



Mapping report on funding instruments for energy innovation

(update)

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More and better designed public support for energy technology Research and Innovation

Mapping report on funding instruments for energy innovation (update)



D2.2. Mapping report on funding instruments for energy innovation (update)

WP 2 - Further define adequate financial strategies / T.2.1 Map of Europe's funding/finance for energy

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1. Report Objectives

This report provides a **mapping on public and private funding instruments for energy innovation**, which can support energy technology R&I. The guide provides an outlook of the available European trans-national, national and regional funding instruments, in order to support the coordination of the industrial participation in the SET Plan, in particular from the industry-driven associations and initiatives such as the European Technology and Innovation platforms (ETIPs), partnerships or other relevant public-private partnerships, and importantly the industrial actors identified in the 13 non-nuclear SET Plan implementation plans.

It is intended as a funding guide of the most relevant available instruments that support clean energy, and therefore, serves as a reference document for clean energy project developers, administrators, European, national and regional policymakers and other energy stakeholders.

This information is intended to assist industry in considering their funding needs, **in particular to finance first-of-a-kind, commercial-scale demonstration projects in the field of Energy (FOAK projects)**.

The approach in **this guide** is not to describe every funding source, but rather to **focus on a broad selection of specific and/or innovative funding sources for clean energy** that may be useful for the industrial sector.

this is the second version of the document, due in may 2021 as deliverable d2.2 of the project smartspend, “more and better designed national public support for energy technology research and innovation”. it is the update of an earlier version published in september 2020 issued as d2.1. this project has received funding from the european union’s framework programme horizon 2020 for research and innovation actions under grant agreement no 826044.

2. Recommendations

Throughout the mapping exercise developed in order to finance energy innovation projects, the following recommendations are formulated:

As a starting point, financing is a **critical link** in the path between innovation and successful commercialisation. In this sense, a major barrier to implementing first-of-a-kind (FOAK) commercial scale demonstration projects is the lack of available reasonable finance, given their pre-commercial development stage and the unproven nature of the technologies concerned at industrial scale. Also, in many cases, the political and regulatory framework is another critical link to develop innovative energy FOAK projects: if the national / regional / local legal framework is not stable and profitable enough, businesses cannot rely on a sufficient market demand (for e.g. the next 10-20 years), so that investing in FOAK projects becomes very risky.

Once the investment on an innovation energy project is decided, it should be clearly stated that **financing opportunities** are available, both by the public and the private sector. The following graph shows how important a good coordination between public and private funding is essential to bridge the gap between early research phases and commercialisation of solutions:

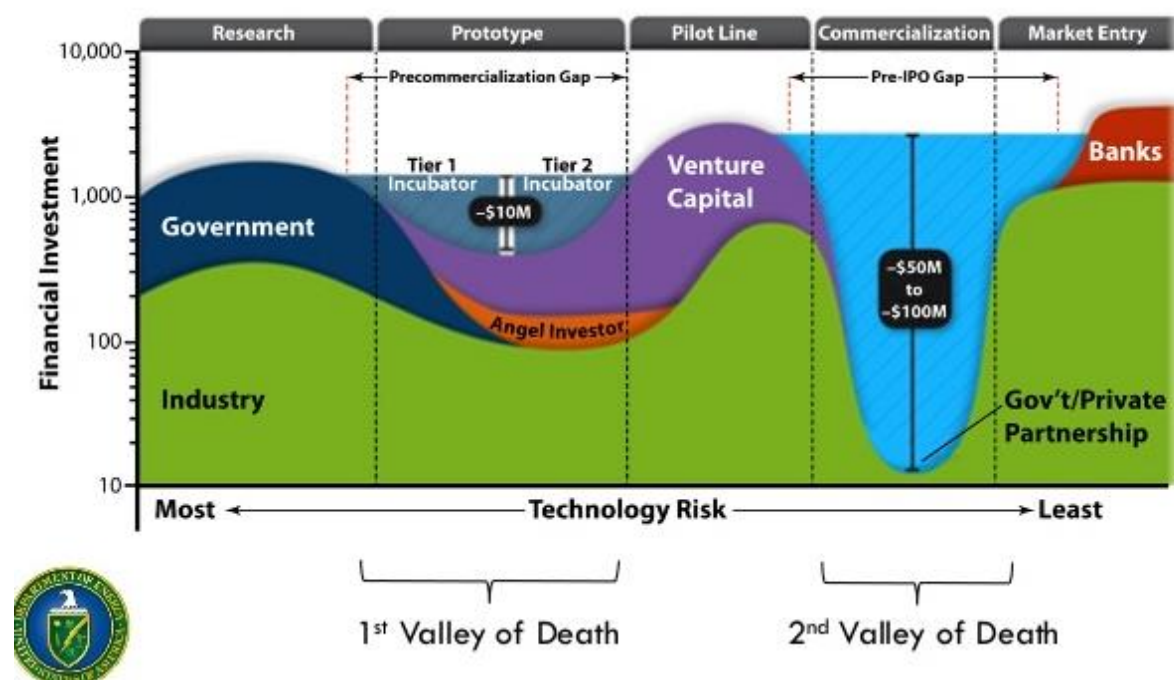


Figure 1: The Cleantech Valleys of Death, Keneth Alston, Special Advisor to Secretary U.S. Department of Energy - 2016
https://www.slideshare.net/OECD_ENV/oecd-giff-2016-kenneth-alston

On the one hand, the public sector plays a vital role in funding FOAK projects at EU, Member State and regional level. At EU level, the main financing scheme is through grant support. The Innovation Fund, as well as the Recovery and Resilience Facility, are two recently-established instruments to explore. Moreover, grants, loans and partially reimbursable loans are the main instruments to finance FOAK projects related to clean energy all around the European countries and regions. In most of them, such clean energy funding instruments are managed by Agencies focused on energy. Loans are used in some schemes, such as the Swedish Cleantech Hub, the German KfW Renewable Energy Programme or the Italian National Fund for Energy Efficiency, in addition to some schemes based on partially

reimbursable grants such as the French PIA programme, the Portuguese SI Inovação or the Spanish Innovators direct line.

On the other hand, the private sector is also vital in relation to the financing of FOAK projects. Indeed, financial instruments (FIs) can catalyse investment and finance from the private sector into SET Plan-related FOAK projects, assuming they are cost efficient and are designed in a way to incentivise private actors and 'crowd in' funding.

Furthermore, **compatibility** of different financing EU instruments is also possible. For example, projects suitable for financing in the energy sector under the InvestEU scheme could also be combined with other funding sources in the EU budget, (i.e. Connecting Europe Facility -CEF-, etc). The effectiveness of the InvestEU scheme could therefore benefit from the combination of financial instruments, EIB loans and grants in a combined, "blending" approach¹. In addition, Innovation Fund grants can be combined with other sources of funding (although often this is not an easy process), for example: Horizon 2020 or its successor Horizon Europe; enhanced European Innovation Council (EIC) pilot; InvestEU; Connecting Europe Facility for the roll-out of key infrastructure; National programmes supporting research and innovation for low-carbon technologies, as well as national and regional additional funds to be leveraged by the new Recovery and Resilience Facility; and Private capital². In the case of complementarity among transnational, national and regional financing instruments, EU grants are usually linked with other funding instruments coming from national or regional Agencies or Ministries, which are in turn, the agents in charge of managing these funds.

In terms of **conditions**, requirements and characteristics of the European transnational, national and regional calls, these are specified within the framework of each call, having a direct link with the state aid rules set by each fund manager (governments, agencies, ministries, etc.). Therefore, it is highly recommended to thoroughly analyse each call and contact the relevant agents or NCPs if necessary.

¹https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/investment-plan-europe-juncker-plan/investment-plan-results/efsi-energy-sector_en

²https://ec.europa.eu/clima/policies/innovation-fund_en#tab-0-1

3. Overview of Methodologies

This guide contains an overview of innovative clean energy financial instruments: public and private funding in Europe.

3.1 PUBLIC FUNDING METHODOLOGY

- European Transnational public funding
- National public funding
- Regional public funding

To achieve a representative European guide of public funding instruments to finance innovative clean energy projects, the choice has been made considering the degree of innovation of the area (country/region) and its innovation performance in the last years. For the regions, Smart Specialisation Strategies (S3P) in the Energy domain have been considered as well. The following tools/methods were used:

Type of funding	Tool	Indicator	Criteria to select instruments
European Transnational public funding	own knowledge + ERALEARN	Existence of EU transnational programmes specifically or broadly supporting sustainable energy.	All included. When sub-instruments available, just one or a few selected per instrument.
National public funding	The European Innovation Scoreboard This tool provides a comparative assessment of the research and innovation performance in EU countries, other European Countries and regional neighbours.	Innovation index. As well as R&D expenditure in the public sector (percentage of GDP). The R&D expenditure indicator provides key indications of the future competitiveness and wealth of the EU.	National instrument from Big 4 (Germany, France, Italy and Spain) + 4 most-relevant* countries [1/2 per group: 2 Innovation Leaders / 1 Strong Innovator / 1 Moderate Innovator. Modest Innovators are discarded]
Regional public funding	Eye@RIS3 Eye@RIS3 used with the purpose to give an overview of regions' priorities. Regions with Energy-related Smart Specialisation Strategies (S3P) are selected.	Economic domain: Electricity, gas, steam and air conditioning supply Scientific domain: Renewable energy sources	Up to 10 regional instruments in most-relevant* regions [2-4 per group: Innovation Leaders / Strong Innovators / Moderate Innovators], which, at the same time, include

Type of funding	Tool	Indicator	Criteria to select instruments
	The European Innovation Scoreboard, at Regional Level, used to categorise the regions by their innovation performance.	Policy objective: Sustainable energy & renewables	Energy-related regional priorities

*: Most-relevant = countries/regions with relevant improvements in the European Innovation Scoreboard 2020, between 2017 (reference year used in the previous version of this document) and 2019 (last data available)

The following items are analysed in each public funding instrument:

<u>1.General call information</u>	<u>5.Evaluation</u>
<ul style="list-style-type: none"> Type of call Managing body of the call Type of beneficiaries / target organisations Type of eligible objectives Available budget per call Compatibility 	<ul style="list-style-type: none"> Evaluation criteria Time from application to approval Response/transparency level of process and results
<u>2.Call requirements</u>	<u>6.Negotiation</u>
<ul style="list-style-type: none"> Project duration Type of consortium Min participants Max participants minimum TRL targeted TRLs Requirements of business viability Minimum budget Maximum budget Is financial status of participants requested? Financial guarantees / deposits requested? 	<ul style="list-style-type: none"> Meeting with financing organism? Ability of project adjustments? Complexity level of administrative requirements
<u>3. Financing</u>	<u>7. During execution</u>
<ul style="list-style-type: none"> Type of financing % of financing Eligible costs Budget requirements 	<ul style="list-style-type: none"> Frequency of progress reports Monitoring meetings / visits Audit
<u>4.Proposal</u>	
<ul style="list-style-type: none"> Single stage / two stages No of pages Submission system Need of signatures Documents requirement level 	

3.2 PRIVATE SECTOR FUNDING METHODOLOGY

The private sector funding mapping is based on the screening of the most representative specialised investors (mainly Venture Capitalist and Angels investors) in the energy and environmental sector in accordance with their financing stage (Private Company Lifecycle) and notably Seed, Early-stage and Mid expansion. Financial institutions and private traditional banking sector, apart from EIB, are not included in the scope of the screening for private sector funding. The private traditional banking sector, is a well-known actor but less ready to fund first-of-a-kind solutions which have higher risk of investments.

Type of funding	Tool	Indicator	Criteria to select instruments
Private sector funding	Web-based equity funding platforms like: “Investor Search” (Invest Europe) + “EuroQuity” + “Dealflow.eu” + desk research.	Analysed sector: Energy and environment.	Available Venture capital firms and angel investors according to the analysed stage of financing (Seed, Early stage and Mid expansion).

4. Public sector funding: EU, national and regional level.

According to the SET Plan Implementation Plan, up to 2030, an estimated aggregated total of more than EUR 20 billion (see Figure 1) is expected to be invested in R&I activities that have the highest impact for the clean energy transition.

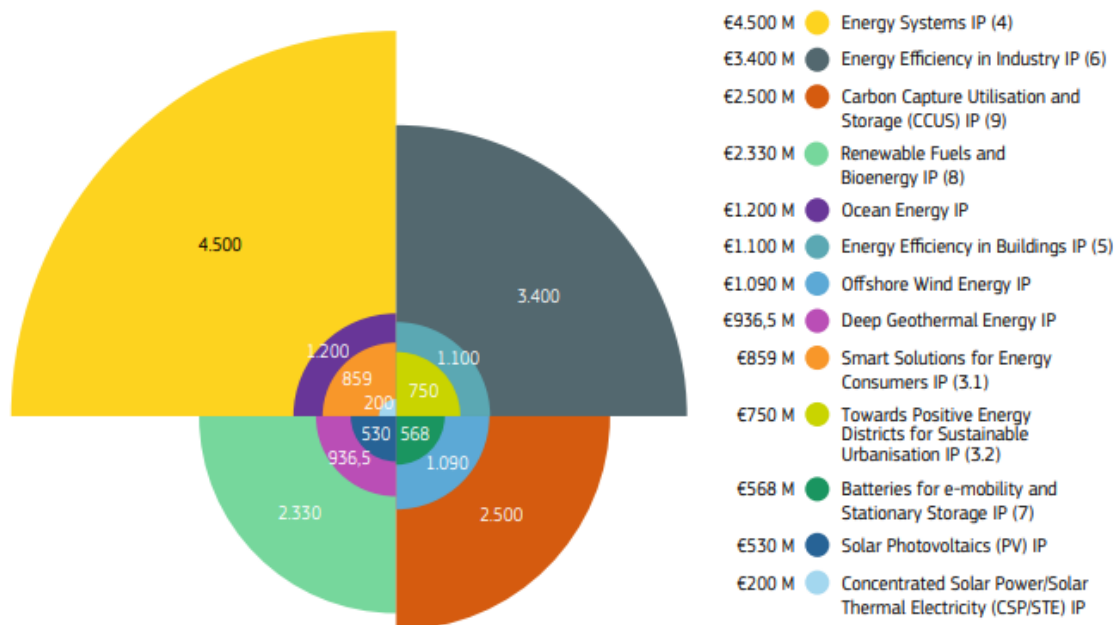


Figure 2: Expected volume of investments in R&I activities (EUR million). Source: https://setis.ec.europa.eu/sites/default/files/setis%20reports/setplan_delivering_results_2018.pdf

In 2015, an estimation of € 23 billion were invested in the R&I priorities identified by the Energy Union/SET Plan. The private sector was the major source of R&I investment in all but one Energy Union/SET Plan R&I priorities (77%). On the other hand, public investments (national and EU) represented 18% and 5% respectively.

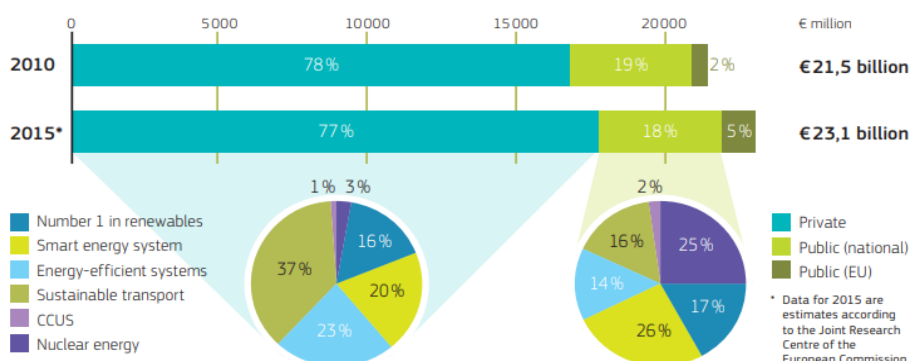


Figure 3: Investment in the Energy Union/ SET Plan R&I priorities in the EU (2010-2015) The strategic Energy Technology (SET) plan. Source: https://setis.ec.europa.eu/sites/default/files/setis%20reports/2017_set_plan_progress_report_0.pdf

4.1 LATEST EU STRATEGIES

There are two EU-level strategies / policies in the energy and environment field, which have materialised and/or significantly evolved in the period between the issuing of the first version of this document (September 2020) and the current update, which deserve a particular mention. They are the European Green Deal and the Recovery and Resilience Facility. Both of them will have a significant impact in the funding opportunities that will emerge in the near future.

European Green Deal

At the end of 2019, the EU adopted the European Green Deal, a new plan to make the EU's economy sustainable. **The green Deal addresses the challenges of Climate change and environmental degradation.** To overcome these challenges, Europe needs a new growth strategy that will transform the Union into a modern, resource-efficient and competitive economy, where:

- there are no net emissions of greenhouse gases by 2050
- economic growth is decoupled from resource use
- no person and no place is left behind

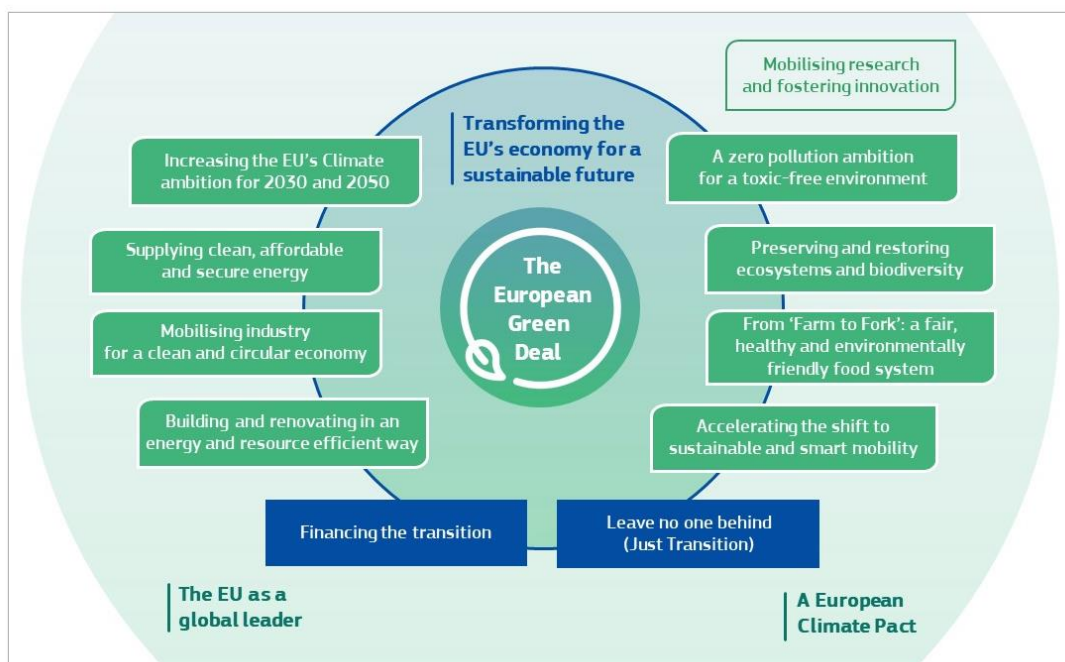


Figure 4: The European Green Deal

The EU policies and programmes are aligned with the objectives of the European Green Deal, including the financing instruments. For example, H2020 included an extra Green Deal call for proposals at the end of 2020 and many programmes (such as LIFE, Innovation Fund, Horizon Europe, etc) are being drafted in the new programming period 2021-2027 supporting this policy.

Recovery and Resilience Facility

Moreover, the Recovery and Resilience Facility (RRF) is an interesting tool to finance energy projects using EU funds by means of national calls. For the period 2021 -2023, the EU recovery plan, Next Generation EU (NGEU) foresees to allocate €672 bn to Member States to help them recover from the pandemic. The budget is divided into loans and grants. A total of €338 bn is foreseen to be spent in Grants (see:)³ . Member States have to deliver their National Recovery and Resilience Plans to the European Commission until 30 April 2021⁴ and the requirement is to use the money before the 31st of August 2026.

Here, by grants we mean money awarded by a country, government, organism which is non-repayable, as a gift, while loans require the borrower to repay the amount of money within a certain predefined period of time and with/ or not interest.

The table below shows **how National Recovery and Resilience Plans (RRP)** are including measures to support clean Energy. The information includes details available at the date of the publication of this report.

Energy related priorities supported by National Recovery and Resilience Plans per country				
Country	Total Grant Allocation from RRF (in bn €)	Energy included as Part of the NRRP	Indicative budget for Energy	Indicative energy priorities foreseen (when available)
Austria	4.5	Yes	€ 1.5 bn	<ul style="list-style-type: none"> Promotion of the replacement of oil and gas heating systems Combating Energy poverty Promotion of zero-emission transport Transformation of the industry to Climate neutrality
Belgium	5.9	Yes	€ 1.6 bn	<ul style="list-style-type: none"> Energy innovation buildings Renewable energy sources Hydrogen development
Bulgaria	6.3	Yes	€ 2.6 bn (BGN 5.1 bn)	<ul style="list-style-type: none"> Energy efficiency in buildings Pilot projects for green production of hydrogen and biogas
Croatia	6.3	Yes	€ 0.65 bn (Kn 4.9 bn)	<ul style="list-style-type: none"> Energy transition for a sustainable economy
Cyprus	1	Yes	€ 0.82 bn	<ul style="list-style-type: none"> Energy efficiency in agriculture, buildings and transports Renewable energy sources (solar, thermal, renewable fuels, smart grids, biomass)
Czech Republic	7.1	Yes	€ 3 bn (CZK 77 bn)	<ul style="list-style-type: none"> Sustainable Transport Reducing energy consumption Switching to cleaner energy sources

³ https://ec.europa.eu/info/sites/info/files/about_the_european_commission/eu_budget/recovery_and_resilience_facility_.pdf

⁴ Link to Individual National Recovery and Resilience plans are available here: https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en#national-recovery-and-resilience-plans .

Energy related priorities supported by National Recovery and Resilience Plans per country				
Country	Total Grant Allocation from RRF (in bn €)	Energy included as Part of the NRRP	Indicative budget for Energy	Indicative energy priorities foreseen (when available)
				<ul style="list-style-type: none"> • Development of clean mobility • Building renovation and air protection
Denmark	11.6	Yes	€ 2 bn (DKK 14 bn)	<ul style="list-style-type: none"> • Energy efficiency improvements • Green heating
Estonia	1.2	Yes	€ 0.3 bn	<ul style="list-style-type: none"> • Promotion of integrated hydrogen technologies
Finland	2.1	Yes	€ 0.52 bn	<ul style="list-style-type: none"> • Energy infrastructure investment • New energy technology investment (offshore wind power, solar energy, biogas, geothermal energy and heat recovery) • Hydrogen
France	39.4	Yes	€ 11 bn	<ul style="list-style-type: none"> • Energy performance renovations for buildings, • Green mobility and infrastructures • Development of new green technologies (hydrogen, biofuels, recycling)
Germany	25.6	Yes	€ 15.32 bn	<ul style="list-style-type: none"> • Decarbonisation using renewable hydrogen in particular • Climate-friendly mobility • Climate-friendly renovation and construction
Greece	17.8	Yes	€ 6.2 bn	<ul style="list-style-type: none"> • Power up: Energy infrastructure and renewables • Renovate: Energy efficiency of buildings • Recharge: Electro and green mobility
Hungary	7.2	Yes	€ 1.66 bn (HUT 597 bn)	<ul style="list-style-type: none"> • Support for residential solar system and electrification • Support for new photovoltaic capacities for renewable energy production • Classic and intelligent network developments for transmission system operators and distributors
Ireland	1	Yes	N/A ⁵	<ul style="list-style-type: none"> • Investment on clean and efficient production and use of energy
Italy	68.9	Yes	€ 18.22 m	<ul style="list-style-type: none"> • Renewable energy, hydrogen and sustainable mobility • Increase of share of energy production from renewable energy sources

⁵ N/A: No information available

Energy related priorities supported by National Recovery and Resilience Plans per country				
Country	Total Grant Allocation from RRF (in bn €)	Energy included as Part of the NRRP	Indicative budget for Energy	Indicative energy priorities foreseen (when available)
Latvia	2	Yes	€ 0.18 bn	<ul style="list-style-type: none"> Energy Efficiency (mainly in buildings and business)
Lithuania	2.2	Yes	€ 0.8 bn	<ul style="list-style-type: none"> More sustainably produced electricity in the country Moving without polluting the environment Accelerated renovation of buildings and a sustainable urban environment Increasing GHG absorption capacity
Luxembourg	0.09	Yes	0.05	<ul style="list-style-type: none"> Energy efficiency in Mobility Promoting the use of renewable energy for housing
Malta	0.3	N/A	N/A	N/A
Netherlands	6	N/A	N/A	N/A
Poland	23.9	Yes	€ 6.4 bn	<ul style="list-style-type: none"> Green energy and efficiency
Portugal	13.9	Yes	€ 2.8 bn	<ul style="list-style-type: none"> Sustainable Mobility Decarbonisation and Bioeconomy Renewable energy and efficiency
Romania	14.2	Yes	€ 1.3 bn (L 6.41 bn)	<ul style="list-style-type: none"> Contribution between 40-100% to the green transition by financing investments in renewable energy, efficient energy systems
Slovakia	6.3	Yes	€ 2.3 bn	<ul style="list-style-type: none"> Promoting the use of renewable energy sources and strengthening energy networks Green renovation of buildings Sustainable transport Decarbonisation of industry
Slovenia	2.5	Yes	€ 0.15 bn	<ul style="list-style-type: none"> Renewable energy sources and energy efficiency in the economy Sustainable renovation of buildings Clean and safe environment Sustainable mobility Circular economy – resource efficiency
Spain	69.5	Yes	€ 6.4 bn	<ul style="list-style-type: none"> Renewable energy deployment and integration Electric infrastructures, promotion of smart grids and deployment of flexibility and storage. Renewable hydrogen roadmap and sectoral integration
Sweden	3.3	N/A	N/A	N/A

The funding opportunities of the RRF will finally materialise in National and Regional level funding schemes and calls for proposals, nurtured by European Union funds transferred to the national and regional funding authorities. The funds will either increase the ambition or scope of already existing funding instruments, or will either nurture new financing programmes and calls for proposals specifically designed with the European RRF input funds. All these opportunities will come to light once the European Commission finalises the approval of the Member States' Recovery and Resilience Plans in spring 2021.

4.2 European Transnational Funding

This report aims at supporting the coordination of the industrial participation in energy innovation projects. In this sense, the European transnational public funding instruments gathered in this report are utterly in line with the Energy Union strategy and the actions for research and innovation identified in the SET Plan, whose 10 actions are shown in the figure below.

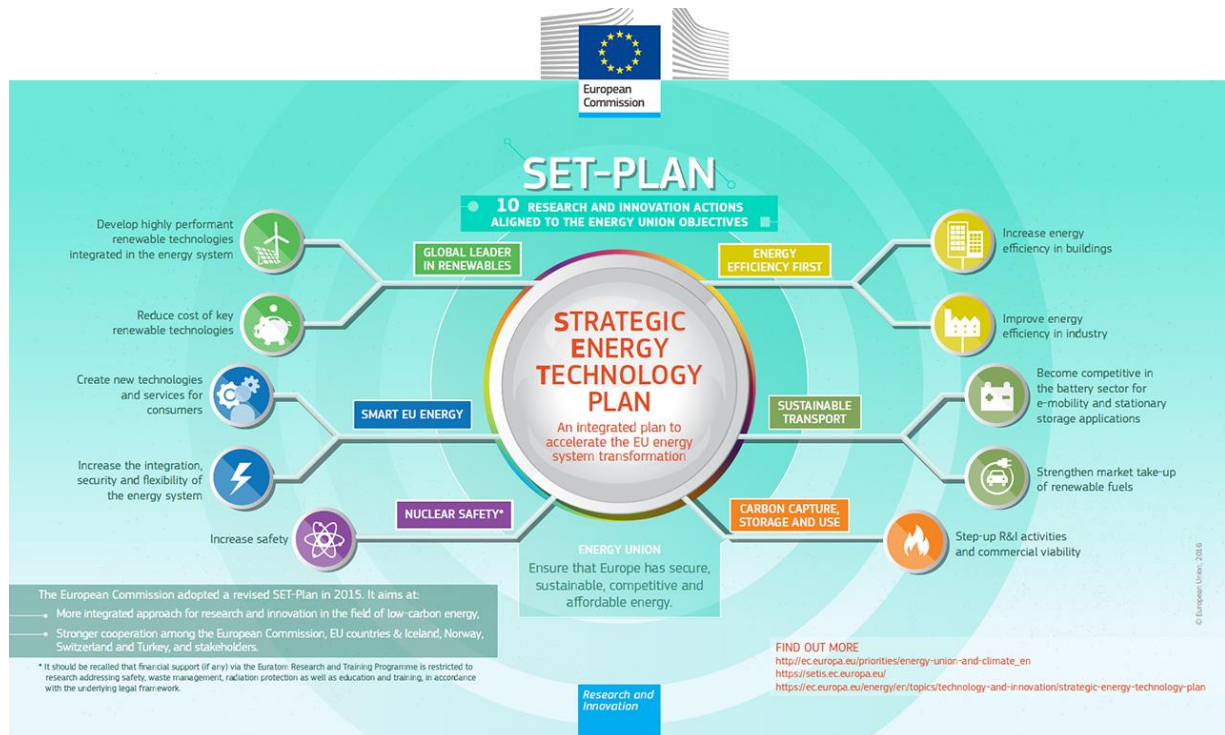


Figure 5: The strategic Energy Technology (SET) plan. 10 Research and Innovation Actions. Source: <https://ec.europa.eu/research/energy/index.cfm?pg=policy&policyname=set>

Furthermore, R&I in industrial energy and resources efficiency is needed to ensure that industry contributes to climate change targets and increases its export competitiveness. R&I investment is therefore necessary to further boost the EU's technological leadership and innovation know-how as a way to maintain competitive production in the EU⁶.

The mapping analysis has identified a large group of European and transnational funding instruments provided by different EU networks in the energy area, which are shown in the following figure.

⁶ https://setis.ec.europa.eu/sites/default/files/setis%20reports/2017_set_plan_progress_report_0.pdf

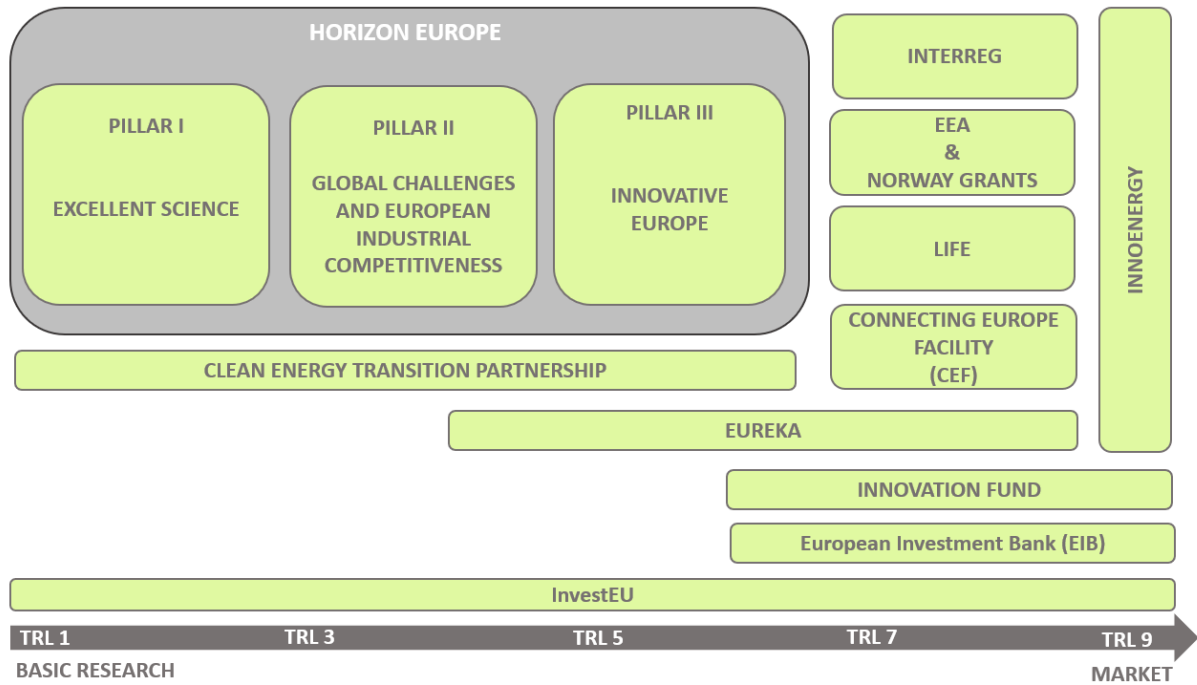


Figure 6: Mapping of European Transnational Programmes for Energy Innovation
Source: own elaboration

The graph above shows a general vision of the types of public financing instruments available at EU level.

On the one hand, Horizon Europe provides specific funding for Energy R&D and Innovation projects in several programme sections:

- Pillar I Excellent Science (ERC, Marie Skłodowska-Curie actions, Research Infrastructures)
- Global Challenges from Pillar II, particularly within Cluster 5 (Climate, Energy and Climate), but in other clusters as well such as Cluster 3 (Civil Security for Society), Cluster 4 (Digital, Industry and Space) or Cluster 6 (Food, Bioeconomy, Natural Resources, Agriculture and Environment).
- Clean Hydrogen Partnership
- Pillar III : European Innovation Council Accelerator or Pathfinder Instruments

On the other hand, there are other EU level funding instruments, such as INTERREG, Clean Energy Transition co-fund Partnership (which is linked to HorizonEurope), InvestEU, Euratom (nuclear energy), CEF Energy or Transport, EIB, LIFE, InnoEnergy, Innovation Fund and others.

Finally, there are some mechanisms at international/European level, which nonetheless are nurtured with national level funds, such as EUREKA and EEA & Norway Grants. EUREKA projects are international level research and development cooperation projects with a focus on Europe. Once its international added value is assessed and backed by the EUREKA seal, the beneficiaries apply for funding through their national funding programmes, which have a larger funding amount and/or better conditions due to the international level cooperation. The origin of the funding for the EEA & Norway Grants are national funds provided by Norway, Iceland and Liechtenstein, these countries offer the funds to the national authorities of the EU countries, so that the national authorities can establish a new funding programme in their countries, to finance different types of clean energy projects.

Blending finance is the combination of EU grants with loans or equity from public and private investors and can also be considered to secure complementary projects' funding. Public or

philanthropic investors can invest direct funds or give credit enhancement through guarantees or insurance to provide an additional layer of protection to private investors.

Blending is used in EU programmes such as CEF programme, InvestEU and it is also recommended for calls under programmes smaller funding rates like LIFE. The most relevant instruments useful to contribute to co-fund Energy innovations across Europe are presented in this section.

These funding opportunities are also displayed in the table below, showing which Energy Union policies and SET Plan Key actions each instrument is covering.







Energy Union <i>Research, Innovation and Competitiveness Priorities</i>		SET Plan 10 Key Actions	European transnational public funding instruments
No 1 in Renewables		1. Develop performant renewable technologies integrated in the energy system 2. Reduce the cost of key renewable technologies	HORIZON EUROPE Clean Energy Transition partnership INTERREG EEA & Norway Grants LIFE CEF EUREKA InvestEU EIB Innovation Fund InnoEnergy
Consumers in the Energy System		3. Create new technologies and services for consumers 4. Increase the resilience and security of the energy system	
Efficient Energy Systems		5. Develop energy efficient materials and technologies for buildings 6. Improve energy efficiency for industry	
Sustainable Transport		7. Become competitive in the global battery sector (e-mobility) 8. Strengthen market take-up of renewable fuels	
Carbon Capture Utilisation and Storage		9. Drive ambition in carbon capture and storage/use deployment	
Nuclear Safety		10. Increase safety in the use of nuclear energy	Euratom

Figure 7: Alignment of EU Programmes for Energy Innovation with the SET Plan Key Actions
Source: own elaboration.

Finally, the IPCEI instrument “Important Projects of Common European Interest” should be also taken into account within the EU trans-national financial framework. IPCEI is designed to bring together public and private sectors to undertake large-scale projects that provide significant benefits to the Union and its citizens. IPCEIs can be relevant for all policies and actions that fulfil common European objectives, in particular as regards the Europe 2020 objectives, the Union’s flagship initiatives and key areas for economic growth such as the Key Enabling Technologies. As a useful feature, this instrument allows MS (Member States) to exempt from State Aid Rules, as laid down in the Communication from the Commission (2014/C 188/02) “Criteria for the analysis of the compatibility with the internal market

of State aid to promote the execution of important projects of common European interest”. The rules for IPCEIs are expected to be reviewed at the end of 2021.

Already 3 IPCEIs have or are in the process of being set: there are 2 IPCEIs ongoing in the sector of Battery and 1 in the area of Hydrogen being finalised.

Note: The work programmes and the calls of the programmes of the Multiannual Financial Framework 2021-2027 first calls have not been all officially launched in June 2021.

4.2.1 HORIZON EUROPE

Horizon Europe (HE) - “Investing to shape our future” - is the largest EU Research and Innovation programme of the European Commission, with nearly €95.5 billion of funding available over 7 years (2021 to 2027). An amount of €5.4 billion are coming from NGEU, Next Generation Europe, programme of the EU for Recovery from COVID 19 crisis and will have to be committed within the 4 first years of the programme (until 2023).

Horizon Europe’s ambition is to:

- fuel EU’s **scientific and technological excellence** and strengthen the European Research Area (ERA)
- tackle policy priorities, including **green and digital transitions** and Sustainable Development Goals
- boost Europe's **innovation uptake, competitiveness** and **jobs**

Horizon Europe provides the following funding opportunities related to energy:

- Through Pillar II, Cluster 5: “Energy, Climate and Mobility”, which includes Destination 2 “Cross-sectoral solutions for the climate transition”, Destination 3 “Sustainable, secure and competitive energy supply” and Destination 4 “Efficient, sustainable and inclusive energy use includes activities”, which provide most part of the energy-related opportunities. Moreover, these three destinations are including the funding opportunities related to the following partnerships:
 - Co-programmed European partnership: Industrial Battery Value Chain
 - Co-programmed European partnership: People-centric sustainable built environment “Built4People”
 - Co-funded European partnership: Clean Energy Transition
- Through Pillar III: European Innovation Council calls. This pillar is valid for any type of research area (it is not specific to energy), but it can fund energy projects as well.
- Through the Clean Hydrogen Partnership (institutionalised partnership)

2021-2022 Horizon Europe Energy related calls and partnerships (PROVISIONAL)

General call information: Pillar II, Cluster 5: Climate, Energy and Mobility



The “**Climate, Energy and Mobility**” **Cluster 5**, is part of the 2nd Pillar of Horizon Europe “GLOBAL CHALLENGES & EUROPEAN INDUSTRIAL COMPETITIVENESS”, the main driver for this cluster is to “accelerate the twin green and digital transitions and associated transformation of our economy, industry and society with a view to achieving climate neutrality in Europe by 2050”.

The Key Strategic Orientations (KSOs) of this cluster are:

- A. Promoting an open strategic autonomy by leading the development of key digital and enabling technologies, sectors and value chains to accelerate and steer the digital and green transitions through human-centred technologies and innovations;
- B. Restoring Europe’s ecosystems and biodiversity, and managing sustainably natural resources to ensure food security and a clean and healthy environment;
- C. Making Europe the first digitally led circular, climate-neutral and sustainable economy through the transformation of its mobility, energy, construction and production systems;

D. Creating a more resilient, inclusive and democratic European society, prepared and responsive to threats and disasters, addressing inequalities and providing high-quality health care, and empowering all citizens to act in the green and digital transitions.

This Work Programme is structured in six “Destinations”, each one aiming to achieve an impact. The relevant Destinations (D) in the area of Energy are:

- D2: Cross-sectoral solutions for the climate transition
- D3: Sustainable, secure and competitive energy supply
- D4: Efficient, sustainable and inclusive energy use

These three destinations of Cluster 5 have a total budget of 919.8 M€ for 2021 and 939 M€ for 2022. D2 has a budget of 388.50 M€ over 2 years, D3 of 1,226.3 M€ and D4 of 244 M€.

Destination 2 “Cross-sectoral solutions for the climate transition”, in line with the Strategic Plan, aims to contribute to the “Clean and sustainable transition of the energy and transport sectors towards climate neutrality facilitated by innovative cross-cutting solutions”, notably through:

- a. **A competitive and sustainable European battery value chain.** Nurturing a world-class European research and innovation eco-system on batteries along the value chain based on sustainable pathways. It includes improvement of technological performance to increase application user attractiveness (in particular in terms of safety, cost, user convenience, fast charging and environmental footprint), in parallel supporting the creation of a competitive, circular, and sustainable European battery manufacturing value chain (more detailed information below).
- b. **Communities and cities.** Increased efficiency of Europe’s cities’ and communities’ energy, resource use and mobility patterns and cities’ and communities’ overall sustainability, thereby improving their climate-resilience and attractiveness to businesses and citizens in a holistic fashion. This also includes improved air and water quality, resilience of energy supply, intelligent mobility services and logistics, liveability and accessibility of cities, public health, comfortable, affordable zero emissions housing as well as the exploitation of relevant European technologies and knowledge (more detailed information below).
- c. **Emerging breakthrough technologies and climate solutions.** Facilitating the transformation to a climate neutral society, in line with the EU’s 2050 climate targets, through more effectively engaging and empowering citizens to participate in the transition, from planning to decision-making and implementation (more detailed information below).
- d. **Citizens and stakeholder engagement.** Nurturing the development of emerging technologies with high potential to enable zero-greenhouse gas and negative emissions in energy and transport (more detailed information below).

Destination 3 “Sustainable, secure and competitive energy supply” includes activities in the areas of renewable energy; energy system, grids and storage; as well as Carbon Capture, Utilisation and Storage (CCUS).

The impacts expected are:

- a. Fostering European global leadership in affordable, secure and sustainable **renewable energy technologies and services** by improving their competitiveness in global value chains and their position in growth markets, notably through the diversification of the renewable services and technology portfolio (more detailed information below).
- b. Ensuring cost-effective uninterrupted and affordable supply of energy to households and industries in a scenario of high penetration of variable renewables and other new low carbon energy supply. This includes more efficient approaches to managing **smart and cyber-secure**

energy grids and optimisation the interaction between producers, consumers, networks, infrastructures and vectors (more detailed information below).

- c. Accelerating the development of **Carbon Capture, Use and Storage (CCUS)** as a CO₂ emission mitigation option in electricity generation and industry applications (including also conversion of CO₂ to products) (more detailed information below).

Destination 4 “Efficient, sustainable and inclusive energy use includes activities” includes activities targeting the energy demand side, notably a more efficient use of energy as regards buildings and industry.

The impacts expected are:

- a. Technological and socio-economic breakthroughs for achieving climate neutrality and the transition to zero pollution of the **building stock** by 2050, based on inclusive and people-centric R&I (more detailed information below).
- b. Increased **energy efficiency in industry** and reducing industry’s Greenhouse Gas (GHG) and air pollutant emissions through recovery, upgrade and/or conversion of industrial excess (waste) heat and through electrification of heat generation (more information below).

Moreover, cluster 5 includes the topics which fall under the scope of the following **co-programmed partnerships**. Co-programmed partnerships are partnerships between the Commission and private and/or public partners. They are based on memoranda of understanding and/or contractual arrangements:

- European Partnership for an **Industrial Battery Value Chain**. They are included in Destination 2. The Battery Partnership aims in the short to medium-term to support the development of a world-class European research and innovation ecosystem on batteries (which is currently non-existent), with a view towards industrial leadership by Europe in the design and production of batteries for the next generation of both stationary and mobile applications. In the long-term, the goal is to develop futuristic battery technology beyond 2030.
- European Partnership **People-centric sustainable built environment (Built4People)**. They are included in Destination 4. The vision of the partnership Built4People is high quality, low carbon, energy and resource efficient built environments which drive the transition towards sustainability. The partnership brings together the whole value chain and it will develop sector-relevant innovation clusters across the EU. The objectives are scientific (generate holistic innovation for sustainability), economic (revitalise the sector via sustainable operation) and societal (induce behavioural change towards sustainable living). The objectives will be reached through a user-centric approach.

General call information: Clean Energy Transition Partnership (CETP) – co-fund

The CETP is a transnational joint programming initiative to boost and accelerate the energy transition, building upon regional and national RDI funding programmes. The aim of this partnership is to pool the necessary financial resources from the participating national (or regional) research programmes with a view to **implementing joint calls** for transnational proposals, thus overcoming a fragmented approach, resulting in grants to third parties in accordance with its Strategic Research and Innovation Agenda (SRIA), within the following areas:

- development of clean and affordable energy production and conversion technologies;
- development of a climate neutral, flexible and robust energy system;
- storage and its integration in the energy system;

- resource and energy efficiency and circular flows in the energy sector for an ecologically sustainable energy system;
- a just and inclusive energy transition;
- sector integration and coupling; and
- digital transformation

Under this partnership, Horizon Europe will provide a funding amount of € 210 million in annual instalments over the 7 years, 2021-2027 (€ 35 million per year), which, combined with the amount to be provided by the national and regional funding authorities participating in the partnership, will pool a relevant amount of funding. By November 2020, twenty-eight countries had indicated their interests to participate in and allocate a budget amounting to around € 500 million. It is expected that the partnership will organise joint calls on an annual base from 2022 to 2027 and will consider ample time for the implementation of the co-funded projects.

General call information: Clean Hydrogen Partnership

It will be implemented as an **institutionalised partnership** under Horizon Europe. Institutionalised partnerships in the field of research and innovation involve the Union, EU member states and/or industry. The Clean Hydrogen partnership is based on a Council Regulation (Article 187 of TFEU). It is implemented by a dedicated structure created for that purpose. It will replace the Fuel Cells and Hydrogen Joint Undertaking (FHC JU) which ran during Horizon 2020. The partnership will be represented on the private side by Hydrogen Europe and Hydrogen Europe Research and on the public side by the European Commission.

Its **main focus** will be on renewable hydrogen production, but also hydrogen transmission, distribution and storage, alongside selected fuel cell end-use technologies. In particular the partnership will aim to accelerate the development and deployment of European value chain for clean hydrogen technologies, contributing to a sustainable, decarbonised and fully integrated energy system, and to EU's Hydrogen Strategy, playing an important role in the implementation of the roadmap set within.

The first Multi-Annual Work Programme is expected to be released at the end 2021, with the following expected **programme draft structure**:

- Pillar 1: Renewable Hydrogen Production (Electrolysis; as well as Other routes)
- Pillar 2: Hydrogen storage and distribution (Large-scale storage; H₂ in the Natural Gas grid; Liquid H₂ carriers; Improving existing H₂ transport means; Compression, purification and metering solutions; as well as H₂ refuelling stations)
- Pillar 3: Hydrogen end uses: Transport applications (Building blocks; Heavy duty vehicles; Waterborne applications; Rail applications; Aeronautic applications)
- Pillar 4: Hydrogen end uses: Clean heat and power (Stationary fuel cells; Turbines, boilers and burners)

In addition to working within each of these pillars, mass deployment requires support and coordination action, but also flagship initiatives to be taken at system level. They are thus complemented by three additional horizontal and cross-cutting activities, necessary as follows:

- Horizontal Activity 1: Cross-cutting Issues (Sustainability, LCSA, recycling and eco-design; Education and public awareness; Safety, Pre-normative research and regulations, codes and standards)
- Horizontal Activity 2: Hydrogen Valleys
- Horizontal Activity 3: Hydrogen Supply Chains

Details about available budget, conditions for participation and eligibility for funding, types of actions, submission and evaluation procedure, evaluation, etc, will be set in the Multi-Annual Work Programme when finally adopted.

Call requirements

Research and innovation actions (RIA) & Innovation actions (IA): At least

- One independent legal entity established in a Member State; and
- At least two other independent legal entities, each established in different Member States of Associated Countries.

Coordination and support actions (CSA): May be submitted by one or more legal entities, which may be established in a Member State, Associated Country or, in exceptional cases, and if provided for in the specific call conditions, in another third country.

Furthermore, it must be considered that besides this standard eligibility conditions, each specific call might have its specific call requirements.

Financing

Type of financing: The grant finances the % of the budget depending of the type of action.

% of financing:

- Research and innovation actions (RIA) => The funding rate for grants awarded under this topic and type of action is 100% of the eligible costs.
- Innovation actions (IA) => The funding rate for grants awarded under this topic and type of action is 70% (for profit entities) and 100% (for non-profit legal entities) of the eligible costs.
- Coordination and support actions (CSA) => The funding rate for grants awarded under this topic and type of action is 100% of the eligible costs.

Proposal stage

An application must contain the online application form and financial annexes for each participant. It is important that each participant contacts the relevant NCP to find out whether additional documentation at national level is needed. The applications are done through the Funding and tenders portal :

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/programmes/horizon>

The proposal is composed of two parts:

- Part A is based on the information entered by the participants through the submission system in the Funding & Tenders Portal.
- Part B is the narrative part that includes three sections that each correspond to an evaluation criterion: Excellence, Impact and Quality and efficiency of the implementation. The length of this part may vary from 45 pages (RIA and IA actions) to 30 pages (CSAs) or 10 pages only for first stages submissions.

Evaluation stage

1. Calls may be subject to either a one-stage or two-stage submission and evaluation procedure. Proposals are evaluated by independent experts
2. As part of the evaluation by independent experts, a panel review will recommend one or more ranked lists for the proposals under evaluation, following the scoring systems indicated above. A ranked list will be drawn up for every indicative budget shown in the call conditions.
3. Proposal coordinators receive an Evaluation Summary Report (ESR), showing the results of the evaluation for a given proposal. For proposals that successfully pass the first stage of two-stage

calls, common feedback is provided to all coordinators, but the first stage ESR is only sent after the second stage evaluation.

For single stage procedure=> Information on the outcome of the evaluation: Maximum 5 months from the final date for submission.

For two stage procedure => Information on the outcome of the evaluation: Maximum 3 months from the final date for submission for the first stage and maximum 5 months from the final date for submission for the second stage.

4. If special procedures apply, they will be set out in the call conditions.

Funding Agreement stage

For single stage procedure => Indicative date for the signing of grant agreements: Maximum 8 months from the final date for submission.

For two stage procedure => Indicative date for the signing of grant agreements: Maximum 8 months from the final date for submission of the second stage (full proposal).

Project Execution stage

Every 18 months progress technical and financial reports are required.

Submission of Deliverables and Milestones according to the time schedule proposed on the DoA is required.

2021-2022 Horizon Europe – European Innovation Council (EIC) Calls

EIC Accelerator Open - General call Information

The EIC Accelerator supports companies (principally start-ups and SMEs) to scale up high impact innovations with the potential to create new markets or disrupt existing ones. The EIC Accelerator provides combination of funding from EUR 0.5 to EUR 17.5 million and Business Acceleration Services.

The EIC Accelerator focuses on deep tech solutions where significant funding is needed over a long timeframe before returns can be generated ('patient capital'). Funding and support from the EIC Accelerator is designed to enable innovators to attract the full investment amounts needed for scale up in a shorter timeframe.

The EIC Accelerator is open to innovations in any field of technology or application, except innovations that harm the environment or social welfare or that are designed primarily for military applications will not be supported.

The EIC Accelerator supports the later stages of technology development as well as scale up. The technology component of the innovation must therefore have been tested and validated in a laboratory or other relevant environment (e.g. at least Technology Readiness Level 5/6 or higher). It looks to support companies where the EIC support will act as a catalyst to crowd in other investors necessary for the scale up of the innovation.

EIC Accelerator Challenge - Green Deal innovations for the Economic Recovery – General call info

This EIC Accelerator challenge will fund transformative green innovations, which contribute to the goals enshrined in the **European Green Deal strategy** and the Recovery Plan for Europe. This call will complement and be coordinated with activities supported by other relevant pan-European

public-private and public-public partnerships for circular bio-based solutions, **green hydrogen, batteries or low-carbon industries**. In particular it will focus on disruptive and breakthrough innovations by SMEs (including midcaps) and start-ups. This will also contribute to the implementation of various EU-wide initiatives, including the New Industrial Strategy for Europe regarding the **decarbonisation and modernisation of energy intensive industries, the Renovation Wave for more energy efficient buildings**, the Biodiversity Strategy, the Farm to Fork Strategy or the new Circular Economy Action Plan.

Projects must support the Green Deal implementation by significantly contributing to at least one of the following sustainability goals:

- Increasing the EU's climate mitigation and/or adaptation ambition;
- Supplying clean, affordable and secure energy;
- Transitioning of industry to a clean and/or circular economy (including waste prevention and/or recycling);
- Building and renovating in an energy and resource efficient way;
- Accelerating the shift to sustainable and smart mobility;
- Transition to a fair, healthy and environmentally-friendly food system;
- Preserving and restoring ecosystems and biodiversity (including nature based solutions that provide co-benefits for climate adaptation and mitigation);
- Realising a zero pollution ambition and a toxic-free environment.

At least 50% of the companies selected for the interview phase must have submitted proposals relating to one the following areas:

- Renewable energy, including renewable Hydrogen and energy storage
- Deep Renovation of buildings
- Low carbon industries
- Batteries and other energy storage systems

Call requirements

For all EIC Accelerator proposals, in order to apply, the company must meet one of the following eligibility conditions:

- Being a single company classified as a SME and established within an EU Member State or Associated Country.
- A '**Small mid-cap**' (<500 employees) established within an EU Member State or Associated Country, but only be for rapid scale-up purposes (e.g. TRL 9) and **only for the investment component**.
- **One or more natural persons** (individual entrepreneurs) or legal entities intending to establish an SME of small mid-cap in an EU Member State or Associated Country at the latest when agreeing on its investment component. As well, individual entrepreneur from a non-associated third country ready to establish an SME (including start-ups) or to relocate an existing SME to an EU Member State or associated country, **by the time of submitting a full application**.

For the **EIC Accelerator Challenge on Green Deal**, there is the following additional requirement

The innovation should have the potential to make a significant impact on at least one of the Green Deal goals, including a description of the estimated quantitative impacts such as reduction or avoidance of GHG emissions.

Financing

The EIC Accelerator provides blended finance which is composed of:

- An **investment component**, usually in the form of equity (EUR 0.5 – 15 M). Intended to finance **market deployment and scale up** but may also be used for other purposes (including financing innovation activities). The terms of investment will be negotiated on a case-by-case basis by the EIC Fund. In the case of equity, investments will not exceed 25% of the voting shares of the company (exceptions for strategic reasons). Investments will normally be made with a long average perspective (7-10 years) with a maximum of 15 years ('patient capital'). The investment component may also provide other type of investments such as convertible loans and other debt-related forms of financial instruments.
- A **grant component** (Innovation and Market Deployment Action) to reimburse eligible costs incurred for **innovation activities**, including demonstration of the technology in the relevant environment, prototyping and system level demonstration, R&D and testing required to meet regulatory and standardisation requirements, intellectual property management, and marketing approval (> TRL 5/6 to 8). Eligible costs are reimbursed up to a maximum of 70%. The 30% co-financing of these activities and the costs incurred for the commercial introduction of the product or service and full scale up operations (TRL 9 or above) will not be reimbursed by the grant but can be financed by the investment component. The grant component should normally not exceed EUR 2.5 M (just in exceptional cases). Innovation activities to be supported should be completed within 24 months (longer in exceptional cases). The grant component may be used for subcontracting, including for activities which are essential for the objectives of the Project.

Applicants can choose to request the investment component only and are not required to request a grant component.

The company may request a grant component only or grant first (without investment component for TRL 9), including a milestone at the latest 6 months before the end of the project, for the EIC to assess deployment perspectives and capabilities:

- Grant only: The company can provide evidence that it has sufficient financial means to finance the deployment and scaling up of its innovation.
- Grant first: Your innovation is based on novel technology and still requires significant work to validate in relevant environments (> TRLs 5/6) to properly assess its commercial potential. Grant-first companies are eligible for a follow-on equity component subject to a milestone assessment for being invited to enter due diligence and negotiations with the EIC fund to receive an EIC equity investment.

Proposal stage

The application process consists of a number of steps:

- **SHORT APPLICATION:** Which may be submitted at any time, through the EIC artificial intelligence-based IT platform, and which will be evaluated on a first come, first served basis (2-4 weeks):
 - A 5-page form where to summarise the proposal and respond to a set of Innovation related questions.
 - A pitch-deck of up to 10 slides following a set format.

- A video pitch of up to 3 minutes where the core members of the team (up to three people).
- **FULL APPLICATION:** If the short application is successful then the company will be entitled to receive support to prepare a full application on EIC artificial intelligence-based IT platform, which can be submitted to one of the cut-off dates within the next 12 months. The full application consists of that full business plan and full information on the company's finances and structure.

Evaluation stage

REMOTE EVALUATION OF FULL APPLICATIONS: Once submitted, it will be assessed by EIC expert evaluators. (5-6 weeks) If successful, you will be invited to attend a face to face interview with an EIC jury.

FACE TO FACE INTERVIEWS WITH AN EIC JURY (8-9 weeks after the cut-off date): The company will be informed about the result of the interview within approximately 2-3 weeks.

Funding Agreement stage

If selected for funding, the company will be invited to negotiate and then sign an initial contract for the grant component. In parallel, the EIC Fund will start the negotiation process to structure the potential investment agreement (2 to 6 months).

Project Execution stage

For projects requiring **GRANTS** (only or first), the action should last no more than 24 months to develop Innovation activities.

For projects requiring **EQUITY** or **BLENDED Finance** 7 to 10 years with a maximum of 15 years ("patient capital") is given to the company for market deployment and scale-up.

4.2.2 EURATOM

The Euratom Programme is a complementary funding programme to Horizon Europe which have the general objective to pursue nuclear research and training activities, with an emphasis on the continuous improvement of nuclear safety, security and radiation protection, allowing Europe to maintain world leadership in nuclear safety and waste management. Euratom has similar rules of operation than Horizon Europe. Its duration is, however, different, starting in 2021 and finishing in 2025.

The Euratom Programme has the following specific objectives:

- a) Improve and support nuclear safety, security, safeguards, radiation protection, safe spent fuel and radioactive waste management and decommissioning, including the safe and secure use of nuclear power and of non-power applications of ionizing radiation;
- b) Maintain and further develop expertise and competence in the nuclear field within the Community;
- c) Foster the development of fusion energy as a potential future energy source for electricity production and contribute to the implementation of the European fusion roadmap;
- d) Support the policy of the Union and its Member States on continuous improvement of nuclear safety, safeguards and security.

The programme has direct and indirect actions;

- a) Direct actions are activities undertaken by the Commission's Joint Research Centre
- b) Indirect actions are undertaken by multi-partner consortia, they focus on 2 areas: Nuclear fusion research and development; and Nuclear fission, safety and radiation protection.

The financial envelope for the implementation of the Euratom Programme for the period 2021-2025 is € 1.38 billion, of which:

€ 583 million for fusion research and development;

€ 266 million for nuclear fission, safety and radiation protection;

€ 532 million for direct actions undertaken by the Joint Research Centre.

4.2.3 EUREKA

EUREKA is a leading facilitator of innovation, providing a proven platform for international R&D&I cooperation. Initial application stages are at European level, while the final stages and the funding comes from national programmes. EUREKA provides the following instruments:

- **Clusters.** EUROGIA2000 is the EUREKA cluster for “Sustainable energy solutions”. See fiche below.
- **Eurostars.** It supports R&D-performing SMEs and their partners in collaborative innovation projects that will be rapidly commercialised. See fiche below.
- **Globalstars.** It is a programme with calls for projects (sometimes thematic) in cooperation with countries outside of the European EUREKA network. Applicants can benefit from collaboration with organisations working in a range of leading and emerging markets. Specific calls with separate conditions and deadlines are regularly launched in cooperation with certain non-EUREKA countries. So far, 6 non-EUREKA countries (i.e. Taiwan, India, Singapore, Brazil) have launched calls for projects, where 24 global projects have been launched with a total public/private investment of 18 M€.
- **Network projects.** It is the original flexible funding programme for international R&D projects. It eases collaboration between organisations in EUREKA with freedom to design the project proposal and build the ideal consortium. It has limited eligibility criteria and minimal paperwork. All organisations in any country can join a project consortium provided there are two or more participating organisations from EUREKA countries. The project ideas can be submitted using one of three models: (i) Application whenever at any time, (ii) Application for bilateral or multilateral calls for projects between two or more EUREKA countries, or (iii) Application for thematic calls for projects between two or more EUREKA countries. The corresponding national funding body should be contacted to see what funding opportunities are available for each type of organisation.
- **InvestHorizon.** It has two subprogrammes:
 - ✓ Investment readiness: Participation in (i) international missions, with opportunities for SMEs to connect with non-EU investors and key strategic partners and/or (ii) corporate activities, helping SMEs approach multinational corporate investors for business partnerships. This subprogramme is designed for startups which are less than five years old, having raised less than 3 million US dollars (or equivalent) in funding and based in 13 financially committed EUREKA countries (Denmark, Finland, France, Germany, Lithuania, the Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Switzerland and the United Kingdom).
 - ✓ InvestHorizon Accelerator. It offers open access to webinars and online courses. These resources provide initial guidance for making the applying company more attractive to investors. It includes receiving free access to: (i) a collection of training courses, (ii) exclusive webinars and (iii) other useful community resources. InvestHorizon Accelerator requires that the applicant: (a) qualifies as an innovative and high-growth potential SME (EU definition) developing products or services in the field of deep tech, (b) is based in a EUREKA country or a Horizon2020 country or associated country, (c) is seeking Series A investment of minimum 2.5 million euro and has already raised a minimum of 250,000 euro of seed funding or 500,000 euro in public grants or loans in the last three years and (d) has a business angel or financial advisor who can accompany the applicant on the InvestHorizon journey.

EUROGIA2020⁷
General call information


EUROGIA2020, the EUREKA Cluster for low carbon technologies, is a bottom-up, industry driven, market-oriented cluster which addresses projects in all areas of the energy mix, from renewable energy to efficiency, and reduction of carbon footprint of fossil fuels.

It provides a label, so that the funding is granted via EUREKA Countries' national programmes (Every country has its own rules for allocating funding). With the assistance of EUROGIA2020 Public Authorities Committee, Project Proposers are informed about the funding possibilities from the beginning of submission process.

Call requirements

EUROGIA2020 projects must clearly show technical innovation in the future product/process or service (either through using new devices or in the utilisation of existing devices in a new application). The project must have a strong market and exploitation orientation.

The consortium must comprise **at least two industrial companies** -Large, Small or Medium-sized enterprises- from two different EUREKA Member and Associated countries. The active participation of research institutes or universities is strongly encouraged when not made mandatory.

The available budget per call depends on each country's programme. The contribution from any given country must not exceed 66% of the total budget. In parallel, the contribution from any one partner (affiliated organisations count as one partner) must not exceed 66% of the total budget either

Financing

Funding is granted via EUREKA Countries' national programmes.

Proposal stage

The application process for a EUROGIA2020 project proposal is a two-stage submission and evaluation procedure.

The **first phase** consists of completing and submitting a Project Outline (PO) of maximum 15 pages (in English). The project coordinator is invited to present it through a 20-minutes oral presentation in front of the Technical Committee, followed by 20 minutes questioning.

Second phase: upon a successful evaluation of the PO by the Technical Committee, and based on the feedback from concerned Public Authorities, the applicants are invited to fill in and submit a Full Project Proposal (FPP).

Following the evaluation of the FPP, the Technical Committee will give its recommendations to the EUROGIA2020 Board, who in turn will decide to label the project. With this label, project participants can apply for funding in their respective countries.

Evaluation stage

The EUROGIA2020 Technical Committee (TC) is responsible for evaluating the submitted projects. It is composed of distinguished academics and the representatives of EUROGIA2020 Board Members. The TC uses different evaluation forms to better evaluate project outlines and full project proposals.

⁷ <http://www.eurogia.com/>

Project selection, carried out by the EUROGIA2020 organisation as per EUREKA prevailing rules, is based on criteria such as: (i) the technical and strategic relevance for the EUROGIA2020 core technology domains, (ii) the R&D competence of the applying project partners, (iii) the chances of success and likelihood of later implementation of project results, (iv) the market relevance, (v) the added value of each applying project partner's co-operation, and (vi) the leverage on employment in Europe (including indirect effects).

Although the label is very selective, the goal of EUROGIA2020 is to help important project ideas become reality. This is why the evaluation process is interactive; the Technical Committee and the EUROGIA2020 office provide feedback to the projects to assist them in meeting the stringent criteria.

Funding Agreement stage

The stages of preparation and signature of the project funding agreement depend on each country.

Project Execution stage

The execution procedures of the project depend on each country.

EUROSTARS

General call information



Eurostars supports **R&D-performing SMEs** and their partners by funding collaborative innovation projects that will be rapidly commercialised. It encourages and assists the development of new products, processes and services by offering support and funding to help innovations to access regional, national and international markets.

Eurostars applies a decentralised funding procedure; **participants do not receive funding directly from the EUREKA Secretariat or the EU**, but all funding to participants in approved projects is managed by their respective funding body and according to their national funding rules and procedures. These rules and procedures are dependent on the member countries involved in the project. If the Eurostars application is successful, the corresponding national funding body will offer a substantial grant to help with the R&D project costs.

Call requirements

To be eligible, the following EUREKA requirements must be met:

- The project must contain at least two legal entities that are independent of one another.
- The consortium is a partnership hosted by at least two different Eurostars countries (i.e. a Eurostars Participating state or a Eurostars Partner country), where at least one of the countries is an EUREKA Full Member or Partner Country.
- The organisation undertaking the role of project leader must comply with the requirements for being an R&D-performing SME.
- The project leader must be in a Eurostars Country; i.e. a Eurostars Participating state or a Eurostars Partner country.
- The budget (excluding subcontracting) of the R&D-performing SME(s) located in Eurostars Participating state(s) or Partner Country(ies) is equal to at least 50.00% of the total project budget.
- No single entity is responsible for more than 75.00 % of the project budget.

- The participant(s) from a given country may not be responsible for more than 75.00 % of the total project budget.
- The project duration is 36 months or fewer.
- Market introduction is within 24.0 months of the project's completion.
- The project meets the EUREKA criteria and must have a civilian purpose.
- Moreover: (i) each of the participating organisations in the consortium is a legal entity in the host country, (ii) none of the participating organisations have convictions for fraudulent behaviour, other financial irregularities or illegal business practices, and (iii) none of the participating organisations have been declared bankrupt or are in the process of being declared bankrupt.

In addition to the general EUREKA criteria above, **each country may have additional eligibility criteria** that must be met.

Finally, a **financial viability** assessment is required. It is not an eligibility criterion. It only gives an indication of the financial situation of the companies. The final decision of the financial viability of a company to participate in the Eurostars project will be based on national criteria. In turn, national criteria are not considered 'common', therefore 'negative' assessments do not result necessarily in the ineligibility of a project, but negative assessment could be one of the determining factors for the evaluation of the Independent Evaluation Panel.

Financing

The financial aid depends on **each country**. Each participating country funds its own participants following national funding rules and procedures. The eligible cost varies between Eurostars countries. The programme National Contact Points (NCPs) can explain the costs that are eligible in the participant country.

Proposal stage

An application must contain the online application form and financial annexes for each participant. It is important that each participant contacts the relevant NCP to find out whether additional documentation at national level is needed.

Evaluation stage

The centralised evaluation process starts, managed by the EUREKA Secretariat (ESE). Each application must navigate through a number of different steps if it is to become approved and receive financial support. There are two steps involving evaluations from experts:

- Evaluation by three remote experts. Only if at least two of the three experts agree that at least two of the three criteria are satisfactory, will the application advance to the IEP for ranking.
- Scoring and ranking by an independent evaluation panel (IEP).

There are three major criteria, each with four sub-criteria: I. Quality and efficiency of the implementation – Project planning and consortium quality; II. Impact – Market and Commercialisation, and (iii) Excellence – Innovation and R&D.

At the same time, at a national level, participating countries are responsible for the assessment of the financial viability of a project participant to finance the activities declared in the Eurostars Application Form according to applicable national regulations. Approximately, 19 weeks after the submission deadline, an official letter confirms that the project has been earmarked for funding by the corresponding national funding body.

Funding Agreement stage

The stages of preparation and signature of the project funding agreement depend on each country.

Project Execution stage

Eurostars projects are monitored at national and European level:

- At European level, the monitoring of the projects is done by the EUREKA Secretariat. The main participant of each Eurostars project is required to report (in English) on the progress of the project during its life cycle. This reporting will be supported by three different documents provided by the EUREKA Secretariat, which will be used as monitoring documentation: Project progress report (PPR); Final Report (FiR); and Market Impact Report (MIR). The purpose of reporting is to allow the EUREKA Secretariat to actively monitor and follow-up running Eurostars projects. It provides all necessary information about project status.

At national level, monitoring obligations differ among Eurostars member countries

4.2.4 EIB and InvestEU

The European Investment Bank (EIB) is the biggest financial institution in the world and one of the largest providers of financial instruments for climate change. One of the core sectors of EIB investment is energy, in order to achieve net-zero emissions and minimise human impact on climate, Energy is a key EU policy. EIB finances energy projects including renewable generation, infrastructures, and new technologies.

In the period 2015-2019, the EIB has financed energy infrastructures with €62 billion, including €53 billion for renewable energy, energy efficiency and electricity grid projects in Europe and all around the world. Under this period, EIB has launched a financing tool called InnovFin, providing loans, guarantees and equity-type funding to support innovative firms in Europe. InnovFin which no longer exists, was offering a large range of products like InnovFin Energy Demo Project investing in commercial-scale demonstration projects in the fields of energy system transformation, including but not limited to renewable energy technologies, smart energy systems, energy storage, carbon capture and storage or carbon capture and use. By the end of 2021, the EIB will phase out the financing of traditional fossil fuel energy projects.

The bank covers Energy efficiency in buildings, industries and SMEs but does not cover energy efficiency in transport. They support innovation from the earliest stage in the research laboratory to the demonstration of pre-commercial technologies, and also support initial commercial production lines related to breakthrough technologies.

The main financing products offered by the EIB are: (i) Loans; (ii) Equity; (iii) Guarantees, (iv) Advisory services, as well as (v) Mandates and partnerships.

In addition to this role, EIB is the main partner, part of the Steering board and main investor of the InvestEU Fund. InvestEU Programme builds on the successful model of the Investment Plan for Europe, the Juncker Plan which mobilised more than €500 billion in the period 2015-20. With the aim of triggering a new wave – more than €372 billion - in investments using an EU budget guarantee, the InvestEU Programme was launched in 2021 and aims to give an additional boost to investment, innovation and job creation in Europe over the period 2021-27.

Here, details about EIB direct Loans (as one of the main financing instruments) and InvestEU (as a new financing instrument) are shown below.

EIB DIRECT LOANS

General call information



The EIB lends to the public (sovereign states and/or government organisations) and private (large corporates and SMEs) sectors. It supports and lends money either directly or through local banks. Details about direct loans are described in this fiche.

The EIB finances projects in most sectors. To be eligible, projects must contribute to EU economic policy objectives, which focus on the following areas:

- Climate and environmental sustainability, taking action to address the climate and environment emergency in the critical decade 2021-2030.
- Innovation and skills, promoting skills and innovation at every level.
- Infrastructure, connecting Europe's citizens, internal markets and economies.
- Small and medium-sized enterprises, supporting the backbone of the EU's economy.
- Cohesion, pushing for a balanced territorial development that will leave no one behind.

- Development, promoting sustainable growth, reducing poverty and inequality, and improving lives around the world.

Call requirements

EIB direct loans can be classified as follows:

- **Loans for the public sector:** Loans starting at €25 million to public sector entities to finance a single large investment project or investment programme, aligned with one or more priorities of the EIB.
- **Framework loans for the public sector:** Flexible loans to finance an investment programme consisting of smaller projects. The loan will have pre-defined objectives, aligned with one or more priorities of the EIB.
- **Loans for the private sector:** Loans to private sector entities to finance projects or investment programmes aligned with one or more priorities of the EIB. This product includes debt and hybrid debt financing.

Eligible entities:

- Public sector: Sovereign states; National agencies, departments, institutions and ministries; Regional or local authorities; Public sector companies (e.g. utilities)
- Private sector: Large corporates or groups; Mid-caps; Special Purpose Vehicles for project finance (including PPPs and Concessions)

All the projects financed by the EIB must be bankable. And they also must comply with high technical, environmental and social standards. The EIB adheres to strict environmental (environmental sustainability, including both climate action and investment in the urban and natural environment) and procurement policies. Potential promoters should ensure that their project adheres to these conditions.

EIB's financing is often seen as a quality stamp, helping the project attract additional investors. Financing can be blended with additional sources of investment such as financial instruments and grants from the EU and other donors.

Financing

The EIB financing terms match the economic life of each project – which can sometimes exceed 30 years. The financing typically covers up to 50% of a project's total cost with loans starting at €25 million and even lower amounts in some cases.

The eligible costs and conditions are as follows:

- **Loans for the public sector:** Investment costs, typically over a period of up to three years, but can even be longer. The EU bank typically covers up to 50% of a project's total cost with EIB loans starting at €25 million.
- **Framework loans for the public sector:** Investment costs (typically over a period of 3-5 years) of the different sub-projects of the investment programme. The EIB covers up to 50% of the programme's costs, which usually start from €100 million. If the programme also benefits from EU Funds, EIB and EU finance cannot exceed 70% of the total project investment costs (with exceptions).
- **Loans for the private sector:** Investment costs (typically over a period of up to three years, but can be longer), such as for research and development expenditures on facilities or activities. The EIB typically covers up to 50% of a project's total cost. These loans typically start at €25 million and in certain cases the EIB will consider lower amounts

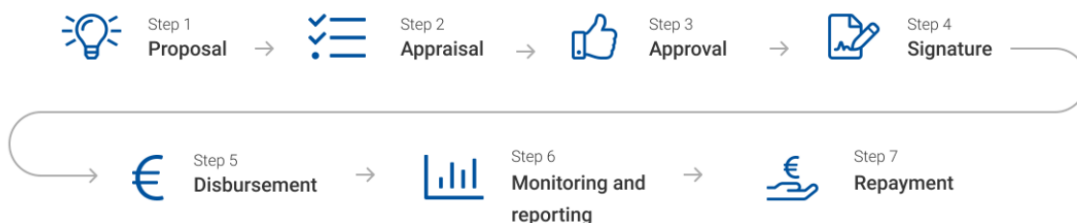
The loan pricing reflects the EIB's advantageous funding conditions on the market.

Loans can be secured or unsecured and provide different levels of subordination. Depending on the project, the loans can even be contingent on the company's growth.

The loan can be drawn down in one or more instalments according to borrower requirements.

The EIB also offers its expertise in the financial and technical aspects of preparing a project, when needed.

A project financed by EIB typically goes through seven major stages: proposal, appraisal, approval, signature, disbursement, monitoring/reporting and repayment.



Proposal stage

No special formalities are involved for the submission of applications to the EIB for individual loans. Project promoters are required simply to provide the Bank's Operations Directorate with a detailed description of their capital investment together with the prospective financing arrangements. Application documents are available in the EIB web page.

Initial contacts to discuss a proposed project can be in any form, by telephone, fax, e-mail or letter. The project promoter should provide sufficient information to allow the EIB to assess whether the project adheres to EIB lending objectives and has a well-developed business plan.

Evaluation stage

A project appraisal is carried out by the EIB's teams of engineers, economists and financial analysts, in close cooperation with the promoter. The project appraisal is a systematic and comprehensive review of the economic, environmental, financial, social, technical and other aspects of a project to determine if it will meet its objectives.

Criteria are typically tailored to each specific project. A report then goes from the Management Committee to the Board of Directors for a final decision.

An EIB appraisal procedure can take anywhere between six weeks and 18 months depending on the project scope, the degree of complication of the operation, and the efficiency of the appraisal process on the part of both the EIB itself and the project promoter.

Funding Agreement stage

A loan contract is signed between the EIB and the beneficiary to finance the project.

Project Execution stage

The EIB monitors the project from the signature of the loan contract through the project implementation and operation phase until the loan is paid back. Monitoring requirements are determined according to the characteristics of the project.

In particular, the Bank monitors the servicing of the loan, checks that the funds are being used in line with the objectives and projections and keeps itself informed of developments concerning the promoter and its partners. It also ensures that the physical execution of the project is in accordance with the contract and evaluates the results of the investment.

InvestEU

General call information



The InvestEU Fund is expected to mobilise more than €372 billion of public and private investment through an EU budget guarantee of €26.2 billion that backs the investment of financial partners such as the European Investment Bank (EIB) Group and others.

The InvestEU Fund combines the European Fund for Strategic Investments (EFSI) and 13 centrally managed EU financial instruments into 1 instrument: EFSI; CEF Debt Instrument; CEF Equity instrument; Loan Guarantee Facility under COSME; Equity facility for Growth under COSME; Innovfin Equity; Innovfin SME guarantee; Innovfin Loan Services for R&I Facility; Private Finance for Energy Efficiency Instrument; Natural Capital Financing Facility; EaSI Capacity Building Investments; EaSI Microfinance and Social Enterprise Guarantees; Student Loan Guarantee Facility; as well as Cultural and creative sectors Guarantee Facility.

The guarantee available under the InvestEU Fund is implemented via selected financial partners, or 'implementing partners'. The main partner is the EIB Group, which has successfully implemented and managed the EFSI since its launch in 2015, and will be responsible for the implementation of 75% of the EU Guarantee.

The InvestEU Fund is a market-based and demand-driven instrument, with strong emphasis on EU policy priorities. It **supports the following 4 Policy Windows**, focusing on investments where the EU can add the most value:

- Sustainable infrastructure: Financing projects in sustainable energy, digital connectivity, transport, the circular economy, water, waste, other environment infrastructure and more.
- Research, innovation and digitalisation: Financing projects in research and innovation, taking research results to the market, digitisation of industry, scaling up larger innovative companies, artificial intelligence and more.
- Small and medium-sized companies: Facilitating access to finance for small and medium-sized companies (SMEs), small mid-cap companies. This includes capital support for SMEs that were negatively affected by the Covid-19 crisis.
- Social investment and skills: Financing projects in skills, education, training, social housing, schools, universities, hospitals, social innovation, healthcare, long-term care and accessibility, microfinance, social enterprise, integration of migrants, refugees and vulnerable people, and more.

Call requirements

The InvestEU Fund provides support to **final recipients that are deemed economically viable** according to internationally accepted standards.

The **eligible final recipients** can be natural or legal persons established in an EU country or in a Third Eligible Country, including:

- Private entities such as special-purpose vehicles (SPV) or project companies, large corporates, midcap companies, including small midcap companies, and SMEs.
- Public sector entities (territorial or not) and public-sector type entities.
- Mixed entities, such as public-private partnership (PPPs) and private companies with a public purpose.

- Non-for-profit organisations.

InvestEU projects must **meet the following conditions**:

- Address market failures or investment gaps and be economically viable
- Need EU backing in order to get off the ground
- Achieve a multiplier effect and where possible crowd-in private investment
- Help meet EU policy objectives

The **eligibility criteria** are defined in the InvestEU Regulation and in the Investment Guidelines.

Financing

InvestEU implementing partners will provide direct and intermediated financing solutions for both private and public project promoters ('final recipients').

The InvestEU Fund can be combined with grants or financial instruments (or both), funded by the centrally managed EU budget or by the EU Emissions Trading System (ETS) Innovation Fund.

Proposal stage

Project promoters should apply directly to implementing partners who will offer tailor-made financing solutions based on the financial products supported by the EU guarantee.

Financial intermediaries should also consult the offering of implementing partners active in their regions proposing relevant products: it is up to them to select financial intermediaries through procedures such as calls for expressions of interest.

Eligible InvestEU Implementing Partners, in addition to the EIB Group, will be listed on the InvestEU website: https://europa.eu/investeu/home_en

Small mid-caps, SMEs and social or micro-enterprises should apply to their local commercial or public banks whose financial products are covered by the EU guarantee in their country or region. The local intermediary will inform them if a particular financing programme is covered by the InvestEU Fund.

Evaluation stage

The Investment Committee selects projects based on compliance with the eligibility criteria set by the InvestEU Regulation as well as the Investment Guidelines, with a specific focus on additionality. Members of the Investment Committee are external experts with expertise in the relevant sectors. The Committee meets in 4 different configurations corresponding to the policy windows. The Committee's decisions are made independently, with no political interference.

In practice, the European Commission first verifies the consistency of the proposed operations with EU law and policies. Projects passing this initial check are passed on to the Investment Committee.

The Investment Committee approves the use of the EU guarantee for financing and investment operations, taking its decision after assessing the project scoreboard presented by the implementing partners. Just as under the European Fund for Strategic Investments (EFSI), all decisions approving the use of the EU guarantee are made publicly available.

Funding Agreement stage

An appropriate financing agreement will be set between the implementing partner and the final recipient.

Project Execution stage

Appropriate monitoring procedures will be set during the execution of the project.

4.2.5 CONNECTING EUROPE FACILITY - ENERGY (CEF ENERGY)

The Connecting Europe Facility (CEF) is a key EU funding instrument to promote growth, jobs and competitiveness through targeted infrastructure investment at European level. The past programme 2014-2020 is finished, and the new programme 2021-2027 is under definition.


Therefore, the information provided in this section is PROVISIONAL, based on draft documents.

The Connecting Europe Facility (CEF) programme in the period 2021-2027 has the general objective to build, develop, modernise and complete the trans-European networks in the fields of transport, energy and digital and to facilitate cross-border cooperation in the field of renewable energy, taking into account the long-term decarbonisation commitments, increasing European competitiveness, smart, sustainable and inclusive growth, territorial, social and economic cohesion, access to and integration of the internal market and with emphasis on synergies among transport, energy and digital sectors. This funding instrument is divided in three sectors:

- CEF Transport
- CEF Energy
- CEF Digital

Among these sectors, CEF-Energy is the most appropriate subprogramme to finance the type of projects addressed in SMARTSPEND. Therefore, the fiche (**PROVISIONAL**) for the CEF-Energy programme in the period 2021-2027 is provided below.

NOVELTY: Compared to the previous period (2014-2020), in the current period 2021-2027, CEF-Energy will fund not only Projects of common interest (PCI) in the field of energy networks, but also Cross-border projects in the field of renewable energy.

CONNECTING EUROPE FACILITY ENERGY (PROVISIONAL)	
General call information	
	Managing body of the call: European Commission - European Climate, Infrastructure and Environment Executive Agency (CINEA) , formerly the Innovation and Networks Executive Agency (INEA).
	<p>In the energy sector only the following actions shall be eligible to receive Union financial assistance under this Regulation:</p> <ul style="list-style-type: none"> • actions relating to projects of common interest (PCI) as set out at Article 14 of Regulation (EU) No 347/2013; • actions supporting cross-border projects in the field of renewable energy including innovative solutions as well as storage of renewable energy, and their conception. <p>The financial envelope for the implementation of the “CEF-Energy” part of the Programme, during the period 2021-2027 is set at EUR 5,838,000,000 in current prices, out of which 15%, subject to market uptake, for cross border projects in the field of renewable energy. If the 15% threshold is reached, the European Commission shall increase this amount up to 20%, subject to market uptake.</p> <p><u>Projects of Common Interest (PCI)</u></p>

The specific objectives are to contribute to the development of projects of common interest relating to further integration of an efficient and competitive internal energy market, interoperability of networks across borders and sectors, facilitating decarbonisation of the economy, promoting energy efficiency and ensuring security of supply.

Particular consideration shall be given to projects of common interest and related actions aimed at further integrating the internal market for energy, ending energy isolation and eliminating electricity interconnection bottlenecks with emphasis on those projects contributing to the achievement of the interconnection target of at least 10% by 2020 and 15% by 2030 and projects contributing to synchronisation of electricity systems with the EU networks.

Cross-border projects in the field of renewable energy

The specific objectives are to facilitate cross-border cooperation in the area of energy, including renewable energy. Cross-border projects in the field of renewable energy shall promote the cross-border cooperation between Member States in the field of planning, development and cost-effective exploitation of renewable energy sources, as well as facilitate their integration through energy storage facilities and with the aim of contributing to the Union's long term decarbonisation strategy.

In order to qualify as a cross-border project in the field of renewable energy, a project shall meet all of the following general criteria:

- a) it shall be included in a cooperation agreement or any other kind of arrangement between at least two Member States and/or between at least one Member State and a third country or countries as set out in Articles 8, 9, 11 and 13 of Directive (EU) 2018/2001;
- b) it shall provide cost savings in the deployment of renewables and/or benefits for system integration, security of supply or innovation in comparison to a similar project or renewable energy project implemented by one of the participating Member States alone;
- c) the potential overall benefits of cooperation outweigh its costs, including in the longer term, as assessed on the basis of a compulsory cost-benefit analysis to be performed in a transparent, comprehensive and complete manner, providing evidence concerning the existence of significant cost savings and/or benefits in terms of system integration, environmental sustainability, security of supply or innovation (costs of electricity generation; system integration costs; cost of support; greenhouse gas emissions; security of supply; air and other local pollution, such as effects on local nature and the environment; innovation).

To do so, the Commission shall set up and chair a group for cross-border-projects in the field of renewables, composed of one representative of each Member State and one from the Commission. The group shall adopt its own rules of procedure. The Commission shall adopt and publish on its website the list of selected cross-border projects in the field of renewable energy. This list shall be reviewed as necessary at least every two years.

Call requirements

The following entities are eligible:

- legal entities established in a Member State including joint ventures;
- legal entities established in a third country associated to the Programme or overseas countries and territories;
- legal entities created under Union law and international organisations where provided for in the work programmes.
- Legal entities established in a third country which is not associated to the Programme are exceptionally eligible to receive support under the Programme where this is indispensable for

the achievement of the objectives of a given project of common interest in the field of transport, energy and digital or of a cross-border project in the field of renewable energy.

Natural persons are not eligible.

Only proposals submitted by one or more Member States or, with the agreement of the Member States concerned, by international organisations, joint undertakings, or public or private undertakings or bodies, including regional or local authorities, are eligible.

Financing

Type of financing: Grants (reimbursement of costs actually incurred). The calls may alternatively provide funding in the form of procurement, or they may also contribute to blending operations.

% of financing: 50% (for studies); min 50% max 75% (for works)

Eligible costs: Costs actually incurred by the beneficiaries in Member States, including cost of equipment, facilities and infrastructure which is treated as capital expenditure.

Non-eligible costs: Purchase of land (save exceptional cases); Indirect costs; value added tax (VAT).

Proposal

Submission system: Proposals must be submitted electronically using the TENtec eSubmission module accessible via the following link: <https://webgate.ec.europa.eu/tentec/grant/esubmission/>

Evaluation

Evaluation criteria: Technical Evaluation (Independent technical expert) and Evaluation Committee. Proposals are evaluated against the following award criteria, which take into account the list of general orientation as stipulated in [Article 17\(5\) and in Part V of the Annex I of the CEF Regulation](#). Each application is assessed against the award criteria on scale from 0 (very poor) to 5 (excellent), with the corresponding description.

Negotiation

Applicant(s) are invited by CINEA to sign a grant agreement drawn up in euros and detailing the conditions and level of CEF funding, if the proposal is selected for funding. The standard model grant agreement, available on the call webpage, is not negotiable and is signed in English.

Project Execution stage

There is not information available.

4.2.6 LIFE

The past programme 2014-2020 is finished, and the new programme 2021-2027 is under definition.

Therefore, the information provided in this section is PROVISIONAL, based on draft documents.

Compared to the previous period (2014-2020), LIFE 2021-2027 is expected as a continuation of the previous period. However some **novelties** are expected, among which:

- There is a new subprogramme: «Clean Energy Transition», to be granted under “Other Actions”, related to breaking market barriers that hamper the socio-economic transition to renewable energy and increased energy efficiency, including capacity building, dissemination of information and knowledge, and awareness raising, which were previously funded under the H2020 programme.
- Nomenclature (of the programmes, subprogrammes, actions, etc) has changed.
- Fully alignment with the topic is expected, even more than in the past programme. In the Concept note, the “Relevance/EU added value” threshold in the past programme was 15/50 and in the new Programme it is foreseen 24/40.
- Importance of results’ exploitation. Close to market (C2M) projects are envisaged. “Impact” deserves the double of relevance in evaluation (from 15/100 points to 30/100 points).
- Maximum grant intensity for the Standard Action Projects (SAP) will be increased from 55% to 60% (Nature Subprogramme remains up to 75%). Grant intensity for the “Other actions” of the Climate field- Climate Energy Transition Programme could reach 95%.
- A new Agency will manage the Programme: CINEA (European Climate, Infrastructure and Environment Executive Agency) with operations started on 1 April 2021
- The online submission application changes from the “e-proposal” to the Funding & Tenders portal.
- Due to delayed publication of the first call in 2021, a 1 step process submission (Full Proposal) is expected for most of the actions.
- The new budget of the LIFE Programme 2021-2027 represents +60% of last period budget. “Integrated projects” represent +20% of last period budget (121M€).
- If not funded by LIFE programme due to budgetary reasons and receiving LIFE’s “Seal of Excellence”, the project can be funded by other programmes (uncertainty about how this mechanism could be articulated).
- An official launching event is expected in June 2021.

LIFE (PROVISIONAL)

General call information



The LIFE programme is the EU’s funding instrument for the environment and climate action. The general objective is to contribute to the shift towards a sustainable, circular, energy-efficient, renewable energy-based, climate-neutral and - resilient economy, in order to protect, restore and improve the quality of the environment, including the air, water and soil, and to halt and reverse biodiversity loss and to tackle the degradation of ecosystems, including by supporting the implementation and management of the Natura 2000 network, thereby contributing to sustainable development.

The LIFE programme is structured as follows:

- The field “Environment”, which includes the subprogrammes: “Nature and Biodiversity” and “Circular Economy and Quality of Life”

- The field “Climate Action”, which includes the subprogrammes: “Climate Change Mitigation and Adaptation” and “Clean Energy Transition”.

The main objective is funding Pilot, demonstration, best practice and information, awareness and dissemination projects in the area of Environment and Climate. Projects should address an important environmental European problem and they should be “innovative”, as well as Close to market projects (C2M). Research and innovation activities should be carried out before the submission and are not eligible (initial TRL=5).

The current funding for period 2021-2027 has a budget of €5.43 billion, of which:

- “Environment” field: €3.49 billion (€2.14 for “Nature and Biodiversity” and €1.35 for “Circular Economy and Quality of Life”). At least 60% will be provided to “Nature and Biodiversity”.
- “Climate Action” field: €1.94 billion (€0.94 for “Climate Change Mitigation and Adaptation” and €1.00 for “Clean Energy Transition”)

The managing body of the call is the DG Environment - DG Clima (from the European Commission), by means of a new Agency to manage the Programme: CINEA (European Climate, Infrastructure and Environment Executive Agency).

There are national contact points (NCP) for the LIFE programme. They can help applicants with their application and organise information/networking events and proposal writing workshops. They can also support in communicating and disseminating the project results).

The LIFE programme is not compatible with other EU funds.

Call requirements

The Commission will adopt **multiannual work programmes** for the LIFE Programme, which will establish, among other things, the maximum eligibility period for the implementation of the projects; indicative timetables for the calls for proposals for the period covered by the multiannual work programme, the technical methodology for the project submission and selection procedure, the award criteria, and the co-financing rates. The duration of the first multiannual work programme shall be four years and the duration of the second multiannual work programme shall be three years.

In the framework of the multiannual work programmes, the Commission will publish **annual calls** for proposals that will set the specific funding activities, conditions and budget allocations.

In terms of **eligible actions**, only actions implementing the objectives of the programme shall be eligible for funding.

In terms of **eligible beneficiaries**, there are no specific consortium requirements. A single entity could submit an application. The LIFE Programme may fund: (1) public bodies, (2) private commercial organisations and (3) private non-commercial organisations (including NGOs). Natural persons shall not be eligible. The beneficiaries shall be established in a member state (MS) or associated country (AC), or in one of the following third countries:

- members of the European Free Trade Association which are members of the European Economic Area (EEA)
- European Union’s acceding countries, candidate countries and potential candidates.
- European Neighbourhood Policy countries.
- other third countries, in accordance with the conditions laid down in a specific agreement.

Legal entities established out of these countries shall in principle bear the cost of their participation. They shall be exceptionally eligible to participate and receive Union funding where this is necessary for the achievement of the objectives of a given action to ensure the effectiveness of interventions

carried out in the Union, or to support international agreements to which the Union is party by providing a contribution to the organisation of multilateral conferences.

Grants may finance the following **types of action**:

- **Standard Action Projects (SAP)**, formerly Traditional Projects: Projects, other than strategic integrated projects, strategic nature projects or technical assistance projects, that pursue the specific objectives of the LIFE programme.
- **Strategic Nature Projects (SNAP)**, formerly Integrated Projects: Projects that support the achievement of Union nature and biodiversity objectives by implementing coherent programmes of action in Member States in order to mainstream those objectives and priorities into other policies and financing instruments, including through coordinated implementation of the prioritised action frameworks adopted pursuant to Directive 92/43/EEC.
- **Strategic Integrated Projects (SIP)**, formerly Integrated Projects: Projects that implement, on a regional, multi-regional, national or transnational scale, environmental or climate strategies or action plans developed by Member States' authorities and required by specific environmental, climate or relevant energy legislation or policy of the Union, while ensuring that stakeholders are involved and promoting coordination with and mobilisation of at least one other Union, national or private funding source.
- **Technical Assistance Projects (TA)**: Projects for (i) the preparation of Strategic Nature Projects and Strategic Integrated Projects; (ii) the preparation for accessing other Union financial instruments; (iii) the facilitation of the upscaling or replication of results from other projects funded by the LIFE Programme, its predecessor programmes or other Union programmes; or (iv) capacity building related to the activities of Member States' authorities to improve the effective participation in the LIFE programme, with a view to improving the National Contact Points' services across the Union and to increasing the overall quality of submitted proposals.
- **Other Action Grants (OAG)**: Actions needed for the purpose of achieving the general objective of the LIFE programme, including coordination and support actions of the new subprogramme: «Clean Energy Transition», aimed at capacity-building, at dissemination of information and of knowledge, and at awareness-raising to support the transition to renewable energy and increased energy efficiency.
- **Operating Grants (OG)**: Grants that support the functioning of non-profit making entities which are involved in the development, implementation and enforcement of Union legislation and policy, and which are primarily active in the area of the environment or climate action, including energy transition, in line with the objectives of the LIFE programme.

Project duration should be between 2 and 5 years. It is indicated that in exceptional situations for unforeseen events (e.g. extreme weather conditions) and taking into account the complexity of certain projects, project duration could be up to 10 years (up to 20 years for Strategic Integrated Projects; up to 5 years for Technical Assistance Projects).

Financing

The co-funding rate, as a rule, shall **not exceed 60% grant** of total eligible costs of the project with the following exceptions:

- Standard Action Projects for Nature and Biodiversity addressing certain conservation actions could reach a co-financing rate of 75% of total eligible costs.
- Technical Assistance Projects aimed at improving the effective participation in the LIFE programme will have a maximum co-financing rate of 95%. When projects are aimed at

providing financial support to help applicants to prepare a SNAP or a SIP, a maximum EC contribution of 100.000 € is set.

- The maximum co-financing rate for “Other Actions” is 95% of eligible costs, except for the Small Grant Facilities for Biodiversity, which represent the continuation of the BEST programme, where the EU co-financing is maximum 100% of eligible costs.

Eligible costs:

Direct personnel costs (2% rule in Public Bodies); Travel and subsistence costs; External assistance costs (limited to 35%, except duly justified); Durable goods; Prototype costs; Land purchase, long-term lease of land / use rights and One-off compensation payments (only in Nature Projects); Consumables; Other costs; Overheads (flat rate of up to 7% of total eligible direct costs, excluding land purchase. There is only one indirect cost rate per action and all beneficiaries will be reimbursed at the same rate).

Proposal

All LIFE calls for proposals will be published on CINEA's website as well as the European Commission's Funding & Tenders portal.

Proposals will only be able to be **submitted electronically** through the **Funding & Tenders portal**, instead of the “e-proposal” portal used in the period 2014-2020. Information including the legislation and rules for participation, templates for proposals, evaluations and project reporting will be accessed on the Funding & Tenders Portal.

An online information session for applicants will take place around June 2021.

First call's **provisional timeline** for project proposals:

- Launch of call: late spring 2021.
- Deadline for applications: autumn 2021.
- Evaluation: 2021/2022.
- Signature of grants: second half of 2022.

The following submission process is expected:

- **2 step submission** (Concept Note and Full Proposal): It is expected for the Standard Action Projects (SAP) Environment Field and for the Strategic Projects. However, due to the delay in the 2021 call in relation to the publication of the programme, there is an uncertainty whether the 2021 call could use only a 1 stage process: Full proposal.
- **1 step submission** (Full Proposal): It is expected for the Standard Action Projects (SAP) Climate Action field, Technical Assistance Projects and Other Action Grants.

It is expected that the proposal will be submitted through the Funding & Tenders portal using a **unique document** (similar system than horizon Europe) to simplify the process. Furthermore, it is expected that LIFE management procedure during the project duration will be simplified.

Evaluation

The expected **evaluation criteria** are as follows:

- **Standard Action Projects:**
 - Concept Note: In 2 stage proposals, the applicants are asked to present a concept note indicating the main elements of their proposal. They have to indicate the financial support requested. The concept notes are evaluated on the basis of the following criteria:
 - ✓ Relevance/EU added value: threshold 12 / 20
 - ✓ Quality: threshold 12 / 20
 - ✓ Total: threshold 24 / 20

After evaluation of the Concept note, the long list of applicants invited to submit a Full Proposal will include the best ranked concept notes by sub-programme for which the sum of the EU contributions requested represents 2 to 3 times the available budget.

- **Full Proposal:** They will be evaluated on the basis of the following criteria:
 - ✓ Relevance/EU added value: threshold 10 / 20
 - ✓ Quality: threshold 10 / 20
 - ✓ Impact: threshold 15 / 30
 - ✓ Resources: threshold 10 / 20
 - ✓ Bonus: there are five additional bonuses valued 2 points each.
 - ✓ Total: threshold 55 / 100
- **Strategic Projects:**
 - **Concept Note:** The concept notes will be evaluated against the following award criteria:
 - ✓ Territorial coverage
 - ✓ Coordination of complementary funds
 - ✓ Involvement of key stakeholders
 - ✓ Implementation of plans or strategies

Each criterion will be assessed as to whether it is fulfilled or not. All concept notes fulfilling these criteria will be selected for Full Proposal.

- **Full Proposal:** They will be evaluated on the basis of the following criteria:
 - ✓ Relevance/EU added value: threshold 10 / 20
 - ✓ Quality: threshold 10 / 20
 - ✓ Complementary funding: threshold 5 / 10
 - ✓ Impact: threshold 10 / 20
 - ✓ Resources: threshold 10 / 20
 - ✓ Bonus: there are five additional bonuses valued 2 points each.
 - ✓ Total: threshold 55 / 100

Reserve list: the reserve list will encompass all projects that meet the minimum quality requirements (i.e. that get the minimum pass scores) but cannot be funded in view of the available budget. These projects will be awarded the Seal of Excellence in line with Article 15 of the LIFE Regulation. The list of projects qualified for the Seal of Excellence, together with a short description of each project, will be transmitted to the competent Commission services and to the National Contact Points and to the members of the LIFE Committee for further distribution to the authorities responsible for the management of the European Regional Development Fund, the European Social Fund+ and the European Agricultural Fund for Rural Development. These authorities will have the opportunity to finance the project at the same conditions it would have been financed under the LIFE programme (provisional).

Negotiation

There is no face-to-face meeting with the EC / financing agency. Project adjustments can be done in the Revision Phase (1-2 months).

Project Execution stage

Progress reports are need regularly. Details will be provided in the multiannual work programmes and the call documents. It is expected that LIFE management procedure during the project duration will be simplified, compared to the previous 2014-2020 period.

4.2.7 INTERREG

The European territorial cooperation goal (Interreg) is one of the main instruments of the Cohesion policy. It has a view to fostering cooperation between Member States and their regions inside the Union and between Member States, their regions and third countries, partner countries, other territories or overseas countries and territories ('OCTs'), or regional integration and cooperation organisations, respectively. It is funded by the European Regional Development Fund (ERDF).

The former Interreg programme covered the period 2014-2020. During the 2021-2027 programming period, Interreg will continue to support interregional cooperation among regions from all across Europe. Interreg Europe is in the process of preparing the new programme for interregional cooperation, with the following expected time schedule:



Figure 8: Timeline of the key steps of Interreg Europe.

Source: Interregeurope.eu



Interreg 2021-2027 is expected to bring **significant changes** to the previous architecture of Interreg, with the reshaping of the three traditional cooperation strands (i.e. cross-border, transnational and interregional cooperation) and the creation of two new components, one dedicated to outermost regions, the other to interregional cooperation on innovation. Another major novelty is the incorporation of cooperation with countries other than EU Member States.

Interreg 2021-2027 will support the following strands:

- **Interreg A: Cross-border cooperation** between adjacent regions to promote integrated and harmonious regional development between neighbouring land and maritime border regions. This cooperation could be either:
 - **internal** cross-border cooperation between adjacent border regions of two or more Member States or between adjacent border regions of at least one Member State and one or more of the following third countries: Norway, Switzerland, as well as Liechtenstein, Andorra, Monaco and San Marino.
 - **external** cross-border cooperation, between adjacent border regions of at least one Member State and of one or more of the following: (i) beneficiaries of the Instrument for Pre-accession Assistance (IPA); or (ii) partner countries supported by the Neighbourhood, Development and International Cooperation Instrument (NDICI); or (iii) the Russian Federation, for the purpose of enabling its participation in cross-border cooperation also supported by NDICI.
- **Interreg B: Transnational cooperation** over larger transnational territories or around sea-basins, involving national, regional and local programme partners in Member States, third countries and partner countries and OCTs, with a view to achieving a higher degree of territorial integration.
- **Interreg C: Interregional cooperation** to reinforce the effectiveness of cohesion policy, by promoting:
 - exchange of experiences, innovative approaches and capacity building focusing on a specific set of policy objectives determined by the Interreg programme, in relation to the identification, dissemination and transfer of good practices into regional development policies including Investment for jobs and growth goal programmes;
 - exchange of experiences, innovative approaches and capacity building in relation to the identification, transfer and capitalisation of urban good practices on integrated and sustainable urban development, taking into account the linkages between urban and rural areas (URBACT programme);
 - exchange of experiences, innovative approaches and capacity building with a view to (INTERACT programme): (i) harmonising and simplifying the implementation of Interreg programmes as well as contributing to the capitalisation of their results; (ii) harmonising and simplifying possible cooperation actions specifically referred by the Interreg programme; (iii) supporting the setting-up, functioning and use of European groupings of territorial cooperation (EGTCs);
 - analysis of development trends in relation to the aims of territorial cohesion (ESPON programme)
- **Interreg D: Outermost regions' cooperation** among themselves and with their neighbouring third or partner countries or OCTs, or regional integration and cooperation organisations, or several thereof, to facilitate their regional integration and harmonious development in their neighbourhood.

The ERDF resources for the European territorial cooperation goal (Interreg 2021-2027) shall amount to EUR 8.05 billion, allocated as follows:

- € 5,812.79 million (72,2%) for land and maritime cross-border cooperation (strand A);
- € 1,466 million (18.2%) for transnational cooperation (strand B);
- € 490 million (6.1%) for interregional cooperation (strand C);
- € 281.21 million (3.5%) for outermost regions' cooperation (strand D).

The Commission will communicate to each Member State its share of the global amounts for strands A, B and D. Each Member State will be able to transfer up to 15% of its financial allocation for each of the strands A, B and D from one of those strand to one or more of the others. On the basis of the feedback received from Member States on this issue, the Commission will adopt an implementing act setting out the list of all Interreg programmes and indicating per programme the global amount of support.

The **co-financing rate** at the level of each Interreg programme shall be **not higher than 80%**, with the following exceptions:

- a higher percentage may be fixed where Interreg A external cross-border programmes are supported by the ERDF and/or the Instrument for Pre-Accession Assistance (IPA) and/or the Neighbourhood, Development and International Cooperation Instrument (NDICI).
- the co-financing rate for Interreg D programmes shall be not higher than 85% unless a higher percentage is fixed.

The **eligible costs** could be composed of the following categories: Staff costs; Office and administrative costs; Travel and accommodation costs; External expertise and services costs; Equipment costs; Costs for infrastructure; Costs for infrastructure and works. However, each Member State will determine which of such categories are eligible for a particular programme.

All the information above is **provisional** and will be detailed once the programmes and the specific calls are adopted and launched.

4.2.8 EEA & NORWAY GRANTS

The EEA and Norway Grants are funded by Iceland, Liechtenstein and Norway (the donors). The Grants have two goals – to contribute to a more equal Europe, both socially and economically – and to strengthen the relations between Iceland, Liechtenstein and Norway, and 15 beneficiary countries in Europe. The Grants are composed of two funding schemes – the EEA Grants and the Norway Grants. The main difference between the two lies in where the funding comes from and which countries receive the funding:

- The EEA Grants are funded jointly by all three donor countries – Iceland, Liechtenstein and Norway. The donor countries contribute according to their size and GDP – Norway provides approximately 95.8%, Iceland 3% and Liechtenstein 1.2%. During the 2014-2021 funding period, the EEA Grants amount to €1.5 billion. The EEA Grants are allocated to beneficiaries belonging to the following 15 countries in Europe – Bulgaria, Croatia, Czech Republic, Cyprus, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia and Slovenia.
- The Norway Grants are funded by Norway alone and consist of €1.3 billion during the 2014-2021 funding period. The Norway Grants are allocated to the 13 countries which joined the EEA after 2004. This means that Greece and Portugal do not receive Norway Grants funding.

The Grants are materialised by means of bilateral agreements between the donors and the relevant Ministry in one of the 15 beneficiaries' countries, where the recipient country commits to establish a funding programme to finance projects to be executed by public and/or private entities within a priority sector (Topics & Programmes) with a set of conditions, expected outcomes & indicators for outputs, and operational rules. The priority sectors (Topic & Programmes) are:

- Justice and Home Affairs
- Fund for Regional Cooperation
- Fund for Youth Employment
- Innovation, Research, Education and Competitiveness
- Social Inclusion, Youth Employment and Poverty Reduction
- **Environment, Energy, Climate Change and Low Carbon Economy**
- Culture, Civil Society, Good Governance and Fundamental Rights and Freedoms

The “Environment, Energy, Climate Change and Low Carbon Economy” priority sector includes projects in the following areas:

- Environment and Ecosystems
- **Energy**
- Climate Change

The fiche below indicates the funding opportunities to the “Energy” area, which are the kind of projects in the scope of the SMARTSPEND project.

EEA & NORWAY GRANTS⁸

General call information



Priority sector: “Energy”, within the “Environment, energy, climate and low carbon economy”

Type of eligible objectives: This priority sector funds programmes focussing on renewable energy, energy security and energy efficiency in line with the Energy Union objectives and the Europe 2020 strategy targets of 20% reduction of greenhouse gas emission, 20% of energy from renewables and 20% increase in energy efficiency.

Eligible countries: In this priority sector, only Bulgaria, Greece and Romania have developed programmes and calls for proposals in the current period 2014-2021.

Types of projects: The programme is implemented through Calls for proposals, Small Grant Schemes and Pre-defined projects.

Each country has set its own set of programmes and calls, having different call requirements.

Call requirements – BULGARIA

Eligible beneficiaries: Any entity, public or private, commercial or non-commercial, and NGOs, established as a legal person in the respective Beneficiary State (Bulgaria). Project partners also eligible (same types of entities) in the Donor States, the Beneficiary State, or a country outside the European Economic Area that has a common border with the Beneficiary State, or any international organisation or body or agency.

Published calls:

- Call on Increased renewable energy production – Geothermal: 2Sem 2018
- Call on Rehabilitation and modernisation of municipal infrastructure: 2Sem 2018
- Call on Increased renewable energy production – Hydropower: 1Sem 2019
- Call on Energy efficiency in buildings: 1Sem 2019
- Small Grant Scheme on Monitoring of energy consumption of municipal authorities: 1Sem 2019
- Call on Energy efficiency in industry: 2Sem 2019
- Small Grant Scheme on Training for geothermal energy: 2Sem 2019
- Small Grant Scheme on Training for renewable energy, energy efficiency and energy management: 2Sem 2019
- Pre-defined project #1: “Feasibility study on utilising the hydro power potential in existing water supply systems and upgrading potential for existing small-scale hydro power plants in water supply systems”
- Pre-defined project #2: “System for Forecasts, Control and Management of HPP Generation and Dams Condition”

Costs’ eligible period: since 10/12/2016 to 31/12/2024.

Available budget: € 31,023,529

Call requirements – GREECE

Eligible beneficiaries: Public entities that act towards the public interest in the respective Beneficiary State (Greece). Project partners are also eligible (same type of entities) in the Beneficiary

⁸ <https://eeagrants.org/>

State (Greece), or any entity, public or private, commercial or non-commercial, and NGOs in the Donor States, or a country outside the European Economic Area that has a common border with the Beneficiary State, or any international organisation or body or agency.

Published calls:

- Call for proposals Call #1

Costs' eligible period: since 31/10/2017 to 31/12/2024.

Available budget: € 9,000,000

Call requirements – ROMANIA

Eligible beneficiaries: Any entity, public or private, commercial or non-commercial, and NGOs, established as a legal person in the respective Beneficiary State (Romania). However, in some calls, only SMEs and NGOs (including social enterprises with economic activities) are eligible. Project partners also eligible (any entity, public or private, commercial or non-commercial) in the Donor States or in the Beneficiary State (Romania).

Published calls:

- Calls on Increased capacity to deliver renewable energy – Hydropower / Geothermal / Other RES
- Small Grant Scheme on Hydropower, geothermal and other renewables for SMEs and NGOs.
- Small Grant Scheme on Initial energy audits/energy balance.
- Call on Increased energy efficiency in place
- Small Grant Scheme on Increased energy efficiency
- Small Grant Scheme on Increased knowledge on renewable energy, energy efficiency – Awareness raising general public and Training/Competence
- Call and Small Grant Scheme on Enhanced research and development capacity
- Call on Electrification of households
- Pre-defined project: “Capacity Building at the Government Level in the Area of Geothermal”

Costs' eligible period: since 14/10/2016 to 31/12/2024.

Available budget: € 58,385,175

Financing

Type of financing: Grants

% of financing: Up to 90% or 100% of project's total expenditure (up to 90% for NGOs or social partners).

Proposal

EEA & Norway Grants follow a **single-stage submission and evaluation procedure**. The call for proposals shall, among other items, clearly specify the eligible beneficiaries and any restrictions, limitations or exclusions that they may be subject to, clearly address what kind of activities and expenditure are eligible, provide a clear reference or a link to the application form and user guide, provide clear references to further information, and provide contact information for queries and the timeframe for answering such queries.

Evaluation

Evaluation criteria: All applications which fulfil administrative and eligibility criteria will be assessed by two experts from the Fund Operator. The experts shall evaluate the projects against the selection

criteria contained in the call for proposals. The ranking list will then be discussed and approved according to the Fund Operator procedures set in the operational rules.

Negotiation

For each approved project a **project contract** shall be concluded between the Programme Operator and the Project Promoter. The project contract sets out the terms and conditions of grant assistance as well as the roles and responsibilities of the parties.

If a project is implemented in partnership with project partners, the Project Promoter shall sign a **partnership agreement** with the project partners.

Project Execution stage

Frequency of progress reports: The periodicity of reporting periods, and deadlines for reporting are detailed in the description of the Fund Operator's management and control systems.

Project payments: The payments of the project grant shall take the form of advance payments, interim payments and a final payment.

4.2.9 InnoEnergy Investment Round

INNOENERGY INVESTMENT ROUND ⁹

General call information



Type of call: Public and/or private consortia which have a project for an innovative sustainable energy product or service.

Type of beneficiaries: European organisations coming from the industry and research sectors (Large industry, SME, research centre, University, business startup/Venture) There are no limitations for big companies to apply. If, under exceptional circumstances, there is a partner outside Europe its participation will be considered on a case-by-case basis.

Type of eligible objectives: InnoEnergy understands innovation projects as the transformation of available knowledge into new marketable products and services related to the field of sustainable energy that create positive impact on market and society, by:

- Decreasing energy cost,
- Increasing intrinsic operational safety or reliability, and/or
- Reducing Green House Gas (GHG) emissions.

The aim should be to develop an innovative product or service which could be ready to go to market within less than five years.

Call requirements

Maximum **project duration** of 3 years and a time to market (i.e., sale) shorter than 2 years from the end of the project.

This call requires a **consortium** of at least 3, but no more than 7, European partners from both the research and industry sectors. The consortium needs to be made up of **partners from at least two different countries** and at least one of the companies commercialising the product or service must be involved in the project from the beginning. There is a 'Matchmaking service' to help partners find suitable consortia members.

An acceptable level for all five dimensions of the InnoEnergy's Innovation Readiness Level (IRL) is needed. This will be evaluated with a tool which measures the readiness of innovation and R&D projects by assessing them under five dimensions:

- TRL Maturity degree in terms of technology development. As an example, the Technology Readiness Level (TRL) 6, meaning that technology is demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies). TRL must be **TRL= 9 at the end of the project**.
- IPRL – Technology Readiness Level – Maturity degree in terms of freedom to operate
- MRL – Market Readiness Level – Maturity degree in terms of market & need analysis
- CRL – Consumer (End-user) Readiness Level – Maturity degree in terms of consumer behaviour analysis
- SRL – Society Readiness Level – Maturity degree in terms of potential society acceptance

Financing

⁹ <https://investmentround.innoenergy.com/documentation & timeline.html>

Type of financing: Combination of both private, including InnoEnergy own resources and public funding, from the European Institute of Innovation and Technology (EIT), body of the European Union receiving support from the European Union's Horizon 2020 research and innovation programme). This call considers a funding range between **20 per cent and 80 per cent of the proposed project budget**.

Eligible costs: Cost of personnel directly hired and in-house, indirect costs (25 per cent), travel, accommodation, consumables and supplies, sub-contracting and depreciation of equipment. The development of new innovative functions to enhance an already existing product or service is eligible.

Proposal

Two stages proposal. Submission system: Proposals may only be submitted online via INNOENERGY website.

In 2021, Investment Round were scheduled from the beginning of March until end of May. A new timeline will be released later for the year 2022.

Evaluation

Evaluation criteria: The evaluation process will occur in **two levels**: Thematic field assessment (TLAC) and KIC level assessment (KLAC).

Thematic Field Level Assessment Committee (TLAC): Each Thematic Field will appoint an assessment committee in charge of evaluating the proposals corresponding to its own theme (e.g., Thematic field Renewables committee will assess all proposals related to renewables, irrespective of the affiliation of the partners in the consortium). The TLAC will check both admissibility and eligibility criteria and will rank the proposals according to the assessment criteria. Only those proposals selected by TLAC will be considered in the next assessment phase; the TLAC can reject a proposal if the ranking is too low.

KIC Level Assessment Committee (KLAC) will perform an assessment of the proposals submitted by the TLAC by a committee composed by the thematic leaders as well as representatives from industry and academia. This group will review and rank all the eligible proposal evaluations performed at thematic level using the same assessment criteria. Upon presentation by the consortia, the KLAC will submit a ranked list to the KIC InnoEnergy SE Executive Board for final decision. During the KLAC review the project proposals positively evaluated by the TLAC can be rejected, even before the KLAC meeting takes place. The final decision together with comments and recommendations will be communicated to each proposal manager.

Time from application to approval: 65-95 days

Negotiation

Consortium partners and KIC InnoEnergy SE will sign the Innovation Project Agreement according to the template Annex 6 'Innovation Project Agreement

Project Execution stage

Regular reporting towards Innoenergy is required, including annual technical and financial progress.

4.2.10 Innovation Fund

INNOVATION FUND

General programme information

INNOVATION FUND

Driving clean innovative technologies towards the market

The Innovation Fund is one of the world's largest funding programmes for demonstration of innovative low-carbon technologies. It is a key funding instrument

for delivering the EU's economy-wide commitments under the Paris Agreement and its objective to be climate neutral by 2050, as recognised in the European Green Deal Investment Plan.

It is designed to take into account the lessons learnt from its predecessor, the NER300 programme, and will provide around EUR 10 billion of support over 2020-2030 for the commercial demonstration of innovative low-carbon technologies, aiming to bring to the market industrial solutions to decarbonise Europe and support its transition to climate neutrality. The goal is to help businesses invest in clean energy and industry to boost economic growth, create local future-proof jobs and reinforce European technological leadership on a global scale. It is about sharing the risk with project promoters to help with the demonstration of first-of-a-kind highly innovative projects. It aims to finance a varied project pipeline achieving an optimal balance of a wide range of innovative technologies in all eligible sectors and Member States, Norway and Iceland.

Objectives: The Innovation Fund focuses on highly innovative technologies and big flagship projects within Europe that can bring on significant emission reductions. At the same time, the projects need to be sufficiently mature in terms of planning, business model and financial and legal structure.

Type of eligible projects: This is done through calls for projects focusing on:

- innovative low-carbon technologies and processes in **energy-intensive industries**, including products substituting carbon-intensive ones;
- carbon capture and utilisation (**CCU**);
- construction and operation of carbon capture and storage (**CCS**);
- innovative **renewable energy** generation;
- **energy storage**.

Types of calls: Large-scale and Small-scale. The Innovation Fund's first two calls for projects (large-scale and small-scale) were opened in 2020. Large-scale and small-scale calls will be regularly called once a year until 2030.

Available budget: € 10 billion to invest up to 2030.

Call requirements

Project size: Depending on the call:

- Large-scale: investment projects with CAPEX above 7.5 M€.
- Small-scale: investment projects with CAPEX between 2.5 and 7.5 M€.

Project location: Only actions implemented on the territory of one (or more) of the EU Member States, Norway or Iceland are eligible for funding under this call.

Eligible period for expenses: After evaluation and signature of the grant agreement. However, project start is possible since the application date.

Financing

Type of financing: Grant

% of financing: depending on the call:

- Large-scale projects: up to 60% of the additional capital and operational costs.
- Small-scale projects: up to 60% of the CAPEX.

Disbursement: Up to 40% of the grants can be given based on pre-defined milestones before the whole project is fully up and running. And at least 60% linked to verified emissions avoidance.

Funding scheme: Lump sum. Payments will not depend on the costs actually incurred but on the proper implementation of the action, achievement of the results and completion of the work packages in accordance with Annex 1 to the grant agreement during the project duration. The maximum grant amount will be only paid out, if over the entire project duration, the project reaches at least 75% of the total amount of greenhouse gas emissions planned to be avoided.

Proposal

Project proponents can apply by submitting their projects when there is an open call for proposals. Application process depends on the call:

- Large-scale projects have a two-stage application process:
 - ✓ **Expression of interest:** with a first assessment on the project effectiveness, innovation and maturity level. Projects that meet only the first two criteria may qualify for project development assistance.
 - ✓ **Full application:** where projects are assessed on all the criteria, including scalability and cost efficiency.
- Small-scale projects have a single, full application stage.

Evaluation

Award criteria: Projects will be selected based on: Effectiveness of greenhouse gas emissions avoidance; Degree of innovation; Project viability and maturity; Scalability; Cost efficiency (cost per unit of performance).

The detailed scoring and ranking methodology, as well as possible additional criteria for geographical and sectorial balance, are set in each call for proposals. For small-scale projects, the selection criteria are simplified.

Negotiation

The successful projects will sign a grant agreement with CINEA – European Climate, Infrastructure and Environment Executive Agency (formerly INEA – Innovation and Networks Executive Agency). CINEA is the designated Agency of the European Commission to manage the programme.

Project Execution stage

Once the project is granted, the following reporting activities will be required:

- Continuous reporting: this is a continuous update of the project deliverables, outputs/outcomes, critical risks, indicators, etc during the project duration, to be carried out in the “Funding & Tenders Portal” tool.
- Progress reports: The beneficiaries will be required to submit progress reports on a bi-annual basis before financial close and on an annual basis after financial close. They will cover at least the following areas: (i) Progress of the project in terms of delivery of work packages, activities and project management milestones (compared to the project implementation plan and timetable); (ii) Challenges encountered in relation to project technical, financial and operational aspects and how they are addressed; and (iii) Knowledge-sharing report, including communication and dissemination activities.

- Periodic reports: The beneficiaries will be required to provide periodic reports to request payments, in accordance with the schedule and modalities set out in the grant agreement. After the entry into operation, the periodic reports will be annual.

4.2.11 Pre-commercial procurement

Pre-Commercial Procurement (PCP) is an approach to public procurement of research and development (R&D) services. Pre-Commercial Procurement challenges industry from the demand side to develop innovative solutions for public sector needs and it provides a first customer reference that enables companies to create competitive advantage on the market.

The following figure explains the process of the competitive development through various phases:

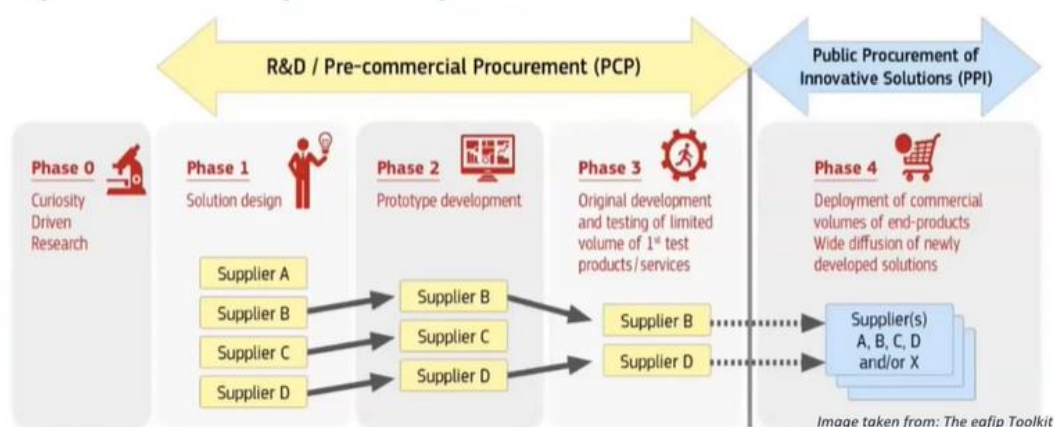


Figure 9 Precommercial procurement Phases - Source: EAFIP Toolkit

Within the latest Horizon 2020 programme, two projects have been funded under various topics allowing to promote PCP in the renewable energy sector: ProcuRE and EuropeWave.

ProcuRE : Pre-commercial Procurement (PCP) to Buy R&D Services for Breakthrough Solutions for 100 % Renewable Energy Supply in Buildings

General call Information



The project ProcuRE, funded by the H2020 programme tackles the common challenge of achieving 100% Renewable Energy Supply (RES) in existing stock. The Buyers Group comprises six cities operating a stock of 21,000 buildings.

ProcuRE drives innovation from the demand side by acting as technologically demanding customers that buy the development and testing of new solutions. PCP enables public procurers to compare alternative potential solution approaches and filter out the best possible solutions that the market can deliver to address the public need. This enables European public authorities to modernize public services faster and to create opportunities for companies in Europe to take international leadership in new markets.

Call requirements

This is a call for tender process.

Financing

N/A

Proposal stage

The procurement will take the form of a PCP (Pre-commercial procurement) under which R&D service contracts will be awarded to R&D providers in parallel in a phased approach. Each selected

operator will be awarded a framework agreement that covers three R&D phases. The three phases are: solution design, prototype development, original development and validation and testing of a limited volume of first products or services. After each phase, intermediate evaluations will be carried out to select the best of the competing solutions. The contractors with the best value-for-money solutions will be offered a specific contract for the next phase.

The call for tender is expected for October 2021.

The total funding amount to be divided among the selected suppliers throughout the whole pre-commercial procurement process is 7.68 million euro. procuRE follows the stages of the PCP process as set-out by the European Commission, i.e. work will be divided into four subsequent phases:

- Phase 0: Preparation phase (10 months) and Call for Tenders (5 months).
- Phase 1: Concept design, solution architecture, technical specifications and assessment framework (3 months). The total procurement budget in Phase 1 will be 1.15 million euro. It is expected that 8 suppliers will be selected.
- Phase 2: Development of prototype systems in two iterations (8 months). The total procurement budget in Phase 2 will be 2.3 million euro. It is expected that 4 suppliers will be selected.
- Phase 3: Development and testing of pilot systems (16 months). The total procurement budget in Phase 3 will be 4.22 million euro. It is expected that 2 suppliers will be selected.

All interested operators are invited to take part in an open market consultation (regardless of their geographic location, the size or governance structure of their organisation). The open market consultation (OMC) will provide with an overview on the procurement objectives, the PCP process and the main clauses of the contract.

Evaluation stage

The submitted offers will be evaluated by The Buyers Group, consisting of 6 procurers: KSENA (Slovenia regions), AMB (Wider Barcelona, Spain), NUREMBERG (Germany), ENERGAIA (Porto Region, Portugal), IMM (Istanbul, Turkey), EILAT (Israel).

The Buyers Group is in charge of over 21,000 buildings and has ambitious carbon neutrality goals (see strategies of Barcelona, Eilat, Istanbul, Nuremberg, Vila Nova de Gaia and Velenje for more detail).

procuRE invites other procurers to participate in OMC between April and July 2021, answer the OMC questionnaire and to join the forum. procuRE will take input into account and share results as early as possible.

Funding Agreement stage

N/A

Project Execution stage

N/A

EuropeWave

General call Information



The project EuropeWave, funded by the H2020 programme started in January 2021. It builds on the success of the regionally funded PCP programme known as Wave Energy Scotland (WES), set up in 2014 and expands this concept to the European level as mandated by the SET Plan Implementation Plan for ocean energy.

EuropeWave brings together over €22.5m of national, regional and EU funding to provide the boost to Europe's wave energy innovation community necessary to transition to commercial viability. This will be achieved by procuring a phased competitive programme of R&D to pull forward those technologies that can demonstrate the best potential to achieve the technical and economic performance metrics that will make them investor-ready.

The procurement aims to trigger new solutions to be developed and tested to address the following overarching challenge: the design, development, and demonstration of cost-effective wave energy converter (WEC) systems for electrical power production that can survive in ocean environment.

Approximately 7 technologies are expected to enter the programme via an open Official Journal EU (OJEU) call with the best performing technologies completing a physical demonstration in the marine environment.

This pre-commercial procurement (PCP) is a joint procurement by two procurers within Europe (the 'Buyers Group'):

- Wave Energy Scotland Scotland, UK;
- Ente Vasco de la Energía, Basque Country, Spain.

The EuropeWave PCP is carried out by Wave Energy Scotland, appointed as lead procurer to coordinate and lead the joint procurement in the name and on behalf of the Buyers Group.

Call requirements

This is a call for tender process open to any size of organisation.

Financing

A total budget of €19.6 million is foreseen for the pre-commercial procurement.

The budget is split as follows for each phase:

- Phase 1: €2.1 million – Each contract will be up to € 300,000 – duration 6 months
- Phase 2: €4 million – Each contract will be up to € 800,000 – duration 9 months
- Phase 3: €13.5 million – Each contract will be up to € 4.5 million – duration 33 months

Proposal stage

There will be three stages:

- Phase 1: seven suppliers will be asked to demonstrate certain minimum technological levels of progress in laboratory conditions. During this stage, the companies will work on physical and numerical modelling of their respective technologies, after which a short-list of five R&D suppliers will be drawn up, Ente Vasco de la Energia said earlier.
- Phase 2: five of these R&D companies carrying out scale tests in wave tanks or test sites. The results will be assessed, and three finalists will then go forward to the third and last phase, according to the Ente Vasco de la Energia
- Phase 3: will entail designing a full-scale prototype before going on to manufacture, assembly and open-sea deployment at the European Marine Energy Centre (EMEC) in Scotland, and the Biscay Marine Energy Platform (BiMEP) in the Basque Country.

Evaluation stage

The results of the evaluation foresee the following:

- In phase 1, 7 suppliers will be selected – Evaluation is expected in Q4 2021
- In phase 2, 5 of the 7 suppliers will be selected – Evaluation is expected in Q3 2022
- For phase 3, 3 of the 5 suppliers will be selected - Evaluation is expected in Q3 2023.

Funding Agreement stage

A Framework Agreement will be concluded for the full period of the contracts and then a call-off contract will be concluded for each phase. It will be subject to successful phase gate evaluation and contractor's offer for next phase.

Project Execution stage

The R&D service contracts for the first phase are anticipated to start in January 2022, while the final phase contracts are expected to be concluded in June 2026.

The selected operators will retain ownership of the intellectual property rights (IPRs) that they generate during the PCP and will be able to use them to exploit the full market potential of the developed solutions, WES noted.

4.3 National Funding

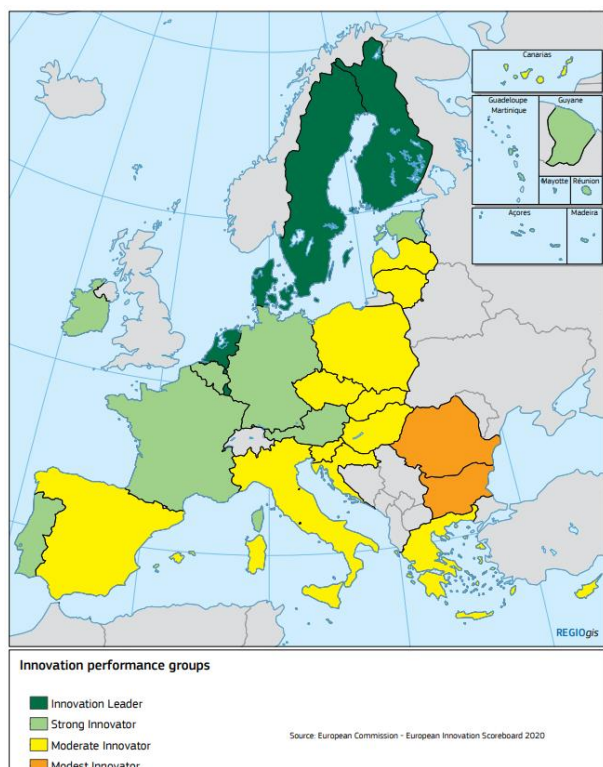


Figure 10: Innovation index. Country Level.
Source: European Innovation Scoreboard 2020

According to the European Innovation Scoreboard 2020, R&D expenditure in the public sector (percentage of GDP) represents one of the major drivers of economic growth in a knowledge-based economy. As such, trends in the R&D expenditure indicator provide **key indications of the future competitiveness and wealth of the EU**. Research and development expenditure is essential for making the transition to a knowledge-based economy as well as for improving production technologies and stimulating growth. In 2019, the Member States of the European Union (EU) spent over €306 billion on R&D. The R&D intensity, i.e. R&D expenditure as a percentage of GDP, stood at 2.19% in 2019, compared with 2.18% in 2018. Ten years earlier (2009), R&D intensity was 1.97%.

The Innovation index of the European Innovation Scoreboard, which in turn encompasses the R&D expenditure, has been the mean considered for the selection of the countries analysed within the

study. In this sense, the national instruments from the Big 4 EU countries (**Germany, France, Italy and Spain**) and furthermore, 4 relevant countries with different levels of innovation have been considered.

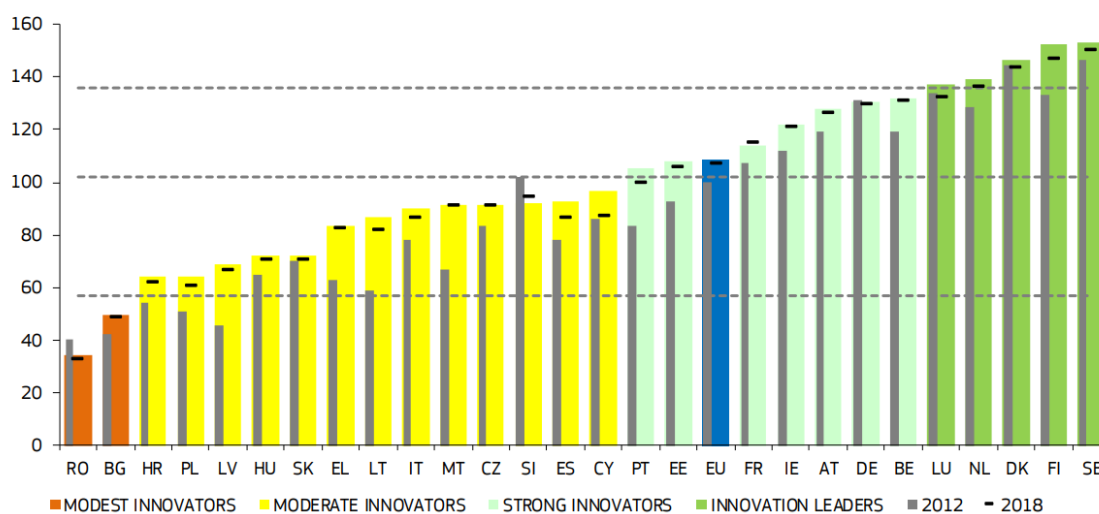


Figure 11: Performance of EU Member States' innovation systems.

Source: European Innovation Scoreboard 2020

The methodology used for the selection of the 4 relevant countries, aims at considering different levels of innovation defined by the European Innovation Scoreboard: 2 Innovation Leaders; 1 Strong Innovator; and 1 Moderate Innovator.

- Innovation Leaders: **Denmark** and **Sweden** (the first European Innovation leader).
- Strong Innovators: **Portugal** (the latest strong innovator at EU level)
- Moderate Innovators: **Cyprus** (the first moderate innovator at EU level).

Moreover, the Recovery and Resilience Facility (RRF) is an interesting tool to finance energy projects using EU funds by means of national calls. For the period 2021 -2023, the EU recovery plan, Next Generation EU (NGEU) foresees to allocate €672 bn to Member States to help them recover from the pandemic. The budget is divided into loans and grants. A total of €338 bn is foreseen to be spent in Grants (see:)¹⁰.

¹⁰ https://ec.europa.eu/info/sites/info/files/about_the_european_commission/eu_budget/recovery_and_resilience_facility_.pdf

4.3.1 Sweden



Sweden is currently the innovation leader. In a European perspective, the Swedish economy is robust and public finances are healthy, which breeds confidence and a favourable international reputation. R&D intensity was recorded in Sweden by 3.41% in 2019¹¹, improving its performance notably since the previous year. The longer-term trend is a shift of the economy away from traditional Swedish strengths in manufacturing (in automotive, aerospace, pulp and paper, and telecommunication) and towards service-orientation, significant diversification, and a greater presence of SMEs.

There are two major agencies in the R&I policy area: **Swedish Agency for Innovation Systems (Verket för Innovationssystem, VINNOVA)** and the **Swedish Research Council (Vetenskapsrådet)**. Both of them distribute funding for research and innovation in open calls and in specific areas and programmes following the guidelines and plans defined by the government.

As for the energy sector, an important actor is **the Swedish Energy Agency**¹². The Agency has overall responsibility for research, development, innovation and demonstration. Some related activities are also carried out by other agencies working in conjunction. In fact, overall basic energy research is carried out jointly by the Swedish Research Council and the Swedish Energy Agency.

The Swedish Energy Agency is also responsible for the **National Energy Research and Innovation Programme**. With an annual budget of around SEK 1.6 billion for 2017–2020, Sweden is working to become a frontrunner in the transition to a sustainable energy system under this programme. Sweden will carry out initiatives to address the following challenges under the Programme:

- to create a fully renewable energy system
- to ensure that the energy system is flexible and robust
- to create a resource-efficient society which improves competitiveness, facilitates the transition to a renewable energy system
- to increase action on innovation, jobs and the climate to give Sweden a leading position in the transition to a renewable energy system
- to facilitate interaction between various operators, sectors, standards and business models in the energy system

The programme includes actions on business development and commercialisation, and international cooperation.

The public funding available for the Programme was announced in the 2017 draft budget. Beneficiaries in the private sector were expected to contribute private funding equivalent to at least half of the public funding they receive. The next Government bill on the energy research and innovation policy is currently being prepared. **Energy Agency** is in charge of preparing the background information for this bill to provide basis for continued funding for the sector.

One of the main programmes for energy innovation, supported by the Swedish Energy Agency is the **Cleantech Hubs** programme presented below:

¹¹ [Sweden's research and development increased](#)

¹² [Swedish Energy Agency \(energimyndigheten.se\)](https://energimyndigheten.se)

Swedish Energy Agency – Cleantech.¹³
General call information

Cleantech Hubs – Innovations by Sweden is a joint Swedish government and industry-led initiative founded in 2017 to support Swedish cleantech innovations and to promote a sustainable energy system. It comprises of a number of leading Swedish suppliers of technology and services within Cleantech, supported by the Swedish Energy Agency and Business Sweden.

The Swedish Energy Agency is subordinate to the Ministry of the Environment and Energy and finances research for new and renewable energy technologies, smart grids, and vehicles and transport fuels of the future as well as the commercialisation and growth of energy related cleantech.

Call requirements

To be selected by this initiative, firstly, the company has to have market potential and be backed by a team of skilled implementers. Following that, the business idea has to include a unique and innovative product or service, where one of the primary benefits is to contribute to a more sustainable energy system.

Financing

The Swedish Energy Agency provides support for these business ideas to grow and succeed through different types of loans. They also contribute with technical expertise, market knowledge and active business development. This public instrument offers conditional loans and growth loans.

Proposal

1. Initial Contact: Contact the Swedish Energy Agency and fill in registration of interest.
2. Introductory analysis: first meeting

Evaluation

No information available

Negotiation

No information available

During execution

No information available

¹³ <https://cleantechhubs.se>

4.3.2 Germany



In terms of innovation performance, the European Innovation Scoreboard ranks Germany among the Strong Innovator countries in 2020. The country has slightly increased its performance in the last years, but it still outperforms the average of EU27 in this indicator. As for the R&D intensity, with an expenditure of 3.17% of the GDP for 2019, Germany is the third country, behind Sweden and Austria with its R&D expenditure above 3%. The index identifies particular strengths in Germany stemming from business R&D expenditures as well as public-private co-publications. Relative weakness emerges from a low share of foreign doctorate students, shortages of venture capital as well as collaboration between innovative SMEs.

According to the 2021 Federal Report on Energy Research, in 2020 the Federal Government spent around EUR 1.2 billion on R&D of energy for transition and efficiency technologies and applications for the energy generation.

German Federal Government funding for energy research is carried out in the **Energy Research Programme (ERP)**. In September 2018, the Federal Cabinet passed the 7th ERP, entitled “Innovations for the Energy Transition.” The 7th ERP contains the guidelines for energy research funding as well as a total budget of EUR 6.4 billion for researching, developing, demonstrating and testing viable future technologies and concepts for the period 2018-2022. This amounts to a funding increase of about 45% from the previous period.

The ERP has three main objectives:

- to make a technological contribution to the components of the energy system of the future
- to consolidate and expand the high level of German companies and research institutions in the field of modern energy technologies.
- to secure technological options in the long term

The 7th ERP is implemented by three federal ministries, namely the **Ministry for Economic Affairs and Energy (BMWi)**, **Education and Research (BMBF)**, and **Food and Agriculture (BMEL)**. Together, the three ministries cover the entire innovation chain, from basic energy research to application-oriented research, development and demonstration.

BMWi takes the lead in coordinating and managing the programmatic direction of the energy research policy of the Federal Government. In carrying out the 7th ERP, therefore, it is responsible for the coordination, programmatic orientation, and the further development of energy research policy.

The development of the German energy sector will be dominated by four key trends in the coming years: **decarbonisation, continued decentralisation, digitalisation, and systemic integration**. Therefore, next to the development of individual and sustainable energy technologies, an important focus of the new ERP is the optimisation of the overall system of energy supply and intelligent sector coupling.

Besides, the Federal Ministry of Transport and Digital Infrastructure (BMVI) is now funding the development of renewable fuels with a total of 640 million euros. The funding guideline is part of a comprehensive overall funding concept for technology-open support of electricity-based fuels and advanced biofuels. For example, a development platform for electricity-based liquid fuels (power-to-liquid) is to be established as a research infrastructure. In addition, further funding guidelines are being developed to support the market ramp-up of renewable fuels. Approximately 1.5 billion euros are

available for the entire funding system as part of the implementation of the Climate Protection Programme 2030 and the National Hydrogen Strategy for the period 2021 to 2024, of which around 640 million euros are to flow into research and development measures.

In parallel, the government-owned development bank, KfW, finances projects of German and European companies so they can compete on global markets. KfW is increasingly becoming a visible anchor investor, signalling the quality of a start-up to other investors. Among other alternatives, KfW provides low-interest loans with grant payback support for the development and expansion of heat installations/plants by means of **KfW Renewable Energies Programme¹⁴ – Standard and Premium programmes.**

KfW Renewable Energies Programme - Standard ¹⁵

General call information

This call is managed by KfW Banking Group, a large, state-owned bank. However the **loans** offered by the ERP Innovation Programme (ERP: European Recovery Programme) are delivered by private banks. KfW is financing the development of renewable energies, such as electricity and heat from the ground, sun, wind and water.

This call is focused on plants in which power or heat is generated from renewable energies: electricity from solar energy (photovoltaics), biomass, wind energy, hydropower, geothermal energy; electricity and heat from renewable energies, generated in combined heat and power stations; grids, heat storage. This is also for investments outside Germany.

Call requirements

The following entities can apply to this call: Private individuals and not-for-profit organisations which feed the generated electricity/heat into the grid; Self-employed professionals, farmers; German and non-German enterprises majority-owned by private or municipal individuals.

Financing

Up to 100% of the investment costs eligible for financing, **up to €50 million**. KfW loan characteristics: low-interest loans up to 20 years; loan amount up to €50 million; eligible for major enterprises.

Proposal

Loan application with the company bank. In the gBzA centre (<https://www.kfw.de/inlandsfoerderung/Unternehmen/gBzA/>) the "commercial confirmation of application" can be submitted electronically by selecting the desired programme and then entering the data. The document generated, and signed, must be sent to the financing partner. Via the gBzA ID shown on the document, the financing institution can integrate the stored data into the further process of applying for your promotional loan.

Evaluation

No information could be obtained from the funder.

Negotiation

There is no information available.

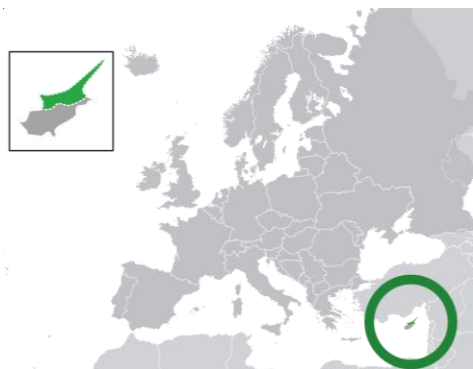
During execution

There is no information available.

¹⁴ [Energy efficiency, corporate environmental protection and renewable energies \(kfw.de\)](https://www.kfw.de/inlandsfoerderung/Unternehmen/gBzA/)

¹⁵ [6000000178 M 270 EE-Standard.pdf \(kfw.de\)](#)

4.3.3 Cyprus



According to the European Innovation Scoreboard 2020, Cyprus is a **moderate innovator**. With one of the greatest growth rates of its performance since 2016, Cyprus is currently the first moderate innovator. The index identifies particular strengths in Cyprus stemming from attractive research systems, intellectual assets, trademark applications and international scientific co-publications. Relative weakness emerges from R&D expenditures in the business sector, private co-funding of public R&D expenditures, and R&D expenditures in the public sector. As for the country's R&D intensity, Cyprus had one of the lowest R&D

expenditures in 2019, with 0.63% of its GDP.

In Cyprus, Innovation support is governed by the regions through dedicated agencies, such as the **Research and Innovation Foundation (RIF)**. Through this foundation, the Cypriot government offers significant financing schemes to support start-up ventures throughout their development. Currently, the two major activity pillars of RIF activities are the following:

- The development and management of national research, technological development and innovation programmes in Cyprus.
- The promotion of Cypriot research organisations, enterprises and researchers in European and other international research and innovation programmes.

The RIF organises training and awareness-raising activities; represents Cyprus in European and other research and innovation committees, working groups, networks and initiatives; implements studies; and submits suggestions to the relevant authorities for further research and development policy initiatives.

Another important organisation, in charge of supporting and managing some of the programmes related with energy is the **Cyprus Energy Agency (CEA)**.

According to Cyprus' **National Energy and Climate Plan (NECP)**, presented to the European Commission in 2020, national objectives and funding targets for **research, innovation and competitiveness** will triple annual spending in research and innovation (R&I) on energy and climate by 2023, while, **currently, Cyprus spends less than EUR 5 million per year in this area**. Cyprus plans to foster R&I in climate and energy with annual spending of EUR 395 million, reaching as much as 1.5% of its GDP by 2030 (it was 0.56% in 2017). The NECP also aims to raise the share of private investment in R&I from 43% in 2017 to 50% by 2023. **Renewables, natural gas and energy efficiency** are identified as priorities. These investments will help increase energy efficiency, energy security, and renewable energy.

Among the existing policies and measures that promote research in energy and climate, National funds for the businesses' development of innovative products and services can be found i.e. **RESTART 2016-2020** and the **Grant Scheme to Enhance Business Innovation**. Partners in Cyprus are the Cyprus University of Technology, Cyprus Energy Agency and Chrysalis LEAP who are committed to making the country a hub for cleantech innovation in the region.

Nonetheless, **The Industry and Technology Service** (part of the **Ministry of Energy, Commerce and Industry**) manages and distributes funds under a variety of programmes with the aim of improving the competitiveness of the different economic sectors with a view to strengthening their contribution to the country's overall economic growth. One of the most relevant funding schemes of this service, is **the Scheme for Development New Innovative Products and Services** (presented below).

Scheme for Development New Innovative Products and Services¹⁶

General call information

The Scheme aims to support and strengthen existing and newly established firms investing in research and innovation to develop competitive innovative products and services that they plan to market and / or innovative processes in the production of their products.

It also aims to support and promote collaborations between businesses and businesses with research organisations. This objective is to be achieved by the use of incentives in the form of financial aid.

The amount earmarked for the project will amount to € 10 million. The total budget of the Scheme, allocated for the 2014-2020 Programming Period, amounted to € 18m. There is still no news for new programmes from 2021 onwards.

Call requirements

To be eligible, the company must fulfil the following items:

- Retain, at the time of the application and the payment of the aid, a main facility in the areas controlled by the Republic of Cyprus or a main establishment in the EU and a branch in the areas controlled by the Republic of Cyprus;
- Have products or services on the market or apply for the category of start-ups, and
- Plan to market an innovative (one or more) product or service or plan to redesign a product or service that has been tested on the market in the two years prior to the application

Financing

The grants to be awarded to the beneficiaries to be included in the Scheme amount to:

- 25% of the total eligible project budget for start-ups with a maximum grant of € 50,000 per business and an aid intensity of 80%
- 75% of the total eligible project budget for applications in the category of existing enterprises with a maximum grant of € 250,000 per enterprise and a maximum aid intensity of 60%

Proposal

There is not available information.

Evaluation

There is not available information.

Negotiation

There is not available information.

During execution

There is not available information.

Among the planned policies and measures, the revision of national funds, regarding research and innovation with the aim to boost climate and energy priorities taking into consideration the update of **Smart Specialisation Strategy** and the **NECP**, is included. For the streamlining funds for R&D in energy and climate and to optimise results, the creation of the **National Energy and Climate Fund (NECF)** has been proposed, with an annual budget of €7 million (this will be in addition to any budget increases to Research and Innovation mentioned elsewhere).

¹⁶ [Service of Industry and Technology | Funding Schemes \(mec.gov.cy\)](https://mec.gov.cy)

4.3.4 France



In terms of innovation performance, the European Innovation Scoreboard ranks France among the Strong Innovator countries in 2020. France outperforms the average of EU27 in this indicator, although it has suffered moderate declines in the last two years. The index identifies particular strengths in France stemming from finance and support, innovators and venture capital expenditures. Relative weakness emerges from firm investments and intellectual assets and non-R&D innovation expenditures.

Different governmental entities are involved in R&I policy making such as government ministries, the **High Commission for Investment (CGI)**, placed under the Prime Minister's authority and in charge of the **Investments for the Future Programme (PIA)**, set up in 2010. Another important actor is the **L'ANCRE**, *Alliance Nationale de Coordination de la Recherche pour l'Énergie*, created in 2009, that among other responsibilities, brings together French public research organisations concerned with energy issues.

The **Agency for Environment and Energy Management (ADEME)** supports and funds environmental and energy research and currently is the state operator in charge of assessing and financing eco-efficient innovations accompanying the ecological transition.

In 2019, French public spending on R&D on energy reached 1,163 million euros, an increase of 5% compared to 2018¹⁷. The bulk of public funding is concentrated in nuclear and new energy technologies, with shares of 63% and 28% respectively. France is distinguished by the predominance of nuclear power, but is also well positioned in marine energy, biomass, solar and transport energy efficiency.

- 732 million euros on nuclear power,
- 324 million euros on new energy technologies,
- 100 million euros on basic research,
- 7 million euros on fossil fuels;

Funding in France, for a large part, go through the **Programme d'Investissements d'Avenir (PIA)** or "Investments for the future programme". A first round of this programme was launched in 2010, a second round in 2014 and a third round in 2017. This last round summed a total amount of funding of **10 billion euros over 2017-2025**. Around two thirds of this sum will be dedicated to the ecology and energy transition in general, including **clean energy innovation in particular**. French investments focus on **renewable energy, energy storage, carbon capture storage and use, and innovations aiming at improving energy efficiency**. They will cover the whole chain of innovation, from basic research to demonstration.

Investissements d'Avenir- Démonstrateurs et territoires d'innovation de grande ambition (PIA 3)¹⁸

General call information

The aim of this call for projects is to develop demonstrators of the energy and ecological transition and, moreover, to finance in equity innovative infrastructures of the type "first commercial". It supports the development of projects in the fields of biomass energy, solar thermal and thermodynamic, geothermal, photovoltaic, onshore and offshore wind, marine renewable energies as well as hybridisation projects of different renewable sources.

¹⁷ [Énergie : recherche et développement | Ministère de la Transition écologique \(ecologie.gouv.fr\)](https://www.ademe.fr/recherche-innovation/programme-dinvestissements-davenir/presentation-pia-3)

¹⁸ <https://www.ademe.fr/recherche-innovation/programme-dinvestissements-davenir/presentation-pia-3>

Call requirements

ADEME offers financial support to projects via State aids: grants and reimbursable loans. The financial contribution is between 25% and 70% of the eligible costs, depending on the size of the leading company (small, medium or large). One fourth of the financial contribution is a grant and the remaining part is a reimbursable loan. PIA financial interventions pursue a systematic goal of financial returns for France, through an interest of the latter in the success of the project.

The **total cost** of the project must be at least **€ 2 million**. The project partner companies must be eligible for state aid. The project coordinator, in the case of a single-partner project, must be a company. The consortium must not exceed five partners formulating a request for help within this programme.

Financing

Costs: Personnel costs; Flat rate charges; Subcontracting (up to 30% unless justified); Contributions to depreciation; Other costs (internal invoicing, purchases, consumables).

Proposal

The application file and project cost database templates, presenting the exhaustive list of documents to be provided, are available for download on the ADEME website of the call for projects. Incomplete or non-compliant projects submission formats are not acceptable.

Evaluation

In order to select the best projects respecting the ambition of the PIA, the procedure for selection is conducted by a Steering Committee – Comité de Pilotage (COFIL) composed of representatives of ministries in charge of the economy, research and innovation, energy and ecology and sustainable development. The General Secretariat for Investment and ADEME are entitled to attend COFIL meetings.

On the basis of ADEME's preliminary evaluation of proposal, the best projects are selected for instruction by the COFIL. The instruction is conducted by ADEME, which is composed of external experts and departmental experts. At the end of this phase of instruction, the COFIL decides on the financing of the project and the modalities of this financing on the basis of the instruction made by ADEME. The decision to grant the aid is taken by the Prime Minister, on the proposal of the COFIL and the opinion of the General Secretariat for Investment.

The COFIL can define the maximum instruction time for projects, according to an established typology in liaison with ADEME, it being understood that, for the general case, the average deadline between the filing of a complete file and its presentation in COFIL is three months.

Negotiation

Prior to any project submission, the coordinator must present his project to ADEME at a pre-filing meeting.

During execution

There is not available information.

4.3.5 Portugal



In terms of innovation performance, the European Innovation Scoreboard ranks Portugal among the Strong Innovator countries in 2020, upgrading from Moderate Innovator position that the country was scoring the previous years. Portugal is behind the EU27 average in this indicator with the highest increase in its performance. The index identifies particular strengths in Portugal stemming from Innovators, Innovation-friendly environment and attractive research systems. Besides, Portugal scores particularly well on SMEs innovating in-house, broadband penetration and SMEs with product or process innovations. Relative weakness emerges from a low share of exports of knowledge-intensive services, R&D expenditures in the business sector, private co-funding of public R&D expenditures, and public-private co-publication.

With regards to the R&D intensity, Portugal reached 1.4% of GDP in 2019 after steadily decreasing since 2010. The technological and business innovation strategy for Portugal 2018-2030 (RCM 25/2018) shows the government's commitment to using innovation as the engine of the country's economic growth, stimulating higher levels of productivity, more qualified employment and promoting higher levels of quality of life in Portugal. The targets set in this strategy for private R&D investment (1.8% of GDP by 2020 and 3% by 2030) and for the creation of qualified employment (25,000 new jobs in science and technology companies, until 2030).

In terms of fund allocation and political coordination, the governance of the R&I system research has been experimenting a shift in recent years; the regions, which have traditionally had a minor role in the allocation of research funds, are becoming now more involved. Under the last national framework Portugal 2020, part of the structural funds dedicated to research have been allocated through the regional operational programmes (OPs). However, there are still no news about national programmes for 2021.

Different governmental entities are involved in R&I policy making such as the ANI (Agência Nacional de Inovação), in charge of promoting innovation and technological development and facilitating cooperation between research and industry. Another important operator is the Agency for Competitiveness and Innovation (IAPMEI). Besides, there are also funds managed by the Portuguese Energy Agency (ADENE) to promote renewable energies and energy efficiency that are articulated in annual calls.

SI INOVAÇÃO – Sistemas de Incentivos à Inovação Projetos em Co-Promoção¹⁹

General call information

This instrument consists of a partially **reimbursable loan**. It is managed by the Agência para a Competitividade e Inovação, that is, the Agency for Competitiveness and Innovation (IAPMEI). IAPMEI is a Public Business Entity supporting micro, small and medium-sized enterprises in the industrial, commercial, service and construction sectors.

SMEs are the main beneficiaries of this instrument.

This call aims to finance projects in Industrial research and/or experimental development activities leading to the creation of new products, processes or systems or to the introduction of significant improvements in existing products, processes or systems.

¹⁹ <https://www.portaldosincentivos.pt/index.php/portugal-2020/si-investigacao-e-desenvolvimento-tecnologico-idt/projetos-em-co-promocao>

Call Requirements

This call covers projects which can last **up to 24 months**. The **minimum** fundable budget for innovation projects is **€ 100.000**.

Applicants must be up to date in compliance with tax obligations and/or against Social Security, as well as with reimbursements from possible previous incentives.

Financing

The value to be reimbursed depends on the value of the incentive. All incentives up to € 1 million are non-reimbursable. All amounts above the € 1 million threshold will have a 75% share which will be non-reimbursable. However, if the remaining 25% is an amount of up to € 50,000 it will also be non-reimbursable. The percentage of the project to be financed has a maximum base financing of 25% which can increase according to several criteria:

- 25% increase for R&I activities;
- 10% for Medium enterprises and 20% for Small and Micro enterprises;
- 10% in case of cooperation between enterprises and/or R&I organisations and/or in case of large-scale dissemination;

The call considers as direct costs: The acquisition of new fixed assets important for the company that performs the project (software, technical and scientific instruments, patents); personnel costs; materials and consumables; hiring of external services and subcontracting; general expenses; audit costs, dissemination costs. The indirect costs can represent up to 25% of the direct costs.

Proposal

The proposal must be presented in a single stage and submitted by the electronic online application of Balcão Portugal2020.

Evaluation

The evaluation will focus on technical-commercial criteria, economic-financial feasibility and impact.

Negotiation

There is not information available

During execution

There is not information available

4.3.6 Spain



Regarding R&I, Spain remains a moderate innovator with a performance increased by 14.6%-points, with strong increases in 2016, 2018 and 2019. Spain is in slightly below the EU28 regarding its R&D performance although it had a significant increase in its performance. The index identifies particular strengths in Spain stemming from Innovation-friendly environment, employment impacts, sales of new-to-market and new-to-firm product innovations and broadband penetration. Relative weakness emerges from low exports of knowledge-intensive services, SMEs innovating in-house, SMEs with product or process innovations, and R&D expenditures in the business sector.

Innovation is gaining strength in the Spanish economy as a whole. According to data from the National Institute of Statistics (INE) Spain has recorded three consecutive years of investment growth in R&D&I, and a higher rate of growth than nominal GDP. Following the new pluriannual strategy for R&D&I, Spain seeks to reach the European average in the field of R&D&I, doubling its investments from 1.24% of GDP in R&D&I investment in 2018, to 2.12% in 2027. For this purpose, Spain has almost doubled the budget assigned to foster R&D&I activities, reaching the total amount of 11,483 million euros. It must be taken into account that more than 40% of this amount will come from the European instrument to counter the impact of the Covid-19 pandemic, NextGenerationEU.

Most of the incentives and activities developed to reach the state's objectives, have been planned within the scope of the Spanish Strategy for Science, Research and Innovation 2021-2027 (EECTI), the multiannual reference framework that will serve as a reference for drawing up the State Scientific, Technical and Innovation Research Plans, which include specific aid for the development and achievement of the Strategy, and the Regional R&D&I Plans.

The ministerial R&I policy-making bodies are supported at national level by the State Research Agency (AEI – Agencia Estatal de Investigación) and the Centre for Industrial Technological Development (CDTI). CDTI is an inter-ministerial body responsible for the planning, evaluation and coordination of the main Spanish instruments for industrial R&D and innovation.

Innovation direct line (Línea Directa de Innovación)²⁰

General call information

This instrument consists of a **partially reimbursable loan**. It is managed by the Centre for Industrial Technological Development (CDTI). CDTI is a **Public Business Entity**, attached to the Spanish Ministry of Economy, Industry and Competitiveness.

Companies (SMEs and large companies) are the **main beneficiaries** of this instrument.

This call aims to finance projects of applied nature, very close to the market, with medium/low technological risk and short periods of recovery of investment, which can improve the competitiveness of the company by incorporating emerging technologies in the sector.

This loan can be co-financed with an ERDF fund or with other funds from CDTI.

Call requirements

This call cover individual projects, they can last **from 6 to 18 months**. The minimum fundable budget for innovation projects is **€175.000**.

²⁰ Centro para el Desarrollo Tecnológico Industrial / Buscador (cdti.es)

Financial conditions and/or guarantees can be requested from the beneficiary. Moreover, it is necessary to be up-to-date in compliance with tax obligations and/or against Social Security.

Financing

Technological innovation projects will be financed through a **partially reimbursable loan with a coverage of up to 75% -80%**. In any case, the company must finance at least 25% of the budget, when CDTI's contribution is 75%, or 15% when CDTI's contribution is 85%, through own resources or through external financing.

The following expenses are considered eligible in the call: The acquisition of new fixed assets that involves a technological leap important for the company that performs the project; personnel costs; materials and consumables; hiring of external services and subcontracting; general expenses; audit costs.

Proposal

The proposal must be presented in a single stage and submitted by the electronic online application of CDTI. A technical report of the project as well as the required administrative and financial documentation must be submitted with the request.

Evaluation

Technical-commercial evaluation and Economic-financial evaluation. The CDTI will assess the innovative nature and financial viability of the project (solvency analysis) and may, where appropriate, establish financial conditions and / or additional guarantees in the approval of the projects by the CDTI Board of Directors.

Negotiation

Normally, no adjustments to the project can be done. An additional extension of one month for the formalisation of the contract may be authorised by CDTI.

If the project is approved by CDTI, the beneficiary company and CDTI will proceed to the formalisation of a loan contract (public document).

During execution

Progress reports neither monitoring meeting are required in this call.

4.3.7 Italy



In terms of innovation performance, the European Innovation Scoreboard ranks France among the Strong Innovator countries in 2020. Italy is slightly below the EU27 average in this indicator although it had a significant increase in its performance. However, its R&D intensity remains at 1.45%, below the country targets. The index identifies particular strengths in Italy stemming from innovators as well as attractive research systems. Besides, Italy scores high on SMEs innovating in-house, Design applications, SMEs with product or process innovations, and SMEs with marketing or organisational innovations. Relative weakness emerges from a low share of finance and support, Venture capital expenditures, Innovative SMEs collaborating with others and broadband penetration.

The country is working to improve these data. Italy has established numerous mechanisms that support investment and R&D activities and projects. It is one of the countries in Europe with most incentives for innovative SMEs and start-ups and it is working to become an important hub for digital innovation.

In Italy's research and development (R&D) and innovation system, a key role is played by the central government, namely the Ministry of Education, Universities and Research (MIUR) and the Ministry of Economic Development (MISE).

In 2018 Italy was the only major EU country to reach its 2020 renewable quota targets, set at 17.8%, ranking third in Europe in renewable energy consumption, after Germany and France.

National Fund for Energy Efficiency (Fondo nazionale per l'efficienza energetica)²¹

General call information

The National Fund for energy efficiency fosters the necessary interventions for the achievement of the national energy efficiency targets, promoting the involvement of national and EU financial institutions and private investors on the basis of adequate risk sharing. Established by the Ministry of Economic Development (article 15, paragraph 1 of legislative decree 4 July 2014, n. 102), the Fund is governed by the interministerial decree 22 December 2017.

This instrument consists of issuing of guarantees or concessionary interest rate financing for energy efficiency projects, giving priority to those generating additional savings in comparison with traditional technologies.

Call requirements

Consulting (up to 10% of eligible expenses) with particular reference to the expenses for engineering planning relating to the structures of buildings and plants, works management, testing of the law, planning and implementation of energy management systems, feasibility studies as well as the preparation of the energy performance certificate for buildings and energy audit of public buildings

- Plant, machinery and equipment, the systems as well as the various machinery and equipment (including the remote management, remote control and monitoring systems for the collection of data regarding the savings achieved) including the supply of materials and the components required for carrying out the intervention;

²¹ <https://www.mise.gov.it/index.php/it/energia/efficienza-energetica/fondo-nazionale-efficienza-energetica>

- Interventions on the building envelope: including masonry and similar works, including the costs for interventions to mitigate seismic risk, if they concern building elements affected by energy efficiency interventions;
- specific infrastructures: including civil works, supports, water supply lines, electricity - including the connection to the grid - of the biomass gas and / or fuel necessary for the operation of the plant, as well as the measurement systems of the various system operating parameters.

Financing

The Fund is structured into a section for the issuing of guarantees (30% of resources) and a section for the granting of financing (70% of resources). Concessionary interest rate financing (0.25%) is issued for an amount between 250,000 and 4 million EUR, covering a maximum of 70% of the costs eligible for the concession.

Proposal

Electronic online application on the INVITALIA web site. The completion and submission of applications must be carried out through the web site of INVITALIA

<https://www.mise.gov.it/index.php/it/energia/efficienza-energetica/fondo-nazionale-efficienza-energetica>.

Evaluation

The applications are evaluated in chronological order of arrival within 60 days of the presentation.

Negotiation

If the project is approved by INVITALIA, the beneficiary company and INVITALIA will proceed to the formalisation of a loan contract (public document).

During execution

Some documents are required for the different type of eligible entities: For instance for companies: A1 - Intervention sheet; A2 - Possession requirements; State aid; Anti-corruption; Company size, Anti-money laundering; Balance sheet data; Single application form; Business demand aggregate form.

4.3.8 Denmark



In terms of innovation performance, the European Innovation Scoreboard ranks Denmark among the Strong Innovator countries in 2020. Denmark outperforms the average of EU27 in this indicator as the other innovation leaders, with a notable increase since 2016. According to its R&D expenditure, the intensity of Denmark resides slightly below 3% of its GDP, reaching 2.96%, positioning Denmark as the fourth country. The index identifies particular strengths in Denmark stemming from Attractive research systems, Innovation-friendly environment, highlighting Opportunity-driven Entrepreneurship, and public-private co-publications. Relative weakness emerges from low sales of new-to-market and new-to-firm product innovations, Non-R&D innovation expenditures, private co-funding of public R&D expenditures and SMEs innovating in-house.

Energy research in Denmark is organised under several ministries and institutions. **The Danish Energy Agency** funds the main energy research programme with significant demonstration activities, EUDP. EUDP (presented in the table below) focuses on new energy technologies, but also allocates special funds for hydrogen, solar and energy efficient transport.

The Danish System Operator, Energinet.dk, funds energy research through national grid tariffs. Although ForskEl & ForskVE both focus on renewable energy production & distribution, ForskVE has a stronger focus on technologies close to commercialisation.

Funds for energy research in Denmark are allocated via a range of institutions covering the entire innovation chain. Denmark spends 3 % of GDP for public RD&D programmes, with a recent surge in energy funds by 65 %.

DANISH ENERGY AGENCY - Energy Technology Development and Demonstration Programme (EUDP)

General call information

The EUDP can **support development and demonstration up to market** within all types of energy technology. Demonstration projects in particular can be difficult to finance, partly because they typically demand large financial resources, and partly because they demand a high-risk tolerance. By contributing to financing, the EUDP ensures results from research and development projects are brought closer to market.

The managing body of this call is the **DANISH ENERGY AGENCY (DEA)**. Public and private enterprises or knowledge institutions can apply for funding under the EUDP programme. This includes universities and approved technological service (in Danish 'GTS') institutes.

Call requirements

The EUDP programme primarily supports the development and demonstration of new energy technologies:

- **Development** means utilisation of knowledge in order to produce new or improve existing materials, products, processes, methods, systems or services (corresponding to EU Technology Readiness Level **TRL 4-6**)
- **Demonstration** projects mean projects that involve experimental testing of a technology, a system or a method under conditions as close to reality as possible, with the aim of subsequent introduction to the market or, if the demonstration so requires, further development before introduction to the market (corresponding to EU Technology Readiness Level **TRL 6-8**).

The last deadline for applications was **March 5, 2021, 03:00 PM**

Financing

In 2019 call the available budget was **4.9 mill. DKK**. The grant is expected to be continued in the following years at a varying level. The total grant in the years 2017-25 amounts to 100 mill. DKK. **There is no minimum or maximum level of funding**. Overall percentage of costs covered depends on company size, project type, commercial aspects, the technical and economic risks involved, as well as the incentive effects of the grant on the funders.

Proposals

Applications must **be submitted electronically** at the DEA's funding portal (only available in Danish). The application templates can be downloaded from www.ens.dk/eudp. The templates include the application form (word), budget and time schedule (Gantt) (both Excel), Business Model Canvas (word), research description, and participation declarations.

Evaluation

The applications will be evaluated by **external experts**. The external experts must not have any conflicting interests and are imposed confidentiality of application material.

Applications related to special projects such as building partnerships, international cooperation, dissemination are in general assessed by the Secretariat without the involvement of external experts.

Negotiation

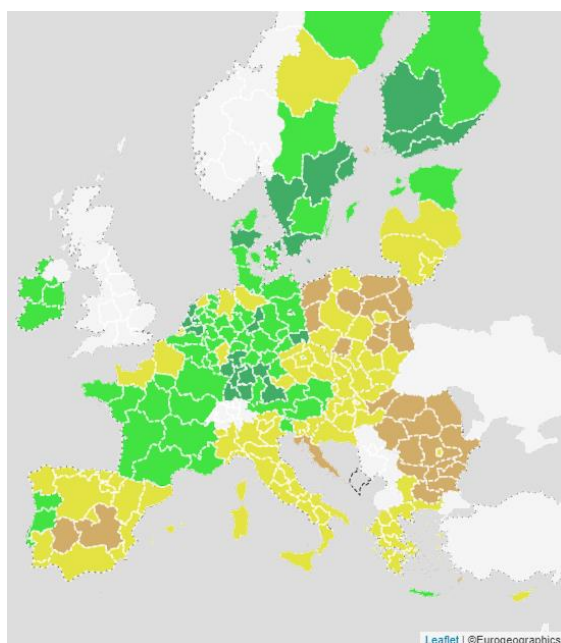
There is not available information.

During execution

If funding is awarded a number of requirements have to be met when carrying out the project. The requirements are: Project agreement; Coordination, reporting and accounting obligations; Dissemination, utilisation and rights of results; Reimbursement of project expenses; Contribution to efficiency targets.

In addition to this programme, **Innovation Fund Denmark** grants funding for research, development and innovation as one of the thematic main areas. **Innovation Fund Denmark's** 2016 strategy for energy investment was revised during 2017 and published in January 2018. The outset for Innovation Fund Denmark's investment strategy for 2018 to 2020 was that the transition of the energy sector provides good opportunities for radical new solutions, and that major technological breakthroughs will typically be based on new knowledge and new competences obtained through strong research and strong public-private cooperation. Therefore, Innovation Fund Denmark is trying to strengthen strategic research in the energy area, increase the momentum of innovation in the Danish energy sector, and help develop radical new solutions for the energy systems of the future.

4.4 Regional Funding



Legend:
 Innovation leader
 Strong innovator
 Moderate innovator
 Modest innovator

Figure 12: Innovation index. Regional Level.
 Source: European Innovation Scoreboard 2020

Significant opportunities for research and innovation investments, including in the energy sector are available at regional/inter-regional level in the framework of the Smart Specialisation Strategies. For the period 2021-2027, the smart specialisation strategies ('S3P') were not yet available at the time of the publication of this report. These S3P are developed in a bottom-up process with the involvement of key stakeholders across different value chains. These strategies allow to indicate in which sectors the EU funding received by regions through the ERDF (European Regional Development Fund), part of the cohesion policy, will be spent in priority. In the cohesion policy funding for research and innovation for the 2014-2020 period, **Energy was placed on the top of the list of smart specialisation priorities**, with more than 100 regions having chosen energy-related priorities (S3P-Energy)²².

Following the same R&D expenditure indicator methodology as the one used in the identification of innovative EU countries, it is possible to identify innovative EU regions, based on the European Innovation Scoreboard²³ at Regional Level. They

have been divided into the same innovation categories: Innovation Leaders; Strong Innovators; and Moderate Innovators. Among them, as explained in section 2.1 "Public funding methodology" only regions having a Smart Specialisation Strategy (S3P) with Energy-related priorities have been selected. As a result, the following ones have been studied:

- Innovation Leaders: **Midtjylland (Denmark)** and **Noord Holland (Netherlands)**
- Strong Innovators: **Southern Ireland (Ireland)**, **Provence Alpes Côte d'Azur (France)**, **Schleswig-Holstein (Germany)** and **Prague (Czech Republic)**
- Moderate Innovators: **Provincia Autonoma di Trento (Italy)**, **Basque Country (Spain)**, **Pest (Hungary)** and **Małopolska (Poland)**.

²² <http://s3platform.jrc.ec.europa.eu/s3p-energy>

²³ Source: https://interactivetool.eu/RIS/rIS_2.html#a

4.4.1 Midjylland Region – Denmark

The Innovation Fund Denmark	
General call information	
	<p>The Innovation Fund Denmark (IDF) was established in 2014 to help and support new innovative business of Danish companies at a National level, there is no specific fund at a regional scale. Different funding programmes were launched under this IDF such as InnoBooster, InnoFounder and Industrial Researcher, each of them focusing on different target groups.</p>
	<p>InnoBooster aims to enhance innovation in SMEs with a clear growth potential and promising ideas and results, the grant is a starting point for companies to acquire new skills and shorten time to market.</p>
Call requirements	
<p>InnoBooster focuses on three main subject areas: (i) Ambitious and sustainable green technology development and innovation, (ii) life science, health and welfare technology and (iii) Technology and innovation contributing to developing production and creating jobs in Denmark. Companies have to meet the following criteria to be eligible: For SMEs, a yearly turnover of DKK 2M or an external capital invest of minimum DKK 500,00 within the past three years. And for Start-ups which are established less than three years ago must prove relevant results in term of research or being present in the market.</p>	
Financing	
<p>Companies can apply for between DKK 50,000 and DKK 5 million and the company must finance at least 2/3 of the total project costs through their contribution with employees of the company working on the project or financial contribution. The grant can cover a variety of elements from equipment and research to recruitment of new employees. In 2018, InnoBooster has invested DKK 286 million in innovative projects.</p>	
Proposal	
<p>The Innovation Fund Denmark aims to facilitate the demand, request, and access to grant. So as to InnoBooster is designed to be an easy and fast process. Companies must apply directly online via E-grant by submitting a clear and brief presentation of the project and a budget. Projects worth more than DKK 500,000 have to be pitched to a panel of experts.</p> <p>When a proposal is validated, during the project, companies must submit every three months periodic accounts with justifications of expenses and the grant is paid based on those. At the end of the project, companies must present results and experiences and annual auditor's reports.</p>	
Evaluation	
<p>The Innovation Fund Denmark assesses the applications and aims to provide a decision in a month.</p>	
Negotiation	
<p>No further information is available on website.</p>	
During execution	
<p>The Duration is up to 2 years</p>	

4.4.2 Noord Holland Region – Netherlands

The Innovation Fund Noord-Holland

General call information



The Innovation Fund Noord-Holland, (Innovatiefonds Noord-Holland IFNH in Dutch) created in 2018 is founded by the province of Noord-Holland, the graduate school of Amsterdam, the holding companies of the University of Amsterdam and the Academic Medical Center. The fund will allocate a total of € 21 million until 2023 with the aim to help financing durable innovations in early phases from SME's and the knowledge centres. The fund is focused on the following areas: circular economy, sustainable mobility, energy, and health care.

Call requirements

Applicants must fulfil the following requirements to qualify for a loan: (i) the company is base and registered with the Chamber of Commerce in the province of Noord-Holland. (ii) your proof-of-concept project contributes to the Noord-Holland economy. (iii) The company, the employee and the ultimate beneficial owner meet the demands for integrity settled by the Public Administration Act and socially responsible entrepreneurship.

Financing

Eligible applicants for a loan with the Innovatiefonds Noord-Holland can get between €50,000 and €300,000, the loan is available in tranches, linked to clear milestones with measurable deliverables. There is nothing to pay back in the first few years and after that, the interest will be 8% every 12 months. And at the end of the loan period, the loan shall be repaid with interest or converted into shares in your company.

Proposal

The first thing to do before applying is to fill in the quickscan (in Dutch), it will determine if the project falls within the scope of the Fund and if the project is available, the next step is to apply through the Innovatiefond Noord-Holland portal.

Evaluation

IFNH Holland is the fund manager and can consult third parties to make a good assessment of opportunities and risks of projects' applicants.

Negotiation

Even if the project falls within the scope of the Fund during the Quickscan, the demand can still be rejected. The province of Noord-Holland informs the applicants the grounds for rejection and the appealing for the decision is not possible.

During execution

The duration of the loan is at most 10 years.

4.4.3 Southern Ireland Region – Ireland

Regional Competitive Fund

General call information



The State agency responsible for supporting the development and the growth of Irish companies is Enterprise Ireland. They provide supports and funding for high potential start up and entrepreneurs with innovative and promising businesses. There is no specific programme for each region but in 2015, the Government announced the launch of a Regional Competitive Fund to support significant activities at a regional scale. The current call for the Regional Enterprise Development Fund was launched in 2019 with €45 million available and information sessions are ran in each region, more details on the website.

Call requirements

The Regional Competitive Fund aims to finance innovative projects at a regional scale, driving enterprise development and job creation in each Irish region and promoting exchanges of knowledge and expertise through networking, dissemination, and communication.

To be eligible, applicants must be registered as a Designated Activity Company or as a Company Limited by Guarantee. Applicants will not be for profit entities that have already set up a distinct legal entity that compromise national/ regional, county or local stakeholders.

Financing

Total funding available reaches 45 million. The maximum funding level per project will be up to 80% funding rate with a grant funding from €100,000 up to €500,000.

For successful applicants, a maximum of three-year period shall be given in order to implement their work programme. The continuance of funding over this period shall be followed by agreed milestones for the project set by Enterprise Ireland. Projects can also be subject to justification of costs and Enterprise Ireland is allowed to reduce, reschedule or disallow proposed funded costs if needed.

Proposal

The applications for the funding should be submitted only electronically through the application form available on the website.

Evaluation

Enterprise Ireland Board is in charged of evaluating proposals. If the number of suitable applications exceeds the available funding, only the one at a higher rank is supported. All applications are evaluated against the following criteria: (i) Quality of Feasibility Proposal (40%), Value for Money & Economic Impact (40%), Need for support (20%). Full details on how applications are assessed are available on the website.

Negotiation

There is no available information.

During execution

All successful projects for funding must commence within 12 months from the start date of the Project. Time extensions beyond the 3-year period will be subject to consideration by Enterprise Ireland approving Committee.

4.4.4 Provincia Autonoma di Trento region - Italy

Provincial Law 6/99 - Provincial Agency for the Promotion of the Economic Activities

General call information



The Provincial Agency for the Promotion of the Economic Activities (Agenzia Provinciale per l'Incentivazione delle Attività Economiche – APIAE, in Italian) provides financial support to SMEs and large companies through the Provincial Law 6/99.

For the research field, this call aims to financing projects of applied nature, very close to the market. The projects must bring economic and social benefits at the local level. They can be co-financed with an ERDF fund. This funding mechanism covers projects ran by individual companies and by consortia.

Call requirements

Potential applicants must comply with the following conditions: (i) projects must be in the Trentino Province (i) The companies must be up-to-date in compliance with tax obligations; (iii) the companies must have paid taxes in Trentino the year previous to the application; (iv) not be in economic difficulties as defined by EU legislation; (v) not have court cases undergoing. The projects must be related to industrial research and experimental development.

Financing

The amount of the financing is based on several factors: for industrial research, the Province can provide up to 65% of expenses for big companies and 80% for SMEs. For Experimental development, the Province can provide 40% for big companies and up to 60% for SMEs. The minimum budget is €25,000 and can reach €500,000 as a maximum. The eligible expenses considered by the call are the following ones: acquisition of new equipment; staff recruitment; patent-related expenses; general expenses and other recurrent costs.

Proposal

The application is made entirely electronically through the PEC, the Certified Electronic Email system, and digital signatures must be present. The beneficiary must provide several documents when applying and the financial conditions are being requested from the beneficiary.

Evaluation

The selection of proposals is made by the appropriate provincial departments. The validity of the objectives, research, declared costs will be checked. Besides, it will be investigated whether the project will bring benefits to the industrial sector, and whether the beneficiary has the necessary competencies. The project may be randomly selected, checking whether it is complying to the agreements signed.

Negotiation

Negotiation is not necessary, only in specific cases (e.g. when new research centres require an amount higher than 500,000 €, as said in the “financing” section).

During execution

There is no information available.

4.4.5 Schleswig-Holstein region - Germany

Förderprogramm "Energiewende und Umweltinnovationen" - EUI

General call information



The state of Schleswig-Holstein announced in 2015 the State Programme for the Economy - Promotion of Energy Transition and Environmental Innovations (Förderprogramm "Energiewende und Umweltinnovationen" – EUI in German) whose guidelines are valid until the 31 December 2023.

This programme supports two areas, the energy transition, and environmental innovations. The energy transition includes projects relating to renewable energies, reduction of energy consumption, development of intelligent energy distribution systems.

Call requirements

The aim of this fund is to develop environmentally friendly economic and infrastructure systems, to increase the innovative strength and competitiveness of Schleswig-Holstein's economy and to create and safeguard future-oriented jobs. Therefore, applications may be submitted by institutions for the dissemination of research and knowledge as well as by companies with their registered office or place of business in Schleswig-Holstein. Call topics can be found [here](#).

Financing

Eligible projects shall have a project volume of not less than €150,000, all approvals required for the project must be available and the overall financing of the project must be secured. Financial support is provided with a grant covering up to 70% for non-investment activities in SMEs and up to 40% for investment projects in SMEs. In the case of individual projects at research and knowledge dissemination institutions, funding may be increased up to 90 %, and basic research cannot be funded.

Proposal

It is a 2-steps application: (1) Project proposals must first be submitted to the Wirtschaftsförderung und Technologietransfer Schleswig-Holstein GmbH (WTSH). (2) In case of a positive assessment by the WTSH, a formal, complete project application can then be submitted.

Evaluation

The WTSH assesses whether the project is in principle eligible and worthy for funding. If the assessment is positive, the WTSH recommends submitting the application. On behalf of the Ministry of Energy Transition, Agriculture, Environment, Nature and Digitisation of the State of Schleswig-Holstein, the WTSH makes the final decision on funding. The state cabinet will decide on applications for funding from €500,000.

Negotiation

There is no information available.

During execution

To verify the appropriate use of the funds and the achievement of the objectives of the project, a proof of use must be submitted within three months of the end of the project period

4.4.6 Provence Alpes Côte d'Azur Region - France

Energy Climate strategic programme

General call information



There are three main sources of funding available in Provence Alpes Côte d'Azur (PACA) also named Mediterranean region: European, national (managed by Ministries or Agencies) and regional. The latter includes mainly grants to eco-transition or sustainable development related projects. Almost all entities can apply for funding individually and to some extent in partnership if they are located in the region.

The PACA region has specific component "Climate Energy and Air" under which specific action plans are dedicated to Efficient Energy buildings, Smart grids, energy saving lightening etc.

Call requirements

"Climate Energy and Air" package lists the ongoing regional calls for projects launched only in the Provence-Alpes-Côte d'Azur region by the structures (institutions, local authorities, etc.) that operate there. They may concern, independently or jointly, the fields of energy, climate, air or even related subjects such as waste. These calls for projects are not identical in other territories in France and are specific to the PACA region.

The scope of the different calls includes installation, investment and technical study projects. Mainly solar panel, energy efficient buildings, smart charging, innovative projects including hydropower, hydrogen and heat pumps are supported under different calls. All legal entities located in the region are eligible to submit proposals. Multiple cut off dates are available to submit proposals.

Financing

The financial support for the projects can go up to 70-80% depending on calls. The ceiling of granted amounts can vary, for solar panels it is limited to 100 000 EUR, for smart charging installations the aid can go up to 150 000 EUR.

Proposal

The applications for the subsidy should be submitted only electronically. The proposals can be sent by post mail in some cases, such as the case for smart charging.

Evaluation

Applicants are allowed to contact the advisors from the relevant departments (similar size to provinces) for any question related to the formulation of their project and associated file. The final decision is made by the Region.

Negotiation

The relevant services may request the applicants to supplement the application if it finds reason to do so. The request may concern, for example, if the project can be complemented by relevant proves or changes to the project plan or a detailed description of the project concept.

During execution

No further information is available.

4.4.7 Basque Country Region – Spain

HAZITEK – Business R&D support programme

General call information



The Hazitek Programme was created in 2016 and will last until 2022, the aim of the fund is to support business R&D aligned with the Basque Country regional Science, Technology and Innovation Plan. The fund will contribute to the support and the development of competitive R&D projects and of strategic R&D projects in order to enhance the global competitiveness of the region. The allocated global budget co-financed by the European Regional Development Fund reaches € 87,500,000.00. The budget allocated for strategic project for 2021 will be € 20,000,000 and € 14,000,000 for the year 2022.

Call requirements

The programme can fund two types of project:

- (i) Competitive Research and Development projects, these projects must have a clear will to develop original and innovative products, superior to potential existing ones. However, projects aiming to improve existing products through modification of products, production line or processes will be excluded from the subsidies.
- (ii) Industrial research and experimental development projects in strategic sector. Projects of industrial research and experimental development in the scope of the Basque Country Euskadi Plan and driving effect on the economy and job employment of the Basque Country can claim for granting.

Financing

There are different types of grants regarding the type of project applying for a budget:

- (i) For Competitive Research and Development Projects, the minimum yearly budget is €100,000 for cooperation projects, €50,000 per company. The grant can cover up to 40 to 50% of eligible costs. The maximum amount of the grant is €250,000 per company per year.
- (ii) For Strategic Research and Experimental projects, the minimum budget is €4,000,000 and the grant can cover either 25% or 50% of eligible costs

Proposal

The applications are to be submitted only electronically on the website by filling the application template and preparing all require documents in digital format. After sending the application, the call is structured in two different phases: (i) Project's selection which includes the presentation and the technical evaluation of the project, independently of the budget management. (ii) Grant awarding for selected projects which fulfil all the programme requirements

Evaluation

The entity in charge of evaluating the applications is the Ministry of Technology, Innovation and Competitiveness

Negotiation

There is no further information available on the website

During execution

For Strategic Research and Development projects, the maximum duration of the grant is 3 years.

4.4.8 Pest Region – Hungary

Intelligens szakosodási kockázati tőkeprogram

General call information



The Competitive Central Hungary Operative Programme (CCHOP) is the follow-up of the Central Hungarian Regional Operative Programme for the programming period 2014-2020. CCHOP aims to develop the competitiveness of developed region with large internal disparities: The central region which includes Pest and Budapest counties. Among 9 main priorities, there are the following: (i) Improvement of enterprises competitiveness, (ii) R&D and technological innovation and (iii) Development of energy efficiency and enhanced use of renewable energy resources.

The Smart specialisation Venture Programme (Intelligens szakosodási kockázati tőkeprogram in Hungarian) is a subprogramme of CCHOP to support the development and investments of regional research, innovation activities. The aim of the Smart specialisation Venture Programme is to provide venture capital to innovations with a high growth potential business related to different priorities identified in the National Smart Specialisation Strategy, such as the three stated above.

Call requirements

Applicants shall be one of the following entities and from the Central Hungary region only: (i) High growth potential start-ups, (ii) Early growth stages start-ups and (iii) SMEs able to undertake RDI activities. The product and service projects must be linked to one of the sectoral and horizontal priorities or smart technologies set out in the National Smart Specialization Strategy.

Financing

The total amount allocated to the Smart specialisation Venture Programme for the central region (including Pest and Budapest counties) is HUF 5,490,000,000 and eligible applicants can receive a capital investment in the amount of HUF 200-1500 million.

Proposal

The applications for the subsidy should be submitted only electronically.

Evaluation

The managing authority is the National Office for Research Development and Innovation, the NKFI Office and the financial intermediary shall be selected through an open, transparent and non-discriminatory procurement procedure in accordance with applicable Union and national law.

Negotiation

There is no information available.

During execution

There is no information available.

4.4.9 Małopolskie Region – Poland

Financial instrument in Małopolski

General call information



"Entrepreneurial Małopolska" is the Priority Axis 3 of the Regional Operational Programme of Małopolska region which aims at the development and expansion of enterprises in early stage (start-up) and companies operating on the market for more than 24 months with different activities including in particular: Solution enabling the reduction of energy costs and more efficient use of energy and materials. The amount of money allocated to the Priority Axis 3 is PLN 285.68 million.

Call requirements

Applicants should be either, Micro, small and medium - sized enterprises implementing development projects in the region Małopolskie. They must be in the START UP phase (operating for no more than 24 months) and implementing development projects in the province.

Financing

Loans are granted by TISE, long name Towarzystwo Inwestycji Społeczno-Ekologicznych, from the funds of the Małopolskie Region and the European Union. The amounts go from PLN 10,000 to PLN 1,000,000 and can finance up to 100% of the total gross expenditure related to the project.

The interest rate is fixed throughout the financing period and amounts that are: 0% per annum for loans for liquidity projects, 0.15% per annum (with de minimis aid) for enterprises implementing projects in the field of Regional Smart Specializations or in areas with low economic activity (Appendix 1) and 1.15% per annum for other enterprises,

In addition, it is also possible to finance working capital (good/ Raw materials) up to 50% of the loan amount, but no more than PLN 150,000, only on the condition that it is related to investment activities and further expansion of the enterprise.

Proposal

The proposal will be submitted exclusively electronically.

Evaluation

In accordance with the Regulations, the final financing conditions are determined individually by the TISE Fund for each Applicant on the basis of his creditworthiness and risk assessment of the analyzed project.

Negotiation

No further information available.

During execution

The loan is granted for a period of up to 84 months, including the possibility of a grace period for capital repayment up to 6 months

4.4.10 Prague – Czech Republic

Operation Programme Prague – Growth Pole of the Czech Republic

General call information



The multi-fund Operational Programme Prague - Growth Pole of the Czech Republic, was founded in 2014 for a programming period of 6 years. The main objective of this Regional Programme is to ensure effective implementation of four thematic priority axes and the second one is “Sustainable mobility and energy saving”. The investment objective is to support energy efficiency, smart energy management, renewable energy use and promote low-carbon strategies as sustainable multimodal urban mobility. Projects with the use of solutions based on ICT technologies for energy efficiency, intelligent management of energy consumption and ITS systems will be given preference within the entire specific objective.

Call requirements

To be eligible to the call under the 2nd priority, the projects shall participate to achieve one of the following outcomes: (i) Improve the energy efficiency of buildings and technical facilities serving the operation of the urban public transport, (ii) Improve the energy efficiency of buildings and technical facilities serving the operation of the road transport and (iii) Implement of pilot projects to transform energy-intensive city buildings into near zero energy buildings with integrated smart systems. The following entities can be eligible to the call:

- (i) City of Prague Organisations
- (ii) Road maintenance company of the City of Prague
- (iii) Organisations for research and knowledge transfer

Financing

The total amount available for this the Operational Programme Prague reaches € 201,590,104 and the specific amount allocated to sustainable mobility and energy saving axe is € 60,477,031. For this axe, the budget available is financed at 30% by the European Regional Development Fund (ERDF) and at 70% by national sources as the City of Prague and other public and private resources.

Proposal

The applications for the subsidy should be submitted only electronically.

Evaluation

Projects will be evaluated and selected in accordance with the criteria for the selection of projects, which will be approved by the Monitoring Committee of Operational Programme Prague. In case the issue exceeds the expert capacity of the managing authority, an additional external assessment may be used, the conclusions thereof will be reflected by the evaluator in his/her final evaluation.

Negotiation

No further information is available

During execution

No further information is available.

5. FINANCE FROM THE PRIVATE SECTOR

5.1 Introduction

This chapter has three main pillars. Firstly, it provides a coverage across leading investors and financiers who are supporting the funding landscape for the SET Plan in the EU market, with reference to general trends in energy investment.

Secondly, it focuses also on the identification of the most relevant specialised investors in the Energy and environmental sector (mainly Venture capital funds and business angels).

Finally, it identifies private financing mechanisms/instruments and collaborations with EIT-InnoEnergy members supporting equity financing of innovative start-ups and young companies operating in the sustainable energy domain.

5.2 Global status of clean energy innovation in 2020

According to IEA, technology innovation is widely recognised as critically important for tackling climate change and energy policy objectives, including increasing energy access and reducing air pollution. Yet tracking progress on innovation is challenging. The correlation between inputs – finances and skills – and intermediate outputs – patents and products – is sometimes unclear. Policy objectives such as cheaper technologies, industrial transformation and economic growth can be hard to measure or assign to the inputs. Despite this, a range of indicators can shed light on clean energy innovation globally, including funding and patenting. Broader sets of metrics are needed to identify and share good practices, and are being developed by some governments.

Low-carbon energy R&D spending in IEA member countries has been broadly stable since 2012, after doubling between 2000 and 2012. It remains below the levels in the 1980s, however. Low-carbon energy technology represents around 80% of total public energy R&D spending, which in 2019 grew by 3% to USD 30 billion globally. In general, the share of GDP represented by public energy R&D spending has remained fairly constant over the last decade, and other public research objectives, such as health and defence, receive around five times more R&D funding than energy.

Over the last decade, corporate energy R&D has seen years of growth, punctuated by slowdowns in response to economic challenges such as the 2007-08 financial crisis, the 2014 oil price crash and, now, the Covid-19 pandemic. In 2019, reported spending reached USD 90 billion, with a notable slowdown in the automobile sector, typically the highest spending sector for energy-related R&D but where revenues dipped and R&D spending was flat. While companies active in renewable energy showed an impressive 74% growth in R&D spending between 2010 and 2019, their share remains below one tenth of total corporate R&D. Meanwhile sectors that do not yet have commercially viable solutions for deep decarbonisation, such as cement and iron and steel, typically spend relatively little on R&D.

Early-stage venture capital (VC) investment stood at USD 4 billion in 2019. Investment in growth areas, such as hydrogen and batteries, is broadening the impact of VC across sectors, and VC investment is growing in Europe, the People's Republic of China (hereafter "China") and the United States. However, the share of global VC deals accounted for by clean energy halved since 2012, indicating that the relative attractiveness of clean energy is not keeping pace with other technology areas, such as biotechnology and information technology. It is noteworthy in this context that, while the initial value

of many energy technology start-ups lies in the patents they hold, fewer patents have been filed for low-carbon energy technologies each year since 2011.

The Covid-19 pandemic has had a rapid and negative impact on private sector funding for clean energy innovation, and is likely to set back the speed with which clean energy technologies can be developed and improved. In the absence of policy interventions, demonstration, early adoption and learning-by-doing are expected to suffer the most in the first instance. A number of energy-related companies reported year-on-year declines in R&D budgets in the first quarter of 2020, and the number of VC deals was also down. The impacts are likely to be uneven across countries, with emerging economies finding it hardest to plug gaps in innovation systems.²⁴

5.3 Specialised investors

Private equity represents a class of investors, their funds, and their subsequent investments, which are made in private companies or in public companies with the goal of taking them private.

Private equity investments are primarily made by: Angel investors, Venture Capital firms and Private equity firms, each with its own set of goals, preferences, and investment strategies.

- **Angel investors** (also known as a business angels): are normally funding partner for most startup founders and are willing to participate in the earliest rounds of fundraising. Angel investors usually provide funding at the seed stage, but they don't like to invest until the business owner has shown initiative by placing his or her own capital at risk.
- **Venture capital (VC)**: firms are equity investors at an earlier stage in the lifecycle of a startup.
- **Private equity (PE)**: refers to the holding of stock in unlisted private companies — private companies that are not quoted on a stock exchange. Private equity firms characteristically invest in the buy-outs of mature companies.

Type of investors	Business Angels	Venture Capital	Private Equity
Stage of Funding	Seed, Early.	Seed, Early stage, Mid expansion.	Early; Mid to later stage, Mezzanine, Exit.

5.4 Screening of private investors per funding stage

For the sake of the screening of private investors in this chapter we have identified the specialised investors (mainly Venture Capitalist and Angels investors) in accordance with the following investor's stage of financing targets (Private Company Lifecycle):²⁵

- **Seed** – Seed capital is private financing provided primarily by friends and family, angel investors, or very early-stage venture capital firms. Seed money is often used to fund initial operations, building a product prototype, and product testing. A private company receiving seed capital is pre-revenue and may be in stealth mode, meaning that its operations and products are hidden from the public until ready for market testing and beta launch.

²⁴IEA, "Global status of clean energy innovation in 2020" <https://www.iea.org/reports/clean-energy-innovation/global-status-of-clean-energy-innovation-in-2020>

²⁵The different stages of a company's life cycle (keeping in mind that the boundaries between the different stages can be blurred) are: Seed; Start-up; post creation; Expansion/Development; Transfer/Succession. -Guide on Private Equity and Venture Capital - Invest Europe.

- **Early Stage** – Early-stage financing is primarily provided by angel investors or venture capital firms and is used to fund the company’s transition to commercialising its product and supporting the firm as it sells to its first customers—this may entail manufacturing and marketing the private company’s product.
- **Mid Stage/Expansion** – Expansion capital is exactly what it sounds like: funds used to help support the private company’s growth. This may mean helping the company acquire more servers to support traffic to its website, increasing the private company’s marketing budget, acquiring or building more factories, launching new products, etc. Expansion capital can come from VC and PE firms but since the private company has profits at this stage, it may not want to give up the equity necessary for taking VC money and will instead turn to other financing methods like debt or mezzanine financing.

All identified investors have as specific sector the Energy and Environment business. In addition to the above, crowdfunding from the private sector to finance renewable energies is an interesting possibility; e.g. Sono Motors (Munich-based solar car manufacturer) financed their prototype production completely with crowdfunding. An example of available supporting tools to find the necessary funding is the CrowdFundRES European project, which contributes to the acceleration of renewable energy growth in Europe by promoting crowdfunding for financing renewable energy projects.

5.5 Funding Mechanisms for Business Investments

In this section we give an overview of existing funds and investors with experience investing in clean energy. They are active at various financing stages. This does not constitute a complete list, it is a compilation of information from various resources. There are several databases with relevant information in Europe: we can recommend the reader to visit the database of [Invest Europe](#), a project supported by the European Union's Horizon 2020 Research and Innovation Programme.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
212	X	X	X	X	The 212 fund has a €30 million capital, focusing on Early-stage fund and Growth funding but with a generalist perspective.
ABB VC (EIT)	X	X	X	X	Founded in 2009, it has since invested into over 30 start-up companies and seven venture capital funds. Next to traditional Venture Capital (VC) support, ABB Technology Venture offers its partners access to a deep R&D bench, domain expertise, global customer and channel access, market knowledge.
Abris Capital Partners			X	X	Abris Capital Partners Ltd. is a leading independent private equity fund manager, focused on mid-market opportunities in the major countries of Central and Eastern Europe (CEE). The typical financial commitment by Abris to any single transaction can range from €30 to 75 million.
Advent International GmbH			X	X	Founded in 1984, Advent International is one of the largest and most experienced global private equity firms. Since initiating their private equity strategy in 1989, they have invested \$47 billion in over 350 private equity investments across 41 countries, and as of September 30, 2020, managed \$66 billion in assets.
Aster Capital (EIT)	X	X	X	X	Aster is not a traditional Venture Capital, it is an ecosystem VC, with a focus on energy, mobility and industry 4.0 for 20 years, there is a strong collaboration between the investor, corporate and support teams. They invest in all stages, with a preference for the early phase.

²⁶ This stage includes: Mid to later stage, Mezzanine, Exit (Small buyout <15 m equity; Mid-market buy out (15m–150m equity); Large market buy out (150m–300m equity)).

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
<u>Atomico (UK) Partners LLP</u>			X	X	Founded in 2006, Atomico invests in innovative technology companies that are on their way to becoming category leaders. Atomico has made over 100 investments over four continents
<u>Auctus Asesores, S.L.</u>			X	X	Auctus is an independent private equity fund focused on investing in Spanish SMEs.
<u>Axxess Capital Partners SA</u>			X	X	Specialised in the Balkans, Axxess acts as an Investment Advisor of private equity funds - Most extensive investment experience in the region (+20 years presence, + €250M equity invested) - Lower mid-market specialists; Deals ranging from €5M to €15M; funds invested for a 3-7 years term. Funds under advisory contracts: Romanian-American Enterprise Fund, Balkan Accession Fund (€110 million private equity fund) and Emerging Europe Accession Fund (€70 million private equity fund).
<u>Baring Private Equity Partners España SAU</u>			X	X	Private Equity Partner Spain has been operating in Spain since 1987 as a specialist in private equity investment, combining the management of both national and regional private equity funds. Their investors include Spanish and European financial institutions, as well as corporations and family offices.
<u>BASF Venture Capital</u>				X	BASF Venture Capital is the corporate venture capital, they invest worldwide in promising young enterprises. Besides innovations in the fields of chemistry, new materials and sustainability, their areas of focus include digitization and new business models. They invest in all phase of company development and technological and market-oriented proof of concept is important for us.
<u>Bencis Capital Partners</u>			X	X	Bencis is an independent investment company that was founded in 1999. Bencis supports entrepreneurs and management teams in achieving their growth objectives. Present in the Netherlands, Belgium and Germany. Bencis aims to invest in companies with an operating profit up to 50 million euro.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
<u>BNP Paribas Fortis</u>	X	X	X	X	BNP Paribas Fortis Private Equity is the private equity branch of BNP Paribas Fortis. The Direct Investments team aims at supporting and developing scale-up and (mid-sized) mature companies with a Belgian link by providing the necessary financial equity support and expertise. Investments (minority equity, mezzanine and unitranche) start from EUR 1m (sweet spot between EUR 3 and 20m) in growth, replacement or (leveraged) buy-out / buy-in transactions with a targeted investment horizon from 5 to 7 years.
<u>Borromin Capital Management GmbH</u>			X	X	Borromin Capital Management GmbH is an independent private equity business focusing on medium-size businesses within German speaking Europe and Benelux countries. Funds advised by Borromin invest in profitable mid-size companies providing equity for succession issues, management buy-outs and also provide capital for growth opportunities. Its fund capital reaches € 300,000,000
<u>BP Ventures</u>				X	BP ventures was set up more than ten years ago to identify and invest in private high growth technology companies accelerating innovation across the entire energy spectrum. They have invested in more than 40 entities.
<u>Breakthroug energy ventures</u>				X	Founded in 2015 by Bill Gates and a coalition of private investors, Breakthrough energy venture is an investor-led fund that aims to build the new, cutting edge companies that will lead the world to net-zero emissions. The strategy is to risk-tolerant capital to bring transformative clean energy innovations to market as quickly as possible by bringing together governments, research institutions, private companies, and investors.
<u>Breaemer Energy Ventures</u>	X	X		X	Founded in 2002, Braemar Energy Ventures focused exclusively on technology and communications opportunities in the energy sector. They have worked with many early-stage companies, so they understand the challenges that many young companies face and provide counsel on longer-term issues.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
<u>Bridgepoint</u>			X	X	Bridgepoint is an international private equity firm. With over €20 billion of assets under management and over €29 billion of capital raised to date. It focuses on six sectors: Business Services, Consumer, Financial Services, Healthcare, Manufacturing & Industrials and Technology & Media
<u>Caixa Capital Risc SGEIC SA</u>	X	X	X	X	Promotion and investment in entrepreneurial projects, seed capital and other projects in their early stage. Caixa has made more than 250 investments since 2007 and they are currently managing more than 200 million Euro.
<u>Capital D</u>			X	X	Pan-European Private Equity (PE) fund focused on investing in companies that show clear evidence of transforming legacy business models or have demonstrable potential to do so. They seek to invest equity cheques of €20-60m in profitable, fast-growing, innovative businesses.
<u>Capiton AG</u>			X	X	Capiton is an owner-managed private equity firm born in the early 1990s. Capiton has a long track record in buy-outs and growth capital for mid-market firms in Germany, Austria and Switzerland. Its capital under management is € 838,224,794 and its fund capital reached € 439,600,000 in 2015.
<u>Capricorn Venture Partners NV (EIT)</u>	X	X	X		Capricorn Venture Partners is an independent pan-European venture capital and asset manager seeking to invest in technology-based growth companies.
<u>CEA Investissement (EIT)</u>	X	X	X		The firm typically invests between €0.2 million and €0.8 million in its portfolio companies, mostly based in France. It co-invests with other firms and takes a minority stake in its portfolio companies and also seeks a board seat. It also seeks to exit its investment between five to eight years after the first investment. Its current capital under management reaches € 72 million.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
Chevron Technology Ventures		X	X	X	Around since 1999, it focuses on six areas including water management, production enhancement and emerging materials. It has several investments in emerging/alternative energy including Acumentrics (solid oxide fuel cells), Enslyn (renewable liquid fuel) and Inventys (carbon capture).
Cleantech Business Angels (EIT)	X	X			Business Angels association investing in CleanTech Startup in France. They support their members during the different phases of training and provide them with qualified projects, accompanying (training, closing) and their network.
Co-Investor			X	X	The Co-Investor Group, founded in the year 2000, consists of a network of entrepreneurs who invest their private money directly, i.e. without involving funds, in medium-sized growth companies in German-speaking countries. Co-Investor has an enduring commitment to medium-sized businesses.
Constellation Technology Ventures			X	X	Part of Exelon Corporation, the nation's leading competitive energy provider. Constellation Technology Ventures invests across the energy technology landscape and in companies at various stages of development, there initial investment size generally ranges between \$1 million and \$10 million.
Contrarian Ventures	X	X			Contrarian Ventures is an early-stage venture capital firm focusing on investments in emerging technologies from seed to Series A in the energy and new mobility sectors in Europe. CV team is leading the energy transition of the energy and mobility industries toward a cleaner, more efficient, customer-focused future.
Demeter Partners (EIT)	X	X	X	X	Demeter is a major actor venture capital and private equity for the ecological transition., they invest from €1 million to €30 million to support companies at all stages of their development: innovative start-ups, high growth SMEs and infrastructure projects.
Diffusion Capital Partners	X			X	Diffusion Capital Partners is a seed stage venture capital fund manager. The fund primarily invests in Turkey, exclusively in deep technology start-ups that are building the future through progressive science and technology.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
Dow Europe GmbH	X	X	X	X	It supports its portfolio with capital, technology and a global network of potential development partners. It has invested over US\$ 500 million in sustaining its companies throughout their early critical years.
DSM Venturing B.V.	X	X		X	At DSM, venture capital is investing in and partnering with early-stage companies. Since its inception in 2001, DSM Venturing has invested in more than fifty emerging innovative companies in the US, Europe and Israel.
Dublin Business Innovation Centre	X	X	X	X	Dublin Business Innovation Centre is leader in early-stage investment, has been at the centre of Irish support for innovative tech start-ups and early-stage companies for over 30 years. Dublin Business Innovation Centre has just launched a new €23M early-stage fund. The fund is regulated by the Central Bank of Ireland and is a member of the Irish Venture Capital Association and Invest Europe. Its capital under management is € 41M and its fund capital reaches € 10M.
Earlybird Venture Capital	X	X		X	Focused on European technology companies, Earlybird invests in all growth and development phases. Amongst the most experienced venture investors in Europe, Earlybird offers its portfolio companies not only financial resources, but also strategic and operational support as well as access to an international network and capital markets. Over €800 million under management, six IPOs and 22 trade sales, Earlybird is one of the most successful venture capital firms in Europe.
eCAPITAL Entrepreneurial Partners AG	X	X	X	X	eCAPITAL is a venture capital firm that provides early to growth stage funding to technology companies. Founded in 1999, eCAPITAL has a history of supporting entrepreneurs determined to build companies with lasting significance. eCAPITAL is located in Germany and currently manages funds with over EUR 220 million under management.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
ECM - Equity Capital Management GmbH			X	X	ECM is an independent private equity firm headquartered in Frankfurt/Main, Germany. ECM is the manager of/advisor to respectively the private equity funds German Equity Partners I-V with aggregate capital under management of c.€1bn. Its investment focus is on majority investments in established and well-positioned mid-sized companies with attractive growth potential. The revenues of these companies typically range between €20m to €250m.
ECS - Sociedade Gestora de Fundos de Capital de Risco, SA			X	X	Founded in 2006, ECS is a leading private equity and restructuring firm focused on the Portuguese market. The firm decides on structures and acts as lead equity investor not only in companies with significant growth potential, but also distressed companies that have long-term economic potential.
Emerald Technology Ventures AG (EIT)		X	X	X	Since 2000, Emerald has backed more than 70 emerging leaders, partnered with dozens of multinational corporations on open innovation and managed investment mandates and funds for investors and governments alike.
EnBW New Ventures GmbH	X	X	X	X	EnBW New Ventures is the Venture Capital arm of EnBW, the third largest utility in Germany. They invest in innovative strongly growing companies driving the energy, mobility and urban transformation through scalable business models and the capital under management reaches € 100m.
Enel Startup		X	X	X	The Italy-based company manages eight "innovation hubs" worldwide, where it is collaborating on more than 165 projects. It has put resources into companies such as Archon (monitoring drones), Demand Energy (an energy storage company that Enel ended up buying outright last year), I-Em (maintenance and management for renewable energy plants) and Ultrasolar (which optimises solar panel production).
Energy impact partner			X	X	Energy Impact Partners is an investment firm focused on companies optimizing energy consumption and improving sustainable energy generation. With 1.4 Bn euros assets under management, they invest in companies that directly reduce carbon emissions.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
Engie New Ventures		X	X	X	The four-year-old organisation focuses broadly on cleantech. Its investments include Advanced Microgrid, Airware (industrial drone applications), Gogoro (electric scooters and swappable batteries), Heliatek (organic solar film) and Homebiogas (residential biogas technology).
Enzo Ventures	X	X		X	They will co-invest in the pre-seed stage up to € 25 000 and help companies with their industry expertise, leadership and capital in order to commercially develop and accelerate technologies in start-up companies.
Enterprise Investors			X	X	Since its founding in 1990, Enterprise Investors raised nine private equity funds with total capital commitments exceeding EUR 2.5 billion. Until the end of 2020, the funds managed by Enterprise Investors invested in 146 companies across a range of industries in the countries of Central & Eastern Europe.
Equinor Ventures		X		X	Equinor Ventures is Equinor's corporate venture dedicated to investing and supporting innovative companies to shape the future of energy. They provide venture capital, project-based funding, and an accelerator programme.
Equinox AIFM SA			X	X	Equinox targets mid-market businesses aiming to the creation and the increase of value, through the acquisition of majority or qualified minority stakes either alone or in partnership with primary financial institutions. Its fund capital reached € 315M in 2017
Evonik Degussa (China) Co., Ltd.	X	X	X	X	Evonik Venture Capital plans to invest in companies in Europe over the medium term in highly promising start-ups and leading specialist venture capital funds.
FiveT Hydrogen	X	X	X	X	This new clean hydrogen only private infrastructure fund launched in March 2021 by the former vice president of Hydrogen Energy for Air Liquid aims to be a catalyst for the development of the hydrogen economy by raising €1 Bn. The fund will finance projects in the production, storage, and distribution of clean hydrogen.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
Futur Matters		X		X	Future Matters was founded in 2015 and aims at funding innovations in areas that matter such as, among others, renewable energy, energy storage and energy efficiency. They can fund up to € 400,000 as an initial investment.
France Angels - Fédération Nationale des Business Angels	X	X	X		France Angels is a national association representing and promoting French business angels. It brings together more than 4,500 business angels, 72 networks spread throughout the country and individual business angels.
Future Energy Venture	X	X		X	Future Energy Ventures is a unique venture capital platform bringing together start-up and corporate partners. Their focus areas are Future of cities, Future of energy and Future of technologies, they are investing in start-ups which transform the energy ecosystem and pioneering the future of energy.
Future Matters	X	X		X	In addition to investment management Future matters provides advisory services for angel and early-stage investors in technology driven businesses throughout the entire venture capital value chain: from project screening and making an investment decision to attracting new growth capital and exit.
GE Ventures		X		X	GE Ventures is the venture capital subsidiary of General Electric, combining capital, technical and commercial expertise. Focusing on energy among other areas, they help entrepreneurs and start-ups to accelerate their ideas thanks to global network, partners, and customers.
GED Capital			X	X	GED is an independent private equity and venture capital management company that operates in South-West Europe (Iberian Peninsula) in three different areas: Private Equity, Infrastructure and Venture Capital. GED was set up in 1996. The funds target preferably mid-buyout and expansion deals.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
<u>GB & Partners Investment Management Ltd.</u>		X	X	X	GB & Partners is an investment manager for VC and PE funds focusing on investment opportunities where partnership with dynamic and visionary management teams to accelerate the growth and the international expansion of businesses is possible. Its capital under management is more than € 145M and the capital of each funds goes from €9M to €168M.
<u>Gimv</u>			X	X	Gimv is a European investment company with over three decades experience in private equity. Gimv currently manages around EUR 1.6 billion of investments in about 50 portfolio companies, jointly realising a turnover of EUR 2.5 billion with over 14,000 employees.
<u>GNE Finance</u>				X	GNE is an impact driven company founded in 2016 to provide financing for sustainable home and building renovation to public and private originators running home and building renovation programmes, supporting energy efficiency and renewable energy renovation programs.
<u>GPF Partners</u>			X	X	GPF Capital is an independent private equity fund focused on investing in Spanish SMEs. GPF manages €600 million of capital between three different funds.
<u>Hardware Club</u>	X				Hardware Club is a community-based venture firm dedicated to full-stack companies. They run a fund that invests in early-stage full-stack companies building hard technologies and gather the best hardware companies worldwide in an exclusive community.
<u>High-Tech Gründerfonds Management GmbH</u>	X	X		X	With €895.5 million in investment volume across three funds (€272 million in HTGF I, €304 million in HTGF II, and a targeted volume of €319.5 million for HTGF III) and an international network of partners, HTGF has already financed close to 500 startups.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
HPE Germany Consulting GmbH			X	X	Established in 2008, HPE Growth is a European private equity firm, focusing on late-stage growth investments in small and mid-cap technology companies within the Netherlands, Germany and Belgium. Its main focus is on stand-alone investment opportunities in which it can invest €10-30 million for a significant minority position.
Idinvest Partners (EIT)				X	Former Electronova Capital with € 80 million under management, the firm has developed several areas of expertise including innovative start-up venture capital transactions; mid-market corporate debt, i.e. single-tranche, senior and subordinated debt; primary and secondary investment and private equity advisory services.
Indofin Group	X	X	X	X	The Indofin Group is a globally operating investment group with offices in Geneva, Houston, Paris and Rotterdam. Founded in 1968, they are actively involved in the provision of private equity and the management of companies in Europe.
Innogy Venture		X			Innogy Venture Capital is a fund management company focused in European start-up which provide solutions and new business model to shape the future energy market.
Inven Capital, SICAV, a.s.			X	X	Czech utility CEZ and the European Investment Bank (EIB) will each provide 50 million euros to Inven Capital for joint investments into clean energy and smart technology. EIB funding would raise Inven's committed capital available to 240 million euros.
IQ Capital Partners LLP	X	X	X	X	IQ Capital is a venture capital firm, based between Cambridge and London, that invests in 'deep-tech'. Initial investments range from £ 300k to £ 5m, with capacity for follow-on investment up to £ 30m. Its fund capital reaches € 150,519,000.
Is Private Equity Investment Trust			X	X	While being part of Isbank Group, Is Private Equity Investment Trust is also partially funded by the Turkish Technology Development Foundation. It operates under rules and organisation of the Capital Market Board of Turkey and has an interest in Turkish small and medium-sized enterprises. Its shares are traded on the Istanbul stock exchange.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
Karma Ventures Oü	X	X			Karma Ventures (karma.vc) is an early-stage venture capital firm, specialised in late seed and A round investments in Europe's most promising tech start-ups. It has a capital of € 70 million.
Keensight Capital			X	X	Keensight Capital is a leading European Growth Private Equity firm managing funds backed by European institutional investors. Keensight Capital targets first-class international projects to finance organic growth or build-up strategies, or to cash out existing shareholders.
Korys Investments NV.			X	X	Korys aims to create sustainable value through a diversified portfolio of investments and focuses on sectors in which it has built substantial expertise, such as Consumer and Retail, Renewable Energy and Life Sciences.
Kvika banki hf.			X	X	Kvika banki hf. is a specialised investment bank focusing on asset management and capital markets. Kvika provides businesses, investors and individuals with comprehensive investment banking and asset management services as well as selected banking services. Its fund capital reached €60m
Lakestar Advisors Germany GmbH	X	X	X	X	Since raising a first fund in 2013, Lakestar manages an aggregated volume of € 10 bn across three early-stage funds, and more recently a growth fund. They advise and support portfolio companies in business development, recruitment, technology, and marketing. The investments range from early-stage companies to those in their growth stage. Lakestar is one of Europe's leading venture capital firm investing in technology companies.
M Ventures (EIT)	X	X	X		Focus on early stage investing and company creation to leverage Merck's science and technology base. Provide significant support to early-stage companies through access to their broad networks and internal expertise.
Mangrove Capital Partners	X	X	X	X	Mangrove Capital Partner looks to invest in companies operating internet or software businesses as early as possible. They are particularly open to investing prior to product launch.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
Merck KGaA	X	X	X		The total volume of the corporate venture fund is € 400 million although with a greater focus in healthcare. Merck KGaA has a significant focus on early stage investing and they provide significant support to early-stage companies.
Mid Europa Partners			X	X	Mid Europa Partners (MEP) is a leading buyout investor focused on the growth markets of Central and Eastern Europe with over €5.3 billion of funds raised and managed since inception.
MML Capital Partners			X	X	MML began in 1988 as Mezzanine Management Limited, Europe's first independent mezzanine provider. The firm has evolved to become a purely self-sponsored offering, providing debt and equity capital to growing businesses and typically taking a minority equity stake.
Neulogy Ventures	X	X			As of 2016, the fund managed assets worth over € 25 million distributed amongst 37 portfolio companies. The average seed investment was of € 200 000.
Omnes	X	X	X	X	With €3.6 billion of assets under management, Omnes provides SMEs with capital to finance growth. The firm has dedicated investment teams across three key areas: Venture Capital, Buyout & Growth Capital and Infrastructure.
Platina Equity Solutions			X	X	Platina Partners has two principle investment strategies: investment in renewable energy assets in the development, construction and operational phase: and investments in small to medium-sized buyouts focussing on special situations and turnaround.
Portugal Capital Ventures	X	X	X	X	Portugal Ventures is a Venture Capital firm that invests in the seed rounds of Portuguese start-ups in Digital, Engineering & Manufacturing, Life Sciences and Tourism sectors. Considered as the most active venture capital investor in Portugal, since 2012 we have invested over 120 million euros in more than 100 Tech, Life Science and Tourism start-ups.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
Practica Capital	X	X	X	X	Practica Capital Invests in seed, early and select growth stage ventures as a cross-industrial investor focusing on backing great teams behind the innovation and technology driven businesses. It manages 3 funds with €46m (€64m after expected final closing of the target fund) under management raised from the European Investment Fund (EIF), Invega others.
Prime Ventures			X	X	Prime Venture is an independent international venture capital fund with a service-oriented and labour-intensive style of investing. They are investing in all technology sectors with a focus on high-growth, high-potential international companies based in Europe. There fund capital reaches € 254 million.
Quest Cleantech fund	X	X			Founded in 201, Quest Cleantech is a sub-fund of Quest Management, it has been created to invest mainly in stocks of cleantech companies. Cleantech are products or services which provide cleaner and more efficient use of natural resources such as energy. Their aim is to achieve long-term capital growth.
Robert Bosch Venture Capital GmbH	X	X	X		Investments from Robert Bosch Venture Capital GmbH can go up to € 15 million for a 5% to 25% equity position. Beyond the financial commitment, start-ups receive access to its network and support in commercial collaborations.
Rusnano Group			X	X	Rusnano Management Company is a leading Russian private equity investor in technology-enabled businesses and the largest investors in technology in Russia & CIS. It supports fast-growing tech companies with the assets under management of more than 4 billion, operating in the area of advanced materials, energy & resource efficiency, life sciences and other high-tech sectors across Russia, Europe, Asia, and the USA.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
Saudi Aramco Energy Ventures				X	Most of its 29 or so investments are in legacy oil and gas companies, but the fund is hedging its bets by backing companies such as Nexwafe (new materials for solar cell production), Oxymem (energy-neutral wastewater treatment) and Zouk (a European equity fund focused on cleantech startups that has backed firms such as solar company Off Grid Electric and British electric vehicle infrastructure company EO Charging).
Science Ventures Denmark A/S	X	X		X	Science Ventures Denmark A/S is 100% owned by the university of Southern Denmark, they focus on early stage investments in energy and telecommunications. They have a portfolio of around 70 start-ups and they have attracted € 150 million.
Seed Capital de Bizkaia SA	X	X	X	X	Composed of three legal entities: The first one is a venture capital management company called "Seed Capital de Bizkaia Sociedad Gestora de Entidades de Capital Riesgo, S.A." administrator of € 0.33m. The second one is a fund, "Seed Capital de Bizkaia, Fondo de Capital Riesgo, created in 1991 of € 15m. And the last one is a second fund, "Seed Capital Bizkaia BI, Fondo de Capital Riesgo", created in 2006 with € 2.05m.
SET Ventures	X	X	X	X	Founded in 2007, SET Ventures has invested in European technology companies that impact the future of the energy system. They focus broadly on innovative energy generation, energy distribution and storage and energy efficiency. There will is to help companies that impact the global energy system transformation.
Shell GameChanger				X	This accelerator programme originally was created back in 1996, but the mammoth oil company added a cleantech component in September in collaboration with the National Renewable Energy Laboratory. (It is modelled after the Innovation Incubator programme created by NREL and Wells Fargo.) The initial focus is on energy storage technologies, and it will grant up to \$250,000 in funding.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
<u>SIF Transilvania S.A.</u>	X				Societatea de Investitii Financiare Transilvania is a closed-end financial investment company, self-managed. The firm is organised as a joint-stock company with entire private share capital which is held by individual and institutional shareholders, both Romanian and foreign. Its investments are focused mainly on tourism, financial (banking and non-banking), real estate and energy sectors.
<u>Sitra, the Finnish Innovation Fund</u>	X	X	X	X	Sitra is an independent public found under the supervision of the Finnish Parliament. Sitra's aim is to be a respected partner in building a knowledgeable and innovative society and its operations are funded with endowment capital and returns from capital investments.
<u>SOSV</u>	X	X		X	SOSV is a global venture capital firm that operates startup accelerator investment programs. They have a budget under management of 660 million euros and they invest in 150 companies each year. The firm strategy is to invest a small number of highly promising startups, they have more than 1,000 portfolio companies.
<u>Straightforward Capital</u>		X	X	X	Straightforward Capital is a venture capital company that invests into companies that are in their early growth stage. The fund acquires minority stakes in technology companies and plays an active role in their strategic planning and development.
<u>Super Nova Invest (EIT)</u>	X	X		X	Since 1999, it has financed and supported over 100 startup companies. Currently managing 5 funds totalling € 250 million.
<u>Swisscom (Schweiz) AG</u>	X	X	X	X	It has invested in over 50 companies from our offices in Switzerland (Zurich and Lausanne) and the USA (Silicon Valley) and they are investing in 6-8 new companies every year. It offers entrepreneurs access to its technical infrastructure and market channels in addition to financial support.
<u>Target Partners GmbH</u>	X	X	X	X	Target Partners invests in young technology companies mostly in Germany, Austria and Switzerland, currently having € 300 million under management

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
Tera Ventures	X	X		X	Tera Ventures is an international investment firm based in Estonia. Tera helps some of Europe's most disruptive technology companies scale and become global leaders. Founded in 2016, Tera Ventures has 12 active investments in its first fund (that it previously managed under SmartCap).
Tesi (Finnish Industry Investment Ltd)	X		X	X	Tesi (Finnish Industry Investment) is a government-owned investment company which promotes Finnish business, employment and economic growth through venture capital and private equity investments. Tesi invests in private equity funds and directly in growth companies. Investments are made always together and on the same terms with private investors. Assets under management total € 1000 million.
Total Energy Ventures				X	According to its informational website, the venture arm of French energy company Total review more than 500 proposals annually. Its investments include Solidia Technologies (which embeds carbon dioxide in concrete and construction materials), Sunfire (a German company working on fuels that turn renewable natural gases into electricity) and Xee (connected mobility).
Unternehmertum Venture Capital Partners GmbH	X	X			Unternehmertum Venture Capital Partners is an early-stage venture capital firm that invests in technology-based start-ups in Germany, Austria and Switzerland. Partners focuses on B2B business models in the areas of Industry 4.0 IoT, Manufacturing Technologies, B2B SaaS, Mobility and Smart City. The company's capital under management reaches € 107,538,071.
Verdane			X	X	Verdane provides flexible growth capital to fast growing software, consumer internet, energy or high-technology industry businesses, helping companies to reach the international growth. Verdane has raised nine funds since 2003, and currently has €3bn of total committed capital and has made over 120 investments.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other ²⁶	
VIVES Fund	X	X	X		VIVES is a seed capital fund initiated by UCLouvain which invests in companies developing disruptive innovations with a positive societal impact. For more than 15 years, VIVES has invested in companies active in all technological sectors, mostly focused on early-stage funds. Its fund capital reaches € 43,000,000.
Wermuth Asset Management	X		X	X	Expertise in different alternative asset classes, including private equity, long/short equities and real estate.
WISEED (EIT)	X	X	X	X	Wiseed is a crowdfunding platform that enables its users to invest in SMEs and enterprises. The platform offers investments for startups, social innovation and renewable energy projects

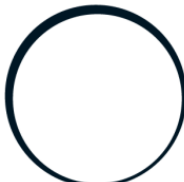
5.6 Case studies

Six case studies have been analysed here below.


5.6.1 Heliatek

Heliatek	“Creating a leader in the latest solar energy technology”
Description	 <p>Heliatek was created in 2006 with the help of several venture capital funding provided by BASH Venture Capital, eCapital, Innogy Venture Capital, Robert Bosch and Wellington Partners among others. Heliatek has developed an ultra-thin solar film that is light, flexible, and can be customised in variety of colours, dimensions and levels of transparency, the cells are more sustainable than the existing ones. The company is now trying to develop a viable commercial product that could have various applications. For example, solar cells could be integrated in car roofs, windows and building facades.</p>
What did the business need?	<ul style="list-style-type: none"> • To prove and develop a viable commercial product • Entrepreneurial guidance • To develop a network with international industrial partners
How did private equity backing create lasting value?	<ul style="list-style-type: none"> • Provided funding for a new technology, even during crises in financial and solar industries • Helped devise go-to-market strategy • Expanded management team with senior professionals • Provided links with potential clients • Built a commercial production facility
What outcomes did private equity investment achieve?	<ul style="list-style-type: none"> • Established a technology leader in organic solar energy generation • Created the world’s most efficient organic solar cells • Developed intellectual property in 45 patent families • Raised a further €80m of investment in 2016 • Created 100 high-tech jobs to date.


5.6.2 Sonnen

Sonnen	“Clean, affordable, and reliable energy is the biggest challenge of our time”
Description	 <p>sonnen</p> <p>Sonnen was created in 2010, they have made create solar power generation and storage systems for home and businesses. They aim at reducing both reliance on the electricity grid and electricity bills, with the objective of 75%. In 2013, the company was able to rapidly grow and extend to international market thanks to the invest of eCapital, a venture capital firm.</p>
What did the business need?	<ul style="list-style-type: none"> • Funding for research and development to take the technology lead • Extend their management team • Support to expand into international markets
How did private equity backing create lasting value?	<ul style="list-style-type: none"> • Provided finance to create new products and intellectual property • Financed international expansion and organisational growth • Provided access to sales contacts for overseas expansion
What outcomes did private equity investment achieve?	<ul style="list-style-type: none"> • Installed over 26,000 systems since market introduction in 2011 • Established market leader in Germany and Europe • Developed economically viable storage system that enables the further expansion of renewable solar • Created technological leader that offers best value for money • Secured high customer satisfaction and brand recognition in Germany • Created around 330 jobs, taking total staff number to 350.


5.6.3 Fonroche

Fonroche	“Off-grid solar streetlighting for local authorities and businesses”
Description	 <p>Fonroche was founded in France in 2008 with the initial business model based on the development of photovoltaic power plant. In 2010, Eurazeo, a French investment company has financed Fonroche and it has allowed the company to expand their expertise on the development, operation and maintenance of power plants using a range of technologies in several countries. The company is now considered as the world’s leading provider of off-grid solar lighting solutions and has been awarded multiple research permits.</p>
What did the business need?	<ul style="list-style-type: none"> • Strategic support to expand at an international scale • Strong expertise in financing • Financial support for research and development of renewable energies
How did private equity backing create lasting value?	<ul style="list-style-type: none"> • Diversified and extend business model • Development of new technologies (biogas anaerobic digestion of waste, deep geothermal energy) • Structured its organization and the management team, in particular in the finance department • Devised and supported a strategy for geographic diversification outside the home French market • Strengthening the company’s credibility and ambition •
What outcomes did private equity investment achieve?	<ul style="list-style-type: none"> • Built a diversified renewable energy group • Increased energy production more than threefold from 2011 to 2013 (total of 75MWc solar power plants operated in France and India) • Created a global group with operations 15 markets, including Spain, India, Puerto Rico, Kazakhstan and Mexico • Production capacity of 40,000 solar-powered streetlights a year

5.6.4 LM Wind Power

LM Wind Power	“Capture the wind”
Description	<div data-bbox="491 510 842 627">  a GE Renewable Energy business </div> <p>LM wind Power is a Danish multinational wind turbine rotor blades manufacturer. Founded in 1940 with an initial business of manufacturing wooden furniture, they started making wind turbine blades in 1978. From 2001 until 2017, DH Private Equity, now under the name of Doughty Hanson & CO, has been the principal investor of the company. LM Wind Europe was able to open new manufacturing facilities and expanding operation from 6 to 12 countries. LM Wind Power is the world’s leading supplier of wind turbine blades and services to the wind industry. In 2018, LM Wind Power has been purchased by the world leading digital industrial company, General Electric.</p>
What did the business need?	<ul style="list-style-type: none"> • Support to expand internationally • Help to redefine a new business model to acquire new markets • Increased investment in R&D
How did private equity backing create lasting value?	<ul style="list-style-type: none"> • Investment in R&D • Restructuration in the management team and recruitment to lead international growth • Support to improve efficiency in the manufacturing process
What outcomes did private equity investment achieve?	<ul style="list-style-type: none"> • 185,000 blades produced in 35 years • Expansion from 6 to 12 countries • Creation of over 2,000 jobs • 1 out 5 industrial wind turbines have LM Wind Power blades

5.6.5 Geo-Energie Suisse

Geo-Energie Suisse	Successful proof of new patented multi-stage geothermal stimulation concept
Description:	 <p>In a breakthrough for deep geothermal, Switzerland-based Geo-Energie Suisse announced in January 2021 having succeeded in obtaining technical proof of the multi-stage stimulation concept patented by the company. The successful demonstration took place in the Bedretto Underground laboratory for Geosciences and Geoenergy of the ETH Zurich in the Canton Ticino in late 2020. Geo-Energie Suisse hopes that the achievement in the Gotthard massif will give new impetus to the pilot project in Haute-Sorne (JU) and to the production of electricity and heat from geothermal energy throughout Switzerland.</p>
What did the business need?	<ul style="list-style-type: none"> • Funding by investors to prove concept and develop the research/demonstration facility to conduct the testing of the new technology • Access to international partners
How did private equity backing create lasting value?	<ul style="list-style-type: none"> • Provided funding for a new technology • Created a new research infrastructure to investigate the challenges
What outcomes did private equity investment achieve?	<ul style="list-style-type: none"> • The achievement of the demonstration project is the result of national and international innovation cooperation and serves the entire Swiss geothermal industry to increase the safety and probability of success of future projects.

5.6.6 MegaWatt Solutions

MegaWatt Solutions	The E-Box
Description	 <p>MegaWatt Solutions provides large, industrialized technology, by harvesting the sun's energy and using bedrock as a heat reservoir that is accessed via drilled boreholes. They use traditional ground source heat pumps, if needed, combine with photovoltaic thermal system to provide industrial sized energy solution. The system is completely decentralized, modular, highly efficient and stand-alone. The new system/technology is called the "EBox" – a pre-manufactured, a "plug and play" megawatt-level renewable energy solution with high performance and long life span. The EBox connects to boreholes, deliver heating and hot water to large real estate properties. It is equipped with numerous control features and monitors the energy performance of entire system. The control system in the EBox is connected with MegaWatt cloud SCADA system.</p>
What did the business need?	<ul style="list-style-type: none"> • Capital for research and development • Support for product manufacturing and expansion
How did private equity backing create lasting value?	<ul style="list-style-type: none"> • Provided finance to create new products and intellectual property • Helped the company to decentralise traditional heating grids and provide stand-alone energy centres that are all securely connected to the internet • Supported the development of a high-tech digitalised solution that resulted in incredible efficiency gains
What outcomes did private equity investment achieve?	<ul style="list-style-type: none"> • disrupted the traditional energy market and provided a secure, efficient and inexpensive supply of renewable energy, while also helping society to massively reduce its reliance on fossil fuels, and support national and global climate targets.

List of abbreviations and acronyms

Abbreviations and Acronyms

ADEME: “Agence de la transition écologique” or “Ecologic Transition Agency”

ADENE: “Agência para a Energia” or “Agency for the Energy”

AEI: “Agencia Estatal de Investigación”, or “State Research Agency”

ANI: “Agência Nacional de Inovação” or “Innovation National Agency”

APIA: “Agenzia Provinciale per l’Incentivazione delle Attività Economiche”

B2B: Business to Business

CCHOP: Competitive Central Hungary Operative Programme

CEE: Central and Eastern Europe

CEF: Connecting Europe Facility

COFIL: “Comité de Pilotage” or “Steering Committee”

cPPP: Contractual Public-Private Partnership

CDTI: “Centro para el Desarrollo Tecnológico Industrial”, or “Centre for the Industrial Technology Development”

CSA: Coordination and Support Action

DG: Directorate-General

EECTI: “Estrategia Española de Ciencia, Tecnología e Innovación”, or “Spanish Strategy for Science, Research and Innovation

EFIS: European Fund for Strategic Investments

EIB: European Investment Bank

EIF: European Investment Fund

EIP: European Innovation Partnership

EIT: European Institute of Innovation and Technology

EJP: European Joint Programme

ERDF: European Regional Development Fund

ERIC: European Research Infrastructure Consortium

ERP: Energy Research Programme

ETP: European Technology Platform

EUI: “Energiewende und Umweltinnovationen” or “Energy Transition and Environmental Innovations”

EUR: Euro(s)

FOAK: First-of-a-kind

GDP: Gross Domestic Product

GmbH: “Gesellschaft mit beschränkter Haftung” in German or “Company with limited liability”

H2020: Horizon 2020

IA: Innovation Action

IAPMEI: “Agência para a Competitividade e Inovação”, or “Agency for Competitiveness and Innovation”

IDF: “Innovation Fund Denmark”

IEA: International Energy Agency

IFNH: “Innovatiefonds Noord-Holland”

INE: “Instituto Nacional de Estadística”, or “National Institute of Statistics”

JPI: Joint Programming Initiative

KIC: Knowledge Innovation Community

MISE: Ministry of Economic Development (Italy)

MIUR: Ministry of Education, Universities and Research (Italy)

MS: Member State

NCP: National Contact Point

NRRP: National Recovery and Resilience Plan

P2P: Public to Public Partnerships

PACA: Provence Alpes Côte d’Azur

PIA: “Programme d’Investissements d’Avenir”, or “Investments for the future programme”

PCP: Pre-commercial Procurement

PE: Private Equity

R&D: Research and Development

R&D&I: Research, Development and Innovation

R&I: Research and Innovation

RES: Renewable Energy Sources

RIA: Research and Innovation Action

RIF: Research and Innovation Foundation

RRF: Recovery and Resilience Facility

S3P: Smart Specialisation Strategies

SME: Small and medium-sized enterprises

USD: United States Dollar

VC: Venture Capital

WTSH: “Wirtschaftsförderung und Technologietransfer Schewig-Holstein” or “Economic Development and Technology Transfer Scheleswig-Holstein”

Executive & publishable summary

The SMARTSPEND project aims for more and better designed public support for energy technology Research & Innovation supporting the execution of the Strategic Energy Technology Plan (SET Plan) of the European Commission in particular to finance first-of-a-kind, commercial-scale demonstration projects in the field of Energy (FOAK projects). SMARTSPEND main objectives are to foster efficiency in allocation of public and private funding, and to better inform stakeholders and engagement with policy makers.

To that aim, this report provides a mapping on public (transnational, national and regional) and private funding instruments for energy First of a Kind projects.

In addition, the project will facilitate awareness raising of the EU's soft loans and grants schemes for energy innovation. The guide provides an outlook of the available trans-national, national and regional funding instruments, in order to support the coordination of the industrial participation in the SET Plan.

What are the results that might be disseminated?				
1 Map of Public funding instruments				
2 Map of Private funding instruments				
Main stakeholders to be addressed by the results of the deliverable				
Sector	Organisations implementing a FOAK project related to the SET Plan Public funding authorities Private investors			
Type	Private entities (but also Public entities)			
Main events and activities related to the results of the deliverable (also organised by third parties)				
Title	Date	Press release	Target audience	
SMARTSPEND Risk Access conference	May 2021		Public funding authorities Private investors FOAK Solution providers	
SMARTSPEND Partners and ETIPs event	May 2021 on		ETIPs members	
Dissemination tools: what sort of materials can be created to contribute to disseminate the results? (consider budget / time)				
<input type="checkbox"/> Photographs	<input type="checkbox"/> Video	X Power point	<input type="checkbox"/> Papers	<input type="checkbox"/> Poster Created by...
X News for project website	<input type="checkbox"/> Networking opportunities	<input type="checkbox"/> Training course	X Seminar	X Social network
Potential Paper				
Title		Authors		
Other dissemination suggestion or comments from the DLV authors				
Publication on project website				

Technical references

Project Acronym	SMARTSPEND
Project Title	More and better designed national public support for energy technology Research and Innovation
GA No	826044
Project Coordinator	Administrative Coordinator Name: WIP, ingrid.weiss@wip-munich.de Scientific Coordinator Name: EUREC, arrowsmith@eurec.be
Project Duration	1 st December 2018 – 30 th November 2021 (36months)

Deliverable No.	D2.2. Mapping report on funding instruments for energy innovation (update)
Dissemination level*	PU
Work Package	WP2 - Further define adequate financial strategies
Task	T2.1 – Map of Europe’s funding / finance for energy
Lead beneficiary	ZABALA Innovation SPAIN
Contributing beneficiary/ies	ZABALA Innovation BRUSSELS
Due date of deliverable	31 May 2021
Actual submission date	25 May 2021

PU = Public

PP = Restricted to other programme participants (including the Commission Services)

RE = Restricted to a group specified by the consortium (including the Commission Services)

CO = Confidential, only for members of the consortium (including the Commission Services)

Date	Beneficiary	Author
25/05/2021	ZABALA	Authors: Ainhoa Lombide; Juan Sanciñena; Igor Idareta; Margot Delestre; Marie Latour (Zabala Innovation) Co-Authors: Reghina Dimitrisina (EGEC)

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 - Energy research increases competitiveness and exports of green technologies [energiaaret18 uk 260618web.pdf \(ens.dk\)](https://ens.dk)

Regional Programmes

Regional Innovation Scoreboard [Regional Innovation Scoreboard 2019 \(interactivetool.eu\)](https://interactivetool.eu)

Smart Specialisation Strategies [Registered Regions - Smart Specialisation Platform \(europa.eu\)](#)

1. Midjylland region – Denmark
 - [Innobooster | Innovationsfonden](#)
2. Noord Holland – Netherlands
 - [Innovatiefonds – FONDS VOOR STARTUPS EN MKB \(innovatiefondsnordholland.nl\)](#)
 - [Innovation Fund Noord-Holland - Internal Market, Industry, Entrepreneurship And Smes - European Commission \(europa.eu\)](#)
3. South Ireland – Ireland
 - [Regional Enterprise Development Fund 2017-2020 - Enterprise Ireland \(enterprise-ireland.com\)](#)
4. Provincia Autonoma di Trento region – Italy
 - [Provincia Autonoma di Trento - Agenzia provinciale per l'incentivazione delle attività economiche - Incentivi](#)
5. Schleswig-Holstein region – Germany
 - [Support for the Energy Transition and Environmental Innovations \(UI\) - Internal Market, Industry, Entrepreneurship And Smes - European Commission \(europa.eu\)](#)
 - <https://wtsh.de/de/energiewende-und-umweltinnovationen>
6. PACA Region – France
 - [Dispositifs d'aides pour les collectivités en transition énergétique - DREAL Provence Alpes-Côte d'Azur \(developpement-durable.gouv.fr\)](#)
7. Basque Country – Spain
 - [HAZITEK 2020. Programa de apoyo a la I+D Empresarial. - Gobierno Vasco - Euskadi.eus](#)
8. Pest Region – Hungary
 - [Nemzeti Kutatási, Fejlesztési és Innovációs Hivatal | Pályázatok \(gov.hu\)](#)
 - [Pest - Internal Market, Industry, Entrepreneurship And Smes - European Commission \(europa.eu\)](#)
9. Malopolskie Region - Poland
 - [MAŁOPOLSKA POŻYCZKA DLA START-UP ów – TISE – Towarzystwo Inwestycji Społeczno-Ekonomicznych SA](#)
10. Prague Region – Czech Republic
 - [OP PPR EN.pdf \(penizeproprahu.cz\)](#)

Finance from the Private Sector Finance

1. Funding Mechanisms for SMES [Invest Europe - The Voice of Private Capital](#)
2. Case studies
 - Heliatek [Heliatek - The future is light](#)
 - Sonnen [sonnen | energy is yours \(sonnenusa.com\)](#)
 - Fonroche [Solar Street Lights - Solar Area Lights | Fonroche Lighting \(fonroche-lighting.com\)](#)
 - LM Wind Power [We are LM Wind Power - the leading rotor blade supplier to the wind industry | LM Wind Power](#)
3. IEA's Global status of clean energy innovation in 2020: <https://www.iea.org/reports/clean-energy-innovation/global-status-of-clean-energy-innovation-in-2020>



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