



## Workshop

Co-organised by EC-JRC and IEA-EGRD

### **Building Resilient and Robust Clean Energy Supply Chains: Challenges and Opportunities for a Sustainable Energy Transition**

27 – 28 November 2025

JRC premises, Petten, The Netherlands

The energy transition, which is taking place globally in order to enhance economic competitiveness, improve energy security and achieve the Paris 1.5 degrees Celsius target, is bringing a shift of paradigm for our energy system: the main focus is shifting from fuel to technology, the manufacturing of components for clean energy technologies, and the materials needed. As part of this transition, changes are global. The European Union (EU) has introduced the Net Zero Industry Act <sup>(1)</sup>, aiming to enhance the resilience and competitiveness of EU net-zero industries. However, the implementation of this Act poses significant challenges, particularly in terms of monitoring the manufacturing, and trade of net-zero technologies, which requires the integration of diverse data sources and handling of –potentially – sensitive information. Similar developments take place in other parts of the world, such as the US Inflation Reduction Act, China's renewable energy push, and Japan's and South Korea's focus on hydrogen fuel cells and smart grid technologies, as well as investments in solar and wind energy in Latin America and Africa.

The Joint Research Centre (JRC) has published a number of reports, including those of the Clean Energy Technology Observatory <sup>(2)</sup>, which provide insights into the challenges and opportunities related to the clean energy transition. These reports highlight the need for a resilient and sustainable global clean energy supply chain, which can be achieved through the development of new strategies and policies. As part of it Energy technology perspectives, the International Energy Agency (IEA) has also highlighted the issues associated with managing clean energy supply chains through the transition <sup>(3)</sup>. In

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<sup>(1)</sup> [https://single-market-economy.ec.europa.eu/industry/sustainability/net-zero-industry-act\\_en](https://single-market-economy.ec.europa.eu/industry/sustainability/net-zero-industry-act_en)

<sup>(2)</sup> [CETO reports 2024 - European Commission](#)

<sup>(3)</sup> IEA (2022), [Securing Clean Energy Technology Supply Chains](#), IEA, Paris

December 2023, the JRC and the IEA organised a workshop <sup>(4)</sup>, focusing on the role of research and innovation in improving the resilience of clean energy supply chains, from raw materials to end-of-life recycling. The findings <sup>(5)</sup> identified key challenges, such as the sourcing of critical raw materials, the mitigation of supply chain disruptions, and the development of sustainable and circular business models. Building on these outcomes, this workshop aims to delve deeper into mapping and monitoring clean energy supply chains, with a focus on effective strategies for data collection, management, and sharing, as well as approaches to maintaining data confidentiality while promoting transparency. The event will bring together experts from around the world to share their knowledge and experiences, and to identify solutions for ensuring a resilient and sustainable global clean energy supply chain, in line with the goals of current policy needs.

## **Workshop Focus**

As governments worldwide aim to accelerate the transition towards clean energy systems, a competitive landscape has emerged, characterised by countries taking initiatives to reduce dependencies on external markets, improve industrial competitiveness and develop secure, sustainable and affordable energy systems. These initiatives reflect a shared challenge: ensuring equitable access to clean technology production while safeguarding economic competitiveness, supply chain security and climate goals. With growing global demand for clean energy technologies and increasing climate-related challenges, governments and industries must develop new strategies to achieve resilient and sustainable global clean energy supply chains. This workshop will focus on the challenges of creating resilient and sustainable clean energy supply chains, which requires the integration of diverse data sources and stakeholders to monitor and manage the production, trade, and distribution of net-zero technologies. A key aspect of this challenge is ensuring the secure and confidential handling of sensitive information, while also navigating the complexities of global supply chains and potential disruptions to the flow of critical materials and components. Experts will discuss research priorities, policy instruments, and best practices that facilitate the transformation toward resilient and sustainable global clean energy supply chains.

## **Key Questions**

- How can science help governments and industries ensure a resilient and sustainable global clean energy supply chains? What are the key challenges and main risks?
- What are the effective strategies for collection, data management, and sharing, including approaches to maintaining data confidentiality while promoting transparency?
- New technologies and new business models: Where do we stand and what is needed to enhance the resilience of global clean energy supply chains?

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<sup>(4)</sup> EC-JRC and IEA-EGRD. [Improving the resilience of the complete clean energy supply chains – from raw materials to advanced materials, manufacturing and end-of-life](#), 12 - 13 Dec 2023, Petten, The Netherlands

<sup>(5)</sup> European Commission, Joint Research Centre, Magnani, N., Alves Dias, P., Carrara, S., Christou, M., Kuzov, T. and Prior Arce, A., [Improving the resilience of the complete clean energy supply chains from raw materials to advanced materials, manufacturing and end-of-life](#), European Commission, Petten, 2024, JRC136480.

- Which instruments and activities must be supported to achieve secure, sustainable, and affordable global clean energy supply chains? Which are the main factors to be considered regarding R&D policies and decision making?

**We invite you to register your interest in attending the workshop, either online or in-person.**

**We recommend those wishing to attend in person register their interest by 31 October 2025.**

**Please be aware that due to limited seating capacity, in-person attendance cannot be guaranteed, until confirmed by return invitation from the organisers.**

**[REGISTER HERE](https://ec.europa.eu/eusurvey/runner/27-November-Workshop-Petten)**

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## Agenda

Day 1 - 27. November 2025 Location : Westerduinweg 3, 1755 LE Petten, The Netherlands	
12:00 - 13:00	Registration and lunch
13:00 - 13:10	Opening of the meeting and welcome to the JRC
13:10 - 13:20	About EGRD and the workshop
13:20 - 14:50	Session 1 - Resilient and Sustainable Clean Energy Supply Chains Chair : Herbert Greisberger
	<i>1. Introduction to the challenges and opportunities for clean energy supply chains</i> <i>2. Lessons learnt from the implementation of net-zero technologies and their impact on supply chains</i> <i>3. Overview of the EU's approach to ensuring resilient and sustainable clean energy supply chains, including the role of the JRC and IEA</i>
30 min	<b>Elisabeth Schellmann/EC DG ENER - Strengthening Clean Energy Supply Chains: The Interplay of Policy Making and Data Availability</b>
30 min	<b>Hiroki KUDO/The Institute of Energy Economics Japan - Standardization for enhancing energy supply chain resilience</b>
15 min	<b>Thomas Schleker/ EC RTD - R&amp;I challenges and opportunities for secure, sustainable and competitive clean energy value chains</b>
15 min	<b>Jack Jaensch/IEA - Clean Technology Supply Chains Today</b>
14:50 - 15:00	Coffee/tea
15:00 - 17:00	Session 2 - Effective strategies for collection, management and sharing of data Chair : Johannes Tambornino
	<i>1. Monitoring of clean energy technologies trade via new trade codes</i> <i>2. Effective strategies for collecting, managing, and sharing data on clean energy technologies and supply chains</i> <i>3. Approaches to maintaining data confidentiality while promoting transparency and collaboration</i>
30 min	<b>Jacopo Tattini/EC DG GROW - Data strategies for monitoring and implementing the Net-Zero Industry Act</b>
30 min	<b>Dan Weaver/ International Energy Unit, UK Government - GCPA Supply Chains Mission – Data challenges and potential solutions</b>
30 min	<b>Gavin Harper/University of Birmingham - The supply chain for electric car batteries is changing the world's geopolitics</b>
30 min	<b>Deborah Ayres/IRENA - Understanding Cost Drivers in the Solar Supply Chain: A Competitiveness Analysis of Module Manufacturing</b>
19:00	Networking dinner (offered by the JRC)

Day 2 - 28. November 2025 Location : Westerduinweg 3, 1755 LE Petten, The Netherlands	
9:00 - 11:00	Session 3 - Modelling supply chains and production capacities Chair : Atsushi Kurosawa
	<i>1. Overview of the JRC's work on modelling supply chains and production capacities for clean energy technologies</i> <i>2. Deep dive into mapping of supply chains for wind technologies</i> <i>3. Discussion of the challenges and opportunities for modelling and analyzing complex supply chains</i>
30 min	<b>Evdokia Tapoglou/EC JRC - Supply chain insights on wind turbine manufacturing</b>
30 min	<b>Ben McWilliams/Breugel - Tracking European (and US) investments into clean tech manufacturing</b>
30 min	<b>Kristoffer Marslev/Technical University of Denmark - State interventionism and the shifting geographies of solar PV technologies</b>
30 min	<b>Norihiro ITSUBO/ Waseda University - International trends of Life cycle assessment for clean energy</b>
11:00 - 11:15	Coffee/tea
11:15 - 12:00	Concluding session. Discussion and key messages Chair: Evangelos Tzimas
12:00 - 13:00	Lunch
13:00 - 15:00	EGRD ExCo meeting