

Brilliant Energy Institute

Office of the Vice President Research and Innovation
Ontario Tech University

BEI Energy News

Produced twice weekly

Nov. 28, 2023

Electric Vehicles

UK allocates £2bn for zero emission vehicle supply chain

<https://www.energylivenews.com/2023/11/27/uk-allocates-2bn-for-zero-emission-vehicle-supply-chain/>

The UK government has announced its Battery Strategy, a plan designed to strengthen domestic supply chains for electric vehicles (EVs) and reduce dependence on Chinese-made batteries. With an allocation of £2 billion for capital, and research and development funding until 2030, the strategy focuses on supporting zero-emission vehicles, batteries, and their supply chains. Key investments include £38 million for the UK Battery Industrialisation Centre, £12 million for the Advanced Materials Battery Industrialisation Centre, and £11 million for 20 technology innovators across the battery value chain. The strategy emphasizes international collaboration, market access for critical minerals, and national security considerations.

EV batteries are perfect for storing solar power

<https://cleantechnica.com/2023/11/26/ev-batteries-are-perfect-for-storing-solar-power/>

California-based startup B2U is utilizing depleted EV batteries from Nissan LEAF and Honda Clarity cars for grid-scale storage. The company repurposes used EV batteries, which have degraded to the point where they are no longer suitable for electric vehicles, for storing electricity when abundant and selling it back to the grid during periods of higher demand. B2U estimates that using depleted EV batteries reduces costs by roughly half compared to manufacturing new battery cells and packs for energy storage. The approach extends the useful life of EV batteries and supports sustainable practices in the electric vehicle industry.

Nuclear

Are small nuclear reactors the solution to Canada's net-zero ambitions?

<https://theconversation.com/are-small-nuclear-reactors-the-solution-to-canadas-net-zero-ambitions-217354>

As Canada aims to achieve its net-zero carbon emission targets, Small Modular Reactors (SMRs) are emerging as a potential solution, offering a modern twist on traditional nuclear technology. SMRs promise faster construction, lower costs, and enhanced safety, presenting a game-changer in the energy landscape. With outputs ranging from 10 to a few hundred megawatts, SMRs provide a scalable and flexible alternative to traditional reactors. Despite concerns about their untested nature on a commercial scale and economic projections, SMRs could contribute significantly to Canada's GDP, create jobs, and reduce greenhouse gas emissions. The Canadian government's support and collaborative efforts across provinces highlight the potential of SMRs in advancing the country's energy transition and global leadership in clean energy innovation.

Nuclear power and LNG are key to a low-carbon future - Financial Post Op-Ed

<https://www.cdhowe.org/expert-op-eds/nuclear-power-and-lng-are-key-low-carbon-future-financial-post-op-ed#:~:text=These%20two%20energy%20sources%2C%20each,to%20a%20lower%2Dcarbon%20future>

The op-ed highlights the importance of nuclear energy and liquefied natural gas (LNG) in achieving a low-carbon future. Nuclear power is highlighted for its reliability as a base-load electricity source, low emissions, and high energy density. The op-ed emphasizes Canada's advantages in the nuclear sector, including the world's largest deposits of uranium and a history as a research leader in reactor technology. LNG is described as a transitional fuel that is cleaner than coal and oil, offering flexibility in transportation and storage. The authors stress the economic benefits of LNG infrastructure and the potential to replace coal consumption with cleaner alternatives. They advocate for a diversified energy portfolio that includes nuclear power and LNG to complement renewable energy growth.

Wind

Finland opens auction for offshore wind totalling 7.5GW

<https://www.power-technology.com/news/finland-auction-offshore-wind/?cf-view>

Finland has announced a major offshore wind auction for a total capacity of 7.5GW, involving the construction of five wind farms across an 860km² area. The project, representing a significant boost to the country's renewable energy generation, will encompass 500 turbines with an estimated investment of €3 billion – 4billion per farm. This initiative, managed by the state-owned company Metsähallitus, will generate substantial state revenue and local employment opportunities. The auction will start by the end of 2023 for two areas, with the remaining sites to follow. The wind farms are expected to significantly increase Finland's annual electricity production, contributing to the nation's clean energy transition and industrial growth.

New York's first offshore wind turbine installed

<https://maritimemag.com/en/new-yorks-first-offshore-wind-turbine-installed/>

The completion of the first offshore wind turbine for the South Fork Wind project off New York has been announced by Governor Kathy Hochul. This marks a significant milestone for New York's offshore wind development and the first completed utility-scale wind farm in US federal waters. The 130-megawatt offshore wind farm will address a growing reliability challenge for Long Island's electrical grid and generate enough renewable energy to power approximately 70,000 Long Island homes, eliminating up to six million tons of carbon emissions. The South Fork Wind project is being developed by a joint venture between Ørsted and Eversource and will feature 12 Siemens Gamesa wind turbine generators.

Hydrogen

Europe's 'hydrogen backbone' of cross-border pipelines will cost billions more euros than initial estimates

<https://www.hydrogeninsight.com/production/europes-hydrogen-backbone-of-cross-border-pipelines-will-cost-billions-more-euros-than-initial-estimates/2-1-1560429>

The European Hydrogen Backbone (EHB), a coalition of 33 gas infrastructure operators working on a network of hydrogen pipelines, acknowledges that its initial cost estimate of €80 billion -143 billion (\$87.3bn-156bn) for a 53,000km hydrogen pipeline network could be a significant underestimate. The estimate, based on data collected in April 2023, did not include years of inflation, leading to an increase in the average prices of components such as compressors and onshore hydrogen pipelines. While the EHB

does not provide an exact figure for the revised estimate, the cost increase is expected to be in the billions of euros. The EHB anticipates that members' projects will require a final investment decision between 2026 and 2027. However, less than 3,000km of pipelines are expected to be commissioned annually until 2029, with a surge to 19,412km scheduled for 2030, potentially posing challenges for meeting Europe's renewable hydrogen targets.

Fossil Fuels

China's Belt and Road Initiative pivots to renewables and away from fossil fuels

<https://engineersforum.com.ng/2023/11/22/chinas-belt-and-road-initiative-pivots-to-renewables-and-away-from-fossil-fuels/>

The report highlights a shift in China's Belt and Road Initiative (BRI) towards renewable energy, with the share of renewables increasing from 19 per cent a decade ago to 47 per cent in 2022. The BRI, launched in 2013, aims to develop infrastructure in foreign countries to enhance China's economic influence globally. The report by Wood Mackenzie notes that overseas power projects built by Chinese companies under the BRI now have an estimated investment value of around \$200 billion, with Asia as the primary destination, accounting for 75 per cent of the total capacity. Policy changes and increased pressure to reduce carbon emissions created challenges and led to the cancellation or shelving of over 20 per cent of projects, with coal power projects most affected. Despite progress, concerns remain about environmental impact, debt sustainability, and geopolitical implications.

Do you have any milestones, events, or news updates to share with the energy community? Email your submission to BrilliantEnergy@ontariotechu.ca for consideration in an upcoming edition.

Thank you.

The Brilliant Energy Institute news team

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(With a little help from ChatGPT)