

17 May 2018

Secure, clean and efficient energy

how to find your topic and partners
to join a successful proposal?

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Secure, Clean and Efficient Energy

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This presentation is based on materials from EC and/or Ministries and Agendas of RP



What is Horizon 2020?


Horizon 2020 is the **biggest EU Research and Innovation programme** ever with nearly **€80 billion** of funding available over 7 years (2014 to 2020).

It promises more breakthroughs, discoveries and world-firsts by taking **great ideas from the lab to the market.**



Horizon 2020 is **open to everyone**, with a simple structure that reduces red tape and time so participants can focus on what is really important.

Who can apply?



Consortium - Minimum 3
beneficiaries from 3 different
EU Member States or H2020
associated countries
(AC)



Main project types

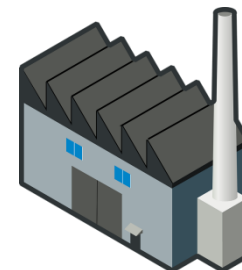
- **Research and Innovation actions (RIA)**

Collaborative research projects



- **Innovation actions (IA)**

Produce plans & arrangements or designs for new, altered or improved products, processes or services



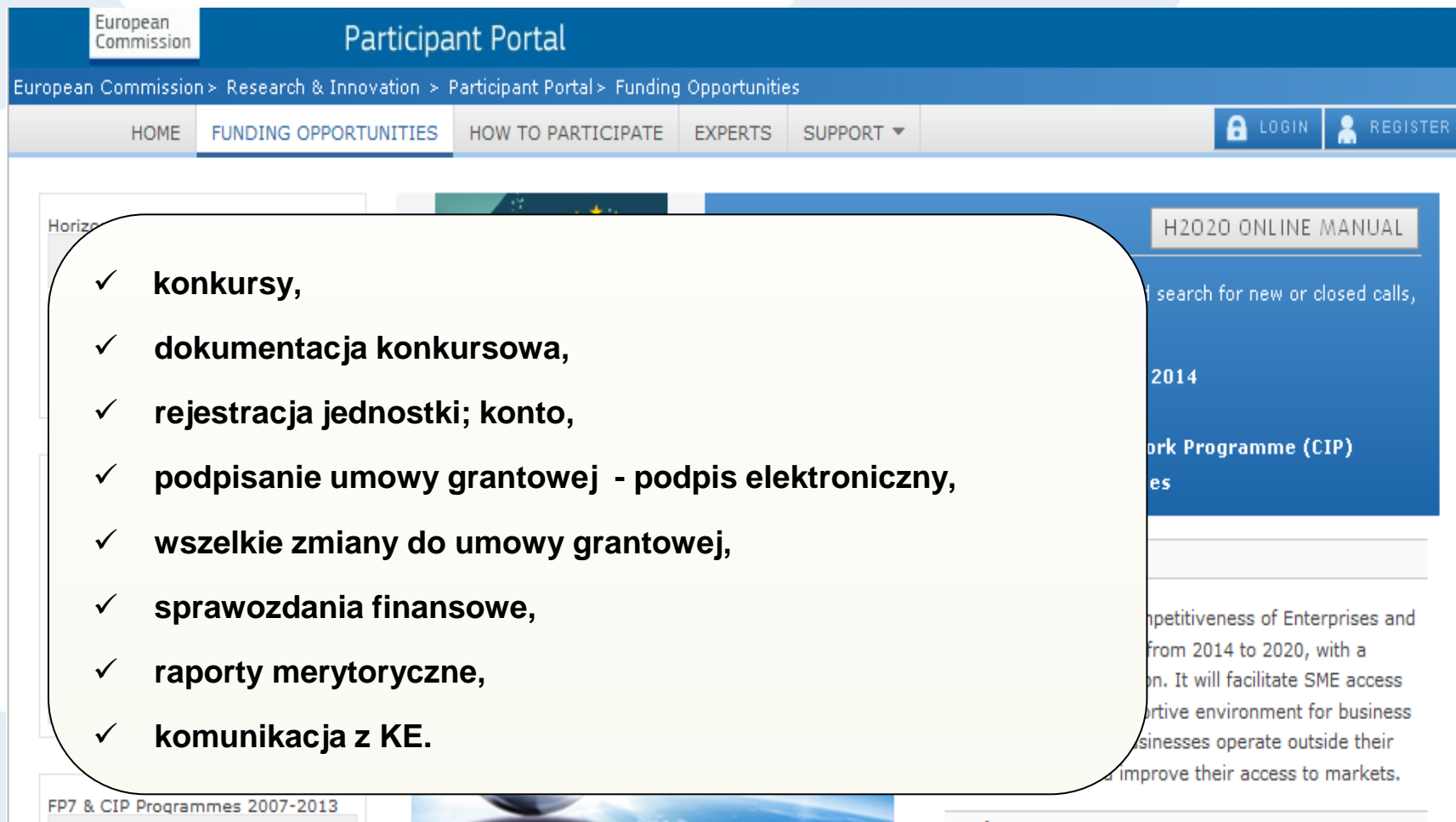
- **Coordination and support actions (CSA)**

Accompanying measures (standardisation, dissemination, policy dialogues etc.) no research



Participant Portal

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/index.html>



European Commission

Participant Portal

European Commission > Research & Innovation > Participant Portal > Funding Opportunities

HOME FUNDING OPPORTUNITIES HOW TO PARTICIPATE EXPERTS SUPPORT

LOGIN REGISTER

Horizon

H2020 ONLINE MANUAL

search for new or closed calls,

2014

Work Programme (CIP)

es

competitiveness of Enterprises and
from 2014 to 2020, with a
on. It will facilitate SME access
ortive environment for business
businesses operate outside their
a improve their access to markets.

FP7 & CIP Programmes 2007-2013

- ✓ konkursy,
- ✓ dokumentacja konkursowa,
- ✓ rejestracja jednostki; konto,
- ✓ podpisanie umowy grantowej - podpis elektroniczny,
- ✓ wszelkie zmiany do umowy grantowej,
- ✓ sprawozdania finansowe,
- ✓ raporty merytoryczne,
- ✓ komunikacja z KE.

HORIZON 2020

THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION



Work Program



EN

Horizon 2020

Work Programme 2016 - 2017

10. 'Secure, Clean and Efficient Energy'

Important notice on the second Horizon 2020 Work Programme

This Work Programme covers: 2016 and 2017. The parts of the Work Programme that relate to 2017 are provided at this stage on an indicative basis. Such Work Programme parts will be decided during 2016.

(European Commission Decision C (2015)6776 of 13 October 2015)



https://ec.europa.eu/research/participants/portal/desktop/en/funding/reference_docs.html#h2020-work-programmes-2018-20

Topic description

LCE-14-2017: Demonstration of large >10MW wind turbine

Specific Challenge: Up-scaling projects often lead to the development of better or less expensive applications for smaller turbines.

EU-funded projects have been working on the design of 10-20 MW wind turbine concepts for some time. The challenge is to demonstrate and construct now a full scale >10MW turbine and provide proof of a significant cost reduction potential.

Scope: The development of large scale (>10MW) turbines will have intrinsically logistical requirements regarding handling, installation, operation and maintenance, constituting a large part of the levelised cost of energy (LCOE). Improved handling (storage, loading, transport, etc.) on land, in the harbours and/or at sea, as well as improved logistics around operations and maintenance have to be taken into account in this innovation action.

TRL 7 shall be achieved at the end of project activities (please see part G of the General Annexes).

Opening the project's test sites, pilot and demonstration facilities, or research infrastructures for practice oriented education, training or knowledge exchange is encouraged. Activities to engage and involve local communities in the innovation action, to further improve social acceptance are encouraged.

The Commission considers that proposals requesting a contribution from the EU of between EUR 20 to 25 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts

Expected Impact: This action will have a positive effect on the cost of energy and offshore wind energy will become more cost-effective. Developing cost-effective and reliable large turbines will contribute to make wind power fully competitive. In 2030 the cost of energy for offshore wind should be reduced at least by 50%. The action will also result in a more effective use of the seas and oceans, and will reduce the time needed for installation, operation and maintenance. The action should contribute to the strengthening the European industrial technology base, thereby creating growth and jobs in Europe.

Type of Action: Innovation action

The conditions related to this topic are provided at the end of this call and in the General Annexes.

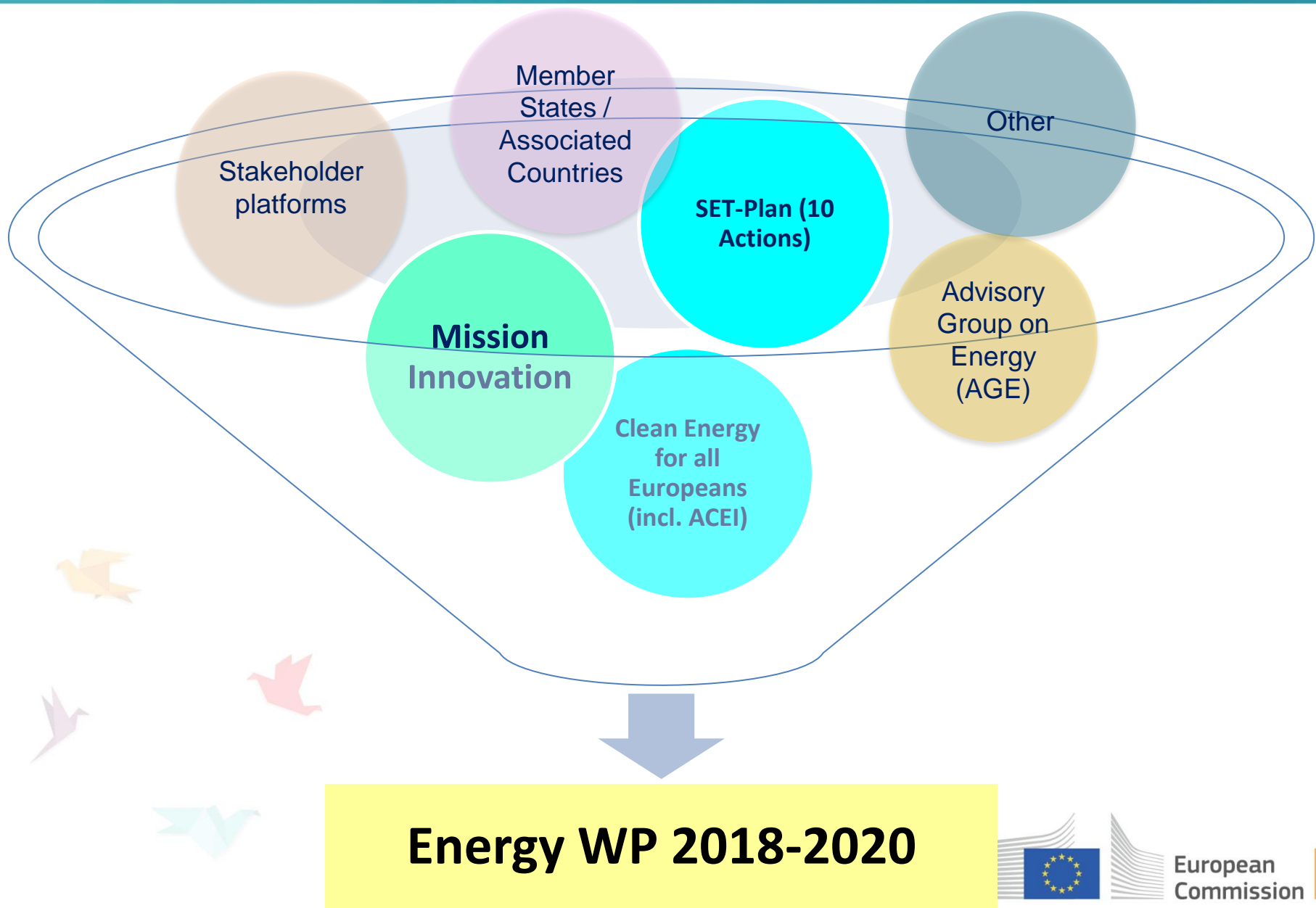
Title & Number

Challenge

Scope

Impact

Inputs to the work programme 2018-2020

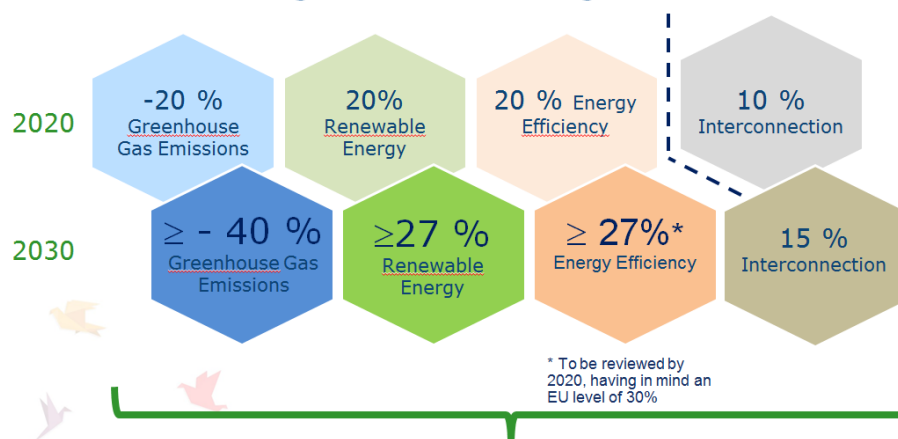




"Clean Energy for all Europeans"

- Putting energy efficiency first
- Demonstrating global leadership in renewables
- Delivering a fair deal for consumers

Agreed headline targets

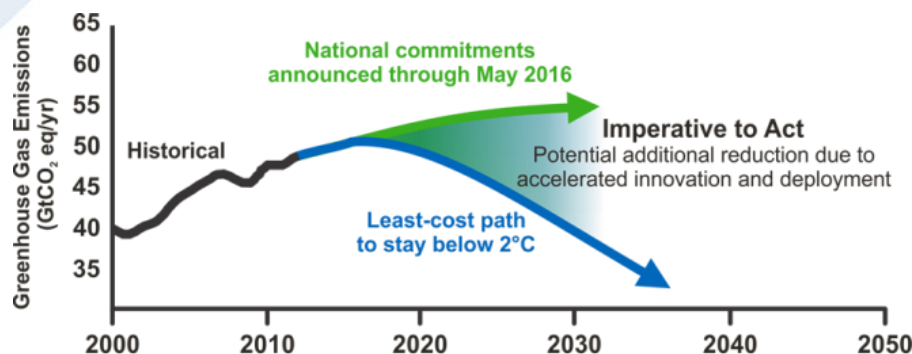


New governance system + indicators

Paris Agreement

Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels

Accelerating, encouraging and enabling innovation is crucial...



Adapted from UNFCCC, Synthesis report of INDCs, May 2016

Other EU policy priorities

- Digital Single Market
- Jobs, Growth and Investments
- EU as a strong global actor
- ...

European
Commission

SET-PLAN

10 RESEARCH AND INNOVATION ACTIONS
ALIGNED TO THE ENERGY UNION OBJECTIVESGLOBAL LEADER
IN RENEWABLESENERGY
EFFICIENCY FIRSTSTRATEGIC
ENERGY
TECHNOLOGY
PLANAn integrated plan to
accelerate the EU energy
system transformation

SMART EU ENERGY

SUSTAINABLE
TRANSPORT

NUCLEAR SAFETY*

CARBON CAPTURE,
STORAGE AND USE

ENERGY UNION

Ensure that Europe has secure,
sustainable, competitive and
affordable energy.Research and
InnovationDevelop highly performant
renewable technologies
integrated in the energy systemReduce cost of key
renewable technologiesCreate new technologies
and services for
consumersIncrease the integration,
security and flexibility of
the energy system

Increase safety

Increase energy
efficiency in buildingsImprove energy
efficiency in industryBecome competitive in
the battery sector for
e-mobility and stationary
storage applicationsStrengthen market take-up
of renewable fuelsStep-up R&I activities
and commercial viability

The European Commission adopted a revised SET-Plan in 2015. It aims at:

- More integrated approach for research and innovation in the field of low-carbon energy,
- Stronger cooperation among the European Commission, EU countries & Iceland, Norway, Switzerland and Turkey, and stakeholders.

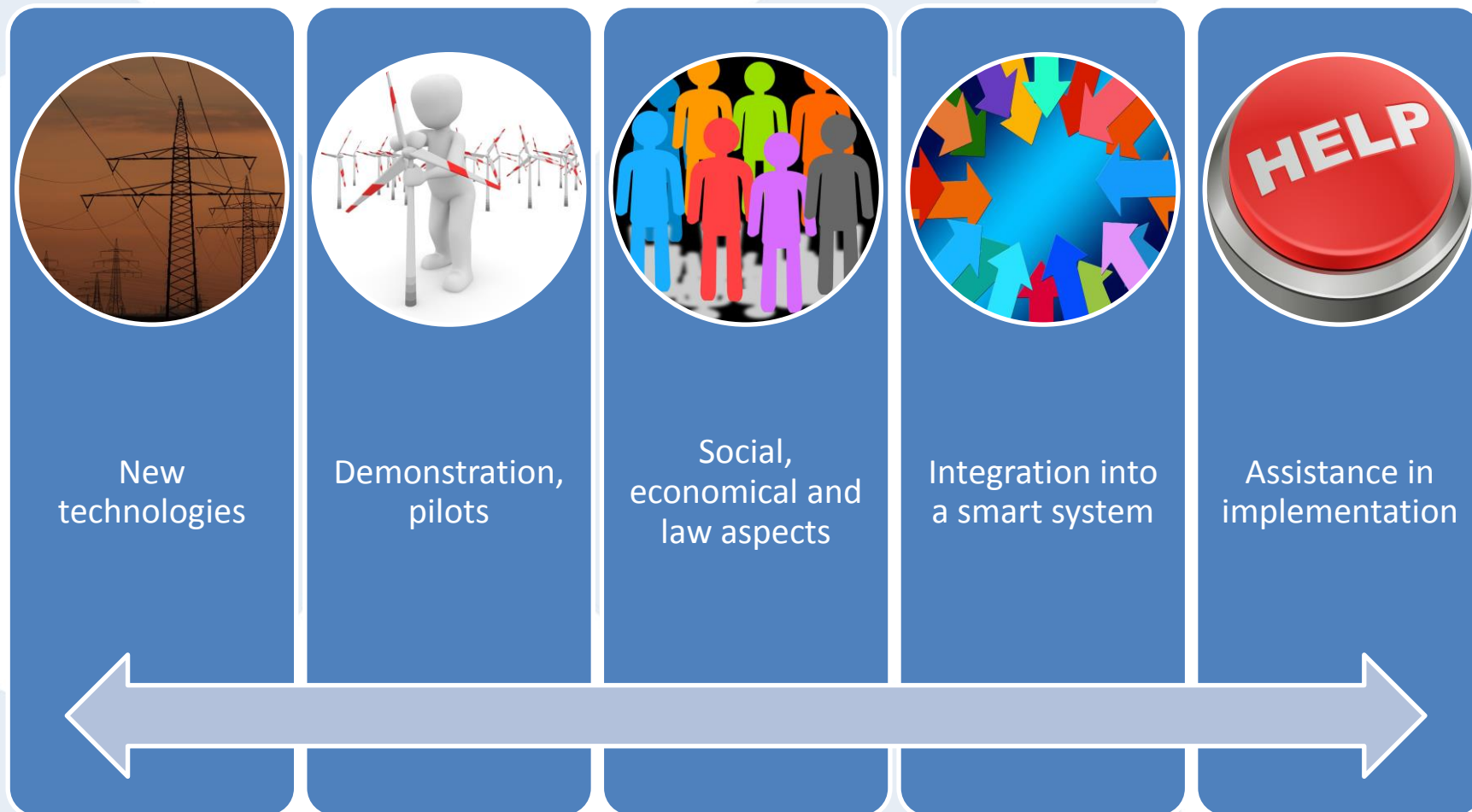
* It should be recalled that financial support (if any) via the Euratom Research and Training Programme is restricted to research addressing safety, waste management, radiation protection as well as education and training, in accordance with the underlying legal framework.

FIND OUT MORE

http://ec.europa.eu/priorities/energy-union-and-climate_en<https://setis.ec.europa.eu/><https://ec.europa.eu/energy/en/topics/technology-and-innovation/strategic-energy-technology-plan>

© European Union, 2016

System approach

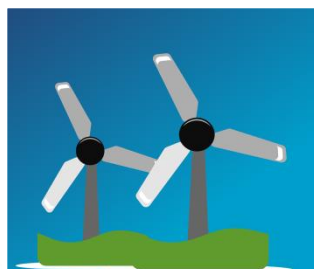


Calls for proposals

LC-SC3-2018-2019-2020



Energy efficiency 192 M€*



Global leadership in renewables 445 M€*



Smart and clean energy for consumers 20 M€*



Smart citizen-centred energy system 176 M€*



Smart Cities and Communities 110 M€*



Near-zero CO₂ emissions (fossil fuel power plants and carbon intensive industries) 88 M€*



Joint Actions 52 M€*



Cross-cutting issues 42 M€*

* Budget figures for 2018-2019 only (2020 to be confirmed at a later stage)



Energy Efficiency

25.01.2018 – 4.09.2018

- **EE-1-2018-2019: Decarbonisation of the EU building stock: innovative approaches and affordable solutions changing the market for buildings renovation (IA)**

Deep renovations need to become more attractive, innovations in technology and in design and construction methods, but also in business models

- **EE-2-2018-2019: Integrated home renovation services (CSA)**

Create or replicate innovative local or regional "integrated home renovation services" covering the whole "customer journey,,.

- **EE-5-2018-2019: Next-generation of Energy Performance Assessment and Certification (CSA, IA)**

Stimulate and enable the roll-out of next-generation of energy performance assessment and certification





Energy Efficiency

25.01.2018 – 4.09.2018

- **EE-13-2018-2019: Enabling next-generation of smart energy services valorising energy efficiency and flexibility at demand-side as energy resource (CSA)**
concepts and business models for new types of energy services integrating energy efficiency with other energy services (flexibility, distributed generation etc.) and non-energy services (comfort, safety, health)
- **EE-6-2018-2019: Business case for industrial waste heat/cold recovery (IA, CSA)**
Cost-benefit models for industrial waste heat/cold recovery - develop and demonstrate integrated cost-benefit simulation tools that can determine the best utilisation options of recovered waste heat/cold and/ or surplus renewable energy from industrial and eventual other sources
- **EE-8-2018-2019: Capacity building programmes to support implementation of energy audits (CSA)**
Develop staff trainings and capacity building programmes, facilitating SMEs to undergo energy audits and to implement the recommended energy-saving measures
Capacity building to support the take-up of audits recommendations for Large companies
Initiatives supporting Member States in empowering or establishing national supporting schemes for SMEs



Energy Efficiency

25.01.2018 – 4.09.2018

- **EE-9-2018-2019: Innovative financing for energy efficiency investments (CSA)**

innovative regional/national financing schemes to create the conditions for adequate supply of private finance for energy efficiency investments and maximise leverage ratio of private finance to public funds

- **EE-10-2018-2019: Mainstreaming energy efficiency finance (CSA)**

frameworks for the standardisation and benchmarking, capacity building for banks and investors, large-scale data on actual financial performance

- **EE-11-2018-2019: Aggregation - Project Development Assistance (CSA)**

Project Development Assistance (PDA) to build technical, economic and legal expertise of public and private project promoters, with the final aim of launching concrete investments





Energy Efficiency

25.01.2018 – 4.09.2018

- **EE-14-2018-2019: Socio-economic research conceptualising and modelling energy efficiency and energy demand (RIA)**
Conceptualise the energy efficiency first principle, assess and quantify its impacts, in particular as regards: its role and value in the energy system and energy market; its role and value in financing decisions; its economic and social impacts; its correlation and interaction with other policy objectives; existing best practices worldwide.
- **EE-15-2018: New energy label driving and boosting innovation in products energy efficiency (CSA)**
Rescaling of current energy labels, capacity of manufacturers and retailers , awareness-raising and information campaigns, best practices
- **EE-16-2018-2019: Supporting public authorities to implement the Energy Union (CSA)**
Implementation and effective monitoring, Support to local and regional public authorities



Global leadership in renewables

Technology area	Research activities (RIA)	Innovation activities (IA)
Solar energy (PV, CSP)	RES-1-2019, RES-2-2018, RES-4-2018, RES-7-2019, RES-11-2018, RES-14-2019	RES-6-2018, RES-8-2019, RES-13-2018, RES-15-2019, RES-17-2019
Wind energy	RES-1-2019, RES-4-2018, RES-11-2018	RES-13-2018
Ocean energy	RES-1-2019, RES-11-2018, RES-14-2019	
Biofuels / alternative fuels	RES-1-2019, RES-2-2018, RES-16-2019, RES-21-2018, RES-23-2019	RES-17-2019, RES-22-2018, RES-24-2019
Geothermal energy	RES-1-2019, RES-4-2018, RES-11-2018, RES-14-2019	RES-8-2019, RES-13-2018
Heating / cooling, CHP	RES-1-2019, RES-4-2018, RES-11-2018	RES-5-2018, RES-8-2019, RES-12-2018
Hydro energy	RES-1-2019, RES-11-2018, RES-16-2019,	RES-17-2019
Virtual Power Plant	RES-16-2019	

- Topics for 2018 in black font; for 2019 in purple font; topics for 2020 not included (added as of mid-2018)
- Market-uptake activities (CSA, RES-28) cover all areas



Global leadership in renewables

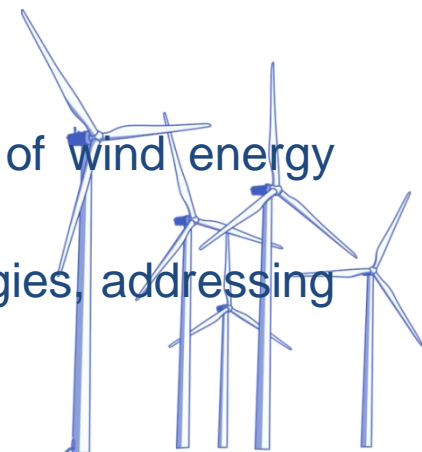
01.08.2018 – 16.10.2018 – I STAGE

- LC-SC3-RES-1-2019-2020: Developing the next generation of renewable energy technologies (RIA)**

bring to TRL 3 or TRL 4, development of the technology, the potential lower environmental and climate impact on a life cycle basis, the better resource efficiency, issues related to social acceptance or resistance to new energy technologies, related socioeconomic and livelihood issues.

One of sub-topics:

- new energy technologies that will form the backbone of the energy system by 2030 and 2050
- Innovative materials for geothermal heat exchangers
- Innovative testing methods and design tools for acceleration of wind energy technology development and increased life time extension
- Sustainable fuel through ground-breaking conversion technologies, addressing for example development of novel microorganisms, enzymes,...
- Innovative very high efficiency thin-film photovoltaics concepts





Global leadership in renewables

01.08.2018 – 16.10.2018 – I STAGE

- **LC-SC3-RES-14-2019: Optimising manufacturing and system operation (RIA)**

Renewable electricity technologies still require optimisation in several key processes

One of the following sub-topics:

- Monitoring system for marine energy
- Geothermal fluids
- Photovoltaics



Improved performance of manufacturing processes and system operation is expected to lead to increased efficiency of the system and/or reduced operational costs of the renewable technologies.



Global leadership in renewables

NABÓR: 05.09.2018 – 11.12.2018

- **LC-SC3-RES-15-2019: Increase the competitiveness of the EU PV manufacturing industry (IA)**

Demonstrating manufacturing innovation as well as product innovation for highly performing PV technologies, pilot-line level, potential to be scaled up

- **LC-SC3-RES-17-2019: Demonstration of solutions based on renewable sources that provide flexibility to the energy system (IA)**

Increase the potential of renewable dispatchable technologies in providing flexibility to the energy system, choice between:

- *Intermediate bioenergy carriers*
- *Hydropower*
- *Thermal energy storage in Concentrated Solar Power (CSP) plants*

- **LC-SC3-RES-24-2019: Boosting pre-commercial production of advanced aviation biofuels**

Pre-commercial production of sustainable and cost-competitive advanced biofuels
large-scale production of aviation biofuels from non food/feed sustainable feedstock according to international aviation fuel standards





Global leadership in renewables

NABÓR: 05.09.2018 – 11.12.2018

- **LC-SC3-RES-8-2019: Combining Renewable Technologies for a Renewable District Heating and/or Cooling System (IA)**

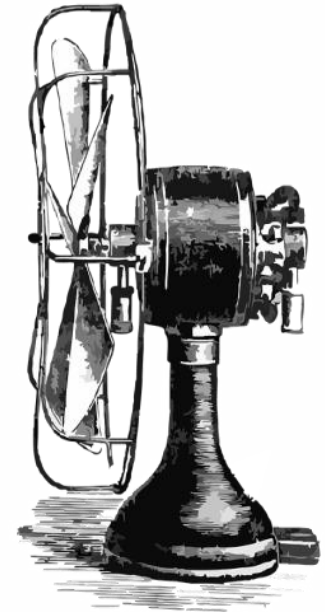
Cost-effective solutions for district heating and/or cooling systems at least 50% of the energy demand - renewable energy technologies.

The integration of sources of otherwise wasted excess heat is in the scope.

engage operators and final users

- **LC-SC3-RES-28-2018-2019-2020: Market Uptake support (CSA)**

solutions which can be easily implemented for overcoming barriers to the broad deployment of renewable energy solutions - recommendation for harmonisation of regulations, life cycle assessment approaches, sharing of best practice, insurance schemes, innovative financing mechanisms





Smart and clean energy for consumers

25.01.2018 – 4.09.2018

- **EC-1-2018-2019: The role of consumers in changing the market through informed decision and collective actions**

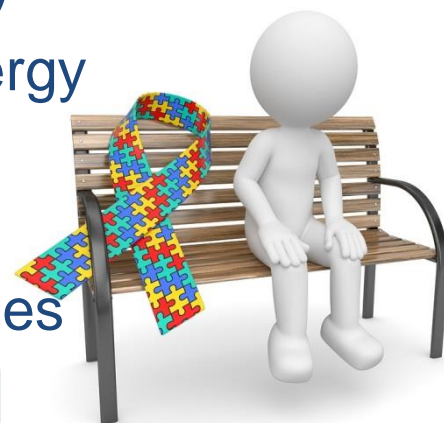
Activities informing and motivating consumers to change old and inefficient installed appliances with the highest energy saving potential to more efficient and clean energy heating and/or cooling solutions

- **EC-2-2018-2019: Mitigating household energy poverty**

better understanding of the types and needs of energy poor households

behaviour change

set-up of financial and non-financial support schemes





Smart citizen-centred energy system

5.09.2018 – 5.02.2019

- **LC-SC3-ES-1-2019: Flexibility and retail market options for the distribution grid (IA)**
integrated solutions – allow the distribution grid to function in a secure and stable manner with large shares of variable renewables, Flexibility measures demand response, Smart grids technologies, market tools
- **LC-SC3-ES-2-2019: Solutions for increased regional cross-border cooperation in the transmission grid (IA)**
demonstrate integrated hardware and software solutions for cross border flows in the transmission grid in a regional context
- **LC-SC3-ES-6-2019: Research on advanced tools and technological development (RIA)**
modelling and forecasting energy production design and planning and operation of electricity grid infrastructure Enhanced TSO / DSO collaboration and coordination tools new generation of reliable, robust and cost-effective energy storage technologies
- **LC-SC3-ES-8-2019: European Islands Facility - Unlock financing for energy transitions and supporting islands to develop investment concepts**
set up and run a 'European Islands Facility' which offers expertise and/or financial support and services to islands



Smart cities

5.09.2018 – 5.02.2019

LC-SC3-SCC-1-2018-2019-2020: Smart Cities and Communities

COP21, EU Energy/Climate goals → Necessary energy transition in cities

- **Goal:** Positive Energy Districts
- Deploy and test integrated innovative solutions for Positive Energy Blocks/Districts in the Lighthouse Cities
- Interaction and integration between the buildings, the users and the larger energy system
- Implications of increased electro-mobility, its impact on the energy system and its integration in planning
- Consortia shall be composed of **2 lighthouse cities** and **at least 5 follower cities**



2014

GROWSMARTER

Köln, Barcelona, Stockholm
& Graz, Cork, Valletta, Porto, Suceava

REMOURBAN

Valladolid, Tepebasi, Nottingham
& Seraing, Miskolc

TRIANGULUM

Eindhoven, Stavanger, Manchester
& Prague, Leipzig, Sabadell

2015

REPLICATE

San Sebastián/Donostia, Firenze, Bristol
& Lausanne, Essen, Nilüfer

SHAR-LLM

Milano, Lisboa, London (Greenwich)
& Burgas, Bordeaux, Warsaw

SMARTENCITY

Sønderborg, Tartu, Vitoria/Gasteiz
& Asenovgrad, Lecce

SMARTER TOGETHER

Wien, München, Lyon
& Sofia, Santiago de Compostela, Venezia, Yokohama, Kiev

2016

mySMARTlife

Hamburg, Helsinki, Nantes
& Varna, Palencia, Rijeka, Bydgoszcz

RUGGEDISED

Rotterdam, Umea, Glasgow
& Brno, Parma, Gdansk

2017

STARDUST

Pamplona, Tampere, Trento
& Cluj-Napoca, Derry, Kozani, Litoměřice

IRIS

Utrecht, Göteborg, Nice Côte d'Azur
& Vaasa, Alexandroupolis, Santa Cruz de Tenerife, Focsani

MatchUP

Valencia, Dresden, Antalya
& Ostend, Herzliya, Skopje, Kerava



➤ Collaboration in the Lighthouse Collaboration Network - specific task groups on common topics (e.g. replication, business models, dissemination)



Near-zero CO2 emissions (fossil fuel power plants and carbon intensive industries)

15.05.2018 – 6.09.2018

- **LC-SC3-NZE-1-2018: Advanced CO2 capture technologies (RIA)**
 - Pilot demonstration of advanced technologies or processes for CO2 capture that have a high potential for reduction of the energy penalty and cost
- **CE-SC3-NZE-2-2018: Conversion of captured CO2 (RIA)**
 - Development of energy-efficient, economically and environmentally viable CO2 conversion technologies for chemical energy storage or fossil fuel displacement
 - Solutions should allow for upscaling in the short to medium term
- **LC-SC3-NZE-3-2018: Strategic planning for CCUS development (CSA)**
 - Elaboration of detailed plans for CO2 gathering networks, industrial clusters and storage sites
 - Identification of transport corridors
 - Develop local business models within promising start-up regions



Joint Actions

Cross-cutting issues

15.05.2018 – 6.09.2018

- **CC-2-2018: Modelling for the transition to a Low-Carbon Energy System in Europe**
 - Better representation of future aspects, greater transparency of tools and the role of specific actors,
- **CC-1-2018-2019-2020: Social Science and Humanities (SSH) aspects of the Clean-Energy Transition**
 - Social innovation in the energy sector, including with respect to urban areas
- **CC-5-2018: Research, innovation and educational capacities for the energy transition**
 - Renewable energy, Energy storage, Smart and flexible energy systems, Carbon capture, utilisation and storage (CCUS) in
 - combination with relevant social sciences and humanities disciplines
- **CC-6-2018: Transition in coal-intensive regions**
 - Support regional actors in developing R&I strategies for smart specialisation
 - Investigate social challenges including re-skilling of workforce

Energy in other parts of HORIZON2020

Transport

- User centric charging infrastructure

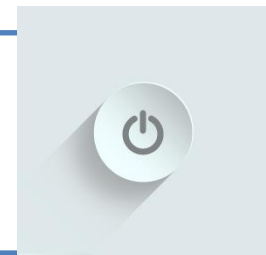


Security

- Cybersecurity in the Electrical Power and Energy System (EPES): an armour against cyber and privacy attacks and data breaches

ICT

- Interoperable and smart homes and grids
- Big data solutions for energy



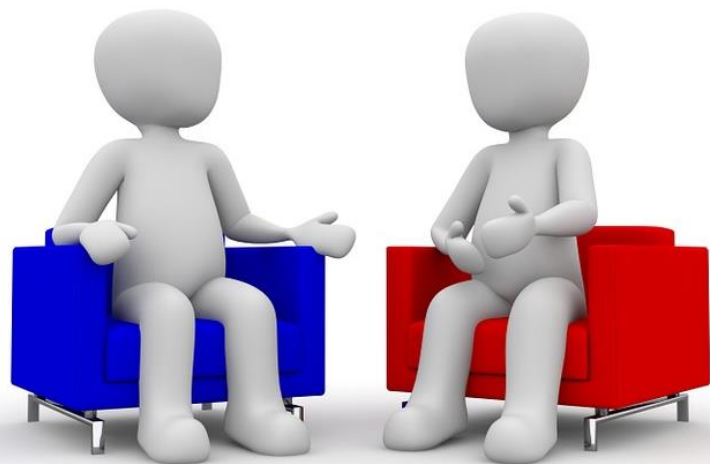
& other...



Find consortium



Use your contacts



Technology platforms



Partner search

Topic conditions and documents

+ More

1. Eligible countries: described in [Annex A](#) of the Work Programme.

A number of non-EU/non-Associated Countries that are not automatically eligible for funding have made specific provisions for making funding available for their participants in Horizon 2020 projects.

Partner Search

5

Organisations are looking for collaborating partners for this topic

[VIEW/EDIT PARTNER SEARCH](#)

LEARs, Account Administrators or self-registrants can publish partner requests for open and forthcoming topics after logging into the Participant Portal.

Legend



Contact Organisation



Partner search details

Show 10

entries

Search:

REQUEST DATE	ORGANISATION NAME	ORGANISATION TYPE	COUNTRY	EXPERTISE REQUEST OR OFFER	ACTIONS
23 Feb 2018	HAPTIC R&D CONSULTING SRL	Small or medium-size enterprise	RO	Expertise offer	
Connection to create a synergy business bridge between SME's companies and R&D laboratories to merge together in innovation projects for transfer technology from lab to market.					
15 Feb 2018	CIM-MES PROJEKT SP ZOO	Small or medium-size enterprise	PL	Expertise offer	
We are engineering company including energy sector. Our expertise includes heat storage, heat distribution and related EMS development. Specific experience is optimized EMS for heat storage (STES) and industrial waste heat EMS including					

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics>

Partner search



<http://www.partnersearch.c-energy2020.eu/>

Entries

Date	Topics	Type	
11/24/2017 20:34:24	LC-SC3-RES-13-2018	Offer	SHOW
11/24/2017 11:41:00	LC-SC3-EE-17-2019 LC-SC3-RES-1-2019-2020 LC-SC3-RES-4-2018 LC-SC3-RES-5-2018	Offer	SHOW
11/09/2017 13:33:33	LC-SC3-RES-6-2018	Offer	SHOW



Take away

1. International cooperation
2. Innovative ideas



Think about **HORIZON2020**



Read the topics



Ask National Contact Point (NCP)

http://ec.europa.eu/research/participants/portal/desktop/en/support/national_contact_points.html



CONTACT

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