

# Breakthroughs:

## Flexible Nuclear Energy Systems in a Clean Energy World

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Tuesday, May 28, 2019

12:30 – 1:45 PM PDT

Vancouver Convention Centre West, room TBD

[Register Here](#) [registration for non-delegates, for badging access, is required by May 13]

Organized by the **CEM Nuclear Innovation: Clean Energy Future (NICE Future) initiative**, this CEM Focus Event will highlight how nuclear energy, and in particular breakthroughs in nuclear energy technologies, support progress toward clean energy goals.

Speakers and panelists will present recent studies on flexibility needs in future low-emissions energy systems, and discuss innovative technical solutions for both new, advanced reactors and current nuclear reactors, which already operate flexibly in some markets. They will consider the benefits from integrating flexible nuclear energy technologies with renewable energy in coordinated and efficient energy systems.

### This CEM Focus Event will feature:

- The launch of a high-profile and accessible book for policy makers from the NICE Future initiative, titled “**Breakthroughs**,” featuring stories to spark the imagination and challenge pre-conceptions of power systems for the future;
- Engaging visual exhibits of the integrated energy systems profiled in the “**Breakthroughs**” book;
- The launch of new analysis by the **International Energy Agency (IEA)** and **OECD Nuclear Energy Agency (NEA)** on the importance of nuclear power alongside other clean energy sources in meeting clean energy goals; and
- Discussion by environmental non-governmental organizations (NGOs) in support of a **new CEM campaign on “flexible hybrid nuclear-renewable energy systems.”**

### Breakthroughs in nuclear energy are expected to:

- Expand the ease and efficiency of nuclear and renewables integration;
- Create more integrated and flexible systems that leverage the strengths of both technologies, with the potential to support expanded use of variable renewable energy;
- Create new, economic applications for using any excess emissions-free energy;
- Provide reliable, clean power for advanced transportation, including through energy storage options like hydrogen; and,
- Assist energy access to remote areas.

## Agenda

12:20	<p><b>A 'Pre-brief' in Images</b></p> <p>As speakers and audience arrive, <b>Joshua Freed</b>, Senior Vice President for Clean Energy at Third Way, will present imagery that illustrates innovative nuclear technologies working in tandem with other clean energy sources.</p>
12:30	<p><b>Official Start of Event:</b></p> <p><b>Welcoming Remarks by Suzie Jaworowski</b>, Senior Advisor, Office of Nuclear Energy, U.S. Department of Energy and Vice-Chair, CEM Clean Energy Education and Empowerment (C3E) Women in Energy initiative.</p>
12:35	<p><b>Breakthroughs – Insights on Nuclear Energy Innovation [Expert Panel]</b></p> <p>Moderated by <b>Rich Powell</b>, Executive Director, ClearPath.</p> <ul style="list-style-type: none"> <li>• <b>Kirsty Gogan, NGO, Energy for Humanity</b>, will present plans for the new CEM campaign on flexibility entitled “Nuclear-Renewable Hybrid Systems to Enable Modern Energy.” She will discuss why the study is meaningful to the clean energy community, and the qualitative and quantitative benefits of various technologies across select power markets.</li> <li>• <b>Hideki Kamide, Chair, Generation IV International Forum (GIF) Policy Group</b>, will discuss GIF’s multi-national research on how advanced reactors can expand flexibility.</li> <li>• <b>Dr. Jill Engel-Cox, Director of the Joint Institute for Strategic Energy Analysis, U.S. DOE National Renewable Energy Laboratory</b>, will present views from the renewable energy community on the potential for nuclear-renewables integration.</li> <li>• <b>Lisa Frizzell, Vice President of Stakeholder Relations, Nuclear Waste Management Organization, Canada</b>, will present best practices on stakeholder engagement in local and Indigenous communities.</li> <li>• <b>Agneta Rising, Director General, World Nuclear Association, and Board Member and Founder, Women in Nuclear (WiN)-Global</b>, will discuss flexibility, technologies, and gender inclusion in the sector.</li> <li>• <b>A young Indigenous speaker</b> will discuss nuclear energy’s role in clean energy systems. (invited)</li> </ul>

1:00

### **Nuclear Power in a Clean Energy World – The Need for Action [Keynote Perspectives]**

Moderated by **Suzie Jaworowski**.

#### **Government Leaders**

- **Claire Perry**, Minister of State for Business, Energy and Industrial Strategy, United Kingdom (invited)
- **Yoshihiko Isozaki**, State Minister of Economy, Trade and Industry, Japan
- **Amarjeet Sohi**, Minister, Natural Resources Canada (invited)
- **Rick Perry**, United States Secretary of Energy

Synopsis: Senior government officials will highlight nuclear innovations, featuring stories in the NICE Future initiative book, "Breakthroughs." Clean energy planning and the potential for integrated nuclear-renewable systems will be addressed.

#### **Multi-government International Organizations**

- **Dr. Fatih Birol**, Executive Director, International Energy Agency

Synopsis: Dr. Birol will launch the IEA's new report, "The Role of Nuclear Power in a Clean Energy Systems," which is being released at CEM10.

- **Bill Magwood**, Director General, OECD Nuclear Energy Agency (invited)

Synopsis: Mr. Magwood will present findings of a review of low-emissions scenarios from the new OECD NEA report: "The Costs of Decarbonisation: System Costs with High Shares of Nuclear and Renewables."

1:45

**Closing remarks by Suzie Jaworowski.**

### Additional Background:

Wind, solar, and nuclear power are all emissions-free technologies, putting out no carbon dioxide, sulphur dioxide, mercury, or particulates that cause smog. Of these, only nuclear energy can provide both clean and 24/7 dispatchable power on demand. However, innovative breakthroughs, such as flexible advanced nuclear, small modular reactors, micro-reactors, and other next generation designs, will make it easier to pair nuclear energy with variable renewable energy sources, further accelerating cost-effective emissions reductions and allowing greater, more efficient use of variable renewable energy sources. Operating together, these energy sources can provide reliable, affordable and resilient energy, including to remote regions where ensuring consistent access to energy resources has been difficult. These technology approaches can also help address key global problems, like providing potable water, generating heat for industrial processes, and creating hydrogen for energy production and storage.

### About the CEM Nuclear Innovation: Clean Energy Future (NICE Future) initiative:

The NICE Future initiative, launched in May 2018 in Copenhagen, is led by the United States, Canada, and Japan, and is joined by Argentina, Poland, Romania, Russia, UAE and the UK. The initiative envisions a world in which nuclear innovations and uses advance clean energy goals. The initiative recognizes there is no one-size-fits-all solution to energy and fosters collaboration among clean energy supporters in exploring diverse solutions, including nuclear energy technology solutions, for clean and integrated systems of the future. Find us online at <http://cleanenergyministerial.org/initiative-clean-energy-ministerial/nuclear-innovation-clean-energy-future-nice-future>, <https://www.energy.gov/ne/nuclear-innovation-clean-energy-future>, and [www.nrcan.gc/energy/20719](http://www.nrcan.gc/energy/20719).



## **Smart Energy Platforms and Testbeds Enabling Tomorrow's Flexible Energy Systems**

Tuesday, 28th May, 16:00-17:00

Register to the event until May 13th:

[https://docs.google.com/forms/d/e/1FAIpQLScv24kG-JUNKxrRbzHze5Yo6V2VwflL59J3MR7mmbBbHBsGJ\\_Q/viewform](https://docs.google.com/forms/d/e/1FAIpQLScv24kG-JUNKxrRbzHze5Yo6V2VwflL59J3MR7mmbBbHBsGJ_Q/viewform)

For more information:  
juho.korteniemi(a)tem.fi

This event will facilitate possibilities and showcase opportunity generation in collaborative Public-Private ecosystems and platforms by presenting examples from CEM/MI countries and having a panel discussion with leading companies/organizations on future plans and cooperation stemming from leveraging these platforms to accelerate work towards CEM and MI targets in participating countries.

### **Program:**

#### **Enabling policy framework for smart energy system**

Mr Riku Huttunen, DG Energy, Finland

#### **Benefits of innovation platforms and testbeds to develop Smart Grids, ISGAN perspectives and Swedish smart energy platforms**

Ms Karin Widegren, Chair of the Executive Committee, ISGAN – International Smart Grids Action Network

#### **Case Open Innovation Platform for Smart Energy: Smart Otaniemi**

Ms Tuula Mäkinen, Vice President, Smart energy and transport solutions, VTT and Mr Jan Segerstam, Development Director, Empower IM ltd

#### **Case 100 % renewables society: Åland**

Mr Berndt Schalin, CEO, Flexens ltd

#### **Case Circularity of batteries: BatCircle**

Ms Mari Lundström, Assistant Professor, Aalto University

#### **Case Power-to-Food**

MI Champion Pasi Vainikka, CEO, Solar Foods Ltd

10<sup>th</sup> Clean Energy Ministerial / 4<sup>th</sup> Mission Innovation Ministerial  
Side Event

**Energy Storage Partnership:  
Bringing Energy Storage Solutions to Developing Countries**

5:00 - 5:45 PM, May 28, 2019

Press Center

Vancouver Convention Centre West

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**BACKGROUND**

Energy transitions are underway, with a significant global increase in the use of wind and solar power playing a key role in the path to a clean energy future. To integrate renewable resources into grids, energy storage will be key. Storage will allow for the increased use of wind and solar power, which can not only increase access to power in developing countries, but also increase the resilience of energy systems.

To enable the rapid uptake of variable renewable energy in developing countries, the WBG is convening an [Energy Storage Partnership \(ESP\)](#) that will foster international cooperation on:

- Technology Research Development & Demonstration, Applications;
- System Integration and Planning Tools;
- Enabling Infrastructure, such as communication technologies and energy management systems; and
- Policies, Regulations and Procurement for energy storage

To open new markets for energy storage in developing countries, several barriers will need to be addressed: the lack of knowledge about and exposure to new technologies and their applications; regulatory and policy environments that are unable to guarantee cost recovery; and procurement practices that are not yet adapted to energy storage investments. An international approach to research and development, knowledge-sharing, training, and capacity building has been identified as an important way to encourage the uptake of energy storage technologies in developing countries and enable higher integration levels of variable renewable energy.

By connecting researchers, government officials, and the private sector to share international experiences in researching, developing, and deploying energy storage solutions, the ESP will help bring new technological and regulatory solutions to developing countries, as well as help develop new business models that leverage the full range of services that storage can provide.

The ESP will be hosted at the World Bank's Energy Sector Management Assistance Program (ESMAP) and will be developed and implemented in partnership with other international organizations.

**The ESP is being launched officially on the occasion of the 10<sup>th</sup> Clean Energy Ministerial and 4<sup>th</sup> Mission Innovation Ministerial.**

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**AGENDA**

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| 5:00 –5:05pm  | Video Opening Remarks by Makhtar Diop, Vice President for Infrastructure, the World Bank Group  |
| 5:05 –5:10pm  | Remarks by Patricia Fuller, Ambassador for Climate Change, Government of Canada   |
| 5:10 –5:15pm  | Remarks by Francesco La Camera, Director-General of the International Renewable Energy Agency   |
| 5:15 – 5:20pm | (TBC) Remarks by Republic of South Africa   |
| 5:20 – 5:25pm | Remarks by Badr Ikken, Director General, IRESEN Morocco   |
| 5:25 – 5:30pm | Remarks by John Loughhead, Chief Scientific Adviser, Department for Business, Energy & Industrial Strategy, United Kingdom  |
| 5:30 – 5:35pm | Remarks by Rohit Khanna, Practice Manager, Energy Sector Management Assistance Program, World Bank  |
| 5:35 – 5:40pm | Q & A Discussion  |
| 5:40 – 5:45pm | Remarks on newly agreed cooperation between Mission Innovation and the World Bank by Frank Des Rosier, Assistant Deputy Minister, Department of Natural Resources, Canada (and Chair of MI Steering Committee) and Rohit Khanna |