

# **WORLD POWER SYSTEMS REVIEW**

**1 September 2023**

**15 August 2023**

## **Power returns in Brazil after widespread outages**

Power was fully back online for most Brazilian residents on Tuesday afternoon after an "incident" caused outages across the nation.

Brazil's electricity grid was restored at 2:30 p.m local time (1730 GMT), the mines and energy ministry said in a statement, adding that there are still some "adjustments" to be made in several cities. The power outage also affected subway services in major cities such as Sao Paulo and Salvador.

Some 16,000 megawatts of power was brought down after an "incident," which was still being looked into, the ministry had said earlier. Mines and Energy Minister Alexandre Silveira has "ordered an investigation into the causes of the incident," the ministry said. Silveira is set to hold a press conference later in the day to comment on the matter.

Private power firms operating in Brazil were affected by the outages. Equatorial Energia and Enel Brasil had said earlier in the day they were resuming power supply to their clients, while CPFL Energia said supply had already resumed for all customers.

*Reuters*

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

**16 August 2023**

## **Deir Ammar and Zahrani power plants shut down, negotiations underway**

Primesouth Lebanon, which operates the Deir Ammar and Zahrani power plants on behalf of Électricité du Liban (EDL), began shutting down the two plants at 5 p.m. Wednesday over unpaid dues, though negotiations were underway Wednesday evening to restart service.

The Energy Ministry was in negotiations Wednesday with Primesouth Lebanon, the Ministry of Finance and Banque du Liban (BDL) to reopen the two vital power plants, an Energy Ministry spokesperson told L'Orient-Le Jour. They added that the dispute was expected to find a resolution by Wednesday night. Earlier on Wednesday, Primesouth Lebanon threatened to shut down the plants by 5 p.m., according to EDL's press office. Primesouth Lebanon management officials contacted by L'Orient-Le Jour declined to comment. The company's contract is due to expire in July 2024. Primesouth Lebanon shut down the plants over accumulated payment debts owed by EDL — and therefore by the Lebanese state — to the tune of more than \$100 million, an EDL source told L'Orient-Le Jour on condition of anonymity. While EDL's management did not mention the total amount of outstanding payments, it did say that Primesouth Lebanon had sent it an ultimatum as early as last week, accompanied by a request for an advance on the amounts owed in "fresh" dollars.

Management said it has approached BDL to try to obtain the money and release \$10 million from the blocked funds in Lebanese lira generated by the collection of electricity bills. Still, according to EDL, these funds total LL2.5 trillion, or \$37 million converted at a rate that was approved by Cabinet on May 26.

The Deir Ammar and Zahrani plants are the largest in the country, with a combined capacity of 900 megawatts — more than half the total power available. The two sites are also practically the only ones to have been in operation for the last several months. EDL, whose already fragile finances have been drained since the start of the crisis that erupted in 2019, is unable to buy fuel to power all its plants. Instead, it has been relying for the past two years on Iraqi fuel supplies via a barter agreement, as well as on recent rare advances it has received from the Treasury.

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Primesouth Lebanon previously ceased operations at Deir Ammar and Zahrani in July 2022 over unpaid dues, but restarted hours later after negotiations. Lebanon's financial crisis, which has seen the lira depreciate by more than 98 percent, has wiped out the already paltry revenue EDL collected via monthly power bills. Primesouth Lebanon is the sister company of US-based Primesouth, which specializes in energy infrastructure management. It won the tender to manage and maintain the Deir Ammar and Zahrani plants in 2016.

*L'orient Today*

<http://today.lorientlejour.com/>

**16 August 2023**

## **India switches on world's largest hybrid renewables cluster**

Adani Green Energy has commissioned a 2.14 GW solar-wind hybrid cluster in Jaisalmer district, in the Indian state of Rajasthan. The site, spanning 11,500 acres, features 5.8 million solar modules, with capacities of 535 Wp each.

About 40% of the total PV capacity includes fixed-tilt module mounting structures. In addition, the project includes 353 wind turbines. Adani Green Energy's future plans involve the development of a 15 GW hybrid solar-wind project in Khavda, Gujarat. This upcoming cluster will span 70,500 acres. It will feature 33.6 million PV modules, each 570+ Wp in size. The setup will include trackers with robotic cleaning technology and 375 wind turbines.

*pV-magazine*

<http://www.pv-magazine.com/>

**16 August 2023**

## **ESO to free up 8GW of projects via TEC amnesty**

National Grid ESO and Ofgem have unveiled the next steps for the Transmission Entry Capacity (TEC) amnesty which could remove 8GW of non-viable projects. The TEC register is a crucial part of the energy system and is essentially a queue for projects waiting for a grid connection. However, with a huge number of potential projects now looking to connect – Ofgem has stated that this figure stands at 340GW – this has now caused a “clogging” which could hinder the UK's net zero ambitions.

Highlighting the extent of the issue, Ofgem revealed that “over 40% of all new generation capacity holding transmission connection agreements today have connection dates of 2030 or beyond (some as late as 2037)”. But in line with the UK's decarbonisation and energy security prospects, many of these projects must come online much sooner to play a role on the journey to net zero.

One of the biggest issues with the TEC register is the number of non-viable projects. To leave the queue, companies must pay a fee meaning that many are reluctant to do so. And with the queue working on a “first come first serve basis”, viable projects are stuck behind ones that are less likely to be developed. To rectify this, ESO has agreed to waive these cancellation fees up until September 2024, granting non-viable projects the opportunity to leave the queue and help spearhead the development of more promising projects. ESO said that beyond this date, existing frameworks will continue to apply.

It is important to note that this will only apply to customer projects that opted into TEC Amnesty during the expression of interest window for TEC Amnesty which ran from October 2022 to April 2023. Ofgem, in a letter of approval, stated: “There is a clear need to take action now to enable the optimisation of the connection queue to deliver improved connection dates and processes for customers, which we outlined in our open letter earlier this year. Releasing this capacity from the queue is in the interests of consumers and net zero and is in line with our consumer interest's framework. Our support to facilitate the

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processing of the TEC Amnesty signals our commitment to achieving our objective and desired outcomes for Connections Reform.”

**Current+**

<http://www.current-news.co.uk/>

**17 August 2023**

## **1.2 GW power plant now in operation**

The 1.2 GW Three Rivers Energy Center has begun commercial operation in Grundy County, Illinois. Powered by GE's HA combined cycle equipment, the plant is operated by Competitive Power Ventures.

“Over the many years we have collaborated with GE Vernova, we value the company's advanced technology, services, and strategic financing capabilities and demonstrated partnership in bringing our third HA-powered plant project to completion,” said Gary Lambert, CEO of Competitive Power Ventures (CPV). “The strong relationships between CPV and GE built while executing complex power generation projects like Three Rivers demonstrate what is possible with a strong partnership system, and CPV will continue to deliver projects that contribute to America's energy sustainability by providing safe, reliable, cost-effective and environmentally responsible power generation.”

The new plant consists of two generating blocks, each including a GE 7HA.02 gas turbine, an STF-A650 steam turbine, a W84 generator, and GE's integrated Mark\* VIe control system to provide gas turbine generator control and performance visibility. GE Vernova said the STF-A650 Steam Turbines play a critical role in CPV Three River Energy Center's ability to compete in a dynamic energy market. The turbine configuration allows the plant to run at a lower output to reduce the need to shut down during low grid demand hours thus reducing cyclic load maintenance. In addition, the power generation equipment will be monitored by GE's Monitoring & Diagnostics (M&D) Center in Atlanta.

“CPV Three Rivers is the third GE HA-powered project successfully developed with the CPV team now providing highly efficient, reliable, and lower-carbon electricity for American homes and businesses,” said Scott Strazik, CEO of GE Vernova. “GE and CPV's long-standing relationship is built on collaboration, technological excellence, and proven project expertise—and GE proudly celebrates this latest milestone with CPV.”

This project is GE Vernova's third GE H-Class combined cycle plant developed with the CPV team. For the first project, CPV Towantic Energy Center in Connecticut GE Vernova worked with CPV in the development and delivery of more than 800 megawatts (MW) of reliable and cost-effective power facility in New England. For the second project, GE Vernova's HA gas turbines installed at CPV Fairview Energy Center (CPV Fairview) are now able to generate enough reliable electricity on average to power the equivalent of more than 1 million Pennsylvania homes and offset carbon dioxide emissions equivalent of taking more than 360,000 cars off the road each year.

**Diesel and Gas Turbine Worldwide**

<http://www.diesलगasturbine.com/>

**17 August 2023**

## **China plans recycling system for wind turbines and solar panels**

China has announced plans for a recycling system for wind turbines and solar panels to solve the industry's growing waste problem. The country's National Development and Reform Commission has released guidelines to boost recycling of elderly wind and solar equipment. The new technical standards and policies for the wind and solar industries are being released with the aim of creating dedicated industry clusters across China by 2030.

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These guidelines stipulate that manufacturers should design equipment that is easy to disassemble and recycle, while also making renewable energy manufacturers responsible for decommissioning equipment in an environmentally sustainable manner. China is the world's largest manufacturer of renewable energy equipment and is currently facing a wave of decommissioning as solar and wind equipment installed in the early 2000s reaches the end of its life.

Around 250GW of Chinese solar capacity and 280GW of wind capacity is expected to be retired by 2040, and if this equipment is allowed to go to landfill, vast swathes of soil and groundwater could be contaminated. Incineration of this equipment could generate significant carbon emissions and release toxic substances into the air. Li Jiatong, a campaigner from Greenpeace East Asia, emphasizes the importance of developing good recycling systems on the path to a green energy future.

“Guidance on how to effectively recycle parts is key since we will be seeing bigger waves of parts in the future,” said Li. “We need to start developing circular economies for renewable energy parts now, if we are to be ready for the future.”

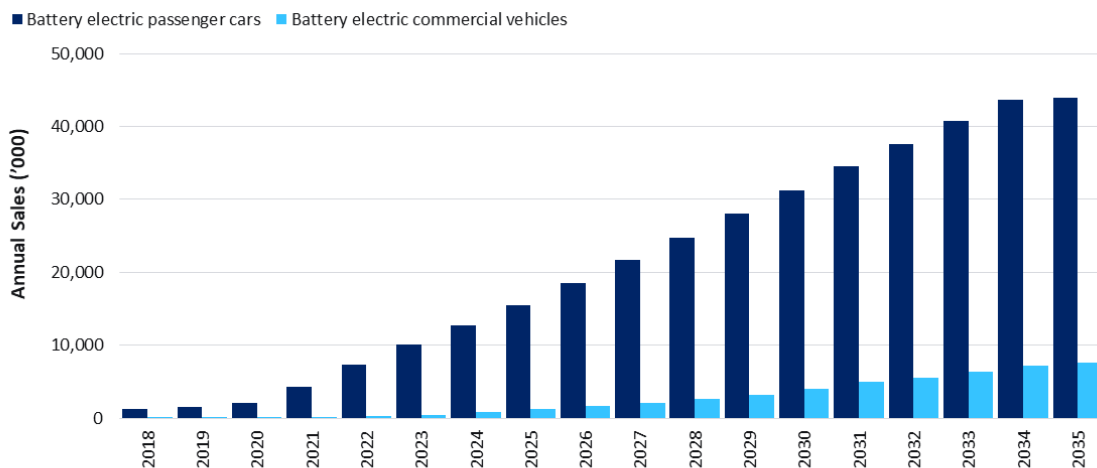
Power Technology

<http://www.power-technology.com/>

18 August 2023

## Government mandates and infrastructure investments to fuel EV growth globally

Electric Vehicles Market Report, Update 2023 – Global Market Outlook, Trends, and Key Country Analysis is the latest market analysis report from GlobalData, the industry analysis specialist. The [report](#) provides a clear overview of and detailed insight into the global electric vehicles (EV) market.



GlobalData.

Source: Globaldata Automotive Intelligence Center

The report provides data and analysis on EV production and technology; sales volume, market size, policy, charging points/infrastructure, as well as the market drivers and challenges for 11 key countries – the United States, Canada, China, India, Japan, South Korea, Germany, France, the Netherlands, Norway, and the United Kingdom. The report uses a mix of data and information sourced from proprietary databases, primary and secondary research, and in-house analysis by GlobalData's team of industry experts.

The EV sector registered exponential growth during the last decade due to depleting fossil fuel reserves and growing awareness regarding the impact of global warming. As EVs are a viable option to replace conventional internal combustion engine vehicles, EV sales increased substantially in several countries despite the car manufacturing industry facing supply chain constraints in 2020 due to the Covid-19 pandemic. Global EV sales reached

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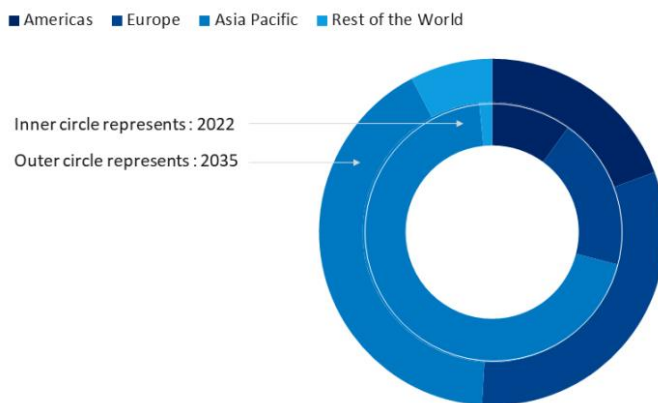
7.7 million units in 2022, up from 1.4 million units in 2018, with sales anticipated to reach 51.6 million units in 2035.

During the period of 2022-2035, the total EV market is expected to expand at a compound annual growth rate (CAGR) of 15.9%, whereas the passenger EV segment is expected to register a CAGR of 26.1%. The commercial EV segment is expected to record a CAGR of 15% during the same period.

The sales of battery electric passenger cars are expected to reach 44 million units by 2035 from 7.3 million units in 2022. The sales of battery electric commercial vehicles were 0.4 million units in 2022 and are anticipated to reach 7.6 million units by 2035.

The increasing prices of gasoline alongside growing EV infrastructure, including the number of charging stations, maintenance hubs, and overall facilities related to EVs, and a growing concern about environmental pollution are the major reasons behind the increasing adoption of EVs worldwide. China is currently the largest EV market in the world, with annual sales of battery electric vehicles of five million units in 2022. Being an early adopter of EVs, China holds numerous local and international companies offering a range of EV models. Its government's focus on the promotion and adoption of EVs to reduce pollution is another important factor contributing to the growth of the EV market in China.

The Asia-Pacific (Apac) region is leading the EV market in terms of annual sales globally, followed by Europe and the Americas. In 2022, Apac accounted for 69.3% of these sales, followed by Europe with 19%, and the Americas with 10%. The presence of market leader China in the Apac region is the key factor for the region's major share. The region is anticipated to continue to hold the major share of the global market at 41.4%, followed by Europe with 31.6% and the Americas with 19.4% by 2035.



GlobalData.

Source: Globaldata Automotive Intelligence Center

The US federal government has set a target to make half of all new vehicles sold in the country zero carbon by 2030 and to establish a suitable network of 500,000 chargers to support the agenda of making these EVs more accessible to all Americans.

In 2022, the European Commission, European Parliament, and European Council implemented a policy for all new cars and vans registered in Europe to be zero-emission by 2035. The governments of various countries within Apac are also increasingly investing in electric mobility. In India, Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) and FAME-II are the flagship schemes for promoting electric mobility. All these factors bode well for the EV market.

The increasing concern over environmental pollution and the growing number of national targets and policies related to the net-zero carbon economies of different countries have fuelled the global demand and necessity for EVs. Reducing global carbon dioxide emissions to net zero by 2050 is consistent with efforts to curb the long-term increase in average global temperatures to 1.5°C. The global pathway to net-zero emissions by 2050



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requires all governments to improve and effectively employ their respective climate policies. To reduce greenhouse gas emissions, countries are preventing the burning of fossil fuels for use in transportation, and encouraging the use of EVs instead.

*Global Data*  
<http://www.globaldata.com/>

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## **Texas grid operator deploys emergency systems as heatwaves continue**

The Electrical Reliability Council of Texas (ERCOT), the main grid operator for US state Texas' power supply, said on Thursday it had deployed its emergency system as electricity reserves continue to wane.

ERCOT operates the grid for more than 26 million customers, equivalent to approximately 90% of the state's power load. Backup power reserves dropped below the critical 3GW level needed to maintain reliable supply, the operator said, as heatwaves across the southern US continue to drive up energy usage. At 20:37 CDT on Thursday, the company said it had operating reserves of 2.9GW. The Emergency Response Service aims to help decrease the need for large-scale load shedding, principally by paying various bodies to arrange with residents and businesses to either reduce their consumption or increase power generation across the state. ERCOT also urged customers to reduce power use between 15:00 and 20:00 CDT on Thursday to lessen demand.

Power use is projected to hit 87.1GW on Friday. If this is met, it would set yet another record in the state for this summer as temperatures continue to regularly hit 40°C, according to AccuWeather. At the beginning of the month, power use in Texas rose to a record high for the seventh time this summer. At the time, ERCOT said it had enough backup resources to meet the soaring demand thanks largely to increased output from solar and wind energy in the state. Since then, electricity use has continued to rise and supply from wind power is expected to dwindle, ERCOT said, making the situation less stable.

Grid stability has been a matter of concern for Texas residents since a deadly winter storm hit the state in February 2021. As temperatures fell as low as -15°C, a power crisis ensued, disconnecting more than four million citizens from the grid, killing hundreds and causing an estimated \$195bn in infrastructure damage. Energy prices also shot up, forcing financial hardships on communities and sending several smaller utilities into bankruptcy.

A lack of preparation for the freezing conditions is considered a key reason for the crisis that followed the storm. While peak demand at the time hit well below that seen this summer, ending at 69GW, this represented a significant record for the time of year.

*Power-Technology*  
<http://www.power-technology.com/>

**21 August 2023**

## **Hawaiian Electric eyes bankruptcy after Maui wildfires in 'prudent scenario planning'**

Hawaiian Electric is seeking advice about possibly restructuring in bankruptcy in the wake of devastating wildfires on Maui as part of "prudent scenario planning," the utility and its parent company Hawaiian Electric Industries said on Friday in a U.S. Securities and Exchange Commission filing.

Whether Maui Electric, a Hawaiian Electric subsidiary that serves Maui, is financially ring-fenced from its parent is "a complex legal question that will take time to work through," the utility and HEI, a holding company, said. There are major questions about the cause of the wildfires and Hawaiian Electric's role in them, according to Paul Patterson, an equity analyst with Glenrock Associates. "We don't know what took place yet," he said Monday.

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“There’s obviously understandable concern — with high winds and the power not being deenergized — that they’re responsible for these fires, although it’s not really known.”

On Aug. 8, strong winds from Hurricane Dora drove the rapid spread of wildfires through the town of Lahaina and other areas in Maui, Hawaiian Electric and HEI said in its investor update filing with the SEC. There were 114 fatalities in the fires as of Sunday, according to the Maui Police Department. About 850 people are missing, Maui Mayor Richard Bissen said Sunday. The fires caused an estimated \$6 billion in damage on Maui, according to Hawai’i Gov. Josh Green, D.

The Hawai’i attorney general on Aug. 11 ordered a review of wildfire-related decision-making and policies. Hawaiian Electric faces at least three lawsuits related to the wildfires, including two seeking class action status. One was filed by “premier fire litigation” firm Singleton Schreiber, another one by two Hawaiian law firms, and a third by two firms from California and one from Hawai’i. Among other things, the lawsuits contend Hawaiian Electric should have de-energized its power lines to prevent them from starting fires.

“Facts about this event will continue to evolve,” Shelee Kimura, Hawaiian Electric president and CEO, said in an update. “While we may not have answers for some time, we are committed, working with many others, to find out what happened.” Hawaiian Electric and HEI are exploring the possibility of bankruptcy. “Like any company in this situation would do, and as we do in the normal course of business, we are seeking advice from various experts,” they said in the SEC filing. “This is part of prudent scenario planning.”

They said their goal is not to restructure the company, but to endure as a financially strong utility. “Hawaiian Electric’s primary focus right now is on supporting emergency response efforts, helping our customers and employees and continuing to restore power as quickly as possible,” they said. Hawaiian Electric wouldn’t be the first utility to enter bankruptcy because of wildfire-related liabilities. Pacific Gas & Electric filed for bankruptcy in January 2019 in the face of about \$30 billion in liabilities from wildfires including the Camp Fire — which caused at least 85 deaths, burned more than 153,000 acres and destroyed 18,000 buildings. The San Francisco-based utility emerged from bankruptcy in July 2020 and continues to focus on reducing wildfire risks.

Unlike in California, there is no precedent in Hawai’i applying inverse condemnation to a private party like an investor-owned utility, Hawaiian Electric and HEI said. Under inverse condemnation, a utility is strictly liable for a wildfire caused by their equipment, even if it behaved prudently. As of Thursday, about 1,900 customers in West Maui remained without electricity, not counting the roughly 2,600 homes and businesses that were destroyed, according to HEI and Hawaiian Electric. Power has been restored to more than 80% of customers who have been without electricity since last week, they said. The utility is replacing some of the roughly 400 poles, 300 transformers and other equipment damaged by the fires and high winds and conducting extensive repairs, according to Kimura.

Hawaiian Electric is also suspending bills for about 18,000 customers in the affected areas so “those who have experienced a loss can focus on their well-being and taking care of themselves and their families,” Kimura said. Hawaiian Electric and its utility subsidiaries – Hawaii Electric Light and Maui Electric – serve about 95% of people in Hawai’i. The utilities don’t have a power shutoff program to preemptively cut power ahead of high-risk weather, HEI and Hawaiian Electric said.

Short-notice power shutoffs have to be coordinated with first responders, and in Lahaina, electricity powers some of the water pumps used for firefighting, according to the companies. “A power shut-off can jeopardize the health and safety of the elderly, the disabled and those most in need,” they said. On the financial front, HEI had net income last year of \$241 million, including \$189 million in utility income, on \$3.74 billion in revenue. Like other utilities, Hawaiian Electric doesn’t have insurance to cover damage to its transmission

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and distribution system, the company said in its most recent annual report. It also lacks “business interruption” insurance.

“If a hurricane or other uninsured catastrophic natural disaster were to occur, and if the [Hawaii Public Utilities Commission] did not allow the affected utilities to recover from ratepayers restoration costs and revenues lost from business interruption, the lost revenues and repair expenses could result in a significant decrease in HEI’s consolidated net income,” the company said.

*Utility Dive*

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

**21 August 2023**

## **ACWA Power-led consortium reaches \$2.4bn financial close on Al Shuaibah solar projects**

An ACWA Power-led consortium has achieved a financial close of \$2.37bn on the 2.6GW Al Shuaibah 1 and Al Shuaibah 2 solar photovoltaic (PV) projects in Saudi Arabia.

The solar PV projects are jointly owned by ACWA Power, Saudi Arabian sovereign wealth fund Public Investment Fund (PIF)’s subsidiary Water and Electricity Holding Company (Badeel), and Aramco’s subsidiary Saudi Aramco Power Company (SAPCO). ACWA Power holds a stake of 35.01% while Badeel and SAPCO own 34.99% and 30% interests, respectively in the Saudi Arabian solar PV projects. According to various media publications, a \$1.63bn senior debt financing has been secured for the project. This includes a Saudi Riyal-denominated loan worth \$450m from Saudi Arabia’s National Development Fund through the National Infrastructure Fund.

The financing also involves a US-dollar-denominated commercial bank facility of \$1.18bn from a consortium of domestic, regional, and global banks. The facility was provided by First Abu Dhabi Bank, Riyadh Bank, Mizuho Bank, Saudi National Bank, Banque Saudi Fransi, Saudi Investment Bank, and Standard Chartered Bank. To be developed in Al Shuaibah in the Makkah Province, Al Shuaibah 1 and Al Shuaibah 2 will have capacities of 600MW and 2GW, respectively. The solar PV projects are expected to generate clean electricity to power approximately 450,000 households.

Saudi Power Procurement will be the procurer and the off-taker for the two solar projects. The Al Shuaibah 1 and Al Shuaibah 2 PV projects are scheduled to commence commercial operations in 2025. ACWA Power CEO Marco Arcelli has been quoted by the publications, as saying: “Securing financing for this groundbreaking project marks a significant step towards achieving Saudi Arabia’s clean energy goals, in alignment with the National Renewable Energy Program, which aims to generate 50 percent of electricity from renewable sources by 2030.” In May 2023, Badeel and ACWA Power invested SAR12.2bn in three new solar PV projects in Saudi Arabia, namely Ar Rass 2, Saad 2, and Al Kahfah with a combined capacity of 4.55GW.

*NS Energy*

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

**21 August 2023**

## **Aramco and Microsoft invest in unique ‘superheated’ technology**

Saudi oil giant Aramco and Microsoft have invested in a California start-up that wants to help industry slash its emissions by storing excess renewable energy in superheated bricks, according to an Upstream report. The Rondo system uses electric heating elements, like those in a toaster or oven, to heat thousands of tons of brick up to temperatures of 1,500°C. Rondo says the bricks maintain the heat with less than 1% energy loss daily. When



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heat is wanted, air flows up through the brick stack and is superheated to over 1,000°C, before being delivered to the end point as superheated air or steam.

California-based Rondo Energy announced that it has raised \$60 million in a new financing planned to speed the rollout of its Rondo Heat Batteries worldwide that has already attracted heavyweight investors including Microsoft's Climate Innovation Fund, Aramco Ventures and Anglo-Australian multinational mining group Rio Tinto. Rondo says its system is designed to drop into existing facilities or power new-builds, and offers a fast, low-cost pathway to decarbonization and reduced operating costs.

The bricks can both "charge" and deliver heat simultaneously. Other claimed benefits include the abundant nature of the key materials and the safety of having no moving parts or flammable materials. The batteries boast a 50-year lifespan. Rondo says its tech can turn energy from cheaper but intermittent renewable power sources into the "continuous, high temperature clean heat that industry requires, and opens the door to industrial decarbonisation at a fraction of the cost of other technologies."

**Oil&Gas**

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

**22 August 2023**

## **New 5GW wind farm to be built off Gippsland in Australia**

Elanora Offshore, a consortium of renewable energy companies, has revealed its intentions to develop a 5GW offshore wind project of the same name off the coast of Gippsland, within Australia's first declared area.

The consortium comprises offshore wind development specialist KIMAenergy, energy retailer EnergyAustralia, offshore wind transportation and installation company Boskalis, energy supplier and off-taker Respect Energy, and renewables developer Polpo Investments. Following the receipt of the feasibility licence and other mandatory approvals, the first phase of the Elanora Offshore wind project is anticipated to be operational by 2032.

The second phase of the Australian offshore wind project is scheduled to be completed by the end of 2034 to align with the targets of the Victorian government. Once fully operational, the Elanora Offshore project will generate more than 20TWh of clean energy for Victoria annually, which is 40% of the Australian state's current energy requirements. Furthermore, the offshore wind project will offset 600 million tonnes of carbon dioxide emissions over its lifetime.

Elanora Offshore CEO Maya Malik said: "Great to be part of this exciting project. We have crafted something truly special – a highly credible consortium designed to pre-address new market risks, along with an experienced, Australian-based management team committed to deliver." The consortium is expected to generate more than 3,000 direct jobs during the construction and 320 direct jobs during the operations of the Elanora Offshore wind project.

According to Elanora Offshore, it has secured funding commitments for the offshore wind facility from investors. The consortium stated: "Harnessing extensive global offshore wind and energy infrastructure expertise, Elanora Offshore is seeking to be amongst the first to build offshore wind farms in Australia." Separately, EnergyAustralia announced its inaugural climate transition action plan (CTAP) to achieve net zero by 2050 across scopes 1 and 2 emissions. The CTAP involves a commitment to collaborate with partners to expand its clean energy portfolio with up to 3GW to be committed or operational by the end of this decade.

**NS Energy**

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

**22 August 2023**

### **AGL opens its first big battery, Liddell next in line**

AGL Energy on Tuesday formally opened its first operational grid-scale battery, and is looking to rapidly expand its storage portfolio as it transitions its fossil fuel generation hubs into clean energy precincts.

The 250MW/250MWh Torrens Island battery is the biggest in South Australia – trumping the original “Tesla big battery”, formally known as the Hornsdale Power Reserve that is now sized at 150MW/193MWh. It is also the second biggest battery in the country – behind only Neoen’s Victoria Big Battery (300MW and 450MWh) – and its 6,000 battery modules that sit in 218 battery units take up the same space as the historic Adelaide Oval.

But it is what the project says about the nature and speed of the clean energy transition towards 100 per cent renewables that is the most important. The Torrens Island battery is the biggest in the world to feature “grid forming inverters” – the technology that is expected to ultimately deliver many, if not all, of the grid “services” traditionally provided by fossil fuel systems fueled by coal and gas. And it is hastening the transition of one of AGL’s biggest fossil fuel generation sites. “The gas peaker is an amazing piece of kit, on and off in five minutes, perfect for this marketplace here,” Nicks said. “And the battery is on and off in milliseconds. The Torrens Island battery will likely be expanded to four hours of storage as it plays a greater role in shifting wind and solar output to times of peak periods. But AGL chief operating officer Markus Brokhof says that four-hours storage will not work economically for the battery while much of the state’s existing gas fleet – built to support and back-up the state’s coal fired power generators that are now closed – are still in the system.

The operation of Torrens Island battery, Brokhof says, will be divided equally between frequency control, arbitrage, and the “caps market” – hedging against high peak prices. The grid forming inverter technology will be used as required, taking pressure off the synchronous condensers that currently dominate this market. The Torrens Island battery was built in 18 months, but Nicks says it could have come on line earlier had it not been required – like the smaller 50MW, 50MWh battery AGL is building in Broken Hill – to add “harmonic filters” to ensure that it sang the same tune as the grid. Many in the industry question if these are needed.

“I would have liked to have seen this battery connected a couple of months ago,” Nicks said. “So we’ve had to put harmonic filters on this battery, that’s caused a little bit of delay. “In the scheme of things it’s not material, but I’d like to be able to work through those type of things so we can actually reduce that connection time into the future.” The Torrens Island and Broken Hill batteries are the first to be built and operated by AGL, although it has had the operating contracts for the Dalrymple North battery in South Australia and the new Wandoan South battery in Queensland.

Nicks says AGL hopes to make a decision on the potential 500MW, four hour battery (2,000MWh) at Liddell in the NSW Hunter Valley – where the company closed the ageing coal plant in April – in the next few months. It is also eyeing battery storage proposals at Tomago, next to the existing smelter, and at Loy Yang A, the brown coal generator it has now committed to closing in 2035.

South Australia energy minister Tom Koutsantonis said the opening of the Torrens Island battery vindicates the decision taken (under the then state Labor government) in 2017 to pioneer big battery technology. “That decision was at the time derided as little more than a tourist attraction, akin to the Big Banana or Big Pineapple – but it has set a template that is now emulated around the world,” Koutsantonis said in a statement.

*Renew Economy*

<http://reneweconomy.com.au/>

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## **IAEA Director General Statement on Discharge of Fukushima Daiichi ALPS Treated Water**

The Government of Japan announced today that it requested Tokyo Electric Power Company Holdings (TEPCO) to promptly proceed with its preparations for the discharge into the sea of ALPS treated water stored at the Fukushima Daiichi Nuclear Power Station, in accordance with the implementation plan approved by Japan's Nuclear Regulation Authority. If there is no interference due to weather or sea conditions, the discharge into the sea is expected to start on 24 August.

Over the past two years the IAEA has conducted a detailed review of the safety related aspects of handling and discharge of ALPS treated water and issued its comprehensive report 4 July 2023. The report concluded that the approach and activities for this discharge are consistent with relevant international safety standards and would have a negligible radiological impact on people and the environment. The Director General of the IAEA, Rafael Mariano Grossi, has committed to the IAEA continuing its impartial, independent, and objective safety review during the discharge phase.

Therefore, the IAEA and Japan agreed that the IAEA will maintain an onsite presence at Fukushima Daiichi, and the IAEA has opened its IAEA Fukushima Daiichi Nuclear Power Station (NPS) Office in July 2023. IAEA staff are working there so that they can continue to monitor and assess these activities on site to ensure that they continue to be consistent with the safety standards, including on the day of the start of the discharge and after. The IAEA will also publish available data for use by the global community, including the provision of real-time and near real-time monitoring data. As soon as the discharge commences, the IAEA will provide a further update.

**IAEA**

<http://www.iaea.org/>

**23 August 2023**

## **Rosatom begins main phase work at Hungary's Paks II nuclear plant**

Atomstroyexport, a subsidiary of Russian state nuclear energy company Rosatom, has commenced main-stage construction of two new water-water energetic reactor (VVER)-1200 power units at the Paks II nuclear power plant (NPP) in Hungary, with a total power-generating capacity of 2.4GW.

Rosatom's Atomstroyexport and Hungarian company Duna Aszfalt began preparations for the excavation of the pit where the future power unit 6 will be located. Bauer Hungary began soil consolidation works while continuing with the construction of groundwater cutoff at the site. Construction works began after the parties agreed on amendments to the contract for the two power units' construction on 18 August 2023. Paks II Nuclear Power Plant Ltd, the project's owner, issued a notification of the project's transition to its second stage.

Rosatom stated that the pit excavation for power unit 6 to a depth of five metres is the start of large-scale work. The area of excavation at the site is the size of four soccer fields. A million cubic meters of soil have been removed from the site. Excavation work at the site will continue until the end of autumn 2023.

Authorization from the power plant will also help Rosatom and its partner enterprises in Russia proceed with the production of the main power equipment. The Paks II NPP project is based on an intergovernmental agreement between Hungary and Russia signed in January 2014. Three basic contracts are involved in the project's construction. The main license for the construction of the project was secured in August 2023. Power units 5 and 6

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at Paks II are expected to have a life of 60 years. Estimated investment in the project is €10bn (\$10.8bn) and is being provided by Russian banks. Hungary will repay the loan by 2046.

The Paks nuclear power plant, which has been operating since the 1980s, is powered by four units with VVER-440-type reactors. This plant supplies more than 50% of the country's electricity.

*Power-Technology*

<http://www.power-technology.com/>

**24 August 2023**

## **Equinor launches world's largest floating wind farm in Norway**

The 88MW project will be the largest floating wind farm in the world. The electricity generated will power Equinor's oil and gas fields. The wind farm will support the company in reducing costs in its oil and gas operations. Located 140km from the coast in a water depth of 260 to 300m, it features 11 turbines, each with 8MW power generating capacity, mounted on floating concrete structures with a common anchoring system. The wind farm began power generation in November 2022 and is now fully operational.

This project will be managed by Equinor's office location in Bergen. It is expected to meet 35% of the annual energy demands of five of Snorre and Gullfak's oil and gas fields. Norwegian climate agency Enova and the Norwegian business sector's NoX fund provided Nkr2.3bn (\$216.7m) and Nkr566m (\$53.3m) respectively for the project. Equinor Norwegian continental shelf executive vice-president Kjetil Hove stated: "Hywind Tampen is expected to reduce CO<sub>2</sub> emissions with 200,000 tonnes annually from key oil and gas producers in the North Sea. It is a bold investment in a pioneering project from the Gullfaks and Snorre partnerships and Enova. The wind farm will also act as a test bed to advance the development of floating wind. It will help in studying the use of larger turbines, installation methods and concrete substructures, and the integration of gas and wind power generation systems.

*Power-Technology*

<http://www.power-technology.com/>

**25 August 2023**

## **India could start using coal pits as reservoirs for PSPPs**

An idle coal mine located in Karimnagar District of the state of Telangana in southern India could be used as the lower reservoir of a pumped storage power plant (PSPP), which could have the Godavari riverbed as its upper reservoir. Such was the conclusion made by scientists from the Sardar Vallabhbhai National Institute of Technology based on a study published in the Journal of Energy Storage.

The authors conducted a feasibility study of the project they proposed, which currently exists only on paper. In addition to the PSPP, the power complex will have to include a solar power plant (SPP) with a capacity of at least 50 megawatts (MW). A quarter of the electricity generated by the SPP will have to be used to pump water from the lower reservoir to the upper one, from which the water will be discharged during the hours of high demand, setting off power generators. The total cost of the project is expected to reach \$188 million, of which \$91 million will be used for photovoltaic capacities, \$85 million for the construction of the PSPP and \$12 million for all other infrastructure costs.

The scientists estimate that the levelised cost of electricity (LCOA) generated at the PSPP will be \$0.27 per kilowatt-hour (kWh), rising to \$0.32 per kWh in the event of a 10% loss of the output power of solar panels. However, even that level is below the current levelised cost of power generation in India: according to the International Energy Agency

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(IEA), the year 2021 saw the LCOA of India's solar power plants average \$0.35 per kWh, with coal-fired and onshore wind farms averaging \$0.60 per kWh and \$0.45 per kWh, respectively.

Hydropower is the second largest source of electricity in India, accounting for 9.4% of the country's power generation in 2022 (against 74.3% for coal-fired TPPs and 16.3% for all other types of power generation). According to Global Energy Monitor, the total capacity of India's HPPs by early 2023 stood at 43.4 gigawatts (GW), of which 11% (4.7 GW) was represented by pumped storage power plants. In the segment of facilities under construction, the share of PSPPs has reached 14% (1.6 GW out of 11.2 GW).

Energy Global  
<http://globalenergyprize.org/>

25 August 2023

## Energy prices to fall again this winter

Energy regulator Ofgem has today (Friday, 25 August, 2023) announced a further reduction in the energy price cap for the last quarter of 2023 (Oct to Dec).

The change will bring the average dual-fuel energy bill below £2,000 a year for the first time since April 2022, saving households an average of £151 on the previous quarter. From 1 October – 31 December, the cap will be set at an annual level of £1,923 for a dual fuel household paying by direct debit based on the current typical domestic consumption values (TDCV) rate.

|                      | Direct Debit | Prepayment | Standard Credit | Economy 7 (electricity only Direct Debit) |
|----------------------|--------------|------------|-----------------|---|
| July – Sept 2023 cap | £2,074       | £2,077     | £2,211          | £1,400                                    |
| Oct – Dec 2023 cap   | £1,923       | £1,949     | £2,052          | £1,298                                    |

The drop, the lowest level since October 2021, reflects further falls in wholesale energy prices, as the market stabilizes and suppliers return to a healthier financial position after four years of loss making.

Ofgem is clear that it expects all suppliers to continue improving customer service, to support their most vulnerable customers and to shore up their financial resilience to prevent the kind of failures we saw two years ago. Ofgem recognises that there is some excellent best practice across the sector but expects this to be the norm with poor practice stamped out. Alongside changes to the price cap, Ofgem has also introduced measures to reduce costs for prepayment meter customers and ensure extra support for those facing disconnection from the network.

The price cap savings – which can be passed on more quickly to customers thanks to the price cap updating quarterly – continues the downward trend since prices peaked at £4,279. However, it remains well above the average before the energy crisis took hold in 2021 and the market remains volatile. Jonathan Brearley, Ofgem CEO, said: "It is welcome news that the price cap continues to fall, however, we know people are struggling with the wider cost of living challenges and I can't offer any certainty that things will ease this winter. That's why we've introduced new measures to support consumers including reducing costs



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for those on pre-payment meters, and introducing a PPM code of conduct that all suppliers need to meet before they restart installation of any mandatory PPMs.

“There are signs that the financial outlook for suppliers is stabilizing and reasonable profits are returning. With the small additional allowance, we’ve made to Earnings Before Interest and Tax (EBIT), this means there should be no excuses for suppliers not to be doing all they can to support their customers this winter, and to reinforce this we’ll be introducing a consumer code of conduct which we will look to have in place by winter. This code will ensure there are clear expectations of supplier behaviors especially for their most vulnerable consumers with whom suppliers should be reaching out proactively, with compassion and understanding. There are great examples of suppliers already doing this but I want to see this become the norm in such an essential sector that has such a big impact on people’s lives.”

Ofgem understands that while suppliers cannot control wholesale prices or fix the wider cost of living pressures hitting their customers, now the market has stabilised, they must continue improving customer service and ensure that support across the board is accessible, responsive and understanding, including giving time to make pay arrangements and directing customers to further support and advice. They must also invest in strengthening their financial resilience to protect consumers against the cost of supplier failure.

Additionally, while still low by pre-crisis levels, we are starting to see more and more competitive fixed deals coming onto the market and levels of switching are slowly increasing. With a lower price cap and reasonable profits starting to return, there is an opportunity for this to continue to grow. Anyone considering fixing should weigh up all the facts and consider what is most important to them, whether that’s the lowest price, or the certainty of knowing exactly what they will pay each month. It’s important customers are comparing fixed deals with the new, lower price cap announced today. Suppliers are expected to ensure they are transparent in releasing all tariff information to enable consumers to make simple comparisons of the deals available to them across the market.

While the price cap has protected households from the full extent of volatility and surges in wholesale prices over the last two years, it was originally introduced by the Government to protect the minority of consumers who did not switch rather than to cover the vast majority of consumers, as it does now. It is a blunt tool and in the current market it has costs and as well as benefit. It’s important to look at alternative models to examine whether they could work better with the current volatile market and the move to net zero.

Ofgem has also today published:

- ✓ A Final Decision to raise the Earnings Before Interest and Tax (EBIT) allowance by £10 per customer per year. Most of this increase is to cover Renewable Obligations ringfencing so that customers’ money is protected in the event of a supplier failure.

- ✓ Removal of the temporary RO ringfencing allowance, worth £8 per customer and covered by the additional EBIT costs above

- ✓ A new sliding scale for EBIT meaning if prices surge, the EBIT allowance reduces as a percentage preventing suppliers from making excessive cash gains from a high price market

- ✓ Final decision on the allowance for additional support credit (ASC) bad debt costs - a new allowance to help ensure some of the most vulnerable consumers remain on supply this winter

- ✓ Implementation of UNC840 in the cap, reducing the PPM premium

- ✓ Price Cap model technical changes Final Decision

- ✓ Levelisation Policy Consultation

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By raising the EBIT allowance, Ofgem is taking the next step in its drive to make the retail energy sector more resilient, as we move into another difficult winter when price volatility remains a risk. At the height of the energy crisis around 30 suppliers failed because they did not have enough capital in the reserve to stay in business – and the cost was shared among all energy consumers, adding £83 to bills.

With suppliers only now starting to recoup a portion of their multi-billion pound losses over the past four years, a small increase in permitted profit margins will allow companies to better cover their costs, attract investment and retain financial stability protecting consumers into the future. Raising the EBIT allowance from its current rate of 1.9% to 2.4% from 1 October will involve an average £10 increase in bills per year. £8 of this will cover costs to consumers incurred by an additional requirement of suppliers to ringfence enough funds to cover their Renewable Obligations, protecting consumers from additional costs should a supplier go bust.

The EBIT rate, which is well within international norms for energy retail profits and lower than most other business sectors in Britain, will also be altered from a 'flat rate' to a more flexible model that tracks the price cap level and tapers as low as 1.75% in the event of another price surge in the wholesale market. This would prevent suppliers from making excessive cash profits in a high-cost market. Strengthening the commitment to supporting struggling and vulnerable consumers, Ofgem is also reducing the cap for prepayment meter (PPM) customers by £51 per year through an updated approach to calculating the costs of unidentified gas, approved in April this year.

Using some of the benefit from this change, the regulator is now able to introduce an initial 12-month allowance to cover increased debt costs associated with Additional Support Credit that is offered to PPM customers, often at the point of disconnection. This new allowance will help ensure some of the most vulnerable consumers remain on supply this winter. Longer term, Ofgem seeks to permanently end the PPM premium, where prepayment customers are charged more than those who pay by direct debit to cover the additional costs and resources required by suppliers to provide energy via PPM. A consultation is underway with an aim to 'levelise' these standing charges by April 2024 to coincide with the end of government support currently in place via the Energy Price Guarantee. The next quarterly price cap announcement will be in November 2023, covering January – March 2024.

*Ofgem*

<http://www.ofgem.gov.uk/>

**29 August 2023**

## **Research: China has 243 GW of new coal power approved or under construction**

China currently has 243 gigawatts (GW) of coal-fired power either approved or under construction, enough to power the whole of Germany, with local governments still worried about power supply security, new research showed on Tuesday.

China began building coal-fired plants with a total capacity of 37 GW in the first half of this year, and approved 52 GW of new projects, said a report by the Centre for Research on Energy and Clean Air (Crea) and Global Energy Monitor (GEM). As well as the 243 GW now officially in the pipeline, another 149 GW has been announced but not formally permitted. Total coal power capacity could increase by between 23 per cent and 33 per cent above 2022 levels if all the projects go ahead.

China has promised to cut coal consumption starting from 2026 as part of its efforts to bring greenhouse gas emissions to a peak before 2030, but mounting energy security concerns are driving the new approvals. "The coal power spree is a last-minute push by

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China's coal industry to lock in capacity and emissions before China's CO2 emissions are due to peak late this decade," said Mr Lauri Myllyvirta, lead analyst at Crea.

China's new coal-fired plants are supposed to provide back-up for the vast amount of new renewable energy sources being connected to the grid, but Crea-GEM said most of them are in places that "already have more than enough coal power" to support renewable projects. China has bristled at suggestions it is backsliding on clean energy commitments, with officials arguing it has been managing the green transition far more effectively than any other country at a similar stage of development. In an article that was later deleted, chief energy official Dr Zhang Jianhua this month accused "foreign hostile forces" of using the challenges of decarbonization to "distort and slander" China's energy policies.

"Energy policy has been one of the areas where public discussion and debate has still been possible, helping inform policymaking," said Mr Myllyvirta. "The NEA's desire to tighten the control of the media and the narrative is of course concerning."

*World Energy*  
<http://www.world-energy.org/>

**30 August 2023**

## **Hurricane Idalia strengthens en route to Florida, expected to land as Category 4 storm**

Hurricane Idalia gained fury on Tuesday as it crawled toward Florida's Gulf Coast, forcing mass evacuations in low-lying areas expected to be swamped when the powerful storm, forecast to reach Category 4 intensity, strikes on Wednesday morning.

Idalia was generating maximum sustained winds of 110 miles per hour (177 kph) by late Tuesday night - at the upper end of Category 2 - and its force will ratchet higher before it slams ashore, the Miami-based National Hurricane Center (NHC) projected. By that time the storm was forecast to reach "an extremely dangerous Category 4 intensity" - with maximum sustained winds of at least 130 mph (209 kph) - on the five-step Saffir-Simpson wind scale, the NHC reported.

The hurricane was upgraded on Tuesday evening to a Category 2 after its top wind speeds surpassed 95 mph (153 kph), feeding on the warm, open waters of the Gulf of Mexico. Any storm designated Category 3 or higher is classified as a major hurricane.

Idalia's most dangerous feature, however, appeared to be the powerful surge of wind-driven seawater it is expected to deliver to barrier islands and other low-lying areas along the coast. Florida Governor Ron DeSantis, who is seeking the Republican presidential nomination next year, urged residents in vulnerable communities to heed orders to move to higher ground, warning that the storm surge could cause life-threatening floods.

Most of Florida's 21 million residents, along with many in Georgia and South Carolina, were under hurricane, tropical storm and storm surge warnings and advisories. State emergency declarations were issued in Florida, Georgia and South Carolina.

At the White House, U.S. President Biden said he and DeSantis were "in constant contact," adding that he had assured the governor federal disaster assistance would remain in place for as "long as it takes, and we'll make sure they have everything they need." Gulf energy producers were taking precautions as well. U.S. oil company Chevron evacuated staff from three oil production platforms, while Kinder Morgan planned to shut a petroleum pipeline.

Idalia-related disruptions extended to Florida's Atlantic coast at Cape Canaveral, where the Tuesday launch of a rocket carrying a U.S. Space Force intelligence satellite was delayed indefinitely due to the hurricane. Idalia grew from a tropical storm into a hurricane early on Tuesday, a day after passing west of Cuba, where it damaged homes and flooded villages. By Tuesday evening, the storm was churning about 125 miles (201 km) west of Tampa as it crept closer to shore. Idalia is in line to become the fourth major hurricane to

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strike Florida over the past seven years, following Irma in 2017, Michael in 2018 and Ian, which peaked at Category 5, last September.

Florida's Gulf Coast along with southeastern Georgia and eastern portions of North and South Carolina could face torrential rains of 4 to 8 inches (10 to 20 cm) through Thursday, with isolated areas seeing as much as 12 inches (30 cm), the hurricane center warned. Surge warnings were posted for hundreds of miles of shoreline, from Sarasota to the sport fishing haven of Indian Pass at the western end of Apalachicola Bay. In some areas, the surge of water could rise 10 to 15 feet (3.0 to 4.6 m). About 5,500 National Guard members were mobilized, while 30,000 to 40,000 electricity workers were placed on standby. The state has set aside 1.1 million gallons of gasoline to address any interruptions to fuel supplies.

*Reuters*

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