

H2020: ENERGÍA LIMPIA, SEGURA Y EFICIENTE: WP2018-2020



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Contexto político

- Global: Acuerdo de París y COP21-22
- UE: Paquete Energía y Clima 2030
- UE: Unión de la Energía
- SET Plan & Integrated Roadmap
- *UE: Paquete legislativo "invernal"



Acuerdo París- COP21-22



COP21 · CMP11
PARIS 2015
UN CLIMATE CHANGE CONFERENCE



Implementation of
National Climate
Plans

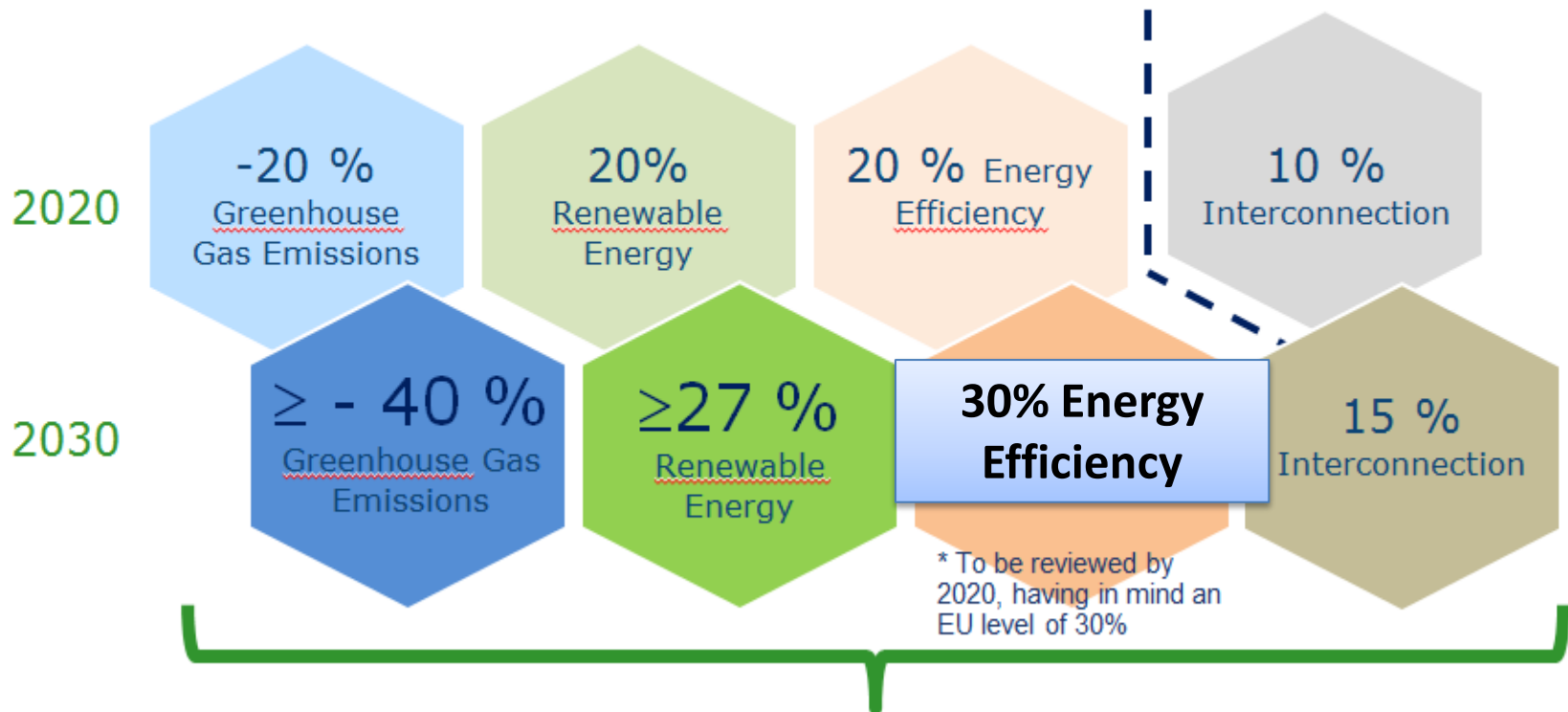
-> ca. **€ 1 trillion
investment / year**
in low-carbon
technologies,
renewables and
energy efficiency

Mission Innovation -
> **Doubling of R&D
funds for clean
energy**

<http://www.mission-innovation.net/>

UE: 2030 Framework for Climate and Energy

Agreed headline targets



New governance system + indicators

2015: Energy Union, feb 2015

http://ec.europa.eu/priorities/energy-union/index_en.htm

Energy Union

- *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*



Winter Package – Clean Energy for all european



- Clean Energy For All Europeans
- Electricity market and consumers
- Energy Efficiency Package (Revision EPBD, EED)
- Revised Renewable Energy Directive (**RED**) and bioenergy sustainability policy for 2030 (RES share of at least 27% in the EU in 2030);
- Communication on the most vital energy infrastructures
- Revision of the Regulation on security of electricity supply.
- **Governance** of the Energy Union (preparing the ground for creating **Integrated National Energy and Climate Plans** for the period of 2021 to 2030).
- **An Energy Union research, innovation and competitiveness strategy for a low carbon economy (EURICS) – “Accelerating Clean Energy Innovation”**
- Energy prices and costs
- Second State of Energy Union

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







SET Plan actions under the Energy Union



Energy Union

Research, Innovation and Competitiveness Priorities

SET-Plan 10 Key Actions

<p>No1 in Renewables</p> 	<p>1 Performant renewable technologies integrated in the system</p> <p>2 Reduce costs of technologies</p>	<p>Sustainable Transport</p> 	<p>7 Competitive in global battery sector and e-mobility</p> <p>8 Renewable fuels and bioenergy</p>
<p>Consumers in the Energy System</p> 	<p>3 New technologies & services for consumers</p> <p>4 Resilience & security of energy system</p>	<p>Carbon Capture Utilisation and Storage</p> 	<p>9 Carbon Capture Storage / Use</p>
<p>Efficient Energy Systems</p> 	<p>5 New materials & technologies for buildings</p> <p>6 Energy efficiency for industry</p>	<p>Nuclear Safety</p> 	<p>10 Nuclear safety</p>

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

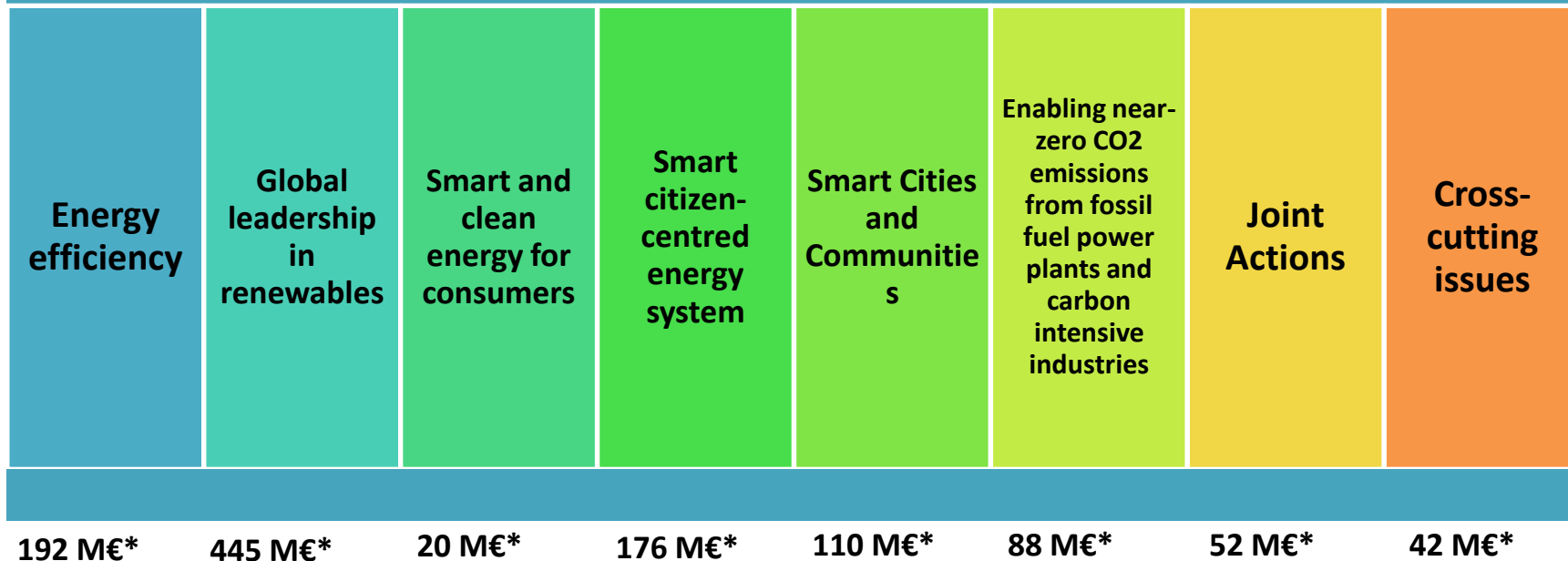
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Societal Challenge 3 - Secure, clean and efficient energy

BUDGET TOTAL: 1.130 M.€

Calls for proposals LC-SC3-2018-2019-2020



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

WP 2018-2020: http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-energy_en.pdf

Information Day Bruselas: https://ec.europa.eu/easme/en/horizon-2020-secure-clean-and-efficient-energy-info-day?pk_campaign=energy-nwl-2017-10

ENERGY EFFICIENCY

Energy
efficiency

Upgrading buildings`energy performance and smartness

Energy efficiency industry and services

Energy Efficiency is an investment

Energy Efficiency is as energy source

Support for policy-driven innovations



Call 2018 (Deadline 4/9/2018)



Global leadership in renewables

Next Generation Renewable Energy Solutions

RES for implementation at CONSUMER SCALE

RES in Buildings

RES in District Heating and Industry

RES for ENERGY SYSTEM LEVEL IMPLEMENTATION

Reduce of Cost of Key Technologies

Optimize processes and manufacturing

Provide Flexibility in the energy system

RENEWABLE FUELS for TRANSPORT

Drop-in Renewables Fuels

Upscaling Renewables Fuels

MARKET UPTAKE

Global leadership in renewables

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

EC-Smart and Clean Energy for Consumers

Smart and
clean
energy for
consumers

Principales Retos:

- Conocer, entender y modificar el comportamiento en el consumo energético de los consumidores
- Soluciones de demanda activa
- Entender cómo los consumidores consideran, usan y valoran la energía y los servicios que proporciona.

LC-SC3-EC-1-2018-2019-2020:

The role of consumers in changing the market through informed decision and collective actions - CSA

LC-SC3-EC-2-2018-2019-2020: Mitigating household energy poverty - CSA

ES-Smart citizen-centred energy system

Smart
citizen-
centred
energy
system

GRID

- **ES-1-2019:** Flexibility and retail market options for the distribution grid (IA)
- **ES-2-2019:** Solutions for increased regional cross-border cooperation in the transmission grid (IA)
- **ES-5-2018-2020:** TSO – DSO – Consumer: Large-scale demonstrations of innovative grid services through demand response, storage and small-scale (RES) generation (IA)
- **ES-6-2019:** Research on advanced tools and technological development (RIA)
- **ES-7-2018:** Pan-European Forum for R&I on Smart Grids, Flexibility and Local Energy Networks (CSA)

LOCAL SYSTEMS & ISLANDS

- **LC-SC3-ES-3-2018-2020:** Integrated local energy systems (Energy islands) (IA)
- **LC-SC3-ES-4-2018-2020:** Decarbonising energy systems of geographical Islands (IA)
- **LC-SC3-ES-8-2019:** European Islands Facility - Unlock financing for energy transitions and supporting islands to develop investment concepts (CSA)

Call 2018 (Deadline 5/4/2018)

ES-Smart citizen-centred energy system

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- **ES-5-2018-2020:** TSO – DSO – Consumer: Large-scale demonstrations of innovative grid services through demand response, storage and small-scale (RES) generation (IA)
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Incrementar la capacidad de la red eléctrica europea para acoger gran cantidad de EERR y acelerar la descarbonización del sistema energético.

Se requiere: Involucrar consumidor, mas flexibilidad en los servicios de la red de distribución y transmisión, buen funcionamiento de la red minorista y mayorista de electricidad, financiación de inversiones necesarias, ...

ES-Smart citizen-centred energy system

Descarbonizar sistemas energéticos en Islas Geográficas e Islas Energéticas.

Disponibilidad de recursos locales, especificidad de la demanda, redes de energías locales, diseño de sistema energético local y bajo en carbono

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Why Smart Cities and Communities?

Smart
citizen-
centred
energy
system



- Improving quality of live, competitiveness and sustainability
- Exporting European knowledge in a strong growth market estimated globally at €1.3 trillion in 2020
- 'Lighthouse project' approach continued

SCC-Smart Cities and Communities

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

Claves:

- Soluciones Innovadoras Integradas para **Positive Energy District (PED)**
- Interacción entre Edificios, Usuarios, sistema energético y electromovilidad
- Replicación de soluciones desplegadas en las ciudades followers

POSITIVE ENERGY BUILDINGS/DISTRICT:

- Varios Edificios (nuevos, reformados o ambos)
- Activa gestión de los consumos y de los flujos de energía entre los edificios y con el sistema energético
- Balance positivo de energía Anual
- Uso de: materiales avanzados, RES local, almacenamiento local, redes inteligentes, respuesta a la demanda, gestión de energía (e- , H&C), usuario activo y ICT.
- Diseñados para escalar las soluciones a otras zonas de la ciudad.

Requisitos:

2 ciudades faro + al menos 5 followers. No repetir ciudad faro en H2020

15-20 M.€/proyecto ; 48-60 meses.

NZE - nabling near-zero CO2 emissions from fossil fuel power plants and carbon intensive industries



Enabling near-zero CO2 emissions from fossil fuel power plants and carbon intensive industries

Aspectos claves:

- Demostración de la cadena completa de CCSU
- Reducir costes de captura y el consumo energético asociado a esos procesos
- Capacidad de almacenamiento a coste efectivo en regiones seleccionadas- estudio
- Nuevas soluciones de conversión de CO2 en combustibles o químicos
- Integración de flexibilidad de plantas térmicas con almacenamiento Power to X to Power

LC-SC3-NZE-1-2018: Advanced capture technologies - RIA

LC-SC3-NZE-2-2018: Conversion of captured CO2 - RIA

LC-SC3-NZE-3-2018: Strategic planning for CCUS development - CSA

LC-SC3-NZE-4-2019: Integrated solutions for flexible operation of fossil fuel power plants through power-to-X and energy storage - IA

LC-SC3-NZE-5-2019-2020: Low carbon industrial production using CCUS - IA

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H2020-SOCIETAL CHALLENGE 3: ENERGY

2014-2015-2016

EU Grant obtained: 185 M€

171 RDI activities with Spanish participation (Total 303) 56%

48 coordinated (15,8%)

Main Area: “Smart Cities and Communities” ;
Spain 1st. country - 18,6% EU-28

Industry 52,8%
TC&Univ. 13,4%
PA 10,3%

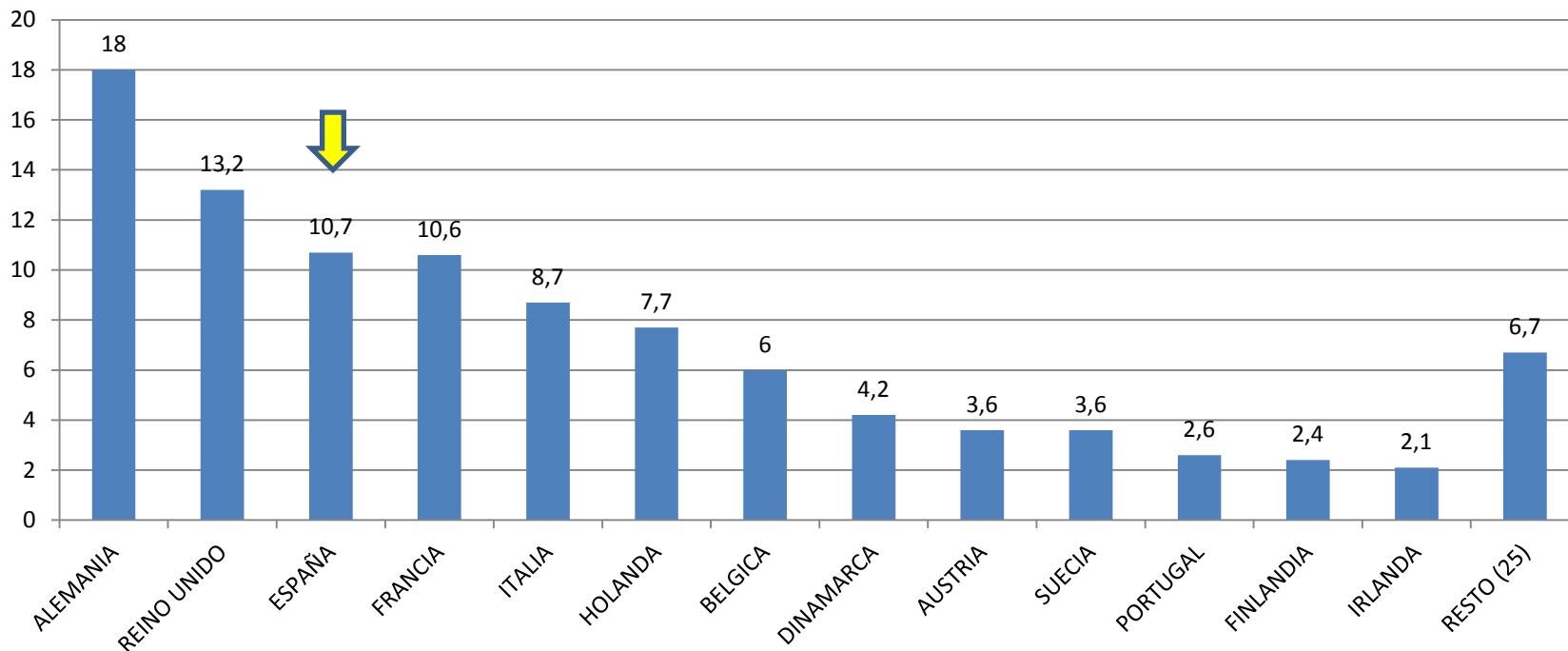
Main participants:
Tecnalia, Acciona
Construcción,
Adwen Offshore,
Esteyco y CENER

Provisionally Spain 3rd country: 12,1% UE-28

*without Including JTI FCH – Fuel Cells and Hydrogen

H2020- SOCIETAL CHALLENGE 3- 2014-2015-2016 Low Carbon Energy (LCE)

Retornos por PAISES -% UE 28



1.218,4 M.€ Total Adjudicado. España: 121,5 M.€ (10%)

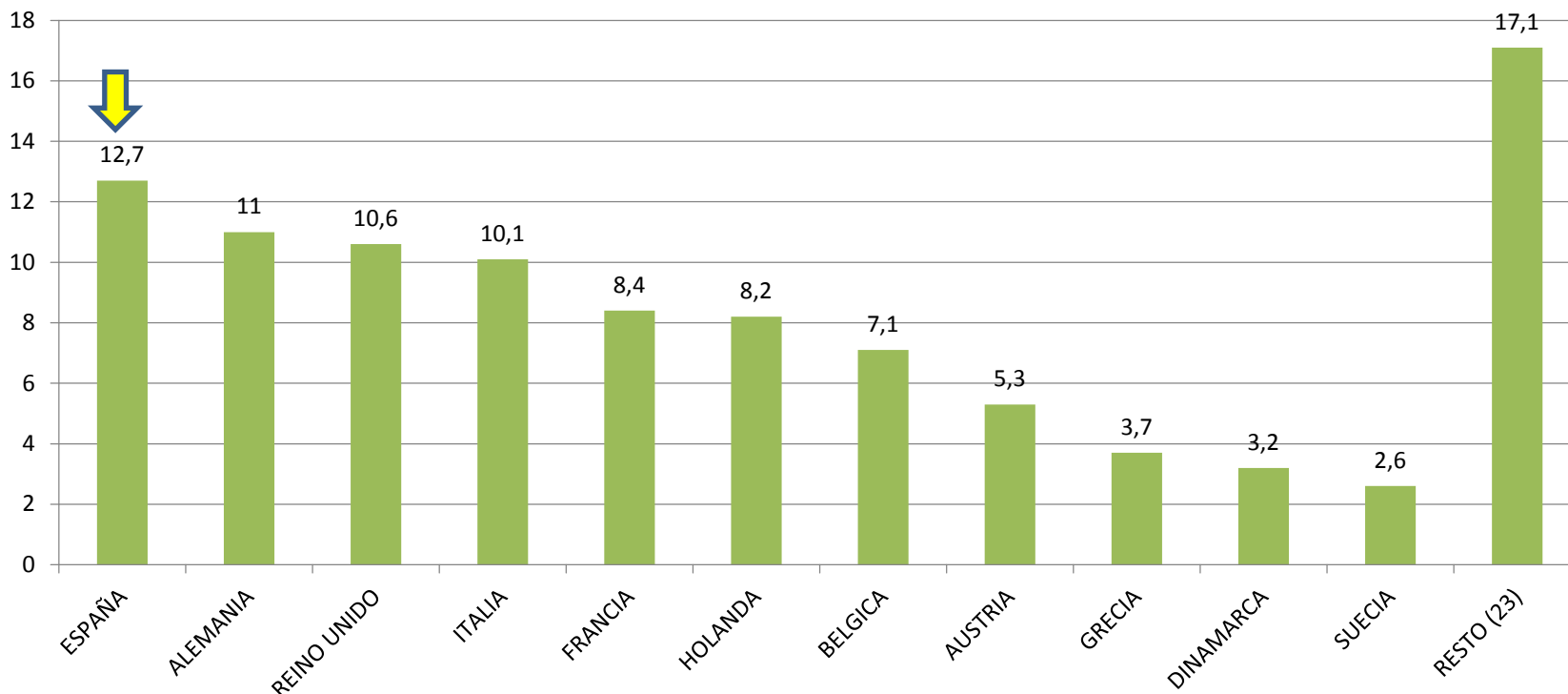
En 98 propuestas de las 185 financiadas hay participación ES (55%)

ES lidera 26 proyectos (14%)

No incluye datos de la JTI-FCH

H2020- SOCIETAL CHALLENGE 3- 2014-2015-2016 Energy Efficiency (EE)

Retorno por PAISES % UE-28



198,25 M.€ Total Adjudicado. España: 24,05 M.€ (12,1%)

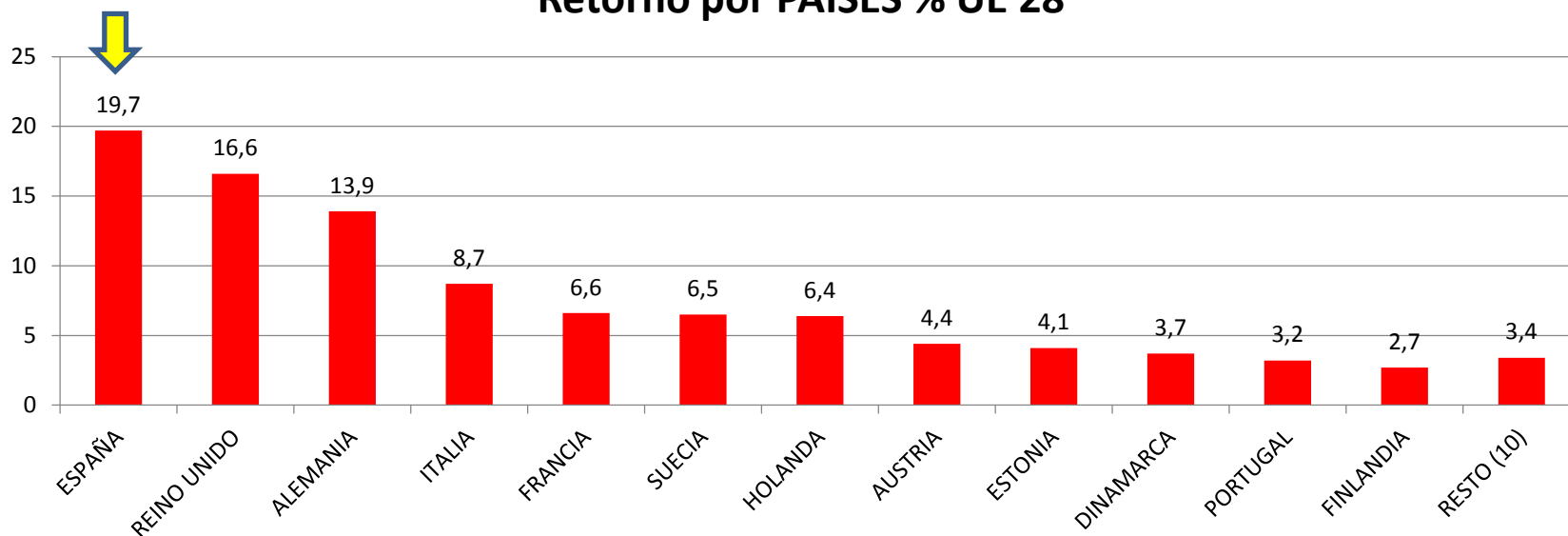
En 64 propuestas de las 107 financiadas hay participación ES (60%)

ES lidera 18 proyectos (17%)

No incluye datos de la JTI-FCH

H2020- SOCIETAL CHALLENGE 3- 2014-2015-2016 Smart Cities and Communities (SCC)

Retorno por PAISES % UE 28



213,4 M.€ Total Adjudicado. España: 39,55 M.€ (18,5%)

En 9 propuestas de las 11 financiadas hay participación ES (82%)

ES lidera 4 proyectos (36%)

No incluye datos de la JTI-FCH

SC3 en España



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ESHORIZONTE 2020

Portal español del Programa Marco de Investigación e Innovación de la Unión Europea

¡GRACIAS!

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