

# Smart Specialisation Platform on Energy

B3 Territorial Development Unit  
Joint Research Centre  
European Commission

KoM Partnership Geothermal Energy  
19 June 2019  
Brussels



# The concept of Smart Specialisation (S3) as a place-based innovation policy

## What is Smart Specialisation?

- A place-based approach to research and innovation that aims to boost growth and jobs in Europe
- The aim is to identify and develop a region's own competitive advantages: select in each region a limited number of priorities (preferably going beyond sectoral definitions) in which innovation can most readily occur.
- Regional priorities are identified through an open dialogue between policy makers, industry, research and education institutions and civil society.
- The development of **Regional Smart Specialisation Strategies (RIS3)**  
→ introduced as an ex-ante condition to access cohesion funds for Research and Innovation in the 2014 – 2020 period

→ **Over 120 smart specialisation strategies have been developed**

# Smart Specialisation Platform



**Inside the European Commission** - Support to various policy DGs

**Outside the Commission** - Support to countries and regions developing and implementing their RIS3 and to their 'triple/quadruple helix' partnerships

**In the scientific community** - Contribution to the conceptual and methodological debate around smart specialisation

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

The screenshot shows the homepage of the Smart Specialisation Platform. At the top, there is a navigation bar with the European Commission logo and the platform name. Below this is a search bar and a menu with options like Home, S3 Platform, Sections, Tools, News, Events, and Knowledge Repository. The main content area features a banner for the '2018 SMARTER Conference on Smart Specialisation' and a section titled 'What we can do for you' which lists several services provided by the platform. On the right side, there is an 'S3P Calendar' for March 2018. At the bottom, there are three large buttons labeled 'Thematic Platforms', 'Guidance', and 'Targeted Support', along with a 'Reports & Publications' link.

# S3 in Practice: Supporting Innovation-led Growth in EU Regions

Promote Transnational learning, Interregional collaboration via:

**Supporting tools**: Regional priorities (Eye@RIS3), Regional Benchmarking, ICT Monitoring, Digital Innovation Hubs...

**Guidance**: RIS3 Guide, Implementation Handbook, Digital Agenda Toolbox, Good Practice Examples, FAQs...

**Analysis**: Conceptual and empirical developments, Policy Briefs, Peer Reviews, Working Papers...



# Smart Specialisation Platform



SMART SPECIALISATION PLATFORM

European Commission / Smart Specialisation Platform / Home

Home S3 Platform Sections Tools News Events Knowledge Repository

S3P Agri-food Working Committee Semi-annual Meeting

What we can do for you

- Provide guidance material and good practice examples
- Inform strategy formation and policy-making
- Facilitate peer-reviews and mutual learning
- Support access to relevant data
- Train policymakers

Thematic Platforms | Guidance | Targeted Support

S3 Cooperation | Communities & Actors | Governance

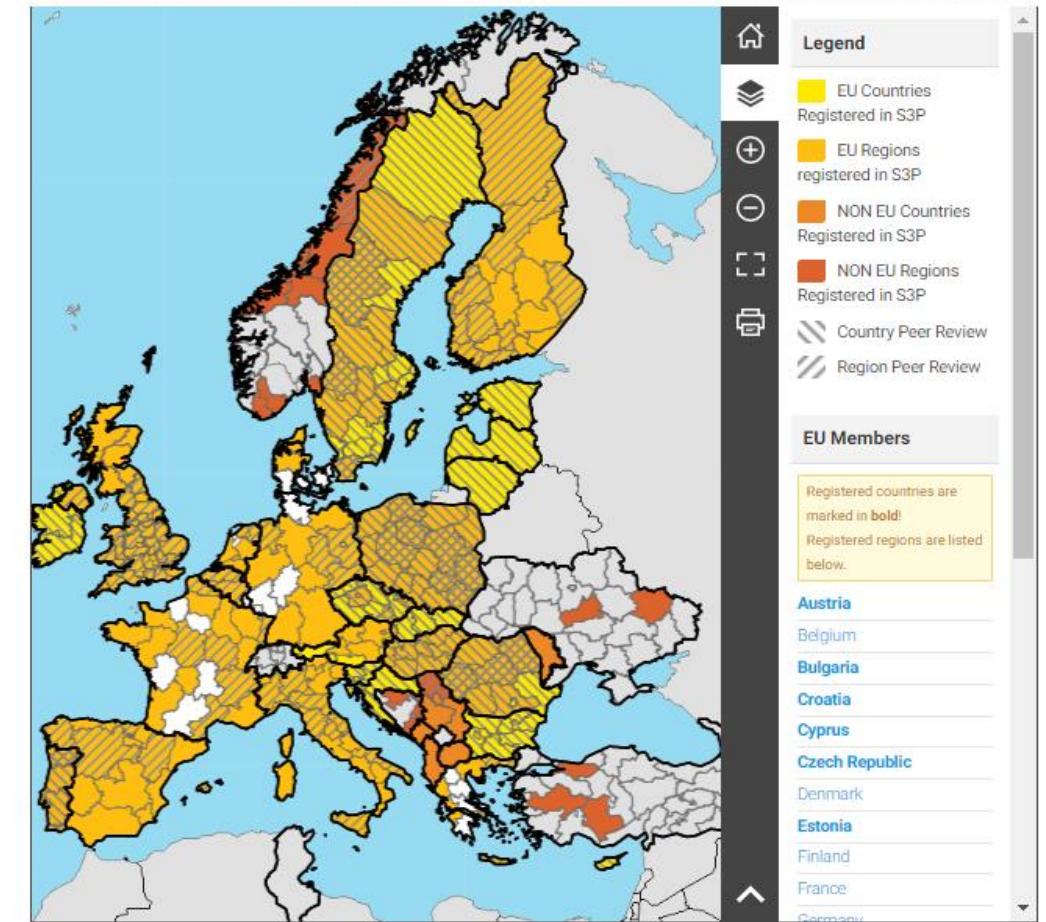
R&I Regional Viewer | Digital Innovation Hubs

on Platform / S3 Platform / Registered Regions

Tools News Events Knowledge Repository

Search

## Registered countries and regions in the S3 Platform



# S3 Thematic Platforms: Agri-Food, Energy and Industrial Modernisation

Building on the interregional dimension of S3,

**3 Thematic Smart Specialisation Platforms** have been set

→ offering hands-on support to regions committed to implement their **S3 in European strategic growth areas**



# Interregional Cooperation

## S3 Implementation and reasons for opening up

- To **connect** regional innovation eco-systems
- To exploit **complementing strengths**, avoiding duplication of investments and efforts in R&I
- To **overcome interregional fragmentation** and lack of critical mass across the EU
- To **improve the existing business environment** by identifying barriers to innovation, new investment or skills.
- To get access to **wider business and knowledge network**
- To join, enhance and even create new **EU value chains** in specific areas linked to their S3 priority areas, expanding business opportunities & realising **joint investment projects**
- To develop **shared infrastructures**
- To **build synergies** with other regional, national and EU initiatives: H2020, SET-Plan, etc.
- ...

# S3 Interregional Partnerships

The **bottom-up** component in this process has resulted in a wide variety of thematic partnerships, driven by a broad range of actors and supported by various stakeholders

- Currently **32 partnerships in total**
- 177 territorial administrative units
  
- ✓ **Outward** perspective for RIS3: **positioning** of priorities & **upscaling** regional innovation efforts
- ✓ Exploit **complementarities** between RIS3 investments in co-creating **EU value-chains** in S3 partnerships
- ✓ Coalitions of **committed** partners: **politically** committed lead-regions + **active** partners (leading-by-example)
- ✓ Organising shared spaces for **joint demonstration** of solutions
- ✓ Mobilising **bottom-up** cluster actors for forging new business opportunities



S

ships

The **bottom-up** component consists of territorial partnerships, driven by a

- Currently **32 partnerships**
- 177 territorial administrations

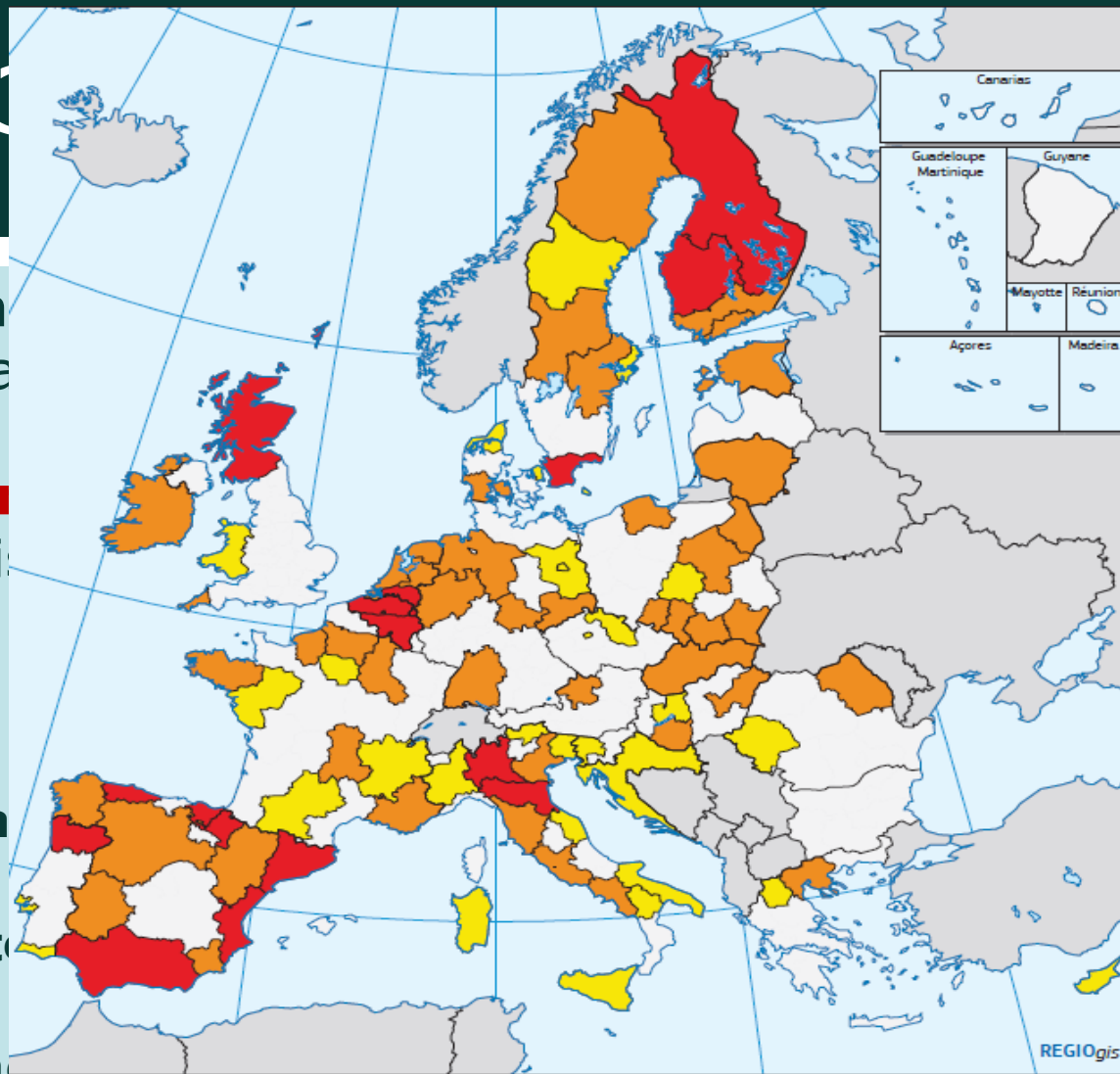
- ✓ **Outward** perspective
- ✓ Exploit **complementary** strengths and resources through partnerships
- ✓ Coalitions of **committed** actors (leading-by-example)
- ✓ Organising shared space and resources
- ✓ Mobilising **bottom-up** initiatives

A variety of thematic areas and various stakeholders

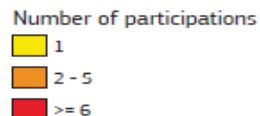
Supporting regional innovation efforts and **EU value-chains** in S3

Partnerships + **active** partners

Initiatives



Thematic Smart Specialisation Platforms:  
Which regions participate and in how many different partnerships?



Source: JRC, DG REGIO

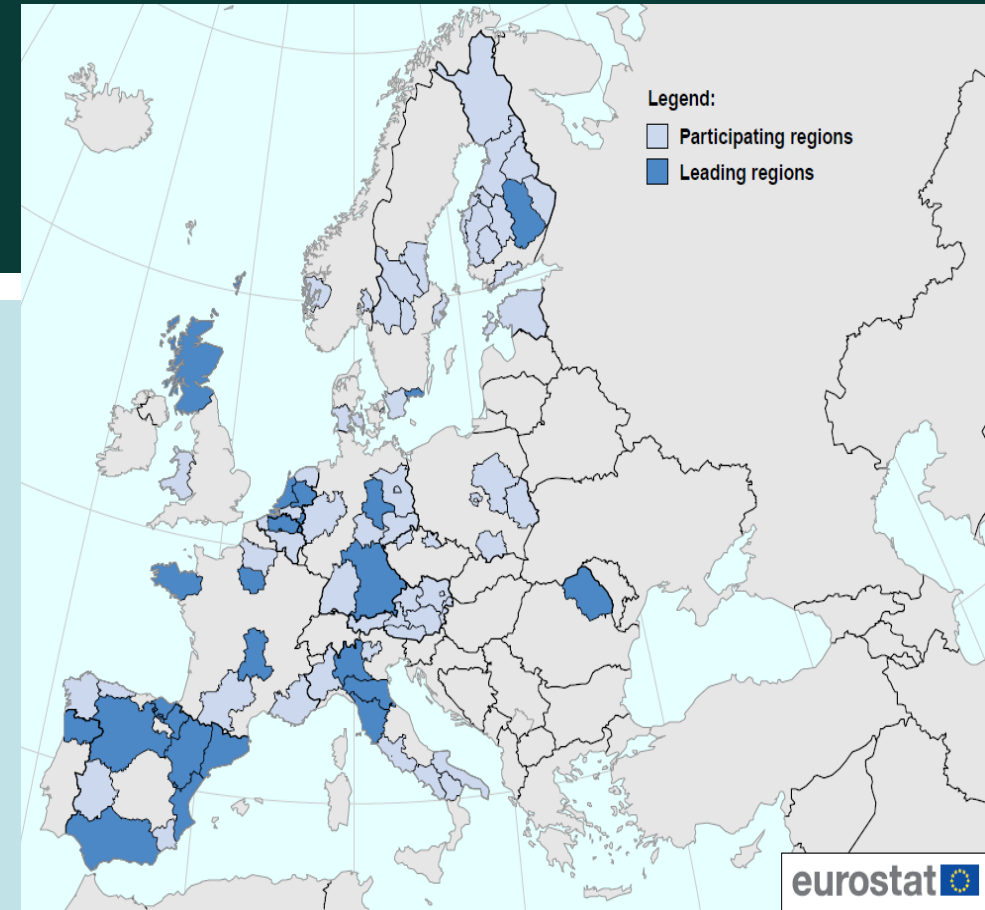
# S3 Platform on Industrial Modernisation

## Main objectives

It aims to support EU regions committed to generate a pipeline of industrial investment projects following a bottom-up approach - implemented through interregional cooperation, cluster participation and industry involvement.

- 21 partnerships
- 106 territorial administrative units

EC DGs involved: DG REGIO, DG GROW, DG RTD and JRC



Advanced manufacturing



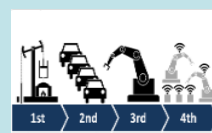
Non-food Biomass



Efficient and Sustainable Manufacturing



3D-Printing



SMEs to the Industry 4.0



Sport



Digitalisation and Safety for Tourism



European Cyber Valleys



Social Economy



Artificial Intelligence & Human Machine Interface



Personalised medicine



New Nano-Enabled Products



Textile Innovation



Medical technology



Photonics



Chemicals



Safe and sustainable mobility



Advanced materials for batteries



Mining industry



Water Smart Territories

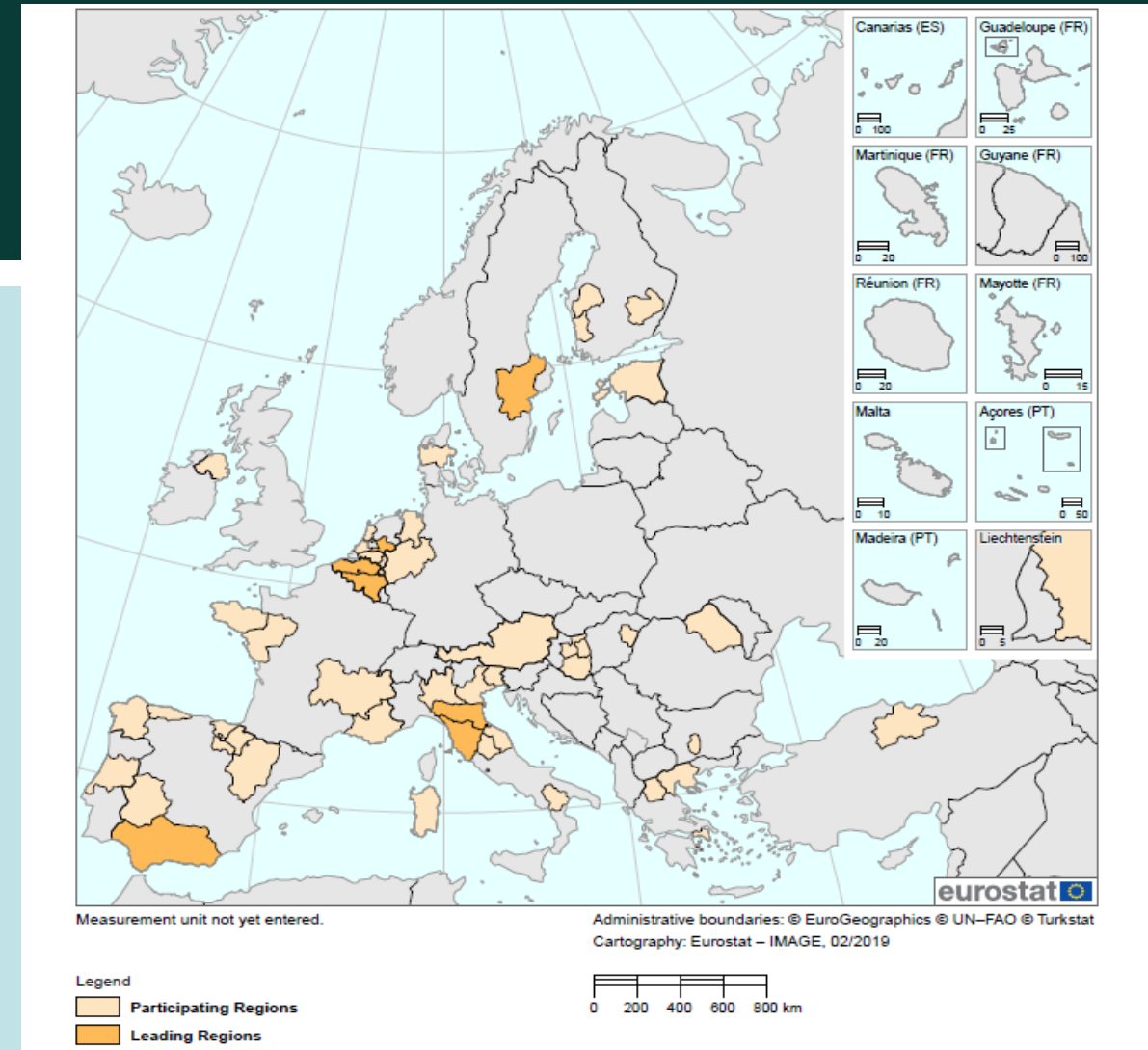


Hydrogen Valleys

# S3 Platform on Agri-food

- **51 territorial administrative units**
- The majority of participating entities are located in Italy (9), Spain (8), France (4), Hungary (4) and the Netherlands (4)
- Austria, Estonia and Slovenia participate at national level
- Many regions participate in more than one partnership (e.g. Galicia in 4, other 5 regions is participating in 3 partnerships at the same time)
- **5 partnerships:**

Consumer Involvement in Agri-Food (4), High-tech Farming (27), Nutritional Ingredients (10), Smart Sensors for Agri-Food (15), and Traceability and Big Data (21)



# S3 Platform on Energy (SP3Energy)

2/3

of all MS/regions have chosen an energy-related priority in their RIS3!

€40 BILLION

have been allocated from the Cohesion Policy to support investment in the low carbon economy transition. (Thematic Objective 4)

## ▪ Objectives:

1. Support the implementation of the S3 of the regions/countries that have chosen energy-related priorities in their RIS3 (TO1)
2. Assist countries in the optimal uptake of the Cohesion Policy funding opportunities for energy (TO4 & TO7e) – co-funding opportunities

- Joint action between **DG REGIO, DG ENER and JRC**

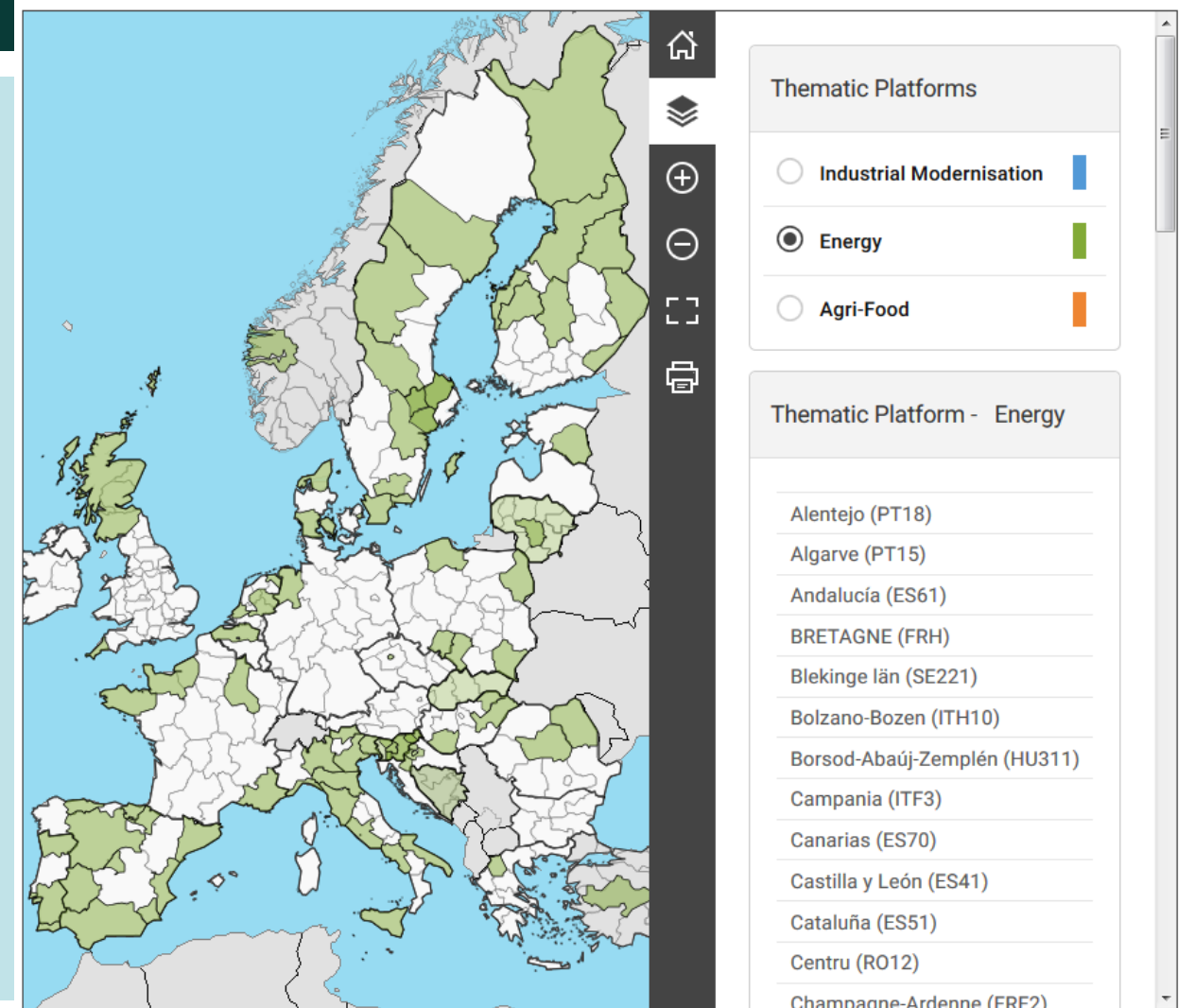




# S3 Platform on Energy

- 6 partnerships + H&C initiative
- 83 territorial administrative units, in 25 different MS

<http://s3platform.jrc.ec.europa.eu/s3p-energy>

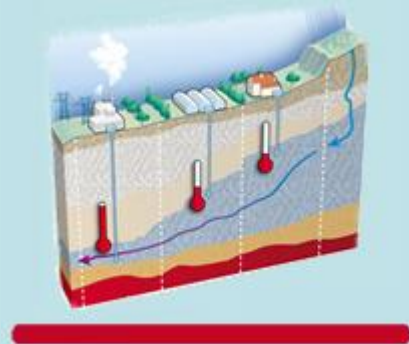




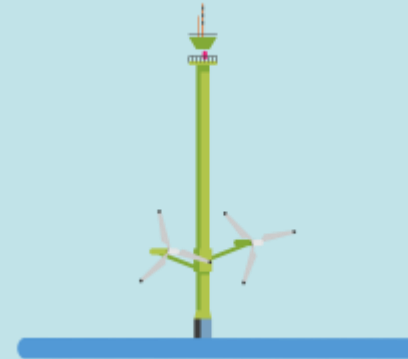
# SP3Energy Partnerships



**BIOENERGY**



**GEOHERMAL**



**MARINE RENEWABLE ENERGY**



**SMART  
GRIDS**

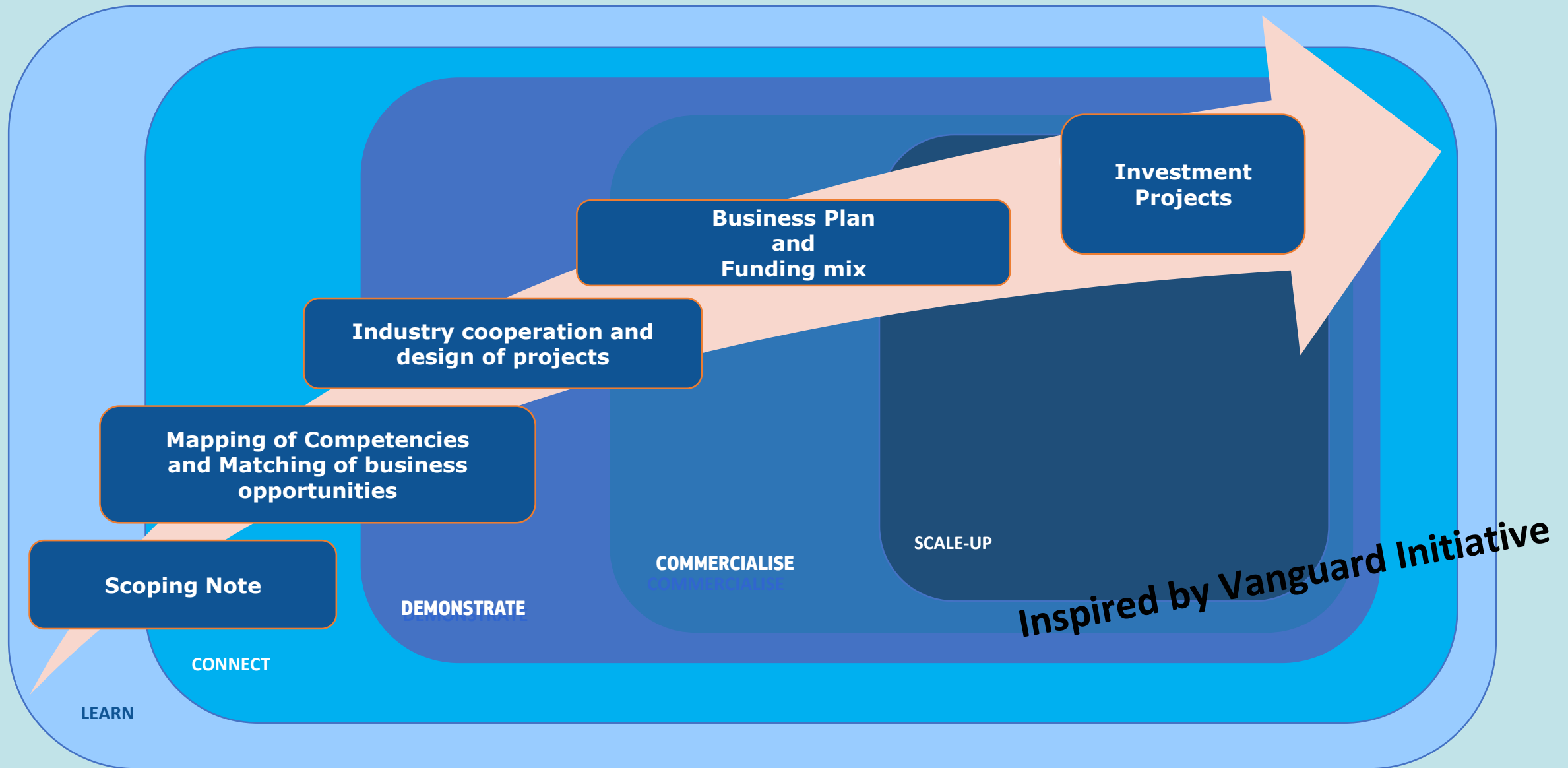


**SOLAR  
ENERGY**



**SUSTAINABLE  
BUILDINGS**

# S3 Thematic Partnerships - Methodology



Areas of  
Shared Interest

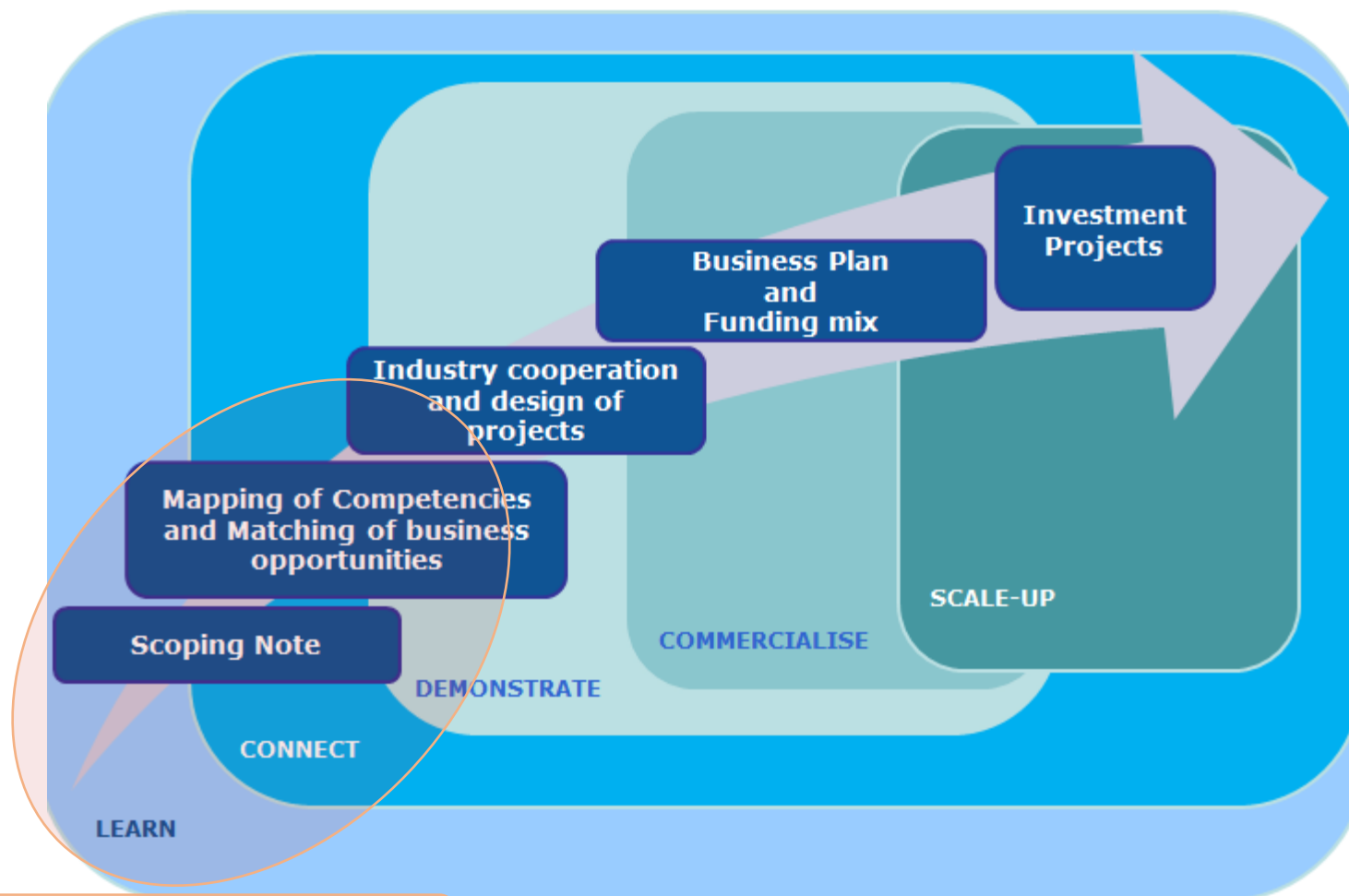
Co-funded  
Joint Calls

Demonstration  
Projects (TRL6/7)  
Joint Pilots<sup>15</sup>

Access to new  
funding and  
New Markets

New Products  
and Services  
New Value Chains

# S3 Interregional Innovation Project – Pilot Actions



Under the Energy Platform, two **pilot projects** are in place from 2018, supported by DG REGIO with technical assistance:

1. "Smart Campus" Pilot, part of the **Sustainable Buildings Partnership**
2. "Sensing and Remote Monitoring" Pilot, part of the **Marine Renewable Energy Partnership**

# S3P support – Methodological Manual

- It has been prepared with the aim of assisting public authorities responsible for ***designing and delivering interregional investment projects*** in the S3 context and with ensuring that these joint projects attract private sector interest sufficient to ensure their sustainability.
- Focus on LEARN and CONNECT phases
- Forthcoming late spring/summer 2019





# Thank you!



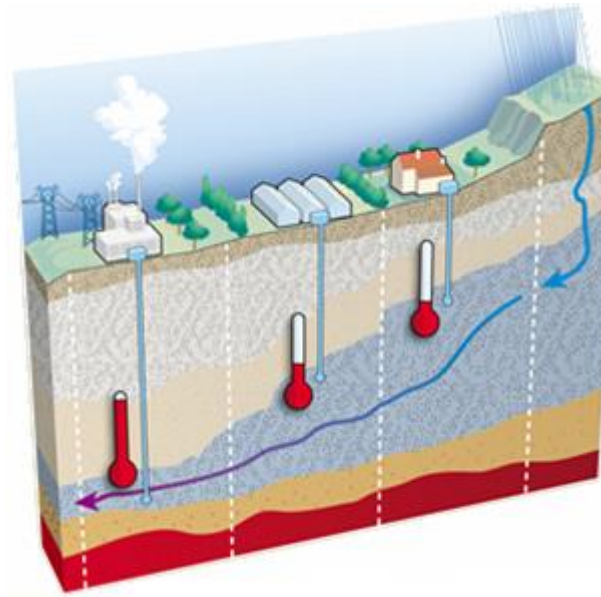
**More information:**  
<http://s3platform.jrc.ec.europa.eu>

 @S3Platform #S3PEnergy

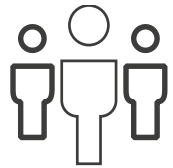
[Isabelle.SEIGNEUR@ec.europa.eu](mailto:Isabelle.SEIGNEUR@ec.europa.eu)  
S3PEnergy: [JRC-B3-S3PLATFORM-ENERGY@ec.europa.eu](mailto:JRC-B3-S3PLATFORM-ENERGY@ec.europa.eu)



# Interregional partnership for Smart Specialisation on **GEOTHERMAL ENERGY** **EuGeoReg**

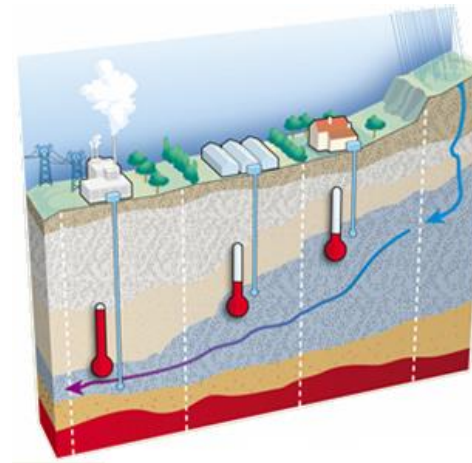


# GEO THERMAL



**Leader**

TUSCANY (IT)



**11**

**REGIONS**

ES: Asturias, Canary Islands;  
FI: North East Finland (Pohjois-Pohjanmaa);  
HU: Northern Hungary (Borsod-Abaúj-Zemplén County);  
IT: Lombardy;  
NL: East Netherlands, Groningen, South Holland;  
PT: Azores;  
UK: Scotland ;  
TK: West Turkish provinces (Zafer)



Partner regions of the S3 Partnership Geothermal Energy 2.0 will share, test and jointly develop new solutions that can help overcoming existing gaps and concerns in the geothermal sector, by developing a new governance model respecting territories and supporting private businesses



European  
Commission

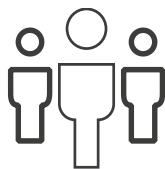
# Interregional partnership for Smart Specialisation on **BIOENERGY**



# BIOENERGY



Lapland  
(FI)



## Leaders

Led by Lapland region (FI) and Castille and Leon (ES), the partnership has engaged the participation of

# 25

REGIONS AND  
MEMBER STATES



Castille and Leon  
(ES)

This interregional partnership aims at developing a collaborative framework to facilitate joint business among EU regions with bioenergy-related priorities in their Smart Specialisation Strategies.



European  
Commission

# BIOENERGY



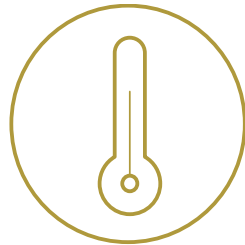
## Reference topics

Collaboration has been framed along 4 concrete lines of work:



### **Biofuels**

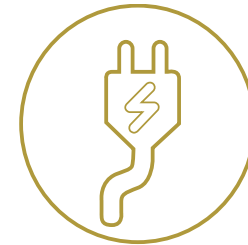
(bioethanol, biogas)



**Heating & cooling** (biomass-based)



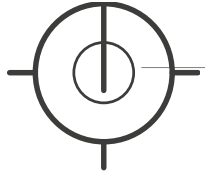
**Knowledge transfer** on biomass feedstock, installations and energy consumption



**Electricity** (forestry power plants, agriculture power plants)



# BIOENERGY



## Key factors

In line with the EU goals, bioenergy represents about **two-thirds** of the renewable energy production in the European Union...

... and it is one of the main energy sources contributing to fulfilling the **20% objective** with renewables for 2020.



**1**

The partnership aims to demonstrate the **validity and sustainability** of decentralised production of 2nd generation bio-fuel for transport, heating and cooling from forest-based and non-food **agriculture feedstocks**.

**2**

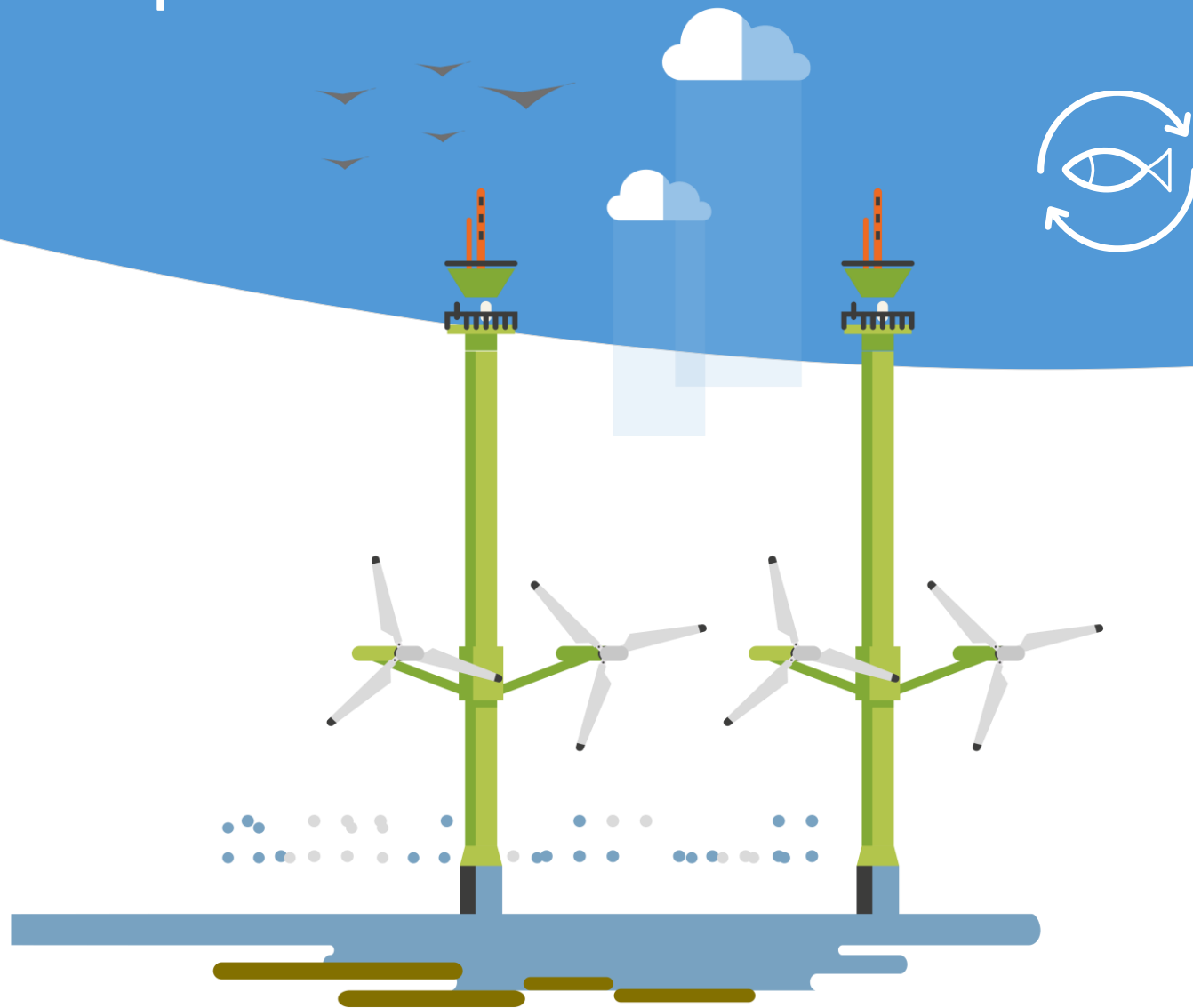
To date, the partnership has launched a survey to identify **regional capacities** in the bioenergy field among participant regions.

The results of this exercise will allow to identify complementarities to develop joint business pilot cases.

**3**

The next step is to identify **business demo cases** by combining assets and ambitions of regions.

# Interregional partnership for Smart Specialisation on **MARINE RENEWABLE ENERGY**



# MARINE RENEWABLE ENERGY (MRE)



## Leaders

Scotland (UK) and  
Basque Country region (ES)

# 16

REGIONS

The Marine Renewable Energy (MRE) partnership builds on the work and experience of the Advanced Manufacturing for Energy Applications (ADMA Energy) pilot within the Vanguard Initiative (VI), which is active across the blue economy and subsea sectors. The partnership seeks to apply expertise gained in the ADMA Energy pilot to demonstration specifically in the MRE sector, with an initial focus on sensing remote monitoring as sensing is a key enabling technology for the developing of offshore, wave tidal, and other MRE areas.

This partnership has been awarded by the European Commissions' DG Regio with an Interregional Innovation Project – Pilot Action, specifically focussed on addressing cross-regional investment projects in the area of sensing and remote monitoring.

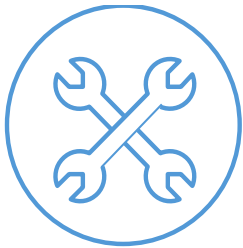


# MARINE RENEWABLE ENERGY (MRE)

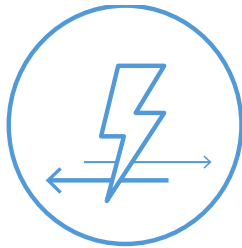


## Reference topics

The S3 interregional partnership in MRE aims to pool regional resources and expertise in order to create new business opportunities and increased growth for the MRE sector, with a focus on identifying and solving the key industrial challenges of the sector, in areas such as:



Manufacturing  
of large  
**components**



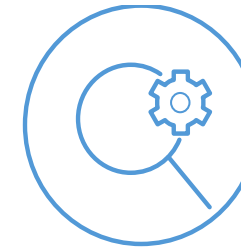
**Power** transfer  
and conversion



**Corrosion**  
in water



**Sensing,**  
instrumentation  
and monitoring

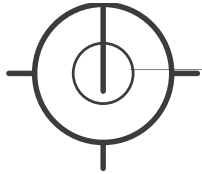


**O&M**  
(operation &  
maintenance)  
optimisation



**Testing** and  
demonstration  
in real  
environments

# MARINE RENEWABLE ENERGY (MRE)



## Key factors

1

Ocean energy is recognised as a **key low-carbon technology for Europe**. It has potential to deliver significant economic development and create high-value jobs, especially in those regions of Europe with traditional Blue Growth industries.

2

It is estimated that 100GW of ocean energy capacity could be deployed in Europe by 2050, equal to **10% of the total estimated EU energy demand**, and thus avoiding the equivalent of 276m tonnes of CO2 emissions per year.

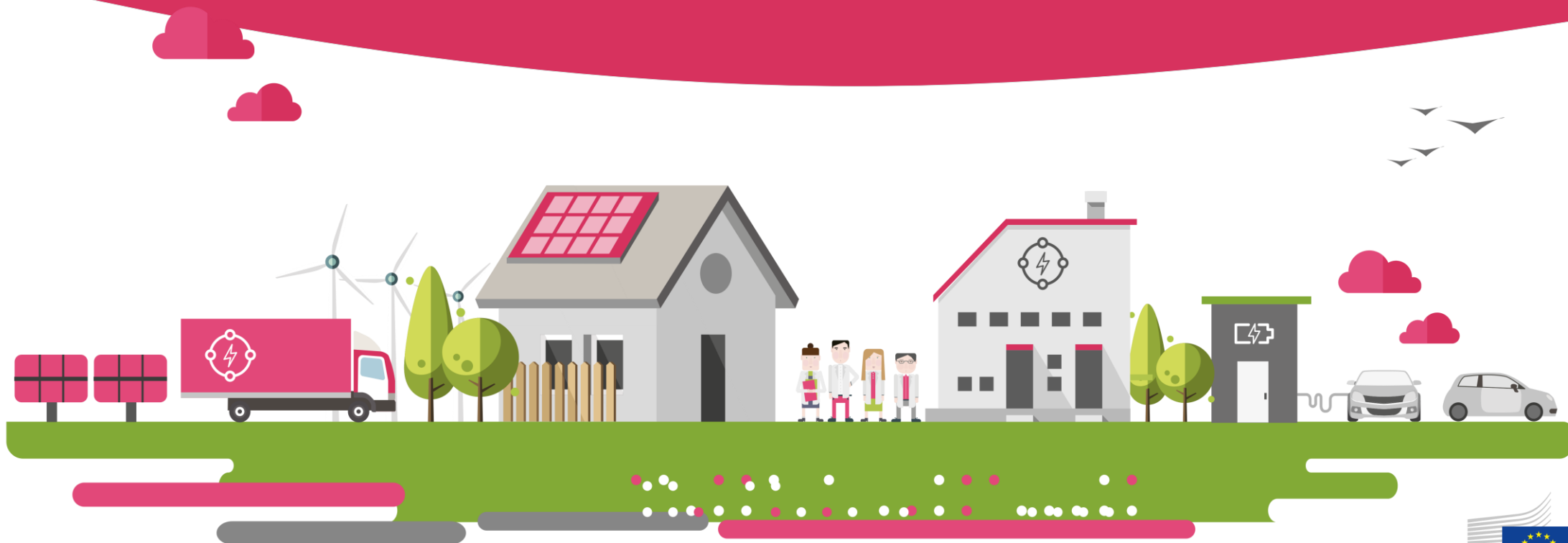
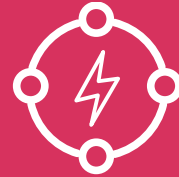


3

Marine Renewable Energy lies at the heart of EU regions' Smart Specialisation Strategies, and the partnership brings together partners with a **strong track record of cooperation** and collaboration in the Advanced Manufacturing for Energy Related Applications (ADMA Energy Pilot) of the Vanguard Initiative (VI).



# Interregional partnership for Smart Specialisation on **SMART GRIDS**



# SMART GRIDS



## Leaders

Led by Provence-Alpes-Côte d'Azur (FR) and Basque Country (ES) the partnership has engaged the participation of

# 10

REGIONS AND  
MEMBER STATES

**Basque Country  
(ES)**

**Provence-Alpes-  
Côte  
d'Azur (FR)**



The aim of the partnership is to increase the competitiveness of the partner regions by collectively fostering new business opportunities in order to develop an overall approach to the value chain of smart grids.

# SMART GRIDS



## Reference topics

The partnership focuses on **innovative and industrial capabilities**, ranging from industry-oriented R&D to full large-scale deployment (market and industrialisation of solutions). The **priority areas** identified so far are the following:



**Demand** response

**Management**  
& tariffs.



**Cybersecurity**

For **smart homes**.  
Compliance of Assets  
(all grid equipment)  
**Infrastructure** /  
sub-stations R&D.



**Network**  
management

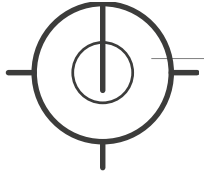
**Artificial**  
**Intelligence** for load  
management.  
Analytics for flexibility.  
Fostering the adoption  
of **solutions**.



**Mobility**

Power to **Gas**.  
**Vehicle** to grid.  
Fast-charging **stations**.

# SMART GRIDS



## Key factors

1

Smart grids are set to play a **crucial role in the decarbonisation** of the European economy.

2

Smart grids can enable **active consumers** and energy communities, supporting their direct participation into **more flexible energy markets**.

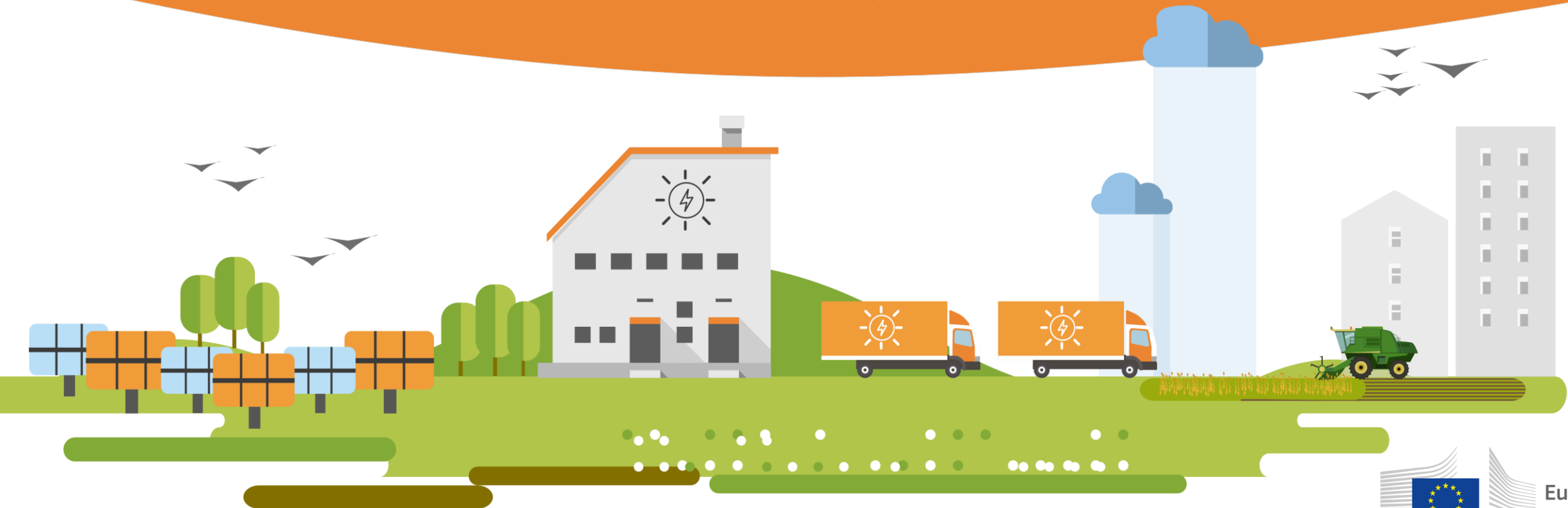
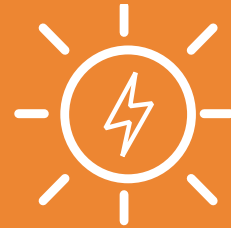
3

The growing installation of renewable energy sources (RES) is challenging the transmission and distribution grid infrastructure. The deployment of **smart grid solutions** can help to make these grids more flexible and able to cope with intermittent RES and with **new load consumption**.

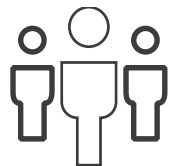
4

Smart grids deployment will enable new services and create business opportunities for new and established actors thus contributing to **new jobs and growth**.

# Interregional partnership for Smart Specialisation on **SOLAR ENERGY**



# SOLAR ENERGY

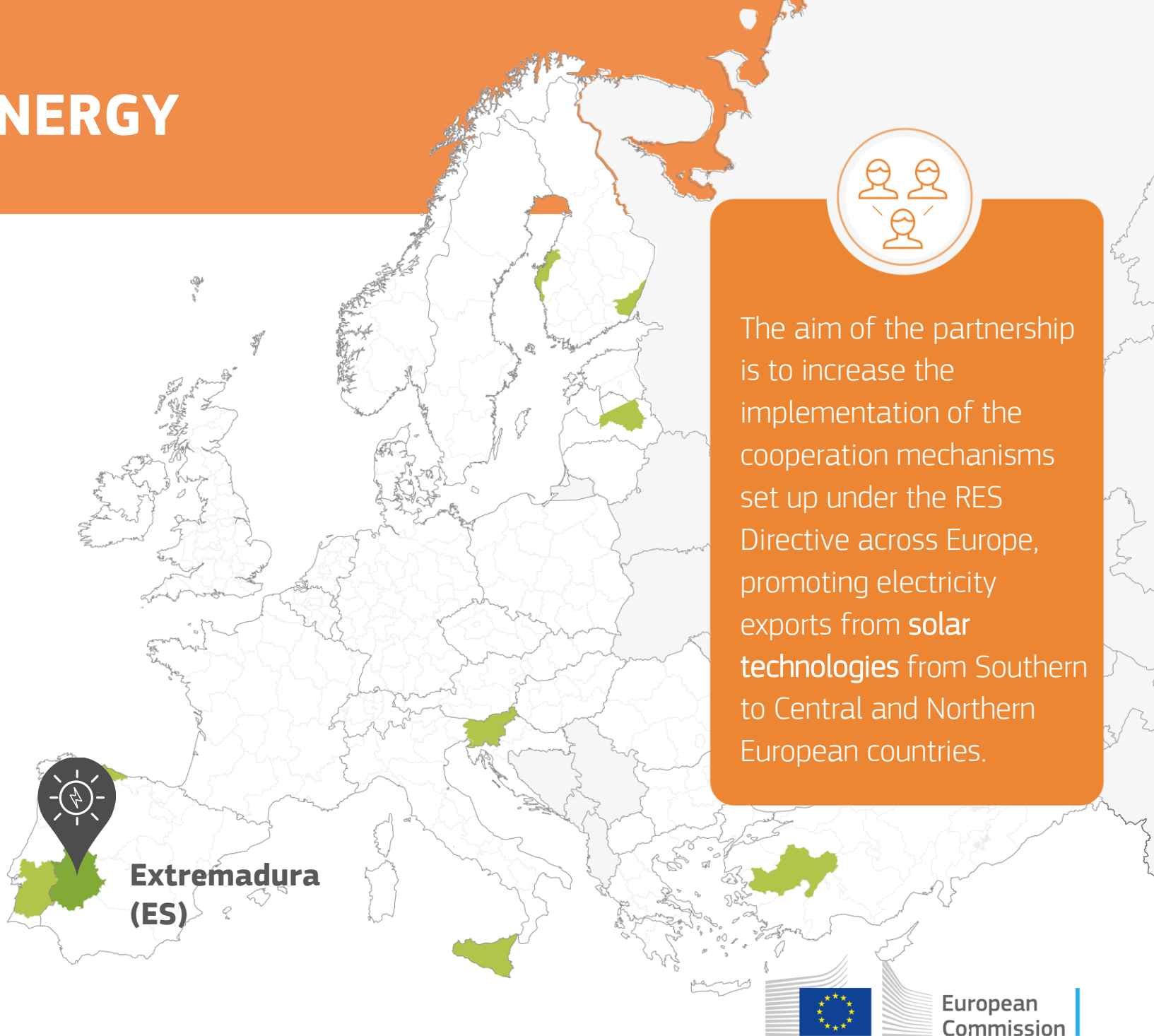


## Leaders

Led by **Extremadura** region (ES) the partnership has engaged the participation of

# 12

REGIONS AND  
MEMBER STATES



The aim of the partnership is to increase the implementation of the cooperation mechanisms set up under the RES Directive across Europe, promoting electricity exports from **solar technologies** from Southern to Central and Northern European countries.



European  
Commission

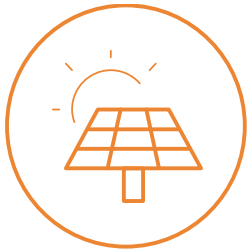


# SOLAR ENERGY



## Reference topics

An interregional partnership for solar energy and Smart Specialisation is currently working on **4 different Projects**



FOAK Plant: A **large-scale Sustainable Energy Technology (SET)** First of a kind (FOAK) project: Concentrated Solar power (CSP) Plant hybridised with Photovoltaic (PV) including storage to provide fully dispatchable power and to allow for more flexible generation.



**Research:**  
A solar technologies research facility.

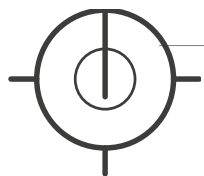


Use of **Cooperation** mechanisms to export solar energy from Southern to Central / Northern European countries.



Use of medium temperature solar energy in the **agro industry**.

# SOLAR ENERGY



## Key factors

1

European CSP Industry is the **worldwide leader** along the full CSP value chain.

2

Solar energy is one of the main **carbon-free energy** sources leading the shift to a European low carbon economy.

3

Solar energy import/export across EU borders is needed to **fulfil the EU energy** and climate targets. According to the Paris Agreement, more than 80% of electrical energy must come from low carbon sources by 2050.

4

The solar partnership is **open to European regions** with common interests.

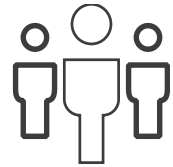
5

Working on signing an agreement, specialised in solar energy across EU.

# Interregional partnership for Smart Specialisation on **SUSTAINABLE BUILDINGS**



# Sustainable Buildings



## Leaders

Andalusia (ES), North Great Plain (HU) and North West Croatia (HR)

The Sustainable Buildings Partnership was established to identify and solve key industrial challenges in the existing buildings and construction sector.

# 44

REGIONS AND  
MEMBER STATES



## Reference topics



Eco-construction,  
bioclimatism and  
insulation of buildings



Renewable energy  
integration in  
buildings



Systems of maximum  
energy efficiency in  
buildings and cities

# Interregional Pilot Business case on Smart campus



One of the eight projects selected under call launched by EC to pilot interregional innovation projects

**Objective: improve the energy efficiency of University Campuses**

## Regions involved:

1. Andalusia, LR (Spain)
2. Friuli Venezia Giulia Region, SC (Italy)
3. Central Slovenia - Osrednjeslovenska (Slovenia)
4. South Karelia (Finland)
5. Provence-Alpes-Côte-d'Azur (France)
6. Algarve Region (Portugal)



# Interregional Pilot Business case on Smart campus



## Partners - Quadruple Helix model

1. University of Trieste (Italy)
2. University of Udine (Italy)
3. University of Ljubljana (Slovenia)
4. University of Malaga (Spain)
5. Lappeenranta University of Technology (Finland)
6. University of Algarve (Portugal)



1. Directorate of the Energy Service - **RAFG** (Italy)
2. Andalusian Energy Agency - **AAE** (Spain)
3. Lappeenranta City - **LAP** (Finland)
4. Energy Directorate - **SED** (Slovenia)
5. Agence des villes et territoires méditerranéens durables - **AVITEM** (France)
6. Areal Regional Energy and Environmental Agency - **AREEA** (Portugal)

1. **ABB SpA** - industrial supplier
2. **Blue Energy Group SpA** (Italy) - energy trader
3. **OverIT** (Italy) - ICT for energy enterprises
4. **Technological Corporation of Andalusia** (Spain) - PPP
5. **Green Energy Showroom**, cluster (Finland)
6. **Iskraemeco** - energy collector (Slovenia)
7. **GEN-I** - energy supplier (Slovenia)
8. **Enercoutim**, Alcoutim Solar Energy- association (Portugal)

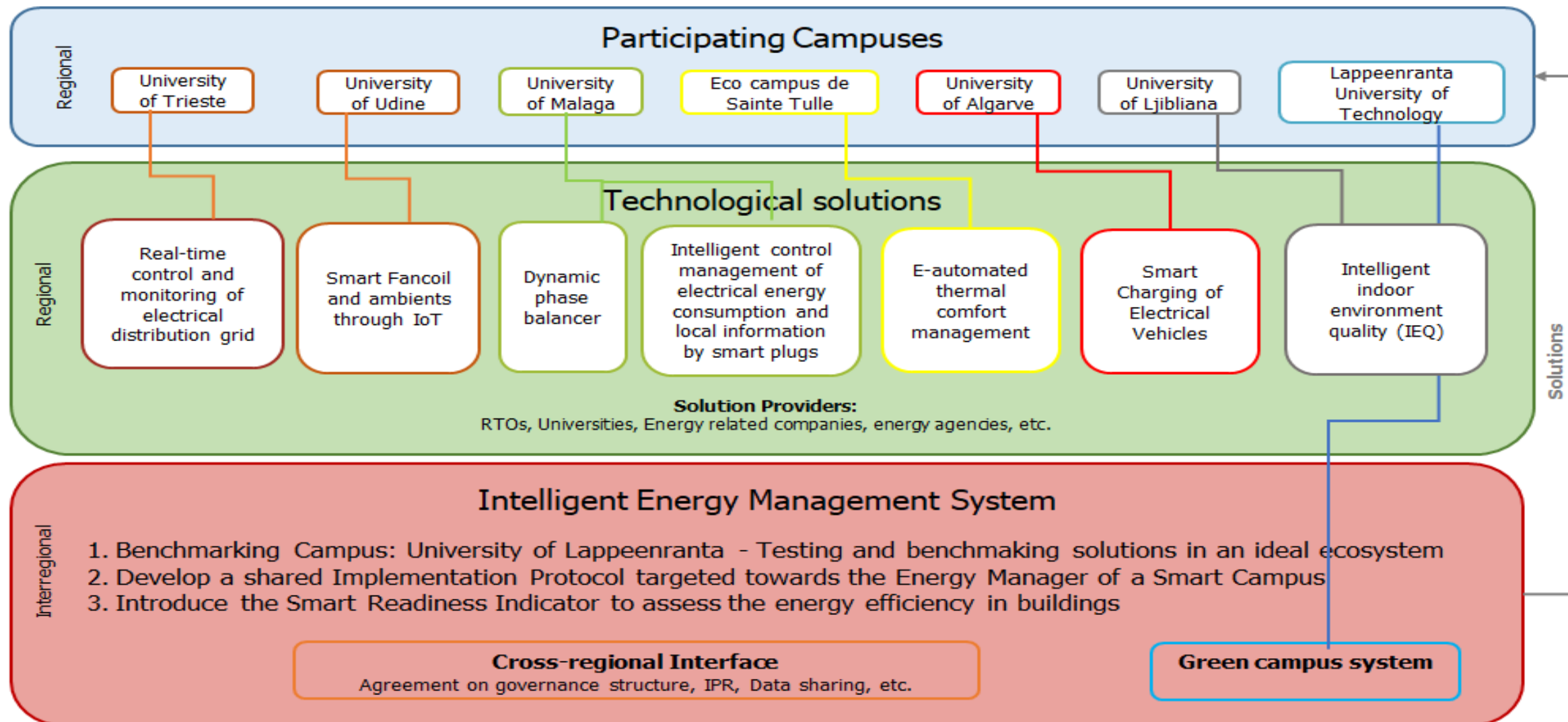
1. **Academic** :students, professors and staff from the related campus.
2. **AEIT** (Italian Association of Electrical, Telecommunication, Automation and Computer Engineers) - Network of stakeholders, FVG Section (Italy)
3. **REDEJA** - Energy Management Network of the Andalusian Regional Government (Spain)
4. Responsible for **maintenance of public buildings** in the regions involved.

# Interregional Pilot Business case on Smart campus



Smart Campus Platform

Smart Campus Platform

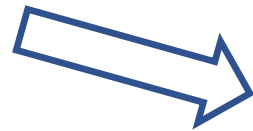
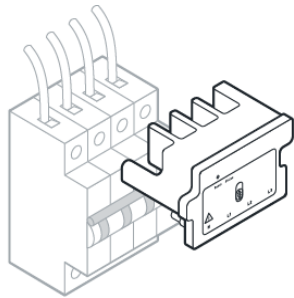




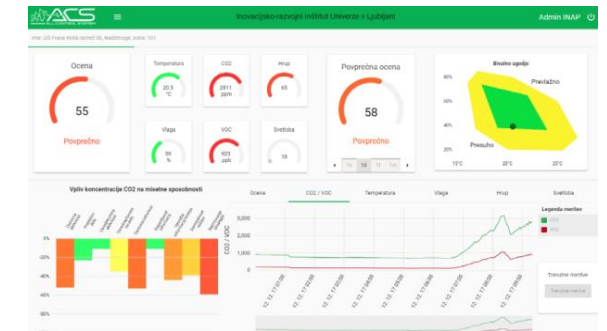
# Interregional Pilot Business case on Smart campus Expected Results



**Solution 1. Energy Management System.**  
Intelligent control management of electrical energy consumption by smart plugs (University of Malaga)



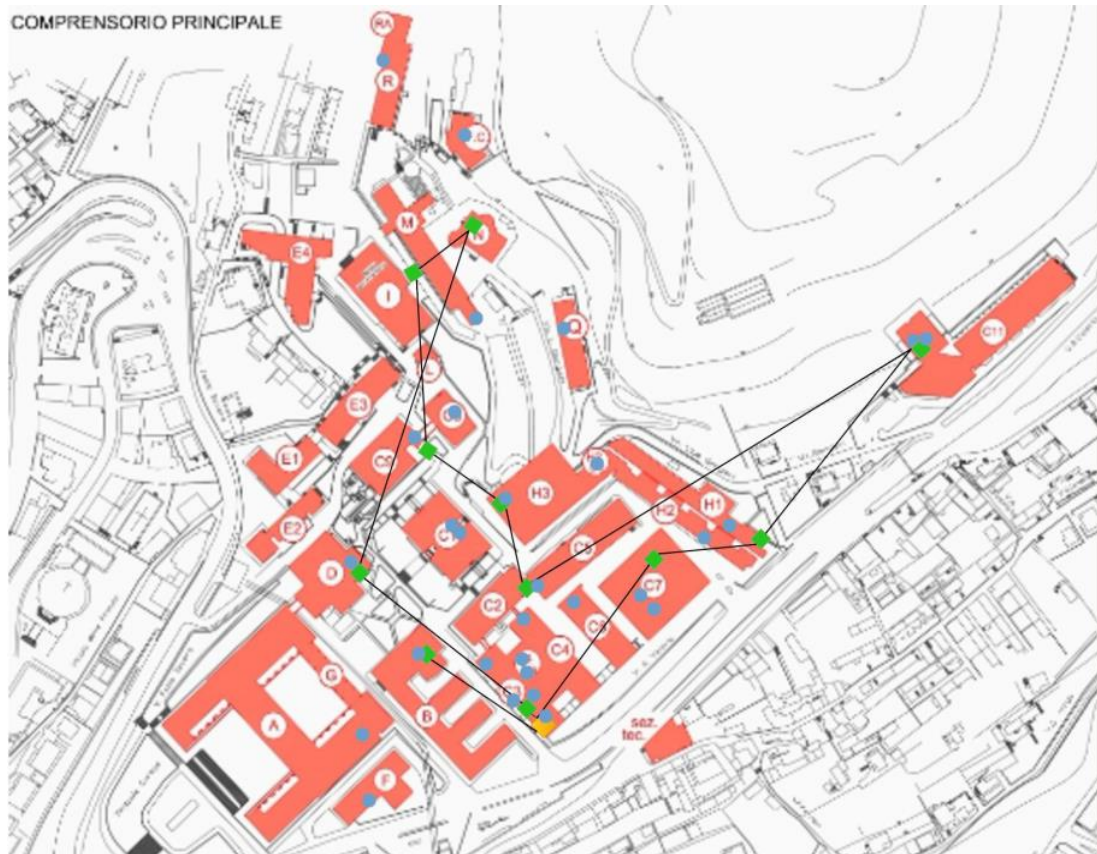
**Solution 2. Indoor Quality. Smart Fancoil and Indoor Quality through IoT system (FVG & Slovenia)**



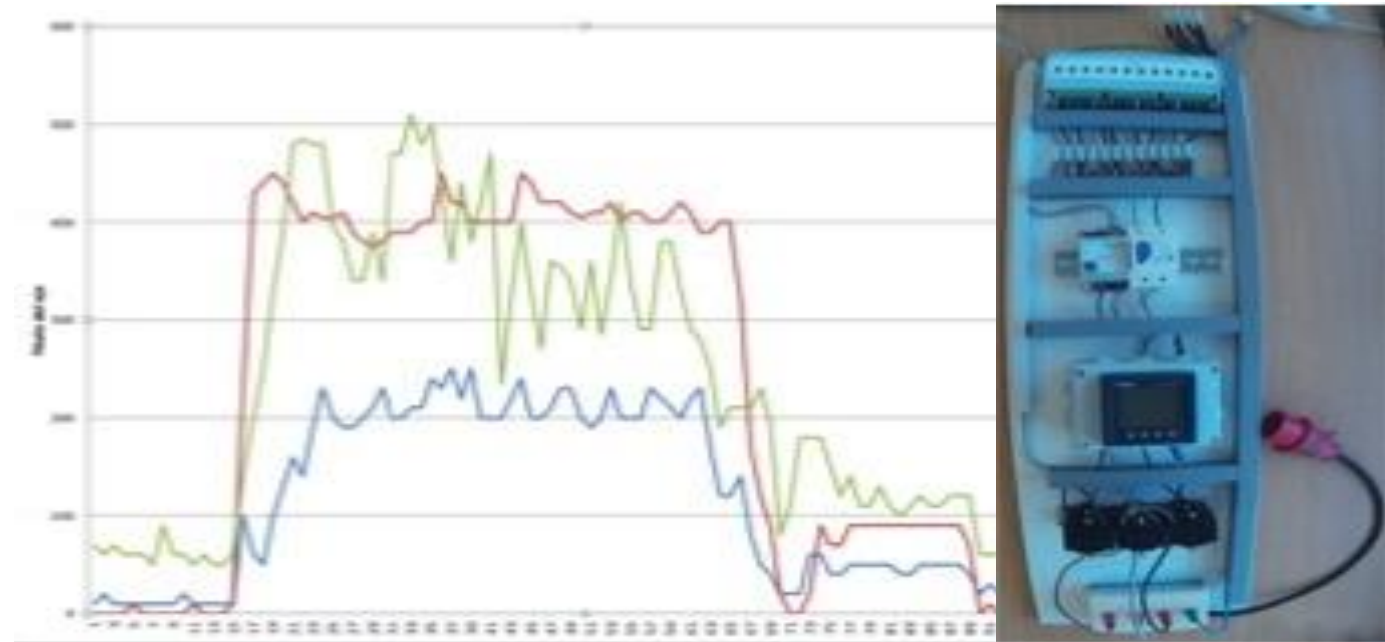
**Benchmark: Green Campus System (LUT) and Algarve**

# Interregional Pilot Business case on Smart campus Expected Results

## Solution 3. Smart grids. Real-time control and monitoring of electrical distribution grid (University of Udine)



## Solution 4. Energy Management System. Dynamic phase balancer (University of Malaga)





# Thank you!



**More information:**  
<http://s3platform.jrc.ec.europa.eu>

 @S3Platform #S3PEnergy

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