

CREDENCE Showcase Event

TUESDAY 29TH OF JUNE, 2021

14:15 - 16:50 (Irish Time)
09:15 -11:50 (Washington DC Time)



HOST INSTITUTION



PARTNER INSTITUTIONS



CRENCE Showcase Event

I am delighted to welcome you to the CRENCE Showcase Event, hosted by UCC. The COVID-19 pandemic demands that this event move to an online webinar and whilst we are saddened not to engage with you in person, we embrace the opportunity such a format brings us.

Today's event will allow some of the CRENCE team members to share some of the research insights, impacts and outcomes of the 1st US Ireland Centre to Centre research project focusing on environment and sustainability, while also providing a platform for senior public officials from the US, Northern Ireland and Ireland to provide reflections on the contribution of CRENCE to US Ireland collaboration, the value of the research conducted and its outcomes.

Our sessions today feature thought leaders who bring a unique perspective to modern-day energy and climate policy research; balancing the current reality with the uncertain future.

May I take this opportunity to thank you for taking the time to join us for this Showcase Event and I and my colleagues in MaREI look forward to engaging with you in the future. I also want to say a particular thanks to Aoife Dunne, Tara Reddington and Niall Hore for the support they has provided to enable this event to take place.



Prof. Brian Ó Gallachóir
MaREI Director

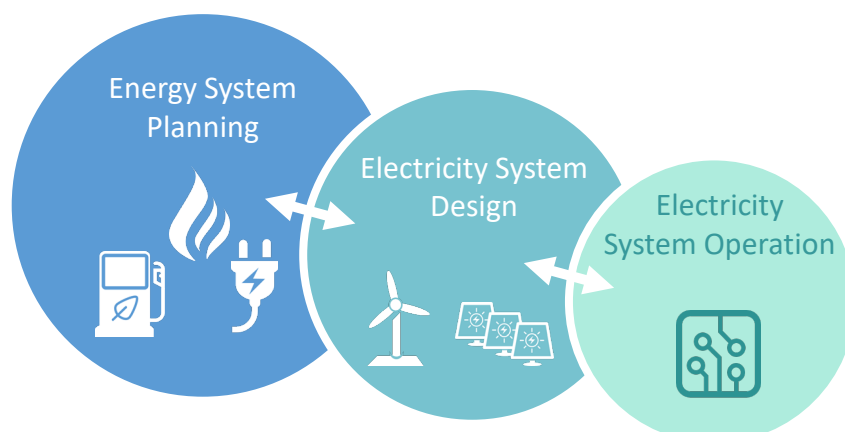
CRENCE Showcase Event

CRENCE explored two key dimensions of the shift to a low carbon energy system, namely to what extent will energy systems be:

- Electrified (exploring how much of our future heat and transport energy needs will be met with electricity as opposed to other options, i.e. fossil or renewable fuelled heat and transport)
- Decentralised (i.e. decentralised system operation), and what are the optimal levels of decentralization for future energy systems?

The project also investigated how communication technologies and socio-economics can enable the energy transition. CRENCE generated excellent research and used this to achieve significant impacts in informing policy, supporting industry and empowering society. The key highlights of the collaborative research project were:

- Publication of first 100% renewable energy scenarios by 2050 for Ireland using a least cost whole energy systems approach – paper selected as ‘Editor’s Choice’ by Energy journal editor – paper co-authored with US partners – parallel study on US renewable energy scenarios to be published soon.
- Collaborative energy economics research on public acceptance of renewable electricity generation and transmission network developments
- Developed a unique system of systems approach to electrification and decentralisation, spanning time horizons from micro-seconds to decades, and different systems (ranging from electrical devices, electricity users, the distribution power system, the transmission system all the way to the full energy system and the wider economy)
- US and Irish PIs informed US energy policy deliberations at the International Energy Workshop 2017 in Maryland, leading discussions on the challenges of addressing short term power system operational challenges (due to variable non-synchronous renewable electricity) while simultaneously also deciding on long term energy system evolution
- CRENCE outputs have been used to inform Ireland’s policy shift towards increased mitigation and renewable electricity targets that were articulated in Ireland’s Climate Action Plan 2019.
- Significant contributions to the Dingle Peninsula 2030 project focusing on quantifying energy use and energy-related emissions on the Dingle peninsula and developing scenarios for future energy demand and supply drawing on the outcomes of parish consultation meetings
- Supported industry partners, in particular ESB Network by working collaboratively with EPRI on new advances in integrating low voltage and medium voltage power systems analysis and supporting EPRI in establishing and launching their European HQ in Dublin.



AGENDA

Session 1: Presentations - 1 hour 40 minutes

14.15*
09:15**



Brian Ó Gallachoir

Welcome and Introduction

14.20*
09:20**



Joe DeCarolis
(FREEDM)

Improving our understanding of electrification and decentralization across the US, Ireland and Northern Ireland

14.35*
09:35**



Aoife Foley
(QUB)

Dynamic impacts of renewable generation distributed generation and emerging smart loads on the power system

14.48*
09:48**



David Laverty
(QUB)

The novel use of open hardware to assess electrical power quality

15:01*
10:01**



John Curtis
(MAREI / ESRI)

The role of public attitudes and residential electricity consumers in renewables integration

15.14*
10:14**



Brian Ó Gallachoir
(MaREI)

Dingle Peninsula rural energy transition - CREDENCE Project Case study

15:38*
10:38**



Aoife Foley

Q&A session

15:55*
10:55**

Break (5 minutes)

*times are listed as IST (Irish Summer Time)

**times are listed as EDT (Eastern Daylight Time)

AGENDA

Session 2: Reflections - 50 minutes

This session will involve insights from senior public officials from the US, Ireland and Northern Ireland. The speakers will provide reflections on the contribution of CREDENCE to US Ireland collaboration, the value of the research conducted to help underpin policy decisions required to enable transitions to low and zero carbon energy systems.



Brian Ó Gallachoir

Director, MaREI Centre for Energy, Climate and Marine



Dan Mulhall

Ambassador of Ireland to the United States



Ruth Freeman

Director of Science for Society, Science Foundation Ireland



Roxanne Nikolaus

Lead, Countries and Regions Cluster Office of International Science and Engineering / Office of the Director National Science Foundation



Stephen McGonagle

Head of Energy Intelligence, Department for the Economy NI



Angelina LaRose

Assistant Administrator for Energy Analysis Energy Information Administration



Brian Carroll

Assistant Secretary General (Climate Action & Environment) Dept. of Environment, Climate & Communications

Session 1 Presenters



Joseph DeCarolis

Associate Professor, FREEDM / NC State University

Joe DeCarolis is a Professor in the Department of Civil, Construction, and Environmental Engineering at North Carolina State University. His research program is focused on addressing energy and environmental challenges at the intersection of engineering, economics, and public policy. His primary focus is on the development and application of energy system models to analyze how energy technology and public policy can shape a sustainable future. With regard to energy modeling, he is particularly interested in the development and utilization of open source software to maximize model transparency as well as the use of high performance computing to conduct rigorous uncertainty analysis. Joe has a PhD in engineering and public policy from Carnegie Mellon University.



Aoife Foley

Reader, School of Mechanical & Aerospace Engineering, Queen's University Belfast

Dr Aoife Foley is a Reader in the School of Mechanical and Aerospace Engineering in Queen's University Belfast and Editor in Chief of Elsevier's Renewable & Sustainable Energy Reviews, the leading journal in the world in the field of sustainable energy in Google Scholar. She also sits on the editorial boards of a number of other major journals. Dr Foley has rapidly gained a leading international profile in sustainable energy systems, since joining academia in 2009, initially as a Lecturer in University College Cork, before joining Queen's in 2011. She has successfully accessed highly competitive national, international and industry funding totalling £2.4M. Prior to joining academia, she spent 12 years in senior project management roles in industry working in the energy, telecommunications, and pharmaceuticals sectors.



David Laverty

Senior Lecturer, School of Electronics, Electrical Engineering and Computer Science, Queen's University Belfast

Dr Laverty joined the School of Electronics, Electrical Engineering and Computer Science as a lecture in 2011. His research interests include anti-islanding protection for renewable generation and Smart Grid telecommunications infrastructure. He is the founder of the OpenPMU project for the development of open source phasor measurement unit (PMU) technology which has been presented before the IEEE PES. David teaches Energy Systems and Smart Grid and has a keen interest in the promotion of Science, Technology, Engineering and Mathematics (STEM) education. He gives public talks to local professional, educational and charitable groups on topics including Renewable Energy and the technology behind household electronics.

Session 1 Presenters



John Curtis

Programme Coordinator, MAREI / ESRI

Prof John Curtis is head of the economics division at the Economic and Social Research Institute (ESRI) and its programme coordinator for energy and environment research. He is an Independent Expert member on the Advisory Board of the Irish Government's Climate Action Fund. John is an applied micro-economist and his research focuses on energy and environmental policy issues, including on topics related to residential energy efficiency, renewables integration, and behavioural change across energy, climate and water. John holds undergraduate and masters degrees from University College Dublin and a PhD from University of Maryland.



Brian Ó Gallachóir

MaREI Centre Director

Prof Brian Ó Gallachóir is Professor of Energy Engineering in University College Cork and Vice Director of UCC's Environmental Research Institute. He is also Director of the SFI MaREI Centre, Ireland's centre of excellence in energy, climate, and marine research. MaREI is a €60M, research development and innovation hub with over 220 researchers and 70 industry partners. Brian is also elected Chair of IEA's Technology Collaboration Programme on energy systems modelling (IEA-ETSAP). His research focus is on building and using integrated energy systems models to inform energy and climate change mitigation policy. His research has informed a number of Irish energy and climate policies and the increase in EU renewable energy ambition to 32% by 2030. Brian has a first class honours BSc Degree in Applied Sciences from Trinity College Dublin.

Session 2 Speakers



Dan Mulhall

Ambassador of Ireland to the United States

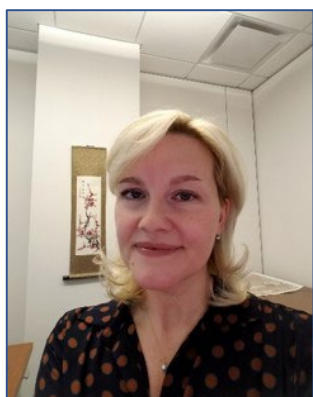
Daniel Mulhall took up duty as Ireland's 18th Ambassador to the United States in August 2017. He was born and brought up in Waterford and undertook his undergraduate and post-graduate studies at University College Cork where he specialised in modern Irish history. Before coming to Washington, Dan served as Ireland's Ambassador in London (2013-17). During his time in Britain, he was a regular speaker on political, literary and historical topics at Universities all over the country. Before departing for Washington, he was made a Freeman of the City of London in recognition of his work as Ambassador. During his diplomatic career, Ambassador Mulhall has also held a number of positions at the Department of Foreign Affairs and Trade, including as Director-General for European Affairs, 2005-2009. He also served as a member of the Secretariat of the Forum for Peace and Reconciliation (1994-95) which was set up in 1994 in order to promote political dialogue between different political traditions in Ireland. From 1994-98, he was the Department's Press Counsellor and in that capacity was part of the Irish Government's delegation at the time of the Good Friday Agreement 1998.



Ruth Freeman

Director of Science for Society, Science Foundation Ireland

Dr Freeman was appointed Director of Strategy and Communications in 2013, and following department restructure in 2018, became Director of Science for Society. Prior to her current appointment Ruth has held a series of positions at Science Foundation Ireland, including Director of Innovation, Communications & Education and Director of Programmes, Enterprise and International Affairs, with responsibility for overseeing all Science Foundation Ireland research funding programmes and management of funded awards, as well as the Foundation's activities in conjunction with industry and international partners. Ruth joined Science Foundation Ireland as a Scientific Programme Manager in November 2006. Prior to joining the Foundation, Ruth worked as a researcher at Trinity College Dublin (TCD). She holds PhD and Bachelor degrees in Genetics from TCD, where she was awarded a Trinity scholarship, the Eli Lilly Chemistry Prize and the Roberts prize for Biology.



Roxanne Nikolaus

Lead, Countries and Regions Cluster Office of International Science and Engineering / Office of the Director National Science Foundation

Roxanne Nikolaus joined the U.S. National Science Foundation (NSF) Office of International Science and Engineering (OISE) in 2017. She came to OISE from the NSF Division of Ocean Sciences where she was the Senior Policy Advisor for NSF leadership on ocean issues and Chief of Staff for the Subcommittee on Ocean Science and Technology under the White House National Science and Technology Council. Roxanne also worked at the White House Office of Science and Technology Policy where she focused on implementing policy across the U.S. Federal government. Prior to joining NSF, Roxanne was a technical and policy advisor to the Presidentially-appointed U.S. Commission on Ocean Policy and to leadership of the National Oceanic and Atmospheric Administration's National Ocean Service. Roxanne has degrees in oceanography from Florida Institute of Technology and Texas A&M University, and marine affairs/policy from the University of Miami.

Session 2 Speakers



Stephen McGonagle

Head of Energy Intelligence, Department for the Economy NI

Stephen McGonagle is Head of Energy Intelligence Branch within the Energy Group, Department for the Economy, Northern Ireland. He took up post 15 months ago having previously been a statisticians with the Northern Ireland Statistics & Research Agency (NISRA) for 17 years. He has developed a Northern Ireland Energy Transition Model (NI ETM) to create future energy scenarios in support of policy development associated with a new Energy Strategy for Northern Ireland. He leads on strategic research for the Energy Group. Stephen has a BComm from University College Dublin; MSc in Finance from University of Ulster and MRes in Social Research Methods from Queens University Belfast.



Angelina LaRose

Assistant Administrator for Energy Analysis, Energy Information Administration

Angelina LaRose is the Assistant Administrator for Energy Analysis. In this role, Angelina directs EIA's energy modeling program, which support EIA's forecasts and projections. Angelina also manages the topical analyses that EIA produces that span a range of fuels and activities. Angelina has worked in support of EIA's mission for nearly 20 years. From 2016 to 2019, Angelina was the Director of the Office of Integrated and International Energy Analysis. In that role, she was responsible for the integration of analysis and modelling for EIA's long-term domestic and international projections, as well as short-term forecasts. In addition, her office produced EIA's country-level analysis and international energy statistics. Prior to serving in that role, Angelina led EIA's natural gas analysis. Before she worked at EIA, she worked as a senior energy analyst at a private consulting firm. Angelina earned her Masters of Business Administration with a finance concentration and Bachelors of Government and Politics from the University of Maryland, College Park.



Brian Carroll

Assistant Secretary General (Climate Action & Environment), Dept. of Environment, Climate & Communications

Brian Carroll is the Assistant Secretary General leading the Environment and Climate functions at the Department of the Environment, Climate and Communications, and is responsible for policy and programme development in both sectors. Currently Brian is leading on the preparation of the Climate Action Plan 2021 and a Clean Air Strategy, as well as overseeing the Climate Bill which is going through the legislative process in the Oireachtas. He also represents Ireland at Director General level at the EU and UN in relation to environment and climate. Previously Brian has served in the Department as Assistant Secretary General for Natural Resources, as well as Head of Renewable Energy and Head of Finance and Strategy. Brian has also worked in the Departments of Finance; Foreign Affairs; and Justice, and holds degrees in commerce and business studies (NUI – Dublin); economics (TCD and NUI – IPA); and anthropology (DBS).