

The management of energy and innovation in Andalusia



Agencia Andaluza de la Energía
CONSEJERÍA DE HACIENDA, INDUSTRIA Y ENERGÍA

Energy and Innovation: Regional context in Andalusia



GDP 16.666 € pc (2013)
73% pc EU 27 (2011)



Area
87.597 km²

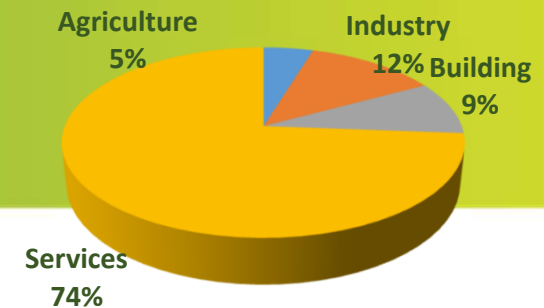
Population (2014)
8.392.635

Transition Region

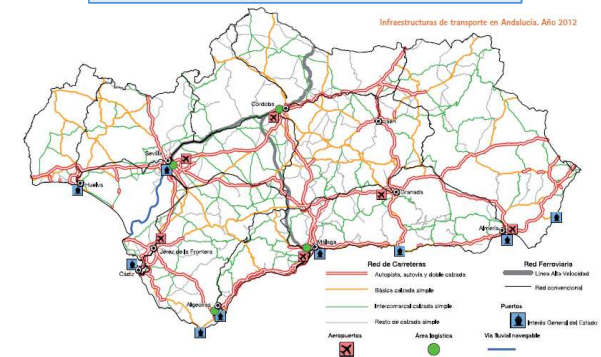
Nº of companies
(2013) 472.370

83% qualified
working
population
34,2 % university
graduates

Total spending R&D /GDP 1,1%
Private sector 36,3 %

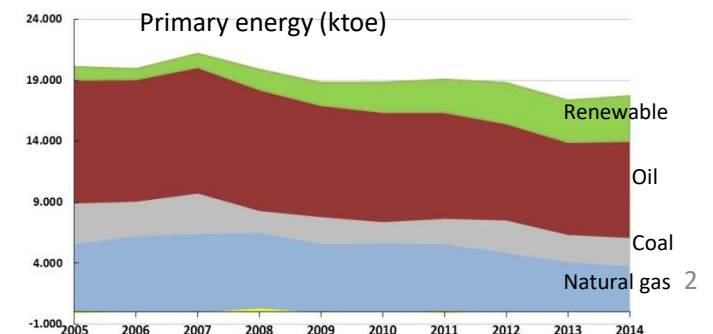


Excellent communication
networks



Andalusia has a very **high potential of renewable resources** due to its geographical situation, climatology and morphology.

The use of renewable energies has **tripled in the last 10 years** and currently contributes up to 20% of the total energy consumed.



Energy and Innovation: Regional context of Andalusia

Andalusia: Competitive Advantages



The **Andalusian energy sector** has experienced an important growth of renewable energy in recent years which has generated a new business field. The sector as a whole is formed of **more than 7,800 companies (17.4% in renewables) that generate 125,000 jobs (36.2% in renewables.)**

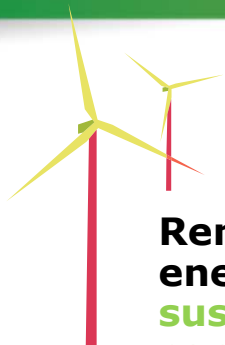
Experience in the implementation of a wide set of programmes aimed at **improving energy efficiency** in construction, tourism and industry, with an important number of companies, some of them being leaders in their field.

Experience in the **construction sector**, with a high volume of skilled workers in the different industries linked to it and several centres and research groups with experience in the development of new material, such as multifunctional, ceramics or micronised marble that play an important role in knowledge transfer and technology with the sector.

World leader in some areas and **technologies of renewable energy**, such as solar energy, biomass and biofuels.

Research centres of reference in these areas, such as the **Solar Platform of Almeria** - considered as one of the most important technological research centres in the world, biomass testing facilities, as well as the Solúcar Platform in Sanlúcar la Mayor (Seville).

Smart Specialisation Strategy on Energy



**Renewable energy,
energy efficiency and
sustainable
construction**

Principle of governance



- ➡ **Development of land and marine renewable energy**
- ➡ **Energy smart grids**
- ➡ **High capacity systems of energy storage**
- ➡ **Energy efficiency in businesses, houses and institutions**
- ➡ **Energy sustainability in rural areas**
- ➡ **New construction designs and materials and sustainable processes**

Regional Policy for a low carbon economy in 2014-2020



Regional Policy for a low carbon economy in 2014-2020



REDUCE BY 25% THE TENDENTIAL PRIMARY ENERGY CONSUMPTION



PROVIDE 25% OF FINAL GROSS ENERGY CONSUMPTION WITH RENEWABLE ENERGY



5% SELF-CONSUMPTION OF ELECTRICITY GENERATED WITH RENEWABLE SOURCES



DECARBONIZE THE ENERGY CONSUMPTION BY 30% COMPARED TO 2007



IMPROVE BY 15% THE QUALITY OF ENERGY SUPPLY

Energy and Innovation in the Regional Policy for a low carbon economy 2014-2020



- Incentives for energy innovation and transfer of results
- Dissemination and commercialisation of research results and promotion of technology transfer
- Internationalisation of the Andalusian energy sector: improvement of the capacities of Andalusian companies to favour their presence in international markets
- Innovation in energy technologies and increase in the potential and use of autochthonous energy resources
- Roadmap for the development of biorefineries in Andalusia
- Development of the hydrogen economy in Andalusia

Energy and Innovation in the Industrial Policy

Industrialise Andalusia

More and better companies

Raise the GVA in Andalusia to 18%

+ 50% of GVA generated by medium and high technology activities

+ 20% of manufacturing companies and industrial services of between 10 and 50 people

- 5% energy intensity of Andalusian industry

Increase industrial employment

More and better quality jobs

+ industrial employment

+ employment in advanced services

- 10% temporality

-30% serious and fatal accidents

Improve innovation in industry

More innovation

Innovative manufacturing companies X 2

+ 20% innovation intensity of the companies with innovative activities of the industrial sector

+ 50 % number of national patent applications

+ 100 % companies of the industrial sector incorporating into the digital market

Industrial internationalisation

More exporting companies and greater foreign investment

+ 20% exporting companies of the manufacturing industry with an export volume of more than 50,000 € annually

+ 20% amount of exports of manufacturing industries

+ 50% of exports in medium and high technology activities

+ 30% FDI in the manufacturing industry and in the advanced scientific and technical services in the framework 2014-2020

Relational capital of the industrial system

More cooperation and collaboration

+ 50 % of companies in the manufacturing industry with innovations in products or processes realised in collaboration

+ 20% of directives companies in the manufacturing industry and in advanced scientific and technical services

Energy and Innovation in the Industrial Policy

Energy R+D+i

- 43 Hybridization of energy sources
- 44 Smart energy storage
- 46 Production oriented at bioeconomy

Distribution

- 47 Smart Grid
- 48 Smart logistics in new hydrocarbons
- 49 Distribution grids

Auxiliary energy

- 50 Tractor integration for renewables
- 51 International expansion of renewables
- 52 Energy efficiency services and products

Chemical

- 54 Innovation in biorefineries
- 55 Efficient chemical logistics
- 56 Energy efficient chemistry
- 57 Tractor integration for chemical industries

Regional Policy: Budget distribution (by programmes and beneficiaries)

- Need for concentration in the regional Operative Programme
- Need to incorporate the following concepts:
 - Specialisation and integration of the **value chain**
 - **Innovation**, knowledge, added **value**
 - Creation of quality **employment**
 - Need for integration of policies to generate wealth: **reindustrialisation**



Estrategia Energética
ANDALUCÍA 2020

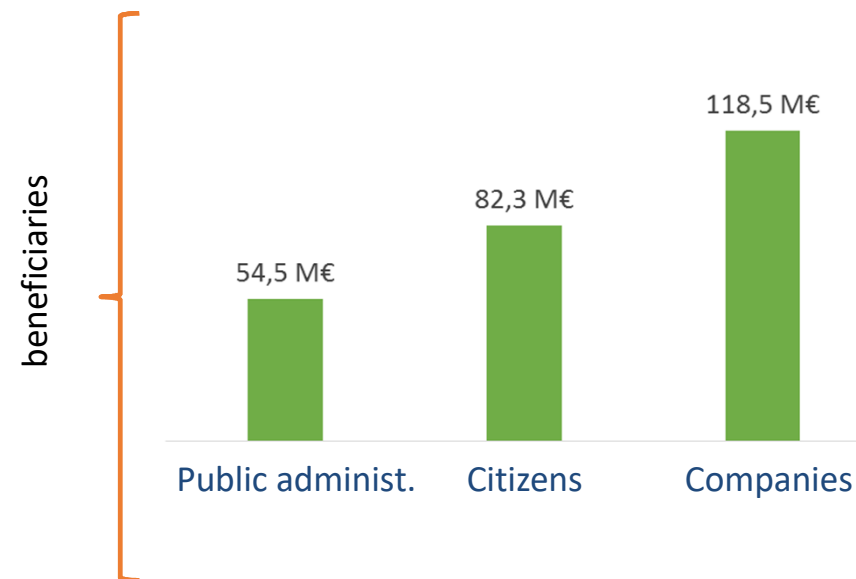
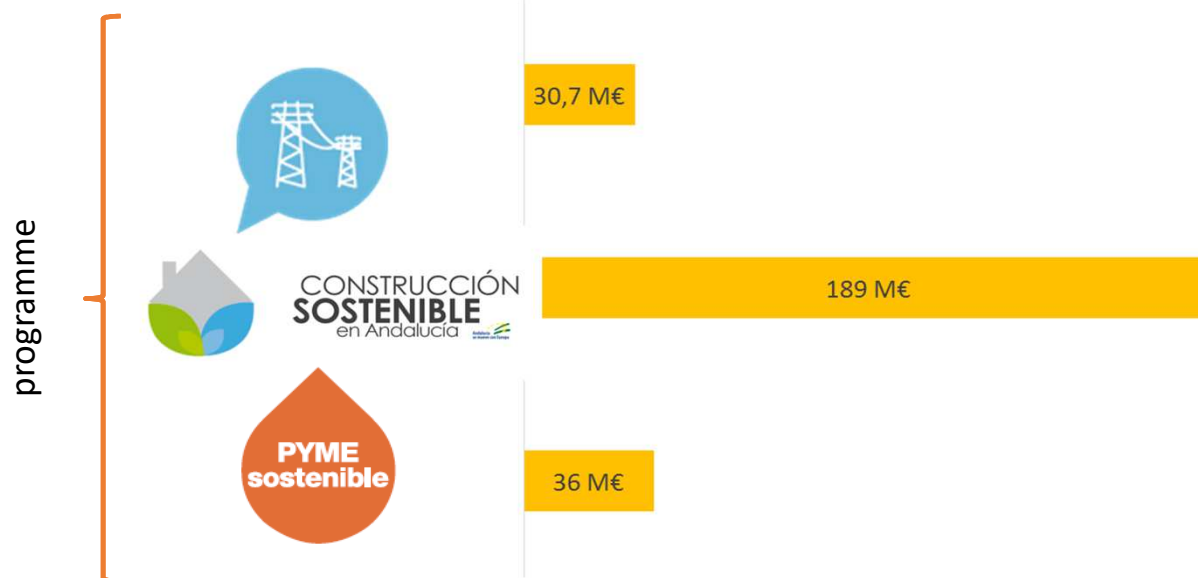


CONSTRUCCIÓN
SOSTENIBLE
en Andalucía
Plan Integral de Fomento para el Sector de la
Construcción y Rehabilitación Sostenible de Andalucía



Regional Policy: Budget distribution (by programmes and beneficiaries)

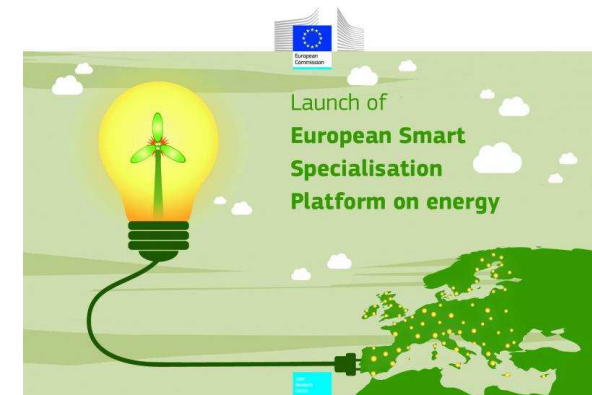
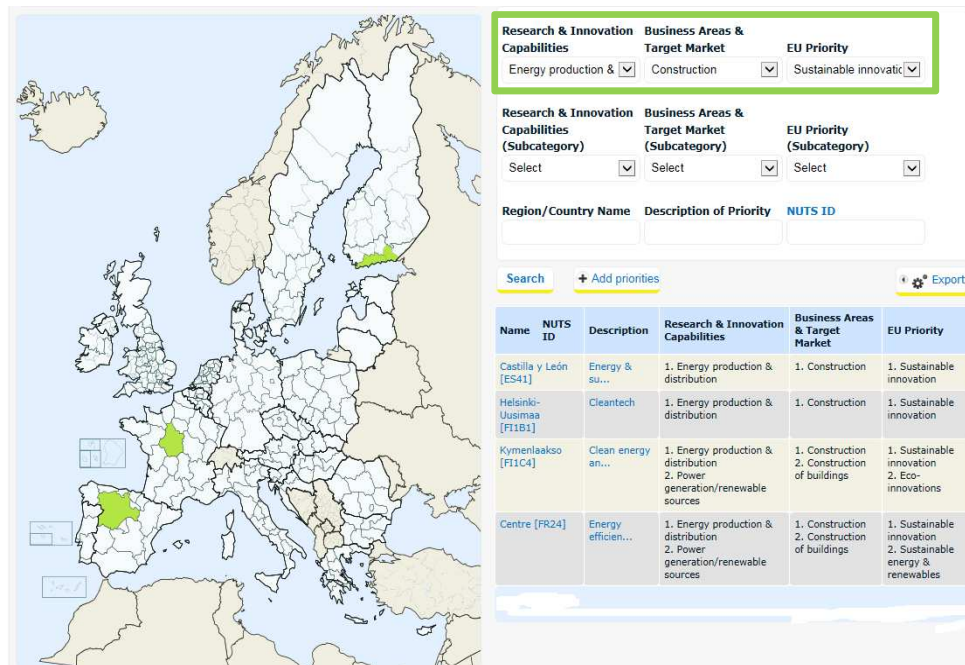
255.3 M€



Why cooperation is important to better implement your RIS3 energy-related priorities?

Map of Smart Specialisation: Eye@RIS3

<http://s3platform.jrc.ec.europa.eu/>.



Towards a Model of Sustainable Construction and Energy Efficient Buildings.



European Partnerships in areas of interest for Andalusia

European Partnership on Advanced Materials for Batteries

Led by Andalusia, Castille and Leon and Slovenia
Wide Andalusian representation: 23 entities involved

22 European
regions
15 countries



Wide support from the EC:
1 of the 6 strategic sectors

European Partnership on Sustainable Buildings

Led by Andalusia
1st pilot project selected by the EC: Smart Campus

53 European
regions
23 countries



First Partnership promoted by
the European Commission in
energy

European Partnership on Heating and Cooling

Led directly by the European Commission
2nd pilot project selected by the EC: Network of networks

10 European
regions
8 countries



Support to regions in
their heating and
cooling policies

*The European Commission foresees allocating 1,000 M Euros to projects promoted in the framework of these Partnerships. **Good positioning of Andalusia.***

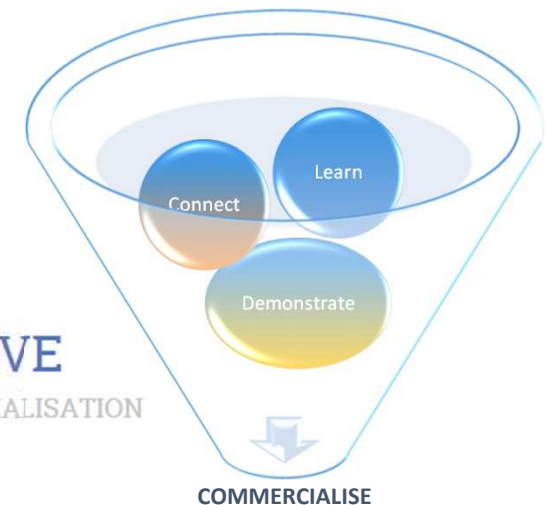
European Partnerships in areas of interest for Andalusia

The methodology, similar to Vanguard Initiative, has had a logical evolution that has been based on the following points:

- Discussion of common objectives and find complementarities between regions.
- Better understanding of regions' industrial competencies and capabilities.
- Development of joint strategic action plans.
- Aligning regional strategic investments arising from these roadmaps.



VANGUARD INITIATIVE
NEW GROWTH THROUGH SMART SPECIALISATION



ADVANCED MATERIAL FOR BATTERIES PARTNERSHIP – AMBP

Main aim: develop joint R&D&I projects on advanced materials for application in the field of batteries for electric mobility and to improve the capacity and performance of stationary energy storage

Key elements:

- Contribute to the modernisation of the industry in the field of specialised advanced materials for electromobility and stationary energy storage;
- Accelerate the transition from the laboratory to the market;
- Support the development of regional innovation ecosystems as catalysts for new innovative companies;
- Strengthen interactions between industry, SMEs and universities based on complementarities and promoting synergies; and
- Support industrialisation processes and the creation of complete competitive value chains in Europe.

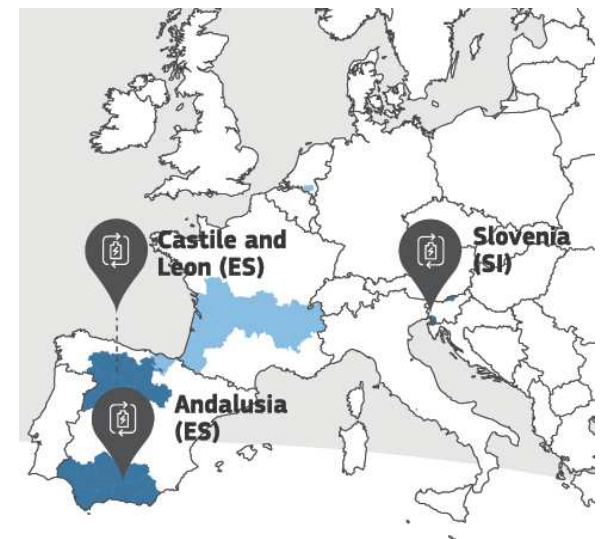


Composition: 22 regions

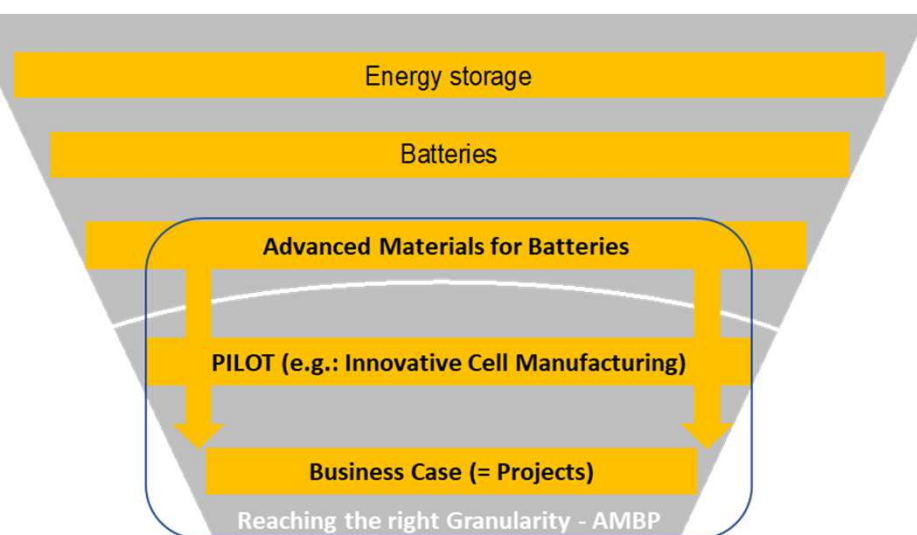


Leaders

Led by **Slovenia (SI)**, **Castile and Leon (ES)** and **Andalusia (ES)** the

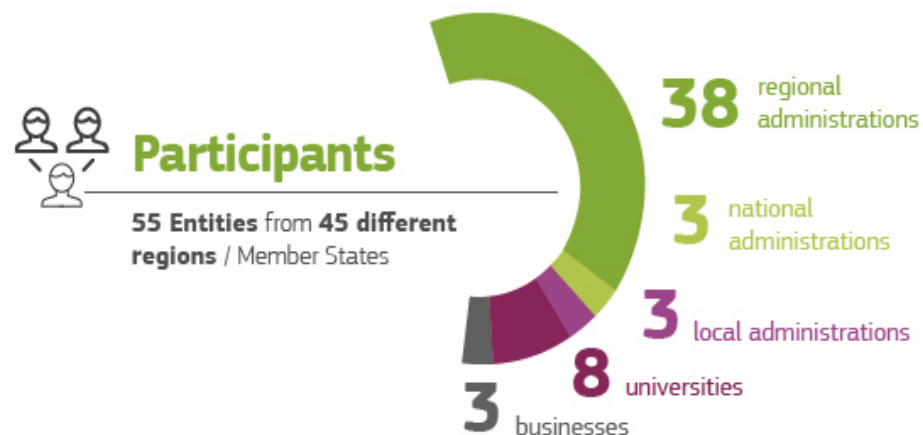


ADVANCED MATERIAL FOR BATTERIES PARTNERSHIP – AMBP



PILOTs / leading region /Coordinator		Partner Regions
1	Solid state lithium-ion batteries (Generation 4) BAVARIA <i>Coordinator:</i> Victor Trapp, victor.trapp@isc.fraunhofer.de	11: Auvergne Rhône Alpes (FR), Nouvelle-Aquitaine (FR), Flanders (BE), Brussels (BE), Basque Country (ES), Valencia (ES), Andalusia (ES), Aragon (ES), Vestland (NO), Viken (NO), Baden-Württemberg (DE)
2	Sustainable Raw Material, Extraction and Processing CASTILLA Y LEÓN <i>Coordinator:</i> Santiago Cuesta (Fundación Icamcyl) director.general@icamcyl.com	3: Oulu (FI), Kainuu (FI), Central Ostrobothnia (FI) Additional inputs by SIEMCALSA and the Iberian Sustainable Mining Cluster (ISMC)
3	Recycling of existing Lithium-ion Batteries BAVARIA <i>Coordinator:</i> Victor Trapp, victor.trapp@isc.fraunhofer.de	7: Flanders (BE), Andalusia (ES), Aragon (ES), Castilla y León (ES), Auvergne Rhone Alpes (FR), Vestland (NO), Baden-Württemberg (DE)
4	Liquid-based batteries (stationary) BASQUE COUNTRY and VALENCIA <i>Coordinators:</i> Mario Sanchez (mario.sanchez@ite.es) & Amaya Igartua (amaya.igartua@tekniker.es)	7: Aragon (ES), Slovenia (SL), Oulu (FI), Central Ostrobothnia (FI), Bavaria (DE), Andalusia (ES), Auvergne Rhône Alpes (FR)
5	Network of research & testing centers WEST SLOVENIA <i>Coordinator:</i> Robert Dominko, Robert.Dominko@ki.si	8: Viken (NO), Vestland (NO), Andalusia (ES), Auvergne Rhône Alpes (FR), Valencia (ES), Aragon (ES), Castilla y León (ES), Basque Country (ES)
6	Improved lithium-ion batteries (Generation 3b) AUVERGNE RHONE ALPES <i>Coordinator:</i> Simon Perraud, simon.perraud@cea.fr	5: Nouvelle-Aquitaine (FR), Flanders (BE), Brussels (BE), Baden-Württemberg (DE), Bavaria (DE)

Sustainable Buildings Partnership



Leader	Andalusian Energy Agency, Spain
Co - Leaders	LENERG, North Great Plain Hungary and REGEA, North Croatia Energy Agency

Sustainable Buildings Partnership



Eco-construction, bioclimatism and insulation of buildings

Scope: Areas of interest/work for the partnership

Topic 1: New materials with low carbon footprint

Topic 2: Innovative constructive processes: light prefabrication of low-cost housing, advanced manufacturing for new construction elements

Topic 3: Bioclimatic solutions based on green bio elements (in roofs, facades etc.)

Topic 1: Innovative solutions of high energy efficiency: evaporative cooling, LED lighting, micro-cogeneration....

Topic 2: Smart energy management systems and IoT Internet of Things :

Topic 3: Advanced solutions for energy rehabilitation of historical heritage buildings



Systems of maximum **energy efficiency** in buildings and cities

Topic 1: Climatisation with renewable energies

Topic 2: Self-consumption and energy storage

Topic 3: Low cost solutions aimed at vulnerable groups



Renewable energy integration in buildings

Sustainable Buildings Partnership

Opening of collaboration business offers



Smart Campus Project: Objective: improve the energy efficiency of University Campuses

Regions involved: Andalusia, LR (ES); Friuli Venezia Giulia Region, SC (IT); Algarve Region (PT); South Karelia (FI); Provence-Alpes-Côte-d'Azur (FR); Central Slovenia (SI)

Sustainable Buildings Partnership

Context:

Interregional Innovation Projects

Support from S3Platform and external experts

The pilot action will accelerate the work done within the TSSP

The focus will be on projects on higher TRLs (>5/6 TRL)
The results will feed the EC's discussions for 2021-2027

Learn

Connect

Demonstrate

Commercialise

Scale-up

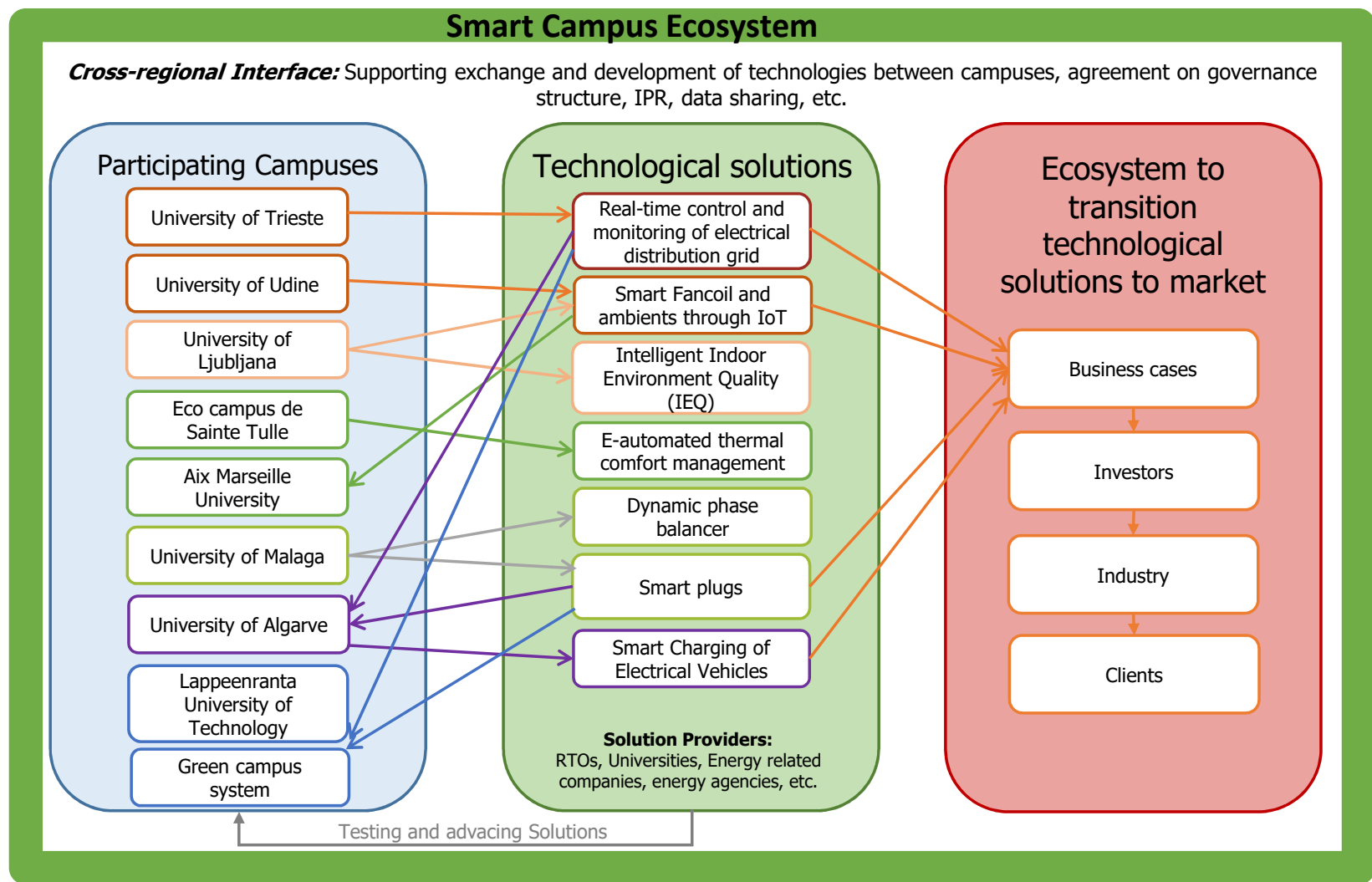
Following a call for expression of interest in 2017

8 pilots were selected, with an additional 9th Pilot in 2019

- ▶ 3D Printing
- ▶ Cybersecurity
- ▶ High-tech farming
- ▶ Sustainable buildings
- ▶ Batteries (from 2019)
- ▶ Bio-economy
- ▶ De-&Re-manufacturing for circular economy
- ▶ Marine renewable energy
- ▶ Traceability and big data

Sustainable Buildings Partnership

Interregional Smart campus ecosystem



Thank you very much for your attention



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