

The IAEA supports Member States in the implementation of the Paris Agreement on climate change

By Noah Mayhew



Nuclear power plant under construction in China.

(Photo: C. Brady/IAEA)

“In the past, Croatia has participated in and benefited from various IAEA activities and managed to enhance its energy planning capabilities and deploy the IAEA energy system assessment tools.”

— Mario Tot, Advisor,
Croatian Energy Institute

The IAEA has partnered with 12 Member States in the development of effective climate change mitigation strategies through a coordinated research project (CRP). The objective of the CRP is to provide support in national evaluations of the potential role of nuclear power in mitigating greenhouse gas (GHG) emissions, as part of the preparation of country strategies under the Paris Agreement, reached in 2015 by the Parties to the United Nations Framework Convention on Climate Change (UNFCCC).

“It’s about examining how nuclear power, together with other sources of low-carbon energy, can contribute to each Member State’s unique energy and development objectives for decades to come,” said Hal Turton, an energy economist at the IAEA.

This CRP builds on earlier initiatives, including a 2006-2009 project supporting

Member States with GHG mitigation strategies and energy options for reaching Kyoto Protocol targets for 2008-2012.

One of the Paris Agreement’s primary goals is to limit the increase in average global temperature to well below 2°C above pre-industrial levels and, if possible, to below 1.5°C. While challenging, this goal is technically feasible, but current climate policies would leave the planet with global temperatures between 2.6°C and 4.0°C above pre-industrial levels by 2100, according to Climate Action Tracker. Even with the pledges that Parties to the Paris Agreement have already made, the increase could end up as high as 3.2°C by 2100. Country research teams participating in the CRP are assessing national energy sector developments and analysing options to curb the increase in global temperature.

Fostering knowledge exchange

As part of this CRP, the IAEA supports the exchange of information and experience by hosting regular research coordination meetings. These meetings have facilitated extensive discussions on the development of national energy strategies, as well as information exchange between Member States and experts from the IAEA and other organizations.

The second of three meetings took place in Vienna in June 2018, marking the halfway stage of the CRP. Research teams gave presentations on policies, research progress and preliminary results. Many teams are using the established energy planning tools developed by the IAEA to explore alternative energy pathways suited to their unique conditions. The CRP will culminate with a third and final meeting in late 2019, where participating countries will present their detailed findings on the potential role of nuclear energy in national climate change mitigation over the coming decades.

Both the specific results and the foundation provided by this CRP are expected to contribute to the ongoing formulation and regular review of nationally determined contributions (NDCs) under the Paris Agreement.

“The CRP has been an excellent platform to drive and reflect on research on nuclear power in South Africa,” said Tara Caetano, a senior researcher at the country’s Energy Research Centre. The CRP annual meetings provide a platform to share researchers’ work, enabling them to learn from others and their respective country experiences, she added.

Use of IAEA tools for climate change mitigation and energy planning

Tools developed by the IAEA are helping Member States — including those participating in the CRP — to assess various options and strategies for their energy sector, including the role nuclear power can play in the future.

“In the past, Croatia has participated in and benefited from various IAEA activities and managed to enhance its energy planning capabilities and deploy the IAEA energy system assessment tools,” said Mario Tot, advisor at the Croatian Energy Institute. “We learn from others and we contribute for the benefit of others.”



Barakah nuclear power plant, United Arab Emirates.

(Photo: IAEA)

Over the last four decades, the IAEA has developed a suite of analytical tools that include:

- **EBS** (Energy Balance Studio) – to facilitate collection and organization of energy data;
- **MESSAGE** (Model for Energy Supply System Alternatives and their General Environmental Impacts) – to analyse energy supply strategies;
- **MAED** (Model for Analysis of Energy Demand) – to study future energy demand;
- **WASP** (Wien Automatic System Planning Package) – to plan power sector expansion;
- **FINPLAN** (Financial Analysis of Electric Sector Expansion Plans) – to assess financial implications of a power project;
- **SIMPACTS** (Simplified Approach for Estimating Impacts of Electricity Generation) – to analyse impacts on human health and agriculture of a power project;
- **ISED** (Indicators for Sustainable Energy Development) – to analyse and monitor sustainable energy development strategies;
- **CLEW** (Climate, Land use, Energy and Water) – to analyse interactions among key resource systems.