

# HORIZONTE 2020: OPORTUNIDADES PARA FINANCIAR EL I+D+I EN EL SECTOR FOTOVOLTAICO



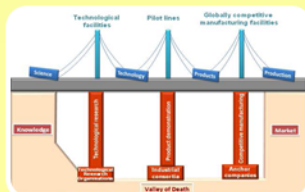
 **genera**  
FERIA INTERNACIONAL DE  
ENERGIA Y MEDIO AMBIENTE

 **FOTOPLAT**

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# ¿Qué es Horizonte 2020?

## Programa Marco de Investigación e Innovación (2014-2020)



### Excellent Science

European Research Council (ERC)

Future and Emerging Technologies (FET)

Marie Skłodowska-Curie actions on skills, training and career development

European research infrastructures

### Industrial Leadership

ICT

Nanotechnology

Biotechnology

Advanced Materials

Advanced Manufacturing & Processing

Space

Access to Risk Finance

Innovation in SMEs

### Societal Challenges

Health, demographic change and wellbeing

Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy;

**Secure, clean and efficient energy**

Smart, green and integrated transport;

Climate action, environment, resource efficiency and raw materials

Europe in a changing world-Inclusive, innovative and reflexive societies

Secure Societies: Protecting freedom and security of Europe and its citizens

**Ciencia excelente****24.441**

1. El Consejo Europeo de Investigación (CEI)	13.095
2. Las Tecnología Futuras y Emergentes (FET)	2.696
3. Las acciones Marie Skłodowska Curie	6.162
4. Las infraestructuras de investigación	2.488

**Liderazgo Industrial****17.016**

1. Liderazgo en tecnologías facilitadoras e industriales	13.557
1.1 Tecnologías de la información y la comunicación (TIC)	7.711
1.2 Nanotecnologías, 1.3 Materiales avanzados y 1.5 Fabricación y transformación avanzadas	3.851
1.4 Biotecnología	516
1.6 Espacio	1.479
2. Acceso a la financiación de riesgo	2.842
3. Innovación en las PYME	616

**Retos sociales****29.679**

1. Salud, cambio demográfico y bienestar	7.472
2. Seguridad alimentaria, agricultura y silvicultura sostenibles, investigación marina, marítima y fluvial y bioeconomía	3.851
3. Energía segura, limpia y eficiente	5.931
4. Transporte inteligente, ecológico e integrado	6.339
5. Acción por el clima, medio ambiente, eficiencia de recursos y materias primas	3.081
6. Sociedades inclusivas, innovadoras y reflexivas	1.309
7. Sociedades seguras	1.695

FP7:  
2.350

Ciencia con y para la sociedad

462

Difundiendo la excelencia y ampliando la participación

816

Instituto Europeo de Innovación y Tecnología

2.711

Acciones directas no nucleares del Centro Común de Investigación (JRC)

1.903

# Energía segura, limpia y eficiente

**Objetivo:** hacer la transición hacia un sistema energético fiable, sostenible y competitivo, en un contexto de creciente escasez de recursos, aumento de las necesidades de energía y cambio climático

## Comentarios:

- Actividades en continuidad con VII PM (gran incremento €)
- Integración de **CIP-IEE** centrado en comportamientos, percepción pública y solventar barreras no tecnológicas para despliegue de mercado.
- Importancia de **proyectos demostración y despliegue comercial**
- Se incluye en este reto las aplicaciones **TIC para energía** (7 PM ICT, parte del reto 6) así como **los pilotos y demostradores correspondientes (CIP-ICT)**.
- Uso de las TRLs
- Clara relevancia del **SET Plan**:
  - **Paneles de SET Plan** (SG, Sherpa, EII Team) **definen estrategia**.

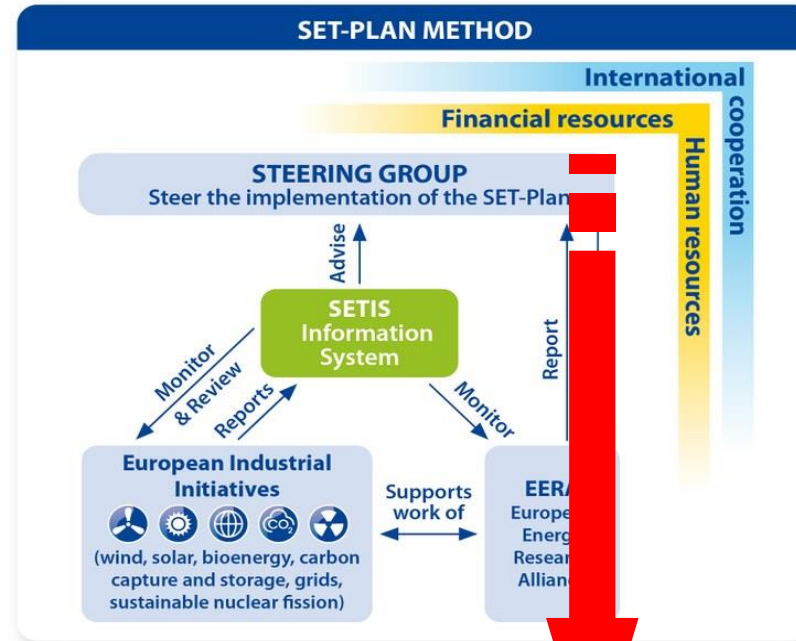
# SET Plan adopted in 2008

The SET-Plan is thus the **technology pillar of the EU Energy and Climate policy**. It sets out a long-term energy research, demonstration and innovation agenda for Europe, including concrete strategic milestones to be achieved in the coming years.





# SET Plan: Structure



AMPEA

BIOENERGY

CARBON CAPTURE AND STORAGE

CONCENTRATED SOLAR POWER (CSP)

ECONOMIC, ENVIRONMENTAL AND SOCIAL IMPACTS (JP E3S)

ENERGY STORAGE

FUEL CELLS AND HYDROGEN

GEOTHERMAL

NUCLEAR MATERIALS

OCEAN ENERGY

PHOTOVOLTAIC SOLAR ENERGY

SHALE GAS

SMART CITIES

SMART GRIDS

WIND ENERGY

BIOENERGY INDUSTRIAL INITIATIVE

CCS INDUSTRIAL INITIATIVE

ELECTRICITY GRIDS INDUSTRIAL INITIATIVE

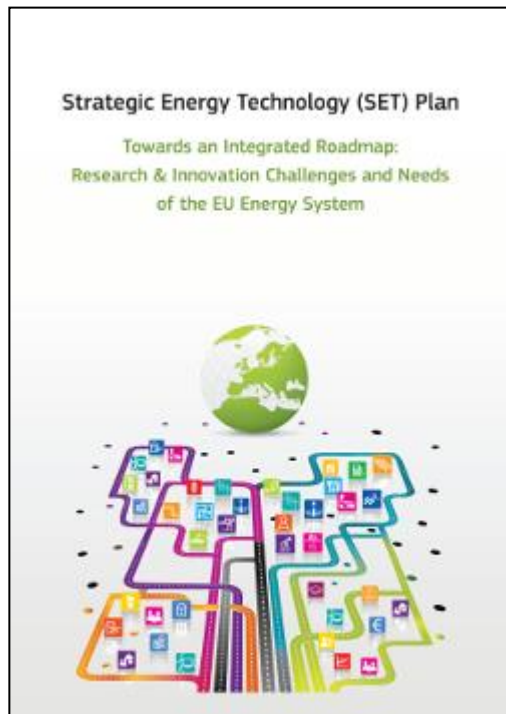
SUSTAINABLE NUCLEAR INDUSTRIAL INITIATIVE

SOLAR INDUSTRIAL INITIATIVE

WIND INDUSTRIAL INITIATIVE

**HORIZON 2020**  
THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

# IR: Objective and Structure



<b>2. Energy system challenges.....</b>	<b>5</b>
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Theme 2: Activating consumers through innovative technologies, products and services.....	7
<b>2.2. Integrated Challenge 2: Demand focus – increasing energy efficiency across the energy system .....</b>	<b>9</b>
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Theme 4: Increasing energy efficiency in heating and cooling.....	12
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Theme 8: Development and demonstration of holistic system optimisation at local/urban level (Smart Cities and Communities).....	22
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Theme 12: Supporting safe and efficient operation of nuclear systems, development of innovative reactor concepts and sustainable solutions for the management of fissile materials and radioactive waste.....	36
Theme 13: Developing sustainable biofuels, fuel cells and hydrogen and alternative fuels for the European transport fuel mix.....	38

The aim of the Integrated Roadmap, in the current context of the EU's energy policy developments, is to consolidate the updated [technology roadmaps](#) of the SET Plan and **propose research and innovation actions** designed to facilitate integration along four axes:

1. the **innovation chain**, covering from basic research to demonstration and support for market roll-out;
2. the **value chain**, according to the industrial capacities and innovation potential of the various supply chains;
3. the **EU dimension**, achieving replication of solutions in different climate and geographic contexts across Europe;
4. and the **energy system**, fulfilling the **societal needs** in a competitive, secure, efficient, and sustainable way.

<http://setis.ec.europa.eu/set-plan-implementation/towards-integrated-roadmap-and-action-plan>

# Energía segura, limpia y eficiente

## Principales Actividades:

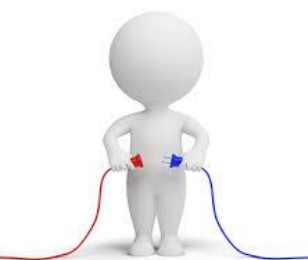
- **Reducir el consumo de energía y la huella de carbono mediante un uso inteligente y sostenible**

- Lanzar al mercado general tecnologías y servicios que hagan posible un uso eficiente e inteligente de la energía
- Aprovechar el potencial de sistemas de calefacción y refrigeración eficaces y renovables
- Fomentar las ciudades y comunidades inteligentes en Europa



- **Suministro de electricidad a bajo coste y de baja emisión de carbono**

- El pleno desarrollo del potencial de la energía eólica
- **El desarrollo de sistemas de energía solar eficientes, fiables y competitivos**
- El desarrollo de tecnologías para la captura, transporte y almacenamiento de CO2 que sean seguras y no presenten riesgos para el medio ambiente
- El desarrollo de la energía geotérmica, hidrológica, marina y otras formas de energía renovable





# Energía segura, limpia y eficiente

## Principales Actividades:



### • Combustibles alternativos y fuentes de energía móviles

- Lograr que la bioenergía sea competitiva y sostenible
- Reducir el plazo de comercialización de las tecnologías basadas en hidrógeno y pilas de combustible
- Nuevos combustibles alternativos

### • Una red eléctrica europea única e inteligente



### • Nuevos conocimientos y tecnologías

### • Absorción por el mercado de la innovación energética, capacitación de mercados y consumidores



# Estructura programa de ENERGIA

Secure Clean end  
efficient Energy

Low Carbon  
Technologies  
(WP14-15: 731,73 M€)



Smart Cities and  
Communities  
(WP14-15: 200,50 M€)



Energy Efficiency  
(WP14-15: 195,65 M€)

## Competitive low-carbon energy

- **Renewable electricity and Heating & Cooling** (e.g. solar energy, marine energy, geothermal energy, RES heating and cooling, bio-electricity)
- Modernising the **European Electricity grid**
- Providing the energy system with flexibility through enhanced **energy storage technologies**
- Sustainable biofuels **and alternative fuels** for the European transport fuel mix
- Enabling the **sustainable use of fossil fuels** in the transition to a low-carbon economy
- **Social, environmental and economic aspects** of the energy system and Cross-cutting issues
- Supporting the development of a **ERA** in the field of energy



## LCE-02 – 2014-2015 – Developing the next generation technologies of renewable electricity and heating/cooling (Two stage evaluation) **RIA**

2014

PV: Developing next generation high performance PV cells and modules

Deadline: CLOSED

2015

PV: Developing very low-cost PV cells and modules

Deadline: 1st Stage: 3/9/2014  
2nd stage: 5/5/2015  
Budget: 59 M.€

## LCE-03 – 2014/2015 – Demonstration of renewable electricity and heating/cooling IA

2014

PV: Accelerating the development of the EU Inorganic Thin-Film (TF) industry

Deadline: CLOSED

2015

PV: PV integrated in the built environment

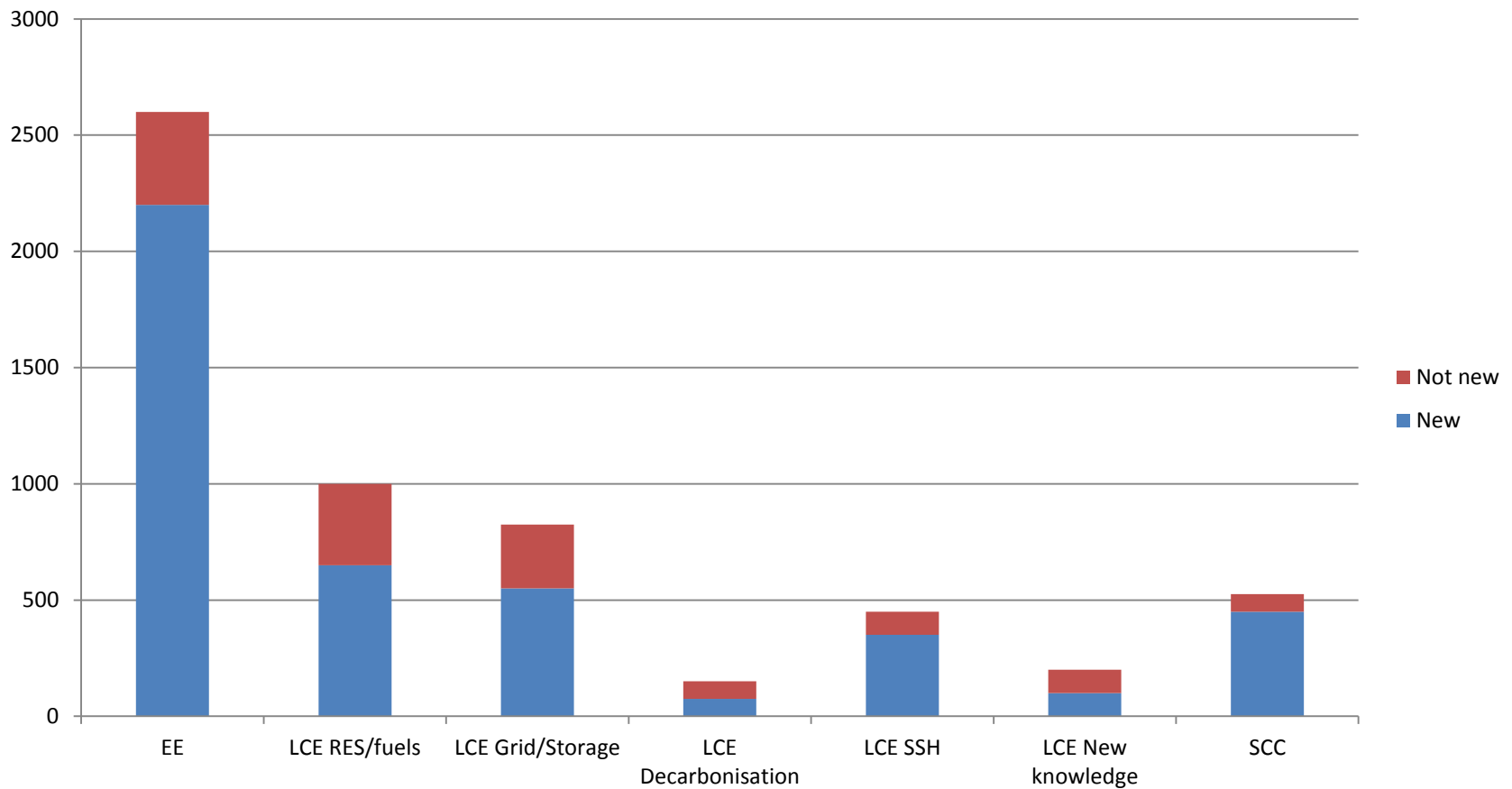
Deadline: 5/5/2015  
Budget: 80M.€



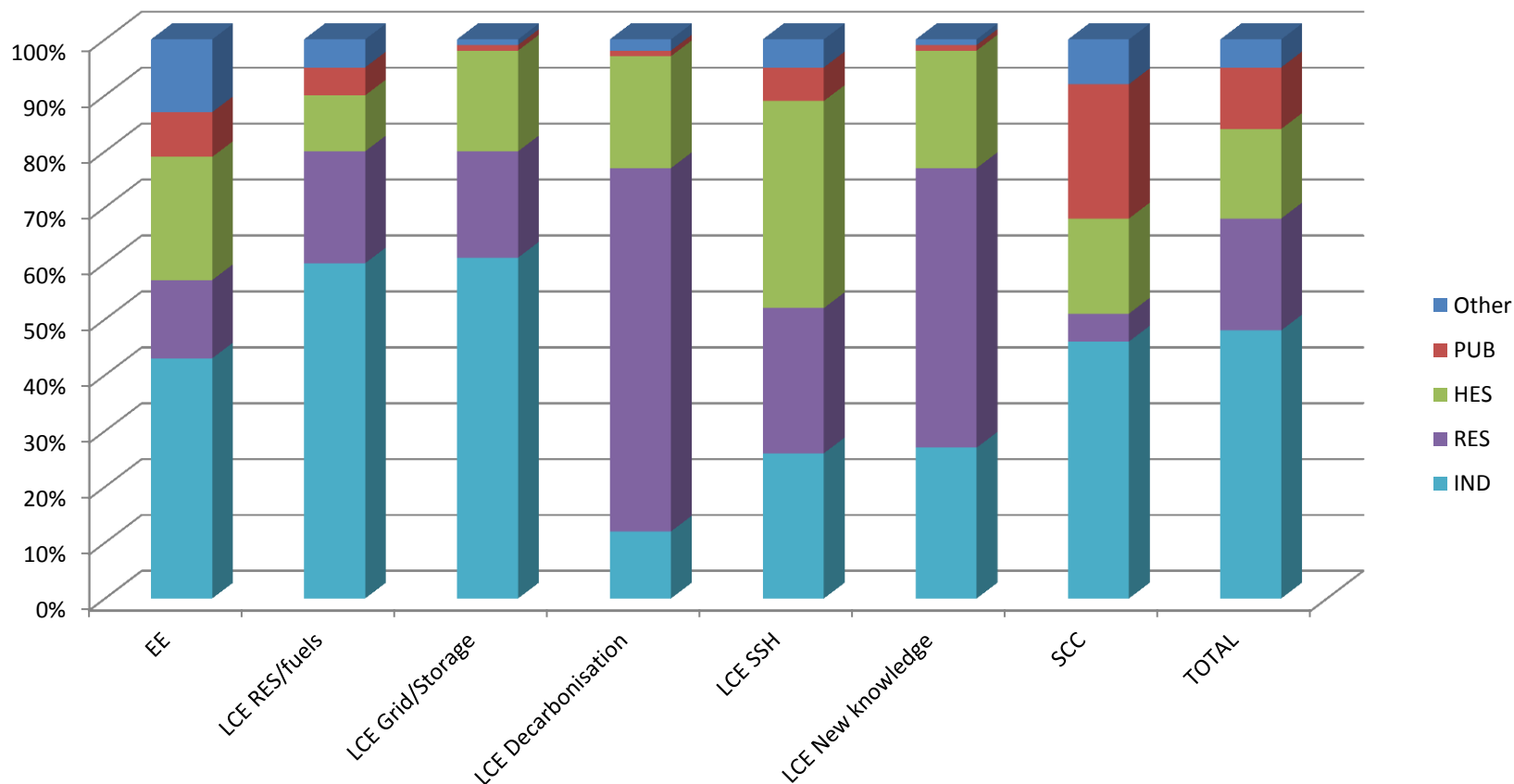
# Calls of the Energy Challenge 2014

- More than 8700 applications from 4800 unique applicants from 64 countries
- 83% of applicants did not participate in FP7 projects(70% of main-listed applicants)
- 2017 proposals received
  - 873 SME Instrument (43%)
  - 661 LCE (33%)
  - 449 EE (23%)
  - 34 SCC (2%)

# Number of applicants per area and previous experience (2014 Energy Calls)



# Tipo de Entidad por Área (Proyectos)



# Observations

- High Interest + limited budget= high oversubscription and low success rates
- Proposals requested Budget: within the ranges indicated in the WP (towards the higher end)
- Main-listed proposals do not differ significantly in terms of their requested budget from the rest of the proposals
- General proposal Characteristics (applicants per proposal, requested EU contribution per proposal and applicant) are similar to FP7



# Características de las propuestas retenidas por instrumento

	CSA	IA	RIA	SME	TOTAL
Prop Retenidas	57	30	40	60	190
Participantes Retenidos	574	417	359	73	1471
Subv solicitada (M€)	95,9	302,5	155,8	23,5	614,5
Media de numero de socios	10,1	13,9	9,0	1,2	7,7
Media de Subv solicitada por propuesta (M€)	1,7	10,1	3,9	0,4	3,2
Media de Subv solicitada por socio (k€)	170	730	430	320	420

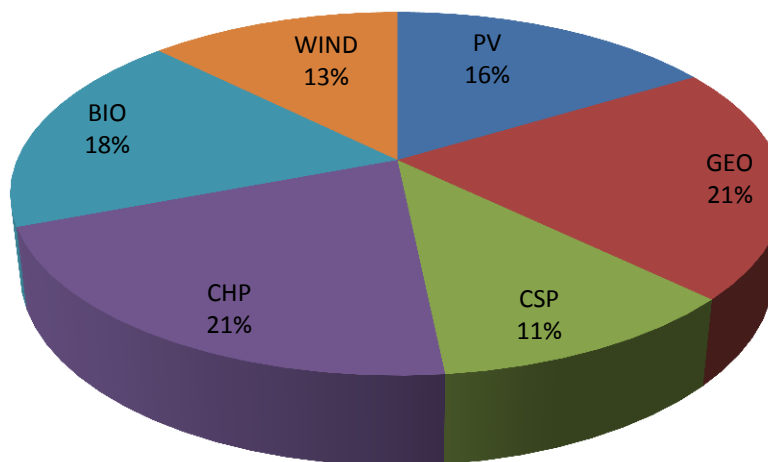
# Tasas de éxito globales

	Propuestas	Proyectos	Tasa de Éxito
EE	661	56	8%
LCE	449	65	14%
SCC	34	4	12%
Total	1144	125	11%

# Tecnologías LCE-2 y 11

	Proposals	Funded	Subv (M€)
PV	36	2	9,5
GEO	11	2	12,1
CSP	25	1	6,5
CHP	31	2	12,1
BIO	81	2	10,6
WIND	25	1	7,3
OCEAN	25	0	0
HYDRO	9	0	0
SHC	18	0	0
<b>Total</b>	<b>261</b>	<b>10</b>	<b>58,1</b>

**LCE-2014-2 y 11 INV RES/BioF**

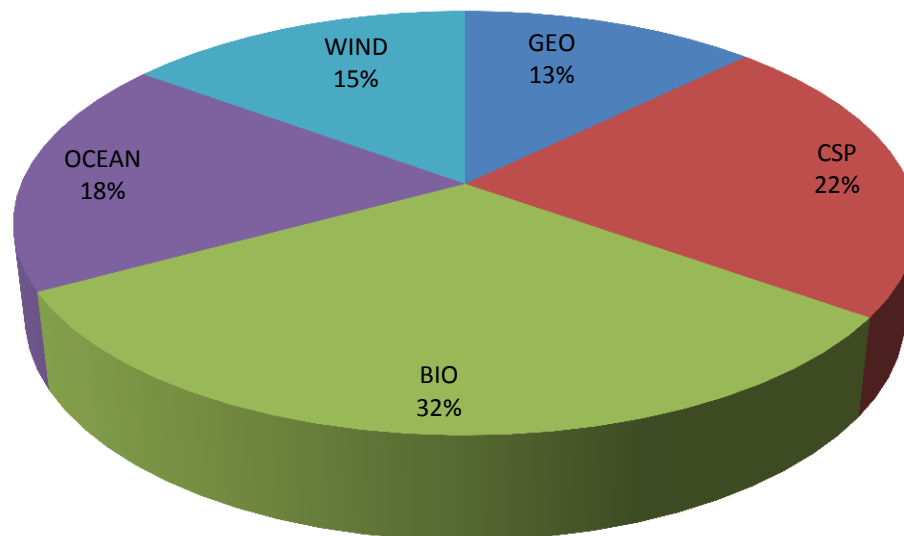


# Tecnologías LCE-3 y 14

	Proposals	Funded	Subv (M€)
PV	3	0	0
GEO	6	2	11,9
CSP	8	2	20,9
BIO	5	2	30,2
OCEAN	8	1	17
WIND	6	2	14

**Total**      36                  9                  94

**LCE-2014-3 y 12 DEMO RES/BioF**





....y en el futuro?

# Planificación

- Summer 2014: Advisory groups Strategic consultation
- Autumn 2014: Communication to PC: Discussion on the scoping Paper
- Beginning 2015: First WP Outline
- Spring 2015: WP Discussion PC
- Summer 2015 Publication

# ENERGIA: En este momento...Scoping Paper

## Strategic orientations for 2016-2017

The triangle of energy policy objectives will be translated in the Work Programme 2016-2017 as follows:

- diversifying energy sources and technologies,
- **increasing the share of renewables,**
- increasing low-carbon indigenous energy generation
- power generation flexibility
- increasing electricity network interconnections
- moderating energy demand,
- improving energy efficiency
- Safe and secure energy system
- New business models and governance arrangements for the integrated energy system need

*Energy  
security*

- **growing share of renewables,**
- higher energy efficiency,
- reducing energy wastage
- decarbonising the use of fossil fuels using CCS
- active/automated role of consumers
- application of innovative ICT-based solutions
- Energy storage and conversion technologies
- includes technological, economic-financial and socio-economic aspects a
- a more important role of citizens and communities.
- New business models, competitive services, and a smarter and dynamic system,

*Sustainability  
of the energy  
system*

*Affordable  
energy*

- ensuring the support of consumers for the transformation of the energy system
- to combat energy poverty,
- boosting the EU's industrial competitiveness
- **improve and integrate advanced energy generation and management systems**
- to reduce energy demand
- to provide competitive energy services.

# En este momento...Scoping Paper

## Calls 2016-2017

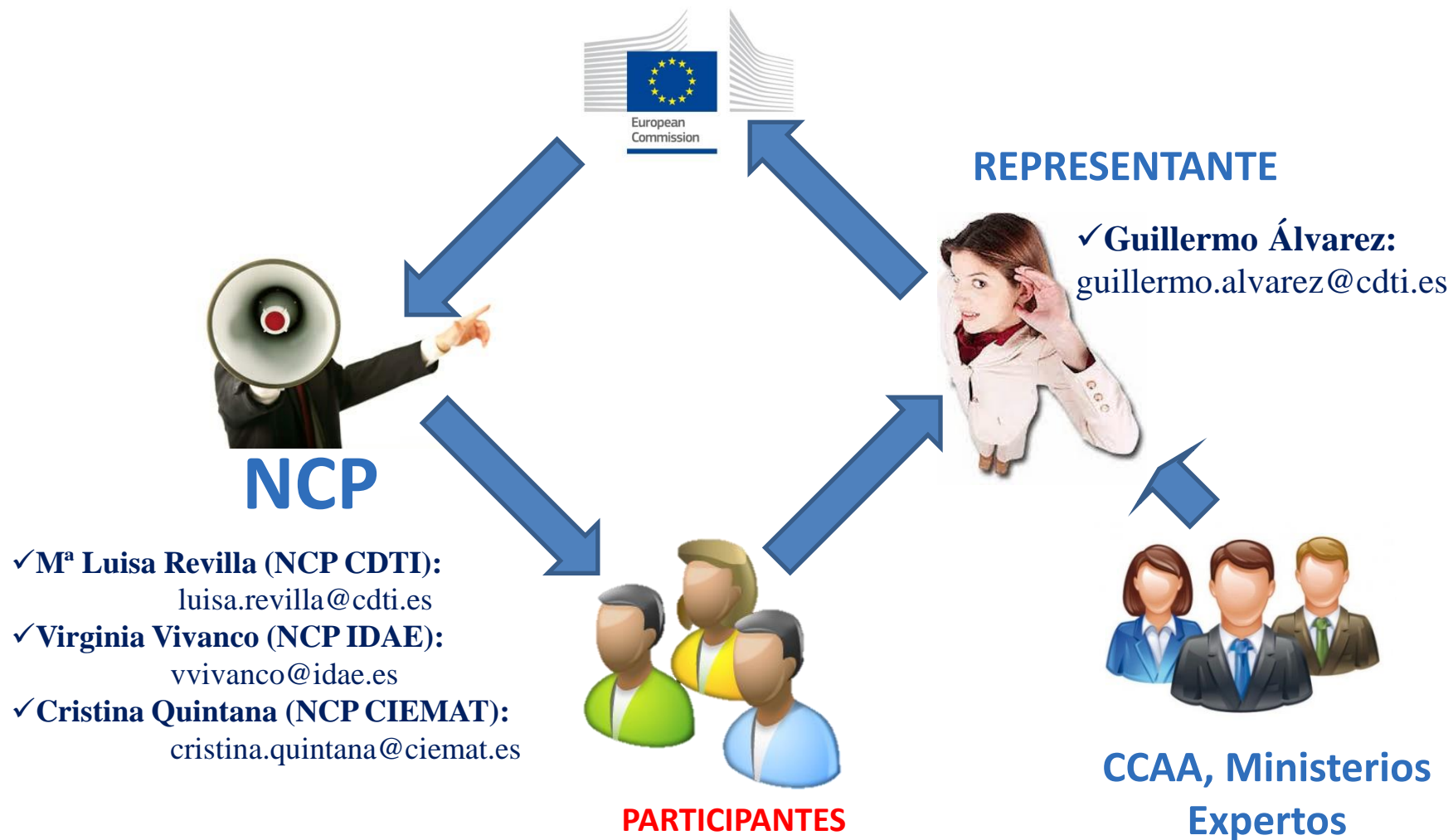
- Energy Efficiency;
- Competitive Low-Carbon Energy Technologies;
- **Smart Cities and Communities with Nature-based Solutions**
  - **Advancing renewable energy and heating/cooling technologies**
    - improving environmental performance of Concentrated Solar Power
    - Solar Heating/Cooling in buildings and industry
  - **PV manufacturing as well as reducing costs and better integration in the energy system**
    - reducing costs and increasing reliability/availability of wind energy
    - bringing ocean energy to full market readiness
    - enhancing geothermal systems for energy generation
    - reducing risks and costs for geothermal heating and cooling
    - developing cost-effective and highly efficient systems for small to medium scale CHP and trigeneration based on a reliable, and cost-effective supply of sustainable biomass and recovered fuels
  - technology development of hydropower and adjoining components to higher flexibility.



# Posibles líneas

- **Supporting the EU PV manufacturing industry**
- **high penetration levels of PV electricity into the electric power network**
- **Support to emerging PV technologies**
- **Reducing the cost of PV electricity**

# ENERGÍA LIMPIA, SEGURA y EFICIENTE



EVALUADORES!!



[www.eshorizonte2020.es](http://www.eshorizonte2020.es)

**Muchas Gracias  
por su atención**



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