

Evaluating the impacts of energy innovation policies

An IEA CERT-EGRD thematic discussion

Virtual meeting on 29 October (13h00-16h00)

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Evaluating the impacts of energy innovation policies

Context

There is a growing recognition for the importance of clean energy innovation for reaching the Paris Agreement goals and to get the world on track to a net zero emission future. The IEA report ['Net-Zero by 2050 – a Pathway for the Global Energy Sector'](#) highlights that almost half of the emissions reductions needed for 2050 should come from energy technologies currently in demonstration or prototype stages.

In recent years, the IEA and multilateral platforms such as Mission Innovation, have brought attention to the need of scaling up public energy R&D funding and well designed R&D programmes. Senior officials under both the IEA Committee on Energy Research and Technology (CERT) and Mission Innovation's Insight module have in parallel called for more exchange to better understand the impacts of energy innovation policies and programmes.

The CERT-EGRD thematic discussion on 29 October will therefore bring together government representatives responsible for R&D programmes and evaluations with leading experts in this topical area with the aim to exchange lessons learned, best practices and plans for the future. A report with high-level recommendations and next steps will be delivered as an output.

Guiding questions for the discussion and webinar participants:

- What are the objectives of the evaluations and of the policies evaluated?
- What metrics and indicators are used?
- How far in advance is the collection of data and inputs planned?
- How do evaluators judge what would have happened without the policy intervention and what the target outcome should have been?
- How has learning from evaluations shaped subsequent policies/programmes?
- How can the findings and lessons be shared internationally in a timely manner?

CERT consists of government officials responsible for energy research and innovation programmes and promotes effective R&D policies in its member countries. IEA's Experts' Group on R&D Priority Setting and Evaluation (EGRD) is an informal advisory group under CERT with the role of supporting CERT delegates with advice on R&D priority-setting with its link to governmental policy objectives; methods and approaches for evaluation of R&D activities; and understanding of emerging and systematic R&D topics.

Preliminary Programme

Friday 29 October	
13h00	<p>Opening and scene-setting remarks</p> <ul style="list-style-type: none"> - Araceli Fernández, Head of the Technology Innovation Unit, Energy Technology Policy Division, IEA - Birte Holst Jørgensen, Senior Researcher, Technical University of Denmark (DTU) – Wind Energy (Chair EGRD)
13h15	<p>Session 1: Why is it important to improve evaluation of the impacts of energy innovation programmes and policies?</p> <p>This overview of the state-of-the-art of energy innovation policy evaluation will introduce different objectives of evaluation exercises and the design options facing governments.</p> <p><u>Moderator</u> Atsushi Kurosawa, Research Director, Institute of Applied Energy (IAE), Japan (EGRD vice-chair)</p> <p><u>Speakers</u></p> <ul style="list-style-type: none"> - <i>International approaches and considerations for innovation policy evaluation</i>, Fernando Galindo-Rueda, Head of Science, Research and Innovation Indicators and Analysis Unit at OECD - <i>Bringing rigour to energy innovation policy evaluation</i>, Jacquelyn Pless, Assistant Professor, MIT Sloan School of Management
14h10	<p>Session 2: Best Practices on evaluating the impacts of energy innovation</p> <p>The examples of recent evaluations presented in this session will explain their approach to evaluation design and execution, as well as how they have informed subsequent priorities and policies. Relevant programmes and policies include R&D or demonstration programmes, support to innovative entrepreneurs or other measures designed to enhance the rate of improvement of technologies.</p> <p><u>Moderator</u> Herbert Greisberger, Executive Director, Energy and Environmental Agency, Austria (EGRD vice-chair)</p> <p><u>Speakers</u></p> <ul style="list-style-type: none"> - Shumpei Miyajima, Technical Researcher at the Evaluation Department at New Energy and Industrial Technology Development Organization (NEDO), Japan - Jennifer Gerbi, Acting Director, Advanced Research Projects Agency-Energy (ARPA-E), United States - Harris Berton, Senior Advisor, Office of Energy Research and Development Natural Resources Canada - Ann-Sofie Rönnlund, Head of Unit, Directorate-General for Research and Innovation, European Commission

15h05	Session 3: Roundtable discussion
	<p>In this roundtable discussion for CERT delegates and designated officials in governments responsible for energy innovation evaluation, participants will share their experiences and the challenges countries encounter as they design and implement evaluation frameworks for energy innovation policies and programmes,</p> <p><u>Moderator</u></p> <p>Johannes Tambornino, Head of Energy Strategies and Systems Analysis, Project Management Jülich, Germany (EGRD vice-chair)</p> <p><u>Speakers</u></p> <ul style="list-style-type: none"> - Carmen Sanches, Deputy Head of Research and Development and Energy Efficiency, Electricity Regulatory Agency (ANEEL), Brazil - Lars Guldbbrand, Senior Adviser at the Division for Energy, Ministry of Infrastructure, Sweden - Aliko Georgakaki, Scientific Officer, Directorate for Energy Transport and Climate, European Commission Joint Research Centre in the Netherlands - Andreas Türk, Senior Researcher on International Climate Policy in Joanneum Research and Member of the Austrian Platform for Research and Technology Policy Evaluation (FTEval)
15h55	Concluding remarks
	<ul style="list-style-type: none"> - Birte Holst Jørgensen, Senior Researcher, Technical University of Denmark (DTU) – Wind Energy (Chair EGRD)
16h00	End of workshop

Presentation speakers and moderators

Araceli Fernandez is the Head of the Technology and Innovation Unit within the Energy Technology Policy division at the IEA. In her previous role, she led the modelling and technology analysis related to the industrial sector in the same division. Before joining the IEA in 2012, Araceli worked in different areas in the Oil & Gas sector including process optimization, detailed engineering and emissions monitoring for refinery and petrochemical projects. Araceli holds a MEng in Chemical Engineering and a MSc in Process Engineering.

Birte Holst Jørgensen, Technical University of Denmark, is Chair of the IEA EGRD. She is an experienced researcher and practitioner in the field of new energy technologies and systems, where she has specialized in energy R&D strategies and technology policies at the national, European and international levels. She is responsible for scientific advice at DTU Wind Energy, including technical assistance to the Danish Energy Agency's Global Cooperation programme (offshore wind and RE integration). She is also Principal Coordinator of sustainable energy at the Sino-Danish Centre for Research and Education. Birte holds a PhD in Political Science (University of Copenhagen) and an MSc in Business Economics (Copenhagen Business School).

Atsushi Kurosawa (moderator) is Vice Chair of IEA EGRD. He is Director of the Global Environmental Programme, Research and Development Division, Institute of Applied Energy (IAE) in Japan. His research focuses on integrated assessments of global climate change and energy R&D strategies through the integrated assessment model GRAPE and the TIMES Japan model. He has held visiting and fellowship positions at many universities and institutes, including Stanford University, the Research Institute of Innovative Technology for the Earth, Kyushu University, the Japan Science and Technology Agency, the New Energy and Industrial Technology Development Organization and the University of Tokyo. He holds a PhD in Electrical Engineering (University of Tokyo), an MSc in Nuclear Engineering (Tokyo Institute of Technology) and a BSc in Nuclear Engineering (Nagoya University).

Fernando Galindo-Rueda joined the OECD Directorate for Science, Technology and Innovation (STI) in 2010 as Senior Economist in charge of science, research and innovation indicators and analysis. Mr. Galindo-Rueda leads the secretariat of the OECD Working Party of National Experts on Science and Technology Indicators (NESTI), which oversees OECD work on statistical standards for the measurement of R&D and innovation (e.g. Frascati and Oslo Manuals), the publication of several OECD databases in this area, as well as the quantitative analysis of science and innovation policies. Previously, he was Deputy Director at the UK Government's Department for Business, where he was responsible for the economic assessment of UK industrial policies. He has also led the Economic Methodology branch at the UK Office for National Statistics and has been a research economist at the London School of Economics. He has a PhD in Economics and an MSc in Environmental and Natural Resource Economics from University College London.

Jacquelyn Pless is the Fred Kayne (1960) Career Development Professor of Entrepreneurship and an Assistant Professor in the Technological Innovation, Entrepreneurship, and Strategic Management group at the MIT Sloan School of Management. As an economist, her research explores the drivers and effects of innovation for social progress, with a particular focus on understanding how policy and management can drive clean energy innovation. Prior to joining MIT, Jacquelyn held positions with the University of Oxford, the National Renewable Energy Laboratory, and the National Conference of State Legislatures. She holds a PhD and MS in energy economics from the Colorado School of Mines and a BA in economics and political science from the University of Vermont.

Herbert Greisberger (moderator) is Vice Chair of IEA EGRD. He is Managing Director of the Lower Austrian Energy and Environment Agency (eNu), where his focus is on energy and innovation with a special focus on sustainable buildings and renewables. He is also part of the scientific management of the Austrian Green Energy Lab focusing on long-term developments and their consequences for society. He was formerly the Senior Scientist on R&D, innovation and energy technologies for the Austrian Energy Agency and the Austrian Society for Environment and Technology. Herbert holds a PhD (University of Stuttgart) and studied economics (Universities of Graz and Vienna) and is a lecturer at the Institute for Research and Education focusing on energy economy and energy management.

Shumpei Miyajima is a technical researcher at the Evaluation Department at New Energy and Industrial Technology Development Organization (NEDO) in Japan. Before joining NEDO, he was a programme officer at the Division of University Corporate Relations, University of Tokyo. Shumpei studied physical chemistry and electronic engineering, and for the latter major, he obtained a PhD from University of Cambridge. As a material researcher, his research interests were always related to the interaction between thin films and light, for example, photo-CVD of amorphous semiconductors.

Harris Berton is Senior Advisor in Strategic Policy and Techno-Economic Analysis in the Office of Energy Research and Development, Natural Resources Canada. Harris Berton has been working in the Canadian energy technology and climate space for the past 8 years, and holds an undergraduate degree in Public Policy and a Masters degree in Sustainable Energy Policy, both from Carleton University in Ottawa. Before joining NRCan 3 years ago, Harris worked as an academic and as a utility sector consultant. Harris has published several peer-reviewed articles on energy technology and the low-carbon transition, and conducted detailed cost-benefit, regulatory, and cost projection analysis for North American utility companies. At NRCan, Harris's focus is on the development and communication of innovation priorities, with a particular focus on energy modelling activities (both technical and policy-oriented) and collaborates regularly with OECD's performance measurement team.

Ann-Sofie Rönnlund is Head of Unit in the Directorate-General for Research and Innovation in the European Commission. Ann-Sofie heads the Unit responsible for analysing the impact of the EU framework programme for research and innovation, and for fostering closer links between innovation and regulatory reform. She has previously worked in the Secretariat-General of the Commission and in the Directorate-General for Communications Networks, Content and Technology, advancing the EU's digital and cybersecurity agenda and managing the network and information security NIS platform. Before joining the Commission she worked in the European Parliament and with EU affairs at Nokia.

Johannes Tambornino (moderator) is Vice Chair of IEA EGRD. He is the head of the Energy Strategies and Systems Analysis Unit at Project Management Jülich, where he is responsible for the R&D program on energy systems analysis funded by the German Ministry of Economic Affairs and Energy. He is leading a group that covers a broad range of topics along the energy innovation chain and currently serves as the German representative in the IEA Experts' Group on R&D Priority Setting and Innovation. He holds a PhD in Mathematical Physics and has actively pursued research in quantum gravity and cosmology at different laboratories in Canada, France and Germany before changing fields and devoting his time to energy-related issues.

Carmen Silvia Sanches is the Deputy Superintendent of the Superintendence of Research and Development and Energy Efficiency (SPE) at ANEEL – the Brazilian Electricity Regulatory Agency. She has worked at ANEEL since 2007 as Specialist in Regulation of Public Services. Carmen holds a PhD and a MSc in Business Management, a Master's in Economics, Regulation, and Competition in Public Services, a Specialization in Science, Technology, and Innovation Policy, and a BSc in Economics Sciences.

Lars Erik Guldbrand is Senior Adviser at the Division for Energy, Ministry of Infrastructure in Sweden. Lars holds a PhD in Physical Chemistry from the University of Stockholm. His main responsibility is the guidelines, budget, follow-up and evaluation of the Energy Research and Innovation Programme of the Swedish Energy Agency. Among other positions, he is one of the Swedish members of the IEA Committee on Energy Research and Technology (CERT), and a Member of the Board of Nordic Energy Research (NEF).

Aliki Georgakaki is a Scientific Officer with the European Commission Joint Research Centre, Directorate for Energy Transport and Climate, located in the Netherlands. She is the project leader on low-carbon energy Research, Innovation and Competitiveness in the Knowledge for Energy Union Unit, which supports the delivery of the European Green Deal and the transition to a climate-neutral economy with scientific evidence and analysis, the anticipation of evolving trends and their effective communication. Among others, her team's work contributes to the EU State of the Energy Union and Clean Energy Technologies Competitiveness Progress Reports, the EU Strategic Energy Technology Plan and the Insights module of Mission Innovation.

Andreas Türk, MBA is an expert in international energy climate policy. His research specialties include international and national energy and climate policy and in particular the EU-ETS, smart grids, smart cities as well as design of electricity markets energy efficiency policies related to economic evaluation and policy design as well as investigating innovation mechanisms and regulatory frameworks for deploying low carbon technologies. Andreas Türk works at JR for ten years and was involved in many EU projects as well as projects funded by the Austrian government or by international organizations.