Societal Challenge 3 – Secure, Clean and Efficient Energy

- Setting
- Overview of new work programme
- 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/
European Technology and Innovation Platforms (ETIPs)

- ETIP Wind
- ETIP PV
- Ocean Energy Europe

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

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- Ocean Energy
  - Energy Systems Integration

[https://setis.ec.europa.eu/](https://setis.ec.europa.eu/)
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
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 Efficiency

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<tbody>
<tr>
<td>Industry and Services</td>
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<td>Finance models</td>
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### Consumers

### Smart Cities

### Carbon Intensive Industry

### Joint Actions

### Cross Cutting

### Elsewhere?
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


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

<table>
<thead>
<tr>
<th>Project Code</th>
<th>Description</th>
<th>Type</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC-SC3-EE-14-2018-2019-2020</td>
<td>Socio-economic research conceptualising and modelling energy efficiency and energy demand.</td>
<td>RIA</td>
<td>04 Sept 2018</td>
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</table>

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;
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

<table>
<thead>
<tr>
<th>LC-SC3-RES-11-2018</th>
<th>Developing solutions to reduce the cost and increase performance of renewable technologies. 2 STAGE</th>
<th>RIA</th>
<th>TRL3-4 to TRL4-5</th>
<th>31 Jan 2018 Stage 1</th>
<th>€2-5m.</th>
</tr>
</thead>
</table>

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)
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. Offshore wind/deep geothermal/CSP | IA | TRL5 to TRL7 | 13 Feb 2018 | €15-20m |

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.
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”.

<table>
<thead>
<tr>
<th>Project ID</th>
<th>Description</th>
<th>Stage 1</th>
<th>Start Date</th>
<th>End Date</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC-SC3-RES-21-2018</td>
<td>Development of next generation biofuels and alternative renewable fuel technologies for road transport</td>
<td>RIA</td>
<td>TRL3-4 to TRL5</td>
<td>13 Feb 2018</td>
<td>€3-5m</td>
</tr>
<tr>
<td>LC-SC3-RES-22-2018</td>
<td>Demonstration of cost effective advanced biofuel pathways in retrofitted existing industrial installations</td>
<td>IA</td>
<td>TRL5 to TRL7</td>
<td>05 Apr 2018</td>
<td>€8-10m</td>
</tr>
<tr>
<td>LC-SC3-RES-23-2019</td>
<td>Development of next generation biofuel and alternative renewable fuel technologies for aviation and shipping.</td>
<td>RIA</td>
<td>TRL3 to TRL5</td>
<td>27 Aug 2019</td>
<td>€3-5m</td>
</tr>
<tr>
<td>LC-SC3-RES-24-2019</td>
<td>Boosting pre-commercial production of advanced aviation biofuels.</td>
<td>IA</td>
<td>TRL5 to TRL7</td>
<td>11 Dec 2018</td>
<td>€15-20m</td>
</tr>
<tr>
<td>Project Code</td>
<td>Description</td>
<td>Lead Agency</td>
<td>Start Date</td>
<td>Funding</td>
<td></td>
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<tr>
<td>LC-SC3-EC-1-2018-2019-2020</td>
<td>The role of consumers in changing the market through informed decision and collective actions.</td>
<td>CSA</td>
<td>04 Sept 2018</td>
<td>€1-2m</td>
<td></td>
</tr>
<tr>
<td>LC-SC3-EC-3-2020</td>
<td>Consumer engagement and demand response</td>
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**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.
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
<table>
<thead>
<tr>
<th>Project Code</th>
<th>Description</th>
<th>Type</th>
<th>TRL</th>
<th>Date</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC-SC3-ES-1-2019</td>
<td>Flexibility and retail market options for the distribution grid.</td>
<td>IA</td>
<td>TRL5-8</td>
<td>05 Feb 2019</td>
<td>€6-8m</td>
</tr>
<tr>
<td>LC-SC3-ES-2-2019</td>
<td>Solutions for increased regional cross-border cooperation in the transmission grid.</td>
<td>IA</td>
<td>TRL5-8</td>
<td>05 Feb 2019</td>
<td>€8-10m</td>
</tr>
<tr>
<td>LC-SC3-ES-3-2018-2020</td>
<td>Integrated local energy systems (Energy islands).</td>
<td>IA</td>
<td>TRL5-8</td>
<td>05 Apr 2018</td>
<td>€5-6m</td>
</tr>
<tr>
<td>LC-SC3-ES-4-2018-2020</td>
<td>Decarbonising energy systems of geographical Islands.</td>
<td>IA</td>
<td>TRL5-8</td>
<td>05 Apr 2018</td>
<td>€7-10m</td>
</tr>
<tr>
<td>LC-SC3-ES-5-2018-2020</td>
<td>TSO – DSO – Consumer: Large-scale demonstrations of innovative grid services through demand response, storage and small-scale (RES) generation.</td>
<td>IA</td>
<td>TRL5-8</td>
<td>05 Apr 2018</td>
<td>€13-17m</td>
</tr>
<tr>
<td>LC-SC3-ES-6-2019</td>
<td>Research on advanced tools and technological development.</td>
<td>RIA</td>
<td>TRL5-8</td>
<td>05 Feb 2019</td>
<td>€2-4m</td>
</tr>
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**Energy 2018-2020**

**Smart Cities and Communities**

<table>
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<th>Start Date</th>
<th>End Date</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC-SC3-SCC-1-2018-2019-2020</td>
<td>Smart Cities and Communities. 2 Lighthouse Cities</td>
<td>IA</td>
<td>05 Feb 2019</td>
<td></td>
<td>€15-20m</td>
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Enabling near-zero CO2 emissions from fossil fuel power plants and carbon intensive industries

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<th>End Date</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC-SC3-NZE-1-2018</td>
<td>Advanced CO2 capture technologies</td>
<td>RIA</td>
<td>06 Sept 2018</td>
<td></td>
<td>€5-10m</td>
</tr>
<tr>
<td>CE-SC3-NZE-2-2018</td>
<td>Conversion of captured CO2</td>
<td>RIA</td>
<td>06 Sept 2018</td>
<td></td>
<td>€3-4m</td>
</tr>
</tbody>
</table>

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

**CCUS Pilot 2020**
Cross-cutting issues

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

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;
Other Workprogrammes

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;

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

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)
• 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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