Workshop

Innovative solutions for achieving 100% renewable power systems by mid-century

Session I – Experience-sharing innovation programme

Elena Ocenic
Programme Officer
Innovation Networks
IRENA

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Montevideo, Uruguay

Structure

1. **IRENA activities on 100% Renewable Energy**
2. **Experience-sharing innovation programme**
   - Rationale of the series of workshops on 100% renewable power
   - Participating countries
3. **Reporting from the online workshop of 6 June 2019**

IRENA activities on 100% Renewable Energy

- Knowledge Framework for Power Sector Transformation
- Addressing Variable Renewable Energy in Long-term Energy Planning
- IRENA FlexTool
- Coalition for Action
- **Innovative solutions for very high shares of renewable power by mid-century:**
  - ✓ *Experience-sharing innovation programme*
  - ✓ *Series of 4 online and in-person workshops in 2019*
  - ✓ *Financial support from the government of **Sweden** (Voluntary Contribution)*
  - ✓ *Collaboration with the government of **Uruguay***

Rationale of the experience-sharing innovation progamme

Cost reduction
2010 – 2018

35%

77%

Onshore wind & solar PV share in generation mix (2016 vs. 2050)

4% → 27%

1% → 25%

- → Addressing variability
- → Integrating high shares of wind and PV
- → Unlocking power-system flexibility

Source: IRENA (2019), Innovation landscape for a renewable-powered future: Solutions to integrate variable renewables, IRENA (2019), Global energy transformation: A roadmap to 2050 (2019 edition)

Rationale of the experience-sharing innovation progamme

Key challenge

How to best transform the national power systems with **innovative solutions** to ensure the cost-effective integration of high shares of renewable power, including variable renewable energy (VRE) sources?

Objective

Exchange of perspectives, plans and good practices in working towards very high levels of renewable power, with a particular focus on countries that have pledged very high (over 80%, and in some cases 100%) renewable power targets in the coming decades, as well as frontrunners in the operation of power systems with very high shares of renewable power.

Planned activities

Type of workshop	Tentative date	Description	Location
Online	6th June 2019	Focus on sharing national objectives for renewable power and expected/experienced **challenges**	Remote
In-person	**17th July 2019**	Focus on **innovative solutions for 100% renewable power systems** by mid-century by exchanging perspectives, plans and good practice in working towards very high levels of renewable power. Workshop takes place back-to-back with the IRENA Innovation Day (16th July).	Montevideo, Uruguay
Online	October 2019 (TBC)	Focus on sharing national **experiences** with the **application** of innovative solutions	Remote
In-person	November 2019 (TBC)	Focus on **disruptive innovative solutions** enabling 100% renewable power systems	Europe (TBC)

Participating countries

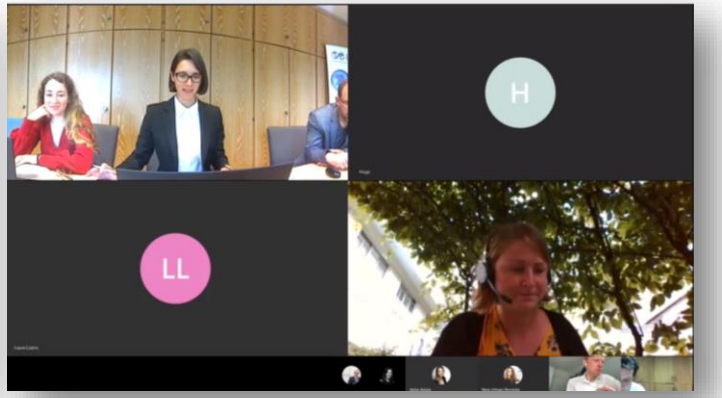
43 IRENA member countries have pledged to achieve some form of 100% renewable energy target in the coming decades. First IRENA member countries invited to join these activities based on policy targets to achieve **100% renewable power** (rather than 100% renewable energy) by 2030, 2040 or 2050 respectively. Uruguay and Paraguay are frontrunners in the operation of a power system with 98% and 100% of the power generated in 2017 from renewable energy sources. The activities are open to countries that have less specific targets and would like to explore a high ambition for renewable power.

Costa Rica	Germany	Norway	Spain	Sweden	Uruguay	Paraguay
						
100% renewable power by 2030	At least 80% renewable power by 2050	100% renewable power by 2050	100% renewable power by 2050	100% renewable power by 2040	98% renewable power generated in 2017	100% renewable power generated in 2017

Online workshop of 6 June 2019

- **Focus:**
  - Current deployment of (variable) renewable power
  - Expected and experienced challenges regarding the adoption of technology-driven innovative solutions for the accelerated deployment of very high shares of renewable power by mid-century

- **Participants**:
  - Costa Rica
  - Germany
  - Spain
  - Sweden
  - Uruguay



- **Key topics:**
  - Systemic innovation approach
  - Societal changes and circular economy
  - Electrification of end-use sectors with renewables
  - Role of power-to-hydrogen
  - Challenges: initially, integrating variable renewables into power systems, later, making use of surplus generation

- **Deliverables:**
  - Minutes of discussions
  - Swedish case study (ongoing)

Thank you for your attention!

IRENA
International Renewable Energy Agency