ETIP HYDROPOWER

ADRIAN LINDERMUTH

EURELECTRIC

Adrian Lindermuth works as an advisor at Eurelectric, the European power sector association. With a solid background in engineering and EU policy, he actively advocates for hydropower and its crucial role in the energy transition. He directs his efforts towards establishing a regulatory framework that not only recognizes but also facilitates the responsible and sustainable use of hydropower, unlocking its full potential across Europe.

Funded by
the European Union

eurelectric

Adrian Lindermuth
Advisor – Hydropower and social Sustainability

Is the EU regulatory framework aligned to promote HYDROPOWER as a cornerstone and catalyst of the energy transition?

EU HYDROPOWER

Renewable Electricity

2nd biggest renewable source in the EU.

Flexibility

The major renewable flexible generation and storage source.

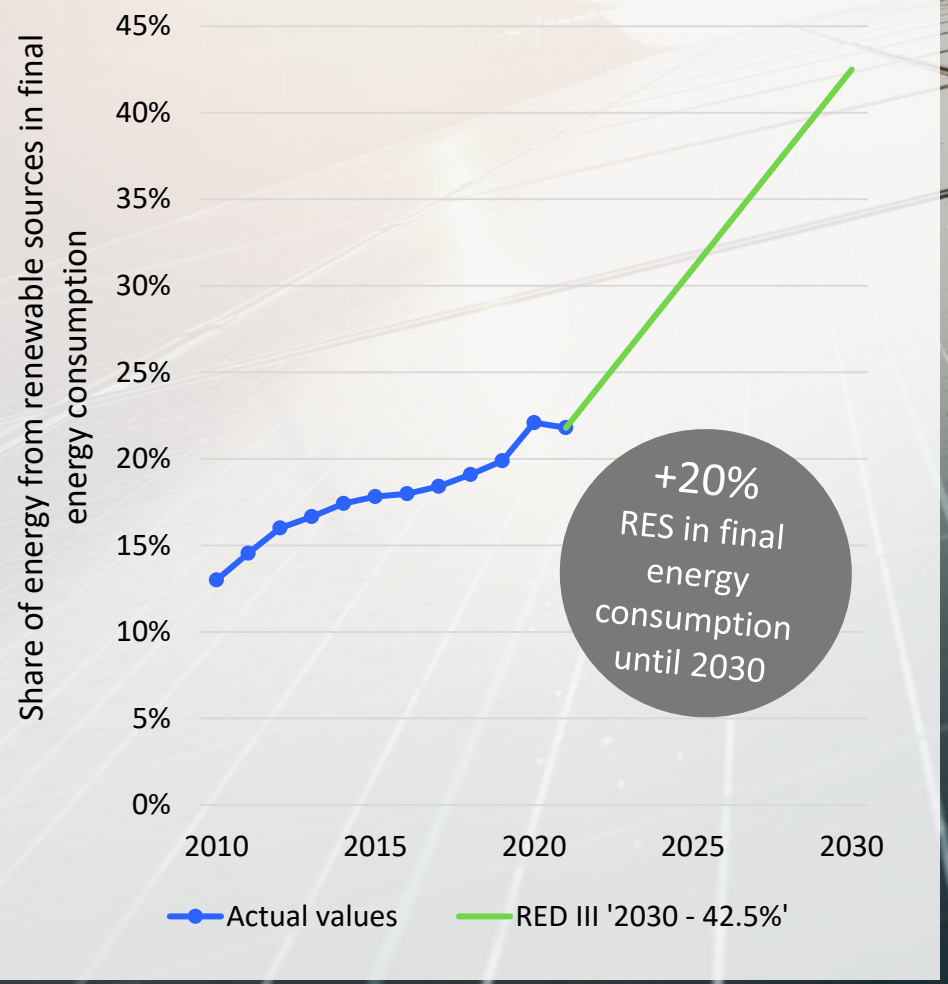
Sustainable Investments

Projects in refurbishment, upgrading and new build.

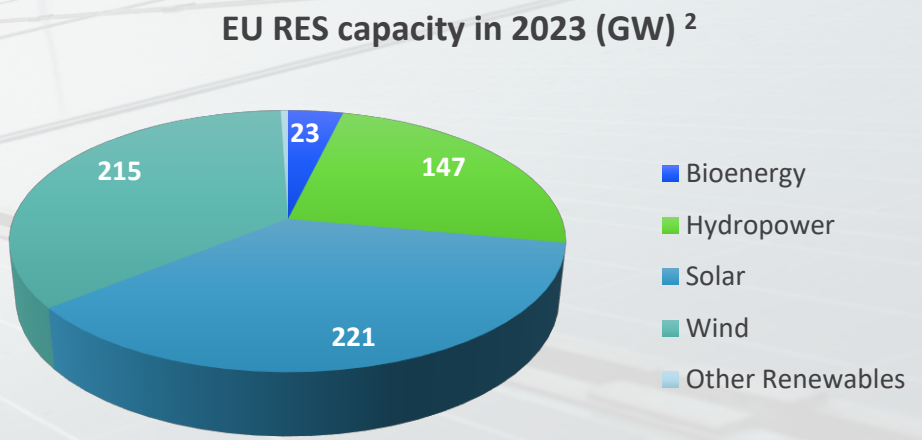
Additional Benefits

For society, the economy and the environment.

RES capacity must almost triple to achieve 42.5% target by 2030



+1027 GW of RES capacity until 2030 [1]



Renewable Energy Directive (RED III 2023): Accelerating the deployment of RES through streamlining the permitting.

- ✓ **Hydropower projects** are eligible for accelerated permitting procedures and the consideration in renewables acceleration areas.
- ✓ **Hydropower projects** are presumed to be of overriding public interest (OPI).
- – However, **member states can exclude hydropower from renewable acceleration areas and the OPI principle**. Therefore a technology neutral implementation is key.

Hydropower is European

Building on a strong and clean value chain, hydropower is highly independent of imports of:

- Raw materials
- Fossil fuels
- Skilled labour
- Technological competence

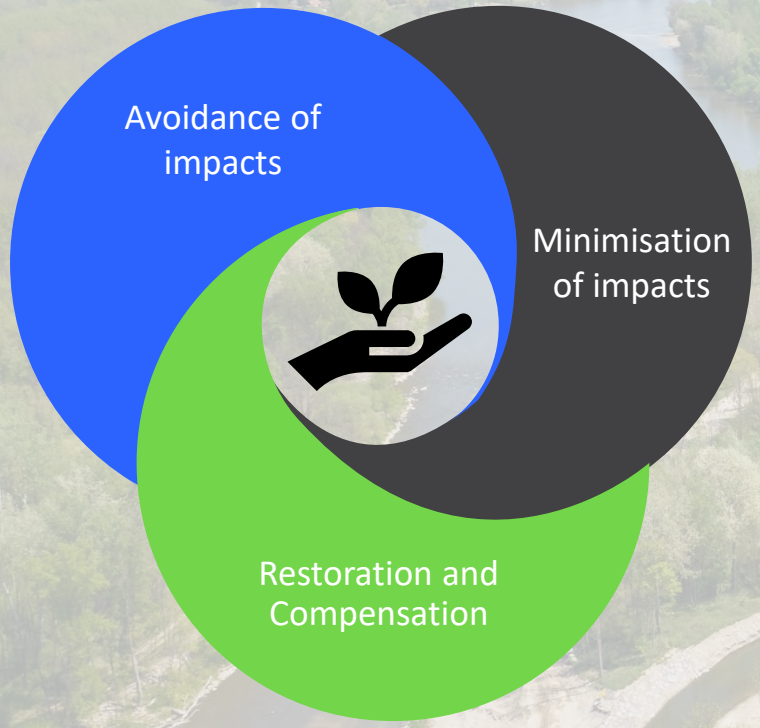
Net Zero Industry Act (NZIA 2024): Strengthening the European manufacturing capacity of net-zero technologies

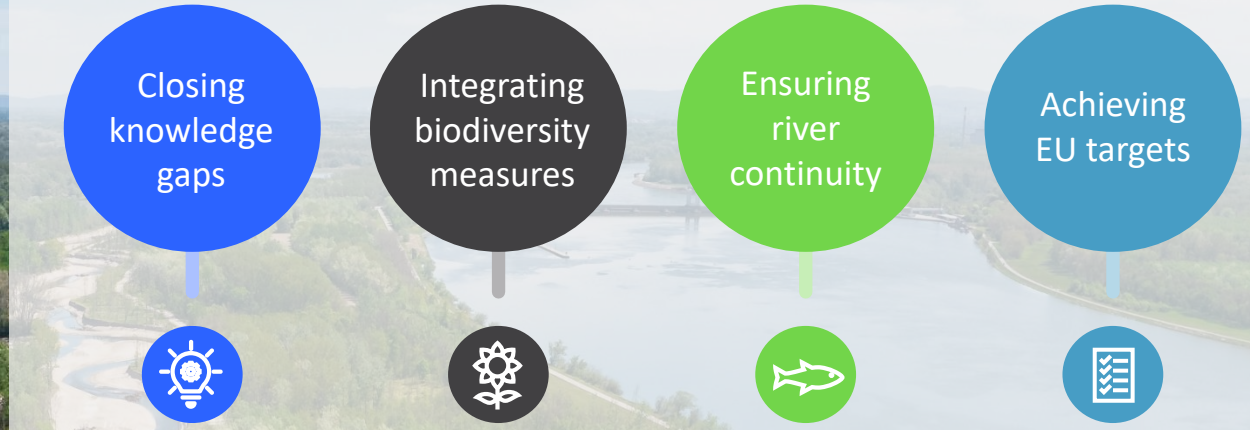
- ✓ **Ensuring the strategic autonomy** of the EU by promoting domestic value chains.
- ✓ **Maintaining the EU's competitive** edge in established clean technologies.
- ✓ Hydropower, is considered a **net-zero technology for which a strategically important manufacturing project is eligible**.

Materials critical for transition to a low-carbon economy by technology type [3]

The hydropower sector is taking biodiversity integration seriously

Committed in applying the mitigation hierarchy and striving to achieve a positive result for biodiversity:





Nature Restoration Regulation (NRR 2024): Restoring ecosystems for people, the climate and the planet.

- ✓ Restoration obligation of **25000 km of free-flowing rivers until 2030**, by removing primarily obsolete barriers, which are no longer used for power generation, etc.
- ✓ Restoration obligation of **terrestrial, costal and freshwater habitats** with exemptions for projects of overriding public interest.
- – However, **member states can exclude hydropower from the OPI principle**. Therefore a technology neutral implementation is key.

Large investments require long-term visibility

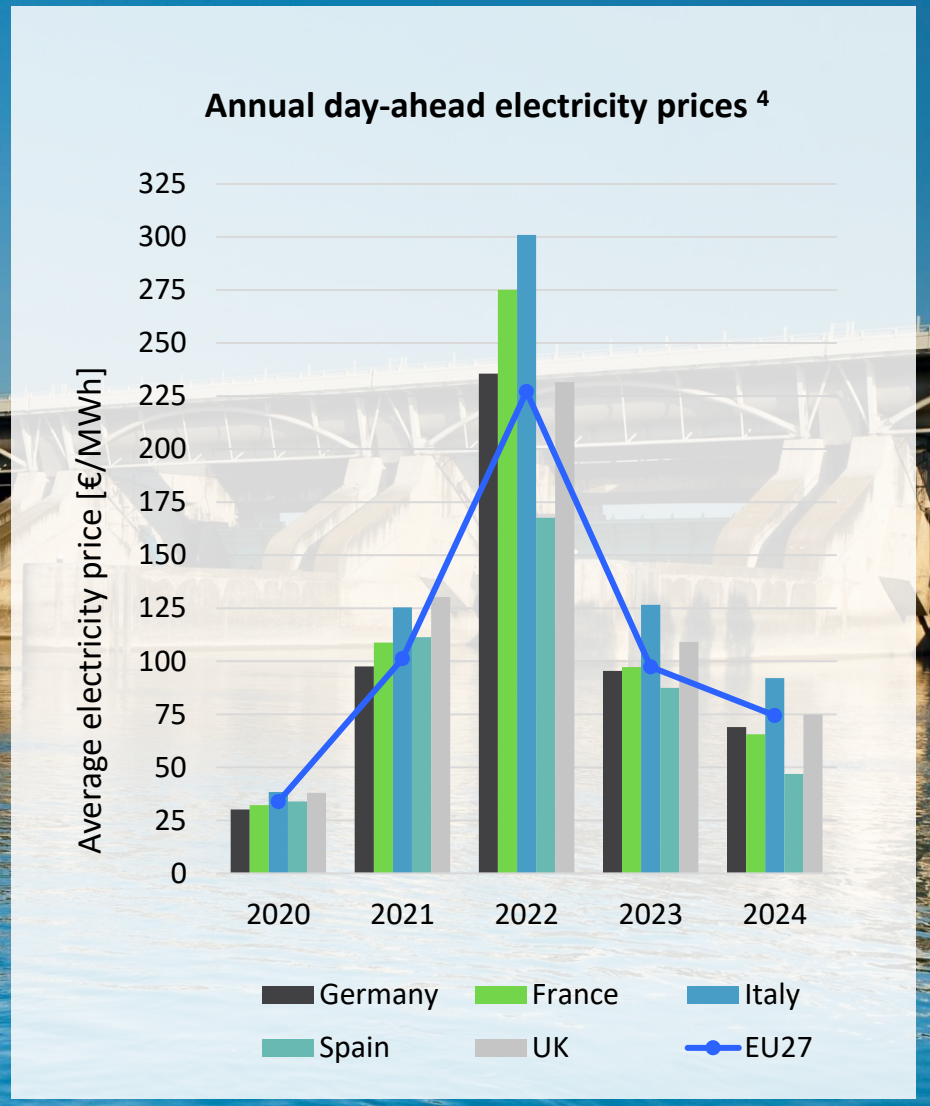
1 **Energy Price Crisis**

2 **Market Interventions**

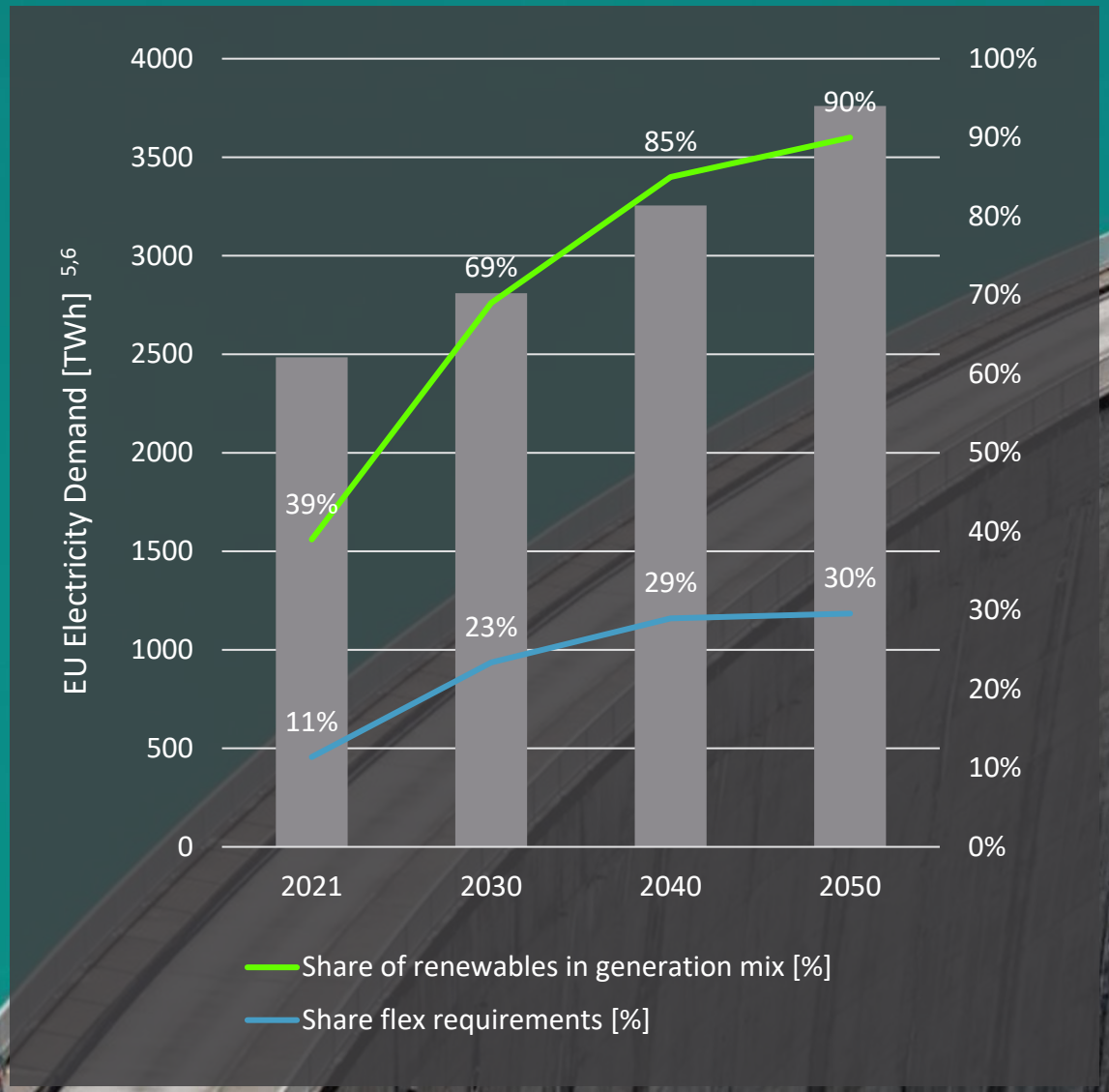
3 **Reform of the Electricity Market Design**

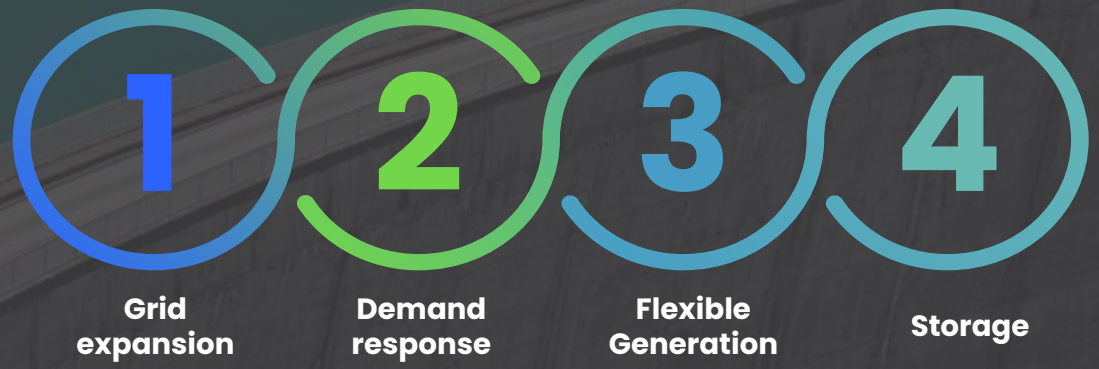
Electricity Market Design Reform (EMD 2024): Incentivising the clean energy transition.

- ✓ The principles and efficiency of the marginal pricing system were maintained.
- ✓ Introduction of measures promoting the uptake of **PPAs in a voluntary and technology neutral manner**.
- ✓ Two-way CfDs (or equivalent schemes with the same effects) are the sole form for public direct price support schemes for **non-flexible technologies** like wind, solar, geothermal, hydropower without reservoir and nuclear.



Flexibility demand will increase significantly





Electricity Market Design Reform (EMD 2024): Ensuring security of supply and affordability.

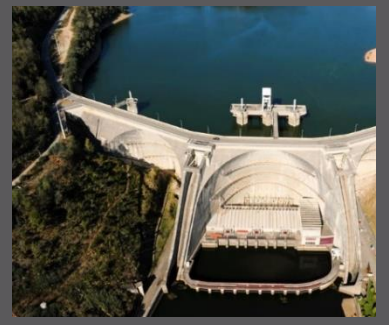
- ✓ MS are to **determine the national flexibility needs and shall define indicative targets**.
- ✓ MS should **remove market barriers and introduce public support schemes for non-fossil flexibility sources**, if the market signals are not sufficient.
- – **Swift implementation is crucial**, with some MS even lacking implementation of the revised EMD from 2019.

Benefits beyond renewable electricity and flexibility

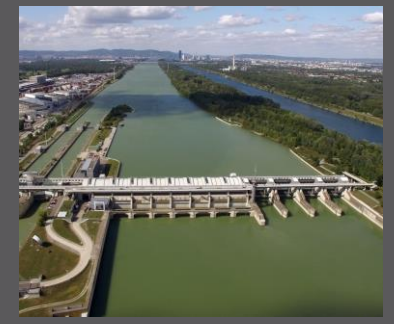
EC's Water Resilience Initiative: Hydropower is serving society, the economy and the environment (Publication postponed)

- ✓ **European Economic and Social Committee (EESC) calls for a Blue Deal** and published a set of guiding principles in October 2023.
- ✓ The EC must acknowledge the **hydropower sector's efforts to achieve the objectives set out in the Water Framework Directive**.
- ✓ The EC must recognize **hydropower's numerous additional advantages in water supply and management.**
- ✓ The EC must leverage **the strengths of hydropower in implementing effective climate change adaptation measures.**

Aguieira - Portugal
336 MW | 190 GWh



Freudenau - Austria
172 MW | 1100 GWh



Serre Ponçon - France
380 MW | 650 GWh

Susqueda - Spain
86 MW | 140 GWh

Water supply for households and industry

Flood and drought protection

Recreational activities

Water supply for agriculture

Water supply for firefighting

Water management for navigation

Eurelectric’s Hydropower Manifesto is calling for

1. **Hydropower’s Diversity and Benefits: Recognise the versatile nature of hydropower – run-of river, reservoir and pumped storage plants – providing flexible renewable electricity generation and as well as numerous benefits beyond the power system.**

2. **Commitment to sustainability: Support the sector's efforts in avoiding, minimizing, and compensating environmental impact through habitat preservation, restoration, and river continuity enhancement.**

3. **Driving decarbonisation: Maximise hydropower’s contribution in achieving climate neutrality, through refurbishing and upgrading existing plants, strategically building new ones and harnessing synergies with other net-zero technologies.**

4. **Regulatory stability: Call for a stable and technology neutral legislative framework to ensure long-term visibility and investor confidence, crucial for realizing hydropower's full potential in decarbonizing the EU's energy sector.**

5. **Strategic Sovereignty: Secure Europe’s leadership in hydropower technologies for supply chain resilience and global competitiveness.**

References:

[1] Power Barometer 2023 & Decarbonisation Speedways Study 2023 by Eurelectric
[2] Elda by Eurelectric 2024 – https://electricity-data.eurelectric.org/; EU cumulative installed capacity, data basis 2023.
[3] European Commission, *A foresight study - Critical raw materials for strategic technologies and sectors in the EU*, 2020; International Energy Agency, The role of critical raw minerals in clean energy Transition, 2021; McKinsey analysis January, 2022;
[4] Elda by Eurelectric 2024 – https://electricity-data.eurelectric.org/; Annual average day-ahead electricity prices, data basis 2023.
[6] European Commission, Communication on Europe's 2040 climate target and path to climate neutrality by 2050 building a sustainable, just and prosperous society, Impact Assessment Report Part III: https://eur-lex.europa.eu/resource.html?uri=cellar:6c154426-c5a6-11ee-95d9-01aa75ed71a1.0001.02/DOC_3&format=PDF;
[5] European Commission, Joint Research Centre, Koolen, D., De Felice, M., Busch, S., *Flexibility requirements and the role of storage in future European power systems*, Publications Office of the European Union, 2023, https://data.europa.eu/doi/10.2760/384443;

Eurelectric's hydropower publications:

- 1st Hydropower Short Story: Upgrading EU Hydropower for future needs
- 2nd Hydropower Short Story: EU Hydropower: A Vital Force in Preserving Climate and Environment
- 3rd Hydropower Short Story: EU Hydropower: Benefits for People, Communities, and the Economy beyond Power Generation
- Eurelectric's Hydropower Narrative 2023
- EU Election - Hydropower Manifesto

Contact:

Adrian LINDERMUTH
Advisor Hydropower & Social Sustainability
alindermuth@eurelectric.org


eurelectric