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Climate diplomacy An island nation's message

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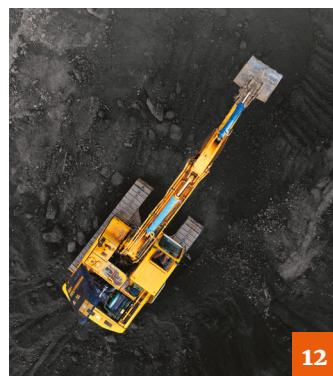


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Mourning king coal

By **Ed Wiseman**, *EEI* magazine

Ratcliffe-on-Soar was an unremarkable power station. Built in the Sixties near Nottingham, England, Ratcliffe's four 500MW units dutifully generated electricity for surrounding homes and businesses until around 2020, by which point it had been earmarked for closure and a plan made for its decommissioning. It continued to operate until 30 September this year, when its remaining boiler used the last of its coal, its turbine hall fell silent, and a final wisp of vapour climbed from its chimneys into a grey, wet sky.

On paper, there is nothing newsworthy about this carefully planned, long-awaited technical process taking place; like the last whale oil lamp spluttering out, or the quiet closure of MSN Messenger, this technological milestone could simply have happened, and then been lost to time. But humans have a certain affinity for grand old machines, which is why the scheduled desynchronisation of a previously obscure turbo-generator from the national grid was both celebrated and, to a lesser extent, mourned.

Workers at the plant shared an emotional farewell to the sprawling, grey-green facility that they will now be employed to decommission. On social networks, touching tributes were left to the objectively rather grotty site, which looms above the Nottinghamshire countryside like the Eye of Sauron, and which in 2023 alone belched out some 2.7MT of CO₂e. The locomotive that pulled the plant's final coal delivery – of just 1,650 tonnes – was renamed 'Ratcliffe Power Station'. Anybody with enough awareness of the event to feel cheered by long-awaited coal switch-off seemed to feel some additional, bittersweet emotions about this great machine powering down for the final time.

William Turner's 1838 painting *The Fighting Temeraire* depicts a once-mighty naval sailship being unceremoniously towed to the breaker's yard by a steam tug. It's a moving piece, and so integral to the soppy psychology

of British people that we put it on some of our banknotes. But it's also a reminder that the engineering revolution of Turner's day never really stopped, and that we can all expect to witness multiple technological shifts within our lifetime – each leaving countless *Temeraires* in its wake.

New-look *EEI*

Elsewhere on the sentimentality spectrum, the *European Energy Innovation* team worked hard over the summer to redesign our magazine, retiring the old layout (right) that had served us well since 2010. *EEI* will continue to deliver unique analysis from energy leaders, must-read insights from policymakers, and the latest findings from across Europe's scientific community. It will also offer news, original reporting and industry interviews, thanks to an expanded editorial team and new back-of-house appointments.

Crucially, *EEI* is expanding its print circulation for the first time since the beginning of the pandemic. In addition to the digital version, which will always be free to access on our website, *EEI* will return to large-scale paper distribution, by arrangement to individuals and free at selected events, libraries and institutions across Europe. The new website is currently under construction and will launch in the first quarter of 2025.

In this issue, Finnish MEP Aura Salla has written a compelling argument for implementing existing regulations, rather than creating new ones. Ian Borg, Malta's foreign minister and Chair-in-Office of the OSCE, has written about the importance of climate diplomacy in a time of geopolitical turmoil. Pierre-Yves Gibello of OW2 discusses the value of open source investment. And *EEI* journalist Elizabeth Meager writes about the complexities of the Energy Charter Treaty and what comes next.

The *EEI* team is proud of the new-look magazine and excited to continue working with Europe's energy leaders in 2025 and beyond. ■



European Energy Innovation

is written *by and for* the leaders of Europe's green transition. Senior politicians, policymakers, researchers and heads of industry contribute to this unique magazine, which will always be free to read.

Cutting the red tape

Europe must focus on effectively implementing regulations, rather than creating new ones.



By Aura Salla, MEP

Europe stands at a pivotal moment in its quest for a net-zero single energy market. In her strategic vision for a second term, presented in July, European Commission President Ursula von der Leyen emphasized the pressing need for climate action and the rapid transition to renewable energy – and now, with the stakes higher than ever, the EU and its member states must pivot from legislative overreach to the effective implementation of well-crafted policies.

Europe's energy transformation depends not on more regulations, but on their practical, coordinated application. If we fail to address climate change, very little else will matter.

The foundation for a sustainable future

The cornerstone of a prosperous Europe is stable, renewable, and clean energy. This foundation is crucial for maintaining Europe's competitiveness, which depends on a well-functioning electricity market, robust energy infrastructure, and a clean economy.

The European Climate Law, also known as the Fit for 55 package, was a monumental effort aimed at reducing greenhouse gas emissions by at least 55 percent by 2030. Alongside initiatives like the European Green Deal, the energy crisis response tool RePowerEU, and the Commission's proposal to cut emissions by 90 percent by 2040, we

have laid a solid – albeit overly detailed – foundation for a sustainable future.

Over the past five years, significant legislative progress has been made to establish a regulatory framework guiding Europe's energy sector toward becoming a net-zero industry. A major milestone was reached when, for the first time, 50 percent of electricity generation in the EU came from renewables in the first half of 2024. Additionally, the EU's dependence on Russian gas has decreased from 45 percent to 15 percent of total gas imports, while solar and wind capacity has increased by 36 percent – and the EU's energy consumption in 2023 was reduced by 18 percent compared to 2021.

These numbers aren't just statistics; they are proof that when action meets intention, real progress is possible.

However, successfully transitioning to a net-zero single energy market requires new strategies during the execution phase, focusing on implementation rather than additional regulation. More laws won't power our homes; effective action will.

From law drafting to implementation

Member states and the European energy industry must act decisively but, to be honest, still require time to implement the new legal frameworks.

The European Commission, on the other hand, must assess their impact across Europe. Piling on more legislation offers little value; the EU's climate targets will not be met through micromanagement and overregulation of what should soon be a zero-emission single energy market. This approach risks stifling the European energy industry, even though a strong framework is essential.

In the coming years, the focus must be on effective implementation and avoiding the pitfalls of bureaucratic overreach. Let's swap paperwork for progress and red tape for real results. Europe's path to a sustainable future hinges not just on bold legislative initiatives, but on the practical, efficient, and coordinated application of these policies across the continent. By empowering industries, simplifying processes, and fostering



“We don’t need new tools – we need to sharpen the ones we already have”

innovation, we can ensure that Europe remains at the forefront of the global clean energy transition. The proposed Clean Industrial Deal should be a step in this direction.

Learning from the North: Finland’s approach to energy resilience

EU member states have valuable insights to share with one another when it comes to effectively balancing regulation with innovation. For example, Finland – a country with challenging winters and vast distances – has developed a market-based, competitive, and resilient energy production framework. This includes extensive local district heating networks powered by renewable combined heat and power (CHP), electric boilers, waste heat recovery, and, in the future, small nuclear reactors.

Electricity is generated from a range of sources, including nuclear power, wind, solar, hydroelectric power, and renewable CHP production. Finnish electricity grid companies have also made systematic investments in transmission networks and robust regional distribution grids. The use of fossil fuels is rapidly decreasing as Finland’s energy production aims to be carbon-neutral by 2035.

Finland’s diversified approach to energy production and consumption has proven valuable in times of crisis, such

as during Russia’s fossil fuel blackmail amid the unlawful attack and war on Ukraine. In more stable times, it has provided Finnish consumers, industries, and businesses with reliable and cost-effective energy solutions, offering a competitive advantage.

The price of electricity in July 2024 was lower in Finland than anywhere else in Europe – just 1.7 cents per kilowatt-hour, excluding taxes and service fees. In parts of Sweden, electricity was even cheaper, except in the southernmost region of the country. Affordable, reliable, and clean energy isn’t a fantasy with the right solutions.

Finland’s experience suggests that a varied energy portfolio not only enhances energy security but also ensures a stable and reliable supply, even in the face of external shocks. In our collective effort to build a sustainable and competitive European single energy market, it may be worthwhile to consider how market-based approaches, as demonstrated in Finland and the Nordics, can help identify and develop effective technological solutions for clean energy production.

Markets, when empowered, can be the strongest allies in the fight against climate change. By allowing market forces to operate freely within a clear and stable regulatory environment, we can encourage the emergence of cost-effective technologies to meet our climate goals. Overregulation or excessive state intervention, however, could hinder this innovation, leading to less-than-ideal outcomes. It’s important to recognize that one size does not fit all, even within Europe.

Back to fair competition

If the European Union is to introduce a new Clean Industrial Deal, as suggested by Commission President von der Leyen, it must be carefully designed to reduce red tape and micromanagement while optimizing the use of existing, rather than new, EU funding instruments. We don’t need new tools; we need to sharpen the ones we already have.

Existing EU funds should be made accessible and effectively targeted to support the clean industrial transition and aid citizens where required. National aid for energy production and related investments should be limited or, where possible, eliminated to prevent market distortions.

This approach will encourage fair competition, drive innovation, and ensure that investments flow to where they can be most efficiently and effectively utilized. Fair play in the energy market fuels innovation and propels us all forward. By leveraging existing resources and fostering a level playing field, we can promote a competitive, sustainable, and innovation-driven energy market across Europe.

This is particularly important as the European Union competes for leading positions in the global hydrogen industry. Europe’s energy future isn’t just local – it’s global, and we must compete accordingly. We need to look beyond national borders within the EU and focus on succeeding in competition on the global playing field.

Toward a market-based carbon pricing system

To ensure that the European Union





“More laws won’t power our homes, but effective action will”

secures the necessary funds to drive the clean energy transition and meet its broader environmental goals, we must consider sustainable and equitable funding mechanisms. Increasing the EU’s own resources should be achieved through pollution taxes, the Carbon Border Adjustment Mechanism (CBAM), and the EU Emissions Trading System (ETS). By placing a true cost on carbon, sustainability transitions from a choice to a necessity.

However, the effectiveness of the ETS is compromised by the continued allocation of free allowances. These allowances create market distortions and diminish the incentive for companies to invest in low-emission technologies. It is crucial to eventually phase out these free allowances.

According to the current plan within the “Fit for 55” package, this phase-out would be completed by 2034. The EU must shift to a fully market-based carbon pricing system, as it is the most efficient way to channel investments toward cleaner solutions. Such a system would also promote fair competition, requiring all market participants to pay for their emissions at market rates. Market-driven carbon pricing must be a cornerstone of climate policy.

The CBAM, set to take effect in 2026, and the ETS should be viewed as distinct but complementary mechanisms. The ETS regulates emissions within the EU, while CBAM prevents carbon leakage

by imposing carbon costs on imports, particularly in energy-intensive sectors. Together, these systems can close the gaps where carbon emissions escape accountability.

There is also the risk that carbon tariffs could be perceived as protectionist, potentially leading to retaliatory measures. Smart climate policy must balance ambition with pragmatism, avoiding unintended economic consequences. Therefore, while the EU should continue to strengthen its carbon pricing systems, it should also advocate for the development of an international carbon pricing mechanism aligned with global climate goals. Climate change knows no borders; our solutions should not either. Admittedly, this is a tall order.

The decision to phase out free allowances under the “Fit for 55” package is aligned with a 55 percent emissions reduction target. However, with the European Commission now proposing a more ambitious 90 percent reduction target by 2040, I recommend that the timeline for phasing out free allowances under the ETS be re-evaluated. A thorough assessment should be conducted to determine whether the current timeline is still realistic and whether the combined impact of the ETS and CBAM on carbon pricing is sufficient to achieve the desired emissions reductions. This evaluation will enable the EU

and member states to make informed decisions on the necessary measures to reach the proposed ambitious reduction target.

The reduction and eventual elimination of free allowances necessitate a gradual approach and a clear timeline, providing industry, businesses, and consumers sufficient time to adapt. This may also include leveraging existing EU support mechanisms to ensure just transition to the net-zero single energy market.

Conclusion

Europe’s path to a competitive and sustainable future is intricately tied to its clean energy transition. This journey requires not just ambitious legislative frameworks but also the practical, coordinated implementation of these policies. Laws set the stage, but actions steal the show. Trusting in market mechanisms, reducing overregulation, and ensuring a fair and just transition will be crucial in maintaining Europe’s position as a global leader in clean energy. By learning from successful models like Finland’s diversified energy strategy and by fostering fair competition across the EU, we can achieve a resilient and prosperous energy future for all Europeans.

A prosperous and competitive Europe isn’t defined by regulations alone – it is forged through decisive, coordinated action today. ■

Malta's investment in climate diplomacy

An island nation on the forefront of the climate crisis calls for multidisciplinary and cooperation.



By **Ian Borg**, Minister for Foreign and European Affairs and Trade of Malta, and Chair-in-Office of the Organisation for Security and Co-operation in Europe (OSCE)

Malta is no newcomer to multilateral conversations about climate change. This Mediterranean archipelago is among those most exposed to the impacts of climate change, including rising sea levels, desertification, and soaring temperatures. A high level of exposure, coupled with its multilateralist vision of foreign policy, has shaped its commitment to climate diplomacy for many decades.

As early as 1988, Malta tabled the subject of climate change at the United Nations General Assembly as a 'common concern for mankind'. Acknowledging the critical challenge facing humanity in the years to come, as well as the strong collaborative global efforts required to overcome it, Malta has since maintained this momentum.

This year, both as an elected member of the United Nations Security Council

and as the Chair of the Organisation for Security and Cooperation in Europe (OSCE), it has remained committed to highlighting the linkages between climate and security.

Leveraging its unique perspective and role in the multilateral scene, Malta has notably chosen to make climate change a foremost priority of its 2024 OSCE Chairpersonship. In this spirit, on 21st June, Malta launched its new climate initiative: 'Climate Diplomacy: Empowerment for a Resilient Future'. The launch took place at the High-Level Conference on Climate Change hosted by Malta as OSCE Chair, where OSCE leaders convened to assess the security implications of the climate crisis for the OSCE area, which covers North America, Europe, and Central Asia.

This Malta-led initiative will consist of an annual 3-Day Technical Workshop for one or two participants per OSCE



“While conflict tops the international agenda, the threat posed by climate change persists”

Dialogue and cooperation

Malta's awareness of the scale of dialogue and cooperation required among states with different perspectives and capacities points to further gaps and needs that the initiative seeks to address. This is especially evident in its particular focus on developing countries and on support for the transfer of knowledge not merely across disciplines but also across states. In this regard, the initiative dovetails with Malta's broader commitment to multilateralism and dialogue. These values emerged as the main pillars of climate negotiations and implementation at the OSCE High-Level Climate Conference hosted by the Maltese Chairpersonship in June.

A multistakeholder approach

Malta's engagement with the topic of climate change in its role as OSCE Chair has also drawn attention to the need for a multistakeholder approach. The manifold implications of climate change for diverse facets of human society make the involvement of various stakeholders in the policymaking process a strategic imperative. The inclusion and integration of wide and diverse societal considerations can take place at different stages of this process, including through awareness-raising campaigns, the development of technological solutions, the execution of scientific research, and economic analysis and policy design itself.

This climate diplomacy initiative was therefore developed with the awareness that public policy requires the involvement of non-State actors, including those from the private sector, academia, and civil society, in order to be adequate and effective. Building upon applicable multilateral agreements in force and ongoing developments at the United Nations Framework Convention on Climate Change (UNFCCC) negotiations, the training course will equip participants from

participating State or partner state, with the possibility of regionally focused sessions in other OSCE participating States. The initiative envisages broad geographic representation, with participants from the 57 OSCE participating States and 11 Partners for Co-operation, ensuring wide geographic representation from across the OSCE region, particularly South East Europe, Central Asia, and the Mediterranean.

Multidisciplinarity

The need for multidisciplinarity is among the main drivers of this initiative. The extent and variety of climate change impacts are as vast as the range of actions and policy work strands required to face them. Effective solutions require technical expertise in a variety of fields, including scientific research, technological innovation, economic analysis, as well as policy and public sector expertise.

The broad spectrum of knowledge and abilities required to identify solution-oriented actions and secure

their implementation stands in contrast to the strong tendency towards the formation of silos between disciplines and the separation between groups of professionals. Such tendencies undermine coherence and effectiveness across different channels of action and erode nexuses across related fields, as evidenced by difficulties encountered in addressing the ocean-climate-biodiversity nexus.

Malta's initiative, therefore, aims to address the communication, knowledge, and skills gaps associated with climate change. It does so by bringing together young professionals working within the public sector and officials from international organizations whose jobs may be directly or indirectly linked with climate change. The diversity of professional backgrounds extends to diplomatic and technical personnel, intentionally reflecting the project's multidisciplinary approach and providing a conduit for a tangible contribution to climate action.

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“This archipelago is among those most exposed to the impacts of climate change, including rising sea levels”

public administrations and international organizations with the skills and contacts needed to tackle climate change using a multistakeholder approach. It will aim to develop and transfer specific tools and skills that empower participants to facilitate communication and coordination with the private sector, academia, and civil society through all avenues of climate action.

Workshops will aim to facilitate the adoption of a cross-sectoral approach by participants in their everyday work by building networks and ensuring inclusivity. They will provide participants with the broader context and a clearer picture of multistakeholder interactions in the context of climate action and multilateralism, along with different thematic links.

Mainstreaming and empowerment

Malta's efforts at the helm of the OSCE have also been characterised by a commitment to mainstreaming gender and youth across work strands and different dimensions of security. Mainstreaming has repeatedly been underscored by participating States

as a source of inclusion, innovation, responsiveness, and durability. The integration and consistent implementation of gender and youth perspectives has been recognised as key to future engagement and as a contributing factor to enhanced security and resilience.

The far-reaching vision and capacity-building potential of this climate diplomacy initiative lie in its empowerment of diverse young professionals from across the OSCE. Capacity-building workshops for these young professionals will be an investment in the ability of the future workforce of beneficiary countries to address future needs. Workshops will address skills gaps among participants while also building contacts that will serve them well throughout their careers. Empowerment is key to building a resilient future as we strive to equip young professionals with the tools they will need to take action for years to come.

Looking forward

Malta holds the Chairpersonship of the OSCE at a time of violence and

upheaval. While conflict increasingly tops the international agenda and takes precedence in multilateral discussions, the threat posed by climate change persists regardless of the exigencies of power politics.

Climate change is now not merely a backdrop for conflict – it increasingly contributes to it by exacerbating existing tensions and creating new vulnerabilities.

Allowing discord and self-interest to set the tone of our foreign policy – and by extension of our endeavours for a just transition and for increased climate resilience – will only serve to set us back on the journey toward safe and just societies. Progress in this field hinges on our ability to embrace collaborative multilateralism as a cornerstone of the capacity-building efforts that are needed to address needs and threats that become more acute as time goes by.

True to Malta's multilateralist ethos, this Climate Diplomacy initiative will foster knowledge, cooperation, and dialogue. In doing so, it will generate 'Empowerment for a Resilient Future'. ■

Beyond the Energy Charter Treaty: **job half done?**

Prominent signatories are disentangling themselves from the ECT, but there is lots more work to be done.



Image: Shutterstock



By EEI journalist
Elizabeth Meager

“The 20-year sunset clause of the ECT is jaw-dropping – one of the longest in all investment treaties”

When the Energy Charter Treaty (ECT) was first signed in 1994, ambition was high: the end of the Cold War offered a unique opportunity to bridge the long-standing economic divides between the east and the west. The ultimate goal was both to facilitate and protect energy investments in the newly independent ex-Soviet states, and the treaty has remained largely unchanged – despite some signatories’ best efforts – since then.

Its major point of contention is the investor-state dispute settlement (ISDS) mechanism, which allows private-sector investors to sue governments for changes in energy policy that may negatively affect their investments. As national governments – particularly in the EU – pivot towards climate action, cases have surged both in volume and size, with fossil fuel investors reaping the biggest rewards: according to Global ISDS Tracker, **\$80.1bn** has been awarded to investors in these assets since 1998, when the ECT entered into force.

The agreement has come under fire for disproportionately shielding fossil fuel investments and obstructing progressive environmental policies. New Zealand climate minister James Shaw **admitted** as much in 2022, saying that his government was unable to join a COP26 initiative to shift away from oil and gas because “it would have run afoul of investor-state settlements”.

Campaigners also take issue with the way it circumvents public courts – where judges tend to consider national interest in their rulings – in favour of opaque arbitration venues, and compromises governments’ climate diplomacy efforts elsewhere.

Heavily exposed

A 2022 study published in Science Adviser magazine found that countries worldwide could face up to \$340bn in legal and financial risks for cancelling fossil fuel projects because of their exposure to treaties with ISDS clauses. As the authors pointed out, that “means that money countries might otherwise spend to build a low-carbon future could instead go to the very industries that have been knowingly fuelling climate change”.

“It’s good practice to honour a previous commitment, but at the same time it should not be possible for a company to challenge a government for a regulation that is so clearly in the public interest,” says Martin Dietrich Brauch, senior researcher at Columbia

Law School in New York. “We would not say an asbestos company is entitled to compensation for a ban on asbestos when it’s evidently bad for human health. And I do not see a difference between that type of regulation and climate regulation.”

While the UK has not yet been sued under the ECT, it protects more emissions than any other country, with around €140bn of fossil fuel assets covered – most of which is North Sea oil and gas. Civil society focused its efforts accordingly, and following years of campaigning pressure on governments, the UK announced its intention to leave in February 2024.

This was followed by the EU in June, with European Green Deal executive vice-president Frans Timmermans saying that the “outdated” treaty “is not aligned with our EU climate law and our commitments under the Paris Agreement”.

The failed reform

Before the UK and EU’s exit, there were attempts at reform. The result was a draft text negotiated among ECT members across 15 rounds between 2020 and 2022. While EU countries pushed for reforms that would exclude fossil fuel investments from the treaty’s protections, others resisted out of concerns over investor confidence.

It was not entirely harmonious within the bloc either: Cyprus, Greece, Hungary and Slovakia were reportedly hesitant to leave, though commissioners will be applying pressure in favour of a coordinated withdrawal. Either way, EU countries cannot bring ECT-related claims against each other due to a 2021 European Court of Justice (ECJ) ruling which found the treaty to be incompatible with EU law.

While the ECT remains in force with around 20 members including Japan, Azerbaijan and Turkey, the EU’s exit has roughly halved its members, with many calling it the treaty’s death knell.

A key motivator in the reform negotiations was the presence of a 20-year sunset clause, meaning governments remain exposed to future claims for that period after exiting. Member countries were concerned that without reform, the treaty’s original – and outdated – provisions would continue to apply long into the future.

Next steps: neutralising the sunset clause?

Italy – which exited the ECT independently of the EU in 2016 – learnt

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just how powerful that sunset clause can be. In 2021 it faced a case from UK-headquartered Rockhopper Exploration over the government's decision to cancel an oil drilling project on the Adriatic coast following protests from tens of thousands of people. Despite having spent just \$29m on the project, Rockhopper claimed damages of \$275m based on expected future profits – and won.

Given the urgent timeline for addressing climate change, with scientists warning that the window for meaningful action is rapidly closing, campaigners have set their sights on a critical next step: neutralising the sunset clause. The most logical route out would be via an inter-se agreement between a critical mass of exiting or exited countries in which major energy investors are headquartered. Based on historic ECT cases, these would all be European countries.

“The 20-year sunset clause of the ECT is jaw-dropping – one of the longest in all investment treaties,” says Eunjung Lee, senior policy advisor at think-tank E3G. “This is a striking testament that this treaty was written to protect the incumbents: the fossil fuel industry.”

Lee says the EU's exit is “a job half-done” unless member states address the sunset clause with the UK. The 2021 ECJ ruling sets a helpful precedent here, Lukas Schaugg, policy advisor at the International Institute for Sustainable Development, said during a panel in June. In August his organisation published a [model inter-se agreement](#) proposal for the EU and other exiting members.

Given the UK's high exposure, exiting the ECT and negotiating a way out of the sunset clause has received cross-party support in parliamentary debates. Its presence is [thought to be an issue](#) in the UK parliament's

wrangling over North Sea oil and gas licences: ending drilling off the coast of Scotland was a key Labour manifesto commitment, but no concrete action has been taken yet.

Other routes available

Even if the sunset clause is successfully neutralised, there are thousands of other bilateral and multilateral investment treaties between countries around the world that leave governments exposed to ISDS risk.

After the UK left the ECT earlier this year, major law firms were directly recommending that investors explore the possibility of routes to ISDS under other investment treaties. Some of these suggested that if investors cannot find a treaty between their home country and the host country of their investment, they should restructure either their business or the investment so they can sue the government from a country it is already party to a treaty with.

This is known as treaty shopping, and while legal, is frowned upon by judges: in one of the more egregious examples, an Australian court threw out a claim from Philip Morris against plain cigarette packaging after the company had been a US investor when the laws were introduced but became a Hong Kong investor as a “flag of convenience” to take advantage of the Australia-Hong Kong bilateral investment treaty.

It is strikingly difficult to find data on how companies are structured, says Kyla Tienhaara, Canada research chair at Queen's University in Toronto. “But our estimate was that if the UK and the European countries all sort of agreed to cancel out the sunset clause, that that would get rid of the vast majority of risk,” she says.

Companies' calculus ahead of restructuring is not just around securing

“How do you even begin to identify a climate-related case?”

access to any treaty, but to “the most favourable treaty possible”, she adds. “Treaties like the Pacific Trade Deal are helpful [to companies], but as they're more modern, they have narrower provisions,” she says. “Most companies tend to prefer deals signed in the 1980s and 1990s, which have fewer restrictions on the types of claims that can be brought.”

The EU itself remains party to [63 trade agreements](#) with investment provisions with the UK, Japan, New Zealand and Mexico, among many others.

Carve outs

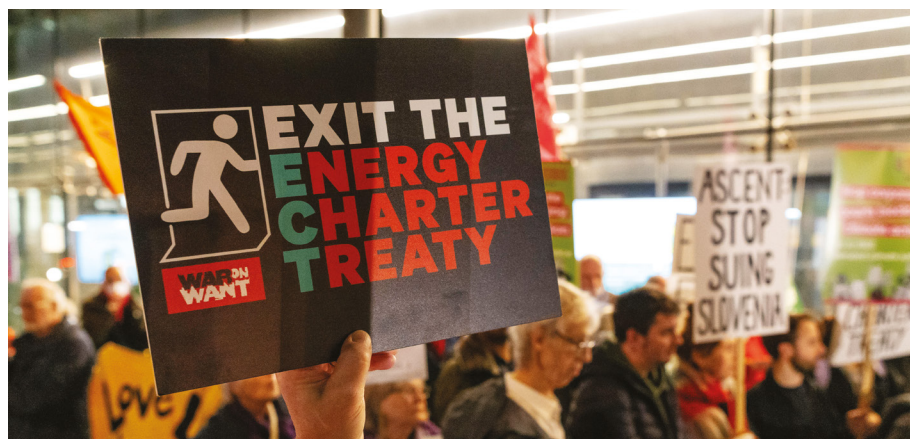
The Organisation for Economic Cooperation and Development (OECD) has proposed a model carve-out provision to exclude fossil fuels from ISDS protections. While some have welcomed this – and the timing is arguably right given the ECT momentum established this year – others argue that ISDS is the problem, not the mechanism's treatment of fossil fuels.

“We're talking about over 2,000 bilateral investment treaties that are problematic for many reasons,” says Brauch. “How do you even begin to identify a climate-related case? And who makes the call? Can we trust arbitration lawyers to make that determination?”

He also points to the growing number of critical mineral-related ISDS, in which governments in resource-rich but cash-poor countries have faced cases seeking up to \$200bn in damages since the Paris Agreement was signed alone.

One argument made by ECT supporters is that it is energy agnostic. As renewables are rolled out around the world, they argue, the treaty can also encourage and protect investment in clean energy against policy shifts.

But for Jean Blaylock, coordinator at the European Trade Justice Movement, that argument does not hold water. “The ability to challenge governments on their policy in secret tribunals is not what renewable investors are crying out for,” she says. “Sustainable businesses want clear, committed policy and targeted support. All of that requires the exact type of policies that are being challenged via ISDS.” ■



News in Brief



Image: Paulo - Phalay

King coal dethroned

The last coal-fired power station in Britain closed in September, marking the end of the country's long relationship with the fuel that powered its industrial revolution. As recently as 2013, coal accounted for around 40 percent of Britain's electricity mix, tapering off to 5 percent in 2018 and finally

1 percent in 2023. It has largely been replaced by renewable energy rather than other fossil fuels.

"Today's closure at Ratcliffe marks the end of an era and coal workers can be rightly proud of their work powering our country for over 140 years," said energy secretary Michael Shanks. "We owe generations a debt of gratitude as a country."

Ratcliffe-on-Soar is a Uniper-owned facility that once supplied energy to England's Midlands, and has long been an imposing physical landmark for drivers on the north-south M1 motorway and nearby rail line. Around 170 of the plant's employees will remain to participate in the decommissioning process; these are among the last of the UK's coal industry workers, who numbered 1.2 million in 1920, and around 50,000 in 1990. Just two blast furnaces remain open in Britain and both are set to close within months. The UK is the first G7 country to cease the use of coal for electricity and joins Norway, Slovakia, Sweden and Austria in phasing it out.



Gravity storage planned at Sardinia's largest mine

A 500m mine shaft in Nuraxi Figus, Sardinia, has been earmarked as the site for a hybrid gravity energy storage system, combining a 'gravity battery' with conventional BESS. Energy Vault is working with site owner Carbosulcis to convert one of four shafts at the mine –

Italy's largest – into a water-based gravity storage system.

"This project will maximize the local use of renewable energy, and at the same time provide services that will improve the stability of the power grid in Sardinia," said Francesco Lippi, Carbosulcis CEO. "Energy storage is a critical component to better utilizing renewable energy around-the-clock on the island of Sardinia."

Further details have yet to be announced, though initial statements suggest a combination of a 20MW gravity storage system and an 80MW battery on the surface. The gravity storage system relies on a sort of pumped hydro, whereby water is moved between reservoirs, but the capacity and characteristics of the setup will be established in conjunction with Terna. The area surrounding the mine has been economically affected by the end of coal extraction, with the site set to close next year. The nearby coal power station remains operational.

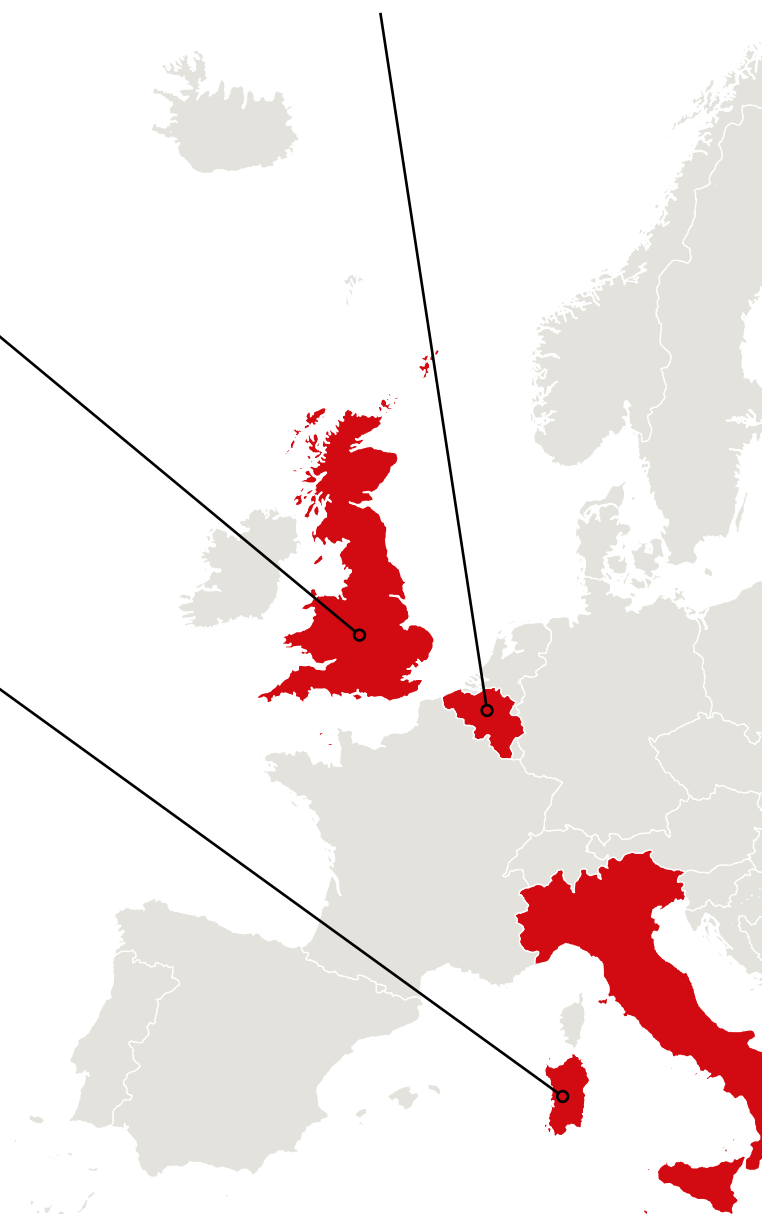
Belgium calls for EU-wide ban on Russian LNG

Tinne Van der Straeten, Belgium's energy minister, has called for an EU-wide ban on liquefied natural gas (LNG) from Russia. Speaking to the *Financial Times*, Van der Straeten acknowledged that existing legislation provided insufficient grounds for companies to curtail contracts, and that Belgium is one of the EU countries currently consuming Russian LNG.

"We have Russian gas coming into Belgium," she said. "I have looked under every stone and the gas [legislation] is not going to help. We need a European approach."

A spokesperson for Van der Straeten said earlier in September that "Europeans are fueling Putin's war chest through their dependence on Russian fossil fuels." and that sanctions on imports – not just LNG transshipments – were crucial to reducing Europe's reliance on Russian fossil fuels.

Writing in the Spring issue of *EEI*, Van der Straeten highlighted the importance of cross-border energy infrastructure, and has called for an EU-wide 'supergrid' to prevent bottlenecks in Europe's decarbonisation programme.



Finland to build the world's largest heat pump

Finland will build the world's largest heat pump in order to keep residents of its capital cosy in winter. With a full production capacity of between 20 to 33MW, the air-to-water plant will provide enough warmth for around 30,000 homes.

The heat pump will be built and installed by MAN Energy Solutions and will feed directly into the district heating system at Patola, a neighbourhood to the north of Helsinki. It will be capable of working at temperatures as low as -20° Celsius, and will use CO₂ as a refrigerant.

Juhani Aaltonen, VP, Green Investments at Helen, said in a statement: "Helsinki has set the ambitious goal to become carbon neutral by 2030, and transitioning our heating system is crucial to achieving this. Once completed [...] the new plant is likely to create price stability for customers, as its production is easily adjustable."

Finland is a leader in district heating with some 16,000km of pipes in its networks, which carry water at around 100°C to the majority of the country's apartment buildings.

Baltic temperatures

Researchers at Tallinn University of Technology have identified the chilly waters of the Baltic Sea as a potential energy source for heating. As part of Estonia's wider efforts to use its coastline for sustainable energy, the TalTech scientists have explored the possibility of exploiting the area's cold but stable sea temperatures in order to provide urban district heating around the Tallinn Bay area.

"We have participated in the Geological Survey's geothermal energy studies," Rivo Uiboupin, director and associate professor of TalTech's Institute of Marine Systems, told state broadcaster ERR. "With the support of the Estonian Research Council, our institute's project 'Digital Twin of Marine Renewable Energy' is about to launch, where we will map renewable energy resources across Estonia's coastal waters in the near future."

Complications abound – the amount of seawater that would need to be processed could amount to several cubic metres per second, and this in turn could lead to significant ecological impacts. But the possibility of drawing sustainable heat from the freezing waters of the Baltic Sea could help power the region's district heating systems, many of which are still partially reliant on fossil fuels.



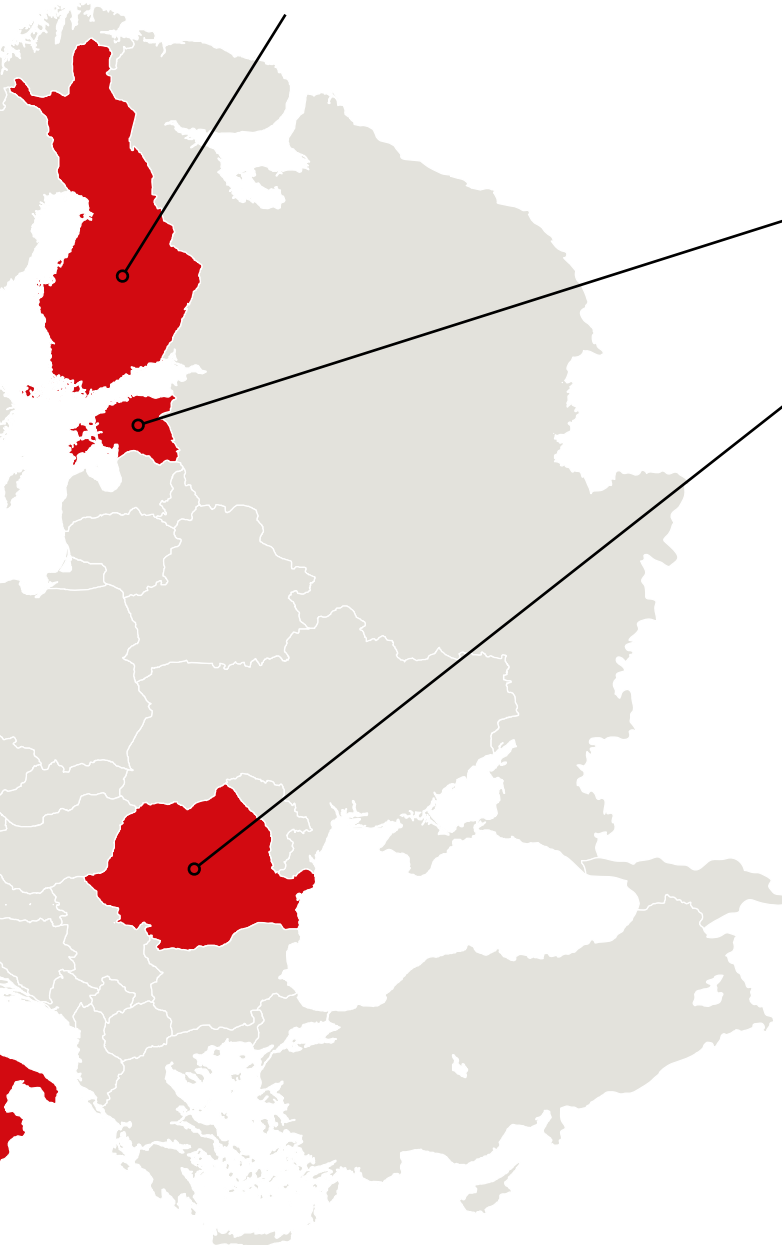
Romania's offshore wind potential explored

The new Offshore Wind Roadmap for Romania, published by the World Bank in collaboration with the International Finance Corporation and the EU, has found that Romania could construct 7 GW of offshore wind capacity by 2035. This would meet over a third of the country's demand and would enable Romania to become a significant player in the European offshore wind sector and to lead offshore wind development in the Black Sea.

Romania benefits from substantial wind resources, shallow water, ports, steel fabrication yards and local workforce.

The Romanian Government has set two offshore wind growth scenarios – envisaging either 3GW by 2035 (the low growth scenario) or 7GW by 2035. The former could supply 16 percent of Romania's energy demand, generating 1.4 billion euros, while the latter could supply 37 percent of demand, generating 5.3 billion euros.

"The 3 GW of offshore wind that can be grid connected by the mid 2030's for Romania has the potential to bolster Eastern European energy security, especially in light of current volatility in the power markets" said Craig Brown, Head of Market Studies at Offshore Wind Consultants (OWC).



News in Brief



Edenhofer says farmers must pay for emissions

The EU's chief climate scientist, Ottmar Edenhofer, has warned that the EU will miss its climate targets if the agricultural sector – which currently accounts for around 12 percent of emissions – does not start paying for its greenhouse gas.

Speaking to the *Financial Times*, Edenhofer said that it would be “almost impossible” to achieve a 90 percent reduction in emissions by 2040 without new environmental levies on farming.

“The price signal is important because without the price signal, it is very unlikely that... we can reduce emissions,” he said, further stating that over the past 15 years the agricultural sector's emissions had been “quite stable” in comparison with sectors that had reduced theirs.

Decarbonising farms is challenging and the sector has so far avoided strict legislation. In June the Danish government announced a tax on agricultural greenhouse gas emissions starting from 2030, and has called for a similar EU-wide system. A recent report – the conclusion of the Strategic Dialogue on the Future of EU Agriculture – said that it would be “premature to draw any definitive conclusions” about the possibility of an agricultural emissions trading system.



Low-carbon hydrogen consultation launched

The European Commission has launched a four-week consultation on a draft delegated act aimed at establishing a methodology for evaluating the emissions savings of low-carbon hydrogen and fuels across the EU.

The act is seen as a crucial part of the revised EU hydrogen and gas market legislation that was adopted in July and effective since August. It will complement existing regulations for green hydrogen and renewable fuels of non-biological origin (RFNBOs) by ensuring consistency across life cycle greenhouse gas emissions assessment, drawing upon a number of previous consultations.

The methodology for calculating emissions savings will apply similar approaches set out in Delegated Regulation 2023/1185 and also applies criteria for assessment of carbon capture rates and methane leaks.

Global hydrogen demand reached 97Mt in 2023, according to the Global Hydrogen Review 2024, published in October by the International Energy Agency. Low-emissions hydrogen accounts for less than one percent of this figure at less than 1Mt, though announced projects could bring this up to 49Mt – a fifty-fold increase – by 2030, according to the report.



Heat pump sales fall 47 percent across Europe

Heat pump sales have fallen by 47 percent across Europe during the first half of this year as enthusiasm for the replacement of gas boilers declines. European Heat Pump Association (EHPA)

figures show that a total of just 765,000 heat pumps were sold across the main EU countries, including the major markets of France, Italy, Germany and Sweden, which account for 80 percent of sales. 2023 also saw a fall in sales during the same period, due in part to dwindling subsidies and lower gas prices.

The EU is currently targeting the installation of at least 10 million more heat pumps by 2027 – to reach 60 million heat pumps overall by 2030 – but uptake has been lukewarm. EHPA Director General Paul Kenny, speaking on the first day of the EHPA's 2024 Heat Pump Forum on 25th September, said that there's no future in fossil fuels – on economic, geopolitical or climate grounds – and that the slowdown in the heat pump market needs to be abated urgently in order to both ensure Europe's long-term competitiveness and to eliminate coal, oil and gas in the heating and cooling sector.

“The new EU Commission should publish the long-awaited EU Heat Pump Action Plan, ensuring it supports manufacturing and training” Mr Kenny added. “What's more, offering flexible electricity tariffs so households and businesses with heat pumps can choose to use power when it costs less, which would be good for consumers and the grid.”



Commission mulls geoengineering

Geoengineering is being considered by the EU as a means of addressing the impacts of climate change. According to remarks made by an EU official during a Euronews event

held in September, the European Commission is assessing the regulation of research focusing on the viability of solar radiation modification technologies, aiming to reduce the warming effect of greenhouse gases.

The term ‘geoengineering’ covers a very wide range of technologies, but essentially refers to techniques aimed at removing CO2 from the atmosphere or reducing the impacts of solar radiation. One of the most well-known approaches involves releasing particles into the atmosphere in order to reflect sunlight and reduce average global temperature.

According to Vicky Pollard, the head of the European Commission's climate action department, the Commission is considering advice from the International Panel on Climate Change, which has drawn attention to the risks of attempting to alter the Earth's climate system to address global warming.

“We [are looking] at regulation into research of solar radiation modification because this is a global issue [...] because there may be people tempted to go down that route, we need to understand its implications and ensure that we have robust regulation, because it could be applied elsewhere in the world and could have impacts on the EU,” said Ms Pollard.

Photovoltaic output dwarfs nuclear by five to one

Global cumulative solar power capacity is almost five times that of nuclear power generated by the world's 408 operating nuclear power plants, according to the World Nuclear Industry Status Report 2024.

Reactors were generating 367 GW as of late June, compared to 1.6 TW being generated by solar PV in late 2023, possibly rising to 1.9 TW by the end of June if recent projections by BloombergNEF and Bernreuter Researchers are accurate.

Nuclear power is also being challenged by the growth of wind power and by BESS, the cost of which is predicted to fall below that of coal-fired generation and nuclear power in China by 2025.

"Solar-plus-storage is already significantly lower than nuclear power in most markets today, as well as highly competitive with other low-emissions sources of electricity that are commercially available today" the report finds.

The authors of the report cited data from Lazard, showing that solar-plus-storage may already be cheaper than gas peaking plants and new nuclear. Outside China, the number of operational reactors has fallen by 51 since 2004.



Image: Nodda Pixabay

Cows help agricultural land capture carbon

Cattle can improve the amount of carbon stored in soil and enhance biodiversity on mixed livestock and arable farms, according to research.

While animals on farms are thought to emit around 14 percent of the world's greenhouse gas emissions, their presence on mixed farms helps biodiversity and mitigate soil degradation. The research, by the UK-based Soil Association Exchange (SAE), shows that mixed farms support more grassland plant species in every field than either dairy-only or arable-only agriculture.

"It's pretty unequivocal in the data that having livestock on your farm does mean you have more emissions – five or six times more emissions," said Joseph Gridley, chief executive of SAE, "But if you integrate livestock into the system, on every metric on soil health, there's an improvement, and on a lot of the biodiversity measures as well."

According to the European Environment Agency, around half of all species in the EU rely on agricultural land, and 63 habitat types benefit from or depend upon agricultural activities such as mowing and low-intensity grazing. Animal farming emits a significant proportion of the EU's methane and ammonia pollution, however.



Image: Nicky Pixabay

Shinkansen celebrates 60 years of speed

Japan's bullet train – the shinkansen – is 60 years old this October, a milestone in both Japan's history and that of high speed rail. The 520km track between Tokyo and Osaka was the world's first

commercial attempt at the technology, and was implemented in 1964 despite considerable competition from private automobiles and the burgeoning air industry of the time.

Initially, that journey took around four hours, a significant time saving compared with the seven or so it would have taken before. Thanks to improvements to the track and the trains (which can now travel at speeds of around 200mph) the trip can now be completed in two hours.

The shinkansen predates any European high speed rail network, albeit drawing on European research conducted before and after the Second World War. Japan's network has expanded to around 3,000km (broadly similar to Spain's) and while China's 44,000km of high-speed lines is by far the world's largest and fastest-growing system, Japan's has historically been the most influential. It is thought to have carried over 7bn passenger journeys to date.

There was a ceremony to mark the first shinkansen departure from Tokyo Station on 1 October, reports Japan Times. The train in question, an N700S Nozomi service, was destined for the city of Hakata, over 1,000km away on the southernmost of Japan's largest islands. This journey takes less than five hours.



Image: Peeling Vix Pixabay

Transport energy consumption rising

Transport-related energy consumption in the EU has largely returned to pre-pandemic levels, and in 2022 accounted for almost a third of the energy consumed.

Compared with industry at 25 percent and households at 27 percent, transport activities absorbed 31 percent of final energy consumption. Of this, road transport is responsible for some 74 percent, although the biggest gains have been in air transport, which rose by 57 percent between 2021 and 2022. Water transport accounted for a relatively steady 13 percent while rail stayed very low at around one percent.

Diesel fuel still powers the vast majority of road transport in almost every member state, with the exception of Cyprus and the Netherlands, where petrol consumption is proportionally higher, and Sweden, where E85 and ED95 continue to play a larger-than-average role. Across the EU, diesel had a 65 percent share compared with 25 percent petrol. Electricity accounted for just 0.3 percent of energy used in road transport.

Air travel has soared since reaching historic lows during lockdown. The European Commission has launched a public consultation on the draft proposal for the EU Flight Emissions Label initiative, which will enable passengers to see standardised information on the carbon footprint of flights in the EU, and which will set out a harmonised methodology for estimating this.



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A dot on the Horizon

The Horizon NGI programme punches above its weight and paves the way for open and sovereign digital commons



By **Pierre-Yves Gibello**,
CEO, W2

“If you are not familiar with open source, consider that it’s already ‘eaten’ most software on earth.”

Ever heard of NGI – the Next Generation Internet? Probably not, although many of you will be familiar with EC R&D funding, and the European Horizon programme.

NGI appears small on that landscape – €140m in the past five years, based on a cascade funding mechanism, focused on open source. NGI consortia are mandated to redistribute 80 percent of the funding to the open source software ecosystem, across public open calls.

From the point of view of an applicant (potentially any organization or individual in Europe) NGI provides small grants averaging around €80,000 to fuel short-term developments of generally one year. Applying is as easy as filling in a form, with most beneficiaries having never obtained public funding before, on account of the usual grant mechanisms being too complex.

This is not the only point that makes NGI unique – its significant impact is incommensurable with the means, making it the probably most efficient Horizon programme ever, considering social impact, sovereignty, and innovation transfer. This is due to open source, and the smooth integration of NGI in its ecosystem.

If you are not familiar with open source, consider that it’s already ‘eaten’ most software on earth, including your smartphone if it’s running on Android, some 90 percent of the cloud infrastructure powered by Linux, and also many libraries and dependencies embedded in proprietary software, like the ubiquitous FFmpeg image processing code that most video players embed on all platforms, or the whole Internet networking stack, be it deployed on Windows or Mac.

From a classic economic point of view, open source may look counterintuitive, as it’s based on four freedoms: use, study, modify, redistribute. In a world dominated by “intellectual property”, the idea that making your designs and assets open to free reuse and enhancements from others – possibly even competitors – might be more efficient than keeping

them secret or copyright-protected is not obvious at first sight.

But the flourishing software economy clearly belies this reluctance. Re-designing everything (instead of reusing existing assets from the best engineers) creates a mess, and mobilizing a wide community of developers, users, researchers, public bodies, businesses, associations, enthusiasts and activists provides an unprecedented leverage effect – at the root of a new, enlarged “social economy” paradigm.

Among induced externalities, we must also mention sovereignty and resilience – strategic activities do not depend any more on foreign proprietary software, but instead on code we can maintain and audit ourselves. Sustainability is improved as well: think of the many sad stories of device obsolescence, be it deliberately planned or due to bankruptcy or project abortion. An open design allows other people – possibly businesses – to take over, provide maintenance services, develop new functionalities, and bring supposedly obsolete electronics back to life.

That said, looking again at NGI, it may seem odd that pouring small grants over a community of open source developers significantly impacts global sovereignty, privacy or sustainability, but this is also the magic of the open source approach.

More than 1000 projects obtained NGI funding. Some are ‘digital commons’ you may be familiar with, like Open Street Map, the Mastodon social network, the Wikimedia Foundation, Wordpress or Open Food Facts.

Others include well-known software like LibreOffice, including the text processor used to write this article, Gimp image processing, BigBlueButton and Jitsi video conferencing, Thunderbird, NextCloud, Collabora and XWiki collaborative platforms, Blender movie making, PeerTube broadcasting technology, the MariaDB database, and key privacy and security tools like the /e/OS smartphone operating system, Tor, Wireguard, OpenPGP or CryptPad.



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“The open source wave already gained enough momentum to be unstoppable – so if you don’t take care of it, it will take care of you!”

Many other building blocks of a human-centric, inclusive and neutral Internet stack were also supported, and although few aside from networking experts have heard of them, these are key for telecom infrastructures, but also for civil rights, security and privacy.

Many of these projects are tied to vibrant business ecosystems, deployed by large companies or State agencies who also contribute to them (Amazon, IBM or Microsoft count among the most important open source contributors) and used by billions of citizens everywhere. But most depend on small, dedicated teams.

Open Street Map is an English association that employs three people. Of course, it benefits from the help of volunteers all over the world, with a galaxy of businesses and associations who use and contribute data or code

to provide value-added services, partnerships with public bodies like national geographic agencies or academics, free advertising from millions of users, local foundations that receive donations or subsidies. But the impact of a €100,000 grant on a 3-person organization still has huge effects, securing it for a year – and we are talking about a strategic open common that competes with Google Maps!

Also note that projects like Open Street Map, Mastodon, NextCloud, Jitsi, PeerTube, Thunderbird or Collabora create another vision of commons, social networking and collaborative work. These services, similar to those provided by the “data capitalism” majors – be it GAFAM for the United States or BATX for China, both supported by their respective State to back mass surveillance – have a similar

effect on our economic growth, but in a pervasive, distributed and interoperable way that protects civil rights and keeps our data home.

This is not to say that Europe will catch up with GAFAM or BATX (it is too late to grow a European Google or TikTok) but we are capable of something different, with open commons and software that doesn’t make us dependent on foreign economic zones.

NGI itself is still at risk of not being funded anymore, of being left out of the upcoming Horizon 2025 budget despite its indisputable success. But many voices, inside the EC or in wider civil society, have risen to defend it and the model it underpins.

And in any case, the open source wave already gained enough momentum to be unstoppable – so if you don’t take care of it, it will take care of you! ■

For more information

1. NGI initiative main page: <https://www.ngi.eu>
2. See <https://nlnet.nl/commonsfund> for an ongoing funding example: NGI Zero Commons Fund (2024-2027).
3. GAFAM (Google Amazon Facebook Apple Microsoft) and BATX (Baidu Alibaba Tencent Xiaomi) acronyms are generally used, by extension, to designate the digital domination of American and Chinese majors.
4. See open letter to the EC (with more than 200 signatories) at https://www.ow2.org/view/Events/The_European_Union_must_keep_funding_free_software_open_letter

Five steps towards a 360° e-mobility industry strategy



By **Théo Fievet**,
Platform Coordinator,
Platform for Electromobility

In the context of the original EU legislative mandate, the Platform for Electromobility endorses the overall shift in European policy priorities set by the European Green Deal as a welcome long-term compass.

President-elect von der Leyen's speech this month in Strasbourg aligned with Platform's EU Election Manifesto support for the development of a robust industrial policy. This is essential to ensure Europe's competitiveness and resilience in a rapidly evolving global landscape, and maintain its leadership in climate change mitigation.

Any 'Clean Industrial Deal' would be incomplete without a strong chapter on the electromobilities manufacturing ecosystem. To achieve these goals, we propose a multifaceted approach that considers the entire value chain's competitiveness in green transport solutions, while revitalizing their financial support. Such policies must be implemented within a framework of regulatory stability and close international cooperation with other regions.

Step 1: Ensuring regulatory stability for industries and investors

A stable regulatory system is crucial. Attracting investment to create the net-zero industrial ecosystem for electromobility will be facilitated by maintaining a consistent, clear regulatory framework and climate objectives. This means first and foremost ensuring that the European Green Deal legislations as voted in the 2019-2024 mandate remain steady over time. We strongly warn against disruption of the Green Deal and long-term planning, notably by limiting the scope of major reviews. At a more granular level, we call for stability in the regulatory frameworks of all transport modes.

It is a key element for successful risk management. A consistent, clear regulatory framework also entails performing sound impact assessments before proposing new legislation. Potential legislations should be in line with the direction taken by the Green Deal as voted during this mandate. Thirdly, regulatory stability means focus on proper implementation through the swift adoption of all necessary complementary acts; in a nutshell, implementing before reviewing.

Step 2: Enhancing value chain competitiveness and resilience

A 360° e-mobility industry strategy
While recent European industrial policy initiatives, such as the Net Zero Industry Act (NZIA), have focused on key components and sub-systems, we have observed that an emphasis

and consideration of full value chain competitiveness is lacking. It is crucial that these policies take into account the comprehensive nature of mobility industry value chains across sectors and support their global competitiveness as they navigate the green transition. We call for a 360° e-mobility industry strategy, widening the focus from specific components to a more comprehensive approach, spanning from raw materials to end products and from individual to all modes of sustainable transportation.

Upstream and downstream

While the presence of gigafactories is fundamental for the development of green industries in Europe, with production capacity on some parts of the value chain (so far mostly focused on end products), it is important to highlight that they alone do not guarantee a competitive and non-dependant industry. Indeed future industrial policy should go beyond the end-product and also consider upstream (refining) and downstream (recycling), both sectors being, so far, not located in Europe. A European industrial network of innovative companies of all sizes would help securing all stages of e-mobility value chains for the manufacturing and recycling of key components.

The EU should channel purchases toward "made in Europe" products and increase production chains within Europe. Given the high demand for strategic raw material to manufacture electric vehicles, securing the value chains also includes a strong focus on security of supply of such materials and other available alternative technologies,



Image: Shutterstock

as well as the recyclability of engines and batteries. The creation of new industrial hubs in Europe should go hand-in-hand with this strategy.

Energy-cost efficient strategy

Energy costs constitute an integral part of manufacturing competitive transport solutions. The availability of affordable, decarbonised energy is essential for maintaining Europe's competitiveness in the global low-carbon technology competition. We ask policymakers to work urgently on mitigating electricity price disparities between the Union, China and the US, which are severely disadvantaging EU manufacturers. We endorse other calls for the introduction of incentives that reward low-carbon technology producers favouring local materials and components.

Public procurement driven sectors

Similarly, for mobility sectors where investment decisions are predominantly the responsibility of public authorities, such as rail, the relevant EU legal framework must be properly enforced. That starts with public procurement, ensuring that tender evaluation criteria set the right focus on the sustainability of the selected solutions but also utilise all available tools to ensure fair competition, such as the foreign subsidy regulation.

We strongly support the NZIA's non-price criteria proposal in public procurement supporting sustainable development and resilient European industries. Those criteria will help favour European industries in public auctions and ultimately promote technologies produced in Europe.

Accompany workers and employers in skills transition

Industrial sectors must be supported in their skills development and employment policies for a successful decarbonisation of their value chains. For this purpose, EU institutions and Member States should undertake a mapping of skills shortages.

This should consider both traditional and new skills. That way, we can assess the needs for jobs and skills in each sector, developing tools to identify and publicise available training, and highlight those that need to be created.

Based on the identified needs, measures should be undertaken by the EU – such as NZIA's initiative for the “Net-Zero Academy” – and the Member States to support training structures in Member States.

Step 3: Financing the transition in the short term: The “low hanging fruits”

Existing EU funds can already serve as valuable assets if they are distributed efficiently and intelligently, notably by streamlining access to finance, particularly for net-zero industries, through instruments such as the Innovation Fund and InvestEU. To do so, we have identified four “low-hanging fruits” measures that can be taken without further delay:

- **Low hanging fruit 1: Guarantees.** As a matter of priority, public investment tools should draw in private investments by increasingly making use of instruments like guarantees. Firstly, the InvestEU Fund should be further mobilised in support of a 360° e-mobility industry strategy. Secondly, the European Investment Bank (EIB) Group should strengthen the provision of commercial bank guarantees for investments by companies across the EV value chain, replicating the recently announced €5 billion guarantee facility for the wind sector.
- **Low hanging fruit 2: Innovation Fund.** We welcome the recent initiative under the Innovation Fund to dedicate €3 billion to the EV battery value chain. This new mechanism needs to focus on the most sustainable EU battery and components manufacturers. A robust mechanism needs to be built, including for channelling increased funding from Member States to match EU funding.

- **Low hanging fruit 3: Capacity building.** To enhance accessibility, we propose that EU or national administrations train and appoint specific staff to provide advisory services to both applicants and national authorities responsible for distributing EU funds. A substantial portion of these funds, especially in the case of Recovery funding, may remain unallocated due to the constrained administrative capacity of Member States to prepare projects or process applications. Supporting project preparation and speeding up authorization procedures at the national level would thus benefit both the applicants and the authorities involved.
- **Low hanging fruit 4: Mid-term MFF revision.** The mid-term revision of the Multiannual Financial Framework (MFF) is the opportunity for European institutions and Member States to significantly raise funds of strategic programmes (STEP, Strategic Technologies for Europe Platform; but also CEF, Connecting Europe Facility) to provide appropriate financing instruments to support a competitive decarbonisation of EU industry and support investments in clean, sustainable mobility solutions.

Step 4: Financing the transition in the long term – Net Zero Investment Plan

Why a Net Zero Investment Plan now?
The climate investment gap is deepening by the day and the way to fill the gap will be a major challenge for decision-makers in the coming years. European elections are the democratic window of opportunity to set priorities about where EU funds should flow and the level of support that EU will provide to shift the continent to clean mobility. 2024 is thus a milestone year for the green transition. The STEP platform, although welcomed, is unfortunately far from the pan-European response to global competition on cleantech that the EU needs. Therefore, we support the creation of a major Net-Zero Investment Plan.

“The presence of gigafactories alone do not guarantee a competitive and non-dependant industry”

Predictable and upfront support for op-ex

The EU should ensure that financial instruments do not exclusively prioritise innovation but also consider the importance of providing strategic support for operating expenses and production, for a limited duration. We highlight the fact that operational expenses (op-ex) are not covered by the current InvestEU funding framework. In addition to promoting innovation, financial support should be directed towards sustaining and optimizing day-to-day operations and the production processes of net-zero industries, thereby creating a more balanced approach to funding allocation. Beyond deciding the level of support that will be provided to the green and digital transition of the transport sectors, predictability and certainty about possible funding should also be provided. A rulebook for financing should make sure op-ex support is both predictable and upfront.

Consider ventures with higher risk profiles

To complement this new approach and move closer to a truly comprehensive funding allocation, it's essential to also consider ventures with higher risk profiles. For instance, when it comes to the Alternative Fuels Infrastructure Fund, the current financing terms are notably stringent. These terms often exclude high-risk endeavours, as they require a minimum of 50% funding from national banks or partners, effectively limiting opportunities for investment in riskier projects. This disproportionately affects emerging industries and initiatives in Central and Eastern Europe.

To address this issue, the EIB should explore investments in riskier ventures, and InvestEU should be equipped to provide loans and equity for such undertakings. The InvestEU Program, designed to offer guarantees to both public and private banks, can play a pivotal role in enabling them to take more substantial risks in their lending and equity operations. This

approach can facilitate the inclusion of 'investments in riskier ventures' and contribute to a more diverse and dynamic investment landscape.

How to finance a Net Zero Investment Plan?

This Net-Zero Investment Plan should be structured under the EU Multiannual Financial Framework on the one hand, and via a new bond issuance programme replacing the Next Generation EU programme on the other. In addition, this broader investment plan should ensure that sufficient European and national funding resources, leveraging private sector investment, are available to achieve Europe's objectives as set out in the Climate Law and in the Smart and Sustainable Mobility Strategy. On top of the achievement of dedicated programs such as the TEN-T (Trans-European Transport Network), it should include a dedicated Green Industry fund. State Aid measures should be re-designed and local support coordinated at EU level to ensure a level playing field at European level. The future State Aid regime should mandate EU governments to integrate environmental and social considerations into their support schemes, so that only best-in-class projects benefit from public support at regional and national level.

Step 5: Strengthening international cooperation

Stability requires robust international cooperation. Strengthening ties with diverse regions would diversify sources, mitigate geopolitical risks and uncertainties, ensure a secure supply chain, enhance global industrial collaborations, and uphold a fair competitive environment for all clean transport industries.

Proactively setting a Level Playing Field

The EU response to other regions' recent green industry support programmes should be prepared with care, to avoid provoking a global subsidy race. The goal should be to create an international

level playing field between all economies, aimed at reaching Paris Agreement climate targets together and aligned on WTO rules. For certain industries, a level playing field can only be reached by matching competitors' support: for example, for battery manufacturing, the US Inflation Reduction Act (IRA) provides a significant op-ex support per kWh produced; for reskilling workers, massive support for training automotive workers is proposed. We call for EU policymakers to match such support in some manner to help its European battery industry compete on more equal terms. Without such matching, there can be no global level playing field for e-mobility related manufacturing.

Cooperation to avoid trade disruption

With several studies by the OECD highlighting the challenges faced by European railway producers in the Chinese market, as well as the public assistance received by their companies, the question of China's undisclosed subsidies benefiting its products is not new for the railway industry. Cooperation should be reinforced to ensure there are no such practices risking unbalancing global competition.

Cooperation to diversify sources

Dependence on one single third country for green transport technologies is tangible and should also be mitigated. China dominates the production of solar panels, batteries for EVs and part of the world trade in wind turbines. To diversify sources, we support proposals to form a green technology partnership between governments and businesses of the major economic powers to reduce strategic dependencies. Such partnership would be intended to complement, not replace, the existing supply chain. Beyond cooperation with third countries, cooperation should also be within European countries and industrial partnerships to aggregate joint purchases and thus secure supply of strategic raw materials at advantageous prices. ■

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Shaping the Future of EU R&I for climate neutrality: key questions for the design of FP10

By **Hana Lee**, Senior Project Manager and **Brigitte Hasewend**, Director, European Sustainable Energy Innovation Alliance (ESEIA)

About the Authors



Hana Lee is Senior Project Manager at ESEIA, a role she has held since November 2020. With over 13 years of international experience across

academia and industry – covering construction, environment, and innovation projects – she brings a wealth of expertise to her role. She earned her Doctorate in Applied Geoscience from TU Graz, AT and a Master's in Engineering Geology from Kyungpook National University in South Korea. Before joining ESEIA, she worked as senior engineer and consultant with major international firms like WSP, Capgemini, and Hyundai Engineering & Construction. At ESEIA, she plays a key role in project acquisition and coordinating the ESEIA Working Groups.



Brigitte Hasewend is founding and acting Director and Member of the Governing Council of ESEIA. In this

executive capacity, she has been responsible for devising the New ESEIA Strategy 2034 in the context of the European Green Deal. In 2023 Brigitte Hasewend was appointed Member of the Board of EIT Climate KIC Association. Since 2013, Brigitte Hasewend has worked for the European Commission as expert evaluator mainly for Horizon capacity-building projects. During 2024-17 she was Vice-President of the Supervisory Board of Joanneum Research GesmbH. Since 2007 she has headed the International Strategic Research Partnerships at TU Graz, AT. Previously, Brigitte Hasewend had spent 10 years living and working in Brussels where she held several positions at the European Commission.

This article is a contribution to the ongoing European debate¹ on the future design of the 10th EU Research and Innovation (R&I) Framework Programme with the working title FP10 covering the period 2028-2034.

What are the key challenges to enhancing European competitiveness while transforming to a green and circular economy for climate neutrality? How can these challenges be addressed by FP10? Which questions remain open for future debate? This article presents findings from a Europe-wide survey underlying the ESEIA FP10 Position Paper².

Challenges for Research and Innovation in relation to the European Green Deal

If we take survival on earth seriously and if we want the European Green

Deal to become a success by 2050, Europe needs to undertake fundamental measures to steadily transform into a climate-neutral continent. The Green Deal challenge cannot be viewed in isolation as it is entwined with the UN Sustainable Development Goals, as well as resonating with the twin challenge of digital transition.

In this existentialist quest, Europe will also need to face megatrends, namely scarce resources, aging populations, conflict, and migrations. Europe, like no other continent, is committed to building a more resilient, competitive, inclusive, and democratic society as part of the EC Strategic Plan 2025-27³.

Come 2030, the Green Deal will already have reached a key milestone in green and circular economy, climate adaptation, carbon markets and pricing, sustainable finance, biodiversity,



Figure 1: Five Key Recommendations for FP10, ESEIA, 2024

1. Enhance Role of European Thematic Alliances <ul style="list-style-type: none">• AT POLICY LEVEL: Involve European Alliances from design to implementation.• AT PORTFOLIO LEVEL: Jointly create exploitation pathways.• AT PROJECT LEVEL: Use European Alliances as sounding boards for new R&I topics.	2. Foster Global Innovation Ecosystem Partnerships <ul style="list-style-type: none">• Increase International Relevance by creating international innovation ecosystem partnerships for co-creation.• Enhance international access to R&I Infrastructure.• Implement strategies to effectively facilitate capacity building.	3. Prioritise Horizontal Topics in Research and Innovation <ul style="list-style-type: none">• Prioritizing cross-cutting horizontal topics.• Provide support for deep tech projects fostering sustainability.• Boost Excellence and Innovation by providing support mechanisms tailored to Widening countries.	4. Ensure Actionability of the Framework Programme <ul style="list-style-type: none">• By dedicating actions to multi-actor innovation ecosystem approach.• Improving coordination across the innovation cycle and different TRLs.• Simplification, to make participation more accessible and efficient.	5. Provide Room for Self-Organisation and Entrepreneurship <ul style="list-style-type: none">• Continuously take on board novel thematic challenges.• Support maturation and validation of novel ideas from lab to business.• Start-Ups and SME scale-up to new markets.
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fostering renewable energy production, and reduction of carbon emissions to zero. Five years into the Deal, much has already happened but much more still needs to be achieved as outlined in a recent Adelphi Report.⁴

To play a leading role in systemic solutions for the integration of clean technologies in industry, mobility, and the building sectors, Europe will need to massively intensify R&I. Europe will also need to capitalise on historically grown small structures of highly effective innovators scattered in the regions of Europe. The EU needs to compete for the best people and their ideas on both the home and global markets, which are currently dominated by USA, China, Japan, and South Korea according to World Intellectual Property Organisation.⁵

On a more technocratic level, for the future FP10, the European Parliamentary Research Service (EPRS)⁶ identified challenges such as continued administrative complexities, and the need for mechanisms to provide tailored

support for small and medium-sized enterprises (SMEs) which represented 20 percent of participants in Horizon Europe during 2021-2023 according to the European Commission (EC).⁷ According to the ERA Policy Agenda⁸, these challenges include aligning R&I efforts to the goals of the European Green Deal, infrastructure development, coordination among Member States, and citizen participation.

How to Address the Green Deal Challenges in R&I: Five Key Recommendations

It is a tough call to face this multitude of future challenges for R&I in future Europe. Essentially, Europe will need to find strength in its own special European way. This way is characterised by a European cooperation approach that needs to be consistently implemented on all levels. It requires a multitude of actors as represented in European Partnerships¹⁰ mostly initiated by the EC to lead the way as well as European thematic networks built from the grassroots level to engage players locally from all angles of the quintuple helix.

In order to find out what European researchers and innovators think are driving questions for Green Deal R&I and what should therefore be the design elements for FP10, ESEIA conducted a thorough survey among 23 member organisations, higher education institutions, research organisations, and businesses from 12 EU countries from November 2023 to February 2024 (ref. ESEIA FP10 Survey Key Facts). On the basis of a vast Horizon Europe experience of ESEIA members, the

ESEIA FP10 Position Paper highlights 13 horizontal, mainly applied research topics, and offers recommendations for the design of FP10, as well as a set of open questions.

To enhance the effectiveness of FP10, the ESEIA FP10 Position Paper formulates the following five key recommendations:

1. Firstly, **Integrating European Thematic Alliances** from the grassroots throughout the programme design and implementation stages is crucial. This includes involving them as sounding boards for aligning the framework with relevant thematic priorities. The ESEIA Members also highly supported the role of European Thematic Alliances in creating joint exploitation strategies on portfolio level with other European players such as EIT KICs (considered important by 95 percent of the ESEIA membership).
2. Secondly, according to the ESEIA membership **Establishing Global Innovation Ecosystem Partnerships** is essential (81 percent) for broadening the impact and relevance of FP10 internationally, improving access to infrastructure, and promoting interdisciplinary collaboration with all actors from the innovation ecosystem. In addition, strategies should be implemented to effectively facilitate capacity-building.



“The FP should not be a straitjacket; it should provide flexibility to adjust to new R&I needs and trends.”

ESEIA President **Prof. Brian Norton**, TU Dublin (Brussels, 14 March 2024)



3. Thirdly, **Prioritising Horizontal Topics** will address critical cross-cutting issues such as circular bioeconomy, sustainable manufacturing for the next generation of key energy systems components (e.g. PV, batteries, electrolyzers), as well as economic and social innovation. Using this approach will foster ground-breaking innovations and accelerate ambitious advancements in emerging fields (77 percent). This is also an area in which the Widening Countries can strive as they will need continued tailored support.
4. Fourthly, **Ensuring Actionability of FP10** by designing new actions specifically dedicated to a multiple-actor innovation ecosystem approach (69 percent) and improving coordination across the innovation cycle as well as different technology readiness levels (74 percent). In addition, the programme needs to continue to seek simplification measures.
5. Finally, **Providing Room for Self-Organisation and Entrepreneurship** by enabling the programme to take on board novel thematic challenges, fostering their validation, and facilitating Innovation and growth for start-ups and SMEs to facilitate their growth and provide a bridge from idea to market (77%).

Open questions for future debate about FP10

In conclusion, addressing the multifaceted challenges achieving climate neutrality by 2050 requires massive societal efforts to be tackled in cooperation by a multitude of actors from all regions of Europe as well as massive investments in R&I.

To make Europe a favourable place for sustainable investments in a circular economy, FP10 will need to recognise the critical role of involving European Thematic Alliances from the grassroots level.

The future FP10 programme design will essentially need to create the best framework conditions possible for R&I. Sustainable green and circular economy solutions such as green manufacturing R&I for storage and building materials will need to be rewarded.

How can this be done? Many questions remain to be answered on the policy-level, relating to impact,

how to foster the key role of European Thematic Alliances, the integration of funding mechanisms, and self-organisation for maximum effectiveness.

Consequently, the ESEIA FP10 Position Paper formulated a set of **open questions that are intended to inspire the FP10 debate**:

- **POLICY:** Assuming that the Green Deal targets for 2030 will have been achieved, how will the R&I landscape have changed? At this advanced transformation stage, what can R&I contribute in 2034 to net zero 2040 and 2050 emissions targets in Europe? In the world?
- **IMPACT:** How can real impact be created by ensuring that funded projects contribute to the climate cause in real life? Can FP10 create Impact groups composed of regional and local actors, venture capitalists, business experts, and start-up facilitators

ESEIA FP10 Survey Key Facts

The **ESEIA FP10 Survey**, conducted from November 23 to February 2024, elicited a wide range of responses from 39 ESEIA members, representing 21 organisations across 11 European countries among which 6 were widening countries. Among the respondents, 74 percent were men while 26 percent were women. ESEIA received responses from across sectors, including from higher education institutions (62 percent), research organisations (14 percent), and businesses (24 percent). The robust involvement highlights a remarkable 1:3 ratio of businesses to the combined entities of HEIs and ROs. The study highlighted a total of 51 Horizon Europe projects, 76 percent of which as partners, and 12 percent as coordinators in a wide range of actions. The resulting ESEIA FP10 Position Paper was adopted by the ESEIA General Assembly in Brussels, 14 March 2024.

that would help exploit the potential of each project from the start rather than after the project has ended?

- **EUROPEAN THEMATIC ALLIANCES:** How can peer-to-peer be fostered by involving European Thematic Alliances from the grassroots in the entire project cycle from formulating calls to evaluating proposals to monitoring projects to exploiting results and reviewing impact? How can the EU share responsibility with European Thematic Alliances?
- **FUNDING MECHANISMS:** How can national, regional, and EU funding schemes be nurturing each other to reinforce net zero 2050?
- **SELF-ORGANISATION:** How can a self-organising mechanism be established to ensure that the FP10 design is adapted according to need on a continuous basis including on project level for all disciplines and all sectors?

The above questions emphasise the continued need for an open scientifically based dialogue among all actors of the innovation ecosystem on future R&I strategies for a climate-neutral future.

We are certain that European Thematic Alliances from the grassroots level can play a key role in the conceptualisation of the new FP10 as well as its subsequent implementation. ■

About ESEIA

ESEIA is a leading European non-profit association of research and innovation organisations in sustainable energy systems, celebrating her 15-year anniversary 19 November 2024.

- **What is our Mission?** By 2050 ESEIA will have enabled Europe to reach her renewable energy targets as outlined in the Green Deal by contributing research for innovative solutions, as well as education and training for a climate-neutral sustainable energy system.
- **Which Strategic Challenges does ESEIA address?** ESEIA addresses three strategic challenges, namely 'Setting the agenda for renewables on the European market', 'Capacity-building both for people and institutions', and 'Forging international partnerships'.
- **How do We Work?** The ESEIA Working Groups are the key drivers of the association. They are our main forum for codesign and collaboration.



The ESEIA WGs coordinate expertise from our members in a number of key innovation areas.

- **How does ESEIA engage?** ESEIA coordinates sustainable energy innovation projects, organises expert panels, designs entrepreneurial education and training events, fosters international cooperation, and promotes dialogue with European citizens.
- **Who do we represent?** The ESEIA umbrella represents the entire innovation ecosystem of actors from research, academia, industry, and government. ESEIA has 23 members from 12 countries, among which 13 higher education institutions, four research organisations, and six businesses.



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Photoelectrocatalytic device to achieve carbon-neutral chemical production: the SunCoChem solution

Developing a greener and sustainable process to produce high-value oxo-chemicals for the industry

The European Climate Law sets the target of net zero greenhouse gas emissions, writing into legislation the objective outlined in the European Green Deal: achieving climate neutrality for Europe's economy and society by 2050.

To achieve carbon neutrality in the chemical industry, one of the European Union's primary goals, the SunCoChem EU-funded project is working on a groundbreaking photoelectrocatalytic reactor.

This solution produces valuable chemicals using solar energy and carbon dioxide (CO₂) sourced from chemical industry. SunCoChem's innovative approach not only facilitates the production of essential chemicals but also contributes significantly to the carbon neutrality of the industry.

Ensuring carbon neutrality

Achieving carbon neutrality in the chemical industry requires both decarbonization and defossilization. Decarbonization focuses on reducing carbon dioxide emissions by using low-carbon energy sources and improving energy efficiency. Simultaneously, defossilization seeks to eliminate the use of fossil fuels as a carbon source, replacing them with sustainable and renewable alternatives.

“SunCoChem represents a significant leap towards a sustainable future in energy and chemical production”

The technology developed by SunCoChem focuses on the generation of Limoxal™, a material sold by IFF as a perfuming agent and used in personal care and household cleaning products. Life cycle assessment studies have shown that this reactor can reduce carbon emissions by 10% compared to current fossil fuel-based methods, due to its reliance on renewable carbon sources.

Integrating three key processes

SunCoChem takes inspiration from the natural process of photosynthesis. In photosynthesis, solar energy is used to transform water and CO₂ into new compounds, demonstrating nature's efficient method of harnessing sunlight to drive chemical reactions.

The reactor developed by SunCoChem stands out due to its integration of three critical processes. First, it captures CO₂ from flue gases using selective patented membranes, generating a concentrated CO₂ stream. Second, this CO₂ is converted into syngas (a mixture of CO and H₂) through a photoelectrocatalytic reaction. Finally, the syngas is used in hydroformylation reactions with olefins to produce the desired oxo-chemicals. At laboratory scale, using a solar simulator, the system achieved 8% of solar-to-product efficiency.

Validation and Demonstration

With the final pilot designed and the entire process fully engineered, the construction of the reactor, boasting an impressive active area of 2000 cm², is now underway.

Future efforts will focus on rigorous testing of the reactor using a simulated gas mixture and the abundant energy of natural sunlight. The evaluation



will encompass not only production efficiency but also techno-economic, environmental, societal, and market impacts, offering a comprehensive assessment of the technology's potential.

The SunCoChem project is more than just a technological advancement; it is a paradigm shift in how we approach chemical production. By integrating innovative processes and leveraging renewable resources, SunCoChem is setting a new standard for sustainability in the chemical industry. As the project moves forward, its potential to transform the industry and contribute to global carbon neutrality goals becomes increasingly apparent. ■



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 862192.

In Upper Austria, Energy Communities are here to stay

Energy communities have really taken off in Upper Austria. There are already more than 400 Renewable Energy Communities (RECs) in operation, 800 joint PV installations, and 80 citizen energy communities, involving 10,000 members – and all these numbers are increasing weekly. The regional energy agency, OÖ Energiesparverband (ESV), is playing a critical role through its One-Stop-Shop (OSS) for Energy Communities.



By **Christiane Egger**,
OÖ Energiesparverband,
Upper Austria



A lot has been said about putting the consumers at the centre of the energy system. However, quite often, this has remained an empty slogan. A concept that is now really unleashing the power of a new decentralised and clean energy world in which citizens play a key part is Energy Communities (ECs).

Driven by EU policy

The exchange of electricity between two consumers – be they households, businesses or public bodies – was previously only possible with the involvement of an electricity retailer. In 2018, the Renewable Energy Directive introduced a new approach; in RECs, citizens, SMEs or public bodies are allowed to produce, consume, store, sell and share renewable energy in local proximity without an electricity retailer's

participation. The main purpose is to provide environmental, economic or social benefits rather than financial profits.

A number of Member States have taken their time in fully transposing this new instrument. Both the paradigm shift towards a new decentral energy system (in which RECs are only a first step) as well as creating the technical services needed for them proved to be challenging.

Full speed ahead in Upper Austria

Austria was among the first Member States to fully implement the relevant articles and made the establishment of RECs possible in 2021. Recognising the great potential of this new and complex instrument, it was clear that significant support would be needed and that ESV, as regional energy agency, has a key role. ESV launched an OSS for ECs on the day the new legislation came into force. The OSS was developed in the context of the H2020 project UP-STAIRS and integrated into ESV's extensive service portfolio.

The OSS provides support to municipalities, citizens and SMEs in Upper Austria on the technical, regulatory, financial and organisational aspects of ECs. It was critically important in building-up momentum in the region.

Lessons learnt from on the ground

From the very beginning, there was very strong interest in RECs and the high potential for energy sharing was evident. However, since RECs were a new concept, a need for information and guidance existed – and still exists today even after 3 years of intense support action. Within the OSS, so far, over 1,200 advice sessions for citizens,

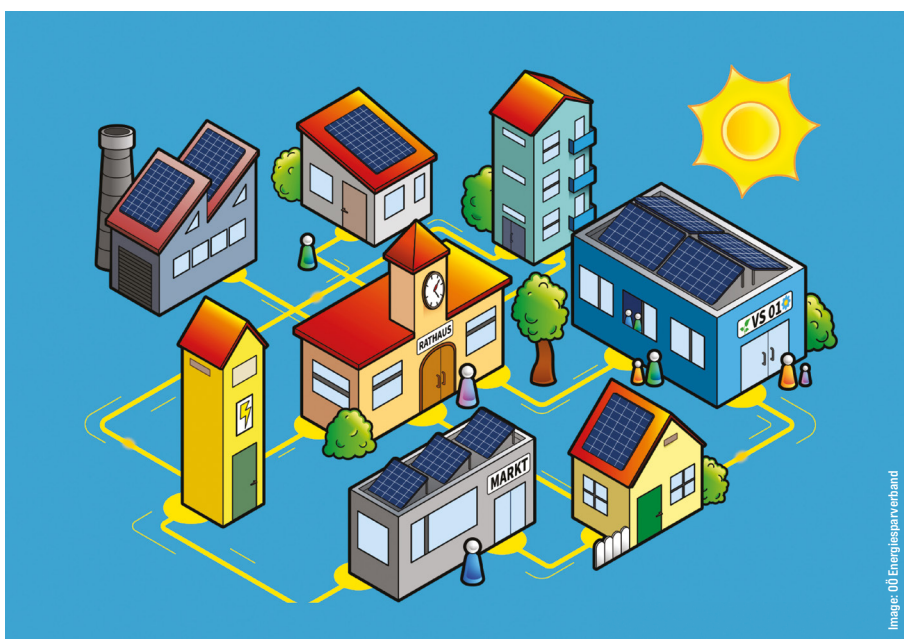


Image: OÖ Energiesparverband



municipalities and other stakeholders were held and over 3,500 participants were trained in 70 events. A recent representative survey showed that 54% of the population have heard about ECs.

Advice on RECs covers a wide range of issues. Regulatory questions often concern the geographic boundaries of the REC, the legal form, the membership and what a REC is allowed to do and what not. Financial aspects frequently relate to funding programmes, grid tariffs or tax questions. Technical and organisational issues typically pertain to grid connection and interaction with DSOs, load optimisation, internal accounting systems, service providers and, in general, what to do at which step in setting up a REC.

In Upper Austria, three main forms of energy sharing have emerged:

- Neighbourhood/family RECs: small RECs with typically two or three members within a family or among close neighbours.
- Municipality-driven RECs: Municipalities often have a number of public buildings with PV installations and pronounced seasonal variations in

building operation hours. Establishing a REC enables them to use electricity across buildings and increase self-consumption. They need at least one other member on board.

- Joint PV installations: sharing yields of a PV installation between users of an apartment or commercial building.

The PV boom is one of the key drivers behind the establishment of RECs. In Upper Austria, a new PV installation is connected to the grid every 20 minutes, 24 hours a day, 365 days a year! PV owners are interested in increasing their self-consumption. The economic benefits are another motivation (though sometimes overestimated). Also, EC members have an interest in being part of the “sharing economy”.

Just getting started

Even with the high level of complexity, RECs and other forms of energy sharing have taken root in Upper Austria's energy system. There are already more than 400 RECs in operation, 800 joint PV installations and 80 citizen energy communities,

involving 10,000 members overall. These numbers are increasing weekly.

The journey towards a truly decentralised energy system has just begun. Despite these successful developments, we are only starting to understand how it will transform the way we produce, share and use energy. The need for support continues as markets change, policies develop and new actors enter the playing field. One thing, however, is already crystal clear: Energy Communities are here to stay! ■

To learn about RECs and more

ESV invites you to join over 650 experts from 60+ countries at its leading conference **World Sustainable Energy Days (WSED)** from **5-7 March 2025**. Under the motto “**Competitive, collective, climate-neutral!**”, the 2025 edition will show how to gain momentum for the global energy transition to reach our goals together. www.wsed.at

Upcoming events 2024/2025

1. **CISOLAR 2024, Solar Energy Expo & Conference**
15-17 October 2024 | Bucharest, Romania
2. **Energy Storage Global Conference**
15-17 October 2024 | Brussels, Belgium
3. **Hydrogen Technology Expo**
23-24 October 2024 | Hamburg Messe, Germany
4. **Future Battery Forum**
5-6 November 2024 | ECC Berlin, Germany
5. **Ocean Energy Europe Conference & Exhibition (OEE2024)**
6 November 2024 | Aviemore, Scotland
6. **Young Energy Conference 2024**
7 November 2024 | Oslo, Norway
7. **European Congress on Renewable Energy and Sustainable Development**
11-12 November 2024 | London, UK
8. **International Conference & Expo on Biofuels and Bioenergy**
14-15 November 2024 | London, UK
9. **European Hydrogen Week**
18-22 November 2024 | Brussels, Belgium
10. **Offshore Energy Exhibition & Conference 2024**
26-27 November 2024 | Amsterdam, Netherlands
11. **London Climate Technology Show**
27-28 November 2024 | London, UK
12. **EnerGaïa, The Renewable Energy Forum**
December 11-12, 2024 | Montpellier, France
13. **Solar Energy Expo**
14-16 January 2025 | Warsaw, Poland
14. **E-World: energy & water**
11-13 February 2025 | Essen, Germany
15. **Energy Storage Summit**
17-19 February 2025 | London, UK
16. **European Energy Efficiency Conference**
6-7 March 2025 | Wels, Austria
17. **International Conference on Innovation in Renewable Energy and Power**
13-15 March 2025 | Berlin, Germany





18. GreenPort Congress and Cruise
23-25 October 2024
Le Havre, France



19. ReSource
24-25 October 2024
Amsterdam, The Netherlands



20. Motorship Propulsion & Future Fuels
19-21 November 2024
Hamburg, Germany



21. London EV Show
26-28 November 2024
London, UK



22. World Sustainable Energy Days
5-7 March 2025
Wels, Austria



23. Coastlink Conference
29-30 April 2025
Port of Bilbao, Spain



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- European Energy Efficiency Conference
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- Industrial Energy Transition Conference
- Smart E-Mobility Conference
- Young Energy Researchers Conference
- Innovation Workshops

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