



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

## Mapping report on funding instruments for energy innovation



### D2.1. Mapping report on funding instruments for energy innovation

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

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[www.smartspend.eu](http://www.smartspend.eu)

## Technical references

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# Table of contents

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TECHNICAL REFERENCES .....	2
DISCLAIMER OF WARRANTIES.....	3
LIST OF ABBREVIATIONS AND ACRONYMS .....	6
EXECUTIVE & PUBLISHABLE SUMMARY .....	7
1. REPORT OBJECTIVES.....	8
2. OVERVIEW OF METHODOLOGIES.....	9
3. PUBLIC SECTOR FUNDING: EU, NATIONAL AND REGIONAL LEVEL.....	13
3.1 EU TRANSNATIONAL FUNDING .....	14
3.1.1 HORIZON 2020 .....	17
3.1.2 H2020 PRE-COMMERCIAL PROCUREMENTS (PCPS).....	21
3.1.3 EUREKA.....	23
3.1.4 EUROPEAN INVESTMENT BANK (EIB) .....	26
3.1.5 EUROPEAN FUND FOR STRATEGIC INVESTMENT (EFSI) .....	30
3.1.6 CONNECTING EUROPE FACILITY (CEF).....	32
3.1.7 LIFE.....	34
3.1.8 INTERREG.....	36
3.1.9 EEA & NORWAY GRANTS .....	37
3.1.10 JPIS .....	40
3.1.11 ERA-NETS.....	43
3.1.12 INNOENERGY INVESTMENT ROUND (KIC).....	49
3.1.13 INNOVATION FUND .....	51
3.2 NATIONAL FUNDING .....	53
3.2.1 SWEDEN.....	55
3.2.2 GERMANY.....	56
3.2.3 BELGIUM.....	58
3.2.4 FRANCE.....	60
3.2.5 PORTUGAL .....	62
3.2.6 SPAIN.....	64
3.2.7 ITALY .....	66
3.2.8 DENMARK.....	68
3.3 REGIONAL FUNDING .....	70
3.3.1 FLANDERS REGION – BELGIUM .....	71
3.3.2 GRONINGEN REGION – NETHERLANDS.....	72
3.3.3 ÎLE DE FRANCE REGION - FRANCE .....	74

3.3.4	NORTHERN IRELAND REGION – UK.....	75
3.3.5	PROVINCIA AUTONOMA DI TRENTO REGION - ITALY .....	77
3.3.6	SCHLESWIG-HOLSTEIN REGION - GERMANY .....	78
3.3.7	MEDITERRANEAN REGION - FRANCE .....	80
3.3.8	BASQUE COUNTRY – SPAIN.....	81
4.	FINANCE FROM THE PRIVATE SECTOR.....	82
4.1	OVERVIEW OF MARKET PARTICIPANTS .....	82
4.2	GENERAL TRENDS IN ENERGY INVESTMENT .....	82
4.3	SPECIALISED INVESTORS.....	83
4.4	SCREENING OF PRIVATE INVESTORS PER FUNDING STAGE.....	83
4.5	FUNDING MECHANISMS FOR SMES .....	85
4.6	CASE STUDIES .....	104
5.	OPEN REFLECTIONS.....	106
6.	OTHER REFERENCES .....	108

# List of abbreviations and acronyms

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- CEF:** Connecting Europe Facility
- cPPP:** Contractual Public-Private Partnership
- CSA:** Coordination and Support Action
- DG:** Directorate-General
- EFSI:** European Fund for Strategic Investments
- EIB:** European Investment Bank
- EIF:** European Investment Fund
- EIP:** European Innovation Partnership
- EIS:** European Innovation Scoreboard
- EIT:** European Institute of Innovation and Technology
- EJP:** European Joint Programme
- ERDF:** European Regional Development Fund
- ERIC:** European Research Infrastructure Consortium
- ETP:** European Technology Platform
- FOAK:** First-of-a-kind
- H2020:** Horizon 2020
- JPI:** Joint Programming Initiative
- KIC:** Knowledge Innovation Community
- MS:** Member State
- NCP:** National Contact Point
- P2P:** Public to Public Partnerships
- R&D:** Research and Development
- R&D&I:** Research, Development and Innovation
- R&I:** Research and Innovation
- RES:** Renewable Energy Sources
- SME:** Small and medium-sized enterprises

# 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. 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 ensure all are better aware of the EU's soft loans and grants scheme 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				
Type	Sector			
Public	Organisations implementing a FOAK project			
Main events and activities related to the results of the deliverable (also organised by third parties)				
Title	Date	Press release	Target audience	
ETIPSNET Workshop	March 2020		Stakeholders interested in available funding opportunities, funding needs of the industry, implementation of the technology pillar of the EU's energy and climate policy and industry, energy system integration.	
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	<input checked="" type="checkbox"/> Power point	<input type="checkbox"/> Papers	<input type="checkbox"/> Poster Created by...
<input checked="" type="checkbox"/> News for project website	<input type="checkbox"/> Networking opportunities	<input type="checkbox"/> Training course	<input checked="" type="checkbox"/> Seminar	<input checked="" type="checkbox"/> Social network
Potential Paper				
Title	Authors			
Other dissemination suggestion or comments from the DLV authors				
Publication on project website				

# 1. Report Objectives

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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 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), European Joint Technology Initiatives 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 first version of the document, due in month 7 as deliverable D2.1. It will be updated in month 30 (May 2021) and issued as D2.2. This report has been prepared for the “More and better designed national public support for energy technology Research and Innovation” project. 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. Overview of Methodologies

This guide contains innovative clean energy financial instruments: public and private funding.

### PUBLIC FUNDING METHODOLOGY

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

To achieve a well-balanced European guide of public funding instruments, a balanced choice has been made considering the degree of innovation of the area (country/region) and its innovation performance in the last years. The following tools/methods were used:

Type of funding	Tool	Indicator	Criteria to select instruments
<b>Transnational public funding</b>	<u>ERALEARN</u> + own knowledge	Existence of P2P networks. EU transnational programmes specifically or broadly supporting sustainable energy.	All included. Just one or a few selected per type.
<b>National public funding</b>	<u>The European Innovation Scoreboard</u>  This tool provides a comparative assessment of the research and innovation performance in EU countries, other European Countries and regional neighbours.	2.1.1 R&D expenditure in the public sector (percentage of GDP). The R&D expenditure indicator provide key indications of the future competitiveness and wealth of the EU.”	National instrument from Big 4 (Germany, France, Italy and Spain) + 3 most-improved* countries [1/2 per group: Innovation Leaders/Strong Innovators/Moderate Innovators]
	<u>Public (government and higher education) R&amp;D expenditure as % of GDP</u>	R&D expenditure of the public sector (government and higher education) as % of GDP and as share of	** : Modest Innovators are discarded

Type of funding	Tool	Indicator	Criteria to select instruments
		the total R&D expenditure. Created by filtering the original Eurostat dataset.	
<b>Regional public funding</b>	<p><u>Eye@RIS3</u></p> <p>Eye@RIS3 used with the purpose to give an overview of regions' priorities in order to enable others to position themselves, to find their unique niches.</p> <p><u>The Regional Innovation Scoreboard</u> used to categorise the regions by their innovation performance.</p>	<p><b>Economic domain:</b> Electricity, gas, steam and air conditioning supply</p> <p><b>Scientific domain:</b> Renewable energy sources</p> <p><b>Policy objective:</b> Sustainable energy &amp; renewables</p>	Up to 10 regional instruments in most-improved* regions [2-4 per group: Innovation Leaders/Strong Innovators/Moderate Innovators]

\*: Most-improved = highest improvements in the European Innovation Scoreboard between 2013 (last year of MFF 2007-2013) and 2017 (last data available)

The following items will be analysed in each public funding instrument:

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

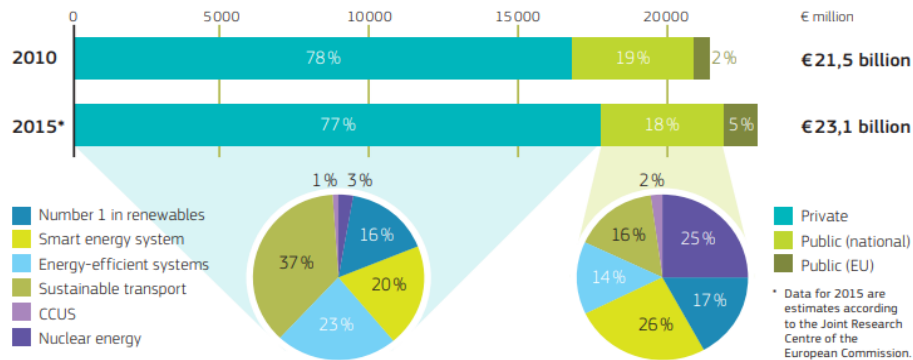
## PRIVATE SECTOR FUNDING METHODOLOGY

The private sector funding mapping was 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 are not included in the scope of the screening for private sector funding.

Type of funding	Tool	Indicator	Criteria to select instruments
<b>Private sector funding</b>	Web-based equity funding platforms like: “Investor Search” (Invest Europe) + “EuroQuity” + 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).

### 3. PUBLIC SECTOR FUNDING: EU, NATIONAL AND REGIONAL LEVEL.

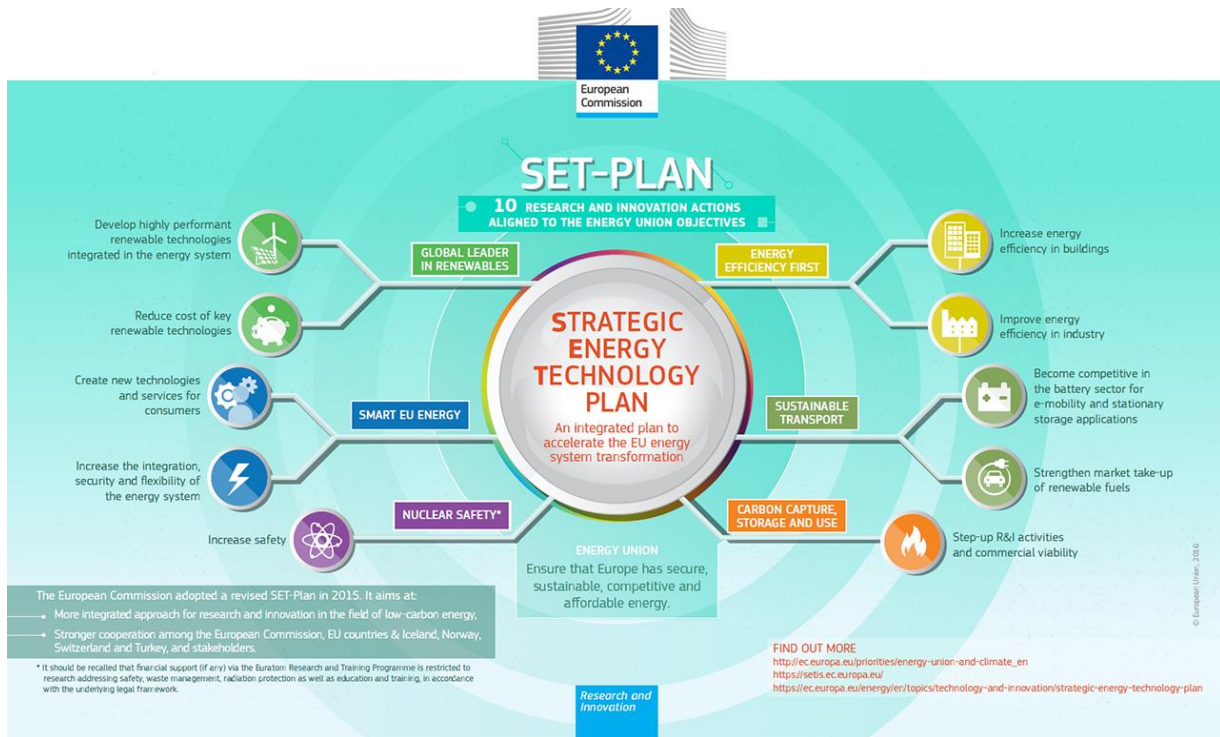
In 2015, an estimation of € 23 billion were invested in the R&I priorities identified by the Energy Union/SET Plan. The private sector is the major source of R&I investment in all but one Energy Union/SET Plan R&I priorities (77%). On the other hand, public (national and EU) represents 18% and 5% respectively.



**Figure 1:** 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](https://setis.ec.europa.eu/sites/default/files/setis%20reports/2017_set_plan_progress_report_0.pdf)

### 3.1 EU Transnational Funding

This report aims at supporting the coordination of the industrial participation in energy innovation projects. In this sense, the EU translational 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.

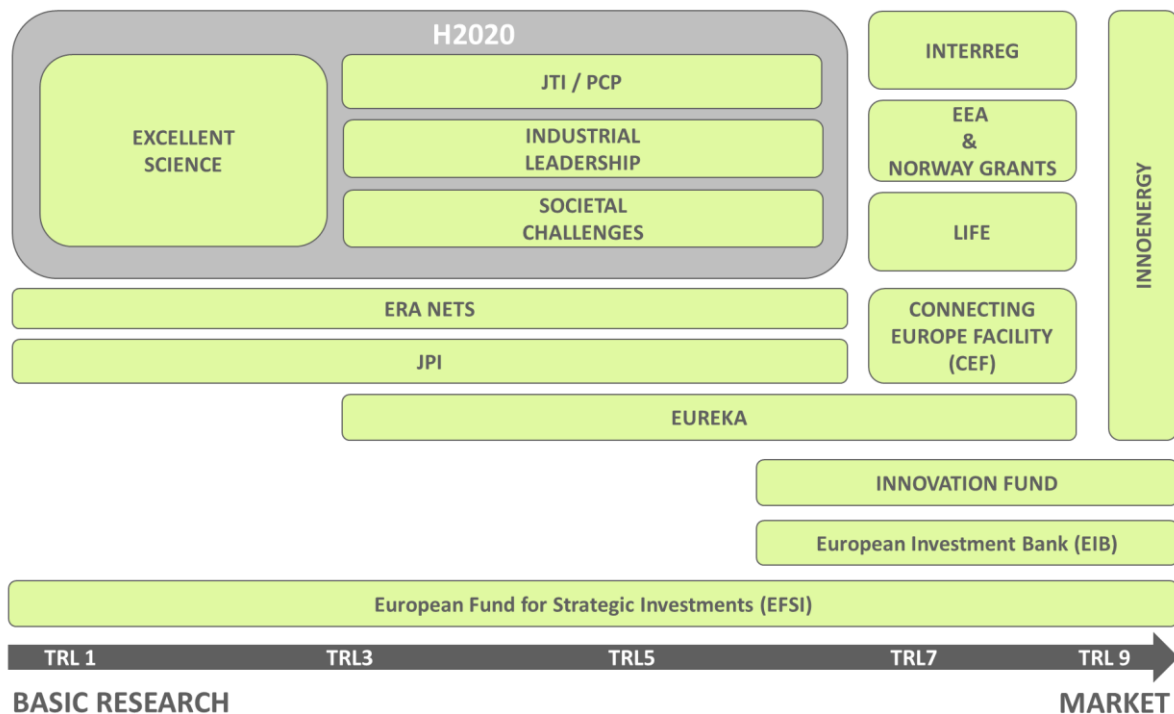


**Figure 2:** The strategic Energy Technology (SET) plan. 10 Research and Innovation Actions. Source: <https://ec.europa.eu/research/energy/index.cfm?pg=policy&policyname=set>

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 EU<sup>1</sup>.

The mapping analysis has identified a large group of trans-national funding instruments provided by different EU networks in the energy area, which are shown in the following table.

<sup>1</sup> [https://setis.ec.europa.eu/sites/default/files/setis%20reports/2017\\_set\\_plan\\_progress\\_report\\_0.pdf](https://setis.ec.europa.eu/sites/default/files/setis%20reports/2017_set_plan_progress_report_0.pdf)



**Figure 3:** Mapping of EU Programmes for Energy Innovation  
Source: own elaboration.







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

On the one hand, H2020 provides specific funding for Energy R&D and Innovation projects in several programme sections: Societal Challenges (Energy, Transport, Climate, Security), Industrial Leadership (NMBP, ICT, Innovation in SMEs), Cross-cutting activities (Batteries), JTI (Fuel Cells and Hydrogen), Euratom (nuclear energy). In a broad way, other general H2020 sections can also fund Energy-related projects, for example: Excellent Science (ERC, FET, Marie Skłodowska-Curie actions, Research Infrastructures) as well as the EIC pilot (Fast Track to Innovation, FET Open, SME Instrument, Prizes). In particular, the SME Instrument was directed to SMEs with a revolutionary business idea and underlying technology. The SME Instrument became the EIC Accelerator, offering optional equity investment in addition to a grant. With the EIC Accelerator, innovative companies can apply for a grant of up to 17.5 million in combined grant and equity financing to scale-up quickly and effectively. Currently in its pilot phase, the EIC will become a 'fully-fledged' reality from 2021 under the next EU research and innovation programme Horizon Europe (2021-2027).

On the other hand, there are other funding instruments, such as INTERREG, EUREKA, JPIs, ERANETS (which are linked to H2020), EFSI, CEF, EIB (InnovFin EDP / Emerging Innovators), LIFE, EEA & Norway Grants, InnoEnergy, Innovation Fund and Others.

Within the most interesting of these EU opportunities, only one or a few types of programmes / funding instruments have been analysed in detail in the following subsections (i.e., within JPIs, the JPI Urban Europe and JPI Oceans have been selected, where JPI Climate may also provide financing support).

Such EU 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	EU translational 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	InnovFin Energy Demonstration Projects (EDP) InnoEnergy CSP ERANET	TRANSVERSAL FUNDING INSTRUMENTS: HORIZON 2020, H2020 PCPs, INTERREG, EIB, ESF, CEF, LIFE, EEA & Norway Grants, Innovation Fund
Consumers in the Energy System		3. Create new technologies and services for consumers 4. Increase the resilience and security of the energy system	GEOHERMICA InnoEnergy Fuel Cells and Hydrogen Joint Undertaking (FCH) JPI Urban Europe	
Efficient Energy Systems		5. Develop energy efficient materials and technologies for buildings 6. Improve energy efficiency for industry	Energy-Efficient Buildings (EEB) JPI Urban Europe M-ERA.NET	
Sustainable Transport		7. Become competitive in the global battery sector (e-mobility) 8. Strengthen market take-up of renewable fuels	CEF Transport Fuel Cells and Hydrogen Joint Undertaking (FCH) Next-Generation Batteries	
Carbon Capture Utilisation and Storage		9. Drive ambition in carbon capture and storage/use deployment	InnovFin Energy Demonstration Projects (EDP) InnoEnergy ACT	
Nuclear Safety		10. Increase safety in the use of nuclear energy	Euratom	

**Figure 4:** 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”.



### 3.1.1 HORIZON 2020

Horizon 2020 (H2020) is the biggest EU Research and Innovation programme of the European Commission with nearly €80 billion of funding available over 7 years (2014 to 2020) – in addition to the private investment that this money will attract. It promises more breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market. Horizon 2020 provides the following funding programmes related to energy:

- Secure, clean and efficient energy programme
- Next-Generation Batteries (inside Cross-cutting activities programme)
- Energy-Efficient Buildings (EEB) (inside Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing - NMBP programme)
- Euratom
- Fuel Cells and Hydrogen Joint Undertaking (FCH)

#### H2020 energy related programmes

##### General call information (Secure, clean and efficient energy programme<sup>2</sup>)

The “Secure, clean and efficient energy” programme, part of the H2020 Societal Challenges pillar, underpins the goals of the Paris Agreement and the “Clean Energy for all European” package, including the Communication “Accelerating Clean Energy Innovation” and the SET Plan priorities, with concrete R&I actions focussing on the accelerated transformation of the energy system, and other sectors, towards carbon neutrality and climate resilience.

This programme is divided in 10 areas that in turn encompass more than 100 specific calls:

1. Energy Efficiency (EE)
2. Buildings in energy transition (B4E)
3. Global leadership in renewables (RES)
4. Smart and clean energy for consumers (EC)
5. Smart citizen-centred energy system (ES)
6. Smart Cities and Communities (SCC)
7. Smart Airports (SA)
8. Enabling near-zero CO<sub>2</sub> emissions from fossil fuel power plants and carbon intensive industries (NZE)
9. Joint Actions (JA)
10. Cross-cutting issues (CC)

For 2020 the programme has an available budget of 601,5 M€.

##### General call information (Next-Generation Batteries)<sup>3</sup>

As there is a need for significant reductions in CO<sub>2</sub> and greenhouse gas emissions in a short time span. Electric batteries are currently seen as important technological enablers to drive the transition

<sup>2</sup> <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/secure-clean-and-efficient-energy>

<sup>3</sup> [https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-cc-activities\\_en.pdf](https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-cc-activities_en.pdf)

towards a de-carbonised society, by integration of renewable and clean energy sources (such as wind energy and photovoltaics) in the electricity grid, and, in particular, by electrification of transport. Energy storage is the common denominator: it includes both electro-mobility and stationary applications despite the different constraints applying to each of these applications in real life.

Electric batteries have recently achieved considerable improvements in terms of their technical performance (such as energy density, power density, thermal stability and durability) and economic affordability. Such improvements are major contributors to the successful introduction of electric vehicles (which are becoming cheaper and have longer range) and of stationary energy storage systems. But for a successful mass introduction of electrified mobility and renewable and clean energy systems with market competitive performances and fast charging capability, substantial improvements of the electric battery technologies are required.

In this sense, the specific calls related to energy on the Next-Generation Batteries area in 2020 are the next ones:

- LC-BAT-8-2020 (RIA)
- LC-BAT-9-2020 (RIA)

The budget available for these calls is 30 M€ (20 M€ and 10 M€ respectively).

#### General call information (Energy-Efficient Buildings (EEB))<sup>4</sup>

The Energy-Efficient Buildings (EEB) calls are part of the H2020 Work Programme, LEIT-NMBP stands for 'Leadership in enabling and industrial technologies – Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing'. In turn, these calls are encompassed in the Industrial Sustainability area of the Work Programme, which also contributes to the focus area "Building a low-carbon, climate resilient future through new technologies for energy-efficient buildings.

Focussing on EEB call, is compulsory to consider that the construction sector has a crucial impact on energy consumption and carbon emissions in the European Union: buildings account for 40% of the total energy consumption and are responsible for 36% of greenhouse gas emissions in Europe. The challenge in 2018-2020 is therefore to develop further, demonstrate and validate key breakthrough technologies for energy-efficient buildings and districts, in line with the Communication on Accelerating Clean Energy Innovation. European added value will result from the impact, on decarbonising the EU building stock and developing affordable and integrated energy storage solutions. Implementation of the activities under EEB should comply with EU, national, regional and local regulations and legislation, in particular regarding health, safety and environmental impact.

The specific calls related to Energy-Efficient Building in 2020 are the next ones:

- LC-EEB-04-2020 (IA)
- LC-EEB-07-2020 (IA)
- LC-EEB-08-2020 (RIA)

The budget available for these calls is 52,5 M€.

#### General call information (Euratom)<sup>5</sup>

The general objective of the Euratom Programme is to support nuclear research and training activities with an emphasis on continually improving nuclear safety and radiation protection. It will

<sup>4</sup> [https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-leit-nmp\\_en.pdf](https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-leit-nmp_en.pdf)

<sup>5</sup> [https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/euratom/h2020-wp1920-euratom\\_en.pdf](https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/euratom/h2020-wp1920-euratom_en.pdf)

add to the wellbeing of EU citizens by contributing to the development of a safe and low-carbon energy system at European level, in both the short and longer term, whilst also addressing other useful applications of nuclear research in the medical and industrial sectors.

Euratom-funded fission research is primarily aimed at enhancing the safety of nuclear energy technology. It also contributes to the development of safe and publicly acceptable solutions for the management of radioactive waste and to the advancement of understanding of the effects of low doses of ionising radiation on humans and the environment.

In addition to supporting research on nuclear safety, waste management and radiation protection, the Euratom WP 2020 places emphasis on research for decommissioning of nuclear installations, promotion of innovation and education and training. In this context, most of Research and Innovation Actions in this Work Programme are required to dedicate at least 5% of the total action budget to education and training activities for PhD students, postdoctoral researchers and trainees. The budget available for 2020 is 70,3 M€.

### General call information (Fuel Cells and Hydrogen Joint Undertaking (FCH))<sup>6</sup>

The Fuel Cells and Hydrogen Joint Undertaking (FCH JU) is a unique public private partnership supporting research, technological development and demonstration (RTD) activities in fuel cell and hydrogen energy technologies in Europe. Its aim is to accelerate the market introduction of these technologies, realising their potential as an instrument in achieving a carbon-clean energy system.

Fuel cells, as an efficient conversion technology, and hydrogen, as a clean energy carrier, have a great potential to help fight carbon dioxide emissions, to reduce dependence on hydrocarbons and to contribute to economic growth. The objective of the FCH JU is to bring these benefits to Europeans through a concentrated effort from all sectors.

### Call requirements

**Research and innovation actions (RIA) & Innovation actions (IA):** At least three legal entities. Each of the three must be established in a different EU Member State or Horizon 2020 associated country. All three legal entities must be independent of each other.

**Coordination and support actions (CSA):** At least one legal entity established in an EU Member State or Horizon 2020 associated 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

<sup>6</sup> <https://www.fch.europa.eu/>

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

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.

#### 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.

### 3.1.2 H2020 Pre-Commercial Procurements (PCPs)

Pre-Commercial Procurement (PCP) 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. 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.

The working method for this type of actions, is that public procurers buy R&D from several competing suppliers in parallel to compare alternative solution approaches and identify the best value for money solutions that the market can deliver to address their needs.

The H2020 programme and specifically, the Secure, clean and efficient energy programme has included this type of actions over the last years. As an example, the last PCP action of this type under H2020, has been funded with 20 M€, covering the thematic of Wave energy (LC-SC3-JA-3-2019). Furthermore, there is a PCP open call for 2020, which is related to renewable energy supply in existing public buildings.

#### Energy Work Programme: LC-SC3-RES-10-2020

##### General call information

The objective is to bring radical improvements to the quality and energy performance of existing public buildings by encouraging the development and validation of breakthrough solutions through Pre-Commercial Procurement. Support will be given for developing novel components and configurations to generate in an existing public building energy from renewable sources so that 100% of the energy consumption of the building (electricity, heat and cooling) is fulfilled by means of renewable energy and the yearly energy demand is followed to the largest extent possible. In order to achieve such an ambitious integration of renewable energy, buildings should start from a high level of energy efficiency.

This specific challenge targets consortia of procurers with similar procurement needs of common European interest, to drive innovation from the demand side and reduce fragmentation.

This specific call has 15 M€ budget.

##### Call requirements

The consortium must include at least three legal entities and each of the three must be established in a different EU Member State or Horizon 2020 associated country. In addition, all three legal entities must be independent of each other.

Furthermore, there must be a minimum of two legal entities which are 'public procurers'<sup>7</sup> from two different EU Member States or Horizon 2020 associated countries. Both legal entities must be independent of each other.

##### Financing

The funding rate for grants awarded under this topic and type of action is 90% of the eligible costs.

##### Proposal stage

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<sup>7</sup> Public procurers are organisations that are contracting authority or contracting entity as defined in EU public procurement directives 2004/18/EC, 2004/17/EC, and 2009/81/EC and in EU legislation replacing those in particular Directive 2014/24/EU and Directive 2014/25/EU.

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

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.

#### 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.

### 3.1.3 EUREKA

EUREKA is a leading facilitator of innovation, providing a proven platform for international R&D&I cooperation. EUREKA provides the following instruments:

- Network projects
- Eurostars
- Clusters

#### EUROGIA2020<sup>8</sup>

##### General call information



EUROGIA2020, the Eureka Cluster for low carbon technologies, 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.

Projects are defined and prepared by consortia, formed by industry (not limited to the companies which participated actively in the programme's definition), universities and research laboratories.

The available budget per call depends on each country. 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.

##### Call requirements

The project is estimated **to lasts 30 months**. 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.

**Average project cost €1.5 - €15 million**

##### 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).

##### 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.

<sup>8</sup> <http://www.eurogia.com/>



The TC uses different evaluation forms to better evaluate project outlines and full project proposals. Project selection, carried out by the EUROGIA2020 organisation as per EUREKA prevailing rules, is based on criteria such as the quality of the consortium (vertical and horizontal partnerships, involvement of SMEs), the expected deliverables, the degree of technological innovation, the market perspectives, as well as the impact on standards, or on advanced research in academia. The last point is the most important one: through face-to-face interactions with the evaluation committee and support from the EUROGIA2020 office, project proposers receive constructive feedback on how to improve their projects.

#### Funding Agreement stage

The negotiation of the project depends on each country.

#### Project execution stage

The execution of the project depends on each country.

### EUROSTARS

#### General call information



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.

This funding and support programme is specifically dedicated to support the niche market of research-performing SMEs in their innovative R&D projects. There is an available budget of €1,148 billion 2014-2020 (75% Eurostars countries contribution +25% EU contribution).

#### Call requirements

The project must **be completed in 36 months or less**. The consortium must include **at least two partners independent from each other and established in at least two different Eurostars countries**. There is not budget restriction for a Eurostars project, the average project cost rise up **€1.4 million**. The project must be spread across different international partners, meaning that no single participant can be responsible for more than 75% of the total project budget. Equally, the participant(s) from a given country cannot be responsible for more than 75% of the total project budget.

#### 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 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). There are three major criteria, each with four sub-criteria: I. Quality and efficiency of the implementation (basic assessment); II. Excellence (innovation and R&D); and III. Impact (market & commercialisation). 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 informs applicants that are ranked above the quality threshold of the availability of funding.

#### **Funding Agreement stage**

The negotiation of the project depends 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.

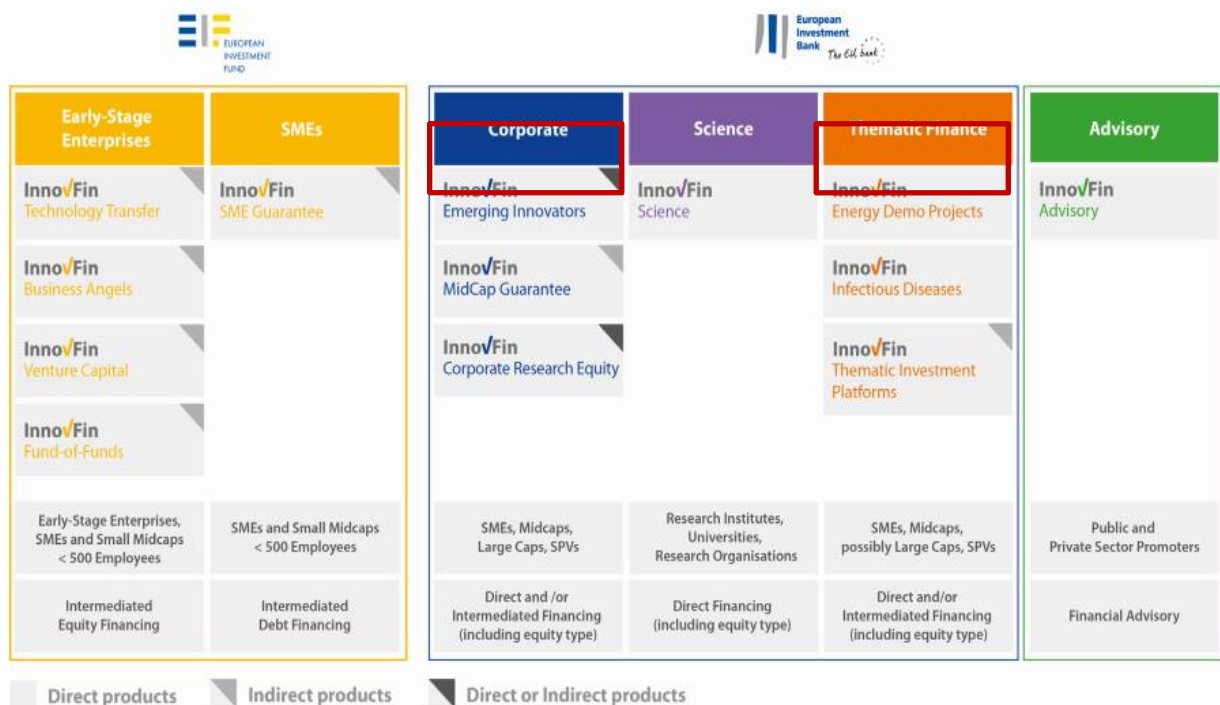
### 3.1.4 EUROPEAN INVESTMENT BANK (EIB)

The European Investment Bank (EIB) helps finance energy projects by providing companies with loans and other financial instruments. It also provides advice and expertise on administration and project development. EIB financed energy projects include renewable generation, infrastructure, and new technologies<sup>9</sup>.

In 2018, EIB loans helped to construct some 26 000 km of power lines and generate 15 228 MW of electricity, out of which more than 86% came from renewables.

#### INNOVFIN

Until 2020, "[InnovFin – EU Finance for Innovators](#)" offers a range of tailored financial and advisory products for research and innovation by small, medium and large companies and the promoters of research facilities. InnovFin also includes a number of thematic products addressing the specific financing needs of certain innovative sectors:



Note: InnovFin Large Projects succeeded by InnovFin Emerging Innovators  
InnovFin MidCap Growth Finance is deployed under the European Fund for Strategic Investments (EFSI) since November 2016

**Figure 5:** InnovFin – EU Finance for Innovators

Source: <https://www.eib.org/en/products/blending/innovfin/products/index.htm>

<sup>9</sup> <https://ec.europa.eu/energy/en/funding-and-contracts>

## INNOVFIN EMERGING INNOVATORS

### INNOVFIN EMERGING INNOVATORS <sup>10</sup>

#### General call information

## InnovFin

### Emerging Innovators

InnovFin Emerging Innovators bridges the research and innovation (R&I) investment gap in **Moderate and Modest Innovator EU Member States** (see [the European Innovation Scoreboard](#)) and Horizon 2020 Associated Countries. This instrument improves the availability of risk finance for fast-growing or R&I-driven enterprises, R&I infrastructures, innovation-enabling facilities and other entities. The product is delivered by the **EIB** or through a financial intermediary via loans and equity-type financing starting at **€7.5 million**.

The main goal of this instrument is to partly finance research and innovation activities as well as future investment programmes linked to R&I. This includes:

- R&I infrastructures or R&I activities (including activities eligible under the EUREKA network or the European Research Area (ERA) as well as the Euratom fission programme)
- investment programmes of innovative companies with fewer than 3 000 employees

#### Call requirements

This instrument is addressed to **innovative companies, research institutions/organisations** or universities or other entities requesting direct financing by the EIB.

Moreover, **financial intermediary and/or an investor are also eligible for Innovfin instrument**.

Tenor: usually up to five-to-seven years, possibly up to ten years

#### Financing

**Type of financing:** loans or guarantees provided directly or indirectly via financial intermediaries.

**% of financing:** EIB financing from €7.5 million. However, the amount is typically the lower of:

- 50% of the total project cost, and
- the credit risk limits applicable for the risk profile of the promoter and the operation's structure.

#### Proposal

There is no information available. EIB shall be contact through the EIB information desk contact form.

#### Evaluation

Timeframe from application to approval: typically, **six months**.

A due diligence process is delivered by the EIB, it involves the:

- assessment of the company's or project's eligibility
- technical and economic viability
- social and environmental soundness
- promoter's financial situation and perspectives

#### Negotiation

There is no information available. EIB shall be contacted through the EIB information desk contact form.

<sup>10</sup> <https://www.eib.org/en/products/blending/innovfin/products/emerging-innovators.htm>

### Project execution stage

There is no information available. EIB shall be contacted through the EIB information desk contact form.

## INNOVFIN ENERGY DEMO PROJECTS PILOT (EDP)

### INNOVFIN ENERGY DEMO PROJECTS<sup>11</sup>

#### General call information



InnovFin Energy Demonstration Projects (**EDP**) involves projects in the fields of energy system transformation, such as renewable energy technologies, smart energy systems, energy storage, carbon capture and storage, or carbon capture and use.

#### Call requirements

The project shall contribute to the energy transition, particularly in the fields of renewable energy technologies, smart energy systems, energy storage, and carbon capture utilisation and storage. It shall demonstrate the commercial viability of pre-commercial technologies or services or enhance the competitiveness of manufacturing processes.

EDP supports first-of-a-kind, commercial-scale industrial demonstration projects in the field of energy at Technology Readiness Level (**TRL**) of **mainly 7 or 8** via European Investment Bank (EIB) loans or extends guarantees to financial intermediaries making such loans.

**Indicative budget:** €25 million from the 2019 budget and €50 million from the 2020 budget

#### Financing

**Instruments: loans/guarantees/quasi-equity.** The EDP instrument is able to provide direct lending of between €7.5 million and €75 million. EIB can provide up to 50% with the expectation of around 25% equity and 25% of funding from other sources. Collateral requirements, which project sponsors must fulfil to receive funds, are set by EIB on a case-by-case basis.

EIB financing is limited to 50% of the total eligible costs of the project, which include all the costs necessary for the successful demonstration of the technology, service, manufacturing or business process.

#### Proposal

EIB checks the financial viability of each potential financing operation, while DG Research & Innovation, assisted by other Commission DGs, approves each operation against eligibility criteria specific to this financial instrument.

#### Evaluation

There is no information available.

#### Negotiation

There is no information available.

#### Project execution stage

<sup>11</sup> <https://www.eib.org/en/products/blending/innovfin/products/energy-demo-projects.htm>



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

**Replicability:** The project should have the potential to be replicated elsewhere with convincing market opportunities and prospects for future cost reductions. Manufacturing plants and services do not necessarily need to comply with this requirement.

### 3.1.5 EUROPEAN FUND FOR STRATEGIC INVESTMENT (EFSI)

The European Fund for Strategic Investments (EFSI) is a joint initiative between the **EIB Group and the Commission**. It aims to mobilise private investment in projects which are strategically important for the EU including the areas of energy efficiency, renewable energy, power grids and interconnectors of the EU economy. EFSI is also the central pillar of the "Investment Plan for Europe".

#### EUROPEAN FUND FOR STRATEGIC INVESTMENT<sup>12</sup>

##### General call information



**Managing body of the call:** Joint initiative between the EU and the European Investment Bank (EIB) Group, of which the EIF is part. EFSI is the financial pillar of the EU's Investment Plan for Europe and has two components: the Infrastructure and Innovation Window (IIW) managed by the EIB and the SME Window implemented by the EIF. **EFSI is a €16 billion guarantee from the EU budget, complemented by an allocation of €5 billion of EIB's own capital.**

**Type of beneficiaries:** Private sector entities; public sector entities; Banks, national promotional banks or other financial institutions; funds and any other form of collective investment vehicles; investment platform

##### Call requirements

EFSI provides support **for projects everywhere in the EU**, including cross-border projects. There are no geographic or sector quotas. Projects supported by EFSI shall typically have a **higher risk profile** than projects supported by EIB normal operations.

##### Financing

**Type of financing:** The EFSI is an EU-budget guarantee providing the EIB Group with a first loss protection. This means that the EIB Group can provide financing to higher-risk projects than they normally would. An independent Investment Committee uses strict criteria to decide whether a project is eligible for EFSI support. There are no quotas – by sector or by country. Financing is purely demand-driven.

##### Proposal

Documents requirement level. EFSI projects need to be: Economically and technically sound; Included in at least one of the EFSI eligible sectors as defined in Article 9 of the EFSI Regulation; Contributing to EU objectives, including sustainable growth and employment; Mature enough to be bankable; Priced in a manner commensurate with the risk taken; Following a positive outcome of the due diligence process, projects are submitted for approval by the relevant EIB Group Governing Bodies.

Project promoters should follow the usual **EIB loan application procedures**.

##### Evaluation

An independent Investment Committee uses **strict criteria** to decide whether a project is eligible for EFSI support. Projects are considered based on their individual merits

##### Negotiation

<sup>12</sup> <https://www.eib.org/en/efsi/index.htm>

The projects need to undergo the standard **EIB due diligence process**

**Project execution stage**

According to the EIB procedures.

### 3.1.6 CONNECTING EUROPE FACILITY (CEF)

The Connecting Europe Facility (CEF) is a key EU funding instrument to promote growth, jobs and competitiveness through targeted infrastructure investment at European level. It supports the development of high performing, sustainable and efficiently interconnected trans-European networks in the fields of transport, energy and digital services. This funding instrument is divided in three sectors:

- CEF Transport
- CEF Energy
- CEF Telecom

A total budget of €5.35 billion is made available for energy projects for the 2014-2020 period, of which €4.5 billion in the form of grants managed by INEA.

#### CONNECTING EUROPE FACILITY ENERGY <sup>13</sup>

##### General call information



Available **budget** for call: **€750 million**. (2019 call)

Managing body of the call: European Commission **-Innovation and Networks Executive Agency**.

The 2019 CEF Energy call for proposals finance projects of common interest geared at the following objectives:

- Ending energy isolation
- Increasing competitiveness by promoting the integration on the internal energy market and the interoperability of electricity and gas networks across borders
- Enhancing the Union's security of supply
- Integrating energy from renewable sources and developing smart energy networks
- Eliminating energy bottlenecks
- Completion of the internal energy market
- Contributing to sustainable development and protection of the environment, inter alia by the integration of energy from renewable sources and by the development of smart energy networks and cross-border carbon dioxide networks

##### Call requirements

Financial status for the participants:

- Low value grants ( $\leq$  €60 000): a declaration on their honour
- Grants  $>$  €60 000: a declaration on their honour, the profit and loss account as well as the balance sheet for the last 2 financial years for which the accounts were closed, and, for newly created entities: the business plan might replace the above documents
- Grants for an action  $>$  €750 000: the information and supporting documents mentioned in the point above, and an audit report.

##### Financing

**Type of financing:** Reimbursement of costs actually incurred

<sup>13</sup> [https://ec.europa.eu/inea/sites/inea/files/2019\\_cef\\_energy\\_call\\_text-for-publication.pdf](https://ec.europa.eu/inea/sites/inea/files/2019_cef_energy_call_text-for-publication.pdf)



**% of financing:** min 50% max 75%

**Eligible costs:** Costs actually incurred by the beneficiary; Indirect costs are not eligible under this call; Investments in mobile assets; Operating costs: VAT is eligible except deductible VAT and VAT paid by public authority.

#### **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 INEA 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.

### 3.1.7 LIFE

#### LIFE

##### General call information



The LIFE programme is the EU's funding instrument for the environment and climate action: Pilot, demonstration, best practice and information, awareness and dissemination projects in the area of Environment and Climate.

The current funding period 2014-2020 has a budget of €3.4 billion. This call has a budget of €550,000,00:

- ENVIRONMENT SUB-PROGRAMME: €413,000,000
- CLIMATE ACTION SUB-PROGRAMME: €137,000,000

The managing body of the call is the DG Environment - DG Climate (from the European Commission).

The LIFE Programme may fund: (1) public bodies, (2) private commercial organisations and (3) private non-commercial organisations (including NGOs).

The LIFE programme is not compatible with other EU funds.

##### Call requirements

Projects should last between 2 and 5 years. There are no specific consortium requirements for this call.

There are not specific requirements of business viability. LIFE encourages projects to have a business plan after the end of the project

##### Financing

This grant finances 55% of the budget (in general) and up to 60 % of eligible costs for projects funded under the priority area Nature and Biodiversity in the sub- programme for Environment, or 75% in specific cases (projects allocating 50% or more of cost devoted to priority habitats or species).

**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 (only depreciation of new goods); Land purchase, long-term lease of land / use rights and One-off compensation payments (only in Nature Projects); Consumables; and, other costs.

##### Proposal

Two stages in the Environment Sub-Programme / Single stage in the Climate Sub-Programme. Limits: Limit of characters per section. Orientative (including forms): 16 pages in Concept Notes (Stage 1) / 150 pages in Full Proposals (Stage 2).

Submission system: Telematic called "eProposal" (<https://webgate.ec.europa.eu/eproposalWeb/>)

Need of signatures: all beneficiaries (scanned copies in submission stage / hard copies in Grant Agreement stage).

Documents requirement level: Last Balance and Profit&Loss Account in the case of private Coordinating Beneficiary.

##### Evaluation

Evaluation criteria: Technical and Financial coherence and quality: 1. Technical coherence and quality / 2. Financial coherence and quality (including value for money)

EU added value: 3. Extent and quality of the contribution to the specific objectives of the priority areas of the LIFE sub-programme for Environment / 4. Sustainability (continuation, replication, transfer potential)

Bonus: 5. Contribution to the project topics / 6. Synergies (including multipurpose and integration/complementarity, Green Public Procurement, Ecolabel, and uptake EU-research results – Transnational.

Time from application to approval: 4 months for Concept Notes (Stage 1), 6 months for Full Proposals (Stage 2).

#### **Negotiation**

There is no meeting with the financing organisms. Project adjustments can be done in the Revision Phase (1-2 months)

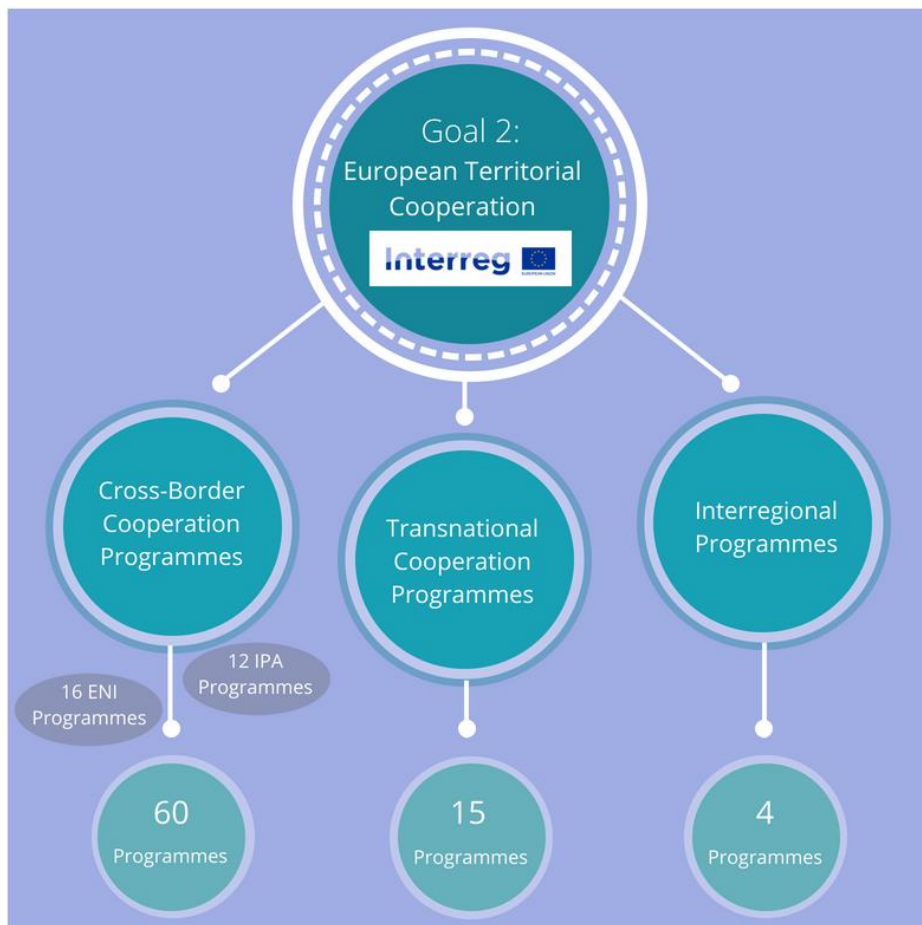
#### **Project execution stage**

Progress reports need to be made at least every 18 months. Once a year a monitoring meeting takes place.

### 3.1.8 INTERREG

Interreg is one of the key instruments of the European Union (EU) supporting cooperation across borders through project funding. Its aim is to jointly tackle common challenges and find shared solutions in fields such as health, environment, research, education, transport, sustainable energy and more. It has a budget of EUR 10.1 billion invested in the several cooperation programmes responsible for managing project funding. Interreg has three types of programmes:

- Cross border<sup>14</sup> (60 programmes)
- Transnational<sup>15</sup> (15 programmes)
- Interregional<sup>16</sup> (4 programmes)



**Figure 6:** Interreg Programmes  
Source: <https://interreg.eu/about-interreg/>

<sup>14</sup> <https://interreg.eu/strand-of-cooperation/interreg-a-cross-border-cooperation/>

<sup>15</sup> <https://interreg.eu/strand-of-cooperation/interreg-b-transnational-cooperation/>

<sup>16</sup> <https://interreg.eu/strand-of-cooperation/interreg-c-interregional-cooperation/>

### 3.1.9 EEA & NORWAY GRANTS

#### EEA & NORWAY GRANTS<sup>17</sup>

##### General call information



**Priority sector:** 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

<sup>17</sup> <https://eeagrants.org/>

### 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 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.

### 3.1.10 JPIS

Joint Programming aims to achieve coordination of Member States to finance research, both from a thematic and an economic point of view, developing common research agendas, with the ultimate goal of addressing social challenges that cannot be solved by a single State individually. Joint Programming Initiatives (JPIs) are always implemented on a variable geometry basis (involving those Member States that are interested) and are therefore voluntary. These challenges include:

- Addressing climate change
- Ensuring energy and food supply
- Healthy ageing of citizens

#### JPI Urban Europe<sup>18</sup>

##### General call information



JPI Urban Europe responds to the transformation of European cities into more sustainable, resilient, and liveable places if they are to compete effectively on a world stage. Its objective is to connect public authorities, civil society, scientists, innovators, business and industry to provide a new environment for research and innovation. Offering experimental zones and long-term research infrastructures in a broad sense. The final mission is to develop knowledge, tools and platforms for dialogue on urban transitions.

Currently, JPI Urban Europe engages 20 countries out of which 14 are members: Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Italy, Latvia, the Netherlands, Norway, Slovenia, Sweden, and the United Kingdom, and six are observers: Estonia, Poland, Portugal, Romania, Spain and Turkey, as well as the European Commission. More countries are involved in specific JPI Urban Europe activities.

Furthermore, the JPI Urban Europe will conduct the **Positive Energy Districts (PED)<sup>19</sup> programme**, which aims to become Europe a global role model in energy transition and reducing its carbon footprint. Cities and the building sector play a decisive role in the process, so that, the programme involves stakeholders from R&I funding networks, cities, industry, research organisations and citizen organisations.

##### Call requirements

The calls usually ask for the participation of eligible applicants from at least three different participating countries and ask for a variety of types of participants. The specific topics of the call determine the specific eligibility and selection criteria. The calls are based upon multi-lateral cooperation, applicants need to comply with their respective national and funding agency related eligibility criteria and funding rates that are tuned to country specific uses and conditions.

For different calls, tuned to the call topics and aims, specific participation conditions and criteria might apply.

##### Financing

<sup>18</sup> <https://jpi-urbaneurope.eu/>

<sup>19</sup> <https://jpi-urbaneurope.eu/ped/>



Based on the ranking by the Expert Panel and taking into account the available (national) budgets, the participating funding agencies of the call will take funding decisions. Funding decisions are final and cannot be appealed.

### Proposal

Within the framework of the calls, a two-stage procedure will be usually adopted.

**Pre-proposal stage:** In the first stage, consortia are invited to submit pre-proposals (description of consortium members, concise project description of no more than 10 pages, and a budget indication with limited detail according to national requirements).

### Full proposal stage

Eligible full proposals will be submitted to the Evaluation Panel.

### Evaluation

Each full proposal will be evaluated by at least three independent experts. Evaluation scores will be awarded for each main criterion (Relevance; Approach; Impact; 5 points per criterion). Each criterion will be scored by the Expert Panel, using the following scale: 0) Unacceptable, 1) Weak, 2) Average, 3) Good, 4) Very good, 5) Excellent. Half marks can be used. The threshold for each main criterion will be 3. The overall threshold, applying to the sum of the three individual scores, will be 10.

### Negotiation

Each project recommended for funding is required to have a signed consortium agreement between all partners prior to the start of the project, at least addressing the following topics:

- Internal organisation and management of the consortium
- Intellectual Property arrangements
- Settlement of internal disputes
- Sharing of risks and results
- Dissemination of results
- Respecting of higher law, especially EU competition law

### Project execution stage

Project monitoring and reporting will be in accordance with the respective funding agency's rules. In addition to the respective funding agency's requirements, the consortia are expected to deliver a short final report in English, including a description of transnational cooperation and a publishable summary of the project status.

A detailed survey must be completed by the Project Coordinator once per project (final). This survey includes key performance indicators for project progress and their contribution to the overall aim of the call.

## JPI Oceans<sup>20</sup>

### General call information

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<sup>20</sup> <http://jpi-oceans.eu/calls>



JPI Oceans focuses on long-term collaboration between EU Member States, Associated Countries and international partners. The platform provides its member countries with a shared voice, strategic agenda and action plan to address complex ocean-related societal challenges that cannot be solved at national level. JPI Oceans adds to the value of national research and innovation investments by aligning national priorities and implementing joint actions. Participating countries will also decide what contribution to make: this may include institutional, project-related or new fund.

JPI Oceans aims to add value by: - avoiding fragmentation and unnecessary duplication - planning common and flexible initiatives - facilitating cooperation and foresighting - establishing efficient mechanisms for interaction and knowledge transfer between the scientific community, industry & services, and policy makers at high level in order to solve the grand challenges more effectively. The joint call is supported by **9 countries** with a **total budget of 8.1million EUR**.

#### Call requirements

The maximum **duration** of the project is **3 years**. Each consortium must be composed of eligible independent entities from a minimum of **three countries** involved in the Call through their Funding Organisation: France; Belgium, German; Portugal; Latvia; Ireland; Italy; Norway; and Iceland.

#### Financing

For this call a total amount of 8.1M€ has been provisionally reserved by the participating Funding Organisations. Each partner in a funded project will be funded by its Funding Organisation participating in the call. **Eligible costs depend on each country**. Some of them are eligible Personnel costs; equipment; subcontracting, etc.

#### Proposal

A **one-step procedure** will be used in this call. All applications must be submitted via the submission platform. The necessary documents for the submission of the proposal are: Proposal Form Template; Financial Data Template; Proposal Form Instructions

#### Evaluation

Evaluation criteria for the projects are based on the evaluation standards provided by the European Commission. During the entire **procedure, strict confidentiality** will be maintained with respect to the identities of applicants and the contents of the proposals, except for evaluation purpose. The relevant items and thresholds are: 1. Relevance of the proposal; 2. Excellence; 3. Quality of the consortium and project feasibility.

#### Negotiation

No information available

#### Project execution stage

Each of the proposals that will be funded will be required to sign an **internal consortium agreement** prior to the start of the project (addressing internal organisation, IPR, settlement of disputes, etc.) and to submit periodic reports for their activities (one at mid-term and one at the end of the project) using a common template.

### 3.1.11 ERA-NETs

The ERA-NET scheme aims to promote cooperation and coordination of research activities and policies developed in Member States and Associated States through their respective national and regional research programmes, mutual openness and the development and implementation of joint activities. Currently, there are 11 ERA-NETs active related to energy:

ACTIVE ERA-NETs				
ERA-NET	ACT	BESTF3	Smart Energy Systems	DemoWind 2
	CSP ERANET	ERA-GAS	SOLAR-ERA.NET Cofund 2	GeoERA
	GEOTHERMICA	M-ERA.NET 2	OCEANERA-NET COFUND	

#### GEOTHERMICA<sup>21</sup>

##### General call information



The call is based on a call for proposals resulting in grants to third parties. The **objective** of GEOTHERMICA is to launch projects that accelerate the piloting, demonstration and validation of novel concepts of geothermal energy supply within the energy system, and to identify paths to commercially viable deployment. Projects may also address oriented research that underpins novel concepts and paths to commerciality. **Beneficiaries** of this call should be at least **2 legal entities from two different EU Member States** or Associated Countries. The budget that is available for this call from **each national funding agency** is a total of approximately **€19 million**.

##### Call requirements

Projects may be funded for a **maximum of 3 years** and are targeted to start no later than 1 September 2020. Consortia may consist of applicants and partners from companies, research organisations, universities and higher education institutions, industry organisations, local/regional governments and NGOs. They recommend consortia with a wide geographic spectrum but at least three eligible applicants from at least three participating countries must be in consortium. Projects need to aim at advancing **TRLs 5-9**; individual sub-ordinated work packages may address lower TRLs. GEOTHERMICA considers that proposals requesting a **contribution of between €1.5-4 million** each would allow successful projects to address the scope appropriately.

##### Financing

There are no minimum or maximum amounts for ERA-NET actions. The Work Programme and PP topic pages normally specify indicative amounts for the Union contributions that are considered adequate for addressing the respective challenge. These are normally **at least € 5 million**. In any case, the requested amount should be duly justified in the proposal by the contributions from Participating States. **All costs must be eligible according to the funding agencies' rules**. In case of doubt, applicants should consult the national contact points.

##### Proposal

<sup>21</sup> <http://www.geothermica.eu/>

The GEOTHERMICA call is a **two-stage process**. Stage 1 asks for pre-proposals, and Stage 2 asks for full project proposals. The proposal must be submitted electronically.

#### Evaluation

A **two-stage procedure** will be adopted. **Stage 1. The pre-proposals** will be assessed based on national eligibility criteria. For each of the pre-proposals the respective GEOTHERMICA funding agencies from whom funding will be requested performs an eligibility check. **Stage 2: Full proposals** will be re-checked for national eligibility. Only full proposals with confirmed positive national eligibility checks will undergo stage 2 evaluation and subsequent ranking. Eligible full proposals will be evaluated in an open competition where an independent international expert panel will evaluate proposals according to evaluation criteria followed by a ranking of the proposals.

#### Negotiation

Any GEOTHERMICA funded project cooperating with other projects that are funded/financed otherwise, have to do so via a formal agreement.

#### Project execution stage

Project monitoring and reporting will be in accordance with the respective funding agency's rules. In addition to the requirements of funding agencies, the Main Applicants of consortia have to submit annual progress and financial reports (in English) to the GEOTHERMICA Call Secretariat. The reports include a description of the consortium's trans-national cooperation and a publishable summary of the project status. A reporting template will be provided on the GEOTHERMICA website.

In addition to the monitoring of the national sub-projects by the national funding agencies, one project observer from one of the participating funding organisations will be assigned to each of the funded projects. The project observer will monitor the progress in the transnational cooperation on behalf of the participating funding organisations and to provide a communication link between the project and the Call Secretariat.

## ACT<sup>22</sup>

### General call information



ACT is an international initiative to facilitate RD&D and innovation within CO<sub>2</sub> capture, utilisation and storage (CCUS). Eleven countries are working together in ACT with the ambition to fund world class RD&D innovation that can lead to safe and cost effective CCUS technology.

There are twelve new successful ACT projects which are being kicked off autumn 2019 with a combined budget of €31million. Read more here. The

ACT Consortium will revisit a potential launch of an Open Call and will announce further details early 2020. There are also plans for an ACT Call in 2020.

### Call requirements

Different eligibility aspects have to be considered:

- Each project proposal must be submitted by a project consortium consisting of at least three eligible applicants from at least three ACT participating countries.
- It is expected that projects are funded for a duration of up to 3 years

<sup>22</sup> <http://www.act-ccs.eu/>

- All costs must be eligible according to the funding agencies' rules

### Financing

Each national funding body will provide funding for national entities only. All costs must be eligible according to the funding agencies' rules. In case of doubt, applicants should consult the national contact points.

The available budget will be split into two separate areas, roughly in the following manner:

- Type A: approximately 70 % of the budget will be available for large transnational projects (> €3 million).
- Type B: approximately 30 % of the budget will be available for smaller transnational research and innovation projects with a maximum of €3 million per project.

### Proposal

Within the framework of ACT a **two-stage submission and evaluation procedure** will be adopted. The pre-proposal/full proposal will only be accepted if signed Letters of Intent (LoI) from all Co-Applicants / Co-operation Partners are included as appendixes to the proposal. Therefore, it is within the Lead Applicant's duty to ensure all partner's LoI are signed in due time

### Evaluation

Experts will evaluate on the basis of the criteria 'excellence', 'impact' and 'quality and efficiency of the implementation'. The criteria will be weighted equally, 5 points per criterion (15p in total). Evaluation scores will be awarded for each criterion. Under equal evaluation scores projects with gender balance will be preferred.

### Negotiation

No information available

### Project execution stage

Project monitoring and reporting will be in accordance with the respective funding agency's rules. In addition to the respective funding agency's requirements, the consortia (by the Lead Applicant) are requested to deliver basic progress reports (in English) to the ACT Call Secretariat, on a quarterly basis. For large projects, there will be a mid-term review. A reporting template will be provided on the ACT website.

Furthermore, one project observer from one of the participating funding organisations will be assigned to each of the funded projects to monitor the progress in transnational cooperation on behalf of the participating funding organisations and to provide a communication link between the project and the Call Secretariat.

The consortia should also take into consideration in planning and budgeting that project reporting (oral or poster) is also expected at the annual ACT knowledge sharing workshops.

## CSP ERANET<sup>23</sup>

### General call information

<sup>23</sup> <https://csp-eranet.eu/about-us/partners>



The CSP ERANET 1st Cofund Joint Call is carried out by national / regional research and technology development (RTD) and innovation programmes and national / regional funding agencies in the field of concentrating solar power (CSP) / solar thermal electricity (STE). The CSP ERANET 1st Cofund Joint Call is carried out by the following countries

and regions: Germany and North-Rhine- Westphalia, Greece, Israel, Italy, Portugal, Spain and Extremadura, Switzerland and Turkey.

The objective of CSP ERANET is to finance large-scale projects implementing medium/high TRL research, which will accelerate the time to commercial deployment of affordable, cost-effective and resource-efficient CSP technology solutions.

### Call requirements

Different eligibility aspects have to be considered:

- Applications have to be submitted through the Electronic Submission System within the deadline set.
- Eligible consortia shall consist of a minimum of 3 partners from 3 different countries participating in the CSP ERANET 1st Cofund Joint Call and providing funding to the project selected. At least one partner in the consortium has to be from industry. The project consortia may involve as many partners as necessary to successfully deliver the project. Partners from countries that are not members of the CSP-ERANET Joint Call (see list of funding partners under section 2) can join a project consortium as additional partners providing added-value to the project. However, these additional partners have to finance their activities from other sources, as each funding agency will only fund partners from their own country. A letter of commitment must be included as an annex to the full proposal including the commitment of this partner to the project.
- All applicants have to fulfil (additional) eligibility criteria of their respective national / regional programme / funding organisation. Furthermore, all applicants must take into account that some funding organisations require a mandatory submission of a national application in parallel with the international one.
- SME, large companies, non-profit research organisations, higher education institutions, public research organisations and public organisations may participate according to their national / regional financing regulations.
- The project duration is limited to max. 36 months.

### Financing

Within this CSP ERANET 1st Cofund Joint Call, the funding rules of the national / regional agencies apply. The level of funding available will be determined by the rules of the relevant funding agency. Information about the specific funding rules and applicable topics will be provided via the person in charge of the respective national / regional agencies. Each project partner will receive funds from his / her national / regional agency. Each project partner will be responsible for the preparation and submission of all necessary reports required by their funding agency in order to obtain funding in full accordance with national / regional rules.

### Proposal

The CSP ERANET application process will be a 2-step procedure: Pre-Proposal and Full-Proposal.

A preproposal is mandatory. It has to be submitted by the coordinator and partners through an online application form accessible via [www.CSP-ERANET](http://www.CSP-ERANET) within the deadline set. Applicants are invited to register in the Electronic Submission System as early as possible

### Evaluation

The evaluation is carried out on a national / regional level and by independent international evaluation experts. The Proposals will be evaluated according to the following criteria: i) Excellence ii) Impact iii) Quality and efficiency of the implementation.

### Negotiation

A consortium agreement between the project partners will be required. In order to accelerate the selection and contract offer process, a statement on the signature of the consortium agreement should be submitted with the full proposal. The purpose of the consortium agreement is to clarify the responsibilities of the partners, decision processes inside the project, management of any change of partners, how to exploit and/or commercialise the results (for each partner) and IPR issues.

### Project execution stage

Each project partner will be responsible for the necessary reporting to their funding agency according to national / regional rules in order to obtain and maintain funding during the lifetime of their portion of the project. Besides the national / regional project review, the transnational cooperation aspects will be monitored on the CSP-ERANET level. The project coordinator is responsible for reporting according to the requirements (reporting at the start, during the course and at the end of project with publishable summary and further information for internal reporting, participation in questionnaires, provide the Consortium Agreement signed). The coordinator shall enter data online in the Electronic Monitoring System (ESS). Any substantial change in an on-going project has to be reported immediately to the involved funding organisations and the Call secretariat. The project partners should be aware that changes might have effects on funding.

## M-ERA.NET 2<sup>24</sup>

### General call information



M-ERA.NET is an EU funded network which has been established in 2012 to support and increase the coordination of European research and innovation programmes and related funding in materials science and engineering. Between 2016

and 2021, the M-ERA.NET consortium will continue to contribute to the restructuring of the European Research Area (ERA) by operating a single innovative and flexible network of national and regional funding organisations.

M-ERA.NET aims to address societal challenges and technological needs with an interdisciplinary approach, providing a flexible umbrella structure to cover emerging topics in materials research and innovation, including materials for low carbon energy technologies and related production technologies. As a core activity, a series of joint calls for transnational RTD projects will be implemented.

### Call requirements

- Minimum requirement: Project consortia must consist of at least 3 partners from at least 2 different countries (at least 1 EU member state or associated country) participating in the M-ERA.NET Call 2019.

<sup>24</sup> <https://m-era.net/>



- Coordinator must request funding from a funding organisation.
- Proposal must address appropriate TRLs for selected M-ERA.NET Call topics.
- Mandatory proposal forms must be used
- Proposal must be written in English.
- Proposal must be recommended for Full-Proposal submission by M-ERA.NET after Pre-Proposal stage.
- Proposers (SMEs, large companies, academic research groups, universities, public research organisations or other research organisations) must be eligible for funding according to their national/regional regulations.
- The maximum project duration cannot exceed 36 months. National/regional limits regarding the duration of projects will apply.

### Financing

Each project partner has to apply individually for regional/national funding. For each project partner the funding rules of the respective regional/national programmes apply. This means that depending on the respective national/regional funding rules some project partners have to submit additional national/regional proposals or information on national/regional level.

### Proposal

The M-ERA.NET application process will be a 2-step procedure: Pre-Proposal and Full-Proposal.

The Pre-Proposal gives an overview on the whole project. It is mandatory and has to be submitted in English by the project coordinator through an online application form available at [www.m-era.net](http://www.m-era.net). In addition to the Pre-Proposal (online submission) the corresponding national/regional funding application form may be requested by the respective funding organisation according to their respective programme rules.

The mandatory Full-Proposal gives an overview of the whole project and describes all national project parts. In addition, the mandatory Annex 1 to the Full-Proposal describes the partner profiles and CVs of the whole consortium. To receive funding, the national parts of the project must fulfil their national/regional criteria. This will create different submission and financing situations for partners from different countries.

### Evaluation

The Full-Proposal evaluation is carried out as a central evaluation by independent experts.

The Full-Proposals will be evaluated according to the following criteria: i) Excellence ii) Impact iii) Quality and efficiency of the implementation.

### Negotiation

Funding contracts are signed directly between the project partners and their national/regional funding organisations. Depending on the national/regional regulations, a pre-condition for transferring the first funding instalments might be the existence of a consortium agreement that also includes IPR related issues.

### Project execution stage

The progress of each individual contract will be monitored by the respective national/regional funding organisation through specific project review processes.

Apart from the national/regional project review, the transnational cooperation aspects will be monitored at M-ERA.NET level, e.g. by using online questionnaires. At the end of the project lifetime, a final project report has to be submitted to M-ERA.NET using the M-ERA.NET template.



### 3.1.12 InnoEnergy Investment Round (KIC)

#### INNOENERGY INVESTMENT ROUND <sup>25</sup>

##### 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)
- 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

<sup>25</sup> <https://investmentround.innoenergy.com/documentation & timeline.html>

- SRL – Society Readiness Level – Maturity degree in terms of potential society acceptance (TRL 4-5)

### Financing

**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.

### 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.

### 3.1.13 Innovation Fund

The Innovation Fund will be one of the world's largest funding programmes for demonstration of innovative low-carbon technologies. Its first call will be open for projects in 2020. The Innovation Fund is designed to take into account the lessons learnt from its predecessor, the NER300 programme.

#### INNOVATION FUND

##### General call information

#### INNOVATION FUND

Driving clean innovative technologies towards the market

**Type of call:** Grant

**Type of eligible objectives:** The Innovation Fund will help create the right financial incentives for projects to invest now in the next generation of technologies needed for the EU's low-carbon transition; boost growth and competitiveness by empowering EU companies with a first-mover advantage to become global technology leaders; support innovative low-carbon technologies in all Member States in taking off and reaching the market.

**Available budget:** € 10 Billion to invest up to 2030.

##### Call requirements

The Commission aims to launch the first call in 2020, **followed by regular calls until 2030.**

More details on the application process, including relevant documentation, will be published in the call(s) for proposals.

##### Financing

**Type of financing:** The Innovation Fund will support up to 60% of the additional capital and operational costs linked to innovation. The grants will be disbursed in a flexible way based on project needs, taking into account the milestones achieved during the project lifetime. Up to 40% of the grants can be given based on pre-defined milestones before the whole project is fully up and running.

##### % of financing:

- all projects (i.e. up to 60% of relevant costs).
- R1: Varied maximum funding rate set according to the TRL (riskiness) of project, with maximum of 60% of relevant costs applicable to the lowest TRL projects.

##### Proposal

The application process has two phases:

- **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.

Project proponents can apply by submitting their projects when there is an open call for proposals.

##### Evaluation

**Evaluation 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).

##### Negotiation

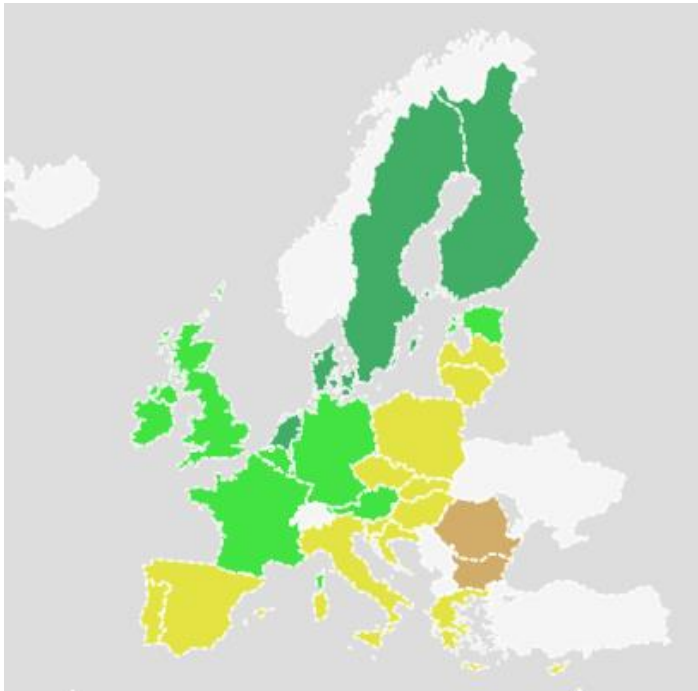
The Commission aims to launch the first call in 2020, **followed by regular calls until 2030.**

More details on the application process, including relevant documentation, will be published in the call(s) for proposals.

#### **Project execution stage**

**Frequency of progress reports:** the reporting will be done annually in line with the standard practice associated with Innovation Fund and the specific policy window.

### 3.2 National Funding



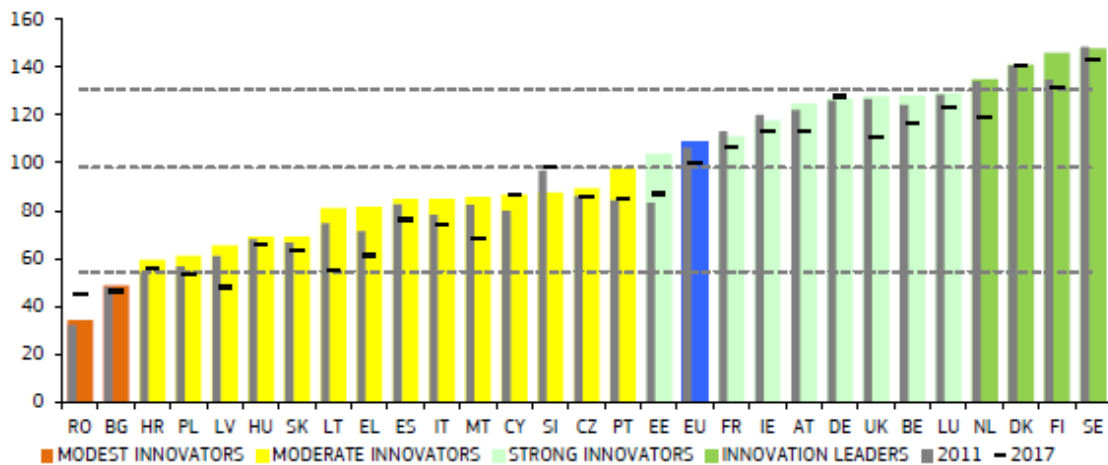
**Legend:**  
■ Innovation leader  
■ Strong innovator  
■ Moderate innovator  
■ Modest innovator

According to the European Innovation Scoreboard 2019<sup>26</sup>, 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. **The R&D expenditure has been falling since 2013** after a more stable performance between 2010 and 2013. A linear regression using data for 2010-2017 has only low predictive power, and it has therefore been assumed that the indicator will hold its value in two years' time.

**Figure 7: Public R&D Expenditure.**  
 Source: European Innovation Scoreboard 2019

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 innovations systems have been considered.



<sup>26</sup> <https://ec.europa.eu/docsroom/documents/36163>

The methodology used for the selection of the 4 relevant countries, aims at considering different levels of innovation systems 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: **Belgium** (the second strong innovator at EU level)
- Moderate Innovators: **Portugal** (the first moderate innovator at EU level).

### 3.2.1 Sweden

Sweden in 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. Real GDP in Sweden grew by 3.2% in 2016, which is less than the previous year but well on average in a longer time frame. 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, the Swedish Research Council (Vetenskapsrådet) and the Swedish Agency for Innovation Systems (Verket för Innovationssystem, VINNOVA), who both distribute funding for research and innovation in open calls and in specific areas and programmes on instruction by the government. Other important actors in the system such as the Energy Agency, that are important R&I funders and policy actors in their respective domains.

#### Swedish Energy Agency – Cleantech

##### 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 – works for a sustainable energy system, combining ecological sustainability, competitiveness and security of supply. 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 us the business idea, 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

## 3.2.2 Germany

In terms of innovation performance, the European Innovation Scoreboard ranks Germany among the Innovation Leader countries in 2019<sup>27</sup>. Germany outperforms the average of EU28 in this composite measure by roughly 21% although its relative advantage has been slightly declining since 2010 (-3.7%). The index identifies particular strengths in Germany stemming from business R&D expenditures as well as application for Intellectual Property Rights (IPR). Relative weakness emerges from a low share of foreign doctorate students, shortages of venture capital as well as employment in fast growing enterprises.

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 startup to other investors. Among others, KfW provides low-interest loans with grant payback support for the development and expansion of heat installations/plants by KfW Renewable Energies Programme – Standard and Pre-ming programme.

### KfW Renewable Energies Programme - Standard <sup>28</sup>

#### 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 store. 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.

#### Evaluation

<sup>27</sup> [https://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards\\_en](https://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en)  
<https://ec.europa.eu/docsroom/documents/35891>

<sup>28</sup> <https://www.kfw.de/inlandsfoerderung/Unternehmen/Energie-Umwelt/index-2.html>



No information could be obtained from the funder.

**Negotiation**

There is no information available.

**During execution**


There is no information available.

Since 2012, in Germany, the most important means to promote electricity from renewable sources is the feed-in tariff as set out in the Act on Granting Priority to Renewable Energy Sources. The act aims to increase the proportion of electricity from renewable energy sources in total energy supply from at least 35% in 2020 to at least 80% by 2050 and to integrate these quantities of electricity in the electricity supply system. The amount of tariff for a given plant is the tariff level as defined by law minus the depression rate. Instead of receiving the feed-in tariff for electricity from renewable sources, a plant operator may choose to sell his electricity directly, i.e. to a third party by a supply agreement or at the stock market and claim the so-called market premium from the grid operator. The amount of the market premium shall be calculated each month. In general, plant operators are free to choose between the feed-in tariff and the market premium for direct selling. Biogas plants with an installed capacity of more than 750kW put into operation after 31 December 2013 will not be eligible for a feed-in tariff.

### 3.2.3 Belgium

According to the European Innovation Scoreboard (EIS) 2019, Belgium is a strong innovator. Key determinants of Belgium's good innovation track record are the openness and quality of its science base with strong public-private collaborations, a high proportion of public R&D financed by the business sector and its attractiveness to foreign doctoral students.

In Belgium, Innovation support is governed by the regions through dedicated agencies. Innoviris take up this role in the Brussels Capital Region.

Innovation vouchers <sup>29</sup>	
<b>General call information</b>	
	<p><b>Type of call:</b> Experimental development projects: to make industrial research part of products, processes or services.</p> <p>This call aims to finance the development of an innovative product, process or service and have already taken some steps to analyse the feasibility of the idea. Entities can submit an application at <b>any time throughout the year.</b></p>
<b>Call requirements</b>	
<p>To be eligible, the company must fulfil the following items:</p> <ul style="list-style-type: none"> <li>• Company that develops all or part of its activities in the <b>Brussels-Capital Region.</b></li> <li>• The company is not in difficulty, in accordance with the European legislation</li> <li>• The R&amp;D project presents the development, completion or implementation of an innovative product, process or service.</li> <li>• The project can show the ability to fund the share of the cost of the programme.</li> <li>• Applicants have fulfilled their obligations under previous funding granted by the Brussels-Capital Region</li> </ul>	
<b>Financing</b>	
<p>This call finances <b>15% to 70% of the cost</b> for experimental development. <b>Eligible costs:</b> staff costs; supplies, materials, products and missions, directly related to the implementation of the project.</p> <p>The grant can be awarded under two different forms: <b>as a grant or as a repayable advance.</b> The percentage of funding depends on different technical and commercial factors.</p>	
<b>Proposal</b>	
<p>The following documents must be considered in the presentation of the project:</p> <ul style="list-style-type: none"> <li>• Origins and objectives of the project</li> <li>• Technological positioning</li> <li>• Implementation of the project</li> </ul>	
<b>Evaluation</b>	

<sup>29</sup> <https://innoviris.brussels/fr/obtenir-un-financement>  
<https://innoviris.brussels/rd-projects>

There is not available information.

#### **Negotiation**

There is not available information.

#### **During execution**

A month after signing the agreement: technical report, financial report (credentials, general state of expenses, summary of all expenses: salary, functioning, investments, independent staff and outsourcing). Six months after: technical report, an update programme for the following semester, state of the expenses. Twelve months after the beginning: technical report, summary of the results, general state of the expenses. Three years after the end of the project: a report explaining all the results of the project.

### 3.2.4 France

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.

R&I budgets are implemented through hundreds of “operators” including non-profit organisations. The Agency for Environment and Energy Management (ADEME) was created in 1991 to support and fund environmental and energy research. ADEME's missions comprise promoting, supervising, coordinating, facilitating and carrying out activities aimed at protecting the environment and improving energy savings.

#### Investissements d'Avenir- Démonstrateurs et territoires d'innovation de grande ambition<sup>30</sup>

##### General call information

The aim of this call for projects is to support the development of projects in the field of renewable energies: biomass energy, solar thermal and thermodynamic, geothermal, photovoltaic, onshore and offshore wind, marine renewable energies as well as hybridisation projects of different renewable sources.

##### 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 including 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 (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 is 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 external experts and

<sup>30</sup> <https://www.ademe.fr/recherche-innovation/programme-dinvestissements-davenir/presentation-pia-3>

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 Secretariat General 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.

### 3.2.5 Portugal

The GERD/GDP (Gross Domestic Expenditure on R&D/GDP) ratio declined over the last few years; after reaching a historical high of 1.58% in 2009, this ratio diminished to just 1.27% in 2016. Underlying this evolution there are a number of shifts, both in funding patterns and in the structure of R&D performance. The government's share of R&D funding slightly rose during the recession years up to 47% in 2014. At 44% in 2015 that share returned however to the historical low it had reached in 2008. In nominal prices R&D investment funded by the government declined by 12%, from € 1,130 million in 2008 to € 991 million in 2015.

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 current national framework Portugal 2020, part of the structural funds dedicated to research has been allocated through the regional operational programmes (OPs).

#### SI INOVAÇÃO – Sistemas de Incentivos à Inovação Projetos em Co-Promoção<sup>31</sup>

##### General call information

This instrument consists of a partially **reimbursable loan**. It is managed by 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.

##### 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 a figure up to 50.000 it will also be non-reimbursable. The percentage of the project to be financed is 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 cases of cooperation between enterprises and/or R&I organisations and/or in cases of large-scale dissemination;

<sup>31</sup> <https://www.portaldosincentivos.pt/index.php/portugal-2020/si-investigacao-e-desenvolvimento-tecnologico-idt/projetos-em-co-promocao>

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

### 3.2.6 Spain

Regarding R&I, Spain remains a **moderate innovator** with a declining overall performance relative to that of the EU between 2010 and 2016 (by 1.8%). The central government budget for R&I has been growing slightly in nominal terms since 2013, but the relative level remains very low. In 2017, R&I intensity reached 1.47% but remained far from the pre-crisis level (2.7% in 2008). Spanish Business Expenditure on Research and Development (BERD) intensity is modest (0.64% of GDP in 2016; EU-28, 1.3% in 2015). For the first time since the economic crisis, total BERD increased in 2015 and 2016, by 2% and 3% respectively.

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)

##### General call information

This instrument consists of a **partially reimbursable loan**. It is managed by the Centre for the Development of Industrial Technology (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 up to **18 months**. The minimum fundable budget for innovation projects is **€ 175.000**.

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 the CDTI contribution is 75%, or 15% when the CDTI contribution is 85%, through own resources or through external financing.

The call considers eligible expenses the following ones: 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 authorise 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.

### 3.2.7 Italy

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). Total R&D expenditure (gross domestic expenditure on R&D – GERD) in 2016 was €21,611 million, 1.29% of GDP, recording a decrease from €22,157 million, 1.34% of GDP, in 2015 (Eurostat, 2017; ISTAT, 2017b). The share of business-performed R&D (business expenditure on research and development – BERD) in GDP was 0.75%, that of universities 0.33%, that of government – mainly public research organisations (PROs) – 0.17%, that of non-profit institutions 0.04%. In terms of funding, in 2015 R&D funded from abroad accounted for 0.11% of GDP, of which 0.03% came from EU sources. Since the start of the crisis in 2008, total (civilian) GBAORD have seen a major reduction and in 2016 they were about 23% lower than in 2007. This reduction in public expenditures is at the root of declining resources for universities and other R&D activities.

#### National Fund for Energy Efficiency (Fondo nazionale per l'efficienza energetica)<sup>32</sup>

##### 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.

##### Call requirements

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.

##### 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%) are issued for an amount between 250,000 and 4 million EUR, covering a maximum of 70% of the costs eligible for the concession.

##### Proposal

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 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;

<sup>32</sup> <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

#### **Evaluation**

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

#### **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.

### 3.2.8 Denmark

The Ministry of Industry, Business and Financial Affairs has tasks related to innovation. Several sectoral ministries, such as the Ministry of Energy, Utilities and Climate, the Ministry of Environment and Food, and the Ministry of Foreign Affairs, all have larger R&I programmes. These ministries have specific agencies, which implement the respective policies.

#### 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**).

##### Financing

In 2019 call the available budget is **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.

##### Proposal

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](http://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.

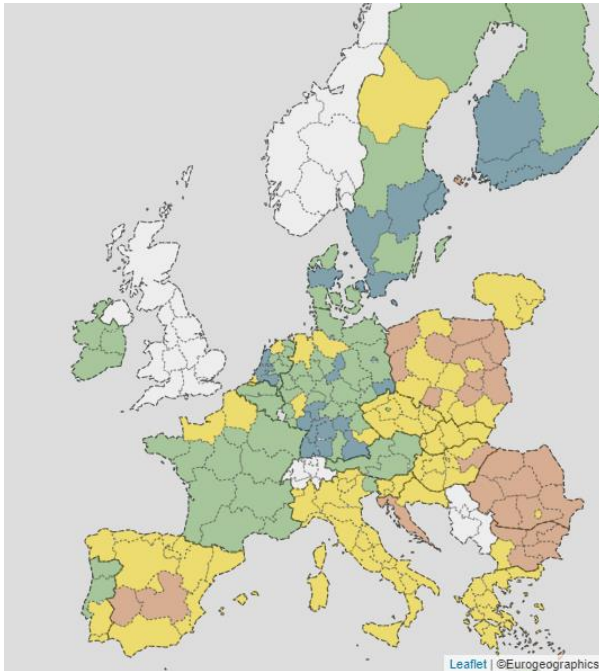
#### **Negotiation**

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.

#### **During execution**

There is not available information.

### 3.3 Regional Funding



**Legend:**

- Innovation leader
- Strong innovator
- Moderate innovator
- Modest innovator

**Figure 8:** Regional Innovation Scoreboard 2019  
Source: [https://interactivetool.eu/RIS/rIS\\_2.html#a](https://interactivetool.eu/RIS/rIS_2.html#a)

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 2014-2020 period, the cohesion policy funding for research and innovation – which now amounts to EUR 41 billion in total – is based on the so-called Smart Specialisation Strategies (‘S3P’) that are developed in a bottom-up process with the involvement of key stakeholders across different value chains. Energy is placed on the top of the list of smart specialisation priorities, with more than 100 regions having chosen energy-related priorities (S3P-Energy)<sup>33</sup>.

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<sup>34</sup>. They have been divided into the same innovation categories: Innovation Leaders; Strong Innovator; and Moderate Innovators.

The following ones have been studied:

- Innovation Leaders: **Flandres (Belgium) and Groningen region (Netherlands)**
- Strong Innovators: **Île de France (France), Northern Ireland region (UK), Mediterranee (France), Schleswig-Holstein (Germany)**
- Moderate Innovators: **Provincia Autonoma di Trento (Italy) and Basque Country (Spain).**

<sup>33</sup> <http://s3platform.jrc.ec.europa.eu/s3p-energy>

<sup>34</sup> For the innovation leader group the study is focused on German regions (innovation leader group). For the other European regions, the selection was made in the basis of region ranking but also on available information related to clean energy instruments to choose among them.

### 3.3.1 Flanders region – Belgium

#### Flanders Innovation and Entrepreneurship: Subsidies for entrepreneurs: The Ecology Premium Plus (EP-Plus)

##### General call information

The EP Plus financial scheme is a subsidy for SMEs and large companies realising ecology investments including energy technologies in the Flemish Region. The aim is to encourage companies to organise their production process in a more environmentally-friendly and energy-efficient manner, and it will therefore pay a proportion of the extra cost involved in such investment. The financial scheme aims to support standardised technologies mentioned on a limitative technologies list.

##### Call requirements

Potential applicants must comply with the following conditions: (i) projects must be in the Flemish Region; (ii) the company carries out an acceptable main activity (NACE code) and is not a non-profit organisation; the company entered into the energy policy agreement applicable to her on the submission date of the support application; (iii) on the submission date, the company cannot be in difficulty according to the European rules, has no debts in arrears with the National Social Security Office ('Rijksdienst voor Sociale Zekerheid', RSZ) and is not a party to a court case based on European or national law as part of which financial support that has been awarded is being reclaimed;

The grant covers only the technologies that are on a limitative technology list (LTL). This list contains about 30 technologies which are subdivided into the following three categories namely environmental technologies, energy technologies, renewable energy and combined heat and power. The ecological investments must be ended within 3 years following the decision to grant an ecological premium.

##### Financing

The amount of the ecology premium is determined by the performance of the technology in which the investment is made, and varies according to the size of the enterprise and the type of category the technology belongs to. Thus, the funding can potentially cover 15 to 55% of the extra cost of the investment.

The subsidy is calculated on the basis of the supplementary investment cost of the eligible investment components and can amount to 1 million € at most over a period of 3 years.

##### Proposal

The application for the ecology premium is made entirely electronically on [www.ecologiepremie.be](http://www.ecologiepremie.be). An enterprise cannot have started the investments before the first day of the month following the month of the submission date of the ecology premium. The date of the first invoice counts as starting date.

##### Evaluation

The selection of best proposals is made by Flanders Innovation & Entrepreneurship which is the main contracting authority. The evaluation is done on advices of the experts.

##### Negotiation

No further information is available on VLAIO website. Any further requests are asked to send to Flanders Innovation & Entrepreneurship.

#### During execution

No further information is available

### 3.3.2 Groningen region – Netherlands

#### Northern Netherlands Provinces (SNN)

##### General call information

Energy is one of the Province's key concerns as the region is one of the important Dutch regions producing energy and natural gas. Currently the region is focused mainly on the production of sustainable energies. Although the main financial resources are managed at the national and North Netherlands level, Groningen province have combined their resources with other regions in Northern Netherlands Provinces (SNN) to strengthen the regional economy by pursuing joint policies and negotiation with national and European government on common Northern interests.

Groningen Energy and Sustainability Programme (GESP) is also supporting energy related actions.

In regard to the funding Groningen Investment Fund (GIF) supports energy related proposals. The GIF participates in other investment funds and that way also supports Groningen-based funds. What this means in practice is that there are collaborative efforts with other investors, resulting in the creation of new funds. New funds such as these invest in innovative SME companies in the province of Groningen. The province of Groningen is 100% shareholder in IFG and has outsourced fund management to the Investment and Development Company for the Northern Netherlands (NOM).

Another relevant funding instrument is called Valorisatie 2019 which helps companies, but also knowledge institutions, to develop more promising innovative products and services for the market. The funding instrument covers also energy related proposal. Groningen SMEs are eligible as the SMEs from Friesland and Drenthe regions. Duration of projects are limited up to 3 years. 35% of the eligible costs can be subsidised. Eligible costs are those costs for developing, building and testing a prototype including the personnel costs. Valorisatie will be not be developed further in the fiche as the information is not fully available.

##### Call requirements

The objective of Investeringsfonds Groningen (IFG) is to invest in investment funds that invest all or part of their capital in SME companies in the province of Groningen. Based on this Fund-in-Fund principle, two types of return are sought: financial return and social return.

IFG's fund totals 40 million EUR budget. Investeringsfonds Groningen is looking for partners in an open call. These may be partners in Venture Capital (management), Private Equity, Family Offices or jointly working Informal Investors.

##### Financing

It is an open-ended fund, but the fund in which IFG invests are closed-end funds.

IFG pays up to 49.9% of its share capital to the target fund and invests up to €7.5 million per target fund. IFG aspires a capital multiplier of at least 2 (committed capital of IFG is matched twice).

The funds to be set up must be implemented by a professional party. Relevant experience has priority for IFG. The funds are set up in a professional manner, with the governance structure and an effective AO/IC organisation being key.





<b>Proposal</b>
The application for funding is made electronically on IFG's website.
<b>Evaluation</b>
The applications are evaluated by IFG Committee. No further information is available.
<b>Negotiation</b>
IFG may request the applicants to supplement the application if it finds reason to do so.
<b>During execution</b>
No further information is available.

### 3.3.3 Île de France region - France

#### Energy Climate strategic programme

##### General call information

Overall, the region supports the proposals by energy specific public funding which is available at the national (ADEME) and regional (Ile de France) level. However there is no systematic approach when it comes to the methods, attributions, modulation of amounts or implementation of actions.

The Energy Climate strategic programme is managed directly by Regional Council of Ile de France region. Two larger programmes, namely multiannual energy programme and national strategy of low carbon are setting the basis of the Energy Climate strategic programme.

##### Call requirements

The scope of the call includes installation and investment projects. Mainly solar panel, wind and hydroelectric as well as the production and distribution of hydrogen related proposals are supported under the call. All legal entities located in the region are eligible to submit proposals. The information about the duration of projects is unavailable however the projects should start from the date of positive decision. Otherwise, the applicants are asked to send a derogation request. Multiple cut off dates are available to submit proposals. Overall, up to 100 projects will be funded under the call.

##### Financing

The financial support for the projects is as follows: up to 30% of the amount with VAT, capped at 2 million €. For subsidised photovoltaic installations the aid rate can be up to 50%.

The applicant is informed in advance that there will not be any compensation for the costs that may have incurred during the preparation of the proposal before submission under this call for projects.

##### Proposal

The applications for the funding should be submitted only electronically.

##### Evaluation

The applications are assessed by a permanent Commission and managed by the Service Energy Transition. No further information is available.

The final decision will be made by the Region.

##### Negotiation

The service Energy transition 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

There is not available information.

### 3.3.4 Northern Ireland Region – UK

#### Research and Development (R&D) Escalator Solution

##### General call information

There is no specific programme by the region supporting clean energy projects or investments. The relevant funding covering energy projects among others are either managed by Invest Northern Ireland (NI) or directly fuelled by other funding instruments at national or European level. The current programme will focus on funding coming from the Invest NI.

The NI R&D Escalator is designed to guide businesses through the various streams of support and funding that is available for innovation and research and development (R&D).

The companies from all sizes engaging in innovation and R&D activities are eligible under the various instruments. Applicants can use Innovation Vouchers to support proposal preparation at the bottom of the escalator and get additional funding to cover costs related to collaborative research and industry-led R&D at the top of the escalator.

##### Call requirements

The Research and Development (R&D) Escalator Solution is divided into the following phases:

- 1st phase: Innovation vouchers: this phase provides funding to small and medium sized businesses to work with an expert Knowledge Provider from a University, College or other Public Sector Research Body bringing new knowledge to help businesses innovate, develop and grow. The applicants will have 9 months to complete the project with the Knowledge Provider from the date of issue.
- 2nd phase: Proof of concept or product development: this phase programme supports the pre-commercialisation of leading edge technologies emerging from Northern Ireland's research institutes. The financial assistance provided by the programme helps researchers to export their ideas and inventions from the laboratory to the market uptake. There are two strands to the funding - a technology strand of 12 months duration and a commercialisation strand of 12 months duration, which will run in parallel with the technology strand.
- 3rd, 4th and 5th phases are including Collaborative research (partnership building), Horizon 2020 programme and Competence centre support. The NI region does not provide any funding at any of these stages, but rather supports companies to link with other instruments.

##### Financing

- 1st phase: Innovation vouchers – lump sum of 5 000 £ (5630 €) funding.
- 2nd phase: There are two strands to the funding – a technology strand of 12 months duration with maximum assistance of up to £80,000 and a commercialisation strand of 12 months duration with maximum assistance of up to £20,000. The grant covers up to 100% of eligible project costs.

##### Proposal

- 1st phase: Innovation vouchers - Applications must be submitted through an online application form. Other forms (audio disc, large print etc.) are possible but require specific request.
- 2nd phase: proposals are submitted electronically.

##### Evaluation

There is not available information.

##### Negotiation



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There is not available information.

**During execution**

There is not available information.

### 3.3.5 Provincia Autonoma di Trento region - Italy

Provincial Law 6/99 - Provincial Agency for the Promotion of the Economic Activities
<p><b>General call information</b></p>
<p>The Provincial Agency for the Promotion of the Economic Activities provides financial support to SMEs and large companies through the Provincial Law 6/99.</p> <p>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 run by individual companies and by consortia.</p>
<p><b>Call requirements</b></p>
<p>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.</p>
<p><b>Financing</b></p>
<p>The amount of the financing is based on several factors.</p> <p>For INDUSTRIAL RESEARCH the Province provides up to 65% of the expenses for big companies, 80% for small companies; for EXPERIMENTAL DEVELOPMENT the Province provides 40% big companies, 60% for small companies. The minimum budget is 25,000 €, the maximum budget is 500,000 €. In specific cases, such as when supported new research centres, it can be higher than that (ceiling not specified). The call considers eligible expenses the following ones: acquisition of new equipment; staff; patent-related expenses; general expenses; other recurrent costs.</p>
<p><b>Proposal</b></p>
<p>The application is made entirely electronically through the PEC, the Certified Electronic Email system, and digital signatures must be present. Financial conditions are requested from the beneficiary. The beneficiary must provide several documents when applying.</p>
<p><b>Evaluation</b></p>
<p>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.</p>
<p><b>Negotiation</b></p>
<p>Negotiation is not necessary, only in specific cases (e.g. as when new research centres require an amount higher than 500,000 €, as said in the “financing” section).</p>
<p><b>During execution</b></p>
<p>There is not available information.</p>

### 3.3.6 Schleswig-Holstein region - Germany

#### Landesprogramm Wirtschaft - Förderung der Energiewende und von Umweltinnovationen (EUI-Richtlinie)

##### General call information

Funding programmes in Germany exist as administrated and / or financed by either the country or on state level.

The state of Schleswig-Holstein announced in 2015 the State Programme for the Economy - Promotion of Energy Turnaround and Environmental Innovations (EUI Directive) whose guidelines are valid until the 31 December 2023.

This programme covers development of renewable energy and their key components, regional deployment of energy storage, improvement of feed-in of renewable energies into the electricity and heat grids and grid stability and/or efficiency increase and more.

This programme stimulates the development and establishment of future-oriented technologies and processes with particular environmental relevance. Funding is provided for experimental development and industrial research projects that contribute to the development of environmentally friendly infrastructures - for example, by producing and distributing energy from renewable sources, by increasing energy and resource efficiency or by using renewable energies in companies.

##### 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.

Funding will be given to projects in the fields of energy system transformation and environmental innovation which prepare research and development activities for new products, processes or services. The call also includes projects which create technical-scientific conditions for new developments or include industrial research and experimental development.

Pilot and demonstration projects which represent an initial application and validation are also subject to this funding but the technical and market prospects of the project must be demonstrated.

Individual and joint projects are supported. Collaborative projects are defined as cooperation between several enterprises of which at least one must be an SME, or between one enterprise and research and knowledge dissemination institutions.

##### 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.

Up to 25 % of eligible costs for experimental development can be subsidised and up to 50 % of eligible costs for industrial research.

For medium sized enterprises, subsidies can be increased by 10 % and by 20 % for small enterprises.

In addition, an increase in funding by a further 15 % up to a maximum of 80 % is possible if the project is an effective cooperation between enterprises of which at least one is an SME, where no single enterprise covers more than 70 % of the eligible costs, or between a company and an or several facilities for research and development dissemination of knowledge covering at least 10 % of the eligible costs and which have the right to publish their own research results.

In the case of individual projects at research and knowledge dissemination institutions, funding may be increased up to 90 %, provided that the support extends exclusively to non-economic activities or the research institution or infrastructure almost exclusively to a non-economic activity.

### Proposal

It is a 2-steps application:

Project proposals must first be submitted to the Wirtschaftsförderung und Technologietransfer Schleswig-Holstein GmbH (WTSH).

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 eligible for funding. If the assessment is positive, the WTSH recommends submitting the application.

Based on the project proposal, a complete, formal application for funding is submitted.

On behalf of the Ministry of Energy Turnaround, 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 in excess of €500'000.

If the decision is positive, the company or institution receives a corresponding decision. Subsequently, the realisation of the project is started.

### Negotiation

There is not available information.

### During execution

No further information for during execution.

In order 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. It consists of a factual report and proof of project expenditure.

At the end of the project, an exploitation report on the project and its impact must be submitted annually for five full calendar years.

### 3.3.7 Mediterranean region - France

#### Energy Climate strategic programme

##### General call information

There are three main sources of funding available in Mediterranean region (PACA): 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.

It is worth noting that there is no systematic approach when it comes to the methods, attributions, modulation of amounts or implementation of actions. However, 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 and instruments. All legal entities located in the region are eligible to submit proposals. Multiple cut off dates are available to submit proposals.

The applicants are encouraged to complete the funding with national or European financial support.

##### 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, in 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 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.



### 3.3.8 Basque Country – Spain

#### Investment aids for demonstration and validation of energy technologies emerging marine renewables - Basque Entity of Energy

##### General call information

The aid programme for investment for the demonstration and validation of marine renewable energy technologies is managed by the Basque Energy Agency. The energy agency is in charge of developing projects and initiatives in line with the policies defined by the Government. The financial allocation for this aid programme amounts to € 500,000.00

##### Call requirements

This aid support actions of demonstration and validation of technological developments, in the marine renewable energies carried out in the Basque Country. Projects can be carried out individually or in collaboration. All actions must be carried out in renewable energy testing infrastructures emerging marinas, in the open sea and located in the Basque Country. The projects must be oriented towards commercialisation, present innovative solutions and be replicable and scalable.

##### Financing

The financial support for the projects can go up to of 25% of the eligible cost, with a limit per beneficiary and / or project of € 1,250,000€. This call includes additional bonuses for entities.

This aid covers the following costs: instrument and material costs; contractual research costs, technical knowledge and patents acquired or obtained; supplementary general expenses directly derived from the research project

##### Proposal

The applications for the subsidy should be submitted only electronically.

##### Evaluation

To achieve the aid, the entities must formalise and contribute with administrative, financial and technical documentation.

##### Negotiation

All the subsidy payments are conditioned to the documentary justification of the completion of the activities or phases corresponding to the deadlines provided for in the corresponding aid application.

##### During execution

Once the grant has been awarded and in order to verify the effective execution of the action subject to subsidy, the Basque Entity of Energy may carry out "in situ", verification being able to take representative photos of the installation as well as request additional documentation.

## 4. FINANCE FROM THE PRIVATE SECTOR

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### 4.1 Overview of Market Participants

This chapter has three main pillars. Firstly, it provides a good 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.

### 4.2 General trends in Energy Investment

The amount invested in renewable energy capacity in the top 20 markets (China, United States, Japan, Germany, United Kingdom, India, Italy, Brazil, Australia, France, Spain, Canada, Netherlands, Mexico, Belgium, Sweden, South Africa, Turkey, Chile, Denmark) up to the end of the first half of 2019 (it does not include an estimate for the second half of this year) show that have spent more than \$14 billion on renewables excluding large hydro. The runaway leader in the 2010s has been China, with investment of \$758 billion, nearly 31% of the global total, with the U.S. second on \$356 billion, or 14%. There are eight European countries (Germany, Italy, France, Spain, Netherlands, Belgium, Sweden, Denmark) in the top 20, headed by Germany with \$179 billion and the U.K. with \$122 billion, and Europe as a whole has accounted for investment over the period from 2010 to the first half of 2019 of about \$698 billion, some 28% of the global total. Venture capital and private equity investment in renewables rallied 35% to \$2 billion in 2018, but this was also below the five-year average and far less than in the peak years around the turn of the decade. Europe saw investment in renewables capacity rising 45% to \$59.9 billion in 2018, close to its average for the last five years. Commitments to wind increased 26% to \$36.7 billion, but the star performance was from solar in Europe, with an 87% jump to \$19.2 billion. Among individual European countries, the U.K. was the largest investor last year, with \$8.8 billion going to new renewables capacity, up 36% on 2017 thanks to final investment decisions on several large offshore wind parks and biomass and waste-to-energy plants. The most spectacular year-on-year change in Europe, however, came from Spain. Investment there jumped 859% to \$7.5 billion, as a new generation of low-cost solar and wind projects got the go-ahead on the back of auctions or private sector power purchase agreements.<sup>35</sup>

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<sup>35</sup> GLOBAL TRENDS IN RENEWABLE ENERGY INVESTMENT 2019:  
<https://wedocs.unep.org/bitstream/handle/20.500.11822/29752/GTR2019.pdf>

## 4.3 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: Private equity firms, Venture Capital firms, Angel investors 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:** firms are equity investors at an earlier stage in the lifecycle of a startup.
- **Private equity:** 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	of	Angel	Venture Capital	Private Equity
Stage of Funding	of	Seed, Early.	Seed, Early stage, Mid expansion.	Early; Mid to later stage, Mezzanine, Exit.

## 4.4 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):<sup>36</sup>

- **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.
- **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

<sup>36</sup> The 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.



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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 on 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.

## 4.5 Funding Mechanisms for SMEs

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
<a href="#">212</a>	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.
<a href="#">3LB Seed Capital</a>	X	X			It enters into the startups equity essentially in the initial phases of their developments, more often as the first investor outside the circle of the founders. Individual investments size generally between € 30 000 and € 60 000 and establishment of relations with the “business partners” proper to angel investors. For larger investments (€ 500 000) they share the risk with other investing partners, both individuals or investing syndicates and club-deals.
<a href="#">ABB VC (EIT)</a>		X	X	X	Founded in 2009, it has since invested into over 30 startup companies and seven venture capital funds. Next to traditional VC support, ATV offers its partners access to a deep R&D bench, domain expertise, global customer and channel access, market knowledge.
<a href="#">Abris Capital Partners</a>			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.

<sup>37</sup> 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 <sup>37</sup>	
<a href="#"><u>Advent International GmbH</u></a>			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 June 30, 2019, managed \$54.3 billion in assets.
<a href="#"><u>Alantra Private Equity</u></a>			X	X	Alantra Private Equity is the preeminent manager in Iberia, with more than 25 years heritage and one of the largest teams in the region. They invest €30-90M equity for majority positions, larger tickets could be considered through co-investments. Since 1990, Alantra PE has led investments in 111 assets (63 platforms and 48 add-ons), totalling c. €1.0bn of equity invested.
<a href="#"><u>Armilar Venture Partners (EIT)</u></a>	X	X		X	Former Espírito Santo Ventures. Currently, Armilar has four funds under management amounting to about €200 million, deployed typically as lead investor in seed to early-stage deals in companies in Portugal, Europe and the USA, and is launching its latest €60 million fund V in 2019.
<a href="#"><u>Aster Capital (EIT)</u></a>	X	X	X	X	Aster is not only a VC, it is a Business HUB for entrepreneurs dedicated to promote offers, facilitate markets reach and support scalability.
<a href="#"><u>Atomico (UK) Partners LLP</u></a>			X	X	Atomico invests in innovative technology companies that are on their way to becoming category leaders. Atomico has made over 100 investments over four continents
<a href="#"><u>Auctus Asesores, S.L.</u></a>			X	X	Auctus is an independent private equity fund focused on investing in Spanish SMEs.
<a href="#"><u>AVM Gestioni SGR S.p.A.</u></a>			X	X	VM Gestioni SGR S.p.A has created a closed-end alternative investment fund “Star Tech Ventures EuVECA”. Star Tech Ventures is qualified as a Venture Capital fund. Star Tech Ventures investment

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
					policy is not based on industry specialisation but on industry focus, paying particular attention to sectors where Italy is strong.
<a href="#">Axxess Capital Partners SA</a>			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: Balkan Accession Fund (€110 million private equity fund) and Emerging Europe Accession Fund (€70 million private equity fund established in September 2010).
<a href="#">Baring Private Equity Partners España SAU</a>			X	X	PEP 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. PEP's investors include Spanish and European financial institutions, as well as corporations and family offices.
<a href="#">Bencis Capital Partners</a>			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
<a href="#">BNP Paribas Fortis</a>			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

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
					20m) in growth, replacement or (leveraged) buy-out / buy-in transactions with a targeted investment horizon from 5 to 7 years.
<a href="#"><u>Borromin Capital Management GmbH</u></a>			X	X	Borromin Capital Management GmbH (Borromin) 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
<a href="#"><u>BP Ventures</u></a>		X	X	X	The British petroleum giant has invested more than \$400 million in start-ups, along with more than 200 co-investors.
<a href="#"><u>Bridgepoint</u></a>			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
<a href="#"><u>Caixa Capital Risk SGEIC SA</u></a>	X	X	X	X	Promotion and investment in entrepreneurial projects, seed capital and other projects in their early stage.
<a href="#"><u>Capital D</u></a>			X	X	Pan-European 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.
<a href="#"><u>Capital Promoción</u></a>			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



Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
<a href="#">Empresarial del Sur, SA SGEIC</a>					and Venture Capital. GED was set up in 1996. The funds target preferably mid-buyout and expansion deals.
<b>Capiton AG</b>			X	X	Capiton is an independent 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 € 481.548.331 and its fun capital reached € 439.600.000 in 2015.
<a href="#">Capricorn Venture Partners NV (EIT)</a>	X	X	X		Capricorn Venture Partners is an independent pan-European venture capital and asset manager seeking to invest in technology-based growth companies.
<a href="#">CEA Investissement (EIT)</a>	X	X	X		The firm seeks to invest in companies based in France. It typically invests between €0.2 million and €0.8 million in its portfolio companies. The firm co-invests with other firms and takes a minority stake in its portfolio companies and also seeks a board seat. It seeks to exit its investment between five to eight years after the first investment.
<a href="#">Chevron Technology Ventures</a>		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), Ensyn (renewable liquid fuel) and Inventys (carbon capture).
<a href="#">Cleantech Business Angels (EIT)</a>	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.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
<a href="#"><u>Co-Investor</u></a>					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.
<a href="#"><u>Constellation Technology Ventures</u></a>			X	X	Part of Exelon, its investments include ChargePoint (electric vehicle charging), Ouster (lidar detection systems), Powerhouse Dynamics (facility energy management), Sparkfund (an energy efficiency financing platform), Stem (behind-the-meter energy storage technology) and XLFleet (drive trains for fleet electrification). Its initial investments typically range between \$1 million and \$10 million.
<a href="#"><u>Contrarian Ventures</u></a>	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.
<a href="#"><u>Crowberry Capital GP ehf.</u></a>	X	X		X	Crowberry Capital invests at seed and early stage in outstanding teams building global businesses around true technology advantages
<a href="#"><u>Demeter Partners (EIT)</u></a>	X	X	X	X	Invest from €1 million to €30 million to support companies at all stages of their development: innovative startups, high growth SMEs and infrastructure projects.
<a href="#"><u>Diffusion Capital Partners</u></a>	X			X	Diffusion Capital Partners is a seed stage venture capital fund manager. Headquartered in the Netherlands, the fund primarily invests in Turkey. DCP exclusively invests 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 <sup>37</sup>	
<a href="#"><u>Dow Europe GmbH</u></a>	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.
<a href="#"><u>DSM Venturing B.V.</u></a>	X	X		X	Since its inception in 2001, DSM Venturing has invested in more than fifty emerging innovative companies in the US, Europe and Israel.
<a href="#"><u>Dublin Business Innovation Centre</u></a>	X	X	X	X	Dublin Business Innovation Centre CLG (Dublin BIC), 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 BIC has just launched a new €23M early-stage fund. Dublin BIC is regulated by the Central Bank of Ireland and is a member of IVCA and Invest Europe. Its capital under management is € 41M and its fund capital reaches € 10M
<a href="#"><u>Earlybird Venture Capital</u></a>	X	X		X	Earlybird invests in all growth and development phases of a company. 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.
<a href="#"><u>eCAPITAL Entrepreneurial Partners AG</u></a>	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.
<a href="#"><u>ECM Equity Capital</u></a>			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

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
<a href="#"><u>Management GmbH</u></a>					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.
<a href="#"><u>ECS - Sociedade Gestora de Fundos de Capital de Risco, SA</u></a>			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.
<a href="#"><u>EIP Management GmbH</u></a>			X	X	Energy Impact Partners (EIP) is a specialised growth equity venture capital firm focused on asset intensive industries reshaping the future by making it smarter, cleaner, more resilient, and customer-friendly. Its fund capital reaches € 25M
<a href="#"><u>Emerald Technology Ventures AG (EIT)</u></a>	X		X	X	Since 2000, Emerald has backed more than 60 entrepreneurs, partnered with dozens of multinational corporations on open innovation and managed investment mandates and funds for investors and governments alike.
<a href="#"><u>EnBW New Ventures GmbH</u></a>	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.
<a href="#"><u>Enel Startup</u></a>		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

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
					year), I-Em (maintenance and management for renewable energy plants) and Ultrasolar (which optimises solar panel production).
<a href="#">Engie New Ventures</a>		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).
<a href="#">Enso Ventures</a>	X	X		X	They look for disruptive early-stage companies with strong IP. Help companies with their industry expertise, leadership and capital in order to commercially develop and accelerate technologies in startup companies.
<b>Enterprise Investors</b>			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 2019, the funds managed by Enterprise Investors invested in 144 companies across a range of industries in the countries of Central & Eastern Europe.
<b>Equinox AIFM SA</b>			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
<a href="#">Evonik Degussa (China) Co., Ltd.</a>	X	X	X	X	Evonik Venture Capital plans to invest in companies in Europe over the medium term in highly promising startups and leading specialist venture capital funds.
<a href="#">EXTOREL GmbH</a>	X	X	X	X	Their portfolio includes more than 20 direct investments in early stage tech companies and more than 40 private equity and venture capital fund investments. Their GPs are mostly focused funds with fund sizes below 500m.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
<a href="#"><u>FINAQUI Business Angels Aquitqnis</u></a>	X	X			Association of Business Angels that gathers 90 members. Currently the following 3 Investment Funds have been created : Finaqui Capital 1, Finaqui Capital 2 et Finaqui Capital 3. Member of France Angel.
<a href="#"><u>Finindus</u></a>	X	X	X	X	Finindus provides early stage financing and growth capital to innovative companies active in the area of materials, material processing and sustainable manufacturing. At Finindus we focus on high growth companies with a strong value proposition that can benefit throughout their development from our network, expertise in materials and experience in commercial and industrial upscaling.
<a href="#"><u>France Angels - Fédération Nationale des Business Angels</u></a>	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.
<a href="#"><u>Future matters</u></a>	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.
<b>GB &amp; Partners Investment Management Ltd.</b>		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 € 205M and the capital of each funds goes from €9M to €168M.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
<b>Gimv</b>			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.
<b>GPF Partners</b>			X	X	GPF Capital is an independent private equity fund focused on investing in Spanish SMEs.
<a href="#"><u>Hardware Club</u></a>	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.
<a href="#"><u>High-Tech Gründerfonds Management GmbH</u></a>	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.
<b>HPE Germany Consulting GmbH</b>			X	X	Established in 2008, HPE Growth ('HPE') 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. It's main focus is on stand-alone investment opportunities in which it can invest EUR 10-30 mln for a significant minority position.
<a href="#"><u>ICOS Capital Management B.V. (EIT)</u></a>				X	It integrates the classical venture capital approach with the market experience, market access and technical expertise of larger corporations. Icos Capital's investment team has over 75 years cumulative venture capital experience. It led and internationally syndicated deals with top tier funds; realised trade sales and IPOs; and assisted startups in becoming successful ventures.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
<a href="#"><u>Idinvest Partners (EIT)</u></a>		X		X	Former ELECTRANOVA CAPITAL. With €8bn under management, the firm has developed several areas of expertise including innovative startup venture capital transactions; mid-market corporate debt, i.e. single-tranche, senior and subordinated debt; primary and secondary investment and private equity advisory services.
<a href="#"><u>Indofin Group</u></a>	X	X	X	X	
<a href="#"><u>Innogy Venture Capital GmbH</u></a>	X	X		X	Final closing size of €115 million the currently managed “Innogy Renewables Technology Fund I” is a leading early stage investor in this segment in Europe. The fund’s sponsors are RWE Innogy and CEE. RWE Innogy pools within the German utility RWE the expertise for construction and operation of renewable energy generation assets.
<b>Inven Capital, SICAV, a.s.</b>			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.
<a href="#"><u>IQ Capital Partners LLP</u></a>	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 € 97.525.000.
<a href="#"><u>Is Private Equity Investment Trust</u></a>			X	X	While being part of Isbank Group, Is Private Equity Investment Trust is also partially funded by the Turkish Technology Development Foundation (TTGV). 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 <sup>37</sup>	
<a href="#">Karma Ventures Oü</a>	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 startups. It has a capital of €70 million.
<b>Keensight Capital</b>			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. Specific sectors of interest include Information Technology, Healthcare, and Energy.
<b>Korys Investments NV.</b>			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.
<b>Kvika banki hf.</b>			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
<a href="#">Lakestar Advisors Germany GmbH</a>	X	X	X	X	Since raising a first fund in 2013, Lakestar manages an aggregated volume of €1bn 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.
<a href="#">M Ventures (EIT)</a>	X	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.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
<a href="#">Mangrove Capital Partners</a>	X	X	X	X	They look to invest in companies operating internet or software businesses as early as possible. They are particularly open to investing prior to product launch.
<a href="#">Merck KGaA</a>	X	X	X	X	The total volume of the corporate venture fund is € 300 million, although with a greater focus in healthcare.
<b>Mid Europa Partners</b>			X	X	Mid Europa Partners (MEP) is a leading buyout investor focused on the growth markets of Central and Eastern Europe with over €5.2 billion of funds raised and managed since inception.
<b>MML Capital Partners</b>			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
<a href="#">Neulogy Ventures</a>	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.
<a href="#">Omnes</a>	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.
<a href="#">PME Investimentos - Sociedade de Investimento SA</a>	X	X	X	X	PME Investimentos operates as a market enhancer, promoting the Portuguese venture capital market, supporting the establishment of new players and financing and sharing risk with public and private venture capital companies and business angels.
<a href="#">PM Equity Partner Sàrl</a>	X	X	X	X	As a long-term investment partner, their support includes scientific substantiation, business development and marketing excellence. They have a fund capital of €130 million.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
<b>Platina Equity Solutions</b>			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.
<a href="#"><u>Portugal Capital Ventures</u></a>	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.
<a href="#"><u>Practica Capital</u></a>	X	X	X	X	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 and a number of other LPs.
<b>Prime Ventures</b>			X	X	Independent international venture capital fund with a service-oriented and labour-intensive style of investing. Investing in all technology sectors with a focus on high-growth, high-potential international companies based in Europe. Fund capital: € 254M
<a href="#"><u>Quan Ventures</u></a>	X	X	X	X	A crossover fund investing in private and public technology companies. The fund is open-ended, providing quarterly liquidity to investors based on the Fund's liquid net asset value.
<a href="#"><u>Renaissance Partners</u></a>		X	X	X	Will consider investing in emerging private enterprises, including start-up and young-growth companies, as well as MBOs.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
<a href="#">Robert Bosch Venture Capital GmbH</a>	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, startups receive access to its network and support in commercial collaborations
<a href="#">Rusnano Group</a>			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 operating in the area of advanced materials, optoelectronics, energy & resource efficiency, life sciences and other high-tech sectors across Russia, Europe, Asia, and the USA. The company fund's capital is € 300M
<a href="#">Saudi Aramco Energy Ventures</a>				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).
<a href="#">Science Ventures Denmark A/S</a>	X	X		X	Corporate Venture established by Energi Fyn A/S and Science Ventures Denmark A/S. Focus on early stage investments in energy and telecommunications.
<a href="#">Seed Capital de Bizkaia SA</a>	X	X	X	X	Composed of three legal entities. A venture capital management company called "Seed Capital de Bizkaia Sociedad Gestora de Entidades de Capital Riesgo, S.A." administrator of €0.33m. A fund, "Seed Capital de Bizkaia, Fondo de Capital Riesgo (F.C.R), created in 1991 of €15m. A second fund, "Seed Capital Bizkaia BI, Fondo de Capital Riesgo FCR", created in 2006 with €2,05m.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
<a href="#">Shell GameChanger</a>				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's modeled 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.
<a href="#">SIF Transilvania S.A.</a>	X				Societatea de Investitii Financiare Transilvania S.A. (SIF Transilvania) is a closed-end financial investment company, self-managed. SIF Transilvania 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.
<a href="#">Sitra, the Finnish Innovation Fund</a>	X	X	X	X	Sitra's aim is to be a respected partner in building a knowledgeable and innovative society. Sitra's operations are funded with endowment capital and returns from capital investments.
<a href="#">SOFIMAC Partners (EIT)</a>	X	X		X	Manage a portfolio of € 750 million, with investments ranging between €150 000 and € 5 million. Main focus in France and north of Italy.
<a href="#">Straightforward Capital</a>		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.
<a href="#">Super Nova Invest (EIT)</a>	X	X		X	Since 1999, it has financed and supported over 100 startup companies. Currently managing 5 funds totalling € 250 million.

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
<a href="#">Swisscom (Schweiz) AG</a>	X	X	X	X	It has invested in over 35 IT, digital media and telecommunication companies from our offices in Switzerland (Zurich and Lausanne) and the USA (Silicon Valley). It offers entrepreneurs access to its technical infrastructure and market channels in addition to financial support.
<a href="#">Syngenta Ventures</a>	X	X	X	X	It has invested over US\$100m since 2006. With its industry expertise, and access to Syngenta people and resources, it plays an active role in supporting our portfolio companies realise their potential.
<a href="#">Target Partners GmbH</a>	X	X	X	X	Target Partners invests in young technology companies mostly in Germany, Austria and Switzerland, currently having € 300 million under management
<a href="#">Tera Ventures</a>	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).
<a href="#">Tesi (Finnish Industry Investment Ltd)</a>		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.
<a href="#">Total Energy Ventures</a>				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).

Name of Fund/Investor	Financial Stages				Key information
	Seed	Early stage	Expansion	Other <sup>37</sup>	
<a href="#">Unternehmertum Venture Capital Partners GmbH</a>	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. UVC 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.
<a href="#">Verdane</a>			X	X	Verdane provides flexible growth capital to fast growing software, consumer internet, energy or high-technology industry businesses. Verdane has raised eight funds since 2003, and currently has €1.9bn of total committed capital.
<a href="#">VIVES Fund</a>	X	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. Its fund capital reaches € 43.000.000.
<a href="#">Wermuth Asset Management</a>	X		X	X	Expertise in different alternative asset classes, including private equity, long/short equities and real estate.
<a href="#">WISEED (EIT)</a>	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

## 4.6 Case studies

Two case studies have been analysed here below.

### Heliatek

Heliatek	“Creating a leader in the latest solar energy technology”
<p><b>Description:</b></p>	<p>Since its creation in 2006, from ideas developed at the universities of Dresden and Ulm, Heliatek has been at the forefront of solar energy technology. With the help of venture capital funding provided by BASF Venture Capital, eCapital, Innogy Venture Capital, Robert Bosch, Wellington Partners and others, the company has created an ultra-thin solar film that is light, flexible, and can be customised in variety of colours, dimensions and levels of transparency. Heliatek’s solar cells are an ecologically sustainable step forward from existing solar cells. With investment to develop a viable commercial product, the company is beginning to demonstrate a huge range of applications that could see photovoltaic cells integrated in car roofs, windows and building facades.</p>
<p><b>What did the business need?</b></p>	<ul style="list-style-type: none"> <li>• Funding by investors to prove concept and develop a viable, commercial product</li> <li>• Entrepreneurial guidance to expand the organisation</li> <li>• Access to international industrial partners</li> </ul>
<p><b>How did private equity backing create lasting value?</b></p>	<ul style="list-style-type: none"> <li>• Provided funding for a new technology, even during crises in financial and solar industries</li> <li>• Helped devise go-to-market strategy</li> <li>• Expanded management team with senior professionals</li> <li>• Provided links with potential clients</li> <li>• Built a commercial production facility</li> </ul>
<p><b>What outcomes did private equity investment achieve?</b></p>	<ul style="list-style-type: none"> <li>• Established a technology leader in organic solar energy generation</li> <li>• Created the world’s most efficient organic solar cells</li> <li>• Developed intellectual property in 45 patent families</li> <li>• Raised a further €80m of investment in 2016</li> <li>• Created 100 high-tech jobs to date.</li> </ul>



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

### Sonnenbatterie

Sonnenbatterie	“Taking a German pioneer in power storage to the global stage”
<b>Description:</b>	<p>Sonnenbatterie makes solar power generation and storage systems for homes and businesses that can help reduce electricity bills by 75% and dramatically reduce reliance on the electricity grid. The company founders started experimenting with intelligent lithium technology in 2008 and set up Sonnenbatterie in 2010. Venture capital firm eCapital invested in 2013 to support the rapid expansion of the firm. Its investment helped fund the company’s international expansion, as well as extensive R&amp;D to enable Sonnenbatterie to maintain its technological lead in the market. Thanks to eCapital’s involvement, Sonnenbatterie is on track to reach more home-owners with its technology, and to take a leading position in the supply of electricity storage systems to businesses globally.</p>
<b>What did the business need?</b>	<ul style="list-style-type: none"> <li>• Capital for research and development</li> <li>• Extension of management team</li> <li>• Support to expand into international markets</li> </ul>
<b>How did private equity backing create lasting value?</b>	<ul style="list-style-type: none"> <li>• Provided finance to create new products and intellectual property</li> <li>• Helped the company to maintain its technological edge of up to three years over rivals</li> <li>• Financed international expansion and organisational growth</li> <li>• Provided access to sales contacts for overseas expansion</li> <li>• Extended business offering into services (such as demand and response services)</li> </ul>
<b>What outcomes did private equity investment achieve?</b>	<ul style="list-style-type: none"> <li>• Installed over 26,000 systems since market introduction in 2011</li> <li>• Established market leader in Germany and Europe</li> <li>• Developed economically viable storage system that enables the further expansion of renewable solar electricity generation</li> <li>• Created technological leader that offers best value for money</li> <li>• Secured high customer satisfaction and brand recognition in Germany</li> <li>• Created around 330 jobs, taking total staff number to 350.</li> </ul>

## 5. OPEN REFLECTIONS

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Throughout the mapping exercised developed in order to finance energy innovation projects, the following open reflections have been identified.

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.

- 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. Loans are also used in some schemes, including the recently established InnovFin Energy Demo Project (EDP) debt facility. 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 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 EFSI scheme could also be combined with other funding sources in the EU budget, (i.e. Connecting Europe Facility -CEF-, etc). The effectiveness of the EFSI scheme could therefore benefit from the combination of financial instruments, EIB loans and grants in a combined, "blending" approach<sup>38</sup>. 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; InnovFin Energy Demo Projects; Connecting Europe

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<sup>38</sup>[https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/investment-plan-europe-juncker-plan/investment-plan-results/efsi-energy-sector\\_en](https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/investment-plan-europe-juncker-plan/investment-plan-results/efsi-energy-sector_en)



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

Facility for the roll-out of key infrastructure; National programmes supporting research and innovation for low-carbon technologies; Private capital<sup>39</sup>. 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 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.

Lastly, it is worth to remark the availability of **different tools** for the dissemination and monitoring of the available financing instruments. A clear example of it is [ERA LEARN webpage](#), which provides support to research funding organisations, policy makers, research & innovation entities and businesses with general financing information and services on Public-Public-Partnerships (P2Ps). This tool provides interested stakeholders with specific information on the implementation of joint calls, call evaluations and impact assessments as well as a broad variety of manuals, tools and workshops. For example, for each of the current JPIs a number of relevant ERA-NETs are found, so that current ERA-NET initiatives sorted by thematic area, including initiatives which ended recently, can be checked within that webpage.

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<sup>39</sup>[https://ec.europa.eu/clima/policies/innovation-fund\\_en#tab-0-1](https://ec.europa.eu/clima/policies/innovation-fund_en#tab-0-1)

## 6. OTHER REFERENCES

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In addition to the footnotes provided all along the document, there are other references that should be considered:

- [1] **The Strategic Energy Technology (SET) Plan. European Union, 2017.**  
Source: <https://op.europa.eu/en/publication-detail/-/publication/064a025d-0703-11e8-b8f5-01aa75ed71a1>
  
- [2] **Research and Innovation Observatory (RIO) Country Report 2017.**  
Source: <https://rio.jrc.ec.europa.eu/en/country-analysis>
  
- [3] **Invest Europe web: Investor Search tool.**  
Source: <https://www.investeurope.eu/about-private-equity/vc-for-entrepreneurs/find-an-investor/>
  
- [4] **Euroquity web: Investors search tool**  
Source:  
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