



## Societal Challenge 3 – **Secure, Clean and Efficient** Energy

- Setting
- Overview of new workprogramme
- Areas of interest
- Euratom

**NCP**  
**Philip Cheasty**  
**Enterprise Ireland**

**National Delegate**  
**Phil Hemmingway**  
**SEAI**



# H2020 Energy so far

- Double FP7 funding
- 10 Coordinators, 80 or so partners
- Success areas:
  - Integrated EU Energy System (6% of budget 2017)
    - EUSysFlex Eirgrid
    - FLEXITRANSTORE Smart Wires Europe
  - Ocean Energy
    - TAOIDE ORPC,UCC, LYIT
- Energy projects in SME instrument and Fast Track to Innovation.
- Not so Good - EE versus LCE. Have we lost the IEE participants?



## Societal Challenge 3 – **Secure, Clean and Efficient** Energy

### **Policy Driver**

Formulation of the energy challenge under Horizon 2020 principally based on the Strategic Energy Technology Plan – so called **SET Plan**.

- Reducing energy consumption and carbon footprint
- Low-cost, low-carbon electricity supply
- Alternative fuels and mobile energy sources
- A single, smart European electricity grid
- New knowledge and technologies
- Robust decision making and public engagement
- Market uptake of energy and ICT innovation



## European Technology and Innovation Platforms (ETIPs)

e.g.

ETIP Wind

ETIP PV

Ocean Energy Europe

The European Energy Research Alliance (EERA) - technology transfer to the industry.

17

e.g. - Ocean Energy

- Energy Systems Integration

<https://setis.ec.europa.eu/>

Energy Union <i>Research, Innovation and Competitiveness Priorities</i>		SET-Plan 10 Key Actions
No1 in Renewables		<ol style="list-style-type: none"> <li>1 Performant renewable technologies integrated in the system</li> <li>2 Reduce costs of technologies</li> </ol>
Consumers in the Energy System		<ol style="list-style-type: none"> <li>3 New technologies &amp; services for consumers</li> <li>4 Resilience &amp; security of energy system</li> </ol>
Efficient Energy Systems		<ol style="list-style-type: none"> <li>5 New materials &amp; technologies for buildings</li> <li>6 Energy efficiency for industry</li> </ol>
Sustainable Transport		<ol style="list-style-type: none"> <li>7 Competitive in global battery sector and e-mobility</li> <li>8 Renewable fuels and bioenergy</li> </ol>
Carbon Capture Utilisation and Storage		<ol style="list-style-type: none"> <li>9 Carbon Capture Storage / Use</li> </ol>
Nuclear Safety		<ol style="list-style-type: none"> <li>10 Nuclear safety</li> </ol>



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## Smart Solutions for Consumers

Consultation process, calls, public and organisational inputs.

SET Plan–**Declaration of Intent** on Strategic Targets in the context of an Initiative for Smart solutions for energy consumers

A prerequisite for energy service providers and operators to exploit these smart technologies and provide value-added services **that empower consumers .....**

In addition, the development of these smart energy solutions should be performed together with inclusive strategies to engage consumers and **not be two separate independent processes.**



## **Smart Solutions for Consumers: declaration of intent**

### Targets:

- Demonstration and application of an interoperable reference architecture and a set of open interface standards as soon as possible, so that they will be the default architecture and standards that are used by new services by 2020.
- Better use of the data coming from devices and systems
- Improve the performance of the tools for forecasting the electricity consumption of the smart home
- Installation and maintenance should have a pay - back period of maximum 3 years;
- These solutions should meet the following conditions: - Proof of acceptance of services by EU - wide representative consumers

### Consulted examples

BEUC – The European Consumers Organisation

Joint Programme on economical, environmental and social impacts



# SET Plan Key Action

## Smart Solutions for Consumers

### In H2020 Energy WP?

LC - SC3 – RES – 4 - 2018: Renewable energy system integrated at the building scale - **Research topic**.

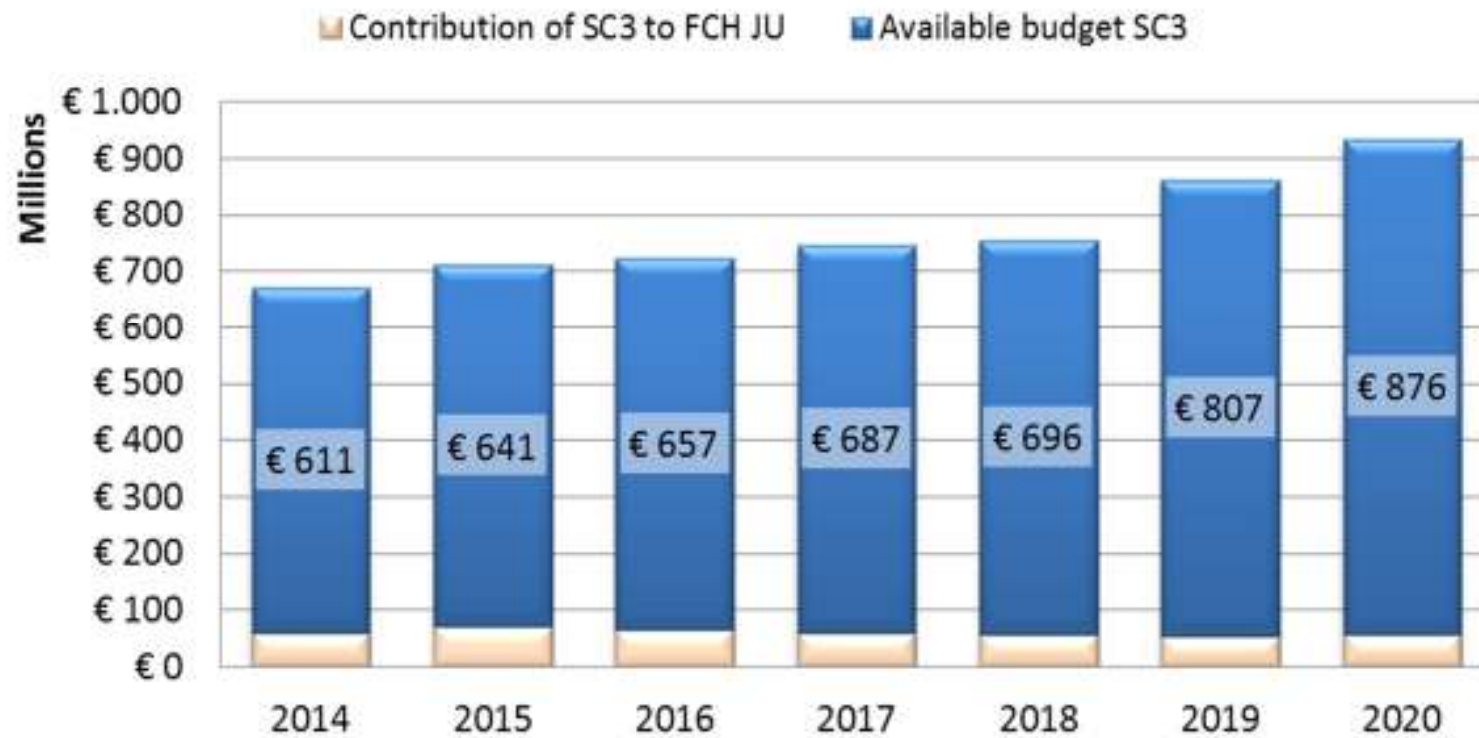
“Since the final application will be operated by users and installed by installers, their needs and requirements (e.g. in terms of space that the users are willing to provide for the installation of the different components of the system) shall be taken into account and **the relevant expertise in terms of social sciences and humanities has to be included** in the consortium”





# Energy 2018-2020

Available budget of the H2020 Energy Challenge (mio €)





# Energy 2018-2020

<b>Energy Efficiency</b>	<b>Renewables</b>	<b>Energy System</b>
Buildings	Research – Demo – Networking projects in all renewable Technology areas with consumer focus.	Grid Integration – tools, storage and digitisation targeting islands and larger networks.
Industry and Services		
Finance models		
<b>Consumers</b>	<b>Smart Cities</b>	<b>Carbon Intensive Industry</b>
<b>Joint Actions</b>	<b>Cross Cutting</b>	
<b>Elsewhere?</b>		



## Energy 2018-2020 Energy Efficiency

17 Topics – 11 are CSA's Coordination and Support Actions.

Buildings - Industry and Services - Finance models

Topics reflect past Intelligent Energy Europe (IEE) programme with Market Uptake focus

LC-SC3-EE-5-2018-2019-2020 Next-generation of Energy Performance Assessment and Certification. (EeB PPP). **CSA in 2018.**

Assessment processes and certificates have to become more reliable, user-friendly, cost-effective, have comparable good quality and be compliant with EU legislation in order to instil trust in the market and incite investments in energy efficient buildings.

- Primary energy savings triggered by the project (in GWh/year);
- Investments in sustainable energy triggered by the project (in million Euro);<sup>11</sup>



# Energy 2018-2020

## Energy Efficiency

17 Topics – 4 are IA's Innovation Actions. – Linked to EeB and SPIRE  
– 1 is an RIA Research & Innovation Actions.

LC-SC3-EE-1-2018-2019-2020	Decarbonisation of the EU building stock: innovative approaches and affordable solutions changing the market for buildings renovation. <b>EeB.</b>	IA	to TRL8-9	04 Sept 2018
LC-SC3-EE-14-2018-2019-2020	Socio-economic research conceptualising and modelling energy efficiency and energy demand.	RIA		04 Sept 2018

Energy Efficiency was recognised as a resource in its own right which should be enabled to compete on equal terms with generation capacity and to have primary consideration across all policies

Removing barriers preventing energy efficiency improvements;



# Energy 2018-2020

## Global leadership in Renewables

- 28 Topics – 9 are IA's Innovation Actions. –
- 9 are RIA's Research & Innovation Actions.
- 1 CSA

2020 Topics not yet assigned action type.

4 RIA's are 2 Stage. These are low TRL

LC-SC3-RES-11-2018	Developing solutions to reduce the cost and increase performance of renewable technologies. <b>2 STAGE</b>	RIA	TRL3-4 to TRL4-5	31 Jan 2018 Stage 1	€2- 5m.
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Wind, Ocean, Geothermal, CSP, Hydropower, Bioenergy

Other 3 topics cover

Res1 2019: Next Generation RE technologies

Res4 2018: RE System integrated at the building scale

Res14 2019: Optimising Manufacturing and System operation

(Marine Energy, Geothermal fluids, PV)



# Energy 2018-2020

## Global leadership in Renewables

28 Topics – 9 are IA's Innovation Actions.

Increased performance – significant cost reduction – significantly reduce the cost, increase the competitiveness.

LC-SC3-RES-13-2018	Demonstrate solutions that significantly reduce the cost of renewable power generation. <i>Offshore wind/deep geothermal/CSP</i>	IA	TRL5 to TRL7	13 Feb 2018	€15-20m
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### Offshore wind

Focus will be on the development and validation of new manufacturing, installation and/or operation and maintenance techniques, introduction of new materials. The whole value chain, including dismantling, recycling and retrofitting procedures, will be involved to avoid over-engineering. Issues for improved production will be identified. *All aspects of health and environmental impact issues will be taken into account.*



# Energy 2018-2020

## Global leadership in Renewables

### SET-Plan 10 Key Actions - Renewable Fuels and Bioenergy

**Declaration of Intent:** Sustainable transport section states

“For advanced biofuels and renewable fuels should be within a reasonable margin from parity with the fossil based fuels. They should aim to be in parity with fossil fuel prices in 2030”.

LC-SC3-RES-21-2018	Development of next generation biofuels and alternative renewable fuel technologies for <b>road transport</b>	RIA	TRL3-4 to TRL5	13 Feb 2018	€3-5m
LC-SC3-RES-22-2018	Demonstration of cost effective advanced biofuel pathways in retrofitted existing industrial installations	IA	TRL5 to TRL7	05 Apr 2018	€8-10m
LC-SC3-RES-23-2019	Development of next generation biofuel and alternative renewable fuel technologies for <b>aviation and shipping</b> .	RIA	TRL3 to TRL5	27 Aug 2019	€3-5m
LC-SC3-RES-24-2019	Boosting pre-commercial production of <b>advanced aviation</b> biofuels.	IA	TRL5 to TRL7	11 Dec 2018	€15-20m



# Energy 2018-2020

## Smart and Clean Energy for Consumers

LC-SC3-EC-1-2018-2019-2020	The role of consumers in changing the market through informed decision and collective actions.	CSA		04 Sept 2018	€1-2m
LC-SC3-EC-2-2018-2019-2020	Mitigating household energy poverty.	CSA		04 Sept 2018	€1-2m
LC-SC3-EC-3-2020	Consumer engagement and demand response				

### EC-2

Facilitate behaviour change and implementation of low-cost energy efficiency measures tailored for energy poor households (e.g. provision of information and advice, energy efficiency services such as draught proofing or optimisation of existing building technology systems, as well as energy efficiency devices & kits such as low - energy lighting);

Support the set-up of financial and non-financial support schemes for energy efficiency and/or small scale renewable energy investments for energy poor households.





## Energy 2018-2020 Smart citizen-centred energy system

2014-2015 Modernising the European electricity grid.

2016-2017 Towards an Integrated EU Energy system.

2018-2020 **Smart citizen-centred energy system**

The EU's energy policy package "Clean Energy for all Europeans" (adopted by the Commission on 30 November 2016) puts the citizen in the centre of the EU's energy system.

**BRIDGE initiative** which integrates and structures feedback of projects along, for the time being, four lines:

1. Business models
2. Customer engagement
3. Data management
4. Regulation



## Energy 2018-2020 Smart citizen-centred energy system

LC-SC3-ES-1-2019	Flexibility and retail market options for the distribution grid.	IA	TRL5-8	05 Feb 2019	€6-8m
LC-SC3-ES-2-2019	Solutions for increased regional cross-border cooperation in the transmission grid.	IA	TRL5-8	05 Feb 2019	€8-10m
LC-SC3-ES-3-2018-2020	Integrated local energy systems (Energy islands).	IA	TRL5-8	05 Apr 2018	€5-6m
LC-SC3-ES-4-2018-2020	Decarbonising energy systems of geographical Islands.	IA	TRL5-8	05 Apr 2018	€7-10m
LC-SC3-ES-5-2018-2020	TSO – DSO – Consumer: Large-scale demonstrations of innovative grid services through demand response, storage and small-scale (RES) generation.	IA	TRL5-8	05 Apr 2018	€13-17m
LC-SC3-ES-6-2019	Research on advanced tools and technological development.	RIA	TRL5-8	05 Feb 2019	€2-4m.



Smart Cities and Communities

LC-SC3-SCC-1-2018-2019-2020	Smart Cities and Communities. 2 Lighthouse Cities	IA	05 Feb 2019	€15-20m.
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Enabling near-zero CO2 emissions from fossil fuel power plants and carbon intensive industries

LC-SC3-NZE-1-2018	Advanced CO2 capture technologies	RIA	to TRL5-7	06 Sept 2018	€5-10m
CE-SC3-NZE-2-2018	Conversion of captured CO2	RIA	to TRL3-4 TRL5-6	06 Sept 2018	€3-4m

Innovation actions on Fossil fuel plants (flexible operation) and CCUS in 2019.

CCUS Pilot 2020



**Cross-cutting issues**

LC-SC3-CC-1-2018-2019-2020:	Social Sciences and Humanities (SSH) aspects of the Clean-Energy Transition.	RIA	06 Sept 2018	€1-3m
LC-SC3-CC-2-2018	Modelling in support to the transition to a Low-Carbon Energy System in Europe	RIA	06 Sept 2018	€4-5m

**CC1**

In 2018, proposals should be submitted under the theme "Social innovation in the energy sector" and in 2019 under the theme "Challenges facing carbon intensive regions".

Provide a better understanding of socioeconomic, gender, sociocultural, and socio-political factors and their interrelations with technological, regulatory, and investment-related aspects, in support of the goals of the Energy Union and particularly its research and innovation pillar;



50 or so Energy related topics across the various Workprogrammes.

NMPB EeB Topics. Smart materials, Plus energy houses, Integrated storage, Materials for offshore energy.

The Energy Challenge contributes to the Focus Area "**Digitising and transforming European industry and services**"

DT-ICT-10-2018: Interoperable and smart homes and grids;

DT-ICT–11-2019: Big data solutions for energy.

In addition, the Energy Challenge contributes to the focus area "**Boosting the effectiveness of the Security Union**'

SU-DS-04-2018-2020: Cybersecurity in the Electrical Power and Energy System (EPES): an armour against cyber and privacy attacks.



# Proposal problems

Where do proposals fall down?

- Section 3. Implementation. No negotiations.
- Risk table.
- Not enough Energy?
- CSA's need wide impact for Numbers of people addressed, Standards addressed and policies influenced.
- Justification of targets – “Finally, proposals will also include ad-hoc indicators to measure the progress against specific objectives of their choice which could be used to assess the progress during the project life”
- Read the workprogramme.



## Partner Searches and Brokerage

### How do I become a partner?

Contacts, Research Offices

National Contact Points

Participant Portal.

- A new (updated) Partner Search Service that allows **searching organisations** that could be potential partners for the EU funded proposals and projects.
- The next planned development – expressing interest to find partners for a topic (call) published on the Participant Portal. Find **partners** for your project ideas among the participants in past EU projects.

NCP Networks. (Partner offer, partner search)

- Energy. <http://www.c-energy2020.eu/>
- NMPB. <http://www.nmpteam.eu/>
- SC5 ENV. <http://www.ncps-care.eu/>
- ICT. <https://www.ideal-ist.eu/> (partner search)

Enterprise Europe Network. <http://www.een-ireland.ie/content/search/>



Euratom aims to pursue nuclear research and training activities with an emphasis on continually improving nuclear safety, security and **radiation protection**, notably to contribute to the long-term decarbonisation of the energy system in a safe, efficient and secure way.

Euratom funded fission research is primarily aimed at enhancing the safety of nuclear energy technology.

Lorraine Currivan EPA  
Prof Miles Turner DCU, National Centre for Plasma Science  
Technology





Budget €68m

Deadline 27 September 2018

12 topics

- A. Nuclear safety
- B. Decommissioning and environmental remediation
- C. Radioactive waste management
- D. Education and training
- E. Radiation protection
- F. Promote innovation in nuclear safety
- G. Fusion research

NFRP–2018-8: Radiation protection research –RIA.

The research to be undertaken will have to improve knowledge in the fields of radiation biology epidemiology, dosimetry, emergency preparedness, radioecology, and public engagement.



# Thanks

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