

Brilliant Energy Institute

Office of the Vice President Research and Innovation
Ontario Tech University

BEI Energy News

This update is produced twice weekly by the Brilliant Energy Institute

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Top news

Brilliant Energy Institute News

BEI Executive Director and Ontario Tech students participate in CNS Conference– BEI LinkedIn

<https://www.linkedin.com/feed/update/urn:li:activity:7074058397062467584>

Brilliant Energy Institute's (BEI) Executive Director Jacquie Hoornweg and Ontario Tech University students participated in the annual Canadian Nuclear Society Conference (CNS), a forum for exchanging ideas and information related to the application and advancement of nuclear science and technology. The conference covers a cross section of technical and strategic topics. Jacquie chaired a panel on *Community Engagement: Setting the Table for Nuclear in Clean-Energy Systems* that examined the aspects that maintain public trust and reputation in existing communities. The panel discussed how to build upon those best practices in new host communities and jurisdictions, including Indigenous communities that may be adjacent to new nuclear. Ontario Tech engineering students presented their research in the CNS/Canadian Nuclear Association poster session.

Ontario Tech News

Ontario Tech is home to various electrification initiatives – BEI LinkedIn

<https://www.linkedin.com/feed/update/urn:li:activity:7074399539612258306>

From research to on-the-road reality, Ontario Tech University is committed to decarbonizing the campus community. Ontario Tech has various research initiatives and facilities focused on electrification, like research by the team led by Dr. Sheldon Williamson, Canada Research Chair in Electric Energy Storage Systems for Transportation Electrification. As well, Ontario Tech's ACE Core Research and Testing Facility specializes in electric vehicle and charger testing. Additionally, the Office of Campus Infrastructure and Sustainability recently replaced their gas pickup truck with an E-Transit van. Watch for it and Ontario Tech's growing fleet of electric vehicles.

Energy Policy

New federal fuel regulations are coming soon – CBC News

<https://www.cbc.ca/news/politics/clean-fuel-regulations-carbon-tax-climate-change-1.6871116>

The Federal Clean Fuel Regulations will come into effect in three weeks, aiming to replace polluting automotive fuels with cleaner alternatives, gradually. Producers will need to reduce emissions intensity each year, with a 15 per cent cut in emissions intensity by 2030 compared to 2016 levels. The regulations cover the entire fuel life cycle, from production to consumption. Producers can comply by using more ethanol, biodiesel, or implementing carbon capture and storage. Credits can be earned and traded among producers. The regulations are not a carbon tax but work more like a cap-and-trade system. While costs are expected to increase in the long term, the immediate impact on consumers will likely be minimal. The regulations will have varying effects on different regions and income levels. The government believes the regulations will contribute to significant emissions reduction.

The world needs to do more to hit clean energy goals, says United Nations - World Economic Forum

<https://www.weforum.org/agenda/2023/06/un-report-world-sdg7-clean-energy-goals/>

The International Energy Agency released the *Tracking SDG 7: The Energy Progress Report*. It warns the world is not on track to achieve Sustainable Development Goal 7 (SDG 7) of universal access to affordable, reliable, sustainable, and modern energy by 2030. While there has been progress in certain areas, overall efforts are insufficient. The global energy crisis, intensified by the war in Ukraine, presents additional challenges. Mounting debt and rising energy prices hinder the goal of universal access to clean cooking and electricity. The report highlights the need for reforms in international public finance and increased investment in clean energy. Without action, billions will still lack access to clean energy by 2030, impacting health and climate change. Urgent measures are required to protect vulnerable populations and reach SDG 7.

Energy Systems

Building Infrastructure

Second call under the Greener Neighbourhoods Pilot Program – Natural Resources Canada

<https://www.canada.ca/en/natural-resources-canada/news/2023/06/now-open-for-project-applications-second-call-under-the-greener-neighbourhoods-pilot-program--supporting-demonstration-projects-for-deep-building-r.html>

The Government of Canada announced a second call for proposals under the Greener Neighbourhoods Pilot Program for demonstration projects to support up to six aggregated deep energy retrofit projects in communities across the country. The call is open to housing providers, community groups, Indigenous applicants and local governments in Canada, providing successful applicants with up to 50 percent of the total project cost, with a maximum of up to CAD\$10 million per project. The program aims to accelerate the implementation of retrofits following the Energiesprong model adopted by the Netherlands, U.K., France, Germany and the U.S. to aggregate homes and buildings in a neighbourhood into a single retrofit project.

Electric Vehicles

Toyota unveils sweeping plans for new battery technology, EV innovation – The Globe and Mail (Paywall)

<https://www.theglobeandmail.com/business/international-business/article-toyota-unveils-sweeping-plans-for-new-battery-technology-ev-innovation/>

Toyota, a Japanese automaker, released its technology roadmap, announcing its intention to introduce high-performance, solid-state batteries and other technologies to improve the driving range and cut costs of future electric vehicles (EV). The company said it aims to launch lithium-ion batteries in 2026 and begin mass production of solid-state batteries, commercially, between 2027 and 2028. The company also plans to introduce an EV with a more efficient lithium-ion battery with a range of 1,000 kilometres.

How hard is it to get EV charging stations into residential buildings? – CBC

<https://www.cbc.ca/news/science/electric-vehicle-charging-private-1.6867265>

Condo-dweller Mathieu Gosbee and other EV owners face challenges in charging their electric vehicles due to the lack of residential charging infrastructure. Installing a charger in their condo building would cost CAD\$5,000 to CAD\$10,000, leading them to rely on scarce and often occupied public charging stations. Experts recommend leveraging government incentive programs and federal funding to cover installation costs for up to 20 chargers in multi-family buildings. Insufficient charging infrastructure in Canada, with 19 EVs per publicly available charger, highlights the need for investment to meet the rising demand for EVs and reduce reliance on public stations.

Manufacturing

Rio Tinto invests CAD\$1.4 billion to expand Quebec aluminum manufacturing operations – The Globe and Mail (Paywall)

<https://www.theglobeandmail.com/business/article-rio-tinto-invests-14-billion-to-expand-quebec-aluminum-manufacturing/>

Rio Tinto, an Anglo-Australian multinational firm, announced an investment of CAD\$1.4 billion to expand its aluminum manufacturing operations in Saguenay, Quebec. The company aims to build out a smelter that uses lower-carbon AP60 technology, add 96 new pots to the existing 38 and increase the capacity to about 220,000 metric tonnes of primary aluminum per year. This investment is in response to the increasing pressure faced by aluminum manufacturers to curb their greenhouse gas emissions. The Government of Quebec has announced its intent to offer the company a CAD\$150 million loan, which is forgivable if they maintain employment and investment levels. The company plans to use the ELYSIS-technology which eliminates carbon dioxide emissions altogether and replaces them with oxygen.

Technologies

Nuclear

The Algonquins of Pikwakanagan First Nation, AECL, and CNL sign historic long-term relationship agreement – AECL

<https://www.aecl.ca/the-algonquins-of-pikwakanagan-first-nation-aecl-and-cnl-sign-historic-long-term-relationship-agreement/>

The Algonquins of Pikwakanagan First Nation (AOPFN), Atomic Energy of Canada Limited (AECL), and Canadian Nuclear Laboratories (CNL) have signed a historic long-term relationship agreement (LTRA) to formalize their collaboration. The agreement establishes a working group and a Neya Wabun (Guardian) Program for AOPFN's regular monitoring presence at designated AECL sites. It addresses environmental protection, radioactive waste management, cultural promotion, and economic opportunities. AOPFN's involvement ensures traditional knowledge integration and the protection of Algonquin Rights and the environment. The agreement marks a significant step towards reconciliation, trust-building, and transparency. The LTRA includes the construction of the Near Surface Disposal Facility project, subject to federal assessment, and aimed at replacing temporary storage and disposing of legacy contaminated materials.

OECD commits to improving nuclear sector gender balance - World Nuclear News <https://www.world-nuclear-news.org/Articles/OECD-commits-to-improving-nuclear-sector-gender-ba>

The Organization for Economic Co-operation and Development (OECD) has officially endorsed a recommendation aimed at addressing the gender imbalance within the nuclear sector. This decision follows the publication of a report by the OECD Nuclear Energy Agency (NEA) that shed light on the underrepresentation of women in the nuclear science and engineering workforce. The report revealed that women currently constitute only 20 per cent of the workforce in NEA member countries, with limited representation in upper management. It also highlighted the challenges faced by women, including workplace hostility and negative career consequences related to pregnancy and family responsibilities.

Hydrogen

Iberdrola to build €750 million green hydrogen plant in Southern Europe to supply ammonia - Hydrogen Insight

<https://www.hydrogeninsight.com/production/iberdrola-to-build-750m-green-hydrogen-plant-in-southern-europe-to-supply-ammonia-to-world-leading-exporter/2-1-1464927>

Iberdrola, a Spanish renewable energy company, announced its plans to build a €750 million (CAD\$808 million) green hydrogen plant in Southern Europe. Under a framework agreement with ammonia trader Trammo, the facility will produce up to 100,000 tonnes of green ammonia annually. Trammo will purchase the entire output from the plant and sell a significant portion in Northern Europe. The project will be powered by 500 MW of new renewable energy. Iberdrola aims to establish a European green hydrogen corridor, leveraging Southern Europe's renewable potential to decarbonize energy-intensive industries across the continent. The company already operates Europe's largest green hydrogen project and is developing multiple hydrogen facilities globally. Green ammonia serves as a versatile solution for decarbonization and hydrogen transportation.

Fossil Fuels

Cleaner Canadian natural gas: overall sector carbon dioxide emissions intensity down nearly 30 per cent since 2010 - Energy Now

<https://energynow.ca/2023/06/cleaner-canadian-natural-gas-overall-sector-co2e-emissions-intensity-down-nearly-30-since-2010/>

A recent analysis by the Canadian Energy Centre (CEC) shows that Canada's natural gas production and processing sector has experienced a reduction in greenhouse gas (GHG) emissions intensity. The study examined data from 1990 to 2021 and found that emissions intensity, measured as kilograms of CO2 equivalent per barrel of oil, decreased by more than eight per cent between 2000 and 2021. Furthermore, between 2010 and 2021, emissions intensity decreased by nearly 30 per cent. This decline in emissions intensity can be attributed to improved emissions management practices, such as methane reduction targets and multi-well drilling pad approaches. The findings indicate that Canada's natural gas sector is becoming cleaner over time.

Thank you.

The Brilliant Energy Institute news team

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(With a little help from ChatGPT)