



Clean energy
for EU islands

**Study on connection policies and management
of island energy systems with intermittent RE**

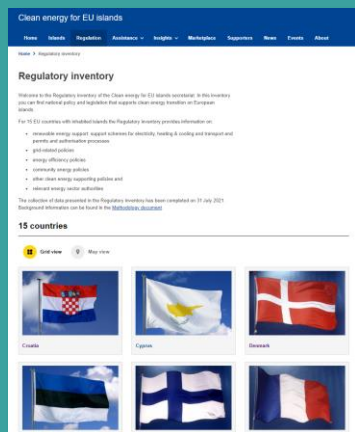
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Th!nk E

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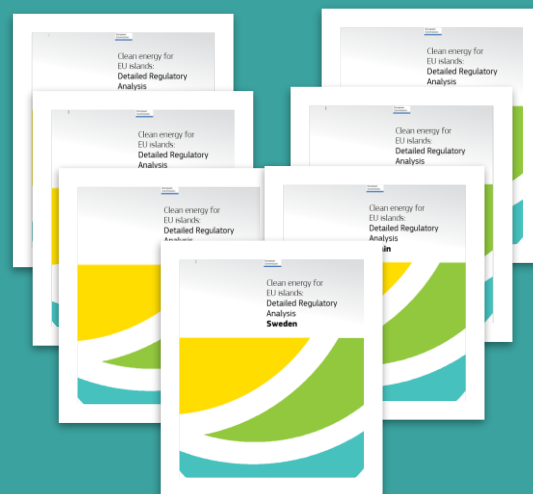
Grids Fit for Decarbonisation, 25 November 2024

Secretariat regulatory work



Regulatory inventory

2021



Regulatory barriers and recommendations 7 MSs

2023

2024

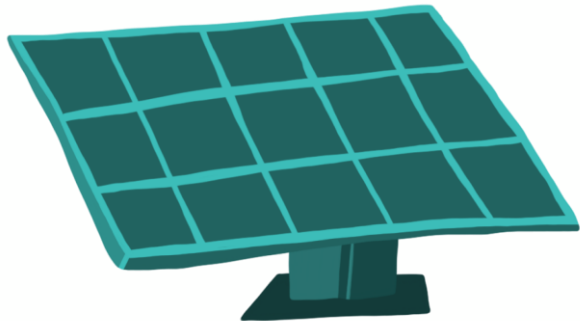
Grid constraints on island grids

- 1 Inability to integrate additional renewable energy (RE)
- 2 Outdated RE connection rules and procedures
- 3 Grid modernisation shortages
- 4 Lack of regulation for innovative technologies including energy storage

Goal of the study

1

Deeper understanding
of the **existing grid, regulatory
and operating constraints**

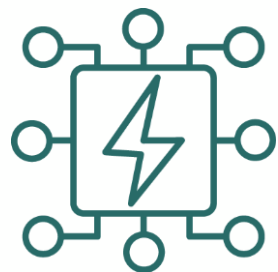


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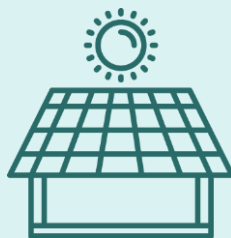
Help preparing the grid regulation
and operating procedures **for the
increasing uptake of renewable
energy** technologies



Non-interconnected island electricity systems



Security of supply is critical due to insular nature of the infrastructure.

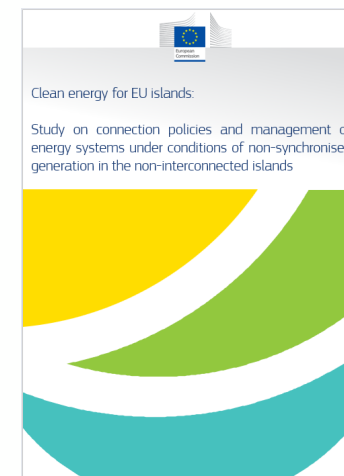


High penetration of intermittent RE can lead to **grid instability**.



Regulatory framework requires **tailoring for these systems**.

Methodology for study development



Apr 2023

Review of grid regulation for 15 MSs

Sep 2023

Identified challenges: 40 interviews

Nov 2023

EU Grid Action Plan

Dec 2023

6 Online workshops
90 participants

Nov 2024 - Mar 2024

5 In-person workshops
150 participants

Jul 2024

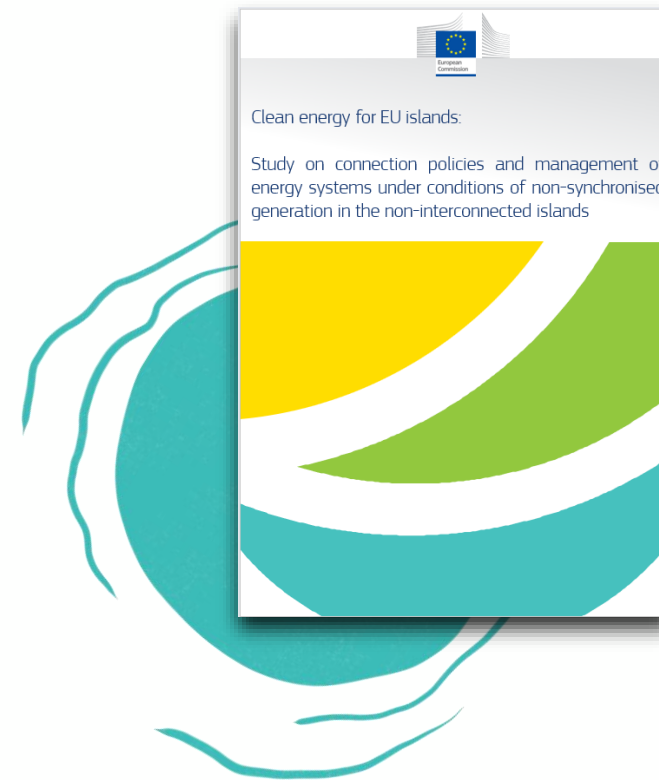
Final study

RE connection policies and management of energy systems of non-interconnected islands

EU policy and regulation

10 case studies

Recommendations



Study results: Main identified challenges



1. Power interruptions and outages
2. High curtailment of existing RE
3. Limited resources for implementation of new solutions
4. Lack of smart systems and controllability of distributed RE
5. Complex and fragmented permitting and connection policies

Key recommendations

Technological and System Integration

- Promote **hybrid power systems**
- Require **sector coupling & system integration**
- Prioritize **smart grids**
- Improve **monitoring, control and forecast of RE**
- Procure **centralized storage**
- Integrate **long duration energy storage**

Market and Regulatory Frameworks

- **Modernize grid codes**
- **Clear remuneration for curtailment**
- **Enable Virtual Power Plants**
- **Request derogation for unbundling or storage ownership**



Best practices for EU islands



**Hybrid power
plants in Greece**
Tilos, Ikaria



**Storage for grid
stability in France**
Reunion



**Sector coupling
in Portugal**
Sao Miquel



**Optimising grid
codes in Portugal**
Madeira

Decarbonising EU islands



- All islands and remote areas on mainland
- Continued support to islands

A Pact for Island Grids

Pact for island grids



- Platform for knowledge exchange
- Tailor permitting and grid policy®ulation to islands and their systems
- Investments in islands grids





Clean energy for EU islands

Thank you!

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