



Hydrogen Europe Research

Policy Working Group

19 APRIL 2024

Agenda

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 - Consultation on R&I challenges in energy and mobility
3. Update on EU institutions' activities
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 - European strategy for advanced materials for industrial leadership
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 - Joint Letter from NGOs calling for a robust definition of low-carbon hydrogen
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5. Data & reports

The background of the slide features a soft-focus, light gray image of numerous water droplets and bubbles of various sizes. Some droplets are in sharp focus, showing their spherical shape and reflections, while others are blurred in the foreground and background, creating a sense of depth and movement. The overall aesthetic is clean and fresh.

UPDATE ON HER POLICY ACTIVITIES

Consultation on R&I challenges in energy and mobility

The European Commission launched a [consultation](#), on ‘**R&I challenges and priorities in the areas of clean energy and mobility**’.

- **Aim of the survey:**
 - To gather the views of stakeholders on longer-term R&I challenges and priorities in the areas of clean energy and mobility.
 - Contribute to a reflection paper prepared by independent external experts that will feed into the broader strategic reflections for the next Commission. A reflection paper should be published in the second half of this year.
- **Deadline:** until **21st April**, to be submitted on 19 April afternoon.
- HER will answer to the consultation – draft answer shared via emails and open for comments.

Which approaches and tools should/should not be used in the future to achieve the highest impact on EU policies and R&I challenges in the areas of clean energy and mobility?

- EU Missions – *do you see an added value to the EU missions?*
- Institutionalised Partnerships – *in comparison to other funding tools in the Framework Programme*
- Other Points?

Open questions of the consultation

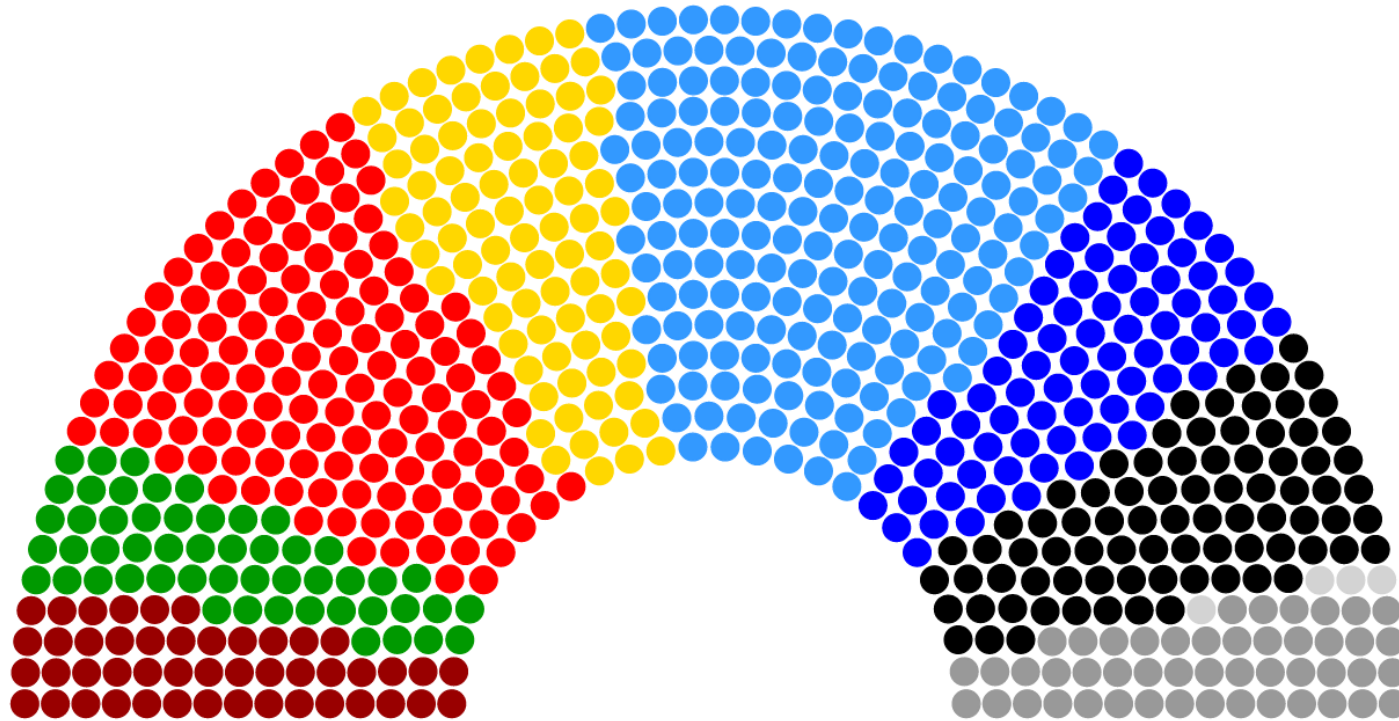
1. What are the **key challenges** for clean energy and/or mobility related research and innovation (in terms of science, technology, society and economy) over the next 10-15 years?
2. In response to those challenges, **what should the priorities** for future clean energy and/or mobility research and innovation be?
3. How can future **EU R&I** provide the most **added-value** to address those challenges/priorities compared to the role of private and other public R&I funding (national, regional) in Europe?
4. Could future EU R&I in clean energy and/or mobility enable/support any **‘game-changing’ advance(s)** (e.g. breakthrough idea/innovation, systemic change, change in research policy, etc.) to transform the EU into a sustainable, fair, resource-efficient and competitive economy by 2050?

The background of the slide features a soft-focus, monochromatic image of water droplets and bubbles. The droplets vary in size and are scattered across the frame, with some in sharp focus and others blurred. The overall color palette is light and airy, with shades of white, light grey, and pale blue. The text is centered horizontally and positioned in the middle of the frame.

UPDATE ON EU INSTITUTIONS' ACTIVITIES

European elections – projections

2019 election **March 2024 Projection**



European Parliament Group

● The Left group in the European Parliament - GUE/NGL (LEFT)	41	47	↑ 6
● Group of the Greens/European Free Alliance (Greens/EFA)	74	52	↓ 22
● Group of the Progressive Alliance of Socialists and Democrats in the European Parliament (S&D)	154	135	↓ 19
● Renew Europe Group (RE)	108	87	↓ 21
● Group of the European People's Party (Christian Democrats) (EPP)	182	184	↑ 2
● European Conservatives and Reformists Group (ECR)	62	81	↑ 19
● Identity and Democracy Group (ID)	73	82	↑ 9
● Unaffiliated parties	0	4	↑ 4
● Non-Inscrits (NI)	57	48	↓ 9

2019 election	March 2024 Projection	Change
41	47	↑ 6
74	52	↓ 22
154	135	↓ 19
108	87	↓ 21
182	184	↑ 2
62	81	↑ 19
73	82	↑ 9
0	4	↑ 4
57	48	↓ 9

The Eurobarometer survey shows **growing interest in European elections**

- 81% of Europeans believe that voting in the European elections is becoming more important,
- 71% say they are likely to go to the polls.

Survey published in April, last one before the European elections.

6-9 June 2024

Source: <https://europeelects.eu/ep2024/>

European strategy for advanced materials for industrial leadership

On 27 February, the Commission adopted a [communication](#) on advanced materials for European industrial leadership. It is a working basis for future guidelines – not a legislative process at this stage.

- **Goals:** “to strengthen the EU’s long-term competitiveness” and strategic autonomy by ensuring that “the Union remains at the forefront of new material technologies, supporting development, testing and deployment capacities”.
- **Challenges identified:**
 - Fragmentation of R&I ecosystem
 - Private investments not commensurate to increasing needs
 - A lack of progress in circularity and material efficiency
 - Long innovation processes and an insufficient level of digitalization
 - Disconnect between innovative research and uptake in industrial applications and processes
 - A lack of testing and experimentation facilities
 - Need for harmonised standards
 - A lack of skills

European strategy for advanced materials for industrial leadership

5 Pillars to address these challenges:

- i. European R&I on advanced materials
 - Draw up a set of common objectives and **priorities** for advanced materials R&I,
 - Identify additional R&I needs for the substitution of Critical Raw Materials with advanced materials
- ii. Fast track from lab to fab;
 - Create a European digital infrastructure for advanced materials R&I – possible launch of a Digital Infrastructure Consortium
 - Help innovators get access to the infrastructure, possible additional OITBs where there are gaps.
- iii. increasing capital investment and access to financing;
 - Set up a **new partnership with industry under Horizon Europe, €500 million of investment for 2025-2027**, at least 50% private.
 - Use of other funds.

Table 1 Preliminary R&I priorities for strategic areas, see annex for more details.

Strategic area	Advanced materials R&I priorities
Energy	Materials needed for conversion and generation of renewable and low carbon energy, energy storage and increased energy efficiency
Mobility	Materials for energy storage and use, robust, lightweight materials for transport means and assets, protection and durability, circularity and environmental performance, ability to perform in harsh environments
Construction	Materials for more energy efficient buildings, more robust building structures and structural integrity monitoring, enhanced wellbeing in buildings, materials increasing circularity and improved environmental performance
Electronics	Materials for improved performance and new functionalities of electronic components, sensors, novel computing concepts, chips production, greater efficiency in the next generation of communication technologies and ability to perform in harsh environments

European strategy for advanced materials for industrial leadership

5 Pillars to address these challenges:

- iv. fostering the production and use of advanced materials;
 - Stimulate public demand;
 - Setting standards; Analyse patent landscape by 2025;
 - **Launch call with EIT to accelerate the development of curricula and credentials for skills in the sector**
- v. the overall governance framework
 - Set up a **Technology Council** responsible for advising the Commission on the steering of this initiative – Member States, Horizon Europe associated countries & industry.

On 2 April, the **EU and Japan** announced the **launch of an enhanced dialogue on advanced materials**. It should provide a platform for the exchange of knowledge and information, particularly on policy developments in this area; and provide an opportunity to explore avenues for collaborative research on these subjects.

German auctions via the Hydrogen Bank

On 5 April, the European Commission gave the green light to a German State aid scheme with a budget of **€350 million** to support the **production of up to 75,000 tonnes of ‘renewable’ hydrogen** using up to **90 MW of electrolysis capacity**.

Projects will be supported via an “*Auctions-as-a-service*” system run by the European Hydrogen Bank. The tender process closed on 8 February and is being managed by CINEA.

The selected beneficiaries will be paid in the form of direct subsidy per kg of renewable hydrogen produced, for a maximum period of 10 years.

- The Commission has officially announced the [Higher Education Package](#) (HEP), a new scheme under which **voluntary partner universities can set up joint degree programmes** at Bachelor, Master, or Doctoral levels.
 - The degree will be based on a **common set of criteria agreed upon at European level** (formulated in the [annex II in the recommendation](#)).
 - The degree will be **automatically recognised everywhere in the EU**.
 - **No budget** is allocated to it.
- According to the Commission, the package aims to **facilitate education mobility** by removing the bureaucratic obstacles that students often face when they want additional education in other EU member states—e.g., credit recognition.

European university degree

Two tracks are available for universities that want to enable the European Degree in their country

1. **Preparatory European label certificate** for graduates from joint degree programmes that meet the European criteria;
2. **Full European degree** awarded by several European universities at once or by a European legal entity.

Initiatives to implement the proposal include a European degree policy lab, an annual European degree forum, and new Erasmus+ support for European degree Pathway Projects – as well as legal and system-level reforms on recognition of degrees and quality assurance systems.

The proposal is accompanied by a proposal for a Council Recommendations on a European recognition and quality assurance system.

Clean Transition Dialogue – follow up

9 Clean Energy dialogues took place over the past months between the Commission and various industry players. The Commission presented a report on these dialogues, and made several proposals in a [Communication](#):

- **Continue the dialogue via a more structured form** including them in a special platform to ensure ongoing interaction over the implementation of the Green Deal (track key indicators, identify obstacles).
- Suggest extending the principle of the EU energy platform to **aggregate the demand** for gas and make joint purchases of **hydrogen**, and **critical raw materials** such as lithium and cobalt.
- Call for **public procurement** to be transformed “*to ensure that companies with a low carbon footprint and sustainable business activity, and which treat their employees well, are rewarded for their actions and not punished by public procurement procedures that are always on the hunt for the cheapest alternative, far away from the EU*”.

Joint Letter from NGOs calling for a robust definition of low-carbon hydrogen

- In December 2023, the Gas Package set clear building blocks to define low-carbon hydrogen, to be further defined in a "delegated act " after consultation with stakeholders (article 8 of the Hydrogen and Decarbonised Gas Market Directive)
- Publication of a [joint letter](#) on 2 April 2024 sent to the European Commission calling for:
 - Defining the main hydrogen production pathways (grid, nuclear, fossil, H2 noncompliant with RFNBOs DA)
 - Full lifecycle climate warming emissions assessment based on real world data (in order to fit the minimum 70% emissions reduction compared to the fossil fuel comparator established in the Directive)
 - Setting minimum carbon capture and storage (CCS) rate and maximum methane leakage rate – rates should be updates overtime
 - Accurate and transparent emissions monitoring and verification system by an independent third-party
 - Introducing a “non additionality” clause (gas CCS)
 - Prohibit carbon offsetting



The background of the slide is a light gray color with a pattern of water droplets and bubbles of various sizes. Some droplets are in sharp focus, while others are blurred, creating a sense of depth. The droplets are translucent and have highlights on their surfaces, suggesting they are made of water.

OPPORTUNITIES

Funding Opportunities

- **Call for projects** under the CEF, for **Alternative Fuels Infrastructure Facility** – support the deployment of alternative fuels supply infrastructure for road, maritime, inland waterway and air transport along the trans-European transport network (TEN-T). – **Deadline: 24 September.**
- **Call for projects** **LIFE Clean Energy Transition** – close to market to support bottom-up actions by key actors of the EU energy transition (60% cofinancing). – **Deadline: 19 September.**
- **Forthcoming** – 30 April – call for projects from the CEF on **Electricity, Gas, Smart Grids, Hydrogen and CO2 networks** in order to support the implementation of PCI and PMIs– **Studies** and **Works** (as separate calls). – **Deadline: 22 October.**
- **Forthcoming** – 17 September – **call for projects** under Horizon Europe on the **Development of next generation synthetic renewable fuel technologies** – **Deadline: 21 January 2025.**
- **South Korea will become an associated partner to Horizon Europe** (expected deal to be signed in the second half of 2024).

Feedback Opportunities

Feedback opportunity for Horizon Europe work programme 2025.

Opportunity to provide input for the development of the Horizon Europe ‘main’ work programme 2025. Responses submitted through the survey will contribute to the co-design of the work programme 2025, covering all 6 clusters, research infrastructures, European innovation ecosystems, the 5 EU Missions and the New European Bauhaus facility.

Deadline: 6 May at midday CET

[Have a look!](#)

Applications received for the Innovation Fund

The Commission has received **337 applications** for new projects under the **Innovation Fund 2023**, devoted to net-zero technologies. Projects awarded will be funded via the EU ETS (€4 billion)

The applications received are split as follow:

- 204 applications for energy-intensive industries
- 64 applications for including carbon capture, utilisation and storage, renewable energy
- 35 applications for energy storage
- 34 applications for mobility, including maritime, air and road transport.

The review of applications is ongoing.



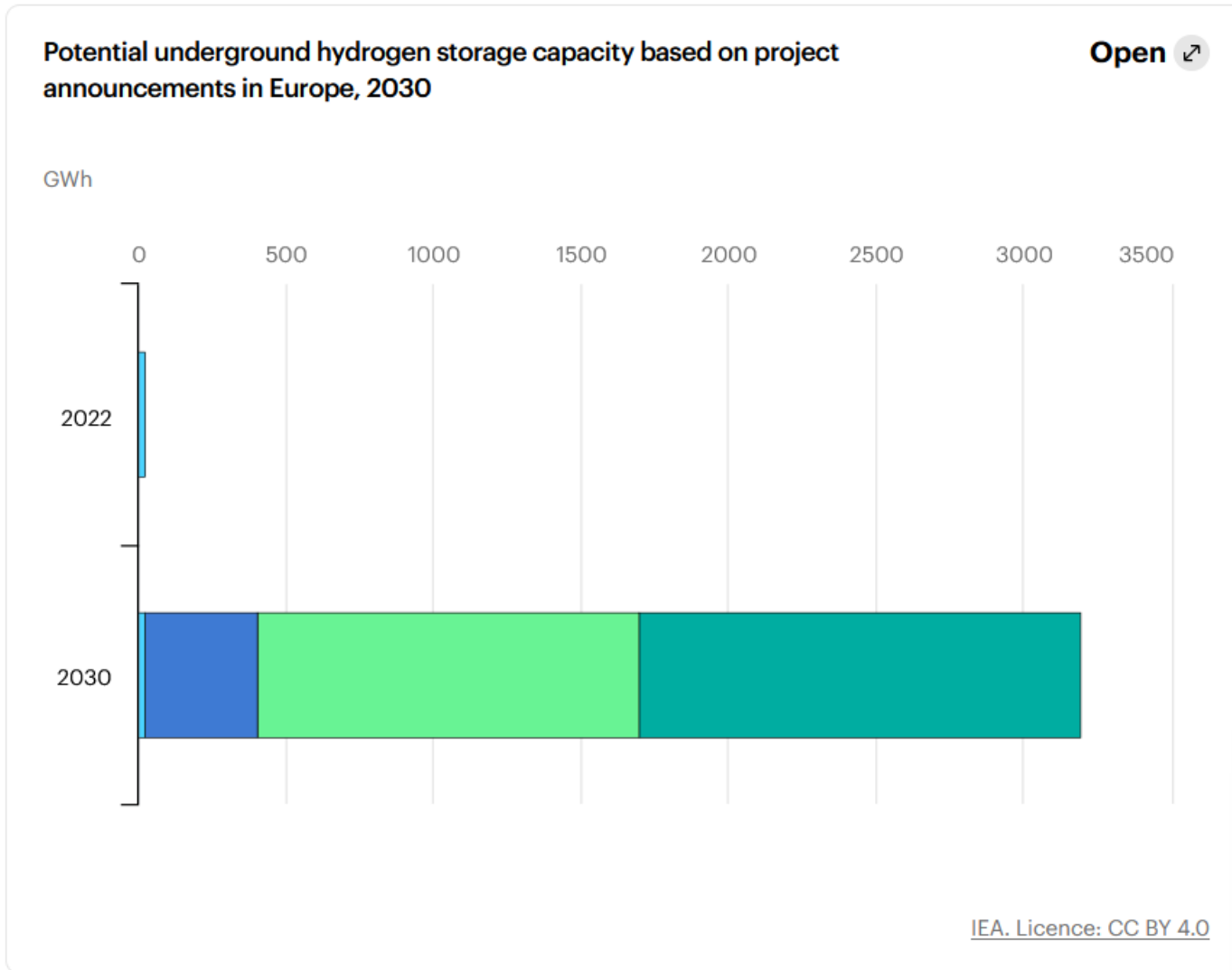
REPORTS & DATA

The IEA published the second edition of the [North West Hydrogen Monitor](#).

Key points:

- Western Europe accounts for around half of total hydrogen demand in Europe
- The region has the **potential to produce 7 Mt of H₂ per year by 2030**. However, **less than 4% of planned projects are operational, underway or have been the subject of a final investment decision**, which puts them behind the United States (14% at this stage) and China (more than 50%).
- Uncertainties such as market changes and cost fluctuations persist, and greater efforts are deemed necessary to make the price of low-carbon hydrogen competitive with hydrogen produced from fossil fuels.
- The report considers different aspects including trade flows, planned hydrogen pipelines, underground storage, the levelized cost of hydrogen via selected technologies, demand

North West European Hydrogen Monitor 2024



Northwest Europe could develop over 3 terawatt-hours (TWh) of hydrogen storage capacity by 2030. However, just 10% of the expected capacity by 2030 has reached FID and/or is under construction.

JRC Report on Early stage technologies in the field of Energy

The [report](#) was published as part of the **Clean Energy Technology Observatory** (CTO) of the Joint Research Center.

It is looking at **77 emerging technologies** related to Energy that have been detected using text mining. It includes a concise analysis outlining the involvement of public and private entities, the patenting activity, and the performance of major economies (including the EU) in these emerging technologies.

Weak signals related to Batteries	Weak signals related to Energy Storage	Renewable Fuels
Weak signals related to Biomass	Weak signals related to Geothermal	Weak signals related to Smart Grid
Weak signals related to Carbon Capture, Utilisation and Storage	Weak signals related to Ocean Energy	Weak signals related to Solar Fuels
Weak signals related to District Heating	Weak signals related to Photovoltaics	Weak signals related to Wind Energy
	Weak signals related to	Miscellaneous weak signals

Drop in GHG emissions under the ETS

Data provided by Member States on 2 April, showed a **15.5% drop in GHG emissions** under the EU's Emissions Trading System (ETS) compared to 2022.

- Most significant progress since the ETS was launched in 2005: emissions are now around 47% lower than 2005 levels, falling in line with the target of cutting 62% of emissions by 2030 (set in 2023).
- The **power sector** played a key role in this reduction, posting a **24% drop in emissions thanks to an increase in the production of renewable energy.**
- An approximately **7% decrease** in emissions was observed in the **industrial sector** thanks to efficiency gains and reduced output, specifically in the cement, iron, and steel sectors.
- **Emissions from the aviation sector rose 10%**, reflecting a rebound in activity following the impact of the Covid-19 pandemic.

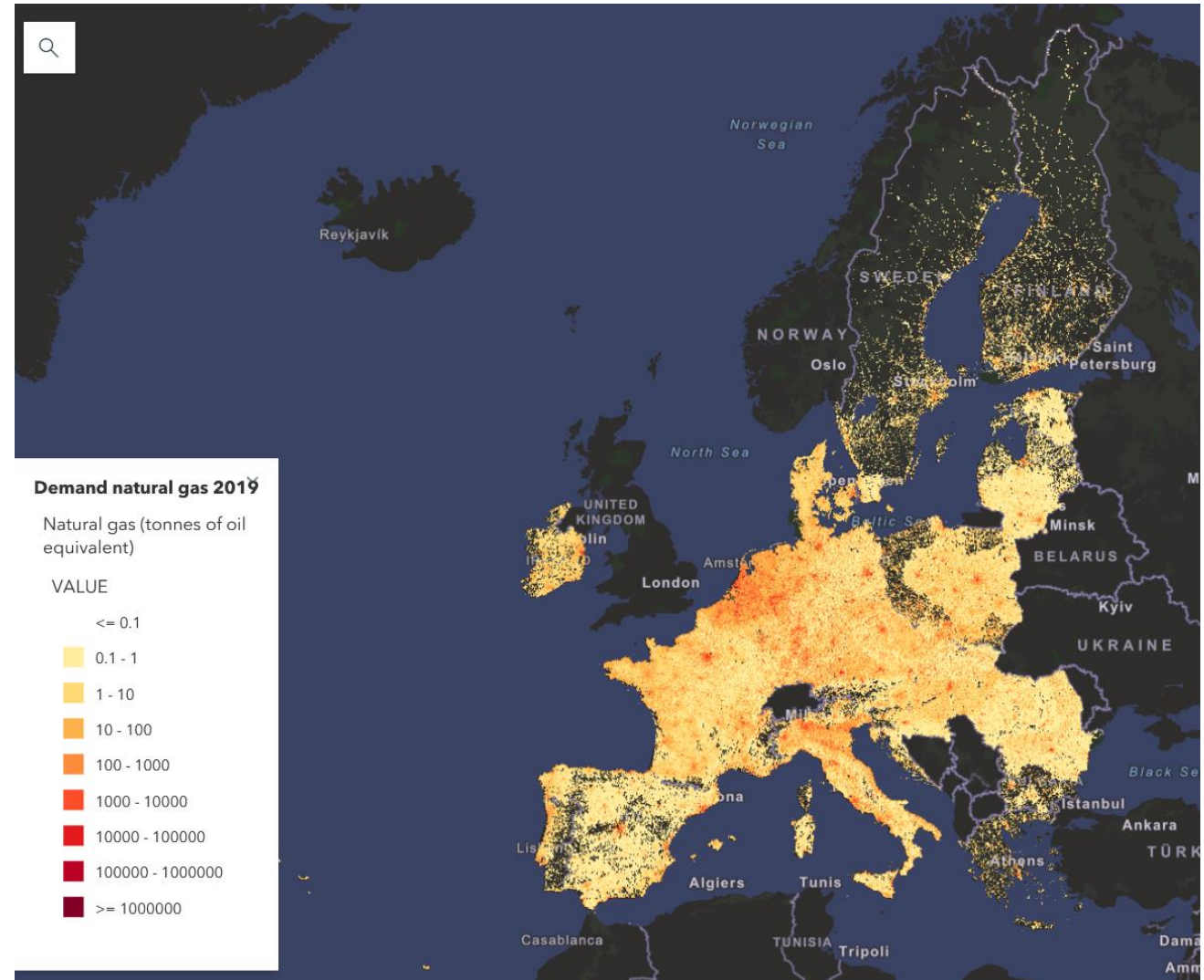
Publication of a detailed atlas of energy consumption in the EU

A high-resolution European energy atlas providing detailed data on energy demand to help policy-makers and planners with the energy transition. The atlas can be used to enlarge images of geographical areas up to 1x1 km.

Source: Eurostat’s national energy balances

It provides an overview of **how energy was consumed in 2019 throughout the EU and future scenarios up to 2050**, facilitating the development of energy infrastructures adapted to increased electrification and low-carbon energy use.

Available at: <https://energy-industry-geolab.jrc.ec.europa.eu/energy-atlas/>



THANK YOU!



**Hydrogen Europe
Research**

**Avenue Marnix 23
1000 Brussels, Belgium**

Next meeting: 7 June

<https://hydrogeneuroperesearch.eu/>