

Some possible JAWG options for SET Plan related collaboration / SET Plan implementation

Table 1. Main sources of EU funding for Joint Programming

Source	Instrument	Purpose	Instrument Form	Comments
Horizon 2020	Calls for proposals	Support for research and innovation	Grants Prizes	Around €6billion for energy-related research and innovation in 2014-2020 (energy societal challenge). Overall, at least 35% of the Horizon 2020 budget (around €30 billion) is expected to be climate-related expenditure, improving measures improving resource efficiency
	Horizon 2020 ERA-NET Co-Fund	Facilitation of public-public partnerships	Grants (cofund)	http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-d-eranet-cofund_en.pdf
	European Joint Programme	Facilitation of public-public partnerships	Grants (cofund)	http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016_2017/annexes/h2020-wp1617-annex-d-ejpcofund_en.pdf
	cPPP iPPP	Contractual PPPs are a structured collaboration between the European Commission and private actors to provide input to H2020 work programmes and are implemented by H2020 calls Institutional PPPs are regulated under Article 187 TFE, have the form of Joint Technology Initiatives (JTIs) or Joint Undertakings (JU) and are implemented by dedicated European Agencies (JUs)	Grants	http://ec.europa.eu/research/industrial_technologies/ppp-in-research_en.html

Table 2. Other relevant sources of EU funding

Source	Instrument	Purpose	Form	Comments
European Investment Bank (EIB) Group	InnovFin Energy Demonstration Projects (EDP)	Provision of debt capital for projects	Loans	http://www.eib.org/infocentre/publications/all/innovfin-energy-demo-projects-flysheets.htm
European Investment Bank (EIB) Group	Loans and Guarantees	Standard or RDI investment loans - Direct loans for corporates or Single Purpose Vehicles (SPV) supporting projects in knowledge economy where the total cost is over EUR 25 million (covering up to 50% of the total cost).		http://www.eib.org/products/lending/loans/index.htm

		<p>Intermediated loans - Intermediated loans to local, regional and national banks supporting investment projects by SMEs and Mid-caps for which the total cost is below EUR 25 million</p>		<p>http://www.eib.org/products/lending/intermediated/index.htm</p>
		<p>Guarantees - For large and small projects to make them more attractive to other investors. Guarantees for senior and subordinated debt, either in a standard form or as a debt service guarantee similar to that offered by monoline insurers.</p>		<p>http://www.eib.org/products/blending/guarantees/index.htm</p>
<p>Joint European Investment Bank (EIB) / European Commission/</p>		<p>Project bonds Initiative - The instrument provides subordinated facilities (either in the form of a loan or a contingent facility) to bonds issued by infrastructure project companies. The instrument in its pilot phase can provide guarantees of EUR 690 million across the three sectors, of which EUR 600 million in transport networks, EUR 60 million for Broadband and EUR 30 million for energy networks.</p>		<p>http://www.eib.org/products/blending/project-bonds/index.htm</p>
		<p>Risk Sharing Financing Facility - Financed direct or intermediated Research Development and Innovation projects undertaken by low or sub investment grade companies, universities or SPV. Financed 13 solar and wind projects during 2007-2011 for a loan amount of EUR 1.4 billion.</p>		

		<p>Connecting Europe Facility - The Connecting Europe Facility (CEF) is the proposed instrument for funding investment in Europe's transport, energy and digital networks infrastructure, i.e. not energy production. The latest budgetary proposal for the CEF is EUR 29 billion over the seven year period 2014-2020. The majority of CEF will be delivered in the form of grants, however up to 10% of the programme could be delivered in the form of financial instruments.</p>		<p>http://ec.europa.eu/inea/en/connecting-europe-facility/cef-energy</p> <p>https://ec.europa.eu/energy/en/topics/infrastructure/projects-common-interest</p>
		<p>new ventures and investments in existing companies. The principal forms of direct financing that may be provided by the EBRD are loans (up to EUR 5 million), equity (up to EUR 2 million) and guarantees. The Bank has developed a Sustainable Energy Initiative (SEI) to scale up and accelerate investment in climate change mitigation and energy efficiency projects in the countries of operations. Since 2006 EUR 10 billion was invested by the SEI.</p>		
Joint European Investment Bank (EIB) / European Commission/	PF4EE	<p>Private Finance for Energy Efficiency (PF4EE) instrument is a joint agreement between the EIB and the European Commission which aims to address the limited access to adequate and affordable commercial financing for energy efficiency investments. The instrument targets projects which support the implementation of National Energy Efficiency Action Plans or other energy efficiency programmes of EU Member States.</p>	Grants	http://www.eib.org/products/blending/pf4ee/index.htm
European Bank for Reconstruction and Development (EBRD)		<p>EBRD provides project financing for banks, industries and businesses, both</p>		Limited to Central and Eastern Europe and with moderate risk level only

IFC (part of the World bank)		IFC financial products include loans, guarantees, equity investments, and risk-sharing and venture capital funds. The IFC is committed to working with its European partners and shareholders, although the EU is not a focus area for IFC investment and advisory services. The financial products available are loans (up to USD 100 million), syndicated loans, equity finance (up to 20% stake) etc. In addition there are the CleanTech Innovation Facility and the Cleantech Venture Capital Fund. Cleantech eligible sectors are those that are included in the SET Plan (excluding nuclear).		IFC does not invest in Western Europe, but rather supports investment projects of Western European sponsors in emerging markets. http://www.ifc.org/wps/wcm/connect/CORP_EXT_Content/IFC_External_Corporate_Site/Solutions/Products+and+Services
World Bank	Green Bonds	The World Bank has issued about USD 3.5 billion in Green Bonds in 17 different currencies. Eligible projects include mitigation activities that fall in the same sectors/subsectors as the SET Plan activities (not nuclear). Eligible countries for the underlying projects are IBRD borrowing countries, which include some EU member countries.		http://treasury.worldbank.org/cmd/htm/WorldBankGreenBonds.html
European Fund for Strategic Investments (EFSI)		Provision of higher risk loans in strategically important sectors	Guarantees / Loans	http://www.eib.org/efsi/how-does-a-project-get-efsi-financing/index.htm
European Structural and Investment Fund (ESIF) – including Cohesion Policy Funds / Regional Development Fund (ERDF)		Economic development	Grants (in responsibility of European regions)	€454 billion from 2014–2020. €38 billion has been allocated to supporting a shift towards a low-carbon economy; €40 billion for research and innovation; and €33 billion for enhancing the competitiveness of SMEs. 20% of ERDF to be spent on Low Carbon. http://ec.europa.eu/contracts_grants/funds_en.htm http://ec.europa.eu/contracts_grants/pdf/esif/key-energy-union-climate_en.pdf
ETS	NER300	Low carbon energy project demonstration (separately renewables and CCS)	Grants	https://ec.europa.eu/clima/policies/lowcarbon/ner300_en
ETS	NER400 / EU ETS Innovation Fund	Support first-of-a-kind investments in renewable energy, carbon capture and storage (CCS) and low-carbon innovation in energy-intensive industries	Grants	c. €10 billion from 2021 and c. €1.5 billion prior to 2021 http://ner400.com/ http://europa.eu/rapid/press-release_MEMO-15-5352_en.htm (Q6)

The Research Programme of the Research Fund for Coal and Steel (RFCS)		The Research Programme of the Research Fund for Coal and Steel (RFCS) is a financial instrument of the European Union intended to support research and innovation in the sectors related to the coal and steel industry.	Grants (Research Projects, Pilot Projects, Demonstration, Accompanying Measures)	remains outside EU programmes like H2020 or other financial instruments Assets left : ~ 1.6 billion €, budget of ~ 50 M€ / year, no taxpayer money http://ec.europa.eu/research/industrial_technologies/pdf/rfcs/infopack-2017-en.pdf
European Commission	COSME	COSME supports SMEs to access finance in all phases of their lifecycle – creation, expansion, or business transfer.(easier access to guarantees, loans and equity capital. EU 'financial instruments' are channelled through local financial institutions in EU countries	guarantees, loans and equity capital	https://ec.europa.eu/growth/smes/cosme_en
European Commission	PCP/PPI	PCP: public authorities/sector buy R&D to steer development of solutions adapted to its needs, gather knowledge of alternative solutions, to avoid supplier lock-in PPI: public authorities/sector act as first buyer of products/services newly arriving on the market	1. CCA for tender coordination 2. Cofund (grant) for the procurement implementation (PCP 90% funding rate, PPI 35% funding rate)	http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-e-inproc_en.pdf
Knowledge and Innovation Communities (KICs)	Inno Energy Innovation Projects	Enabling innovation through topical centres (including climate and energy)	Grants and joint venture with InnoEnergy partners and business angels	Related to: <ul style="list-style-type: none"> • Clean coal and gas technologies • Energy storage • Energy efficiency • Energy from chemical fuels • Renewable energies • Smart and efficient buildings and cities • Smart electric grid • Sustainable nuclear and renewable convergence €2.7 billion in 2014–2020 http://www.innoenergy.com/

Table 3. Non-EU funding sources and opportunities

Source	Instrument	Purpose	Form	Comments
National energy R&I programmes	Institutional funding to research-performing entities.	Support research activities within each country.	Grants	Including to EERA members.
	Competitive funding to research-performing entities	Support research activities within each country.	Grants, loans and other financial instruments	RTOs, RPOs, Industry and PMI

	Berlin model	Identify, coordinate and implement joint projects between countries.	National Grants	National support granted in coordinated call procedure, lean governance Anticipates EC confound (to realised yet) https://setis.ec.europa.eu/system/files/20120702SET-PlanSG-BerlinModel.pdf
	ICPEI	Important Projects of Common European Interest are designed to bring together public and private sectors to undertake large-scale projects that provide significant benefits to the Union and its citizens. 4. 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	Mixed	Allow MS to exempt from State Aid Rules Currently planned for CCU http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0620(01)&from=EN
EUREKA	EUREKA NETWORK PROJECTS	Coordination of market-driven innovative research and development projects, labelled by EUREKA and supported by the public administrations and public funding agencies	Mixed: Each partner assures his funding	http://www.eurekanetwork.org/content/eureka-network-projects
	EUREKA CLUSTERS	Long-term and strategically significant initiatives that develop technologies of key importance for European competitiveness. Addressing the needs of both large companies and SMEs, they are the engine for industrial innovation and economic growth. Clusters catalyse the generation of innovative, industry-driven, near to the market and pre-competitive R&D projects in their respective domains. Clusters explore the synergies between industry's research and collaboration interests, innovation capacity - and national funding opportunities	Mixed	Example: EUROGIA2020 aims to support and promote transnational, low carbon energy technology projects. Funding is granted via EUREKA Countries' national programmes. With the assistance of EUROGIA2020 Public Authorities Committee, Project Proposers are informed about the funding possibilities from the beginning of submission process.

COST	COST ACTIONS	COST networking actions have low barrier entry mechanism for researchers in countries at the periphery of the European Union and eligible for spreading excellences. COST is strongly oriented towards spreading excellence, Grants support COST Actions (4 years projects with support comparable to CSA instrument), training academies , short term exchange of scientists. Budget ca. 20 M€/y.	R&D&I nationally funded Coordination costs provided by COST, ca 100.000,- per year and project	http://www.cost.eu/
Other forms of transnational collaboration without EU involvement				JAWG members will collect an inventory of past and ongoing activities of this kind which can be used as a source of inspiration. NECP process may deliver additional information on cooperation potentials, see "Commission non-paper on the Governance Regulation: regional cooperation", WK 11531/2017 INIT

Additional details

- **ERA-Net Co-Funds (Cash)**

✓ ERA-NET Co-funds under Horizon 2020 are designed to support public-public partnerships. The main and compulsory activity of the ERA-NET Co-fund under Horizon 2020 is the implementation of a co-funded joint call for proposals that lead to the funding of trans-national research and/or innovation projects. In addition to the co-funded call, the consortia may implement other joint activities including other joint calls without Union co-funding. The reimbursement rate for ERA-NET Cofund is 33%.

- **ERA-Net Co-Funds (In-kind)**

✓ ERA-NET Co-fund also allows the possibility, when justified by the research area and the underlying national Programmes, for proposals being based on in-kind contributions from their institutional funding. In this case the beneficiaries carry out the transnational projects resulting from their call for proposals themselves. The ERA-NET Co-fund grant reimburses the costs of trans-national projects, implemented by the beneficiaries, on the basis of Horizon 2020 rules for eligible direct and indirect costs. The in-kind contributions are the resources identified as direct expenditure but these are not reimbursed by the Union contribution.

- **InnovFin Energy Demonstration Projects (EDP)**

As part of the response to the need for better financing, the Commission and EIB launched the InnovFin Energy Demonstration Projects (EDP) in June 2015. This new facility provides loans and loan guarantees for first-of-a-kind, commercial-scale industrial demonstration projects in renewables, such as ocean energy and fuel cells.

Context:

- Innovative, first-of-a-kind energy technologies face "**valley of death**" on their way from demonstration to commercialisation.
- SET Plan analysis shows that **EUR 5 to 15 billion** is needed in Europe by 2020 to support first-of-a-kind commercial-scale demonstrators (TRL 7-8) **in renewables and fuel cells and hydrogen alone** (not including other areas).
- Public financing and risk coverage is needed to bridge this gap. The size of many projects is too large to satisfy this demand with grants only.
- Existing InnovFin debt facilities – notably Large Projects and MidCaps – support higher-risk R&D investments but projects have to be 'bankable' (economic, financial and technical viability). EFSI follows similar logic.
- Despite higher risk-taking capacity, no support for commercial-scale demonstrators initially considered non-bankable (technology/market risks too high).

InnovFin (EDP) targetting:

- First-of-a-kind industrial demonstration projects (TRL 7-8)
- Loan amount: **min EUR 7.5m, max EUR 75m**
- Loan maturity: **max 15 years**
- Currency: **EUR and local currency**

Eligibility criteria:

- Projects shall demonstrate for the first time the commercial viability of pre-commercial technologies
- Technologies shall be innovative and not be commercially available yet
- The project has the potential to be replicated elsewhere with convincing market opportunities
- The project should offer prospects for cost-efficient CO2 reduction both in the EU and globally
- The project shall be sufficiently mature for demonstration at the proposed scale (technologies validated and demonstrated through previous testing) with reasonable prospects of success
- The proposed scale of demonstration should be equal to that of future commercial applications or be such that no significant additional problems are to be expected
- At the time the project is included under the facility, the projected start of commercial operation of the whole plant is expected to happen within a period of maximum 4 years
- The project shall have the potential to be or to become bankable by the guarantee release date
- This requirement relates to all aspects of the project that are relevant for future project performance and debt service
- Promoters, sponsors and/or operators must be willing to substantially co-fund the project

The facility will complement existing grant-based programmes, in particular the NER300 programme and its successor, the Innovation Fund, which will draw on an endowment of 400 million emission allowances, an increased co-funding and a scope enlarged also to low carbon innovation in industrial sectors, including for small-scale projects.

- **European Fund for Strategic Investment (EFSI)**

EFSI is an initiative launched jointly by the EIB and the European Commission, using the European Investment Fund, to help overcome the current investment gap in the EU by mobilising private financing for strategic investments. EFSI is one of the three pillars of the **Investment Plan for Europe** that aims to revive investment in strategic projects around Europe to ensure that money reaches the real economy.

EFSI has been integrated into the EIB Group and projects supported by EFSI are subject to the normal EIB project cycle and governance. In addition, EFSI has its own dedicated governance structure which has been set in place to ensure that investments made under EFSI remain focused on the specific objective of addressing the market failure in risk-taking, which hinders investment in Europe. In doing so, EFSI aims to increase the volume of higher risk projects supported by the EIB Group.

- **European Structural and Investment Fund (including ERDF)**

Further down the innovation chain, support can come from the European Structural and Investment Funds (ESIF). For example from the Cohesion Policy funds for the 2014-2020 period, EUR 38 billion has been allocated to investments supporting the shift towards a low-carbon economy; EUR 40 billion for research and innovation; and EUR 33 billion for enhancing the competitiveness of SMEs.

The Commission recently launched a platform to assist Member States and regions in the uptake of Cohesion Policy funds for sustainable energy, including for energy research and innovation. Examples could be the development and equipment of research and innovation infrastructures, and the transfer of knowledge and technologies resulting from Horizon 2020 projects to companies that can develop them further through ESIF funding.

- **NER300**

NER300 is a fund financed from the sale of EU ETS allowances with the aim of supporting large low carbon energy generation and CCS projects. Funds are allocated in an open competition.

NER300 funding varies annually based on industrial take-up and market value of carbon allowances; it is estimated that it would be in the order of **€1 billion** per 12-18 month period. Its continuation is currently uncertain. The entire fund is used for low carbon innovation.

- **NER400 / EU ETS Innovation Fund**

The successor to NER300. The Innovation Fund will draw on an endowment of 400 million emission allowances, an increased co-funding and a scope enlarged also to low carbon innovation in industrial sectors, including for small-scale projects.

- **Connecting Europe Facility / Projects of Common Interest (PCIs)**

✓ To help create an integrated EU energy market, the European Commission has drawn up a list of 195 key energy infrastructure projects known as projects of common interest (PCIs). These are essential for completing the European internal energy market and for reaching the EU's energy policy objectives of affordable, secure and sustainable energy.

✓ PCIs may benefit from accelerated planning and permit granting, a single national authority for obtaining permits, improved regulatory conditions, lower administrative costs due to streamlined environmental assessment processes, increased public participation via consultations, increased visibility to investors and access to financial support totalling €5.35 billion from the Connecting Europe Facility (CEF) from 2014-2020. The funding is intended to speed-up the projects and attract private investors.

✓ To become a PCI, a project must have a significant impact on the energy markets and market integration of at least two EU countries, boost competition on energy markets and boost the EU's energy security by diversifying sources, and contribute to the EU's climate and energy goals by integrating renewables.

✓ The first list of PCIs was published in 2013. The list is updated every two years to integrate newly needed projects and remove obsolete ones. The next PCI list update will take place in 2017.

Joint Programming without European Commission funding

- **The Berlin Model**

Projects are supported by National Funding Agencies (NFAs) and/or private partners. Experience by Germany and others so far, suggests a relatively simple, light touch procedure to identify, co-ordinate and then to implement joint actions between Member States.

Potential project partners from different member states identify a joint research project and present a draft proposal (idea, partners, estimation of the expected costs) to their NFAs respectively for provisional approval and funding allocation. Upon positive evaluation of the draft proposal by all NFAs, project partners submit a full proposal in-line with the different funding rules of the participating countries. Once approved, the joint Call can proceed.

- **KIC Inno-energy**

The Call is looking for applications relating to innovations in KIC InnoEnergy's eight "Thematic Fields":

- Clean coal and gas technologies

- Energy storage
- Energy efficiency
- Energy from chemical fuels
- Renewable energies
- Smart and efficient buildings and cities
- Smart electric grid
- Sustainable nuclear and renewable convergence

- **EUREKA**

EUREKA is a research initiative, not a funding programme. Project partners are responsible for securing the financing of their project. Financial aid may be provided by the nationally responsible body/institution. That's why, within the same project, it is possible that some partners are subsidized, some partners will have to repay loans, and some partners participate on a self-financing basis, the possibilities are:

- Self-financing
- Public grants
- the funding programme Eurostars

- **COST**

COST networking actions have low barrier entry mechanism for researchers in countries at the periphery of the European Union and eligible for spreading excellences. COST is strongly oriented towards spreading excellence, Grants support COST Actions (4 years projects with support comparable to CSA instrument), training academies , short term exchange of scientists. Budget ca. 20 M€/y.