

PROGRAMME

Accelerating SMRs for Net Zero

NEA International Workshop on the Economics of SMRs

Tuesday 27 February 2024

**Chateau Laurier
Ottawa, Canada**



Overview

The Nuclear Energy Agency (NEA) will host an international workshop on the economics of small modular reactors (SMRs) at Chateau Laurier in Ottawa, Canada on Tuesday 27 February 2024. This workshop aims to assess recent progress in SMR deployment and discuss how different policy frameworks, deployment strategies and delivery models will influence the overall economics of SMRs. Additionally, the event will draw insights from comparable industries that have achieved cost reductions through serial construction, identifying potential approaches for SMR projects.

Global momentum behind the adoption of SMRs as a competitive, low-carbon energy source in the pursuit of net zero goals continues to grow. NEA analysis indicates that SMRs can play a crucial role in fulfilling the commitment made by 25 countries at COP28 to [triple installed nuclear capacity by 2050](#) in support of net zero targets. This role encompasses addressing challenges in hard-to-abate sectors, such as replacing coal power plants with on-grid power, substituting diesel generators with off-grid heat and power for remote mining operations, providing high-temperature heat to replace fossil fuel cogeneration in heavy industries, and serving as marine propulsion to replace heavy-fuel oil in merchant shipping.

To meet this diverse and growing demand, SMRs bring a number of unique design features that support both their safety case and economics. These include integral designs that contribute to a robust inherent safety case, low core inventories to reduce the need for emergency planning zones, improved modularisation and manufacturability that would transform nuclear new builds' delivery models, and enhanced flexibility for nuclear energy to further support variable renewables integration in the electricity mix.

While developers of SMRs continue to make significant strides on the first demonstration projects, crucial questions remain regarding deployment pathways for a widespread global rollout, delivery models and the realisation of cost competitiveness through "economies of multiples." Achieving these goals will require fostering government-to-government, public-private and business-to-business co-operation.

The outcomes of this workshop will contribute valuable insights to the first NEA Accelerating SMRs for Net Zero Summit scheduled for September 2024 in Paris. This summit, as the capstone of the NEA's new initiative on [Accelerating SMRs for Net Zero](#) launched at COP28, will bring together senior government officials and industry leaders to discuss key policy priorities and international co-operation aimed at expediting the deployment of SMRs.

Programme

Arrival and Check-In: 08:30 – 09:00

Welcome and introduction

- 9:00
(30 min)
- Jeff Labonté, Associate Deputy Minister of Natural Resources Canada
 - Rachna Clavero, President and CEO, CANDU Owners Group
 - Diane Cameron, Head of Division, Nuclear Technology Development and Economics, NEA

Session 1: Role of SMRs in pathways to net zero

9:30
(60 min)

The wave of innovation in SMRs is expected to offer practical solutions to decarbonise hard-to-abate parts of the economy, providing power and heat for both on-grid and off-grid applications. Beyond on-grid baseload power to replace coal-fired generation, near-term market demand for SMRs in hard-to-abate sectors continues to grow. Promising applications include off-grid heat and power to replace diesel generators in remote regions for mining operations; fossil-fuel replacement for district heating and high-temperature heat to replace fossil fuel cogeneration in heavy industries; hydrogen production for synthetic fuels and clean steel production; as well as marine propulsion to replace heavy-fuel oil for merchant shipping. This session will highlight the promise of SMRs to support safe, secure and affordable pathways for net zero and discuss how near-term demonstration projects can set the stage for a rapid rollout over the next two decades.

Session Chair: Jacquie Hoorweg, President, Joule Communications and Adjunct Professor, Ontario Tech University

Speakers:

- Carlos Leipner, Director, Global Nuclear Energy Strategy, Clean Air Task Force
- Nicolas Stauff, Group Manager, Nuclear Applications & Economics, Argonne National Laboratory
- Myha Truong-Regan, Head of Climate Research, Climate Action Institute, Royal Bank of Canada
- Yukari Yamashita, Managing Director, Institute of Energy Economics, Japan (*virtual*)
- Aurora Young, Advanced Nuclear Systems Specialist, Cenovus

10:30
(25 min)

Coffee break

Session 2: Policy frameworks and energy markets to accelerate SMRs for net zero

10:55
(75 min)

At a time of rapid transformation across the energy sector, policy frameworks and energy markets will play a pivotal role to ensure that SMRs reach their full potential for net zero, alongside and in complementarity with other clean energy technologies. Policymakers possess a range of levers in their policy toolkit to support these efforts and foster a level playing field for clean energy technologies domestically and internationally, including through direct financial support measures, fiscal policy and energy market regulations. This session will discuss the role and interplay between these different policy measures to support both first-of-a-kind (FOAK) SMR projects and future serial deployment at the speed and scale required for reaching net zero by 2050.

Session Chair: Colin Hault, Senior Director, Nuclear Energy, NRCAN, Canada

Speakers:

- Stephen Comello, Senior Vice President, Strategic Initiatives, EFI Foundation
- Adrian Foster, Mayor, Clarington, Ontario and Chair, Canadian Association of Nuclear Host Communities
- Guy Lonechild, CEO, First Nations Power Authority
- John Parsons, Deputy Director for Research, Center for Energy and Environmental Policy Research, Massachusetts Institute of Technology
- Gwen Parry-Jones, Chief Executive Officer, Great British Nuclear (*virtual*)
- U.S. Department of Energy (*invited*)

Session 3: Understanding SMRs' key construction cost drivers

12:10
(75 min)

SMRs represent a promising advancement in nuclear technology, offering scalable and cost-effective solutions for both power and non-power applications, but also presenting new economic models and value propositions. At the plant level, achieving the economies of multiple will require leveraging several cost drivers, including modularisation, factory construction, design simplification, standardisation as well as potentially some international harmonisation of licensing approaches. This session will showcase recent perspectives on SMR construction cost drivers and their potential role in shaping the overall economics of SMRs.

Session Chair: Milt Caplan, President, MZConsulting

- Michel Berthélemy, Nuclear Strategic Policy Advisor, NEA
- Chad Boyer, Principle Technical Leader, Electric Power Research Institute
- Ben Lindley, Assistant Professor, University of Wisconsin- Madison
- Aaron Johnson, Senior Vice President – Nuclear, Aecon

13:25
(60 min)

Networking lunch

Session 4: Achieving the economies of multiples

14:25
(75 min)

Serial construction has underpinned significant costs reductions in a number of industries, including aviation, shipbuilding, data centres, as well as energy sectors such as wind and oil and gas. These “economies of multiples” are expected to play a significant role for SMRs in order to compensate for the “economies of scale” that otherwise traditionally benefits gigawatt-scale reactors. At the same time, they are also expected to contribute to accelerating time to market, with broader implications for SMRs’ value proposition. This session will review best practices and lessons learnt from these other industries in terms of their approach to serial construction and discuss key lessons learnt, as well as their applicability for large-scale deployment of SMRs.

Session Chair: Jenifer Shafer, Associate Director, ARPA-E, US Department of Energy

Speakers:

- Eric Ingersoll, Founder and Managing Director, Terra Praxis (*virtual*)
- Gary Fischer, Executive Director, Project Production Institute
- Marcus Nichol, Executive Director, New Nuclear, Nuclear Energy Institute
- Célestin Piette, Chief Vision Officer, Tractebel
- Mark Tipping, Global Power to X Director, Lloyd’s Register

15:40
(25 min)

Coffee break

Session 5: SMR business models and delivery strategies for serial deployment

16:05
(75 min)

In a number of cases SMRs target new markets where nuclear energy is currently not part of the energy options. In parallel, structural changes across the energy sectors are impacting the way clean energy assets are built, owned and operated, and how project risk can be allocated and mitigated among project proponents. On the supply side, these factors are shaping future business models and delivery strategies of SMR developers and their supply chains. On the demand side, they are also expected to drive how different prospective customers and end-users are approaching SMR projects in order to build the order book required for the competitiveness of SMRs. This session will review and discuss the most promising business models and delivery strategies that have the potential to accelerate the deployment of SMRs.

Session Chair: Michelle Leslie, Senior Manager, Infrastructure & Capital Projects, Deloitte Canada

Speakers:

- Rita Baranwal, Senior Vice President of AP300, Westinghouse
- Sandra Dykxhoorn, Vice President, New Nuclear Growth, Ontario Power Generation
- Lisa Mcbride, Vice President, Country Leader SMRs Canada, GE Hitachi Nuclear
- Yongsoo Kim, Vice President of SMR Project Office, Korea Hydro & Nuclear Power
- Kreshka Young, North America Business Director, Energy & Climate, Dow Chemical

Conclusion

17:20
(10 min)

- Diane Cameron, Head of Division, Nuclear Technology Development and Economics, NEA

Biographies

Welcome and introduction



Jeff Labonté, Associate Deputy Minister, Natural Resources Canada

Jeff Labonté was named Associate Deputy Minister of Natural Resources Canada in July 2023. Formerly at NRCan, Jeff was Special Advisor to the Associate Deputy Minister on Decarbonization; Assistant Deputy Minister, Lands and Minerals Sector; Assistant Deputy Minister, Major Projects Management Office; Director General, Energy Safety and Security Branch and International Energy; and Director General, Petroleum Resources Branch in the Energy Sector. He has also held senior executive positions at the Geological Survey of Canada and the National Mapping Agency.

Jeff holds a bachelor's degree in geography and political science, as well as a master's degree in public administration from Carleton University. He has also completed the Public Sector Leadership and Governance program at the University of Ottawa.



Rachna Clavero, President & Chief Executive Officer, CANDU Owners Group

Rachna Clavero was appointed President and CEO in December, 2022. Rachna has had a diverse career in the nuclear industry. She first joined COG in October 2015, where she developed the Strategic R&D program and helped the industry establish long term priorities for R&D. In her five years at COG, she progressed from Program Manager of Research and Development to Director of Nuclear Safety & Environmental Affairs, before being appointed Deputy CEO.

From 2020-2022, Rachna was Senior Director, Strategic Growth & Innovation at Kinectrics. In this role, she developed, orchestrated and implemented strategies to ensure Kinectrics' long-term growth and profitability, and ensured that Kinectrics was well-aligned with its domestic and international clients' priorities. Reporting directly to the CEO, Clavero had oversight of the nuclear business development team, the innovation portfolio and the company's sustainability initiatives.

Prior roles include senior positions with AECL, Candesco Corporation and the Ontario Ministry of Energy. She began her career performing safety analysis for the restart of the Ontario reactors and then moved on to regulatory projects for the Canadian utilities and waste management. Rachna returned to AECL to lead licensing for new CANDU designs. During her time at the Ministry of Energy she provided strategic advice on nuclear new builds, refurbishment, radioactive waste management and emergency planning. She has consulted

internationally at the IAEA and sits on the Nuclear Strategic Steering Committee at the Canadian Standards Association. A strong supporter of diversity in the workplace, Rachna is a mentor and coach to emerging leaders in the industry.



Diane Cameron, Head of the Nuclear Technology Development and Economics Division, Nuclear Energy Agency

Diane Cameron is Head of the Nuclear Technology Development and Economics Division at the OECD Nuclear Energy Agency (NEA). In her role at the NEA, she leads an expert team of economists and scientists that supports energy policy and nuclear energy policy development among NEA Member Countries by advancing evidence-based, authoritative assessments and analyses in the areas of nuclear economics, financing, and cost reduction, as well as nuclear technology, innovation, and the fuel cycle.

From 2014 to 2021, Ms. Cameron was Director of the Nuclear Energy Division with the Government of Canada. As Director, she headed up the division responsible for leading and co-ordinating Canadian public policy on nuclear energy and served as Chair of Canada's Small Modular Reactor (SMR) Roadmap and Action Plan. She joined the Government of Canada in 2007 to work on energy, environment, and economic policy – including international relations and negotiations. Prior to her tenure with the Government of Canada, she worked in management consulting and engineering in the private sector specialising in global value chains and international logistics.

A Canadian national, Diane holds a Master's degree in Technology Policy from Massachusetts Institute of Technology (MIT) where she was named Alfred Keil Fellow for Wiser Uses of Science and Technology. Diane also holds a Bachelor's degree of Applied Science in Systems Design Engineering from the University of Waterloo.

Session 1: Role of SMRs in pathways to net zero



Jacquie Hoornweg, President, Joule Communications and Adjunct Professor, Ontario Tech University

Ms Hoornweg is the president of Joule Communications and is an Adjunct Professor in energy policy and communications at Ontario Tech University.

Jacquie recently served as Executive Director of Ontario Tech University's Brilliant Energy Institute, and is a dedicated communicator on energy, environment, and Canadian politics, including as a long-standing contributor to Nuclear Engineering International magazine.

In 2021, she received the Howard A. Smith Outstanding Contribution award from the Canadian Nuclear Society.



Carlos Leipner, Director, Global Nuclear Energy Strategy, Clean Air Task Force

As Director of Global Nuclear Energy Strategy, Carlos leads CATF's efforts to develop and implement a pathway for expanded safe and economic use of nuclear energy globally to address climate change and support expanded energy access. The ultimate objective is to develop a global nuclear fission ecosystem that could deliver hundreds of GWe per year to transform the energy sector and expand the application of nuclear technology beyond electricity generation to encompass other uses such as Hydrogen and zero carbon fuels production, industrial process heat, desalination, among others.

Carlos has had a long professional career in the nuclear industry with various technical and management roles in the United States, Sweden, Spain, and Brazil including Director of Strategy for Research & Technology at Westinghouse Electric Co. He has served in recent years as Vice President for both Westinghouse and Framatome Inc. in commercial nuclear business development in North and South America particularly in the areas of servicing the operating reactor fleet as well as new nuclear plant development including SMR technology.

Carlos also currently serves as Vice President and Advisory Board member of ABDAN, the Brazilian nuclear industry association. He is a former member of the Brazil-United States Business Council (BUSBC) sponsored by the U.S. Chamber of Commerce and he is a past vice-chairman of the American Nuclear Society Columbia-SC Section. He was also appointed to serve two terms in the U.S.-Mexico Energy Business Council (USMEBC) by the U.S. Department of energy. He was also active in the Organization of Canadian Nuclear Industries (OCNI) which represents the nuclear sector in Canada.

Carlos has a bachelor's and master's degrees in Nuclear Engineering from the University of Florida and a M.B.A. (International Business) from the University of South Carolina. He is fluent in several languages, loves to travel and is based in Miami, FL, and Rio de Janeiro, Brazil.



Nicolas E. Stauff, Manager of the Nuclear Applications and Economics Group, Argonne National Laboratory

Dr. Nicolas E. Stauff serves as the Manager of the Nuclear Applications and Economics Group at the Argonne National Laboratory. Dr. Stauff leads some nuclear market economics research for the U.S. Department of Energy's (DOE) and he contributes to the development of advanced reactor designs in collaboration with industry. He currently serves as nuclear energy technical coordinator to the U.S. Net Zero World initiative. Before joining Argonne, Nicolas Stauff performed research at the French CEA. He received his Ph.D. in nuclear engineering from the University of Paris XI and his M.S and B.S. in electrical engineering from the SUPELEC school in France.



Myha Truong-Regan, Head of Climate Research, Climate Action Institute, Royal Bank of Canada

Myha Truong-Regan is the Head of Climate Research at RBC's Climate Action Insitute. Prior to joining RBC, Myha was a senior economist with the Ontario Securites Commission (OSC), where her work was focused on regulatory strategy and research. Myha also had careers as an urban planner, where her focus was on environmental and social policy, and a strategy and marketing consultant, where her focus was on real estate development and consumer packaged goods.


Myha holds an MBA from the Rotman School of Management, at the University of Toronto, and Bachelor of Environmental Studies degree from the University of Waterloo.



Yukari Yamashita, Managing Director, Institute of Energy Economics, Japan

As a Board Member for the Institute, Yamashita's responsibility includes international publicity activities and development of bilateral programs in Middle East area. She is currently running several programs with GCC countries. She has served as a member of various government councils and committees in the fields of energy, science, and technologies. As a member of variety of government working groups on energy efficiency policies, she contributes to the policy making process such as a top runner program on building materials and inclusion of energy efficiency as compulsory factor to building codes. On the science and technologies field, she has been serving as a jury for national fund on international programs to address climate change for over ten years.

Yamashita is also the Director in Charge of the Energy Data and Modelling Center, where she is responsible for quantitative and qualitative analyses on energy policy issues. In the aftermath of the 2011 tsunami and Fukushima Daiichi nuclear incident, her team's analyses and recommendations contributed greatly to the electricity-saving campaign and continue to contribute to the debate regarding a national energy mix for Japan.

	<p>Yamashita has led miscellaneous international and regional programs in the area of energy cooperation through the International Energy Agency, Asia-Pacific Economic Cooperation, Economic Research Institute for ASEAN and East Asia, and International Partnership for Energy Efficiency Cooperation. She served as a member of the Zayed Future Energy Prize Selection committee (UAE). She served as a President of the International Association for Energy Economics (IAEE) in 2020 and serves as an Executive Vice President for 2021.</p>
	<p>Aurora Young, Advanced Nuclear Systems Specialist, Cenovus</p> <p>Aurora Young is an Advanced Nuclear Systems Specialist at Cenovus Energy Inc. She has a degree in Mechanical Engineering from the University of Calgary (2005), is a professional engineer (P.Eng.) and is certified as a Project Manager Professional (PMP). She started her career at a technology start-up designing drilling telemetry tools and progressed to managing large upstream, midstream, and downstream oil and gas facility projects. With nearly 20 years of experience working in the energy industry, she has focused on project development, strategy, business development, clean energy technology development and strategic innovation. Aurora now leads the Nuclear Development team as the Business Opportunity Manager, developing Cenovus' small modular nuclear reactor program and works with the Pathways Alliance SMR group.</p>

Session 2: Policy frameworks and energy markets to accelerate SMRs for net zero



Colin Hoult, Senior Director, Nuclear Energy, NRCan, Canada

Colin Hoult is the Senior Director of Nuclear Energy at Natural Resources Canada (NRCan), returning to NRCan in 2024. He previously served as the Deputy Director for Nuclear Strategy Policy (2014-17).

Prior to this role, he worked at the Privy Council Office providing support to Cabinet on a range of social and economic files and has also served as Senior Advisor to the Deputy Minister of Employment and Social Development. During the COVID-19 pandemic, he was Special Advisor to the Director General responsible for border measures under the Quarantine Act.

Mr. Hoult holds degrees in Political Science (Acadia University) and Constitutional Law (Osgoode Hall Law School).



Stephen Comello, Senior Vice President, Strategic Initiatives, EFI Foundation

Stephen Comello is Senior Vice President, Strategic Initiatives at the EFI Foundation and Deputy Director of the Energy Futures Finance Forum.

Comello helps steer its overall direction including program development, fundraising, and operations. Within the Energy Futures Finance Forum, he leads the strategic development of all research products, drives the analytical agenda, and co-leads engagement with external stakeholders, including policymakers, business executives, advisory board members, and the academic and nongovernment organization communities.

Comello brings more than 20 years of experience in systems engineering, finance, and strategic management. Previously, he spent close to a decade as the research director of the Energy Business Innovations focus area and as a lecturer in management at the Stanford Graduate School of Business. He was also a research affiliate within the Grid Integration, Systems and Mobility (GISMo) group at the SLAC National Accelerator Laboratory and a technoeconomic lead on a variety of research initiatives at the Precourt Institute for Energy at Stanford University.



Adrian Foster, Mayor, Clarington, Ontario and Chair, Canadian Association of Nuclear Host Communities

Adrian Foster is serving his fourth term as Mayor of Clarington. Adrian and his wife Deborah live in Courtice. Deborah is an ordained Minister with The United Church of Canada.

After graduating from the University of Toronto, Adrian worked as a counsellor, helping developmentally disabled children and their families in a behaviour management setting. Later he started a career as an investment advisor, working in that field for over 26 years.

Since making their home in Clarington, the Fosters have been active in the community supporting numerous groups and causes. Adrian has volunteered with numerous organizations. He is a past President of the Clarington Board of Trade, a former charter member of the Rotary Club of Courtice and is involved with the Lion's Club of Courtice.

Adrian has been formally recognized twice for his service to the community. He was awarded the Queen's Golden Jubilee medal in 2002, the Queen's Diamond Jubilee medal in 2012 and was presented with a Paul Harris Fellowship by the Rotary Club of Courtice in 2008. Adrian has represented the Municipality on a variety of boards and committees. Amongst other commitments, he sits as Chair of Durham Region Finance, sits as Chair of the Canadian Association of Nuclear Host Communities, and is a Board Member of Elexicon Corp.



Guy Lonechild, FNPA, Chief Executive Officer


Mr. Lonechild (White Bear First Nations- Treaty #4) is a well-known advocate in creating new economic opportunities and serves as President and CEO of First Nations Power Authority connecting both Indigenous and Industry leaders in renewable and alternative energy development. As a first of its kind organization, Mr. Lonechild heads the organization as our strategic leader and serves the FNPA Board and provides leadership direction to the FNPA Team.



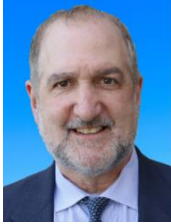
John Parsons, Deputy Director for Research, Center for Energy and Environmental Policy Research, Massachusetts Institute of Technology

John Parsons is a Senior Lecturer at the MIT Sloan School of Management. He is also the CoDirector of MIT's CANES Low Carbon Energy Center which explores new avenues for nuclear fission, and a Research Affiliate at MIT's Center for Energy and Environmental Policy Research.

Parsons is a financial economist specializing in risk management, corporate finance, and valuation. His research focuses on the problems of risk in energy and environment markets, the role of trading operations in energy companies, and the valuation and financing of investments in energy markets. For ten years Parsons worked in the finance practice at the economics consulting firm CRA International,

	<p>where he was a vice president and principal. He worked with many major international oil companies, mining companies and commodity processors, electric utilities, and international pharmaceutical companies on a wide variety of risk management and valuation matters.</p> <p>He holds a BA in Economics from Princeton University and a PhD in Economics from Northwestern University.</p>
	<p>Gwen Parry-Jones, Chief Executive Officer, Great British Nuclear</p> <p>Gwen Parry-Jones is the CEO of Great British Nuclear (GBN).</p> <p>Gwen was previously at Magnox Ltd as their CEO, where she joined in September 2019. She started her career in 1989, as a reactor physicist at Magnox's Wylfa power station, before taking up several management positions at British Energy and then EDF Energy, in the UK and Canada.</p> <p>In 2008 she became the Station Director of Heysham 1 power station, and was the first woman in the UK to have run a nuclear power station. During her time at EDF Energy, Gwen was also awarded an Officer of the Order of the British Empire (OBE) for services to science and technology.</p> <p>Prior to joining Magnox, Gwen was the Executive Director of Operations Development at Horizon Nuclear Power.</p> <p>Gwen is a Fellow of the Institute of Physics, and the recent past President of the Nuclear Institute.</p>

Session 3: Understanding SMRs' key construction cost drivers



Milt Caplan, President, MZConsulting

Milt Caplan is President of MZConsulting Inc., providing services based on more than 30-years experience in the nuclear industry developing new-build nuclear projects from conception to project completion around the globe.

Experience includes overall project development, strategy formulation, business model development, economic assessment, costing and pricing, strategic partnering, project financing and contract negotiation. He has managed numerous new plant proposals under sole source and competitive situations in Canada, the USA, Europe and Asia; developing the strategies for risk allocation and pricing. Milt also has a strong focus on energy economics with emphasis on demonstrating the economic viability of electricity supply options and driving the development of next generation products to meet cost targets.

He is the current chair of the World Nuclear Association Economics Working Group and is on the faculty of the World Nuclear University where he teaches nuclear economics and nuclear plant structuring and financing.

Milt obtained his Bachelor of Engineering in Nuclear Engineering from Rensselaer Polytechnic Institute in Troy, New York, USA, and a MBA from the University of Toronto.



Michel Berthélemy, Nuclear Strategic Policy Advisor, Nuclear Energy Agency

Dr Michel Berthélemy currently serves as the Chief of Staff and Strategic Policy Advisor at the OECD Nuclear Energy Agency (NEA) within the Division of Nuclear Technology Development and Economics. He leads international initiatives to advise policymakers on the role of nuclear energy in achieving Net-Zero objectives. His responsibilities encompass nuclear economics, financing, and the formulation of development strategies for Small Modular Reactors (SMRs) and advanced reactor technologies.

From 2015 to 2019, Dr Berthélemy held the position of Senior Economist at the French Atomic and Alternative Energies Commission (CEA). During this period, he advised the French government on strategic matters related to nuclear policy. His expertise extended to reviewing strategic options for the nuclear fuel cycle and supporting investment decisions in large-scale new build and small modular reactors.

Prior to his tenure at CEA, from 2013 to 2015, Michel was a Research Fellow at the University College London (UCL), while being stationed in Adelaide, Australia. Here, he supported the Government of South Australia in the establishment of the 2015 Nuclear Fuel Cycle Royal Commission.

Dr Berthélemy earned his Ph.D. in Energy Economics from Mines ParisTech in 2013. Between 2013 and 2018 he was selected as a Future Energy Leader by the World Energy Council. Since 2019, he has assumed the role of Chair for the Economics and Energy Strategy Expert Group at the French Nuclear Energy Society (SFEN).



Chad Boyer, Principle Technical Leader, Electric Power Research Institute

Chad Boyer leads the Project Development and Execution technical focus area in the Advanced Nuclear Technology Program within the Nuclear Sector at the Electric Power Research Institute (EPRI). Chad has dedicated his career in the pursuit of a cleaner energy future.

Prior to joining EPRI in 2020, Chad had a diverse experience in the energy industry. He started at a nuclear utility and had roles that included core designer, reactor engineer and system engineer. After a few years working at a non-for-profit company working on energy efficiency projects and managing a test laboratory, the nuclear renaissance called Chad back to the nuclear industry.

Over a 12-year period, he supported the domestic design and construction of the Westinghouse AP1000 balance of plant and site-specific mechanical systems initially as a design engineer and later in management roles. In 2012, Chad took a sabbatical to participate in the ANS/AAAS Congressional Fellowship program working in the U.S. House of Representatives on energy policy.

Chad holds Bachelor of Science degrees in Nuclear Engineering and in Physics as well as a Master of Science in Nuclear Engineering, all from NC State University. He is a licensed professional engineer in North Carolina and South Carolina.



Ben Lindley, Assistant Professor, University of Wisconsin- Madison

Ben Lindley joined the University of Wisconsin-Madison's Department of Nuclear Engineering & Engineering Physics as Assistant Professor of Nuclear Engineering and Engineering Physics in 2020. His research interests include the market and economic context for nuclear power and the role it can play in low carbon energy systems with high penetration of variable renewables.

Prior to joining the University of Wisconsin-Madison, Ben was a senior nuclear engineer and reactor physicist at Jacobs in the UK (2014-2020). As Customer Liaison Manager and later ANSWERS Technical Director, Ben played a key role in the development and application of the ANSWERS UK industry standard radiation transport codes to current and next generation nuclear systems. In particular, Ben led the development of calculation methodologies for BWRs, SFRs and Molten Salt Reactors. Ben also played a crucial role in the core physics design of the UKSMR, leading to development of IP and patent application(s). Ben has substantial experience in developing R&D programs and leading complex inter-disciplinary packages of work, including in the areas of digital engineering for nuclear reactors; fusion reactor simulation; and advanced reactor core & primary system design.

Ben holds a PhD in Nuclear Engineering and Meng & BA degrees in Mechanical Engineering from the University of Cambridge, UK (2007-2014), graduating top of class in the latter. He has previously spent time at Argonne National Laboratory (2013), the University of Michigan (2012) and AREVA GmbH, Germany (2010).



Aaron Johnson, Senior Vice President – Nuclear, Aecon

Aaron Johnson is Senior Vice President, Nuclear, with the responsibility of leading the successful pursuit and execution of all nuclear projects within Aecon's portfolio.

Beginning with Aecon in 2006, Aaron has diverse experience across many of Aecon's operational and corporate teams, including the industrial, nuclear, and urban transportation sectors. He has been responsible for the pursuit and execution of some of Aecon's most complex multi-disciplinary projects, including the Darlington Refurbishment project, GO Expansion On-Corridor project, and Scarborough Subway Extension project.

Aaron holds Bachelor of Applied Science and Masters of Engineering degrees in Electrical Engineering from the University of Waterloo and is licensed as a Professional Engineer in the Province of Ontario. He also serves on the Board of Directors for Big Brothers Big Sisters of Hamilton-Halton.

Session 4: Achieving the economies of multiples



Jenifer Shafer, Associate Director, ARPA-E, US Department of Energy

Dr. Jenifer Shafer currently serves as the Associate Director for Technology at the Advanced Research Projects Agency-Energy (ARPA-E). Her focus at ARPA-E is developing economic and proliferation resistant technologies to support advanced reactor deployment, as well as manage nuclear waste and used nuclear fuel. Before joining ARPA-E, Shafer served on the faculty at Colorado School of Mines as a Professor in the Chemistry Department and Nuclear Science & Engineering Program.



Eric Ingersoll, Founder and Managing Director, TerraPraxis

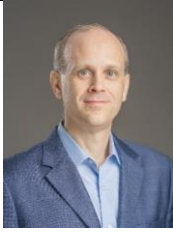
Eric Ingersoll is Founding Partner and Co-CEO of climate-focused non-profit Terra Praxis. He is a strategic advisor and entrepreneur with deep experience in the commercialization of new energy technologies. He has extensive project and policy experience in renewables, energy storage, oil & gas, and nuclear, with a special emphasis on advanced nuclear technologies. Eric develops commercialization and market entry strategies for advanced energy technologies such as advanced nuclear power generation, carbon capture, and zero-carbon liquid fuels. Eric is also managing partner of LucidCatalyst, a highly specialized international consultancy focused on large-scale, affordable, market-based decarbonization of the global economy.



Gary Fischer, Executive Director, Project Production Institute

Gary Fischer is the Executive Director of the Project Production Institute (PPI) and Chair of the PPI Energy Working Group. He has over 40 years of experience in all aspects of capital project development and execution across downstream, chemicals and upstream in Chevron. As GM of Chevron's Project Resources Company, he was responsible for Chevron's project management system, a supporting team of subject matter experts, an early concept development group, and Chevron's decision analysis function. Before retiring he took a special assignment to deploy Project Production Management and digital transformation across Chevron's global portfolio of capital projects. Gary's prior experience includes project leadership roles in engineering, construction, and project management spanning across all segments and many locations. He also served as the upstream director of capital projects for Eurasia, Europe, and a gas to liquids venture with Sasol.

Gary holds a Bachelor of Science Degree from Colorado State University and is a licensed Professional Engineer.



Marcus Nichol, Executive Director, New Nuclear, NEI

Marc Nichol joined Nuclear Energy Institute (NEI) in 2011 and is the Executive Director of New Nuclear. In this role, he leads industry's efforts to improve the policy, regulatory, and business environment for new and advanced reactors.

Marc has previously worked for Duke Energy, Toshiba America Nuclear Energy and Transnuclear, in the areas of used nuclear fuel management, operations and new plant projects.

Marc holds degrees in Nuclear Engineering from Purdue University and the University of California Berkeley, and an MBA from the University of North Carolina.



Célestin Piette, Chief Vision Officer, Tractebel

Célestin Piette holds a Master in Chemical Engineering and a complementary Master in Management. As Nuclear Innovation Manager he leads Tractebel's R&D and Business development on nuclear Industrial Applications, including hydrogen endeavors. On top of his Engie's nuclear traineeship, he recently took a position of administrator in the European Society of Engineers and Industrials. Célestin acts as a representative for Tractebel within SMR international working groups such as WNA, OECD/NEA, IAEA and Foratom.



Mark Tipping, Global Power to X Director, Lloyd's Register

Mark Tipping is a chartered engineer who has worked in maritime / offshore roles since 2002, he has over 25 years' experience in novel maritime offshore projects. Notably the Prelude FLNG as LR's engineering manager.

He was also instrumental in the implementation of risk-based inspection to floating assets under Classification regimes within LR, the adoption of remote systems including digital twins for Classification verification.

As Power to X Director, he is establishing LR as a nuclear player of note in the marine, offshore industries, building on LR's experience of providing assurance to the UK's nuclear submarine fleet.

Session 5: SMR business models and delivery strategies for serial deployment



Michelle Leslie, Senior Manager, Infrastructure & Capital Projects, Deloitte Canada

A journalist and climate scientist, Michelle advises public and private sector clients on ESG, climate, and sustainability strategies. She has substantial policy analysis and strategy creation experience, focusing on potential consumer/customer impacts and driving investment in energy systems, climate offsets, net-zero pathways, and nature-based solutions.

Prior to joining Deloitte in 2022, she worked on ESG investment strategies involving major energy infrastructure and issues related to food security, global decarbonization, and investment risks brought on by climate change.



Rita Baranwal, Senior Vice President of AP300, Westinghouse

As Senior Vice President, Dr. Rita Baranwal leads development and deployment of the AP300™ Small Modular Reactor (SMR). She has 25 years of nuclear industry experience and has held this role since May 2023.

Prior to this role, Dr. Baranwal was Chief Technology Officer and Senior Vice President of Digital and Innovation at Westinghouse where she led the clean energy company's global research and development investments and spearheaded a technology strategy to advance the company's innovative nuclear solutions.

Previously, Dr. Baranwal served as Chief Nuclear Officer and Vice President of Nuclear at the Electric Power Research Institute (EPRI). She had overall management and technical responsibility for the research and development (R&D) activities conducted by EPRI with its global membership related to nuclear generation, providing support to more than 80 percent of the world's existing and advanced commercial nuclear fleet.

Before joining EPRI, Baranwal served as Assistant Secretary for the Office of Nuclear Energy in the U.S. Department of Energy (DOE) in a U.S. President-appointed and Senate-confirmed role. She led efforts to promote R&D on existing and advanced nuclear technologies that sustain the U.S. fleet of nuclear reactors and enable the deployment of advanced nuclear energy systems.

Dr. Baranwal is a Fellow of the American Nuclear Society. She has a bachelor's degree from Massachusetts Institute of Technology in materials science and engineering and a master's degree and Ph.D. in the same discipline from the University of Michigan.



Sandra Dykxhoorn, Vice President, New Nuclear Growth, Ontario Power Generation

As the Vice President of New Nuclear Development for Ontario Power Generation (OPG), Sandra oversees the company’s long-term new nuclear growth strategy, building external relationships and creating a pipeline of opportunities.

OPG is paving the way for the deployment of new nuclear development in Canada and abroad, building the first-ever, commercial scale Small Modular Reactor (SMR) at its Darlington New Nuclear Site. The New Nuclear team is helping capitalize on OPG’s first-mover advantage, and the growing international interest in new nuclear, to contribute value back to Ontario.

Prior to moving to the New Nuclear team, Sandra was OPG’s Director of Provincial Relations, where she provided counsel and support to OPG’s Management Team on all provincial government relations matters, including new business growth opportunities.

Prior to joining OPG, Sandra spent a decade in the federal government on both the political and civil service sides. She graduated with a Bachelor of Commerce from the University of Carleton and is a proud alumnus of the Laurentian Leadership Program in Ottawa and the Institut d’Etudes Politiques (IEP) in Grenoble France.





Lisa McBride, Vice President, Country Leader SMRs Canada, GE Hitachi Nuclear

Lisa is the Country Leader, GE Hitachi’s SMR Canada business. In her role, Lisa provides the vision & strategy to lead the deployment and implementation of the BWRX-300 SMR in Canada. She leads the collaboration with customers, Canadian government, industry, and partners and provides leadership and oversight of the GEH SMR Canada business operations.

Lisa has over 18 years’ experience in the nuclear industry, starting her career with Ontario Power Generation. Her drive and commitment have propelled her into several key leadership roles in both nuclear and corporate functions. Lisa’s diverse experiences have positioned her to engage in several critical initiatives, where her experience across the business has resulted in her leadership of several multi-disciplinary teams. Lisa holds a Master of Arts Degree in Leadership from the University of Guelph.

Lisa McBride is also the President of Women in Nuclear (WiN) Canada. In this role, Lisa provides vision, strategic direction, and oversight of the day-to-day operations of WiN Canada, an organization comprised of over 4,000 members across Canada. In addition to her role with WiN Canada, Lisa holds a seat on the WiN Global Board of Directors. She also holds a seat as a Director for the Canadian Nuclear Association board, the Organization of Canadian Nuclear Industries Board of

	<p>Directors and is the Chair of the Women for STEM Council at Ontario Tech University.</p>
	<p>Yongsoo Kim, Vice President of SMR Project Office, Korea Hydro & Nuclear Power</p> <p>Dr. Yongsoo Kim, Vice President, was appointed the Head of the SMR Project Office of KHNP in 2023. Currently, KHNP is developing innovative-SMR in collaboration with the government. Dr. Kim is responsible for overseeing the entire SMR business within the company including development, deployment, marketing and strategic planning. The goal is to provide safe and sustainable energy through SMR technology.</p> <p>Dr. Kim started his career at Yeonggwang Nuclear Power Plant in 1992, and he has accumulated over 30 years of experience in various nuclear fields, including nuclear power plants, research institutes, and overseas businesses. He participated in the EU-APR development and certification project at the KHNP central research Institute from 2007 to 2016. Subsequently, he was in charge of exporting and establishing business strategies for APR1400 for six years in the overseas business Development Department.</p> <p>Dr. Kim holds a Ph.D. in Nuclear Engineering from Seoul National University in 2004.</p>
	<p>Kreshka Young, North America Business Director, Energy & Climate, Dow Chemical</p> <p>Kreshka Young is Dow’s North America Business Director for Energy & Climate. In this role she is responsible for developing and implementing competitive and reliable energy and climate change strategies for Dow’s manufacturing sites across North America, and for implementing strategic investments and business models to preserve Dow’s competitiveness through the energy transition. In addition, she leads Dow’s effort to implement a small modular reactor project at a USGC facility by approximately 2030.</p>



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