



Global Ministerial Conference on System Integration

Berlin, 1 October 2019

Conference Report

Introduction

On Tuesday, 1 October, the International Energy Agency and the German Federal Ministry for Economic Affairs and Energy co-organised a Global Ministerial Conference on System Integration of Renewables.

The conference brought together Ministers, Deputy Ministers and State Secretaries from Sweden, Thailand, Japan, Morocco, Poland, Switzerland and the United States as well as several CEOs of large companies and senior officials from national governments and international organisations. More than 200 participants attended the event.

Driven by significant and increasing country interest and drawing on the IEA's and Germany's extensive experience in the system integration of renewables, the conference aimed to share best practices and shift global narratives from 'challenges' to 'opportunities'.

The following sections provide a brief summary of the proceedings. The agenda of the conference is enclosed for reference.

Opening Remarks

The German Federal Minister for Economic Affairs and Energy, Mr Peter Altmaier, opened the event, together with the IEA Executive Director, Dr Fatih Birol.

Minister Altmaier highlighted the need for the conventional electricity industry and the renewable sector to work jointly to make the energy transition happen and meet climate goals. He underlined the vision behind the recently adopted German Climate Action plan, based on an integrated approach to sectors not yet covered by the EU ETS scheme, emphasising the importance of sector coupling, system flexibility and of using the carbon pricing revenues to reduce the EEGsurcharge.

Dr Birol praised Germany's ambitious clean energy transition goals and noted that the challenge of introducing renewables into our system has shifted from low-cost deployment to cost-effective system integration. He highlighted the necessity of an all fuels all technology perspective to scale up the share of wind and solar and make this transition work.

9h30	Opening Remarks <ul style="list-style-type: none">• Mr. Peter Altmaier – Minister for Economic Affairs and Energy• Dr. Fatih Birol – Executive Director, International Energy Agency
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"Showcasing Renewables' success stories – the opportunity of low cost wind and solar"

The opening remarks were followed by a high-level government session, chaired by Dr Birol, in which experiences and future ambitions on renewables system integration were shared by six ministerial representatives from across the globe.

Minister Ygeman from Sweden portrayed his country target of moving to 100% renewable electricity by 2040 and shared the expectation of the nuclear fleet retirement due to economic signals, with a lot of flexibility being picked up by digitalization trends in the power sector.

Minister Sontijirawong highlighted Thailand’s recent successes in RE deployment and the target of making most use of new IoT solutions and prosumer efforts. Noting the importance and the huge opportunity of a regional approach, the Minister praised IEA’s role in recent Thailand and ASEAN studies on multilateral power trade and renewables integration.

Secretary General Ghazali from Morocco referred to the need to attract sufficient investment from the private sector, backed by government policies and instruments.

Poland’s Vice-Minister Dąbrowski emphasized the need for a reliable and secure power system, where transmission constraints must be relieved and supply adequacy will be ensured in the Polish context by diversified gas imports from pipelines and LNG. He also outlined Poland’s expectations related to offshore wind deployment (10 GW by 2040).

State Minister Matsumoto described Japan’s trajectory towards more wind and PV deployment. He recognised as main solutions for system integration the policies aimed at enhancing power system flexibility, including through a flexible “Connect & Manage” approach to speed up, enabling demand flexibility, more interconnections between the islands and kicking of hydrogen as storage and flexibility tool.

Director-General La Camera from IRENA closed the panel by summarising recent work and noted the importance of green finance. He underlined the importance of the clear political willingness to speed up system integration.

10h00	<p><i>“Showcasing Renewables’ success stories – the opportunity of low cost wind and solar”</i></p> <ul style="list-style-type: none"> - H.E. Mr. Anders Ygeman, Minister for Energy and Digital Development, Sweden - H.E. Mr. Sontirat Sontijirawong, Minister of Energy, Thailand - Mr. Mohammed Ghazali, Secretary-General, Ministry of Energy, Mines and Sustainable Development, Morocco - Mr. Tomasz Dąbrowski, Vice Minister of Energy, Poland - H.E. Mr. Yohei Matsumoto, State Minister, Ministry of Economy, Trade and Industry, Japan - Mr. Francesco La Camera, Director- General, IRENA <p><i>(IRENA reports: <u>Innovation Landscape for a Renewable-powered future: Solutions to integrate Variable Renewables</u> and <u>Solutions to integrate High shares of Variable Renewable Energy</u>)</i></p> <p>Panel discussion moderated by Dr. Fatih Birol</p>
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"Electrification for accelerated decarbonisation and improved system flexibility" and "Innovation in policy, market design and regulation"

In the following sessions, industry leaders gave three strong main messages: subsidies are no longer needed at some point, but developing appropriate market frameworks to value their contribution is key; technology solutions to make RE based portfolios fully dispatchable exist; markets should recognize system and flexibility value. The importance of infrastructures, sector coupling, power2X and digitalization was also underlined.

A theory of three parallel energy transitions was presented: phase-out of fossil fuels replaced by RE, scaling up a hydrogen economy, and digitalization.

It was noted that the past 5 years were focused on getting RE to grid parity while in the next 5 years industry priority should be making RE fully dispatchable. Several examples were given of how systems

including wind and solar can become dispatchable and provide ancillary services (e.g. through grid forming).

The importance of energy infrastructures and power grids was underlined as well as of the shift from technology (LCOE) to system value. Technology is not seen as the bottleneck anymore but size ramp-up requires policy support. Digitalisation was presented as a key factor enabling flexibility and security on the condition that stakeholder collaboration and participation are provided.

The consumer was presented as being central in the transition, enabled by decentralization and digitalization trends. It was noted that the trends of more decentralized solutions and wider European market integration are not opposing trends, but happening simultaneously.

Heating was identified as having substantial potential, more than transport, for sector integration, with a high carbon price being instrumental.

EPE and TERI representatives also stressed the importance of the ongoing or planned market design reforms in emerging economies, respectively Brazil and India.

In the discussion with the audience, several panellists underlined the importance of robust carbon pricing. The industry emphasized that ancillary service markets need to be accessible for all RE. The audience asked IEA to underpin its next WEO sustainable scenarios with clear policy recommendations needed to realize this transition.

Finally, a number of innovative policy initiatives to accelerate the clean energy transitions were presented and discussed.

12h00	<p><i>“Electrification for accelerated decarbonisation and improved system flexibility”</i></p> <ul style="list-style-type: none"> - Mr. Jérôme Péresse, CEO, GE Renewable Energy - Mr. Mark Widmar, CEO, First Solar - Prof. Dr. Florian Bieberbach, CEO, Stadtwerke München - Mr. Claudio Facchin, President, Power Grids Division, ABB - Ms. Barbara Frei, Executive Vice President Europe Operations, Schneider Electric - Prof. Dr. Armin Schnettler, Senior Vice President, Siemens AG Corporate Technology - Ms. Manon van Beek, CEO, TenneT <p>Panel discussion followed by Q&A, moderated by Ms Ursula Borak</p>
14h15	<p><i>“Innovation in policy, market design and regulation”</i></p> <p>This panel focused on technology and regulatory innovation.</p> <ul style="list-style-type: none"> - Dr. Jürgen Reinert, CEO, SMA Solar Technology - Mr. Morten Dyrholm, Group Senior Vice President, Vestas - Ms. Maria Cristina Portugal, President of the Board, ERSE - Mr. A K Saxena, Senior Director, Electricity and Fuels Division, TERI <p>Panel discussion followed by Q&A, moderated by Ms. Mechthild Wörsdörfer</p>

14h50	<p>This panel focused on system planning and market innovation.</p> <ul style="list-style-type: none"> - Dr. Gerhard Holtmeier, CEO, GASAG - Mr. Thiago Barral, President, EPE - Mr. Stefan Kapferer, Chairman of the General Executive Management Board, BDEW - Mr. Xabier Viteri Solaun, CEO Renewable Energy Business, Iberdrola Group <p>Panel discussion followed by Q&A, moderated by Ms. Mechthild Wörsdörfer</p>
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Industry presentations were followed by a closing session with senior policy makers who discussed the policy measures required to accelerate the clean energy transition.

State Secretary Revaz from Switzerland opened the panel noting how a system in a wide interconnected grid sees huge swings in RE infeed and thus import/exports, and illustrating the need to look at system adequacy (as opposed to generation adequacy). While recommending not to forget the existing infrastructure, including pumped hydro and also demand-side management, he stressed the importance of the flexible hydro operation, as well as more emphasis on self-consumption in policies through blockchain and new business models.

Director General Losch from Austria referred to the country objective of 100% RE electricity by 2030 and presented examples of policies for distributed PV (bids for self-consumption, co-ownership and aggregation at building level). Also blending of biogas and green hydrogen in the present gas grid was mentioned as key in the overall energy transition.

Canada's efforts to get all stakeholders sign up to climate ambitions, with successful RE increase, more regional system integration, and still relatively low energy prices for end consumers, were summarised by Director General Presutti.

In closing this panel, Assistant Secretary Simmons from USA stressed the need to understand the value of all technology solutions and let this be fairly remunerated in the market. He underlined the importance of the holistic integration of the electricity, heat and transport looking at both supply and demand, emphasising that the solutions need to be affordable and that the US is doing great efforts in research.

15h25	<p>This panel will focus on policy initiatives to accelerate the clear energy transition.</p> <ul style="list-style-type: none"> - Mr. Benoît Revaz, State Secretary and Director of Swiss Federal Office of Energy, Switzerland - Mr. Michael Losch, Director General for Energy and Mining, Federal Ministry for Sustainability and Tourism, Austria - Mr. Marco Presutti, Director General, Electricity Resources Branch, Natural Resources Canada - Mr. Daniel Simmons, Assistant Secretary, Office of Energy Efficiency and Renewable Energy, Department of Energy, USA <p>Panel discussion, moderated by Ms. Mechthild Wörsdörfer</p>
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Closing Remarks

In their concluding remarks, State Secretary Feicht and Dr Fatih Birol expressed strong appreciation for the sharing of all these experiences. They stated that it was timely to bring the burning issue of system integration to the political attention. The energy transition is larger than just wind and PV; also hydro, bio fuels and wider sector coupling are key. Dr Fatih Birol underlined that getting RE costs down may have been the easy part; successful integration in a cost-effective and secure manner of large shares of RE and a decarbonized energy system being the next and more complex challenge. IEA has been working on system integration of renewables since since many year. It is also starting a major new study on electricity security to help countries to better manage the impact of energy transitions, guard against new cybersecurity threats and develop resilience to extreme natural events.

16h00	Closing remarks <ul style="list-style-type: none">• Dr. Fatih Birol – Executive Director, International Energy Agency• Mr. Andreas Feicht – State Secretary for Energy
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Thank you and next steps

The IEA secretariat wishes to thank all speakers and participants for contributing to this important discussion. We are also grateful for the positive feedback about the conference. Following the success of this event, the IEA will convene a second Global Ministerial Conference on System Integration of Renewables in Paris in September 2020 at which the major report on electricity security will be launched. In the report, the IEA will develop fact-based insights and put forward key policy recommendations on how infrastructure, markets and institutions can adapt to the evolving challenges of electricity security in the 21st century.

Should you have questions, need more information or wish to contact us, please do not hesitate to email the System Integration of Renewables Unit at sir@iea.org.

To get more information on the IEA work on the System Integration of Renewables, please check our [website](#).