in resource-challenged settings in low-middle income countries. It brings together a team of doctoral students, postdocs, academics and organisations able to address the global challenge of a lack of infrastructure access through combining technical innovation with societal needs.

The report says off-grid Solar Home Systems and mini-grids are essential to provide energy access in rural communities in sub-Saharan Africa. The research highlights how off-grid energy access enhances living standards in local rural economies, powers community services like education and healthcare, improves household and business financial capacity and generates greater employment levels and contributions to GDP.

It makes the following three recommendations to further strengthen the relationship between off-grid electricity access and economic well-being and prosperity, all necessary to improve economic resilience post-Covid-19 and beyond:

1. Governments need to focus on investment in the off-grid energy sector

Inequality in energy access in sub-Saharan Africa that was rife prior to the pandemic must not be



POWER SOLUTION ... Off-grid solar solutions can help African countries to accelerate inclusive and sustainable economic development post the Covid-19 pandemic.

exacerbated. Governments must design supportive policy environments to ensure consumers who are struggling are met with leniency in bill payments or a reduction in energy costs. Subsidies are essential. Incentives for renewables will stimulate local economic development, regain lost jobs and drive the creation of new jobs.

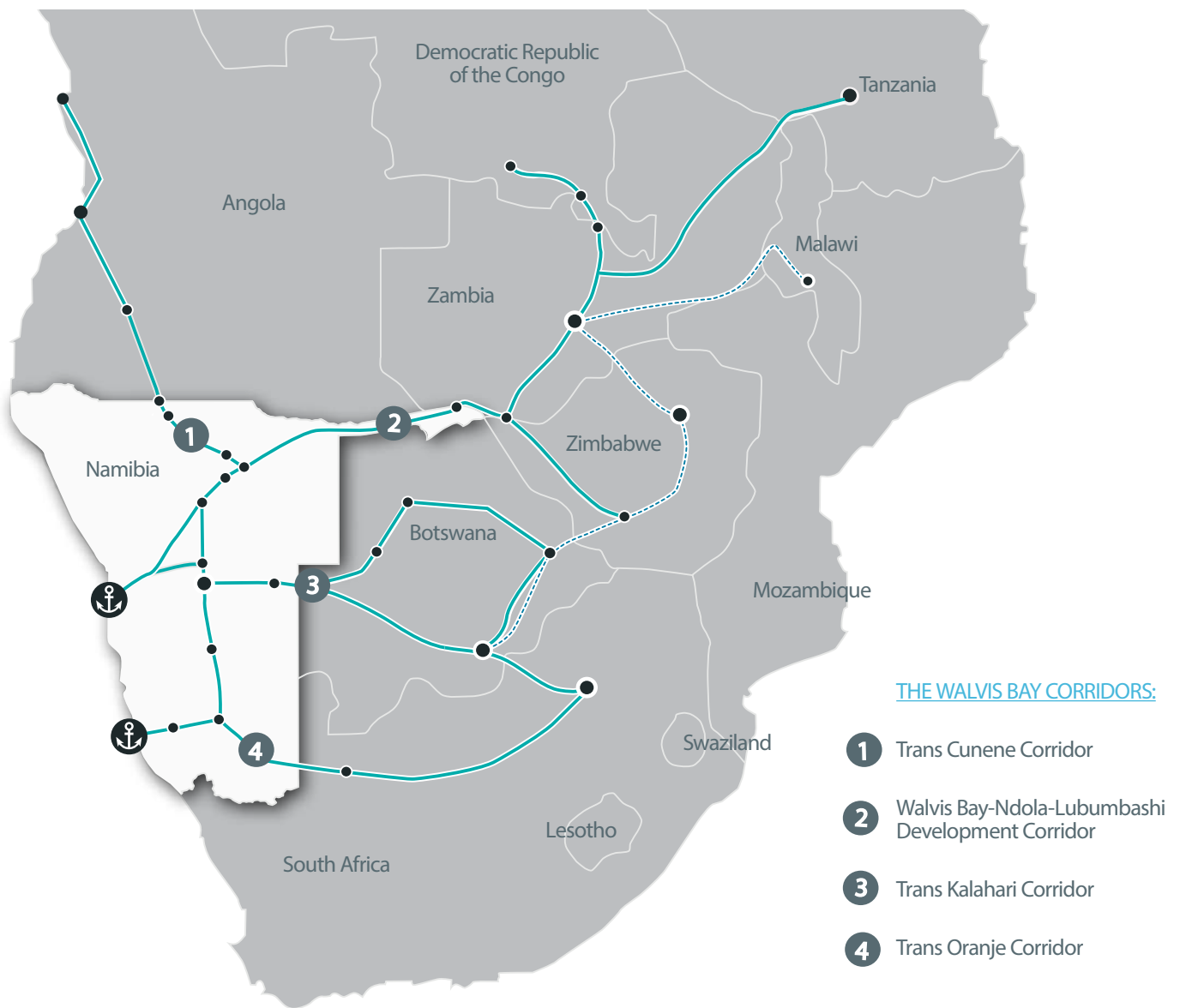
2. Incorporate productive use of electricity into government electrification strategies

Productive use of electricity, such as using electricity for commercial, agricultural or industrial uses, can reinforce the creation and improvement of local value chains, diversify livelihoods and reduce vulnerability to external shocks. While in rural areas in sub-Saharan Africa, solar electricity is largely used for lighting or television, to truly accelerate local development, governments should develop policies that go beyond these basic needs to also include local productive activities. This will accelerate economic growth.

3. Greater attention is needed to promote gender-inclusive energy policies

Energy policies need to actively take into account women's concerns in rural sub-Saharan Africa. It is essential to incorporate women's experiences into policymaking and project planning to foster more inclusive economic prosperity from energy. Specifically, gender-focused energy strategies should focus on enhancing financial inclusion and access to productive economic activities.

Nick Hurd, Bboxx Senior Adviser, says their report makes clear what access to energy means in terms of economic development and the opportunity to transform lives.



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