EUROPEAN
COMMISSION

Brussels, XXX
[…](2026) XXX draft

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Strategy for the development and deployment of Small Modular Reactors (SMRs) in Europe

1. INTRODUCTION

Supply of homegrown, affordable and clean energy is key for accomplishing European Union's strategic goals of industrial competitiveness and decarbonisation as well as strategic independence and security of energy supply.

The emerging category of nuclear reactors, known as **Small Modular Reactors (SMRs)**, can be positioned as one of Europe's next major industrial development projects. SMR projects have the capacity to mobilise entire value chains across several EU countries and in different business areas, including engineering, advanced materials, and robotics, and activate financial stakeholders. They can create new knowledge and skilled jobs as well as long-term export capacity.

Beside traditional large scale nuclear reactors, SMRs are expected to play a role in a flexible, safe, and efficient energy system characterised by an ever-increasing share of clean electricity and by the demand for decarbonised heat supplies for industry and households. SMRs present opportunities both to off-takers in need of stable, flexible and clean energy, and to an array of nuclear industry players.

Due to their size and modularity along with the specific advantages of nuclear energy, SMRs are attracting interest across Member States. Preliminary evaluations of expected SMR capacity in the European Union by 2050 range from 17 GWe to 53 GWe ([1]).

What are the small and modular nuclear reactors?

The term **Small Modular Reactors (SMRs)** refers to nuclear reactors that are designed (i) to be smaller in size and output compared to traditional nuclear reactors, and (ii) to be modular, meaning that the reactors or their components can be fabricated in a factory setting and transported to a site either for direct use or for assembly.

A useful classification of SMRs encompasses 1) **Light Water SMRs**, which are typically derived from existing water-cooled nuclear reactors, 2) **Advanced Modular Reactors (AMRs)**, which use innovative, next-generation (**Generation IV**) designs with different coolants (liquid metal, molten salt, or high-temperature gas) and novel nuclear fuel types, and 3) **Microreactors**, which typically produce less than 10 megawatts of electric power, have long refuelling cycles and can be transported. ([2])

A variety of end uses, beyond electricity production

Combining SMRs with other clean energy sources could provide a flexible, sustainable energy mix, while making it easier to maintain grid stability and thus reduce the necessary storage, transmission, and distribution network investments. SMRs can effectively support grid load balancing.

While the first SMR projects worldwide focus on electricity production, SMR technologies will maximise their potential when targeting hybrid or off-grid opportunities

([1]) Industry estimates and projections in the PINC (COM(2025) 315 final and SWD(2025) 160 final).

([2]) For an overview on the state of play for small modular reactors (SMRs) in a technoeconomic perspective: *An exploratory analysis of the Small Modular Reactor ecosystem*, Publications Office of the European Union, Luxembourg, 2025, https://data.europa.eu/doi/10.2760/4478311, JRC142326

and heat production for hard-to-abate industrial and residential purposes rather than competing in the established European electricity market.

By delivering low-carbon electricity and heat, SMRs can directly support the decarbonisation of hard-to-abate sectors at the heart of European industrial base such as chemicals, steel, refineries, cement, maritime, defence, and district heating, while alleviating the pressure on electricity grids stemming from growing demand, including from data centres, the production of low-carbon hydrogen and e-fuels, as well as water desalination.

District heating is an area where SMRs could become particularly useful, as space heating and hot water consumption account for about one third of Europe's total final energy needs ([3]), largely satisfied by fossil fuels today. In addition, SMRs can provide low-carbon electricity to support air-conditioning and refrigeration needs to match the increasing cooling demand. Together, these applications offer an opportunity to a European primacy and industrial leadership in such applications.

[To enhance the understanding of the potential role of SMRs in various industrial sectors, it is crucial to examine concrete **use cases**. ([4])]

In addition, microreactors could be used in the future for various industrial sites, ports, airports, mining sites and to power defence operations. Given their size, portability and scalability, micro SMRs could serve as an enabler to create a wide market with multiple applications in the initial phase of deployment of this technology.

Increased autonomy, enhanced security, and ever safer applications

SMRs can strengthen EU's energy security and autonomy by reducing exposure to fossil fuels, while complementing other forms of energy such as renewables.

Furthermore, AMR designs are being developed with the concept of a closed fuel cycle. They will feature significant technological innovations aimed at enhancing nuclear safety and sustainability, the latter notably through significantly improved fuel utilisation and the minimisation of high-level radioactive waste, in line with circular-economy objectives. In terms of safety, these designs rely extensively on inherent and passive safety features, thereby reducing dependence on active systems and operator interventions.

The above diverse industrial applications make SMR solutions, including future AMRs, conducive to positive impact on local communities, helping to create more skilled jobs. At the same time, reduced amounts of high-level radioactive waste contribute to increase public confidence in nuclear technologies.

([3]) European Commission (2022), Renewable Space Heating under the Revised Renewable Energy Directive, ENER/C1/2018-494, Final Report, Publications Office of the European Union, p. 8.

([4]) Recent reports indicate that the decarbonisation challenges facing **chemical industries**, **district heating**, and **data centres** are substantial while SMRs, especially AMRs designed for heat provision, can significantly contribute to overcoming these challenges. Additionally, given that certain industries are concentrated within industrial hubs, exploring hybrid or off-grid applications with SMRs positioned nearby may prove beneficial by alleviating the burden on existing grid infrastructure. More specifically, **the chemical sector** stands as the largest industrial consumer of electricity within the EU, using approximately 165 TWh in 2021. That consumption is set to increase by up to 4 times in the transition to climate neutrality. Additionally, **district heating** currently satisfies about 12% of the EU's total heat demand, with the potential to expand to around 20% by 2030. Meanwhile, **data centres** in Europe consume about 70 TWh of electricity today, a figure projected to rise to 150 TWh by 2030.

Setting the vision for the development of SMRs in Europe

SMRs should be considered a shared European industrial project, built on a strong EU collaboration in research, supply chain, licencing, skills, and financing. This collaboration will help SMRs reduce time-to-market, scale quickly and become bankable and competitive projects. A fragmented approach would lead to duplicated efforts, slower regulatory approvals, limited manufacturing capacity, and higher unit costs, undermining public confidence and future investments – such a scenario should not be accepted for the development of this strategic technology for Europe. Pooling resources will ensure the capacity needed to deliver SMRs for both the EU market and beyond.

The successful deployment of SMR will largely depend on the creation of a strong market demand and a conducive business environment. The increasing need across various industries to electrify and decarbonise their production will be a significant driver. At the same time, it is crucial to provide to potential off-takers a clear outlook about future SMR electricity supply, expected cost evolution, and associated investment risks.

To create a sound business environment for SMR deployment in Europe certain conditions should be met:

(i) deliver the first-of-a-kind installations of SMRs as soon as possible and not later than the early 2030s, considering global developments ([5]); (ii) speed up the development advanced designs (AMRs) in parallel because additionally they cover market applications such as high temperature heat for industrial applications, or naval propulsion; (iii) nurture a European industrial supply chain able to provide components to a large spectrum of possible designs; (iv) create the conditions for a fleet-approach enabling series production; (v) streamline regulatory processes and support collaborative approach amongst regulatory authorities across Europe to enable timely SMR licensing and economies of scale.

This calls for an EU strategic approach to coordinate the European development efforts and deployment of SMRs in an ambitious timeframe, both via closer cooperation between Member States and in partnership with trusted partner countries on a global level.

2. THE ROLE OF THE EU INDUSTRY AS DRIVING FORCE FOR SMR DEPLOYMENT

Focusing on concrete SMR projects deployed in an integrated European programme

In September 2025, the **European Industrial Alliance on Small Modular Reactors** ([6]) presented its 2025–2029 Strategic Action Plan which forms an actionable programme for the industry to deliver on time and on budget, focusing on a limited number of projects.

([5]) In the US, the DoE announced in December 2025 grants totalling USD 900 million to support the initial US deployments of Generation III+ SMR technologies. DoE had also provided approximately USD 450 million under the SMR Licensing Technical Support programme. In Canada, the province of Ontario is investing CAD 1 billion through the Building Ontario Fund and the federal government CAD 2 billion through the Canada Growth Fund into Canada's first SMR project. The UK government has established an Advanced Nuclear Fund of GBP 385 million for developing a domestic SMR design and AMRs. First SMRs already operate in China and Russia.

([6]) Since February 2024, the SMR Industrial Alliance has brought together almost 400 organisations, including companies, research institutions, governmental bodies and non-governmental organisations.

While concrete SMR projects have already been identified by the Industrial Alliance, the Alliance needs to further stimulate and coordinate industry actions in order to deliver:

1) Light Water Small and Modular Reactors (LW-SMRs);
2) Advanced Modular Reactors (AMRs), so called Generation IV.

Some of the most advanced LW-SMR projects are based on designs of non-EU origin. While pursuing the realisation of those projects in the EU is coherent with the aim to get SMRs operational in early 2030s, it is essential to develop a balanced and mutually beneficial collaboration with the technology holders and like-minded partner countries. These projects will contribute to the development of a strong EU supply chain and European partners in these projects need to retain intellectual property (IP) rights to technologies and solutions developed in the EU.

AMRs need a particular push for further development and innovation including by means of testing and demonstration facilities. The currently selected projects are based on European designs and research efforts and have benefited from Euratom Research projects funded in the past. Generation IV projects are essential for maintaining the technological knowledge and leadership in the EU, while also ensuring the sustainability of the nuclear fuel cycle in the longer term.

Focus on achieving a European supply chain for modular and serial production

A **competitive European supply chain** needs to be in place for securing a high degree of local content and European added value in all SMR projects. This also includes fuel cycle services such as enrichment and conversion in line with the REPowerEU objectives ([7]).

The Industrial Alliance needs to facilitate the development of an EU supply chain to ensure that businesses and workers benefit in full, and to pay particular attention to regional supply chains relevant for specific SMR projects. Developing **modular manufacturing** in Europe is essential and should be inspired by other industrial domains such as shipbuilding or passenger aircraft construction. Modularity of designs and diversity of suppliers will enable shorter construction times compared to traditional nuclear power plants, paving the way for a stronger, more competitive European industry.

Furthermore, constructing a fleet of SMRs with a consistent design across multiple countries hinges on industrial **standardisation** and regulatory **cooperation in licensing**. They are both essential for reducing construction times and costs through improved production methods and optimised processes across Member States borders.

Closer industrial cooperation and project consolidation are needed

Industrial experience in the nuclear sector in Europe is solid and can be channelled towards the SMR market. However, due to a very low number of new-builds in the last few decades, the supply chain needs to be revitalised to avoid the creation of dependencies. European companies are now developing their capacities and building up their workforce to respond to the demands for new nuclear projects, whether large scale reactors or SMRs.

SMR developers, utility companies, potential end-users, and companies in the supply chain, including small and medium-sized enterprises, need to work closely together to stimulate robust market demand, to develop the necessary supply chain and establish compelling business cases for SMRs.

([7]) REPowerEU Roadmap, COM(2025) 440 final/2

SMR startups and scale-ups across the EU working on the same or very similar reactor designs or technologies should **join forces and collaborate** on bringing them to the prototype stage, even if they are likely to be competitors in the end markets. These companies should share access to testing facilities and build demonstration facilities. The fuel cycle, which requires new fuel fabrication and, in some cases, new reprocessing capacity, needs to be developed at the same time. It is not economically viable to develop, produce, and implement a large array of different fuels and waste management strategies.

In some cases, startups could develop solutions by working together, and in other cases they could pool resources to co-invest in facilities with other economic operators, for example in the fuel supply chain. The barriers to overcome are significant and require vast resources – financial and human – and are thus more effectively addressed through collective effort. Even projects working on different reactor designs should explore collaboration in the modular manufacturing of certain components and structures.

Action 1: Focus on EU industry initiatives by identifying a limited number of projects for support from suppliers and other partners across EU countries

Member States and the SMR Industrial Alliance need to further focus the support on a limited number of the most promising SMR designs where Europe can secure global leadership and enhance its competitiveness.

In order to maximise the chances of success, the Industrial Alliance should focus on promoting cooperation and the joining of forces among the supported projects. The Alliance will regularly reassess the selected projects in line with this objective.

Action 2: Develop and implement industrial standards supporting a fleet approach to SMR deployment

The industry, including utilities and operators, in cooperation with standardisation bodies ([8]) needs to continue working on developing and implementing industrial standards supporting a fleet approach to SMR deployment, and to develop the concept of modular manufacturing in line with the general timeframe indicated in this strategy.

3. CATALYSING FINANCING FOR THE DEVELOPMENT OF THE SMR VALUE CHAIN

The SMR business model relies on faster construction times and smaller initial investment amounts compared to large scale nuclear power plants, which in turn allows to lower overall financing costs, making SMRs particularly attractive to potential investors. A key enabler of this business model is the ability to build additional reactor modules in sequence, therefore with reactor units generating revenues before the completion of the full plant. However, this is to be proven in practice, and its success largely depends on the ability to achieve modularity and serial production.

[Facilitate the mobilisation of private investment via de-risking instruments

The aim of public funding should be to provide guarantees for first-of-a-kind (FOAK) SMR projects in order to mobilise the available wealth of private capital.

([8]) Such as European Committee for Standardisation (CEN) and International Organisation for Standardisation (ISO).

Governments that consider SMRs as part of their long-term strategy, should develop de-risking instruments in a coordinated way to attract investors.

The recently endorsed **IPCEI** (Important Project of Common European Interest) on innovative nuclear technologies can be instrumental in pooling resources behind common projects, either for an SMR project and/or for the required fuel cycle facilities. The IPCEI framework would also make it easier for SMR projects to mobilise private capital.

The **Net-Zero Industry Act** (NZIA) can streamline permitting processes and help to fast-track strategic projects, or elements of the electricity market design like capacity mechanisms, Power Purchase Agreements (PPAs) and Contracts for Difference (CfDs).

[Coordinated use of resources is essential to avoid fragmentation and ensure Europe does not fall behind. This includes building a competitive European industrial supply chain with sufficient capacity, in line with the objectives of the Industrial Accelerator Act, while simultaneously fostering robust market demand across sectors and applications.]

Under the NZIA, Member States could consider designating certain areas as "SMR Valleys", which could result in faster permitting and easier access to financing and would allow the region concerned to give additional benefits, including tax incentives.

The Clean Industrial Deal State aid framework (CISAF) ([9]) streamlines State aid supporting manufacturing capacity in clean technologies. It may allow Member States to direct support towards expanding manufacturing capacity in the SMR supply chain.

By taking inspiration from the Mankala ([10]) and Industrikraft ([11]) models, potential energy intensive end-users, especially those located in industrial districts, can collaborate to co-invest in SMR projects with the aim of securing more reliable electricity and heating source with more favourable prices in the future. Furthermore, synergies could be leveraged with other EU initiatives, such as battery gigafactories and large compute-and-data hubs like AI giga-factories, which are profiling themselves to be future SMR end-users as this already happens in other places in the world.

Tripartite agreements between off-takers of electricity or heat from innovative SMRs, nuclear industry invested in innovative SMR development, reactor vendors and supply chain companies, and Member States could facilitate access to financing and help the development and deployment of innovative SMR projects in Europe.

[In addition, leveraging **EU de-risking mechanisms** from the European Investment Bank (EIB) and InvestEU should support and de-risk the fast development and early deployment of the FOAK AMRs and crowd in private investment.]

Public funding to support EU start-ups

In the nuclear sector, Europe has several innovative startups thanks to a long history of nuclear research, supported also from the Euratom Research programmes. The **EU Startup and Scale Up Strategy** ([12]) announced setting up the Scaleup Europe Fund as part of the European Innovation Council (EIC) fund, to mobilise significant private funds and make direct equity investments in strategic sectors. The EU Startup and Scale Up

([9]) C(2025) 7600 – Communication from the Commission – Framework for State Aid measures to support the Clean Industrial Deal (Clean Industrial Deal State Aid Framework)

([10]) https://nucleus.iaea.org/sites/INPRO/df8/Section%202/Plenary_Economics_07_Stahl.pdf

([11]) https://www.industrikraft.se/en

([12]) EU Startup and Scaleup Strategy - Research and innovation, May 2025

Strategy also offers dedicated solutions aimed at facilitating access to finance, public procurement, markets, services and talents for innovative startups and scaleups.]

Action 3: ***Develop tailor-made de-risking financing instruments and de-risking schemes for AMRs and the scaling up of nuclear innovative technologies***

[The Commission will cooperate with the EIB, to develop tailor-made de-risking instruments for AMR technologies, addressing investment barriers and risks associated with FOAK projects.]

The new Scaleup Europe Fund will help innovative nuclear technologies to achieve faster deployment.

Action 4: Pre-conditions on a high level of local content in project implementation

[Member States should strengthen the EU supply chain by identifying gaps and promoting collaboration between suppliers and SMR developers in line the Industrial Accelerator Act ([13]) on EU-content requirements for SMR projects.]

Action 5: ***Design IPCEI on innovative nuclear technologies***

Member States shall design the IPCEI for SMRs in line with the directions and objectives provided in this strategy, with a focus to create the conditions for securing European global leadership and enhanced competitiveness. The Commission will closely monitor and ensure that the strategic focus is on a shortlist of first-of-a-kind projects in a coherent manner with the progress of the Industrial Alliance's activities.

4. A PUBLIC POLICY WILL BE NECESSARY TO SUPPORT THE SMR ECOSYSTEM

The development and deployment of SMRs must be industry-led, at the same time some public support is necessary to help overcome initial economic and regulatory barriers. Public support will also be needed to protect the intellectual property and technological know-how in this sector, and to revive the industrial supply chain and human capital.

R&D&I support for SMRs

Over the past decades, various national support programmes and the Euratom Research and Training Programme advanced R&D&I for technologies benefiting SMRs. These initiatives have fostered collaboration among Member States and strengthened the EU's leadership in the nuclear sector through enhanced expertise and know-how.

In 2024, five Euratom research projects related to LW-SMRs and AMRs were launched for a total of EUR 30 million. The Commission expects to continue funding research on the safety of SMRs with EUR 15 million under the Euratom Research and Training Programme in 2026–27, as well as under the 2028–34 multiannual financial framework.

Member States and the Commission, through its Joint Research Centre (JRC), operate state-of-the-art nuclear research infrastructure. However, further investments are needed in new, complementary experimental facilities for testing fuel, materials, and specialised

([13]) Not yet adopted, REF to be added

equipment, and to optimise their use by the different nuclear industry players. It is important to identify and prioritise the development of these new experimental and testing facilities to address the core R&D&I needs of SMRs in the EU. SMR projects could have access to the Commission's nuclear research infrastructure and benefit from the JRC's expertise, including its Modelling Hub.

What else Member States can do to support SMR deployment

Different SMR projects of similar design are currently pursued in various Member States. Since resources are limited, to increase the chances of success, Member States should join forces and pool their resources behind common projects of the same kind of reactor design and by developing a common de-risking instrument for SMR financing.

Many SMR projects involve companies from several Member States. Such projects require frequent transfers of data, technology and equipment across national borders. These exchanges may be significantly delayed due to export controls even within the EU as technologies and components needed for SMRs often are categorised as dual-use items. Without prejudice to EU legislation on export controls of dual-use items, the competent Member State authorities should streamline export control procedures for transfers between Member States in order to avoid undue administrative burden and delays for these, often small, companies.

As many other high-tech sectors, the SMR ecosystem needs a growing pool of **skilled and competent workers**. It is crucial to monitor supply and demand based on national workforce assessments with the support of the European Human Resources Observatory for the Nuclear sector and develop tailored training and education programmes at both national and EU levels. Member States and Commission should work on the establishment of an **EU Net Zero Academy for Nuclear Technologies, including SMRs** to support retention of skills and build-up of a competent workforce.

In addition to EU-level initiatives, Member States should develop and implement public engagement strategies aimed at improving the understanding of SMRs. These strategies should transparently communicate the characteristics, safety measures, and potential benefits of SMRs to the public, including at local level to address specific community concerns and interests.

Support to European regulatory collaboration in SMR licensing and nuclear safety

Licensing processes are essential for delivering SMR projects on time. Cooperation of national safety authorities is essential during the pre-licensing and licensing phases to ensure that new reactor designs proposed to the market are inherently safe.

The European Nuclear Safety Regulators' Group (ENSREG) has established a dedicated Taskforce where regulators from several Member States exchange information on SMR designs in pre-licensing phase. Such collaboration can avoid duplication, save resources and be instrumental to speed up licensing of reactor designs, while positively impacting nuclear safety. This Taskforce could be developed into a "regulatory coalition of willing regulators", where involved countries could align licensing procedures or mutually recognise each other's licensing decisions.

In addition to the Commission grant scheme to support Member States' nuclear safety regulators, mechanisms such as "NZIA Regulatory Sandboxes" or "Joint Early Reviews" between EU Nuclear Safety Regulators could facilitate collaboration and shorten the time needed for licensing, while ensuring that rigorous safety standards are maintained.

Regulatory sandboxes for net-zero technologies ([14]), including SMRs, are structured frameworks allowing involved companies to test, qualify, and validate new approaches and innovative components under the supervision of a competent regulatory authority or several regulatory authorities agreeing to work together. To facilitate compliance with safeguards requirements, operators of installations have to follow a safeguards-by-design approach ([15]).

Public engagement and international cooperation

Ensuring public engagement in and awareness of SMR development initiatives is critical to building trust and legitimacy around these projects. The Commission will promote a culture of transparency on nuclear energy. In preparation for this Communication, the Commission engaged stakeholders via a Call for Evidence ([16]) and a broad Stakeholders' Forum in January 2026.

International collaboration with organisations such as the IAEA or the OECD/NEA and with partner countries such as the United States, Canada, the United Kingdom, Japan and South Korea will continue. Europe remains open to non-European players, but at the same time avoiding developing new dependencies.

In addition to industrial cooperation between the European Union, Member States and partner countries, there is scope for enhanced dialogue on regulatory frameworks.

Action 7: Removing barriers to intra-EU flows and protecting European IP

Member States need to simplify administrative procedures related to export controls between Member States for SMR projects. Member States and the Commission should explore how to protect European IP developed in the context of SMRs, mainly through foreign direct investment screening and merger control mechanisms.

Action 8: Establish a "coalition of the willing" on regulatory and economic aspects of selected SMR designs

Interested Member States to establish a "coalition of the willing" to facilitate the introduction of the Industrial Alliance's selected SMR designs, across their territories, through in-depth regulatory cooperation and minimise - when impossible to avoid - locally customised solutions. The Commission will maintain a grant scheme to support EU regulators working on common safety assessments and joint early reviews of SMR projects. The Commission will assist Member States to develop regulatory sandboxes for SMRs.

Action 9: Working with international trusted partners for mutual benefit

The Commission will continue to cooperate with partner countries who are planning to deploy SMRs in the near term and international organisations such as the OECD/NEA and the IAEA, with the IAEA in particular to develop common safeguards approaches for

([14]) https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202401735

([15]) The Commission provides a clear framework for the application of Euratom safeguards in current and future nuclear installations, including SMRs: Commission Regulation (Euratom) 974/2025 of 26 May 2025 on the application of Euratom safeguards, OJ L, 2025/974, 16.6.2025.

([16]) Call for evidence, Small modular reactors – future development and deployment in Europe

SMRs. The Commission will also facilitate business to business dialogues for mutual benefit of the EU's and relevant partner countries' industry.

5. CONCLUSIONS

SMRs will contribute to the efforts to make Europe the first climate-neutral economy while also ensuring energy security, affordability as well as improving EU's competitiveness and strategic autonomy.

The EU has built up over several decades' relevant technological expertise and facilities, and has a broad industrial base, which are an asset for the development and deployment of SMRs in Europe. The EU is also a world leader in the area of the nuclear energy life cycle, such as closing the fuel cycle through reprocessing and recycling of nuclear materials.

In the global race of the emerging SMR market, the EU needs to take urgent action to stay at the forefront, remain competitive and to continue developing new technologies. The Commission is committed to creating the enabling conditions for the development and deployment of SMRs in the EU, while maintaining its role as guardian of the Treaties and ensuring adherence to the highest standards in nuclear safety, security, safeguards and radioactive waste management.

It is realistic to target the deployment of the first SMRs in Europe in the early 2030s. However, its success hinges on access to capital, pooling the knowledge, infrastructure and resources of various actors, aligning regulatory frameworks across Member States, reducing licensing timelines, standardising designs, adopting a fleet approach, and developing supply chains.

This Strategy requires the collective commitment of the EU institutions, Member States, industry, and research organisations, acting with the acceptance of the civil society at large, and serves as a call to action for intense collaboration in realising the potential of SMRs for a sustainable, competitive, and resilient European energy future.