

energy

HQ

energy HQ.world
March 2023
Vol. 1
Issue 03



Power Backups Have Become Non-Negotiable in South Africa

p.19

Renewable Energy

Statkraft, Ocean Sun Complete Albania's First Floating Solar Power Plant

p.07

Oil & Gas

PSW Technology Awarded Service Contract for Deep-Water BOP Systems

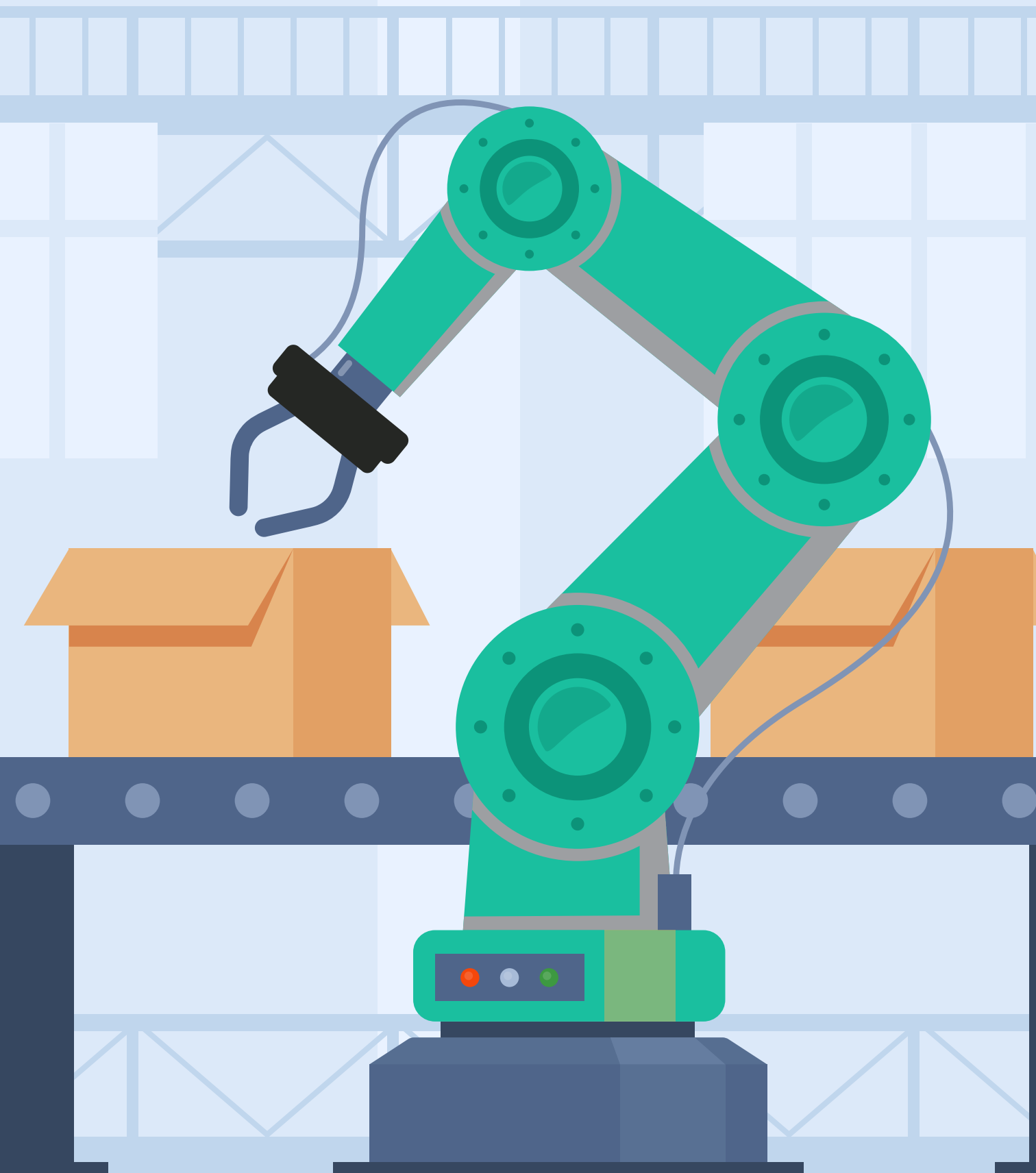
p. 10

Nuclear

Lightbridge Fuel Rods Could Outperform MOX In Plutonium Disposition

p. 13

Food HQ



foodhq.world

The Impact of Technology on The Energy Industry



Advances in technology promise solutions to some of the biggest problems faced by the oil and gas industry.

The power and utility industry currently relies on the low costs and lower emissions profile of natural gas, which serves as the key baseload fuel for electric power companies. But how will oil and gas companies be able to maintain the production levels needed to keep prices low?

Oil and gas producers are working to increase recovery levels and improve process efficiencies in the North American shale plays. Advancements, such as multi-well pad drilling, multiple fracture stages, and improved well and pipe design, have already boosted drilling efficiencies significantly. Producers also are using fewer rigs to extract more oil and gas in less time, which keeps costs down. Further advancements promise to keep driving efficiencies in shale production. For example, scientists and engineers are studying how different types of rock fracture produce hydrocarbons and learning how to optimize drilling in shale formations through more precise well sitting.

Use of new seismic software based on radar and sonar techniques is helping producers identify and target “sweet spots” in real time. Other new methods include hydraulic pulsing and reducing water use with water-free fracturing technologies, which are used to stimulate oil and gas flow. “The effects of these technologies will be magnified as producers use advanced analytics tools to gain insights from the data and continue flattening the cost curve.”

The use of nano-engineered materials is another technological advancement that has great application to the oil and gas industry. Imagine materials lighter than a feather, stronger than steel, more conductive than copper, impermeable to standard gases and as thin as an atom. Advanced nano-engineered materials are creeping in across the entire energy value chain and will have a multitude of impacts. Also, for oil and gas production, nanotech particles increase the strength to weight ratio of pipelines, making them more durable, while nano-coatings help equipment resist corrosion. Moreover, nanoballs, which are used to prop shale fractures open to optimize oil and gas flow and reduce water and chemical requirements.

In This Issue!

energyHQ’s March 2023 issue covers the most recent developments and events pertaining to the energy industry, as well as including valuable insights, details and spec sheets / peer reviews related to latest technologies, innovations, products, services, and projects of relevance to the industry and its audience. The article on page 10 talks about Blowout Preventers, the article on page 13 Sheds the light on Rods, and the article on page 19 focuses on Electric Solutions. Additional content is also available covering the latest activities of manufacturers, importers, and exporters – worldwide!

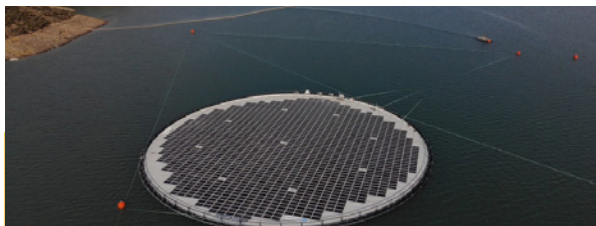
We hope you benefit from this issue’s content and find it useful for your business, and welcome receiving your comments, suggestions, or feedback. Please send them to h.mourtada@1world.xyz.

Best wishes,
Hassan Mourtada
Editor-in-Chief / Content & Research Officer.
h.mourtada@1world.xyz

ISSUE CONTENTS

Introduction

- 01 Opening Letter
- 02 Issue Contents
- 04 Energy Digest



Renewable Energy

- 07 *Hybrid System*

Statkraft, Ocean Sun Complete Albania's First Floating Solar Power Plant

Oil & Gas

Blowout Preventers

- 10 PSW Technology Awarded Service Contract for Deep-Water BOP Systems



Nuclear

Rods

- 13 Lightbridge Fuel Rods Could Outperform MOX In Plutonium Disposition

Electric

Portable Cords

- 16 Zendure Showcases Its Latest Innovations in Portable, Solar Power at Intersolar North America



ISSUE CONTENTS

Cover Story

Electric Solutions

- 19 Power Backups Have Become Non-Negotiable in South Africa



19



19

Products

Solvents

- 23 Clariter, Total energies Fluids to Produce First 'Ultra-Pure' Solvents Made from Plastic Scrap

Services

Lighting

- 25 Melbourne Burnley Tunnel Lighting Tech to Help Drivers Keep Pace With The Speed Limit.



25



27

Technology

Panel Boards

- 27 Live In an Apartment? This New Solar Technology Cut Could Your Bills in Half

Country Reports

Egypt, Switzerland, Canada

- 29 China Energy to Build \$5.1bn Green Hydrogen Plant in Egypt
- 30 Switzerland's Axpo buys 20MW battery storage project in Sweden from RES & SCR
- 31 McCain Foods Investing Millions in Canada Plant Expansion



29

Industry News

- 33 Products & Services

Info

- 39 General Info
- 40 Closing Letter

Services

- 36 Career Center
- 37 Tenders
- 38 Coming Events

ENERGY DIGEST



Bahrain

New Initiatives ‘Key to Develop Bahrain’s Energy Sector’ HRH Prince Salman’s comments came during his meeting with the Chairman and CEO of Baker Hughes, Lorenzo Simonelli, at Riffa Palace

The importance of adopting initiatives that further the development and competitiveness of Bahrain’s energy sector, in line with the kingdom’s comprehensive development, was highlighted by His Royal Highness Prince Salman bin Hamad Al Khalifa, the Crown Prince and Prime Minister.

HRH Prince Salman’s comments came during his meeting with the Chairman and CEO of Baker Hughes, Lorenzo Simonelli, at Riffa Palace, today (Feb 19), a Bahrain News Agency report said.

His Royal Highness commended the initiatives aimed at developing and investing in the oil and gas sector to achieve its current and future goals, emphasizing that the kingdom will continue its efforts in furthering the energy sector and in adopting innovative solutions that ensure the preservation of the environment.

His Royal Highness noted the role of oil and gas conferences and forums in strengthening the frameworks of international cooperation and coordination in the sector, and noted the outcomes of the Middle East Oil, Gas, and Geosciences Show (MEOS GEO) hosted by the Kingdom of Bahrain as part of its efforts to support international cooperation in the oil and gas field.

Netherlands

Europe’s Largest Marketplace of Solar Panels Launches Subscription Model In The Netherlands.

Otovo, the largest online marketplace for the installation of solar panels in Europe, is now also active in the Netherlands. The Netherlands is the thirteenth country where the platform is launching since its founding in 2016. With a listing on the Oslo Stock Exchange, the company now covers ninety percent of the residential solar market in Europe.

Offering a monthly subscription model makes it possible for more consumers to access solar energy, as no large investment is required upfront. In this way, Otovo also expects to help all still-doubting households in the Netherlands get solar panels.

Renting solar panels is still a relatively young market, accounting for about two percent of all solar installations in the Netherlands. Otovo therefore expects to be able to make a difference here in particular.

Otovo was founded in 2016 in Norway, where it is headquartered. The only pan-European solar installation provider uses patented technology to analyze whether a property is suitable for installing solar panels. Through the platform, an individual gets in touch with local installers quickly and easily.

Otovo has over four hundred employees and nearly one thousand installers connected. It currently operates in 13 European markets - the United Kingdom, Germany, France, Spain, Italy, the Netherlands, Belgium, Austria, Norway, Sweden, Poland, Portugal, and Switzerland.



South Korea

Hanwha Solutions Names GE Renewable Energy Exec as New CTO



Oman

Sembcorp Receives an Award By Oman Power To Build Manah Solar II IPP In Oman

Sembcorp Industries announces that it has, through an 80%-owned joint venture to be set up by its wholly owned subsidiary Sembcorp Utilities with Jinko Power, received an award by Oman Power and Water Procurement Company (OPWP) to build, own and operate the Manah Solar II Independent Power Project (IPP) in Manah, Sultanate of Oman. Sembcorp Industries announces that it has, through an 80%-owned joint venture to be set up by its wholly-owned subsidiary Sembcorp Utilities with Jinko Power, received an award by Oman Power and Water Procurement Company (OPWP) to build, own and operate the Manah Solar II Independent Power Project (IPP) in Manah, Sultanate of Oman. The 500MW solar plant is expected to be operational by 2025 and will be backed by a 20-year power purchase agreement with OPWP. This project will complement Sembcorp's existing capabilities and track record in the region. The Salalah Independent Water and Power Plant, one of the most energy-efficient power and water plants in the Dhofar region in the Sultanate of Oman, is 40% owned by Sembcorp. Andy Koss, CEO of UK & Middle East, Sembcorp Industries, said, "The Manah Solar II IPP will mark Sembcorp's first renewables project in the Middle East. To be constructed in the Sultanate of Oman, the project will leverage our strong network and presence for over 10 years in the country built through Salalah Independent Water and Power Plant. We are delighted to be awarded this project and look forward to working with Jinko Power to support the global energy transition."

Hanwha Solutions Corp. said Tuesday it has appointed an executive of GE Renewable Energy as its new chief technology officer (CTO) in a move to accelerate research and development in next-generation solar, wind and other renewable energy. Danielle Merfeld, vice president and chief technology officer at GE Renewable Energy, a subsidiary of General Electric Co., will take over as the global CTO at Hanwha Q Cells, the solar panel unit of Hanwha Solutions, the South Korean company said. Merfeld will oversee Q Cells' global R&D network connecting South Korea, the United States and Germany to integrate Hanwha's R&D capabilities to further bolster their tech competitiveness in solar panels. Merfeld will steer the "tandem cell technology" development, a R&D project funded by the European Union aimed at developing the next generation solar cells for production at a commercial scale starting in 2026. SEOUL, March 14 (Yonhap) -- Hanwha Solutions Corp. said Tuesday it has appointed an executive of GE Renewable Energy as its new chief technology officer (CTO) in a move to accelerate research and development in next-generation solar, wind and other renewable energy. Danielle Merfeld, vice president and chief technology officer at GE Renewable Energy, a subsidiary of General Electric Co., will take over as the global CTO at Hanwha Q Cells, the solar panel unit of Hanwha Solutions, the South Korean company said. Merfeld will be in charge of Q Cells' global R&D network connecting South Korea, the United States and Germany to integrate Hanwha's R&D capabilities to further bolster their tech competitiveness in solar panels.



Argentina

Argentina's Pampa Energía Explores Oil Options, Seeks LNG Project Incentives



SOUTH AFRICA

Vestas Wins 373MW South African Turbine Deal.

Vestas has secured a 373MW turbine order for three wind projects in South Africa. Independent power producer Red Rocket has placed the order for its Brandvalley, Rietkloof and Wolf wind parks, to be located in Western Cape and Eastern Cape. The contract includes the supply and installation of 64 V150-4.5MW wind turbines, 12 V163-4.5MW units and five V162-6.2MW Enventus machines. Vestas has also entered into a 15-year service agreement with Red Rocket. The wind farms will start entering production in 2024. Red Rocket CEO Matteo Brambilla said: "Red Rocket has been investing and supporting South Africa's electricity crisis for more than a decade and with a portfolio of more than 1000MW of wind, hydro and solar projects under development, in construction or in operation in the country, we are delighted to continue making a significant contribution to South Africa and the rest of the continent."

The order includes the first installations globally of the V163-4.5MW wind turbine from Vestas' 4MW platform.

Vestas has over 1.3GW of capacity either installed or under construction in the country.

Argentina's Pampa Energía is looking to expand oil's share in its hydrocarbons mix amid forecast gas output growth and as liquefaction plant studies continue. Gas currently accounts for around 90% of the firm's upstream production. Pampa – expecting gas output to keep climbing this year – is exploring options to ramp up oil production. "We're studying several alternatives," CEO Gustavo Mariani told Pampa's Q4 results call on Monday. "We do want to increase, to balance a little bit more our production towards oil." One avenue, the call was told, is boosting exploration and production work at Vaca Muerta block Rincón Aranda, where Pampa has a 55% stake and Total Austral 45%, according to data from the federal energy department. Pampa estimated that 2023 oil and gas capex will be US\$430mn, targeting the drilling and completion of 24 wells at unconventional gas areas El Mangrullo and Sierra Chata, as well as investment in facilities. Associated outlay was US\$323mn in 2022. This year's capex plan is "one of the most aggressive" in recent years, Mariani said. Accumulated capex for 2020-23 is forecast at US\$1.1bn. Mainly producing tight gas, Pampa is working to expand its shale gas output.

RENEWABLE ENERGY

07 Hybrid System



Statkraft, Ocean Sun Complete Albania's First Floating Solar Power Plant



Ocean Sun

Statkraft's floating photovoltaic plant on the reservoir of its Banja hydropower plant in Albania has 2 MW in capacity and consists of four units. It is the only such power plant in Southeastern Europe except for a few pilot projects in Turkey.

Four years after Statkraft filed a request with the relevant ministry, the contractor completed its floating solar power plant on an artificial lake near Gramsh in central Albania. Ocean Sun, which is also a Norwegian company, said it finished the second phase was done already in December.

Right after the first floater with a diameter of 68.8 meters and 500 kW in capacity was installed in mid-2021, a tornado severely damaged it. The unit was declared repaired almost a year later and the remaining three of equal size were added after that.

The first of four units was hit and damaged by a tornado just days after it was installed.

Statkraft has the largest hydropower plant portfolio in Europe. It also operates wind power, solar power, gas-fired power plants and district heating facilities. The new floating photovoltaic unit is on the reservoir of its 72 MW Banja hydropower plant, on the Devoll river. Both companies are betting on a possible advantage in market terms from a new engineering solution for the emerging technology. The ring-fenced system was carried out within plan and budget, with significant improvements to the installation speed, Ocean Sun said in its quarterly report. The facility is producing according to expectations, confirming the positive results seen from the first floater, it added.

The 2 MW power plant will generate an estimated 3 GWh per year. With the exception of a few pilot projects in Turkey, it is the first deployment of the technology in Southeastern Europe.

Numerous unknowns about new technology

According to earlier announcements, Ocean Sun's rafts have a high-density polyethylene (HDPE)

ring and a membrane that is only a millimeter or so thick. The material can hold both the solar panels and workers that install them or perform maintenance.

The advantage of so-called floatovoltaics is that they can be installed without property ownership issues. Water cools the panels from underneath, boosting performance. In turn, their shadow reduces evaporation from the lake, which is useful for hydropower plant operators and water supply.

On the other hand, the risk from extreme weather events is still being assessed. Furthermore, the debate is still on whether the lack of sunshine from covering the surface of a lake can spur the growth of toxic algae and reduce the amount of deepwater oxygen. It would affect flora and fauna and carbon dynamics, implying that the covered surface needs to be limited.

Floatovoltaics advancing at slow pace in Balkans.

One more floating solar power plant project is underway in Albania in combination with a hydropower plant, but also with a solar power facility set up on the dam. When multiple electricity sources are integrated or a power plant adds batteries, it is called a hybrid power plant.

Private and state-owned utilities in Greece, Romania and Montenegro are also making the first steps to utilize the new technology. Slovenia recently tabled renewable energy deployment legislation including floating PV.

German company Profine Energy plans to build a massive floating solar power plant on the Ogosta artificial lake in Bulgaria, which sparked protests. Italian companies are developing several projects for a combination of offshore wind power, including floating turbines, and floating solar power plants in the Adriatic Sea.

Ocean Sun is eyeing global expansion.

In 2021, MP Quantum Group and Ocean Sun signed a long-term collaboration agreement for floating solar in Greece and Cyprus. Work has intensified around two demonstration facilities last year, according to Ocean Sun.

The firm recently installed the first ever commercial floating solar power plant on the sea. At the same time, it integrated it with an offshore wind turbine, creating the first such hybrid power plant. Ocean Sun is developing two more projects in Singapore and another one in China.

By Igor Todorović Journalist

<https://balkangreenenergynews.com/>

<https://balkangreenenergynews.com/>

OIL & GAS

10 Blowout Preventers



health HQ

Nurturing Healthier world!

Vitamins and minerals
make up essential parts of
your diet



Vitamins and minerals
work together to support
the cellular metabolism



Vitamins and minerals
also offer health benefits
because of their ability to
maintain tissue strength



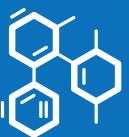
Each vitamin and mineral
has its own set of
physiological functions in
your body



There are a total of 13
vitamins that are divided
into two categories based
on how your body
absorbs them.



Vitamin A, K and E are
stored in your liver and
vitamin D is stored in your
fat and muscle tissues.



PSW Technology Awarded Service Contract for Deep-Water BOP Systems



Blowout Preventers

Bergen, 21 February 2023: PSW Technology has signed an agreement with an international subsea customer for deep-water BOP stack services.

The agreement involves services for modification, classification, and testing of a deep-water BOP stack. Work starts first quarter of 2023 and benefits from the company's state of the art facilities at Mongstad. This is a sizable (1) contract for the company.

The agreement shows PSW's unique expertise and services related to well control and drilling equipment for the rig market. The past 15 years PSW has collaborated with international drilling contractors on the maintenance of subsea and drilling equipment.

"The offshore rig market shows strong signs of recovery and PSW Technology is prepared and positioned to handle an increased activity level. We are grateful for the trust large international companies show us by giving us this type of contracts," says Geir Knapskog, interim Managing Director of PSW Technology.

PSW Technology is a leading provider of services and maintenance of BOP and well control equipment in the North Sea. I believe we are chosen for the experience and expertise we have in-house," says Oddbjørn Haukøy, CEO in Scana.

(1) A sizeable contract is defined to be between

NOK 10 million and NOK 50 million.

(2) A substantial contract is over NOK 50 million.

Subsea blowout preventer (BOP) is a safety-related instrumented system that is used in underwater oil drilling to prevent the well to blowout.

PSW in brief

PSW is a supplier of products, systems and services to energy companies and the maritime industry. The group's multidisciplinary expertise, state-of-the-art facilities and strategic partnerships enable us to meet industry requirements and customer challenges with safe, dependable, and cost-effective solutions. psw.no

Scana in brief

Scana is a listed industrial owner company in the ocean industries creating value through active ownership in market-leading portfolio companies. Our vision is to accelerate decarbonization of the maritime and offshore sector by being a driving force in electrification and emission reduction solutions. Scana's portfolio companies have a solid innovation and commercialization history based on core competence in selected niches. Scana is headquartered in Bergen and has around 350 employees.



Deep-Water Bop Stack Services

<https://pswtechnology.no/>

www.scana.no

constructionHQ

BUILDING BETTER WORLD!

80%
of readers are
decision makers
or influence
purchasing
decisions.

41,670
Total Brand
Readership

17,593
Print Readership

24,077
Digital
Circulation

Previously
Arab
CONSTRUCTION
عالم الإنشاءات العربي World

www.constructionhq.world

NUCLEAR

13 Rods



Lightbridge Fuel Rods Could Outperform MOX In Plutonium Disposition



Mock-Up of Four-Lobed Helical Fuel Rods.

Lightbridge Corporation, which is continuing to work closely with national laboratories on the manufacture and testing of its metallic fuel rod designs for light water reactors, just announced the results of an investigation on the casting process for molten uranium and zirconium with

Pacific Northwest National Laboratory under the Department of Energy's Gateway for Accelerated Innovation in Nuclear (GAIN) program.

At the same time, the company is investigating other uses for its helical, metallic fuel design. According to a peer-reviewed paper recently

published in the American Nuclear Society journal *Nuclear Technology*, a plutonium-zirconium fuel rod could significantly outperform traditional mixed-oxide (MOX) fuel as a vehicle for weapons-grade plutonium consumption in light water reactors. In the computer simulation detailed in the paper, a “plutonium disposition fuel variant” consumed about 5.5 times more plutonium per fuel rod than MOX fuel, according to Lightbridge.

“We are pleased with the acceptance and publication of this paper in this prestigious journal. The findings reported in this study were subject to rigorous review by top scholars, validating the plutonium disposition and proliferation resistance of this variant of Lightbridge fuel rods,” said Seth Grae, Lightbridge president and chief executive officer.

Burnup is key: Previous research has confirmed the proliferation resistance of uranium-zirconium Lightbridge fuel rods, according to the company, and the new research confirms that proliferation resistance persists when uranium is swapped for plutonium, with the high burnup of metallic fuel making reducing the usefulness of any residual plutonium for weapons purposes.

“Improved Disposition of Surplus Weapons-Grade Plutonium Using a Metallic Pu-Zr Fuel Design” was coauthored by Braden Goddard, assistant professor in the Department of Mechanical and Nuclear Engineering at Virginia Commonwealth University, and Aaron Totemeier, senior nuclear fuel consultant to Lightbridge.

“Higher burnup not only fissions more atoms, but preferentially fissions plutonium atoms with odd atomic mass numbers,” the authors explain. “This results in the plutonium remaining in the used fuel to primarily consist of Pu-240 and Pu-242, both of which have lower attractiveness for use in nuclear weapons compared to Pu-239 and Pu-241.”

The researchers based their simulated plutonium disposition rod (PDR) on Lightbridge’s solid multilobe helically twisted metallic U-Zr fuel rod design developed for 17×17 pressurized water reactors, substituting the U-Zr alloy with a Pu-Zr alloy.

Monte Carlo N-Particle (MCNP) computer simulations were performed to quantify the mass of plutonium consumed in a Lightbridge-designed

fuel rod, compared with traditional MOX fuel, as well as the attractiveness of the plutonium in the used fuel for weapons purposes. The researchers concluded that “although the plutonium mass in the fresh PDR (16 percent Pu) fuel is more than twice that of the MOX (5 percent Pu), the final plutonium mass in the PDR is approximately half that of the MOX rod. This means that the PDR fuel not only consumes plutonium faster than MOX fuel, but that its used fuel rods also contain less residual plutonium.”

Irradiation testing: Lightbridge is backing up simulations of its U-Zr rods with irradiation testing of fuel samples under a seven-year partnership with Idaho National Laboratory governed by two contracts signed with Battelle Energy Alliance, DOE’s operating contractor for INL, in December 2022.

The initial phase of work includes gathering irradiation performance data on thermophysical properties of Lightbridge’s delta-phase U-Zr alloy in fuel samples using enriched uranium supplied by the DOE. That irradiation would be performed in INL’s Advanced Test Reactor (ATR) to support fuel performance modeling and regulatory licensing efforts for the commercial deployment of Lightbridge fuel.

Lightbridge anticipates that later work will include post-irradiation examination of the irradiated fuel samples, loop radiation testing in the ATR, and post-irradiation examination of one or more uranium-zirconium fuel rodlets, as well as transient experiments in the Transient Reactor Test Facility at INL.

The company’s GAIN-enabled work with PNNL, announced February 27, made use of depleted uranium for a demonstration of the casting process. According to Lightbridge, “The results of this work will help Lightbridge determine a final process suitable to produce fuel material coupons for our upcoming irradiation tests in the Advanced Test Reactor.” Lightbridge has received two GAIN awards for collaboration with national laboratories.

<https://www.ans.org/>

ELECTRIC

16 Portable Cords



Zendure Showcases Its Latest Innovations in Portable, Solar Power at Intersolar North America



SuperBase V

Zendure, one of the fastest growing clean energy tech startups, shows off its latest innovations in portable, solar power at Intersolar North America.

Leading the charge is SuperBase V, the first modular, portable power station with semi-solid state batteries to provide more reliable, safer,

cleaner energy when and where users need it most – from RV and off-grid living to EV charging, whole-home power and emergency back-up.

Last year in 2022, Zendure moved from outdoor energy storage into the home energy storage market to further fit the future of energy and bring power independence to more people than ever before.

SMART, WHOLE-HOME POWER

«Product design and innovation catered to end users is at the core of this movement, said Bryan Liu, Zendure CEO. «I am thrilled to be able to meet with specialists and partners in the solar, storage, electric vehicle, and green clean energy sectors at Intersolar to gain knowledge of the market, investigate potential business opportunities, and create the newest clean energy storage solutions to benefit homes in the future.»

Zendure will continue to improve and iterate in the upcoming year, focusing on the idea of a plug-and-play home energy storage and the current products, including SuperBase V, extended satellite batteries, smart home panels, EV charger, solar panels, and the ZEN+ intelligent cloud platform.

«We have already worked to create an integrated light storage and charging scenario, and to achieve an AIoT energy ecosystem with energy storage at its core, supported by our self-developed software platform and massive amounts of data,» added Liu. «As the first plug-and-play home energy storage product, SuperBase V, it simultaneously implements 3000W solar fast charging, 120V/240V dual voltage, 0 ms UPS, voice control, and extended battery pack supporting 64 kWh of power, and is the industry's first semi-solid-state battery home energy storage product.»

Together with cutting-edge new energy technologies, Zendure plans to create the best home energy storage products and intelligent clean home energy management system for end users, starting with its hero product, SuperBase V. SuperBase V features industry-leading semi-solid-state batteries, which boast a higher energy density and greater damage resistance than lithium-ion phosphate batteries. Power is customizable and expands from 6.4kWh to 64kWh, meaning the right set-up can store enough energy to power a typical

household for a week or more.

As the first and only system that can supply 120V/240V dual voltage from a single base unit, SuperBase V can charge small and large appliances, including your refrigerator, heating and cooling systems, oven and more at the same time. And when the unexpected happens, SuperBase V's back-up power switches on instantly without interruption, preventing damage or disruption to sensitive equipment.

It also works with Amazon Alexa and Google Home systems for intuitive, convenient voice control. The Zendure app also gives users tools to monitor, manage and customize energy use, which can significantly reduce your energy bill.

EV CHARGING AT HOME OR ON-THE-GO

It also has EV charging capabilities at home and on-the-go. With up to 12,000W of power distribution, the Home Panel can charge two vehicles at the same time and provide AC power to up to ten circuits around the house. Portable level 2 EV charging also supports public power station input, and the SuperBase V paired with a battery pack adds an extra 40 miles to keep drivers moving between pit stops.

Each base station comes with a variety of hook-ups and 14 ports, including AC, USB-A and USB-C and a 12V car outlet for limitless power possibilities. It's also equipped with a pull-out handle and motorized wheels for easier portability around your home and on-the-go.

More information can be found at [Zendure.com](https://www.zendure.com)

ABOUT ZENDURE

Zendure is one of the fastest-growing Clean Energy Tech start-ups based in the technology hubs of Silicon Valley in California, and the Greater Bay Area in China, as well as Japan. Zendure's goal is to make energy accessible anywhere, anytime, and to democratize the latest battery technology to power on-grid and off-grid lifestyles alike in a clean and affordable way. To learn more visit [Zendure.com](https://www.zendure.com) and follow Zendure on Facebook, Instagram, Twitter, and LinkedIn.

Zendure USA Inc
<https://en.prnasia.com/>

COVER STORY

19 Electric Solutions



Power Backups Have Become Non-Negotiable in South Africa

With the threat of stage 8 load shedding looming large over South Africa, having a plan B for extended periods of power outages has become non-negotiable, says retailer Builders.

But it's not an easy or affordable process to embark on – and it is important for households to take into account a handful of considerations before trying to move off the grid, it said.

“Finding effective power solutions for many can be overwhelming; it is, therefore, important to consider certain factors before investing in an alternative power solution,” said Amelia Rajkumar, buyer for electrical and alternate power solutions at Builders.

“When selecting the right backup method, you need to evaluate your power supply needs in terms of usage – which is unique to every home and business.”

According to the retailer, homeowners must initially determine how much power is needed and what times their home needs to be powered. Once this is confirmed, pricing and affordability is the next stop.

Moving off the grid is an expensive endeavour, Rajkumar said – however, with likely tax breaks on the horizon for installing alternative energy generation systems, this may begin to change.

The government is expected to detail incentivisation programmes for off-grid households in the coming weeks, starting with an anticipated announcement from finance minister Enoch Godongwana during his budget speech on Wednesday (22 February) related to possible tax breaks.

Other measures, such as the adoption of feed-in tariffs to allow private producers to sell energy back the grid, are also expected to be in the pipeline.

Rajkumar said there are broadly two options to consider when opting for alternative power: the ‘plug-and-play’ solutions and going solar.

‘Plug-and-play solutions’ ensure that devices such as routers, laptops and lights continue working during power cuts. These involve portable power solutions, some of which come with advanced battery capacity, fast-charging ability, and enough strength to run high consumption appliances.

“The second – solar installation – comes with the great potential for rebates expected to be announced in the budget speech. We will likely see an increase in demand here and pricing, too,” Rajkumar said.

Portable solutions are more affordable but limited. Solar solutions give the best mitigation against



Power Backups Have Become Non-Negotiable in South Africa

load shedding but come at a greater cost.

Currently, solar solution prices vary between R100,000 and R200,000, but can reach over R300,000 on the higher end, depending on the number of panels, quality and brand of inverter and batteries.

These prices are unattainable for many households. Inverters, meanwhile, can vary in price and size, with most ‘off the shelf’ products ranging between R6,000 and upwards of R20,000 and even higher. Whatever the solution in place, Builders said that South Africans can do more to decrease the load on their systems, which will improve energy efficiency over the long run, and will even save money in the face of rising prices.

These are some methods to be better prepared for rolling blackouts and electricity price hikes.

Load shedding lights – these are lightbulbs with built-in rechargeable batteries that can be used to reduce the overall load considerably.

Reducing the amount of power used by replacing air conditioners – which consume 2.5-3kW of power per hour – with an evaporative cooler at 200W, or a normal fan.

Invest in gas stoves and cookers.

Substituting appliance with those that use less power.

Rajkumar noted that replacing appliances is quick and effortless way to reduce power usage and make mitigation solutions last longer.

A geyser, for example, provides hot water for multiple uses, such as bathing, washing clothes, washing utensils and cooking.

“Traditional geysers use 3.5kW of power per hour compared to a heat pump which only consumes 0.5kW over the same period. Over time, this results in a 48% saving on the monthly electricity bill,” Builders said.

Staff Writer

<https://businesstech.co.za/>

“

The first solar panel was invented by Charles Fritts in 1883 where he coated a thin layer of selenium with an extremely thin layer of gold. The resulting cells had a conversion electrical efficiency of only about 1%.



energy

HQ

energy HQ.world
March 2023
Vol. 1
Issue 03



PRODUCTS

23 Solvents



Clariter, Total energies Fluids to Produce First ‹Ultra-Pure› Solvents Made from Plastic Scrap



Solventra

The solvents can be used in markets that require safe, colorless, odorless, and tasteless products that meet pharmacopeia purity criteria.

Clariter, a global cleantech company based in Luxembourg, and TotalEnergies Fluids, a division of Paris-based TotalEnergies, have premiered what they're calling the first sustainable ultra-pure solvent made from plastic scrap.

This technological and industrial success is the fruit of an 18-month collaboration between Clariter and TotalEnergies Fluids.

Daria Frączak, scientific director of Clariter, says Clariter's know-how and experience in plastic upcycling combined with TotalEnergies Fluids' knowledge of industry requirements to develop a process to produce sustainable solvents that meet the highest purity standards. "We are thrilled to have achieved this significant milestone in our journey toward bringing to industry sustainable, high-quality products made from plastic [materials]."

The ultra-pure solvents can be used in pharmaceutical, cosmetics and other highly demanding markets that require safe, colorless, odorless, and tasteless products that meet the highest pharmacopeia purity criteria.

Clariter says producing these solvents from plastic scrap significantly reduces their environmental footprint and contributes toward addressing the challenge of end-of-life plastics.

"We are offering an alternative obtained from plastic [material]," Frączak says. "This contributes to the circular economy and reduces the dependency on new fossil feedstocks because we can achieve this high quality and purity from feedstocks we already have."

Clariter leverages its proprietary upcycling technology, called defossilization, which consists of three steps: thermal cracking, hydroprocessing and separation. The material is being processed at a Clariter research and development facility in Gliwice, Poland and an industrial scale plant in East London, South Africa.

Frączak says the process can handle multiple

types of plastic scrap, including polyolefins like polyethylene and polypropylene. It also can process polystyrene. The material is sourced from various feedstocks, including municipal solid waste, or from companies such as Royal DSM, an Amsterdam-based manufacturer of nutrition, health and sustainable living products. Royal supplied Clariter with end of life products that include ropes, nets and ballistic materials made with Dyneema, an ultra-high-molecular-weight polyethylene fiber.

The first step is thermal cracking, a form of pyrolysis where Clariter uses elevated temperatures without the presence of oxygen in a reactor to break down long polymer chains into shorter-chain hydrocarbons. This material leaves the reactor in the form of vapors.

"It has some similarities to crude oil [or pyrolysis oil], but there are also differences in the composition [that make it different from these products]," Frączak says of the output material. "So, we call it hydrocarbon mix or product of cracking."

This product is injected into a hydrotreatment process, which uses hydrogen to purify the stream. The process removes unwanted components such as sulfur-based, nitrogen-based or oxygen-based compounds. It also can remove or separate olefins and aromatics.

Because it is still in the research and development phase, Frączak did not disclose how fast it is.

The process is continuous and transforms plastic scrap into sustainable, high-quality solvents, waxes and oils.

Using its Hydro-De-Aromatization technology, TotalEnergies Fluids further converts the upcycled materials into high-purity solvents that meet the quality levels required for the most stringent applications.

«This new technology opens a broad field of solutions to help our industrial customers decarbonize their industry, and fully integrates within our target of commercializing 30 percent low carbon solvents by 2030," Didier Ribault, business development director for TotalEnergies Fluids, says in a news release about the development. «This partnership marks yet another step forward in TotalEnergies Fluids' development of a comprehensive range of circular products.»

Total Energies Fluids was not available for an interview.

Clariter says it plans to expand its operations in the coming years. Right now, the company has development efforts underway in the Netherlands, Poland and Israel, building and engineering three full-scale plants to process 60,000 tons of postuse plastic annually.

<https://www.recyclingtoday.com/>

SERVICES

25 Lighting



Melbourne Burnley Tunnel Lighting Tech to Help Drivers Keep Pace With The Speed Limit



Burnley Tunnel In Melbourne Is Getting a New Lighting System

The Burnley Tunnel in Melbourne is getting a new lighting system designed to encourage drivers to maintain their speed rather than slow down.

Slow and inattentive drivers are a major cause of congestion along one of Melbourne's main arterial roads, say authorities, but a new hi-tech lighting system aims to help improve traffic flow – by encouraging drivers to keep pace with the speed limit.

The Burnley Tunnel – a tollway that connects eastbound traffic from the West Gate Freeway to the Monash Freeway, bypassing city streets – will soon switch on 'pacemaker lighting', which is designed to encourage drivers to maintain their speed by giving them a visual reference as to how fast they should be travelling.

As the Burnley runs deep under the Yarra River, there's a steep incline on exit. Given there are few visual cues inside the low-light tunnel to act as a speed reference, many drivers unwittingly slow down and cause a build-up of traffic.

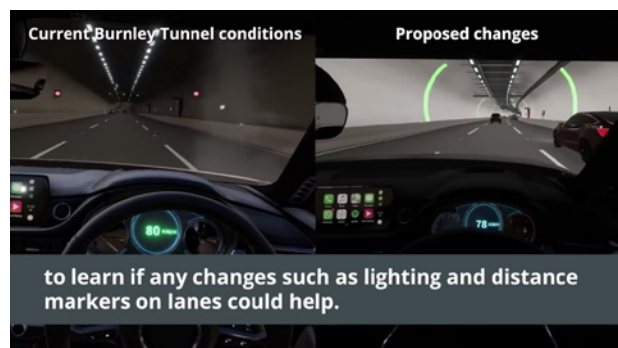
The new lighting system will have a green band of LEDs appearing to keep pace with traffic, providing drivers with a reference in their periphery that will make it more obvious when they're losing speed.

Testing conducted by Transurban, the private

company that manages the Burnley Tunnel, shows the system improves the consistency of speed at the slope.

The project will also brighten up the tunnel with all-new white LED lighting – though the bright lights have raised concerns that drivers could become startled, or their eyes could take too long to adjust when entering or exiting at night.

Drivers will begin to notice changes during February 2023 as the lighting is turned on, with the pacemaker lighting system expected to be fully operational in the coming months.



By Ben Zachariah

Journalist

<https://www.drive.com.au/>

TECHNOLOGY

27 Panel Boards



Live In an Apartment? This New Solar Technology Could Cut Your Bills in Half



Wales is the first country to install the new solar technology for housing blocks in Europe.

A housing block in Wales has been fitted with a 'world-first' solar system that connects all the flats to the same rooftop panels.

The residents of Odet Court in Cardiff are set to save 50 per cent off their energy bills thanks to the new technology, which can meet up to 75 per cent of each flat's electricity demand.

Australian manufacturer Allume Energy claims that its 'SolShare' model is the only technology that enables solar energy from a single rooftop system to be shared by multiple homes in the same building.

"At a time when costs are rising, improving the energy efficiency of homes will not only help us to deal with the climate emergency but also help families through the cost of living crisis," says Welsh Minister for Climate Change Julie James.

The Welsh government funded the pioneering project with social housing landlord Wales & West Housing, as part of a nationwide retrofitting program.

James described it as "an exciting first of its kind project for Wales and exactly the type of thinking we need to see within the housing sector," as the country targets Net Zero by 2050.

Housing blocks across Europe could soon benefit from the eco-innovation. Allume Energy points out that 300 million Europeans live in low and medium rise apartment buildings with roof space for solar. What's different about SolarShare?

People's appetite for solar panels is surging; around 1.2 million UK homes have them installed, according

to the latest MCS standards agency figures.

But more is needed to speed up the solar roll-out and make the green energy source accessible for everyone.

Allume Energy General Manager for Europe Jack Taylor says he hopes the Welsh project "will serve as a template for governments and social housing providers in the UK to [upgrade] multi-unit residences."

Odet Court has 24 flats, so without a way of connecting them, developers would have had to install 24 separate sets of panels, inverters, and batteries.

As well as saving money on hardware, the company says that SolShare has boosted solar use by more than 25 per cent. The new system is suitable for retrofit projects as well as new builds, as it does not require any changes to existing supply and metering infrastructure.

How does the solar technology benefit residents?

The rooftop system has the potential to meet 55 to 75 per cent of each flat's electricity demand.

Based on the average use of 18,000 kWh to 2,400 kWh for a one-bed flat, Allume Energy estimates that this translates to an electricity bill saving of around 50 per cent. Given current average electricity costs in the UK of 34p/kWh, that means each flat stands to save between £390 to £530 (€438 to €595) a year.

That's a significant chunk off in a cost-of-living crisis. But there's another, structural benefit to the communal solar system.

"The SolShare system seems to be a much fairer solution as the energy generated by the building can be shared equally to help our residents to keep their electricity costs down rather than [it] going back to the grid," says Joanna Davoile, executive director (assets) at Wales & West Housing.

This gets round a major obstacle the housing association has been coming up against in recent years: "how to fit PV panels and battery systems to our apartment homes so that everyone living in the schemes could equally benefit."

"We are excited to see how the technology used in the SolShare system will work for our residents," she adds.

By Lottie Lamb

Euro News Reporter / Journalist

<https://www.euronews.com/>

COUNTRY REPORT

29 *Egypt*

30 *Switzerland*

31 *Canada*



China Energy to Build \$5.1bn Green Hydrogen Plant in Egypt



China Energy Engineering Corporation's plant will be one of Egypt's first green hydrogen facilities

Egyptian prime minister Mostafa Madbouly announced yesterday that China Energy Engineering Corporation will break ground in May on one of the country's first green hydrogen projects.

The move, which follows the signing of a memorandum of understanding in November, will create a development with an investment value of \$5.1bn.

The decision comes after China Energy and Egypt signed a deal in November to establish a plant for green hydrogen production in Egypt, which would enable the country to export green ammonia to European markets and target its shortage of foreign exchange, SolarQuarter reported.

According to China Energy, it will develop the project in two phases. It will consist of a solar park and wind farm, along with a facility for electrolyzing water and synthesizing ammonia. When both phases are complete, it will be able to produce 140,000 tons of green hydrogen a year.

The plant will aim to export ammonia to European markets, a move intended to relieve Egypt's chronic shortage of foreign exchange.

The announcement was made during a meeting of the Egyptian cabinet, attended by China Energy chairman Song Hailiang.

Madbouly welcomed the Chinese company's

investment in hydrogen and desalination infrastructure and expressed his country's readiness to provide the incentives necessary to implement them.

Since 2009, China Energy, a state-owned enterprise based in Beijing, has carried out around 10 energy projects in Egypt. It is currently working on a 330km electrical interconnection with Saudi Arabia.



Solar Panels

By David Rogers

<https://www.globalconstructionreview.com/>

Switzerland's Axpo buys 20MW battery storage project in Sweden from RES and SCR



Axpo has already deployed a small battery storage project on home turf, this 2MW/2.17MWh unit at the Jona-Rapperswil power station

Switzerland's largest energy firm Axpo has entered the battery storage market in Sweden, buying a project from developers RES and SCR set to come online in 2024.

Axpo has acquired the 20MW/20MWh lithium-ion battery energy storage system (BESS) project in Landskrona from global renewable energy developer RES and local outfit Scandinavian Capacity Reserve (SCR).

The project will come online in 2024 and will be connected to local utility and distribution system operator (DSO) Landskrona Energi. RES will continue to support Axpo with construction management, asset management and operation and maintenance after the sale is finalised.

Landskrona Energi is one of Sweden's approximately 170 DSOs.

"We look forward to realising this project in Sweden with RES and working with Landskrona Energi. Axpo has set itself the goal of developing a significant volume of storage capacity in Europe by 2030, and this project is an important step on our way," said Frank Amend, head of Batteries &

Hybrid Systems at Axpo Group.

"We are pleased about the early participation in this project, especially by involving an important player like Axpo. Batteries will play an important role in Sweden's full-scale electrification, and at a local level here in Landskrona, battery storage will help support and strengthen our electricity grid," added Johan Holmstedt, CEO of Landskrona Energi.

The BESS market in Sweden has seen an uptick in interest in the last few years as the ability of the country's hydroelectric fleet to provide the required balancing services has started to be stretched in light of increasing renewables and electrification.

The total operational BESS capacity by MW could double or even quadruple in 2023, according to developer Ingrid Capacity chief strategy officer (CSO) Nicklas Backer in an interview conducted at the Energy Storage Summit in London last month.

By Cameron Murray

<https://www.energy-storage.news/>

Mccain Foods Investing Millions in Canada Plant Expansion



McCain Foods Limited

The Coaldale site project will create 260 jobs. McCain Foods is investing CAD600m (US\$438.5m) to add two production lines at one of its plants in Canada complete with sustainability initiatives. The project at the Coaldale site in Alberta will double the facility's production capacity and create 260 jobs when completed. Work is set to start "later" this year, the frozen potato products supplier said.

"The development in Alberta marks our largest global investment in our 65-year history," Max Koeune, president, and CEO of the privately-owned company, said. "This will fuel continued growth for the business, allowing us to serve key markets further by bringing customers high-quality potatoes that begin with our dedicated local farming community."

McCain Foods, headquartered in Toronto, is fitting wind turbines and solar panels as part of the project to supply 100% renewable energy to the site. A water recycling system will also be added to "produce clean potable water" for the manufacturing process.

To offset the natural gas requirement, "renewable biogas generated at the wastewater treatment facility will be maximized and transported to the steam boilers", McCain Foods explained.

The company has operated the Coaldale facility since 2000 and it employs 225 people. A spokesperson for McCain Foods confirmed the two new lines will produce French fries and "specialty" potato products for the North American market but declined to offer more details on the output.

A "minority of future production" will be for Asia and Latin America, the spokesperson told Just Food.

In the year to 30 June, McCain Foods reduced its scope 1 and 2 carbon-dioxide emissions by 6% and increased the use of renewable electricity to account for almost 20% of its total usage, the company said in its latest sustainability report.

By 2030, McCain Foods has set a target to cut the use of carbon dioxide per tonne from potato farming by 25% and to improve water-use efficiency by 15% in "water-stressed regions" by 2025.

It is also seeking a 50% absolute reduction in scope 1 and 2 emissions by 2030, along with a target to use 100% renewable electricity and to complete the move away from coal. Under the same threshold, the business aims to lower scope 3 emissions by 30%.

Palm oil will also be cut from McCain Foods' frying operations by 2025.

By **Simon Harvey**
 Writer - Food Industry
<https://www.just-food.com/>



INDUSTRY NEWS

33 Products & Services

SACMI At Chinaplas 2023: Raw Material And Energy Savings, 'Smart Vision' Inspection



SACMI presents new technological developments for the CCM that deliver even greater energy savings and more advanced controls. Alongside them, an inspection revolution with dedicated systems that SACMI, as of now, also produces directly in China. And from SACMI Laboratory, a ready-to-market solution for a streamlined, profitable transition to new lightweight neck standards

With more than 680 CCM presses installed, SACMI leads the way on China's capping line market. Now, in the run-up to the 35th edition of Chinaplas, a key event that draws visitors from every corner of the globe, SACMI is getting ready to showcase multiple innovations on the latest-generation CCM presses.

The press range now benefits from an integrated range of 'smart vision' inspection systems, from the CHS (for caps), produced directly in China as of this year, to the PVS (for preforms), which can be incorporated on the next-gen IPS 300 and IPS 400.

It's not just technology that's on show. Visitors to the SACMI stand (n. 10H41) can also see several Laboratory-made products, such as market-ready neck+cap and tethered-friendly solutions designed to aid the lightweighting transition: solutions already adopted by some of the industry's major players.

SACMI CCM, clever inside

More stylish outside, more digital and technological inside than ever: at Chinaplas 2023 SACMI will be showcasing the latest CCM machines, equipped with the brand new CM-Flow extruder.

- Energy savings of up to 9%
- Up to 50% fewer black specks compared to the same resin processed with traditional extruders.
- CMFLOW™ produces caps that have the same resistance to stress cracking as those produced with traditional extrusion technology and operates at lower temperatures.

CMFLOW™ isn't just highly effective. It's also simple and compact. This allows for quick and easy maintenance because, unlike a conventional extruder, the motor is coupled directly to the screw without any need for a gearmotor.

CMFLOW™ is as-standard on the new SACMI CCM48SD presses yet can also be implemented on the CCM24SF and CCM32MC versions.

SACMI CCM, digital inside

All latest-generation CCMs – and existing versions such as the CCM24SF, CCM32MC, CCM48SD and CCM64MC – can be equipped with SACMI Smart Pack. A digital control package that integrates advanced sensors and on-board controls, Smart Pack simplifies operation, increases machine availability and reduces the risk of errors or line stoppages.

How? Through, for example, an automatic system that verifies correct dose insertion and positioning. Through automatic (and predictive) hydraulic oil quality control. Through cutting-edge thermoregulation to prevent on-mold condensation, thus boosting system availability



and extending machine and mold component lifespans while improving the quality of the molding process.

Smart vision: SACMI CHS (and beyond)

To provide customers with ever-closer support, SACMI has begun producing its CHS cap inspection vision system range at one of its Chinese plants. The goal: to further accelerate delivery times and punctuality of service.

But that's not all. The idea is to offer the market a revolutionary approach that is already as-standard at SACMI: inspection is no longer simply about controlling individual defects/caps, it's a tool to gather valuable information to improve processes and predict drifts.

Key innovations include a patented SACMI solution that inspects tamper band slitting on the new tethered caps. The tethered standard is also of growing interest in China and SACMI offers a range of advantageous ready-to-use solutions, such as simple slitting of the tamper band in post processing.

GME30.40 neck transition, fully integrated cap-preform production with a new generation of SACMI IPS machines

SACMI aims to help manufacturers transition to new lightweight standards. To do so, it also works alongside key international certification bodies like CETIE. For example, the new GME30.40 'multi-

purpose' 26/22 neck standard is gaining popularity in China and around the world as it offers a tethered-compatible solution that delivers net plastic savings of more than 30% without affecting performance.

Through SACMI Lab, each development is accompanied by a series of dedicated, customized, ready-to-use caps. Some of these will be showcased on the SACMI stand to illustrate their outstanding versatility, as they can all be customized to meet production requirements.

The entire process is streamlined by SACMI's ability to provide comprehensive technology, which spans from CCM presses to the latest-generation IPS preform presses. The IPS 300 and 400 are, in fact, the first solutions on the market to integrate, directly on the press, intensive preform inspection with the PVS 156 vision system. This reduces the risk of incorrect batches and makes settings and changeovers easier.

To sum up, the SACMI CCM+IPS combination means customers can count on a sole provider at each stage of the process, allowing them to accelerate the adoption of new standards and develop distinctive products that meet the strict specifications of the main international brand owners.

Valentina Gollini
PR & Communication Dept.
SACMI Imola SC

SERVICES

36 Career Center
35 Tenders
38 Coming Events



Career Center

AECOM

Position Title:	Principal Civil Engineer – Renewable Energy
Location:	London, United Kingdom
ReqID	J10065775
Requirements	<ul style="list-style-type: none"> • Previous experience of working on National Grid, SSE or other UK utility projects would be advantageous. • Ideally you will have a background in civil infrastructure and the energy sector and in particular renewable energy systems. • The role is a technical role, and you will be expected to demonstrate a high degree of technical competency in the design of civil and structural elements. • BEng (Hons) degree in Civil Engineering Chartered status or actively working towards chartership with either the Institution of Civil or Structural Engineers. https://www.energyjobline.com/

Holaluz

Position Title:	Head of Energy Management
Application Deadline:	N/A
Location:	Barcelona, Spain
Requirements	<ul style="list-style-type: none"> • Bachelor's degree required, MBA or advanced degree strongly preferred. • At least 7 years of experience in a Portfolio analysis position or alike. • Deep understanding of the energy sector. • Extensive knowledge of hedging financial derivatives. • Outstanding critical thinking, analytical and quantitative abilities. https://www.euroclimatejobs.com/

MET Group

Position Title:	Renewables Project Manager
Application Deadline:	N/A
Location:	Milan, Italy
Requirements	<ul style="list-style-type: none"> • At least 3 years of project management experience in solar PV project development and construction management in Italy. • Deep knowledge of the renewables permitting and regulatory background in Italy is a must. • Fluent in Italian (native) and English. • Engineering degree. • Excellent stakeholder management, interpersonal and project management skills. https://www.euroclimatejobs.com/

Qair

Position Title:	Wind and PV Project Manager
Application Deadline:	N/A
Location:	Constanta or Bucharest, Romania
Requirements	<ul style="list-style-type: none"> • He/she has a 4/5-year degree (Engineer/Master Environment, Economics), with 3 to 6 years of experience in the development of large infrastructure projects in rural areas, ideally in development and/or construction of renewable energy. • He/she has good interpersonal and writing skills. He/she has a solid knowledge of renewable energy and administrative authorization procedures. • He/she is comfortable with standard computer tools and planning software. • In addition, he/she is rigorous, methodical and likes to work in a team, but can work with a large autonomy. • English or French is required. https://www.euroclimatejobs.com/

Tender Notice

TenderID	58373283
Tender Brief	Tenders Are Invited for Construction, Placement and Exploitation Of Two Wind Turbines On Business Zone De Prijkels
Competition Type	ICB/NCB
Funded By	Self-Funded
Country	Belgium
Tender Value	-
Tender Value In USD	-
Last Date of Bid Submission	01 Mar 2023

TenderID	58033693
Tender Brief	Tenders Are Invited for Dla Desc1903 Fuel Pier Construction Mcas Iwakuni, Japan
Competition Type	ICB/NCB
Funded By	Self-Funded
Country	United States
Tender Value	-
Tender Value In USD	-
Last Date of Bid Submission	09 May 2023

TenderID	22730780
Tender Brief	Tenders Are Invited for Services Related to The Oil And Gas Industry
Competition Type	ICB/NCB
Funded By	Self-Funded
Country	France
Tender Value	-
Tender Value In USD	-
Last Date of Bid Submission	09 Sep 2023

TenderID	59100621
Tender Brief	Tenders Are Invited for Construction Of Fuel Supply Facilities
Competition Type	ICB/NCB
Funded By	Self-Funded
Country	Cameroon
Tender Value	-
Tender Value In USD	-
Last Date of Bid Submission	09 May 2023

Coming Events

International Engineering Sourcing Show

16 - 18 Mar 2023

Chennai Trade Centre, Chennai, India

<https://www.eepcindia.org/iess/>

International Engineering Sourcing Show with its unique concept, is aimed at reducing dependence on traditional markets, developing domestic markets, forging partnerships and joint ventures, strengthening commercial relations, and accelerating trade between India and the world.

Eastern Gas Compression Roundtable Conference & Expo

02 - 04 May 2023

David L. Lawrence Convention Center, Pittsburgh, USA

<https://www.egcr.org/>

The EGCR, a non-profit organisation, has the primary goal of providing cost effective training programs to the Natural Gas Industry that focus on compressor and engine maintenance. Anyone can attend the Conference, which is held every year since 1973. EGCR membership does not need to be obtained.

Factory Facilities & Equipment Expo

12 - 14 Apr 2023

Port Messe Nagoya, Nagoya, Japan

<https://www.japan-mfg-nagoya.jp/en-gb/about/factex.html>

FacTex (Factory Facilities & Equipment Expo) is an exhibition of energy-saving products, logistics equipment, maintenance products, safety products and disaster prevention products for factories.

Many users from the manufacturing industry, such as factory management, manufacturing, production technology, maintenance, purchasing and logistics departments, visit the show and have active business discussions with the exhibitors.

International Battery Seminar & Exhibit

20 - 23 Mar 2023

Loews Royal Pacific Resort at Universal Orlando, Orlando, USA

<https://www.internationalbatteryseminar.com/>

Key thought leaders will assemble to not only provide broad perspectives, but also informed insights into significant advances in materials, product development, manufacturing, and application for all battery systems and enabling technologies. As the longest-running annual battery industry event in the world, this meeting has always been the preferred venue to announce significant developments, new products, and showcase the most advanced battery technology.

Middle East Energy

07 - 09 Mar 2023

Dubai World Trade Centre, Dubai, UAE

<https://www.middleeast-energy.com/en/home.html>

Middle East Energy has well established itself as the region's most reputable and comprehensive energy event in the MENA region, where global buyers and sellers connect to discover products and showcase solutions to deliver cleaner energy and supply sustainable power.

Ankara Power Africa Expo

10 - 13 Apr 2023

Congresium, Ankara, Turkey

<http://www.ankarapowerafrica.com/>

Ankara Power Africa Expo brings together finance, technology and resources which is set to become a key component for Africa's primary strategy to achieve sustainable development by scaling up and accelerating the deployment and funding of huge energy potential of the continent in a low carbon manner with less vulnerable to climate change.

US Power Africa Expo

15 - 18 May 2023

Jacob K. Javits Convention Center, New York, USA

<https://uspowerafrica.com/>

US Power Africa Expo brings together finance, technology and resources which is set to become a key component for Africa's primary strategy to achieve sustainable development by scaling up and accelerating the deployment and funding of huge energy potential of the continent in a low carbon manner with less vulnerable to climate change.

Solar Solutions International

14 - 16 Mar 2023

Expo Haarlemmermeer, Vijfhuizen, Netherlands

<https://www.solarsolutions.nl/>

Solar Solutions International is the largest trade fair for solar energy in Northwestern Europe and revolves around innovations and 100 practical seminars on the latest developments in energy storage, smart products, and an increasingly wide range of solar panels.

Agent

For more information, please contact:

Mr. Omar Zeidan

Marketing & Research Officer/Community Officer

T: +961-1-748333 Ext: 271

o.zeidan@1world.xyz

Reprint Guidelines

Reprints of the energyHQ magazine's special reports and articles are available for a minimum order of 5 copies. Customization options are available for establishments at a minimum order of 100 copies. For a list of our previous and coming reports and articles, kindly consult our website for the yearly editorial program at

www.energyhq.world or simply contact us for a printed copy at info@industryhq.com

Send all reprint orders to our address at the end of the page

Subscription & Membership

energyHQ magazine can be received monthly by subscription. The yearly subscription rate to energyHQ is: Lebanon \$25, Arab Countries, Iran & Cyprus \$65, Europe, Turkey & Africa \$95 and other Countries \$120. Further information on multi-year subscription rates and membership privileges can be found on the inserted subscription & membership card. For special student and group/bulk subscription rates, please send your request to, Mr. Abdul Rahman Hallak (Circulation & Mailing Manager) at: subscription@industryhq.com

Editorial Regulations

Since we always aim to provide our readers with the latest and most important editorial content, and since we try to act as an information bridge / link between high-tech countries and the developing countries of the MENA region, we mention hereby the conditions for publishing editorial material in energyHQ, hoping that these instructions will be respected by authors. energyHQ's editorial material is divided into articles and press releases. The press release is 200 to 400 words, while the article is 1 thousand to 1,500 words. The article is published for free, and a proper acknowledgement is made at its end. All material submitted to the publisher (CPH) and relating to energyHQ will be treated as unconditionally assigned for publication under copyright subject of the Editor's unrestricted right to edit and offer editorial comment. energyHQ assumes no responsibility for unsolicited material or for the accuracy of information thus received. energyHQ assumes, in addition, no obligation for return postage of material if not explicitly requested. Editorial Material (text & photos) can be sent to Editorial & Research department by air-mail (see posted address below or email at content@industryhq.com (text MS Word document accompanied with two or more images having a resolution of 300 DPI or more).

***1W Team** (Email domain is @1world.xyz)

*One World (1W) is parent company of CPH World Media (CPH), publisher of energyHQ

Departments (Personnel) by alphabetical order**i. Accounting & Finance (AF)**

Hala Nizam – Accounting & Finance Officer / Administrative & Data Officer
(accounting@1world.xyz)

ii. Content & Research (CR)

Hassan Mourtada – Content & Research Officer/Community Officer
(content@1world.xyz)

iii. Graphic Design (GD)

Shadi Al Masri – Design Manager
(design@1world.xyz)

iv. Management (MA)

Abdul Rahman Hallak – Administrative & Data Manager (info@1world.xyz)
Mohamad Rabih Chatila – CEO
(info@1world.xyz)

v. Marketing & Sales (MS)

Mr. Omar Zeidan – Marketing & Sales Officer/Community Officer
(o.zeidan@1world.xyz)

energyHQ magazine, established since 1983, is published monthly by **CPH World Media – a One World (1W) Division**

Courier Address

Hamra, Commodore Area, Barouk St.,
Chatila & Chehab Bldg, 2nd Fl. Beirut -
Lebanon

Postal Address

P.O.Box: 13-5121 Chouran
Postal Code: 1102 2802
Beirut-Lebanon

Contact Us

T: +961 (01) 748333
M: +961 (70) 100094
E: info@1world.xyz
W: www.energyHQ.world

Designing the Future of Wave Energy

Four NREL-Supported Marine Energy Projects Help Advance Technologies To Better Serve an Evolving Grid



Along global coastlines, a powerful force churn. Ocean waves contain tremendous amounts of power; in the United States, ocean waves carry the equivalent of almost 60% of the United States' annual electricity needs. But before the country (and the world) can tap into that well of power, we need a new fleet of technologies to harness those waves—affordably.

The marine energy team at the National Renewable Energy Laboratory (NREL) recently lent their expertise to four different projects focused on that very challenge. As part of a \$24.9 million funding opportunity from the U.S. Department of Energy's Waterpower Technologies Office (WPTO), NREL researchers helped project partners improve the performance of four different wave energy converter designs.

The four wave energy converters, which transform the power from ocean waves into electrical energy, are being designed for in-water, grid-connected testing at the PacWave South test site, currently under construction off the coast of Oregon. As part of that design process, NREL researchers provided expert guidance and facilities to ensure technology designs can withstand the test site's powerful waves.

"Developing and testing marine energy technologies is inherently complex," said Mike Lawson, who leads the NREL marine energy team. "But with our lab's wave energy experts, testing facilities, and modeling capabilities, developers can design devices that will operate in the harsh and inhospitable ocean environment."

In the short term, wave energy converters could generate clean power for coastal and island communities and even offshore applications, such as seafood and sea vegetable farming, marine research, or military operations. In the long term, these devices could help the country build a carbon-free power system.

But today's devices are not quite ready to jump onto the grid; developers must first improve the cost and durability of their technologies.

From 2019 to 2023, NREL researchers worked with the four projects to assess their technology designs by, for example, simulating how they might function in real ocean waves. The team also helped the partners align their designs with international standards—a global rubric that ensures new technologies are safe and perform as promised.

But before these devices can connect to the grid, they need to go through one more critical step: open-water testing. These tests will also provide precious data on how wave energy converters perform in real waves—that valuable data could help wave energy technology developers achieve the performance and reliability goals needed to reduce costs, another critical step to earn commercial success.

Of course, not all wave energy converters are the same. Each of the project partners will test a unique design.

By Tara McMurtry
<https://www.nrel.gov/>

water HQ

waterhq.world





“WORLD IS TOO SMALL... FOR US” SINCE 1977



For OIL&GAS, ENERGY, CONSTRUCTION and MINING Projects, we provide “Turnkey Camps” & “Prefabricated Buildings” such as;

- Accommodation
- Kitchen / Dining Halls
- Offices
- Industrial Buildings
- Dormitories
- Warehouses

“We Are Looking For Solution Partners”

info@tepeprefabrik.com.tr
www.tepeprefabrik.com.tr

