

#innovacion
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Asamblea General REOLTEC

Reto Social 3 Horizonte 2020:

Secure, clean and efficient Energy – Oportunidades de Financiación

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- **Contexto político Europeo. Convocatoria 2020**
- **Datos de participación española**
- **Transición de Horizonte 2020 a Horizonte Europa.**

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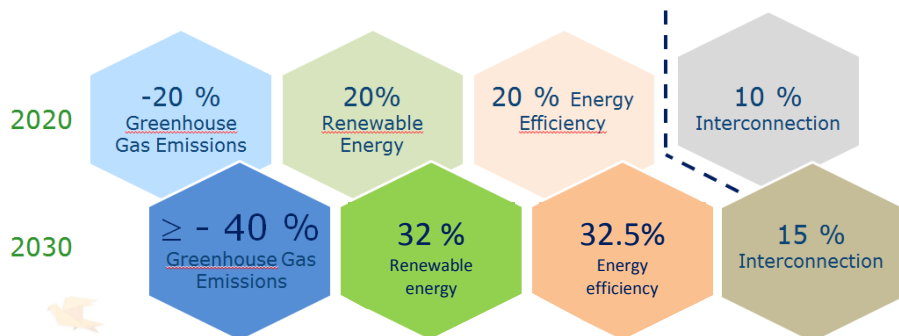
- **Contexto político Europeo. Convocatoria 2020**
- **Datos de participación española**
- **Transición de Horizonte 2020 a Horizonte Europa.**

Contexto político Europeo



- **Energy security**, solidarity and trust
- A fully **integrated** internal energy market
- **Energy efficiency** first
- Transition to a **low-carbon** society
- An Energy Union for Research, Innovation and Competiveness

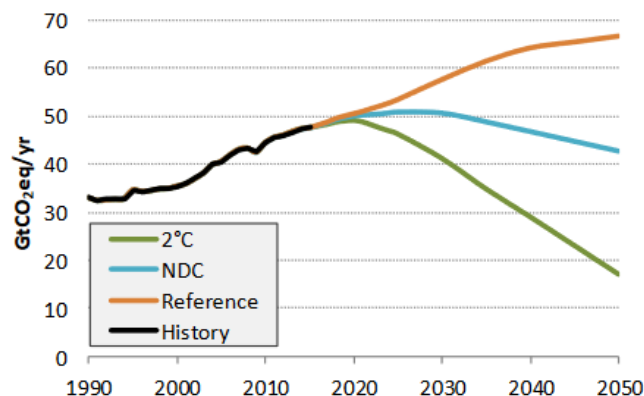
Agreed headline targets



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



Source: POLES-JRC model, included in 'Clean Planet for All' (EC, 2018)

EU long-term vision for climate-neutral economy ('Clean Planet for all')

Other EU policy priorities

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

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Contexto Político Europeo

Energy Union Priorities

Communication on Integrated SET-Plan (COM[2015]6317)

https://setis.ec.europa.eu/system/files/Communication_SET-Plan_15_Sept_2015.pdf

No1 in Renewables

**Smart EU energy system,
with consumer at the
centre**

Efficient energy systems

Sustainable transport

Nuclear Safety

CCS /CCU

Contexto Político Europeo

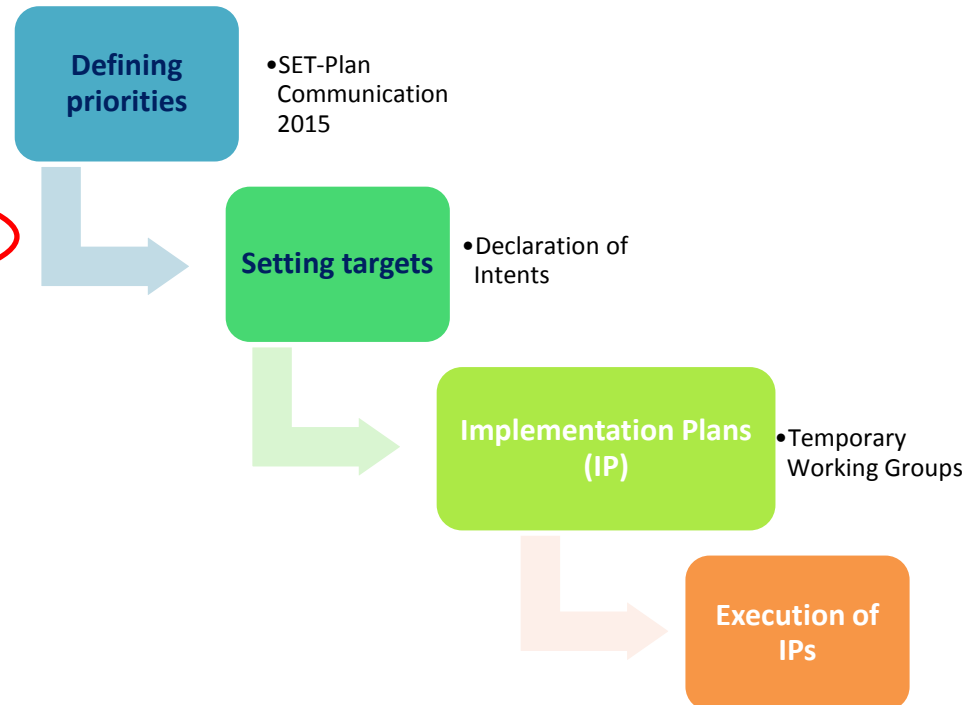


Overall objective: Accelerating the development and **deployment of low-carbon technologies through cooperation among EU countries, companies, research institutions, and the EU itself**, based on common priorities and targets.

<https://setis.ec.europa.eu/actions-towards-implementing-integrated-set-plan>

Priority Actions:

- 1+2. Improving performance and reducing cost of renewable energy (Action 1, 2)
3. Smart solutions for consumers
4. Smart Resilience and Secure Energy System
5. Energy Efficiency in Buildings
6. Energy Efficiency in Industry
7. Batteries and e-Mobility
8. Renewable Fuels and Bioenergy
9. Carbon Capture Utilisation and Storage
10. Nuclear Safety



<https://setis.ec.europa.eu/low-carbon-energy-technologies>

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«Clean Energy Package» - 30.11.2016

<https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition>



Directiva 2018/2001 Energías Renovables

Objetivos de EERR 32% en 2030, desde 20% en 2020. EERR en Calor y refrigeración.



Directiva 2018/2002 Eficiencia Energética

Objetivos de Ahorro 32,5% en 2030, desde 20% en 2020



Directiva 2018/844 EE en Edificios

Descarbonizar los edificios en 2050
Rehabilitación energética en Edificios



Directiva 2019/944 Mercado Interior de la electricidad

"Clean Energy for all Europeans"

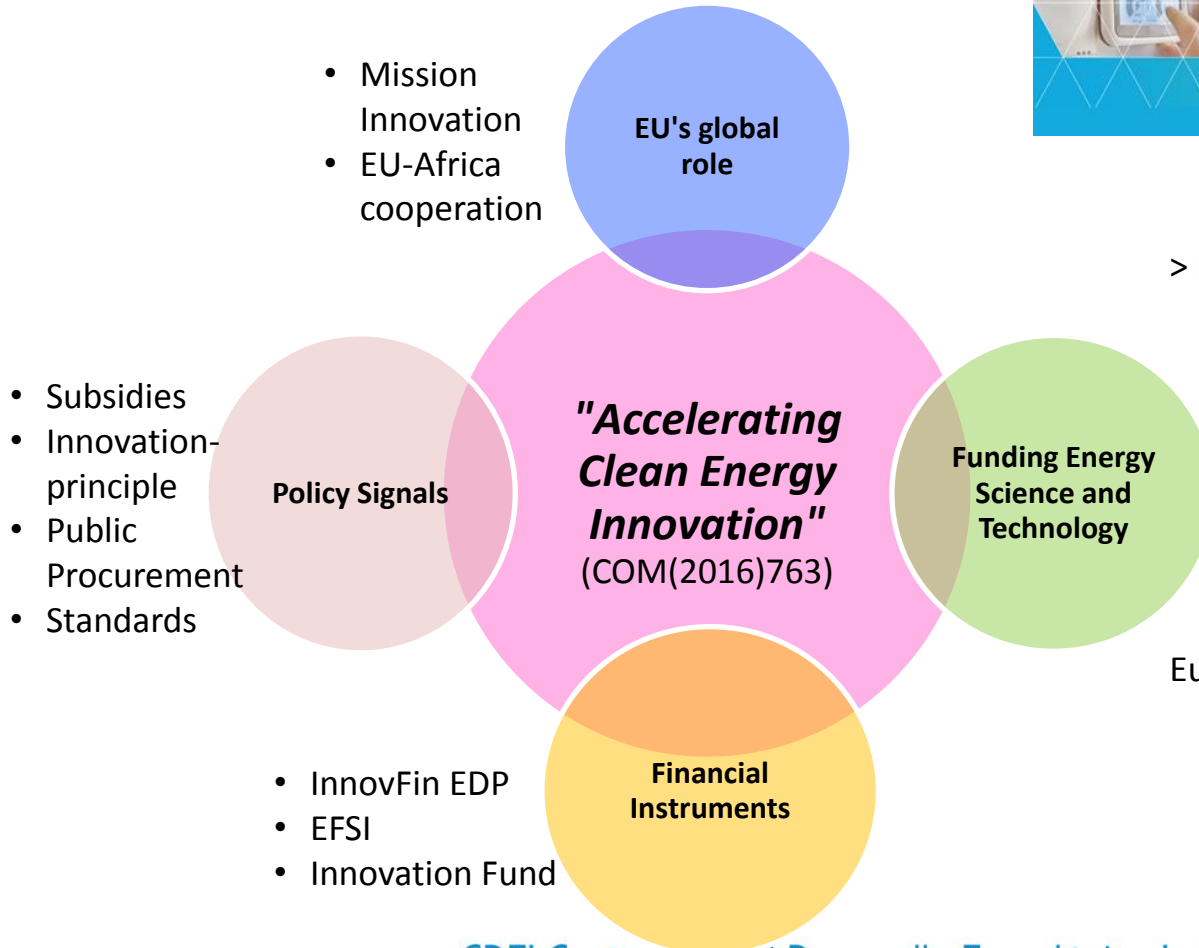
- Putting energy efficiency first
- Demonstrating global leadership in renewables
- Delivering a fair deal for consumers



La Gobernanza de la Unión de la Energía y de la Acción por el Clima.

ACEI - Accelerating Clean Energy Innovation

https://ec.europa.eu/energy/sites/ener/files/documents/1_en_act_part1_v6_0.pdf



> EUR 2.2 billion in H2020 (2018-2020) on:

- Decarbonising EU building stock by 2050
- **Strengthening EU leadership in renewables**
- Affordable and integrated energy storage
- E-mobility and more integrated urban transport systems

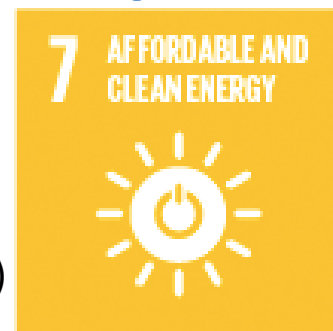
European Innovation Council

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Energy Challenge (SC3) calls 2020: targeted impact

Deliver on:

- Paris Agreement
- Energy Union (including Clean Energy for all Europeans, and ACEI)
- EU Long-term vision for climate-neutral economy 28/11/2018 - COM (2018) [Clean Planet for all](#) -
- Digital Single Market; and Jobs, Growth and Investments



Targeted impacts:

Clean energy transition

Improving energy efficiency

Advancing efficient solutions for buildings, industry, products; removing non-technological barriers

Global leadership in renewables

Decreasing costs, improving performance, facilitating market-uptake of renewable solutions

Integrating the European energy system

better integration of renewables; more active role of consumers

Reduce impact of fossil fuels use on the climate and environment

Understanding the social & economic dimension



Global leadership in renewables

Next renewable energy solutions

- RES-1, RES-3

Renewable energy solutions at consumer scale

- RES-9, RES-10

Renewable energy solutions for energy system implementation

- RES-18, RES-19, RES-20, RES-31, RES-32, RES-33, RES-34, RES-35

Renewable fuels for transport

- RES-25, RES-26, RES-27, RES-36, RES-37

Market Uptake Support

- RES-28

RES-1 Developing the next generation of renewable energy technologies

- **RIA**

Research on pre-commercial renewable energy technologies that will form the backbone of the energy system by 2030 and 2050

- Up to TRL 3-4
- EU-funding: 2-4 M€/project
- Total budget: **45 M.€**

Accelerate and reduce the costs of the next generation energy technologies;
advance knowledge base

Support will be given to activities which focus on **converting renewable energy sources into an energy vector**, or the **direct application of renewable energy sources**.

- **Bottom-up** proposals addressing any renewable technology currently in the early phases of research. Activities also might include energy materials, catalysts, ..., as long as those are strictly connected to the energy conversion process

- Related sustainability aspects to be addressed: **lower environmental impact** etc.

Renewable energy solutions for energy system implementation

Deadline: 21 April 2020

RES-31-2020 Basic science technology development for offshore wind

RIA

Final TRL: 4-5

Budget: 8 M€

EU-funding: 2-4 M€/project

Expected impacts:

-Levelised Cost of Energy

-Market value of wind power for scope 1-4

- **Specific challenge:** Cost reductions are required to achieve an increase of offshore wind power to the energy mix by 2030. Need for better knowledge of basic wind energy science and related areas.
- **Scope:** One or more of the following research areas:
 1. Atmospheric multi-scale flow modelling
 2. Understanding and modelling key uncertainties and physical phenomena of offshore wind energy design and operation
 3. High performance computing and digitalisation
 4. Development and validation of models of structural damage and degradation for offshore wind turbines and/or for their components as functions of loads and environment;
 5. Numerical and test methods for accurate assessment of system and component reliability when introducing new materials and technologies;
 6. Other offshore balance of plant aspects related to the manufacturing, construction, installation and/or decommissioning of large-scale wind turbines.

!!! Onshore may also be covered when synergies may be exploited from including both.

“Material Science” – LC-NMBP-31-2020 – Materials for energy off-shore.

Renewable energy solutions for energy system implementation

Deadline: 11 Dec 2019

- **IA**
- *Drive down the costs of floating wind farms and to fully commercialise and industrialise the technology*
- *to TRL 6-8*
- *Up to EUR 25 million*
- *Budget: 25M.€*
- *Decrease LCOE and environmental impact while increasing market value of floating wind farms*

RES-19 Demonstration of innovative technologies for floating wind farms

- Proposals will demonstrate floating offshore wind innovations (blades, floaters, moorings, electrical subsystems and cabling, monitoring systems, and/or integrated systems, including whole wind turbines conceived for floating offshore), in view of scaling-up power rating to >10 MW.
- Different sea and weather conditions shall be considered.
- Proposals shall improve industrial design and manufacturing processes, installation methods and operation & maintenance.

While cost and performance characteristics of RES are improved there is still a lot of market potential to be exploited and a number of barriers must be overcome

- CSA
- EUR 1-3 million
- *facilitate the wider uptake of renewable energy generation in the energy and industrial sectors and of RES consumption by 2030.*

RES-28 Market Uptake Support

- Barrierscover issues such as consumer acceptance, legal and financial challenges ... legislative and regulatory aspects limiting innovative energy solutions implementation at the grid levels and also at the community or citizen level. ... tools for better assessing the environmental, economic and social impact of renewable energy solutions is challenging ...massive deployment in the market ... energy markets outside the EU must not be forgotten....

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Resultados Calls Energía 2014-2018 (no están incluidos topic de la JTI-FCH)

**3.288 propuestas, 1.883 con presencia ES (57,3%)
528 coordinadas ES (16%)**

**580 proyectos, 341 con presencia ES (59%)
95 coordinadas ES (16,4%)**

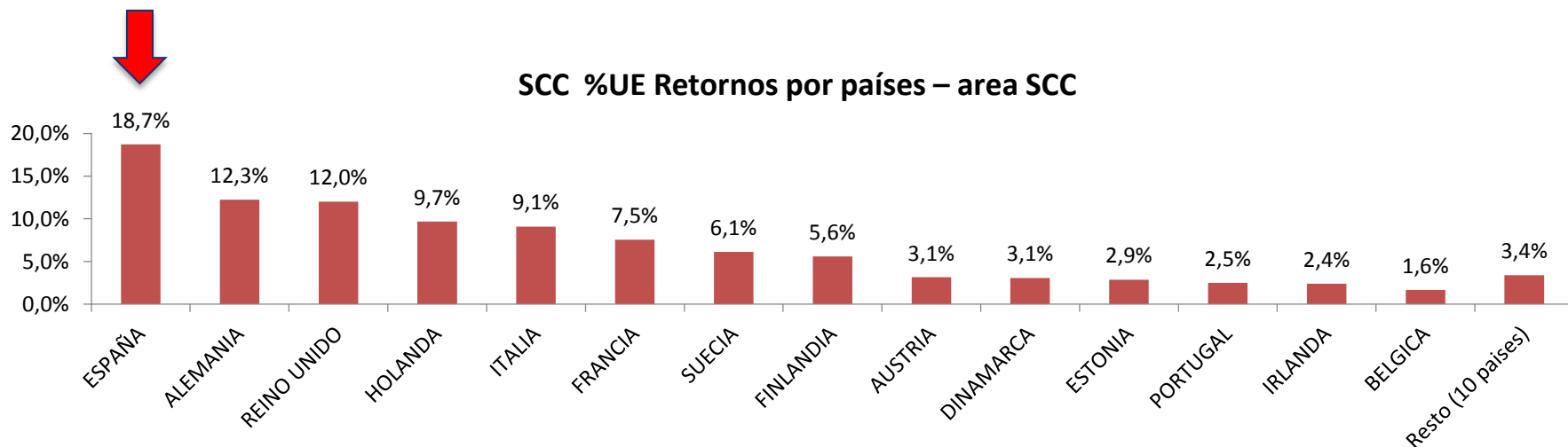
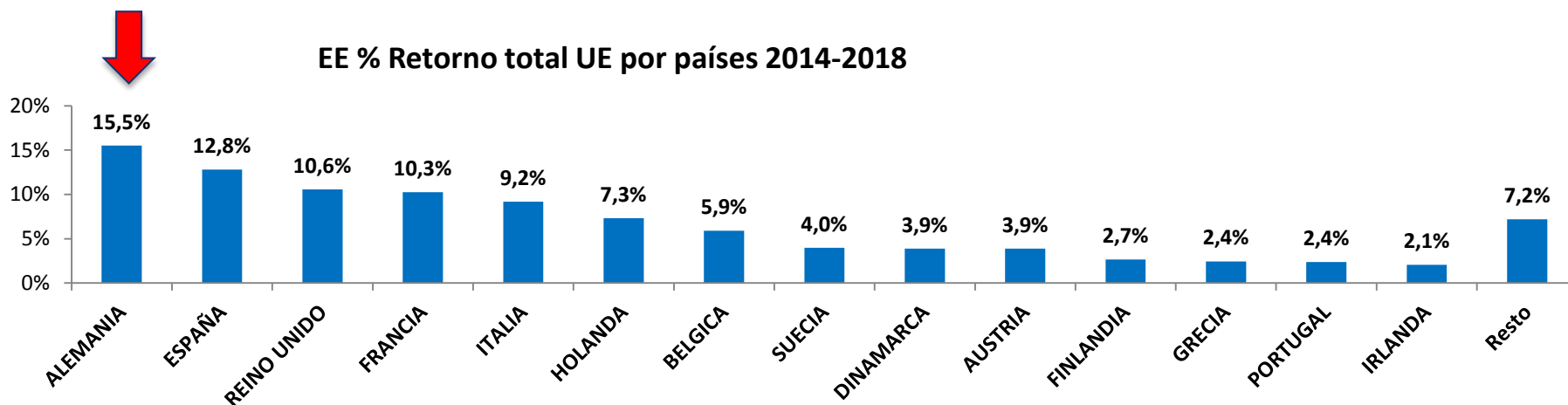
**Tasa de éxito ES 18,1% - Algo superior a la media europea
17,6%**

**324 M€ para ESPAÑA de un total adjudicado de 2.769 M.€.
2º puesto por detrás de Alemania y seguido de Reino Unido.
Retorno ES: 12,79% UE**

Datos obtenidos a Septiembre 2019

Resultados globales Calls Energía 2014-2018

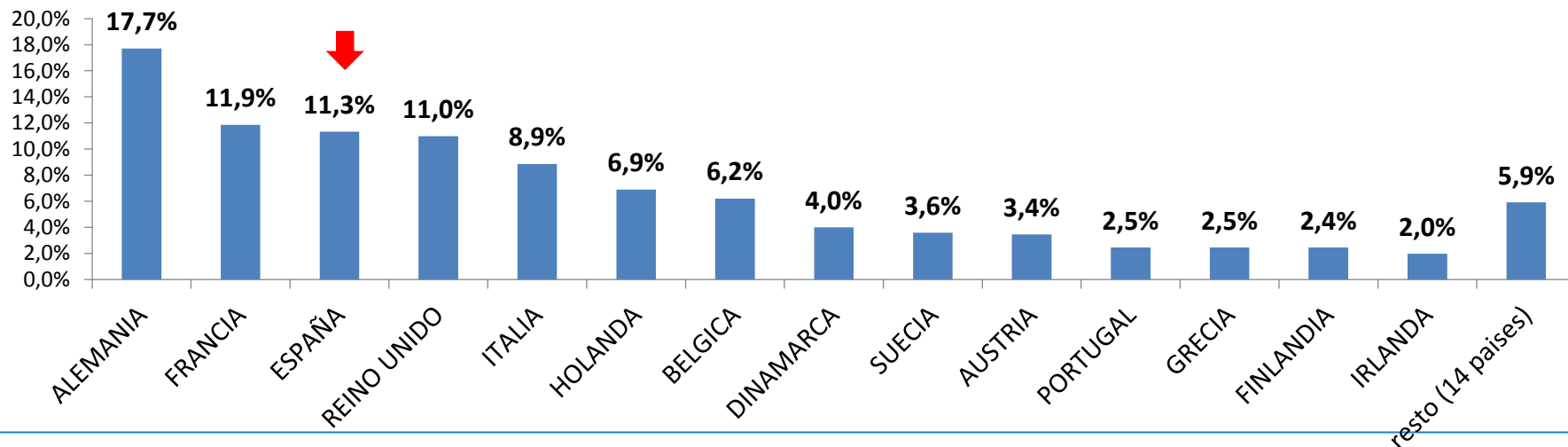
(no están incluidos topic de la JTI-FCH, Se tiene en cuenta de PPP-EeB y SPIRE en RS3)



H2020- SC 3- Low Carbon Energy (LCE) 2014-2018

Se tiene en cuenta topics de PPP-EeB y SPIRE en RS3

LCE %UE Retornos por países – area LCE



Area LCE: Renovables, Energy Systems, SCC, CCSU, Cross-cutting

1.922,4 M.€ Adjudicados. España: 197,5 M.€ (10,3%) 11,3 %-UE

En 181 propuestas de las 312 financiadas hay participación ES (58%)

ES lidera 48 proyectos (15,4%)

AREA RENOVABLES – AREA WIND- 2014-2018:

14 proyectos aprobados, 7 liderados por ES (50%). En 12 proyectos hay participación española (85%)

Total Adjudicado área Wind: 132,7 M.€. Adjudicado a Entidades Españolas: 40,92 M.€

Retorno: 30,8 % total.

PROYECTOS H2020- AREA "WIND"

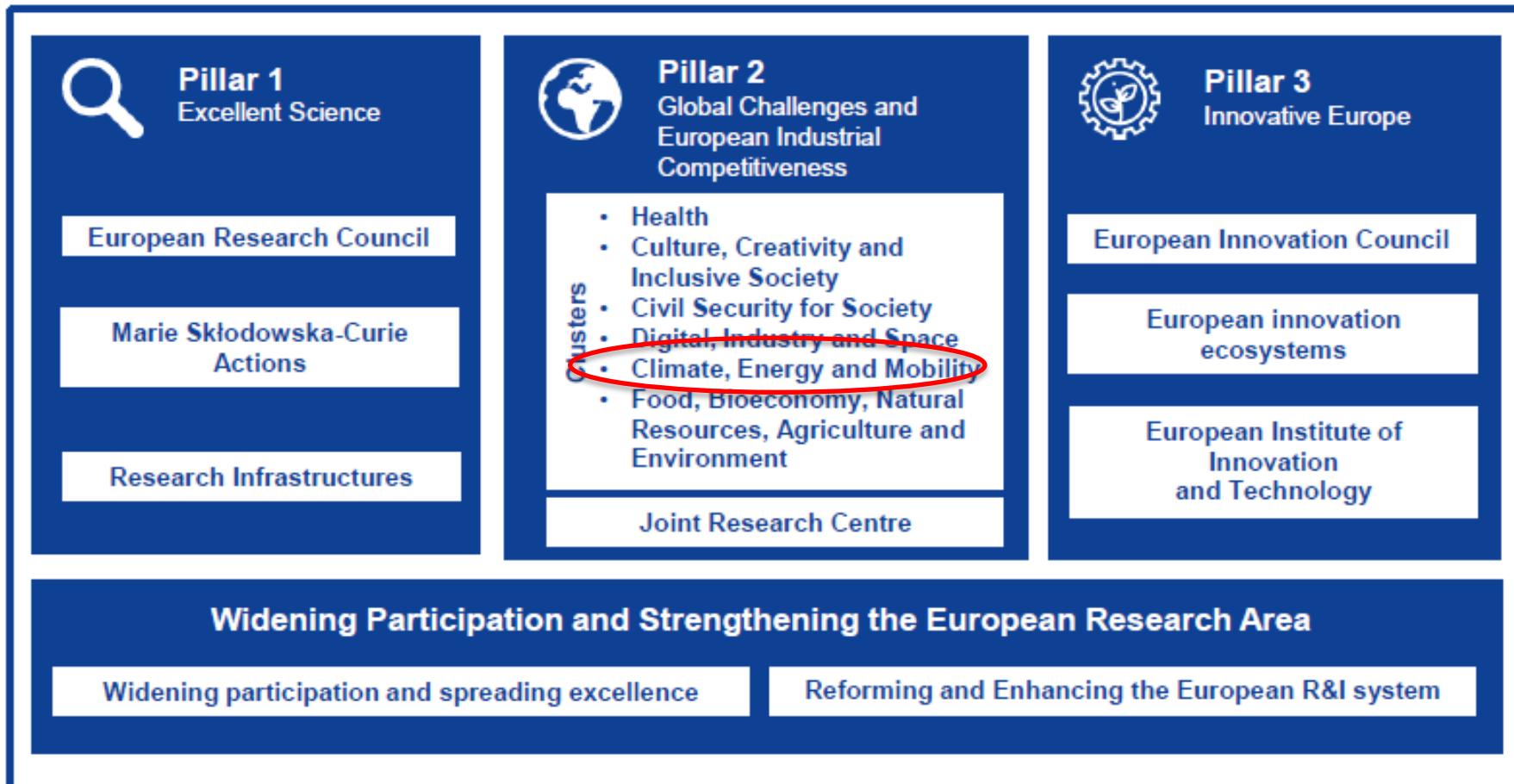
CALL	Tipo Pyto	Acrónimo	Titulo	Budget M.€	Coordinador	Participacion Española
2014	RIA	LIFES 50plus	Qualification of innovative floating substructures for 10MW wind turbines and water depths greater than 50m.	7,27	Nosk MARINTEKNISK FORSKNINGSINSTITUTT AS (MRTK) NO	Tecnalia, IREC, Iberdrola Ingenieria y Construcción
	IA	ECOSWING	EcoSwing - Energy Cost Optimization using Superconducting Wind Generators - World's First Demonstration of a 3.6 MW Low-Cost Lightweight DD Superconducting Generator on a Wind Turbine	13,85	Envision Energy (DK)	
	IA	Riblet4Wind	Riblet-Surfaces for Improvement of Efficiency of Wind Turbines	4,28	Fraunhofer IFAM (DE)	Ecosultant, Univ.Barcelona
2015	RIA	TELWIND	INTEGRATED TELESCOPIC TOWER AND EVOLVED SPAR FLOATING SUBSTRUCTURE FOR LOW-COST DEEP OFFSHORE WIND AND NEXT GENERATION OF 10MW+ TURBINES	3,50	ESTEYCO, S.A (ES)	Esteyco, COBRA, UC-IHC, CEDEX
	IA	ELICAN	SELF-INSTALLING TELESCOPIC SUBSTRUCTURE FOR LOW-COST CRANELESS INSTALLATION OF COMPLETE OFFSHORE WIND TURBINES. DEEP OFFSHORE 5MW PROTOTYPE	17,11	ESTEYCO, S.A (ES)	Esteyco, Adwen Offshore
	IA	DEMOGRAV13	Demonstration of the GRAV13 technology – innovative gravity foundation for offshore wind	26,82	EDP RENEWABLES EUROPE SL (ES)	EDP Renovables, TYPESA, UPM, Acciona Infraestructuras
2016	RIA	CL-WINDCON	Closed Loop Wind Farm Control	4,93	FUNDACION CENER-CENER (ES)	Cener, Ikerlan-IK4, QI-ENERGY
	RIA	TOTALCONTROL	Advanced integrated supervisory and wind turbine control for optimal operation of large Wind Power Plants	4,88	DANMARKS TEKNISKE UNIVERSITET - DTU (DK)	
	IA	ROMEO	Reliable OM decision tools and strategies for high LCoE reduction on Offshore wind	16,38	Iberdrola Renovables Energía, S.A. (ES)	Iberdrola Renovable, INDRA, Laulagun Bearings S.A., Adwen Offshore, ZABALA
2017	RIA	UPWARDS	Understanding of the Physics of Wind Turbine and Rotor Dynamics through an Integrated Simulation Framework	4,00	SINTEF (NO)	AWS TRUEPOWER, S.L.
	IA	REALCoe	Next Generation 12+MW Rated, Robust, Reliable and Large Offshore Wind Energy Converters for Clean, Low Cost and Competitive Electricity	32,32	SENVION GMBH (DE)	INGETEA
2018	IA	i4Offshore	Integrated Implementation of Industrial Innovations for Offshore Wind Cost Reduction	27,24	Siemens Gamesa Renewable Energy AS (DK)	NAVANTIA, WINDAR Renovable
	RIA	PivotBuoy	PivotBuoy - An Advanced System for Cost-effective and Reliable Mooring, Connection, Installation & Operation of Floating Wind	3,96	EXPONENTIAL RENEWABLES SL (ES)	X1 WIND, PLOCAN, DEGIMA
	RIA	FLOTANT	Innovative, low cost, low weight and safe floating wind technology optimized for deep water wind sites	4,94	PLOCAN (ES)	PLOCAN, ESTEYCO, AIMPLAS, Future Fibres, COBRA

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Horizon Europe: evolution not revolution

Horizon Europe: Preliminary structure



Source: European Commission

Clusters in 'Global Challenges and European Industrial Competitiveness'

Clusters	Areas of intervention	
Health	<ul style="list-style-type: none"> • Health throughout the life course • Non-communicable and rare diseases • Tools, technologies and digital solutions for health and care, including personalised medicine 	<ul style="list-style-type: none"> • Environmental and social health determinants • Infectious diseases, including poverty-related and neglected disease • Health care systems
Culture, creativity and inclusive society	<ul style="list-style-type: none"> • Democracy and Governance • Social and economic transformations 	<ul style="list-style-type: none"> • Culture, cultural heritage and creativity
Civil security for society	<ul style="list-style-type: none"> • Disaster-resilient societies • Protection and Security 	<ul style="list-style-type: none"> • Cybersecurity
Digital, Industry and space	<ul style="list-style-type: none"> • Manufacturing technologies • Advanced materials • Next generation internet • Circular industries • Space, including Earth Observation • Emerging enabling technologies 	<ul style="list-style-type: none"> • Key digital technologies, including quantum technologies • Artificial Intelligence and robotics • Advanced computing and Big Data • Low-carbon and clean industry • Emerging enabling technologies
Climate, Energy and Mobility	<ul style="list-style-type: none"> • Climate science and solutions • Energy systems and grids • Communities and cities • Industrial competitiveness in transport • Smart mobility 	<ul style="list-style-type: none"> • Energy supply • Buildings and industrial facilities in energy transition • Clean, safe and accessible transport and mobility • Energy storage
Food, bioeconomy, natural resources, agriculture and environment	<ul style="list-style-type: none"> • Environmental observation • Agriculture, forestry and rural areas • Circular systems • Food systems 	<ul style="list-style-type: none"> • Biodiversity and natural resources • Seas, oceans and inland waters • Bio-based innovation systems in the EU Bioeconomy

Source: European Commission

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Areas de Intervención – Cluster 5

CLUSTER 5: CLIMATE, ENERGY AND MOBILITY

4.1 Advance climate science and solutions for a climate neutral and resilient society

4.2 Cross-sectoral solutions for decarbonisation

4.2.1 Establish a competitive and sustainable European battery value chain

4.2.2 Strengthen the European value chain for low-carbon hydrogen and fuel cells

4.2.3 Develop sustainable infrastructure, services and systems for smart and sustainable communities and cities

4.2.4 Foster emerging breakthrough technologies and climate solutions

4.3 Develop cost-efficient, net zero-greenhouse gas energy system centred on renewables

4.3.1 Achieve global leadership in renewable energy 

4.3.2 Develop flexible, zero greenhouse gas emission and citizen-centred energy systems and grids

4.3.3 Develop carbon capture, utilisation and storage (CCUS) solutions for the power sector and energy-intensive industries

4.3.4 Develop flexible and efficient energy storage solutions

4.3.5 Leverage more public and private investments in clean energy systems

4.4 Develop demand side solutions to decarbonise the energy system

4.4.1 Empowering citizens to engage in energy markets

4.4.2 Achieving a highly energy-efficient and decarbonised EU building stock

4.4.3 Support industrial facilities in the energy transition

4.5 Develop low-carbon and competitive transport solutions across all modes

4.6 Develop seamless, smart, safe, accessible and inclusive mobility systems

Steps towards the first Horizon Europe work programme



PUBLIC SURVEY by **17 November 2019** to share your views on the revised version of the [Orientations towards the first Strategic Plan for Horizon Europe](https://ec.europa.eu/info/news/share-your-views-revised-version-orientations-towards-first-strategic-plan-horizon-europe-2019-oct-31_es) document.

https://ec.europa.eu/info/news/share-your-views-revised-version-orientations-towards-first-strategic-plan-horizon-europe-2019-oct-31_es

ENLACES DE INTERES

Contexto Político:

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

ENERGY UNION: https://eur-lex.europa.eu/resource.html?uri=cellar:1bd46c90-bdd4-11e4-bbe1-01aa75ed71a1.0001.03/DOC_1&format=PDF

WINTER PACKAGE:
<https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition>

ACEI: https://eur-lex.europa.eu/resource.html?uri=cellar:3473410d-b7de-11e6-9e3c-01aa75ed71a1.0001.02/DOC_3&format=PDF

2050 long – term strategy:
https://ec.europa.eu/clima/policies/strategies/2050_en

MISSION INNOVATION – IC3- Carbon Capture:
<http://mission-innovation.net/our-work/innovation-challenges/carbon-capture/>

Funding Opportunities:

Funding & Tender Opportunities Portal:
<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home>

Research Enquiry Service:
<http://ec.europa.eu/research/index.cfm?pg=enquiries>

Information Days for the H2020 Energy calls 2020:
<https://ec.europa.eu/inea/en/news-events/events/horizon-2020-energy-info-days>

Information Days for the H2020 Energy calls 2019:
<https://ec.europa.eu/inea/en/news-events/events/horizon-2020-energy-info-day> (Energy system and Smart Cities and Communities)

<https://ec.europa.eu/easme/en/horizon-2020-energy-efficiency/horizon-2020-energy-efficiency-information-day-main-takeaways> (Energy efficiency)

<https://ec.europa.eu/inea/en/news-events/events/horizon-2020-energy-virtual-info-day> (Renewables, CCUS, Batteries)

Muchas gracias por su atención

+ info sobre programas y ayudas
para la
internacionalización de la I+D+I española

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