



Advanced Power Plant Flexibility Campaign

June 2017

Country commitments

Canada

- Facilitate, invest in and increase the use of clean electricity across Canada, including through additional investments in research, development, demonstration and deployment activities.
- Support the demonstration and deployment of smart-grid technologies that help electric system make better use of renewable energy, facilitate the integration of energy storage for renewables and help expand renewable power capacity.
- Experts within the department of Natural Resources will be pleased to provide technical support for this campaign including sharing technical and regulatory experience, regulatory and technical data. They will also be available to contribute to a final report.

China and Denmark

Two of the co-leading countries of the campaign, China and Denmark have committed to the following common work via leading national organisations on the subject:

Electric Power Planning & Engineering Institute (EPPEI - China), China National Renewable Energy Centre (CNREC - China), Energinet.dk (Transmission System Operator of Denmark) and Danish Energy Agency (DEA – Denmark) commit themselves to jointly contribute to the Advanced Power Plant Flexibility Campaign under the CEM by preparing an example on how to systematically analyse the value of power plant flexibility in a system with a large share of renewable energy and on how to implement concrete measures to increase power plant flexibility in practice using experiences and cases from Denmark and China. Concretely, the partners will commit to:

- Analysing the impact of increased power plant flexibility on a system level and on a stakeholder level by using advanced power market models developed as part of the ongoing Boosting RE in China Program approved by NDRC.
- Presenting solutions and practical experience from selected plants of the 22 demonstration plants currently part of the Enhanced Power Plant Flexibility Program launched by China National Energy Administration.
- Analysing the impact on the different stakeholders of different policy measures for incentivising power plant flexibility, including efficient power market set-ups and balancing power market structures, based on experiences from Denmark.
- Contribute to preparing a best-practice manual, in cooperation with the IEA, for implementation of power plant flexibility as inspiration for other CEM members and presenting it at the ninth Clean Energy Ministerial (CEM9) event in 2018.

Germany

Our commitment to the campaign includes sharing significant experience with power plant flexibilisation, including as part of bilateral cooperation efforts with partner countries such as China and India, and providing direct support to the IEA for its work in this campaign. We also look forward to discussing this topic in the broader context of the regulatory framework for more flexible energy systems with large shares of variable renewables, including the need to avoid lock-ins into carbon-intensive electricity generation capacity.

United Arab Emirates

The Ministry of Energy and United Arab Emirates Utilities are conducting a study for the electricity sector of UAE, reflecting the power sector transformation happening in the region and around the world. Taking into consideration the recently announced energy strategy, which aims to increase the share of clean energy resources in the mix up to 50%. The study will form the basis to explore different solutions, including creating an electricity market in UAE and regulations to unlock more flexibility from existing resources. The UAE is also in the process of developing laws and regulations related to facilitating the grid connection of distributed renewable energy resources.

Brazil, the European Commission, India, Indonesia, Japan, Mexico, Saudi Arabia and South Africa are finalising their commitments in the coming days.

Company and NGO commitments

Agora Energiewende

As an independent think-tank, Agora Energiewende aims at bringing more awareness and transparency on the techno-economic potential of the flexible operation of thermal power plants for enabling the integration of more renewable energy in power systems. Our objective is also to underline the complexity of CO₂ system effects related to the flexible operation of coal power plants, as to avoid lock-in of carbon-intensive generation. Our [recent project on the flexibility in thermal power plants](#) sheds light on those issues. It targets policy makers, stakeholders of the energy sector and the civil society. We are willing to disseminate our findings in the framework of international workshops and discuss them with a wide range of stakeholders.

COWI

- Sharing experience from design and real-life operation of highly flexible and efficient Danish power plants.
- Presenting solutions and practical experience with flexible and efficient power plants at seminars and workshops.
- Assisting power plant operators in selecting, designing and adapting flexibility solutions for specific power plants.
- Contributing expertise to and reviewing analytical work from the IEA and other organizations, as a part of identifying best practice in the campaign.
- Participating in the ninth Clean Energy Ministerial (CEM9) programme in cooperation with Danish power plant operators.

DONG Energy

- Sharing our experiences with radically improved thermal power plant flexibility through investments in technical solutions and operational optimization, particularly in reducing minimum loads.
- Sharing our experiences of using offshore wind power to supply flexibility to the system.
- Sharing our experiences of the development of the regulatory framework needed to incentivize and encourage system flexibility.

Enel

- Sharing experiences on how the influx of wind and solar PV can change the operating environment for thermal units and how their flexibility becomes critical.
- Sharing experiences how renewable energy and thermal assets can be optimized as part of an integrated portfolio.
- Engaging in the discussion on possible regulatory frameworks and vetting IEA analysis on this topic from an industry perspective.

Energinet.dk

Energinet.dk will contribute to the implementation of the joint China / Denmark commitment.

General Electric

GE recognizes the significant need power producers have around the world for flexibility—with planning, operations and finances. Our portfolio offers customers a broad range of flexibility solutions for existing power plants across gas, steam and hydro facilities—to help them operate more seamlessly with a growing footprint of renewable power. Our commitment extends to supporting our customers, as well as the broader industry, in collaborating to identify and share long-term strategies that help ensure reliable power for future generations. GE is delighted to participate in the CEM's Advanced Power Plant Flexibility Campaign with the following activities:

- Partner with IEA to develop analysis on the global potential for increased operating flexibility from existing thermal power plants.
- Showcase technologies to improve/upgrade existing plant assets, including factors driving decisions to invest in specific solutions.
- Explore opportunities for GE and IEA to co-host a webinar and/or other public events and/or make GE leaders available to speak at related IEA engagements, as appropriate.
- Develop a thought leadership white paper to advance the discussion of the importance of these upgrades through an assessment of the options and benefits in a global energy landscape.
- Share customer success stories (in a variety of mediums) showcasing how they have invested in strategic GE solutions to improve their operational flexibility.