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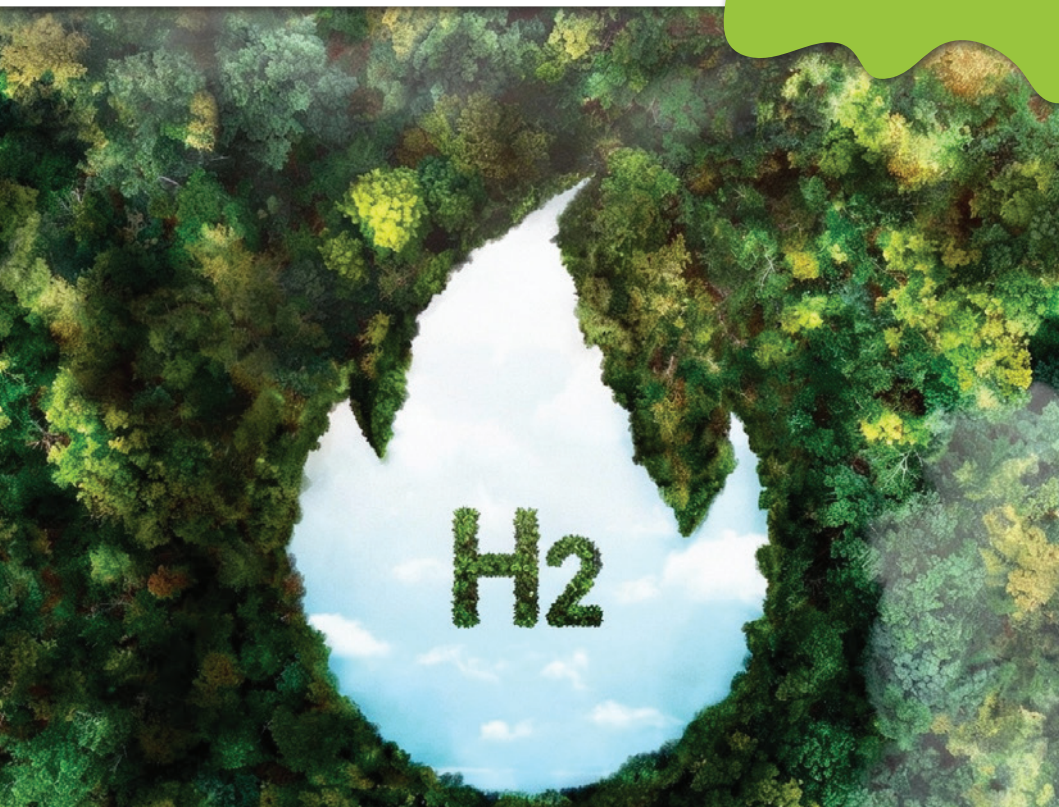

HyEfRe

Hydrogen integration for efficient renewable energy systems

Policy recommendations for hydrogen and waste heat

HyEfRe is an Interreg Central Europe project that supports the energy transition by developing green hydrogen ecosystems in eight regions and improving the integration of renewable energy sources. It promotes an investment-friendly environment for renewable energy and green hydrogen, while actively addressing legal and regulatory barriers that hinder hydrogen deployment and the efficient use of waste heat.

Designing frameworks that both enable renewable hydrogen technologies while also supporting the use of the associated waste heat is crucial for maximising energy system efficiency and achieving the climate and energy goals of the European Union.

This leaflet presents a set of collaboratively developed policy recommendations to improve national and local framework conditions for renewable hydrogen and waste heat utilisation, shaped through assessment findings, stakeholder input, and expert knowledge. They aim to reduce regulatory barriers, support effective hydrogen deployment, and align national and regional frameworks with EU goals. They are intended as a practical guide for policymakers to advance renewable hydrogen and fully exploit waste heat.

Hydrogen policy recommendations

Central Europe Recommendations

National energy systems, regulations, and markets vary across Central Europe, but common challenges persist in renewable hydrogen deployment and waste heat utilization. These region-wide policy recommendations - drawn from stakeholder consultations, expert input, and regulatory analysis - address shared issues by providing guidance to policymakers on how to strengthen regional cooperation and create an enabling environment for a sustainable energy transition. Recommendations are designed to be applicable across the entire region while also addressing specific national contexts where relevant.

Streamlined Permitting & Regulatory Clarity

- Accelerate permitting procedures for hydrogen projects.
- Introduce one-stop shops and statutory deadlines to reduce bureaucratic delays.
- Harmonize national laws and sectoral regulations (energy, transport, industrial, construction) with EU directives (RED III, AFIR, FuelEU).

Clear Definition & Certification

- Evolve certification schemes, including Guarantees of Origin and RFNBO recognition.
- Align national definitions with EU standards to ensure cross-border trade and market transparency.

Infrastructure Development

- Build national and regional hydrogen production, storage, and distribution infrastructure.
- Plan hydrogen hubs and TEN-T aligned refuelling networks.
- Integrate with the European Hydrogen Backbone.

Financial Incentives & Investment Security

- Introduce further CAPEX/OPEX grants, tax incentives and subsidies to reduce investment risk.
- Provide long-term funding schemes to ensure sustainable development and market uptake.
- Support end-users to stimulate demand.

Market Development & Demand Creation

- Promote hydrogen use in hard-to-abate sectors (steel, chemicals, refining, transport).
- Encourage public procurement, fleet transformation, and regional “Hydrogen Valleys”/clusters.

Capacity Building & R&D

- Develop training programs and workforce for hydrogen technologies.
- Support integrated projects linking hydrogen production with real users.
- Promote local manufacturing of electrolysers.

Long-Term Strategic Planning

- Publish long-term plans and/or strategies incorporating hydrogen, electricity and gas sector.
- Ensure domestic production capacity meets national demand.
- Foster cross-border cooperation and regional market integration.

Waste heat policy recommendations

Legal Recognition & Framework

- Recognize waste heat as a usable energy resource.
- Establish comprehensive national laws and regulations for mapping, reporting, and integration.

Mapping & Assessment

- Conduct national/industry-wide surveys to quantify technical and economic potential of waste heat.
- Create databases for sources, temperature, seasonality, and proximity to consumers and district heating networks.

Economic Incentives & Market Support

- Provide grants, subsidies, feed-in tariffs, tax reductions, or fiscal incentives for recovery projects.
- Encourage co-location of industrial waste heat with hydrogen production and district heating.
- Facilitate public-private partnerships to kick-start pilot projects.

Integration with District Heating & Energy Systems

- Promote use of waste heat in district heating networks, renewable-based heating systems and seasonal storage.
- Encourage hybrid solutions combining heat pumps, thermal storage and renewable energy.
- Introduce priority use rules or mandatory recovery where technically feasible.

Monitoring, Reporting & Verification

- Implement standard methodologies to track recovery, efficiency, and emissions savings.
- Establish public registries for industrial and urban waste heat availability.
- Integrate waste heat metrics into national energy plans and climate targets.

EU level recommendations

The EU's evolving renewable energy policies support the energy transition, but renewable hydrogen and waste heat integration need targeted regulations to overcome barriers. EU-level policies play a crucial role in providing guidance, harmonising standards, and creating incentives that enable member states to implement these technologies effectively. The policy recommendations below aim to facilitate a coordinated and efficient European approach to energy system decarbonisation, ensuring that legal and regulatory frameworks are aligned with both short-term (2030) and long-term (2040) EU climate and energy objectives.

	Now	2030	2040
Hydrogen	Harmonize certification standards for green hydrogen	Define a pan-European hydrogen import and transportation strategy	Establish a fully functional pan-European hydrogen pipeline network
		Continuously update realistic hydrogen production targets based on actual projects and production utilization	
	Promote mutual recognition of Guarantees of Origin	Harmonize regulations across EU member states to enable cross-border hydrogen trade	
	Fund pilot projects for a portfolio of business cases transferable to all over Europe, including hydrogen valleys	Build hydrogen production, transport and storage infrastructure	
	Accelerate trans-European hydrogen infrastructure roll-out (Hydrogen Backbone)		
	Facilitate access to EU funds with simplified criteria		
Waste heat	Officially recognize waste heat as a renewable or secondary energy source under RED III and other relevant frameworks	Mandate the integration of waste heat into urban planning and energy infrastructure	Require mandatory waste heat recovery in new industrial installations
	Launch EU-wide awareness campaigns and publish guidelines for best practises in waste heat recovery	Harmonize certification and monitoring systems for waste heat across the EU to enable cross-border use and benchmarking	Integrate waste heat metrics into the EU's energy efficiency and carbon neutrality targets
	Standardise technical criteria and incentives for integrating waste heat into district heating		
	Promote cross-border cooperation for waste heat utilisation		
	Support R&D linking waste heat with hydrogen (SOEC)		
	Fund pilot projects for a portfolio of business cases transferable to all over Europe		

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