Pan-European Clean Energy Transition: ways to strengthen transnational cooperation

January 19, 2022, online

Join workshop of
Implementation Working Group Deep Geothermal Support Unit
European Energy Research Alliance
SUPEERA project

AGENDA

Time	Title	Speaker
10:00	**Welcome and objectives of the meeting**	**Olga Sumińska-Ebersoldt** (IWG DG SU & EERA JP ES, KIT, DE)
10:05	**Opening talk**	**Hélène Chraye** (European Commission Head of Clean Energy Transition Unit DG R&I)
10:15	**EU13 and the EU Clean Energy Transition - status quo**	**Matthijs Soede** (European Commission)
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OPENING TALK

Hélène Chraye

European Commission Head of Clean Energy Transition Unit DG R&I

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EU13 and the EU Clean Energy Transition status quo

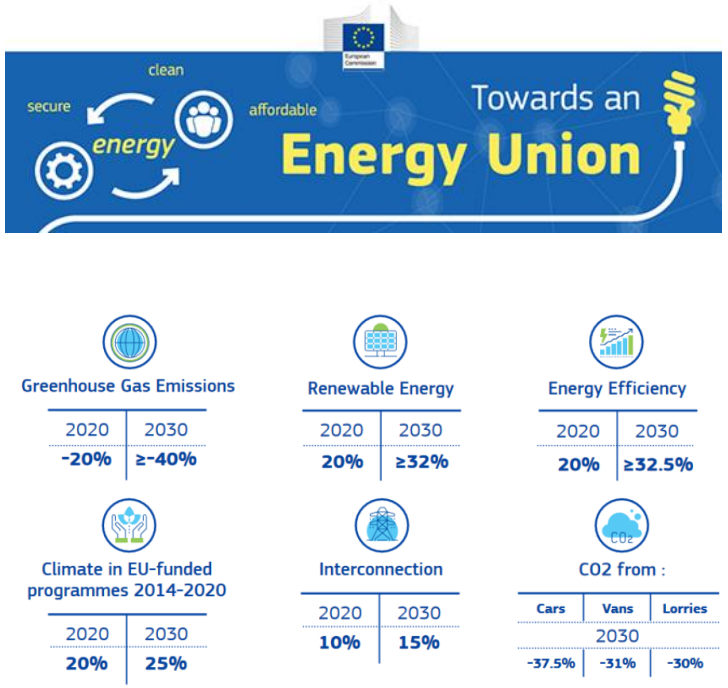
Dr. ir. Matthijs SOEDE
European Commission – DG Research and Innovation

European Commission

Energy Union

5 pillars

- *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*



Progress report

https://ec.europa.eu/commission/publications/4th-state-energy-union_en

European Commission

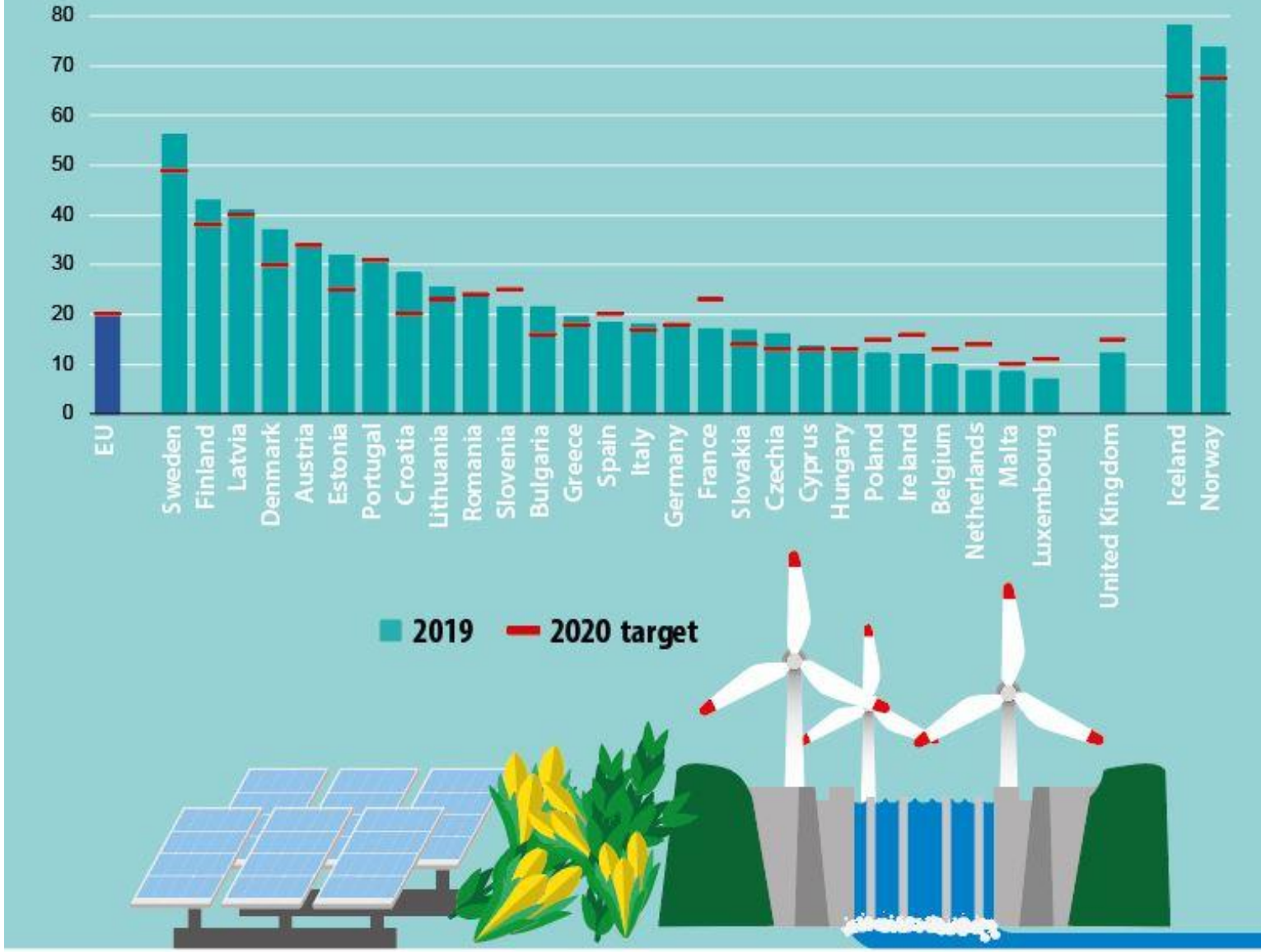
Green Deal for Europe

- Commission president
- NEW EUROPEAN GREEN DEAL.
- ***"I want Europe to strive for more by being the first climate neutral continent"***

European Commission

Overall share of energy from renewable sources

(% of gross final energy consumption, 2019)



ec.europa.eu/eurostat

European Commission

National energy and climate plans

EU countries' 10-year national energy and climate plans for 2021-2030.

PAGE CONTENTS

The national energy and climate plans (NECPs) were introduced by the Regulation on the governance of the energy union and climate action (EU)2018/1999, agreed as part of the Clean energy for all Europeans package which was adopted in 2019.

The national plans outline how the EU countries intend to address

- energy efficiency
- renewables
- greenhouse gas emissions reductions
- interconnections
- research and innovation

EU countries	Final NECPs received			Commission's individual assessments	
	Original version	English version	National website	National language(s)	English version
Austria	DE	EN	Austria	DE	EN
Belgium	FR (Part A | Part B) NL (Part A | Part B)	EN (Part A | Part B)	Belgium (FR) (NL)	FR	EN
Bulgaria	BG	EN		BG	EN
Croatia	HR	EN	Croatia	HR	EN

Recommendations on draft plans

- Clarify the national objectives and funding targets in research, innovation and competitiveness, specifically related to the Energy Union, to be achieved between 2023 and 2030, so that they are readily measurable and fit for purpose to support the implementation of targets in the other dimensions of the integrated national energy and climate plan.
- Underpin such objectives with specific and adequate policies and measures, including those to be developed in cooperation with other Member States, such as the Strategic Energy Technology Plan

Recommendations and responses

- The revised document takes the recommendation into consideration only to a very limited extent.
- Country A has joined two SET plan working groups, the draft plan does not specify how this participation will be implemented/supported
- The plan identifies areas where R&I efforts will be concentrated. However there are no defined national targets for financing public and private research and innovation related to the Energy Union, nor any supporting programmes and policies.
- Country B currently has no defined national goals for competitiveness related to the Energy Union. Priorities and specific topics are defined for the low-carbon technologies sector, but no measurable objectives are mentioned. Cooperation with the SET plan is mentioned but the link between European and national efforts has yet to be developed

European Commission

SET-PLAN

10 RESEARCH AND INNOVATION ACTIONS ALIGNED TO THE ENERGY UNION OBJECTIVES

STRATEGIC ENERGY TECHNOLOGY PLAN

An integrated plan to accelerate the EU energy system transformation

GLOBAL LEADER IN RENEWABLES

- Develop highly performant renewable technologies integrated in the energy system
- Reduce cost of key renewable technologies

ENERGY EFFICIENCY FIRST

- Increase energy efficiency in buildings
- Improve energy efficiency in industry

SMART EU ENERGY

- Create new technologies and services for consumers
- Increase the integration, security and flexibility of the energy system

SUSTAINABLE TRANSPORT

- Become competitive in the battery sector for e-mobility and stationary storage applications
- Strengthen market take-up of renewable fuels

NUCLEAR SAFETY*

- Increase safety

CARBON CAPTURE, STORAGE AND USE

- Step-up R&I activities and commercial viability

ENERGY UNION

Ensure that Europe has secure, sustainable, competitive and affordable energy.

The European Commission adopted a revised SET-Plan in 2015. It aims at:

- More integrated approach for research and innovation in the field of low-carbon energy,
- Stronger cooperation among the European Commission, EU countries & Iceland, Norway, Switzerland and Turkey, and stakeholders.

* It should be recalled that financial support (if any) via the Euratom Research and Training Programme is restricted to

FIND OUT MORE
http://ec.europa.eu/priorities/energy-union-and-climate_en

STRATEGIC ENERGY TECHNOLOGY PLAN

Development of cost competitive ocean energy technologies with high market potential for Europe

TECHNICAL ACTIONS

- Tidal and Wave Energy technology device development and system demonstration
- Installation, logistics and infrastructure
- Standards and guidelines for evaluation of wave energy technologies.

FINANCE ACTIONS

- Investment fund for ocean energy farms
- EU insurance and guarantee fund
- Wave Energy Europe Pre Commercial Procurement (PCP)

ENVIRONMENT ACTIONS

- Certification and standards
- De-risking environmental uncertainties

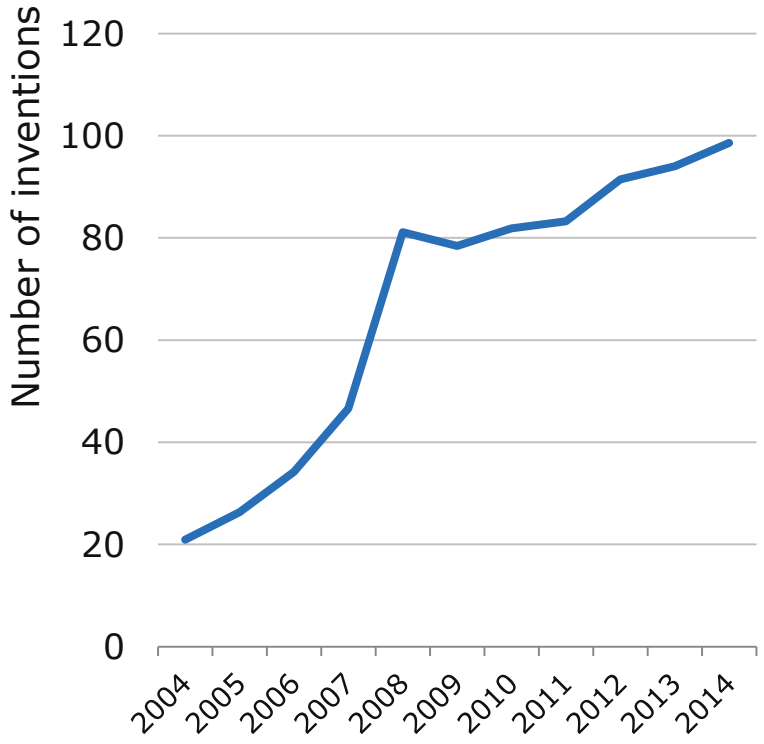
	Year	*Target*
› Tidal energy	2025	15 cEUR/kWh
	2030	10 cEUR/kWh
› Wave energy	2030	15 cEUR/kWh
	2035	10 cEUR/kWh

Source: SETIS https://setis.ec.europa.eu/system/files/integrated_set-plan/declaration_of_intent_ocean_0.pdf

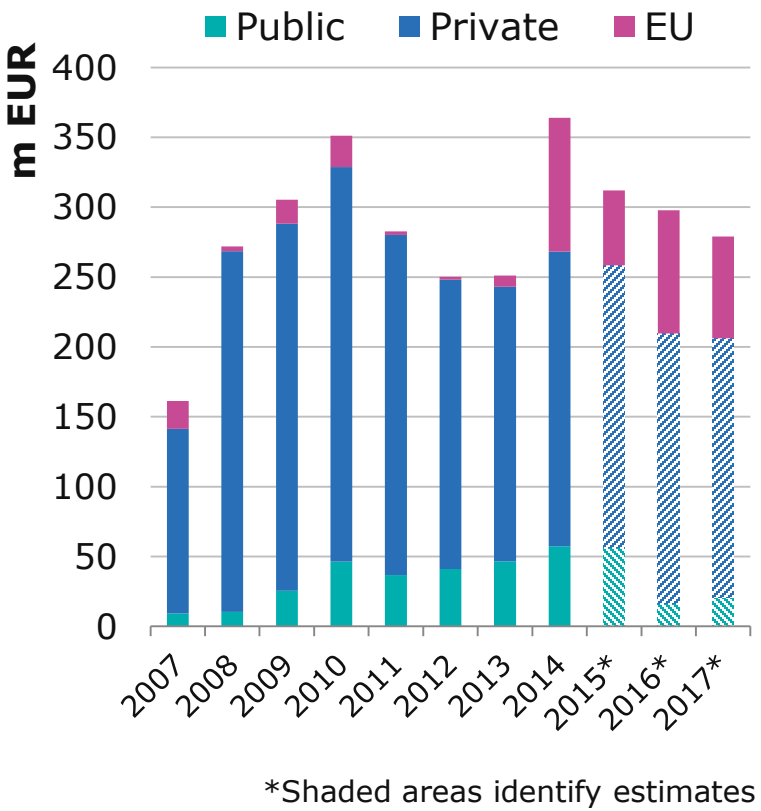
Ocean energy – Innovation and investment in Europe

Supporting the road to market

Patent analysis

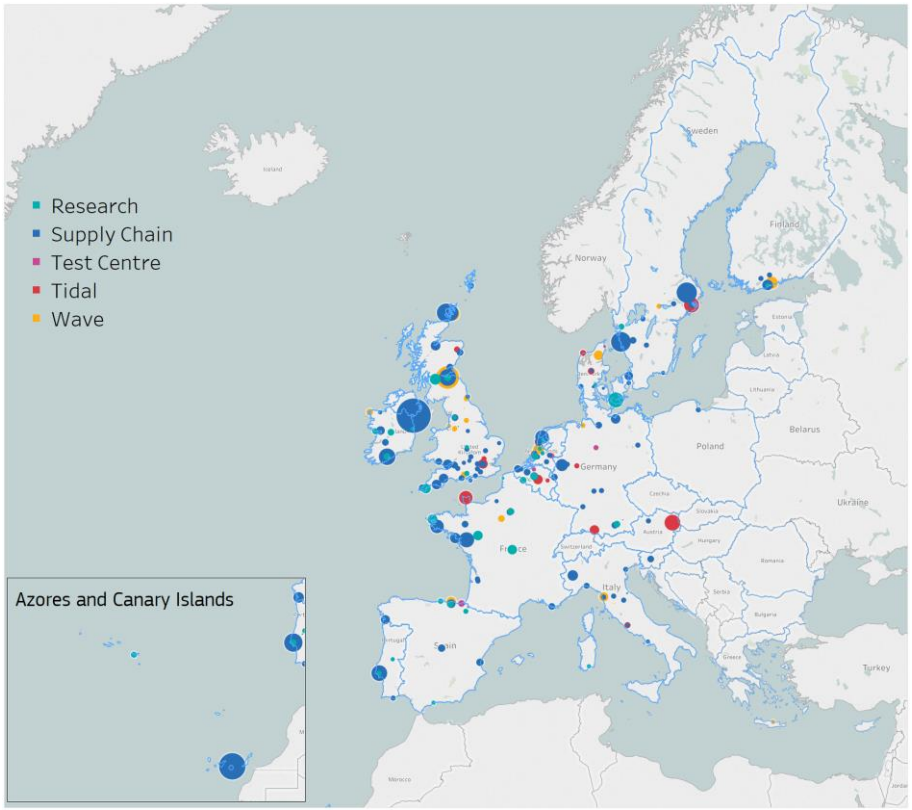


Investments



*Shaded areas identify estimates

Jobs and supply chain

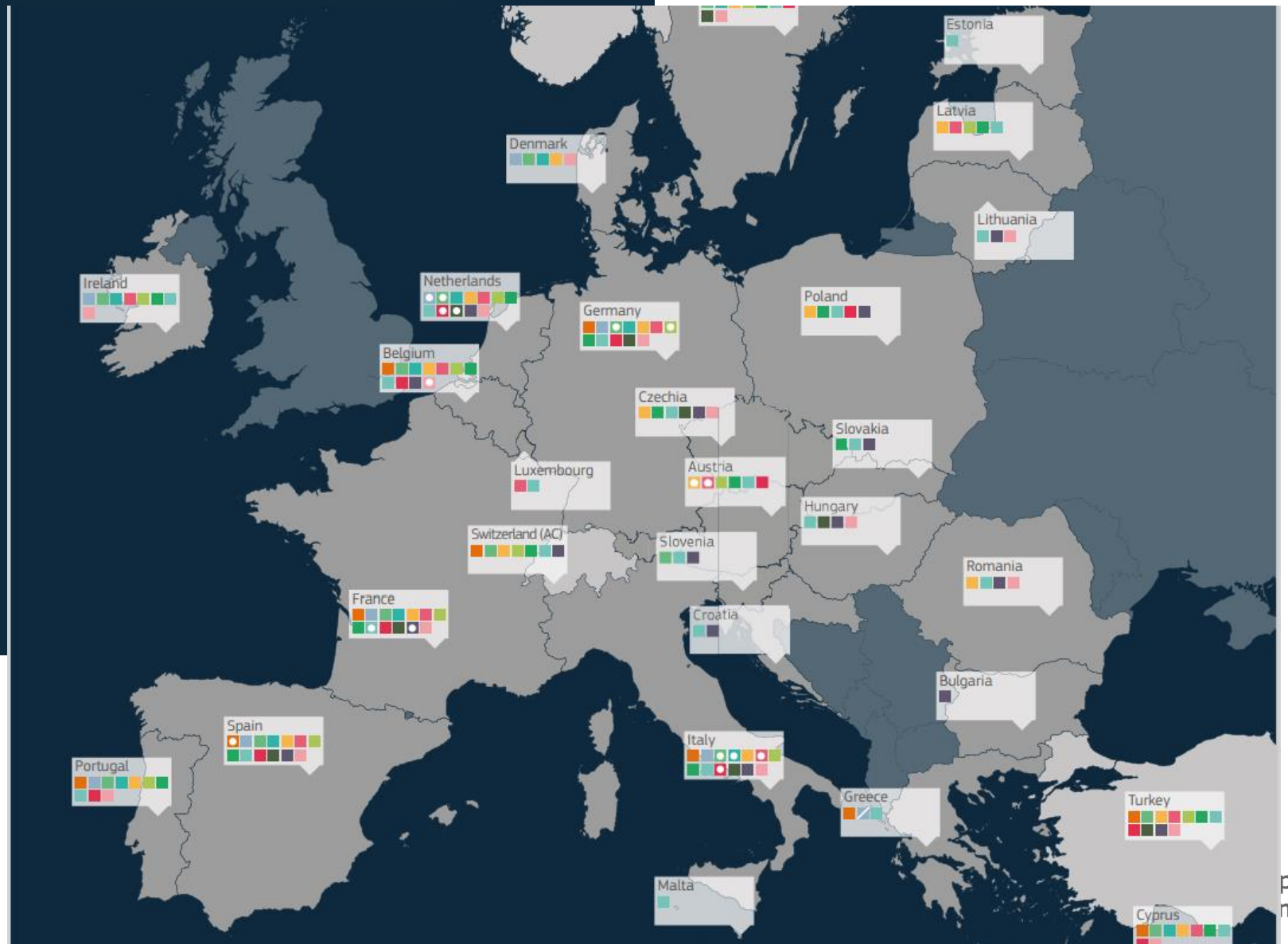


Source: European Commission 2019 Annual Report on the Blue Economy https://prod5.assets-cdn.io/event/3769/assets/8442090163-fc038d4d6f.pdf

European Commission

INVOLVEMENT OF EUROPEAN COUNTRIES IN THE SET PLAN

- Member
- Observer
- CSP/STE
- Offshore wind
- Deep geothermal
- Ocean energy
- Positive energy districts
- Energy systems
- EE in buildings
- EE in industry
- Batteries
- Renewable fuels and bioenergy
- CCS-CCU
- Nuclear safety



Thank you!

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Support to the coordination of national research and innovation programmes in areas of activity of the European Energy Research Alliance

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 949125.

Mobilization of EU13 national public research resources in the Clean Energy Transition: challenges and opportunities

Deep Geothermal/SUPEERA webinar
19th January 2022

Ivan Matejak, EERA

EUROPEAN ENERGY RESEARCH ALLIANCE

EERA
European Energy Research Alliance

- A key player in the European Union's **Strategic Energy Technology (SET) Plan**.
- The **largest-carbon energy research community** in Europe bringing together **leading research institutes** to expand and optimise EU energy research capabilities.
- Membership-based, non-profit association.

250
public research centres and universities

30
countries

50K
energy experts

SUPEERA

Support the coordination of national research an innovation programmes in areas of activity of the European Energy Research Alliance general information

Type of action : Coordination and Support Action (CSA)

Duration: 42 months

Starting date: 01 January 2020

Total budget: 1,7 mil euro

Support to the coordination of national research and innovation programmes in areas of activity of the European Energy Research Alliance

SUPEERA supports the SET Plan and the Clean Energy Transition

We...

- → Facilitate the coordination of the research community (also by “widening”)
- → Accelerate innovation and uptake by industry
- → Provide recommendations on policy
- → Promote the SET Plan and the Clean Energy Transition

We connect the dots.

EERA European Energy Research Alliance

cea

DTU

KIT Karlsruhe Institute of Technology

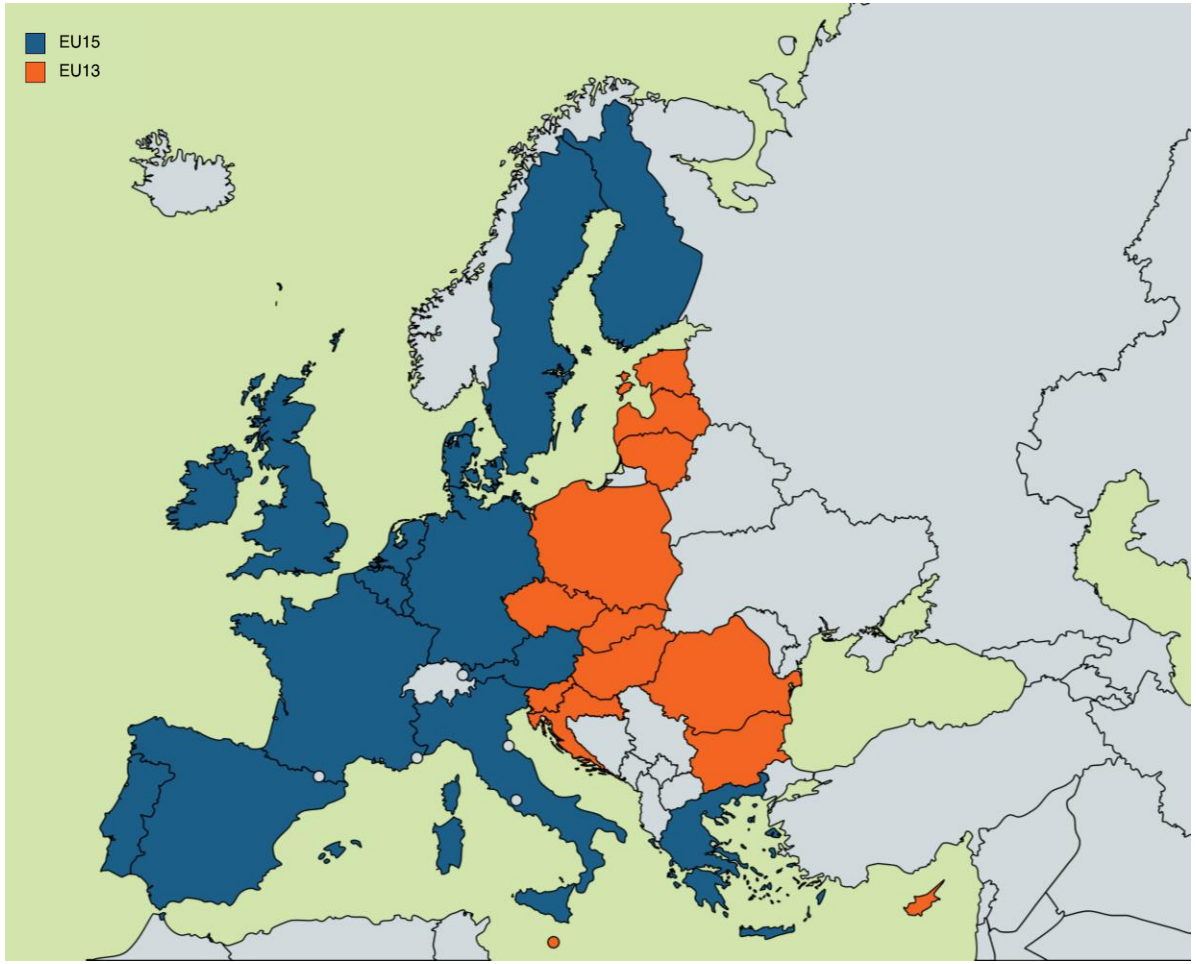
SINTEF

VTT

Introductory note

The research and innovation gap between EU13 and EU15 Member States

The R&I gap between EU13 and EU15 Member States

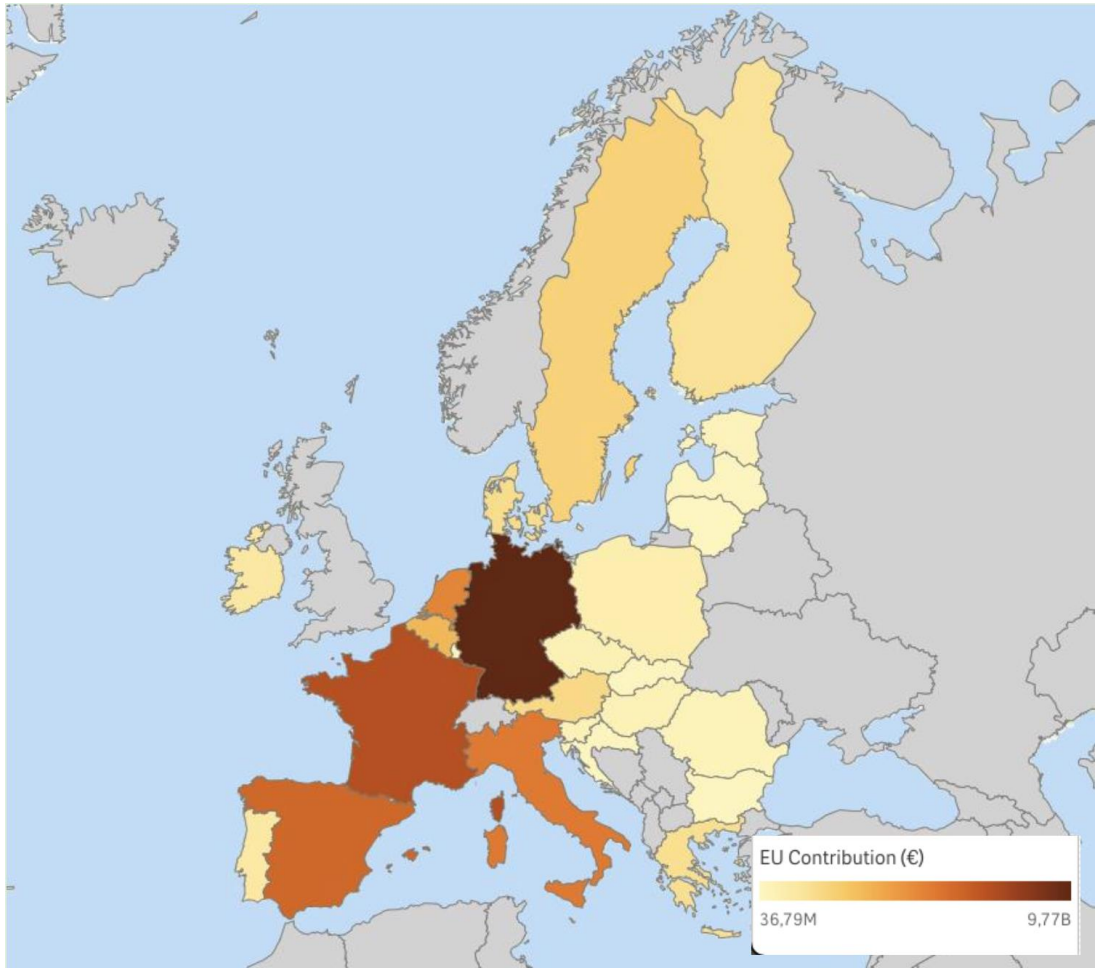


The **research and innovation (R&I) gap** in the EU is a pressing **challenge**, especially in consideration of the **2030** and **2050 climate goals**.

EU13 countries have **low participation rates** in the SET Plan, their national research organisations have **limited awareness** of the Clean Energy Transition (CET) priorities, funding schemes and initiatives and have received only a **marginal contribution** of Horizon 2020's budget.

The gap in relation to Horizon 2020 contribution: geographical distribution

Geographical distribution of Horizon 2020 net contribution by country



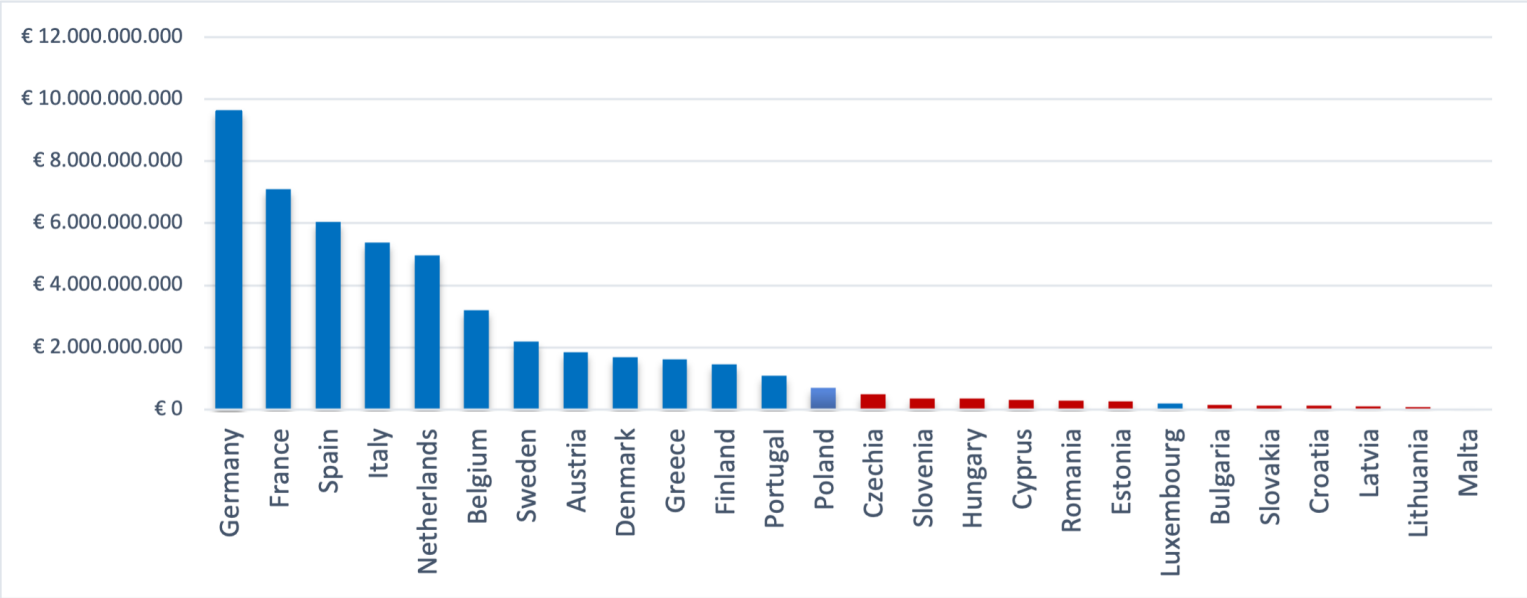
The limited commitment to the SET Plan reflects in **low H2020 performance**.

EU13 countries have received only a **marginal contribution** of Horizon 2020's budget compared to EU15.

Image source: Horizon 2020 dashboard (European Commission, 2021).

The gap in relation to Horizon 2020 contribution: EU13 vs EU15

H2020 net EU contributions (mil. EUR)



Only 5% of the total Horizon 2020 budget has been allocated to research teams from the EU13 Member States.

Source of the data: Horizon 2020 country profile database (European Commission, 2021).

H2020 performances

Sample	Organisations involved in H2020 projects	Organisations involved in H2020 projects (% of EU total)	H2020 net EU contribution (in Mil)	H2020 net EU contribution (% of EU total)
EU total	151.718	100,00%	€ 59 580	100,00%
EU13 total	14.640	**9,65%**	€ 3 470	**5,82%**
EU15 total	137.078	**90,35%**	€ 56 120	**94,18%**

→Among EU13, Malta receives the lowest net contribution (EUR 36,79 million), while Poland receives the highest contribution (EUR 713,12 million).

Vs.

→Among the EU15 countries, Luxembourg is the country receiving the lowest share from Horizon 2020 (EUR 189 million), while Germany receives the highest contribution of EUR 9 600 million

The gap in relation to the SET Plan

EU13 participation to SET Plan Implementation Working Groups

Country	Batteries	CCU-CCS	CSP-STE	Deep Geothermal	Energy Efficiency in Buildings	Energy Efficiency in Industry	Energy system	Nuclear safety	Ocean energy	Offshore wind	Photovoltaics	Positive energy districts	Renewable fuels and bioenergy
Bulgaria													
Croatia	X							X					
Cyprus			X	X		X	X				X	X	
Czechia	X	X				X		X				X	
Estonia	X												
Hungary	X	X						X					
Latvia	X				X	X	X					X	
Lithuania	X							X					
Malta	X												
Poland	X					X		X				X	
Romania	X							X				X	
Slovakia	X					X							
Slovenia	X					X		X					

Except for Bulgaria, all EU13 countries participate in the SET IWGs, with Cyprus being the most active country.

EU13 involvement is mostly circumscribed to nuclear safety, batteries, energy efficiency in industry and positive energy districts.

Source: SETIS's website, Implementing the actions.

Possible reasons and challenges

Explaining the performance gap between EU13 and EU15 Member States

Root causes and structural challenges

Among the reasons explaining EU13 performance gap are:

- **National priorities not aligned** with European ones;
- **Weakness** of the **R&I systems**;
- **Administrative** and **regulatory burdens** obstructing R&I;
- Socio-economic **relevance of fossil fuels** (especially coal) making the transition towards a low-carbon economy less appealing;
- **Limited involvement** in the **SET Plan** landscape;
- **Lack of ties** at European and international level;
- **Absence of integration** between **business** and **academia**.

Reasons for the Horizon 2020 performance gap

Main causes for EU13 performance gap are:

1. **Relative weakness** of the **R&I systems** of EU13 vs EU15;
2. **Relative lack of scientific excellence in institutions** from EU13 vs EU15;
3. **Relative lower quality of proposals** involving EU13 participants compared to those that do not.

These three hypotheses have been assessed through a set of indicators and led to the identification of a **correlation between low scores** in these **indicators** and **Horizon 2020 performance**.

Other challenges related to Horizon 2020

- **Lack of experience** and **complexity of Horizon 2020** dissuading from participating in the Framework Programme;
- **Lack of international network** and **regional cooperation**;
- Ease of accessing **alternative** sources of **funding**;
- **Lack of adequate administrative support.**

Opportunities and recommendations

Opportunities arising from bridging the performance gap

Bridging the gap between EU13 and EU15 countries would allow to:

- Ensure that the **CET** and underlying policies and strategies will unfold in an **even way throughout the whole EU**, narrowing disparities across MSs;
- Achieve an untapped opportunity for **growth and development** of EU13 national economies and the EU as a whole;
- Greater likelihood of meeting **2030 and 2050 targets**.

Opportunities arising participating in the SET Plan

Deeper involvement in the SET Plan would lead EU13 to:

- **Get involved in the EU discourse** about research in energy technologies and influence underlying policies;
- **Understand current priorities**;
- Enhance **international ties**;
- Share **research infrastructures**;
- Higher **awareness** of and **involvement** in **transnational funding schemes**.

Recommendations

Some preliminary recommendations may include:

1. **Link** national **R&I priorities** to European ones;
2. Strengthen **participation** in EU **R&I networks**;
3. **Increase R&I funding**;
4. Foster stronger **academia-business cooperation**;
5. **Improve** administrative **procedures** and **reduce** administrative **barriers**;
6. **Enhance** the activities of **National Contact Points**.

www.supeera.eu

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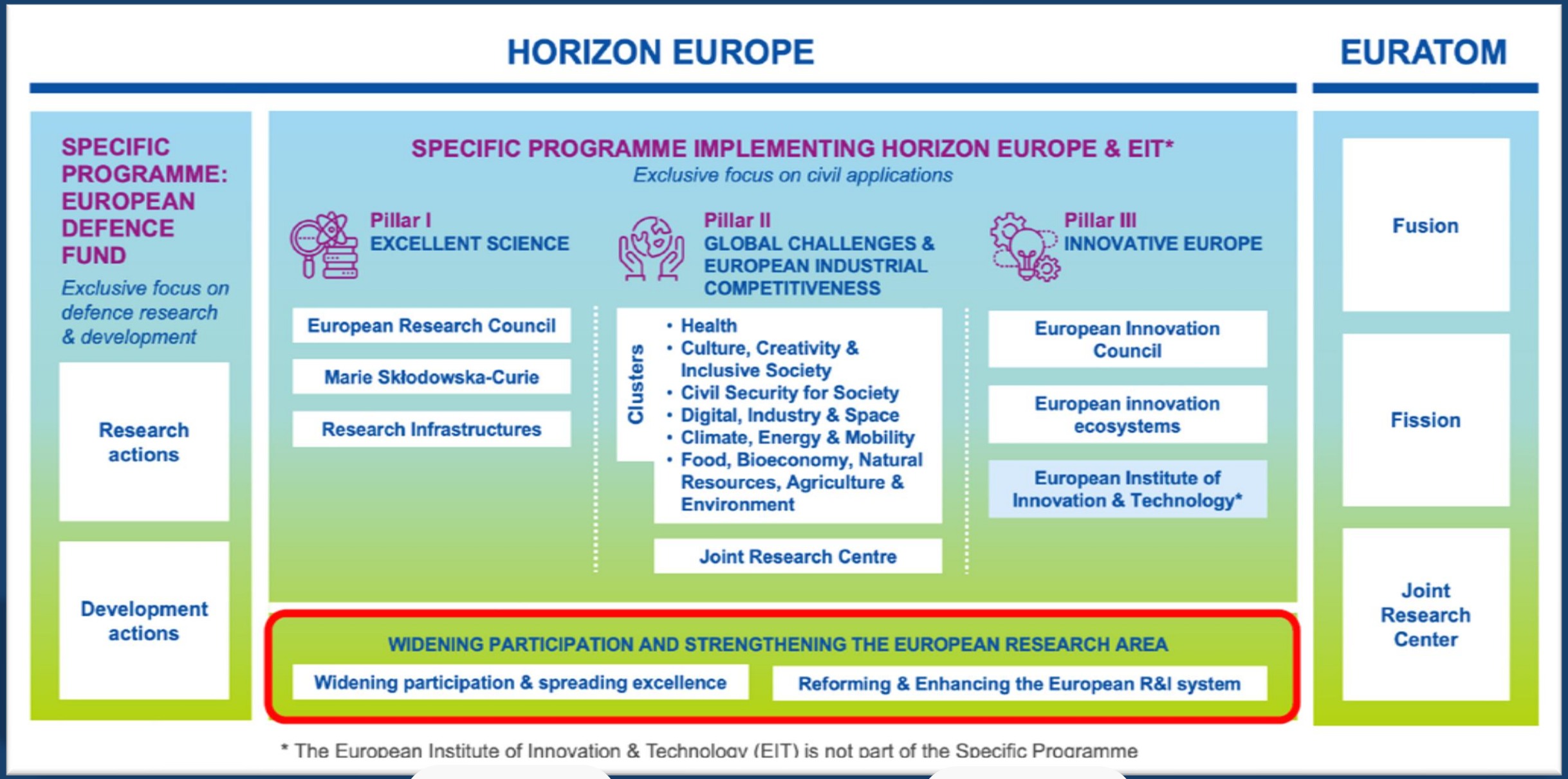
The National Centre for Research and Development

National Contact Point in POLAND

Wide initiative & success stories

Marika Kowalska

Online | 19.01.2022 r.



€ 2,96 billion

€ 0,44 billion

Widening under Horizon Europe - novelties

- Full alignment with **new ERA strategic priorities**
- **Research cost for CSA eligible** under Teaming, Twinning and ERA Chairs
- More emphasis on **developing research management capacities**
- **Full integration of COST** under widening, 80% of actions must have significant widening dimension
- **Fixed list of eligible Member States** to host the main beneficiary (EU13 + PT + EL) + Associated Countries
- **EU Outermost Regions** fully eligible to host the coordinator
- Full implementation of "**Advancing Europe" package** with a number of additional support schemes to boost participation of less research performing countries
- New **initiatives for excellence** in universities and innovation ecosystems
- Enhanced and more diversified actions for **brain circulation**
- More integrated policy approach and **enhanced synergies** with regional policy, transnational missions, regional smart specialisation strategies etc.

Widening participation and strengthening the ERA

Destination #1 : Improved access to excellence:

- Teaming
- Twinning (incl. special call for Western Balkans)
- Excellence Hubs
- European Excellence Initiative for Higher Education Institutions (HEI)
- R&I Policy making in Western Balkans
- Hop on facility
- (under other actions) COST

Destination #2: Attracting and mobilising the best talents:

- ERA Chairs
- Fostering balanced brain circulation: ERA Fellowships
- Fostering balanced brain circulation: ERA Talents

Destination #3: Reforming and enhancing the EU research and innovation system 2021 2024


European Commission

EN

Horizon Europe

Work Programme 2021-2022

11. Widening participation and strengthening the European Research Area

(European Commission Decision C(2021)4200 of 15 June 2021)

Destination#1 : Improved access to excellence

Objective: to create a portfolio of complementary actions that will build R&I capacities in Widening countries enabling them to advance to the competitive edge at European and international level

Main impact:

- Increased science and innovation capacities for all actors in modernised and more competitive R&I systems in widening countries
- Reformed institutions and increased attractiveness for talents
- Higher participation success in Horizon Europe and more consortium leadership roles
- Stronger links between academia and business
- Strengthened role of the Higher Education sector in research and innovation
- Better involvement of regional actors in R&I process
- Improved outreach to international scale for all actors

Actions:

- Teaming
- Twinning (incl. special call for Western Balkan Countries)
- Excellence Hubs
- European Excellence Initiative for Higher Education Institutions
- R&I Policy making in Western Balkans
- Hop-on facility
- (under other actions) COST

Teaming

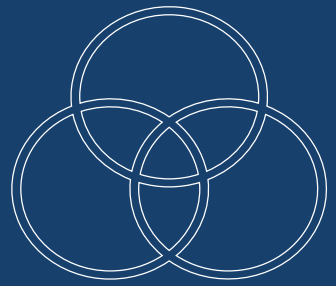
Establishment of new or improvement of existing Centers of Excellence in Widening countries with the support of leading European partners.

The Center of Excellence should be a leader in the domain of its choice and a model for structural change in Widening countries.

How:

- a large CSA grant (up to 15 million €) + equivalent (obligatory) complementary funding,
- a single application in a two-stage evaluation procedure; joint evaluation of all funding sources,
- consortium structure - main beneficiary + 1 or 2 strategic advanced partners (universities or research organisations) from a different country.

Excellence Hubs



Project objective: development of the research and innovation potential of the entire ecosystem through international cooperation with other ecosystems in viewing countries (networking of ecosystems in viewing countries)

Innovation excellence (as opposed to science excellence in Teaming)

Regional dimension

RIS3 and / or European policy priorities (Green Deal, Digital Transformation)

Academia – Business – Public authority (Goverment) – Society (**quadruple helix**)

HORIZON-WIDERA-2022-ACCESS-04-01:

Excellence Hubs

Opening: 3 November 2021

Deadline: 15 March 2022

Call budget: 50 mln €

Expected budget per project: 3 – 5 mln €

Expected duration of project: up to 4 years

Type of Action: CSA (Coordination & Support Action)

Hop On Facility

HORIZON-WIDERA-2022-ACCESS-07-01

Opening: 04 January 2022

Cut Off dates : 20 April 2022; 10 November 2022

Call budget: 40 mln €

Expected budgetper project: 0,2 to 0,5 mln €

Expected number of projects to be funded : 80

Type of action: RIA (Research & Innovation Action)

Policy objective: at system level to mobilise excellence in the Widening countries, to increase visibility of the participants from the Widening countries, to improve knowledge circulation, and to reduce lack of participation of the Widening countries in specific thematic domains.

Contributes to achieving the Inclusiveness ambition of the future ERA policy by involving research institutions from Widening countries in Horizon Europe Pillar 2 actions.

How:

- proposal must be submitted by the coordinator of a consortium funded under Pillar 2 of Horizon Europe with a valid grant agreement that does not have any participant from a country eligible to host the coordinator under the Widening component (Widening country).

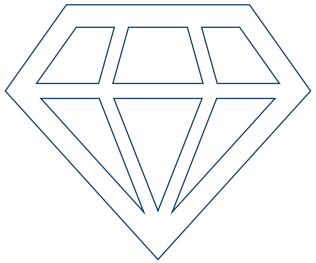
- main selection criteria are excellence and added value of the new partner performing a relevant additional task in the project

- the accepted application will cause a GA amendment with the service in charge of the related topic.

Destination #2: Attracting and mobilising the best talents

Main impacts:

- Exacting institutional reforms in research institutions in widening countries
- Better use existing research infrastructures and fill them with excellent talents
- Attract first class talents and turn them into game changers in institutions
- Revert brain drain
- Improved links between academic and business, especially by overcoming sectoral barriers
- Free circulation of knowledge and expertise in line with ERA priorities



Actions:

- ERA Chairs
- Fostering balanced brain circulation:
  - ❑ ERA Fellowships
- Fostering balanced brain circulation:
  - ❑ ERA Talents

Success story I

The SuPREME partnership has substantially improved the scientific and technical capacities of the IMP PAN and the KEZO Research Centre. It also provided the basis for a long lasting cooperation to create research excellence in delivering European smart energy systems.

Ewa Domke, coordinator of the twinning project SuPREME. Project Collection.

The Twinning Project allowed us to build stronger collaborations with our supporting countries and partner institutions. We have benefited from an effective knowledge transfer from our twinning partners. With their longer experience and stronger scientific capacity they have taught us how to boost our scientific performance. We have learnt how to be more efficient, how to address problems in innovative ways, and how to deliver better results

FACTS AND FIGURES	
Project Name	Twinning for a Sustainable, Proactive Research partnership in distributed Energy systems planning, Modelling and management
Project Acronym	SuPREME
Project ID	692197
Project contact	Ewa Domke; edomke@imp.gda.pl
Coordinator	Instytut Maszyn Przeplywowych Im. Roberta Szewalskiego Polskiej Akademii Nauk - IMP PAN (Poland)
All Participants in Project	1. Aalborg Universitet (Denmark) 2. Universiteit Twente (Netherlands) 3. European Sustainable Energy Innovation Alliance - Eseia, Verein Fur Forderung Der Europaieschen Innovation Fur Erneuerbare Energien (Austria)
Start Day – End Day	01/11/2015 – 31/10/2018
Instrument Funding	Twinning
Call for Proposal	H2020-TWINN-2015
Project Website	https://cordis.europa.eu/project/id/692197
EC Financial Contribution / Overall budget	€ 1 047 551,25 / € 1 047 551,25
Project Keywords	Smart energy systems, energy management, energy system integration
Area	Applied sciences, mechanical engineering, power and energy systems

Success story II

The Teaming programme provides a unique opportunity to establish a sustainable Centre of Excellence, which can stimulate the growth of a regional industrial ecosystem. The Centre is making significant contributions to the promotion of a knowledge-based economy in Cyprus, bringing new employment opportunities in high-tech areas as well as new ideas for economic growth in Cyprus through the design of new products and services.

Prof. Dr. Marios Polycarpou, Coordinator of the Teaming project KIOS CoE. Project Collection

The Centre also collaborates closely with industry, so the research and technology developed can bring tangible benefits to society, the environment and the economy (e.g. reduction in greenhouse gas emission; increased productivity and new value added products & services).

FACTS AND FIGURES	
Project Name	KIOS Research and Innovation Centre of Excellence
Project Acronym	KIOS CoE
Project ID	739551
Project contact	Prof. Marios Polycarpou; mpolycar@ucy.ac.cy
Coordinator	University of Cyprus (Cyprus)
All Participants in Project	Imperial College of London (United Kingdom)
Start Day – End Day	01/03/2017 – 29/02/2024
Instrument Funding	Teaming
Call for Proposal	H2020-WIDESPREAD-01-2016-2017-TeamingPhase2
Project Website	http://www.kios.ucy.ac.cy
EC Financial Contribution / Overall budget	€ 15 000 000 / € 40 000 000
Project Keywords	Intelligent Systems and Networks; Critical Infrastructure Systems; Computational Intelligence; Fault Diagnosis.
Area	Information and Communication Technologies, Monitoring and Control, Cyber-Physical Security, Intelligent Networked Systems, Machine Learning

Success story III

The SynBioTEC ERA Chair has managed to extend a number of long-term global partnerships. Collaboration with biotechnology research groups in Brazil (Federal University of Vicosa and Unicamp) has been established to characterise and optimise new promising fungal strains for biochemical production. Collaboration with the Chalmers University of Technology, Sweden, is taking place over computational aspects to support cellular design.

Dr. Petri-Jaan Lahtvee, coordinator of the ERA Chair project SynBioTEC. Private Collection.

Together with Imperial Collage London, we are developing the new synthetic biology toolboxes for nonconventional yeast strains. In collaboration with the NNF Centre for Biosustainability, Denmark, we applied for an H2020-widespread Teaming call project.

FACTS AND FIGURES	
Project Name	ERA Chair position in Synthetic Biology at University of Tartu Institute of Technology
Project Acronym	SynBioTEC
Project ID	668997
Project contact	Dr. Mart Loog mart.loog@ut.ee
Coordinator	University of Tartu (Estonia)
All Participants in Project	-
Start Day – End Day	01/07/2015 / 30/06/2020
Instrument Funding	ERA-Chair
Call for Proposal	H2020-WIDESPREAD-2014-2
Project Website	erasynbio.ut.ee
EC Financial Contribution / Overall budget	€ 2 393 438 / € 2 659 375
Project Keywords	Synthetic biology, systems biology, biosustainability, cell factories
Area	Synthetic biology

More on success stories:

- NCPWIDENET-Success-stories.pdf
- CORDIS | European Commission (europa.eu)

More on Widening:

- ERA and Widening | European Commission (europa.eu)

The National Centre
for Research and Development

National Contact Point
in POLAND

Thank you!

Marika Kowalska | marika.kowalska@ncbr.gov.pl

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12:00	**End of meeting**	

Iceland Liechtenstein Norway grants

Norway grants

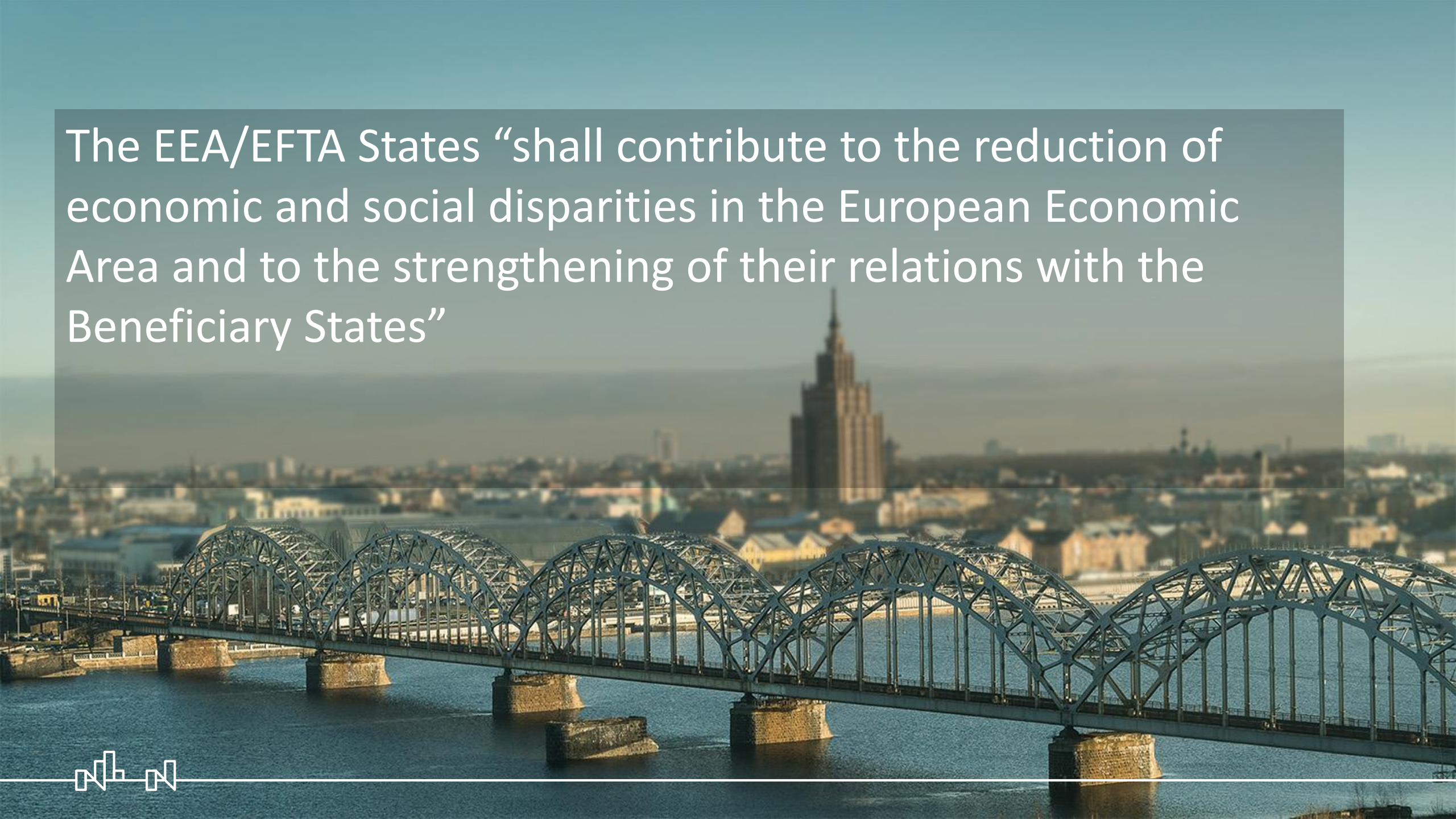
The EEA and Norway Grants 2014-2021

Working together for a green, competitive and inclusive Europe

Berta Matas Güell

Senior researcher, SINTEF

19.01.22


The EEA/EFTA States “shall contribute to the reduction of economic and social disparities in the European Economic Area and to the strengthening of their relations with the Beneficiary States”

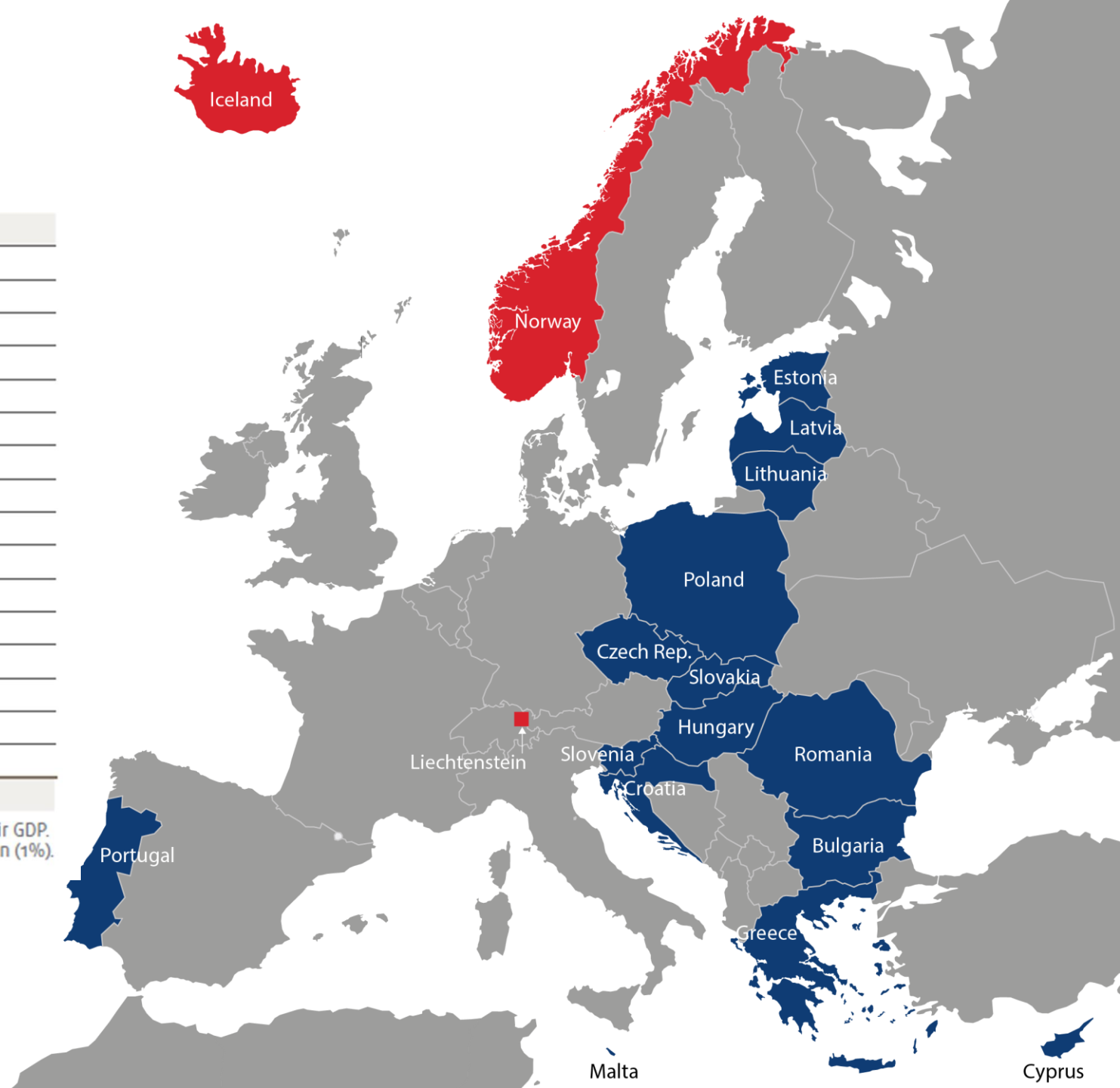
We work through funding periods

2004-2009 = €1.3 billion
2009-2014 = €1.8 billion
2014-2021 = €2.8 billion

Beneficiary countries (€ million) 2014-2021

Country	EEA Grants	Norway Grants	Total
Bulgaria	€115.0	€95.1	€210.1
Croatia	€56.8	€46.6	€103.4
Cyprus	€6.4	€5.1	€11.5
Czech Republic	€95.5	€89.0	€184.5
Estonia	€32.3	€35.7	€68.0
Greece	€116.7	-	€116.7
Hungary	€108.9	€105.7	€214.6
Latvia	€50.2	€51.9	€102.1
Lithuania	€56.2	€61.4	€117.6
Malta	€4.4	€3.6	€8.0
Poland	€397.8	€411.5	€809.3
Portugal	€102.7	-	€102.7
Romania	€275.2	€227.3	€502.5
Slovakia	€54.9	€58.2	€113.1
Slovenia	€19.9	€17.8	€37.7
Regional Funds	€55.2	€44.8	€100.0
Total	**€1 548.1***	**€1 253.7**	**€2 801.8**

*The EEA Grants are jointly financed by all three donors, where contributions are based on their GDP. The estimated share of contributions equates to: Norway (96%), Iceland (3%) and Liechtenstein (1%).



Programme design process

Negotiations on political priorities between donor and beneficiary states

- Legally binding
- Sets results frameworks and provisions for modalities, selection, reporting, payments etc.

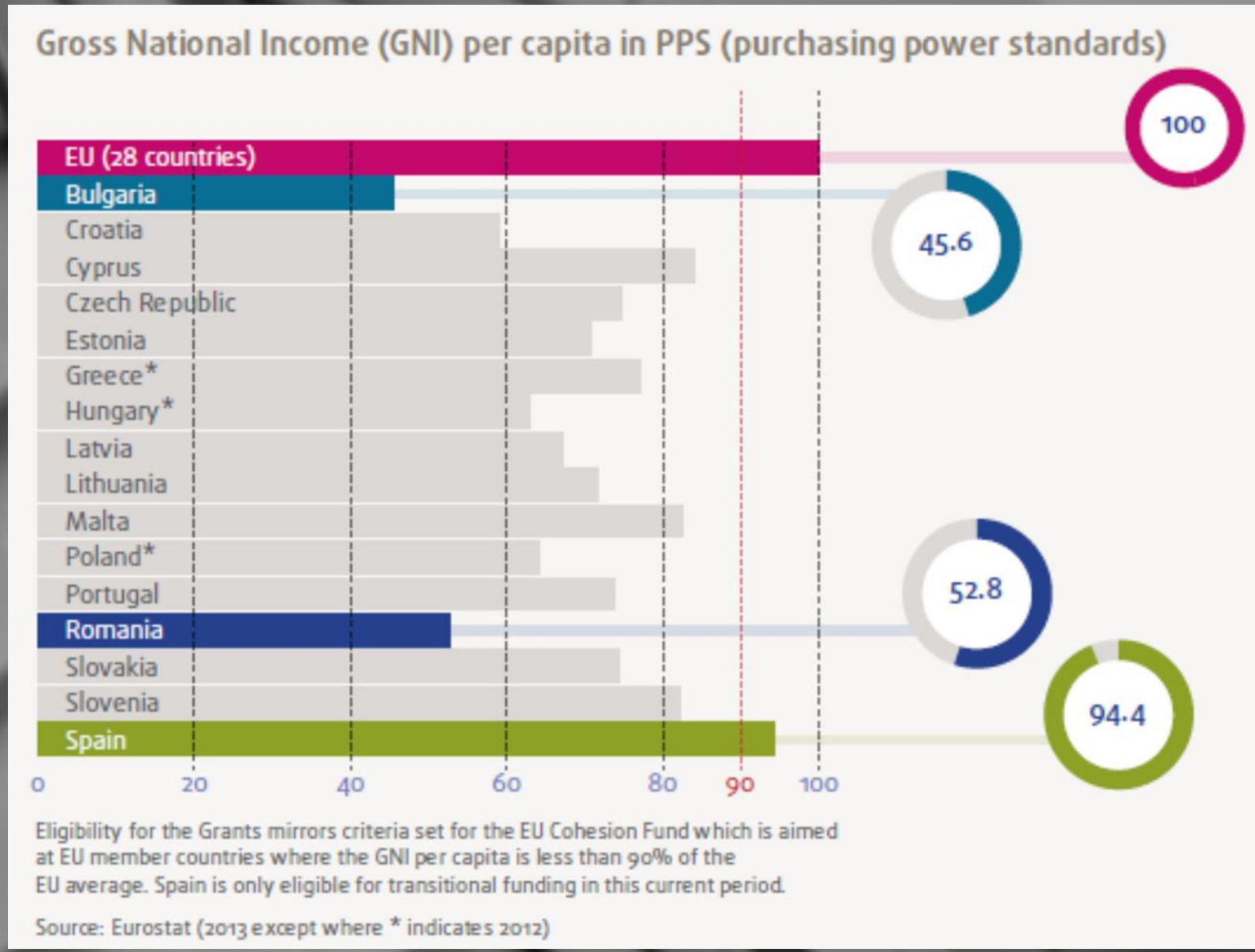
- Stakeholder consultations
- Alignment with EU and national policies and regulations
- Results-based
- 'Participatory'
- Use available analysis

Implementation of projects identified through competition (main rule) or pre-definition (exception)

Eligibility criteria

Mirror EU Cohesion Funds

GNI less than 90% of EU average



The EEA and Norway Grants' programme targets contributing to the Green Deal

- Priority Sector 'Environment, energy, climate change and low carbon economy' consists of:

Programme Area 11

Ecosystems, air quality, circular economy, water management

Programme Area 12

Energy efficiency in buildings and industry and renewable energy in connection with energy measures

Programme Area 13

Climate change mitigation and adaptation activities, awareness raising

Ongoing Environment, Energy and Climate programmes are expected to lead to:

Emissions reductions: More than 1 million ton of CO2 eq. per year
Energy savings: 897 000 MWh/year
Renewable energy production: 118 000 MWh/year
Restoration of ecosystems: 600 000 m2 of wetland etc.
Promotion of a circular economy: 17 pilot projects etc.
Environmental awareness-raising
New infrastructure for alternative fuels

Overview PA 12: Renewable Energy, Energy Efficiency, Energy Security

Grants allocation, supported areas and objective

Allocation (EEA Grants): **184 503 300 EUR**

Allocation (Norway Grants): **33 778 986 EUR**

Total: **218 282 385 EUR**

Areas of support:

- Energy efficiency in production
- Renewable energy production and/or distribution
- Recovery of energy from waste and hazardous waste
- Energy security
- Renewable energy policies in all relevant sectors
- Energy markets

Objective:

Less carbon intensive energy and increased security of supply

Countries currently receiving funding under PA 12

Country	Total Sum of Allocation	Total Sum of Disbursed	Total Sum of Incurred	Total Sum of Eligible expenditure
PA12	**218,282,385.00**	**34,711,590.09**	**5,615,242.23**	**247,284,403.92**
Bulgaria	28,000,000.00	6,591,028.96	1,653,821.33	32,941,176.47
Croatia	17,000,000.00	3,504,678.61	25,523.31	20,000,000.00
Greece	10,000,000.00	3,966,714.00	343,952.00	13,333,333.33
Lithuania	845,486.00	535,261.65	301,205.59	994,689.41
Poland	95,360,399.00	6,053,079.87	0.00	112,188,704.71
Romania	62,826,500.00	12,977,077.00	3,290,740.00	62,826,500.00
Slovenia	4,250,000.00	1,083,750.00	0.00	5,000,000.00

Project examples

95 energy projects currently in implementation

Bulgaria (BG-Energy003):
Modernisation of the system of street lighting in 22 zones within the city of Burgas

Expected results:
- Savings of CO2 emissions up to 1328,66 tCO2/y
- Energy consumption reduction by 1 123 038 kWh/y
- Financial saving raising up to 197 048,25 lewa per year
- Increased quality of life and information of the citizens

Romania (RO-Energy0057):
Increased capacity to deliver renewable energy from hydropower for Hidro Jepi SA

Expected results:
- Estimated annual CO2 emission reductions: 205 tCO2 eq./y
- Energy produced from hydropower sources in MWh/Year: 674 MWh/Year
- Estimated annual growth in turnover: 26% at the end of 2023 compared to baseline year 2020
- Estimated annual growth in net operational profit (EBIT): 78% at the end of 2023 compared to baseline year 2020


Iceland
Liechtenstein
Norway grants
Norway
grants
Thank you for your attention
www.eeagrants.org
19.01.22

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Iceland Liechtenstein Norway grants

Project co-financed by European Economic Area FM 2014–2021
Program "Environment, Energy, Climate Change". Program Area „Energy"

The EEA FM Project "Capacity building of key stakeholders in the area of geothermal energy": Polish – Icelandic contribution into Pan-European Clean Energy Transition

Beata Kępińska
Mineral and Energy Economy Research Institute PAS, Poland

Mineral and Energy Economy Research Institute
Polish Academy of Sciences

Pan-European Clean Energy Transition: ways to strengthen transnational cooperation , 19/01/2022

- **Project Partners:**
  - **Mineral and Energy Economy Research Institute, Polish Academy of Sciences** – Project promoter
  - **National Energy Authority of Iceland** – Donor State Project partner

Mineral and Energy Economy Research Institute Polish Academy of Sciences

ORKUSTOFNUN National Energy Authority

MEERI PAS, NEA – institutions leading geothermal sector in their countries, significant achievements in geothermal research, practice, training, promotion

- **Implementation period**: 16.10.2020 – 30.04.2024
- **Budget:** € 900 000

The Project gives an example of the transnational cooperation on the way towards clean energy transition by making use of available financial programs, knowledge and expertise from best practise countries

❑ Project objectives

- **To build** the knowledge of key stakeholders in Poland on optimal geothermal energy use and its management – especially in low-emission heating
- **To enhance** knowledge-based methods, following successful experience of geothermal heating in Iceland (good methods, practice, technologies, appropriate government initiatives, financial mechanisms, management strategies)
- **To increase energy security, development of low-emission heating,** social and economic equality by providing clean energy and, inter alia, lowering heating costs

>>> The Project supports public funding programs aimed at clean heating development in Poland and contributes to Pan-European Clean Energy Transition goals by strengthening transnational cooperation (between Iceland and Poland)

❑ Project target groups – key geothermal stakeholders in Poland:

- Beneficiaries of public support programs for geothermal projects (priority: low-emission heating)
- Administration of various levels
- Local governments
- Operators, investors of existing and planned geothermal heating plants installations
- Geological administration
- Scientific-research entities
- Service providers, consultants
- NGOs
- Other entities

❑ Main Project activities:

A1. Training activities in Poland (2022–2023)

A2. Study visits in Iceland (2022–2023)

A3. Expert study visits in selected localities in Poland prospective for geothermal development (2022–2023)

A4. Report from Expert study visits on geothermal energy use possibilities in selected localities in Poland (2022–2023)

A5. Information and communication (2020–2024)

A6. Final report (2024)

A7. Project management (2020–2024)

❑ General statements – presented EEA Project vs Clean Energy Transition in European countries

Clean Energy Transition in European countries must be based on:

- realistic assumptions
- socially-acceptable costs
- reliable local sources that can contribute to energy security, economic equality, etc.

To achieve these one shall make use, among others, of transnational cooperation, relevant experiences and best practices from the countries willing to share them.

Such an approach is a basis for the presented Polish-Icelandic Project,
co-funded by the European Economic Area FM and targeting geothermal heating in Poland

Iceland Liechtenstein Norway grants

Many thanks for your kind attention!

Beata Kępińska

MEERI PAS

Mineral and Energy Economy Research Institute
Polish Academy of Sciences

http://keygeothermal.pl

Together we work for green, competitive and inclusive Europe

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SYNERGYS
Just Transition Fund geothermal project

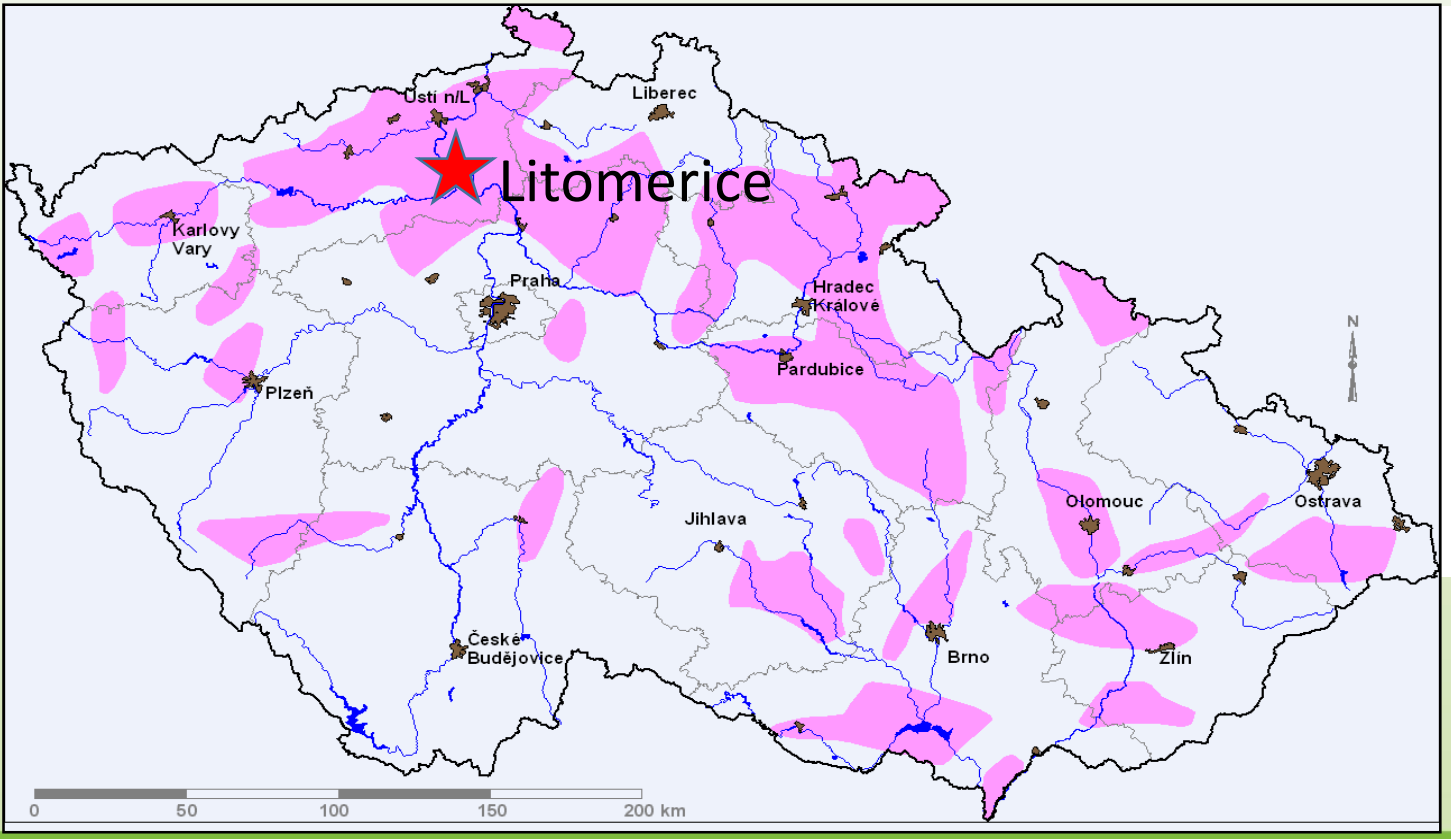
Zdenek Venera

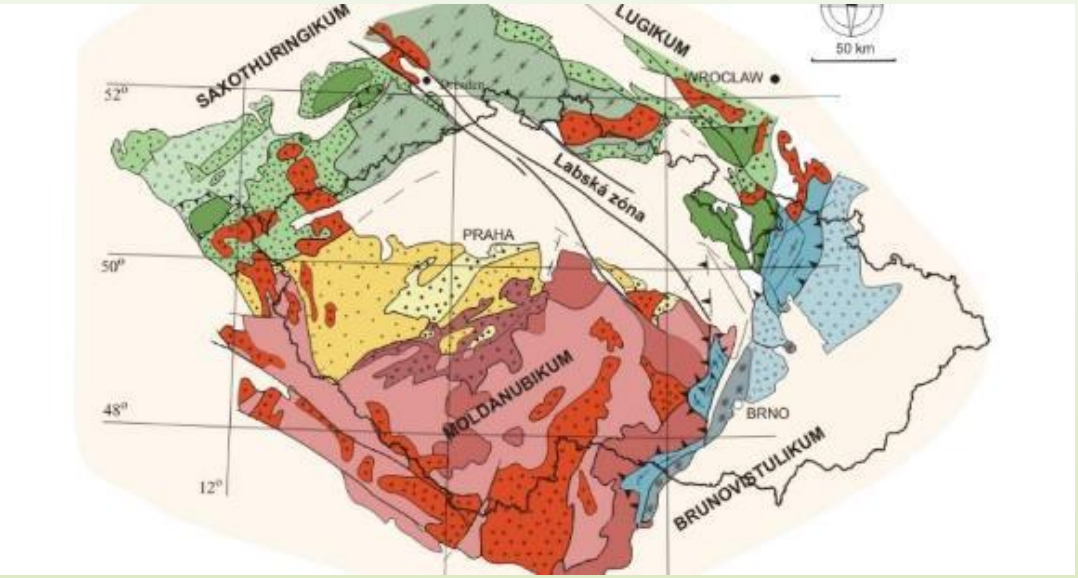
Director General, Czech Geological Survey

Pan-European Clean Energy Transition: ways to strengthen transnational cooperation
January 19, 2022

Geothermal energy research & use in Czechia

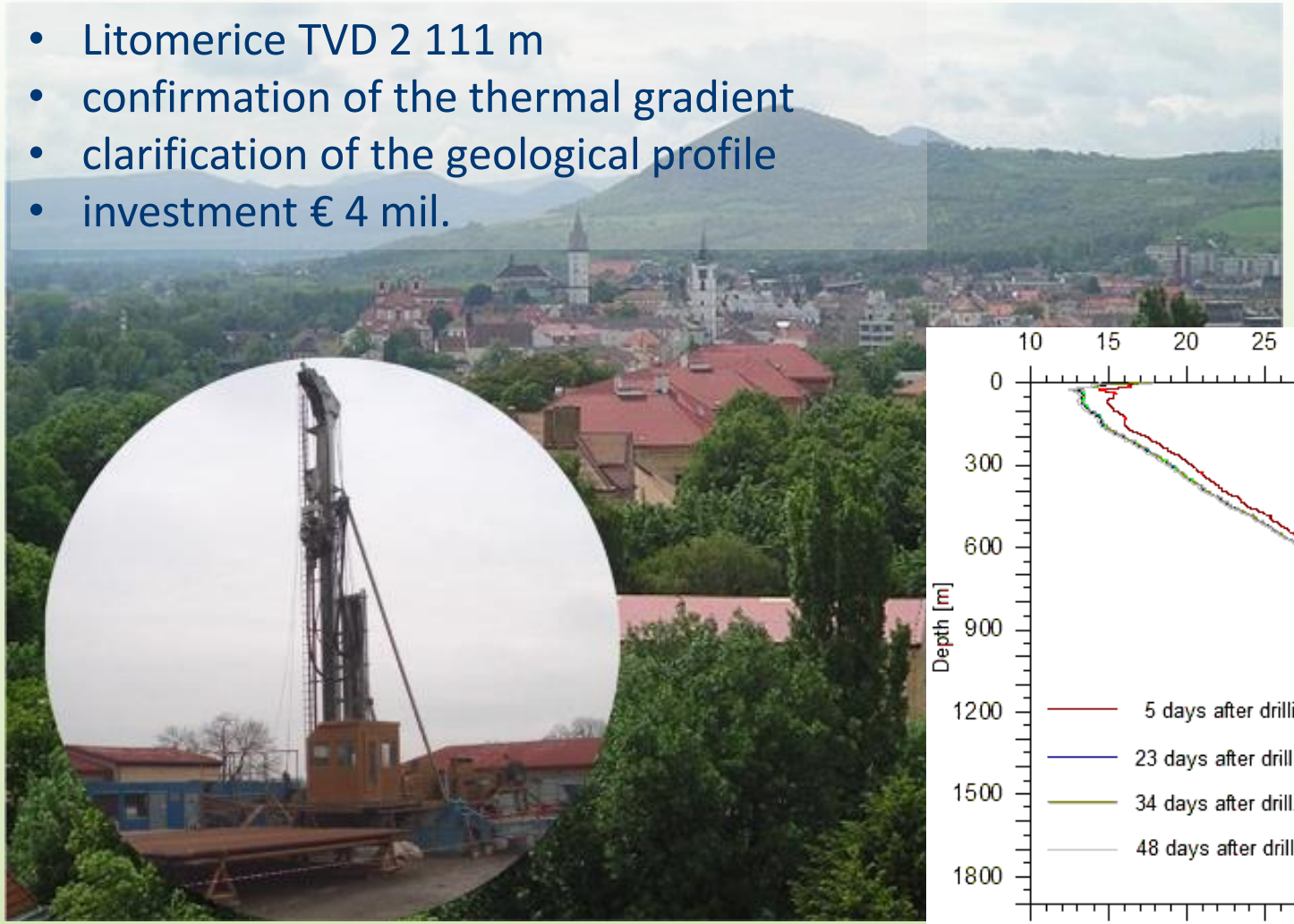
Enhanced Geothermal System – EGS / Hot Dry Rock - HDR
Suitable geological conditions

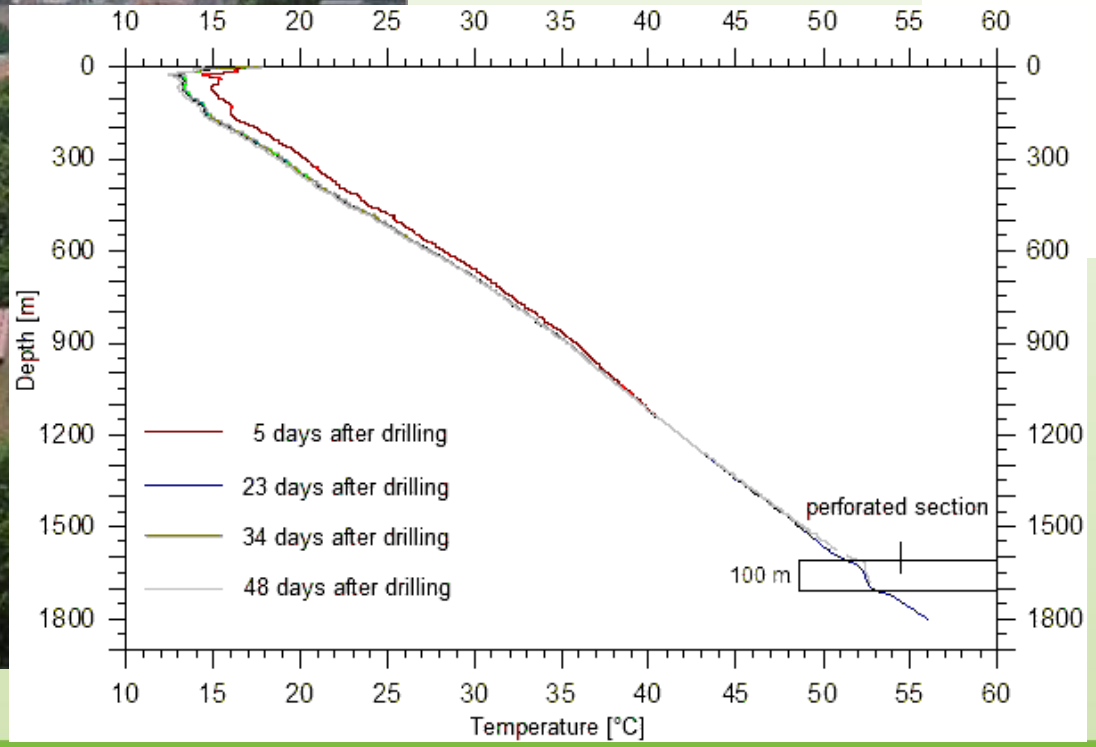


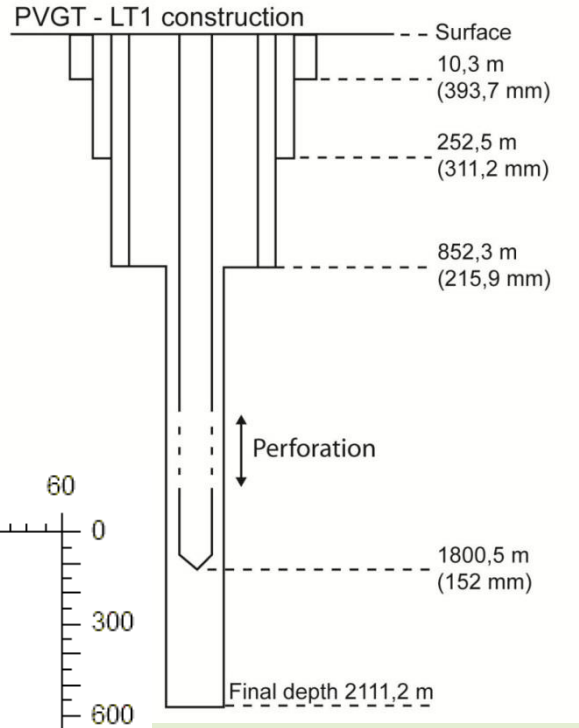


Step 1: GTE exploratory well drilled 2008

- Litomerice TVD 2 111 m
- confirmation of the thermal gradient
- clarification of the geological profile
- investment € 4 mil.

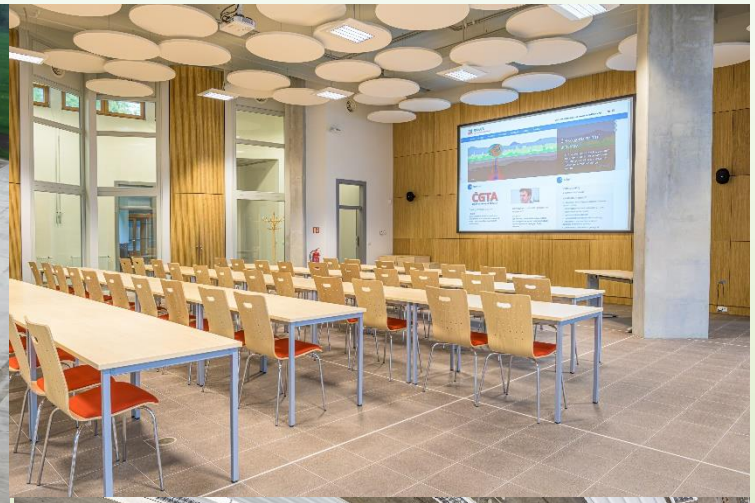






Step 2: RINGEN – research centre for geothermal energy utilisation –

launched in 2020, site of decommissioned military barracks of Litomerice



Total of **9 ha area**
6 labs of 40 to 108 m2
800 m2 of storage space

&

PVGT **exploratory well 2,1 km**
Seismic monitoring network (incl. boreholes)

Step 3: **SYNERGYS** – new R&D project

Implementation: **2022-2027**

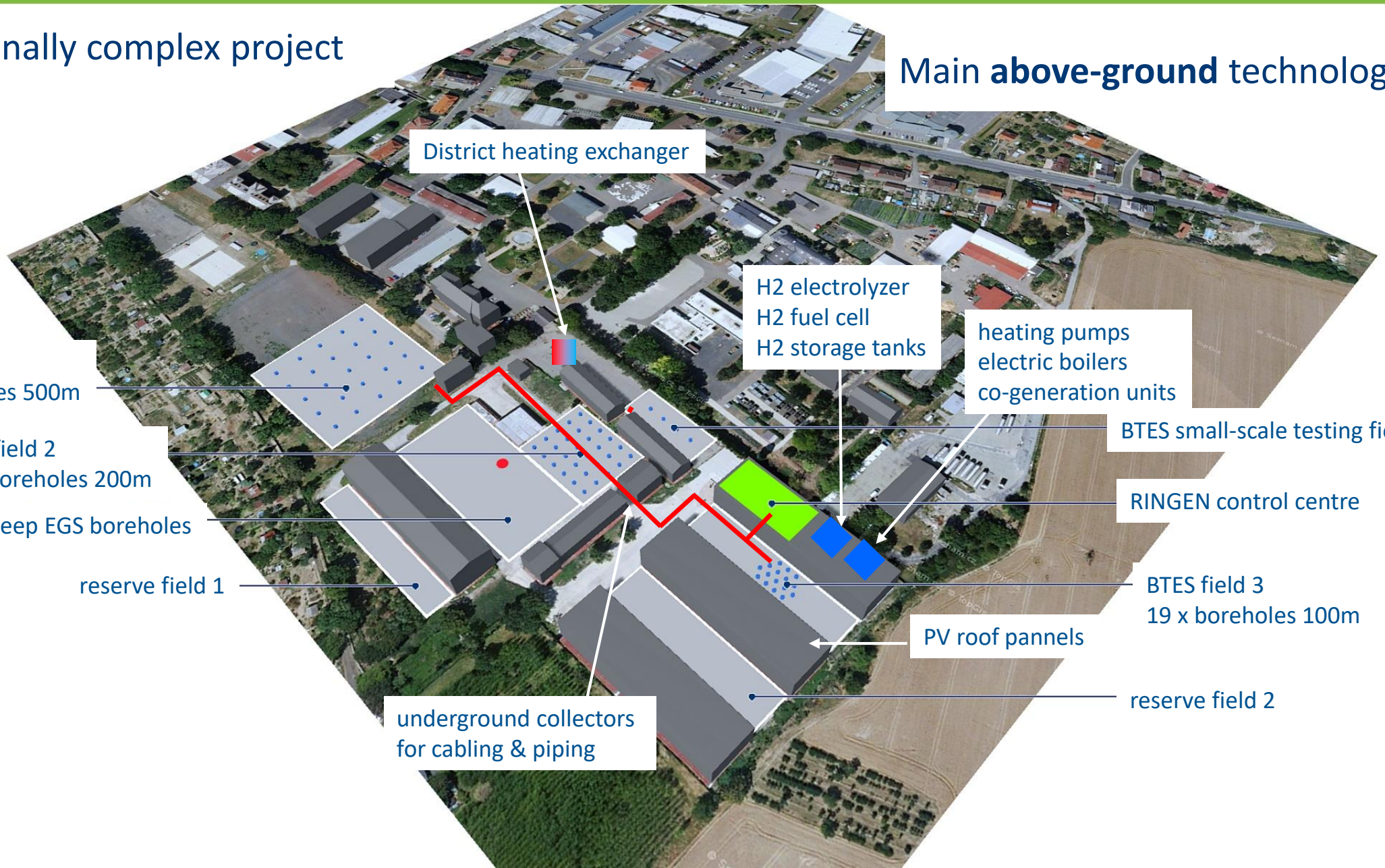
Expected budget: **€ 50 milion (€ 40 mil. INV costs) – EU Just Transition Fund**

Main goals:

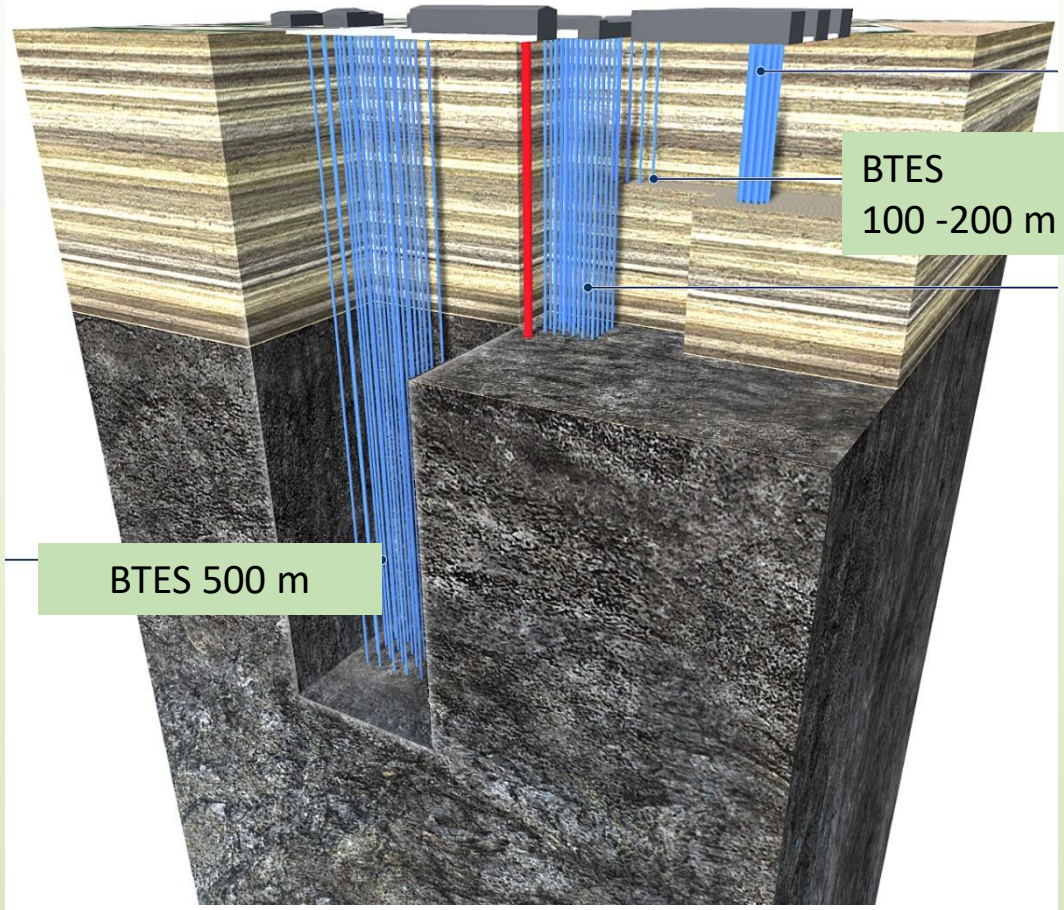
- to address problems and challenges related to **energy transition of the coal regions**
- to increase **energy efficiency** and **replace fossil fuels** in **district heating systems**
- to develop **new clean energy resources** and **underground energy storage systems** and their integration
- **complex of pilot technologies**: deep GTE source, borehole thermal energy storage (BTES) in various depths (100-500m), **green H_2** unit & **PV power plant** (1MW) & other waste energy sources
- to develop a brand **new geoenergy sector** absorbing experts from mining industry & fossil energy sector
- to expand **cooperation between public R&D and business** sector

Exceptionally complex project

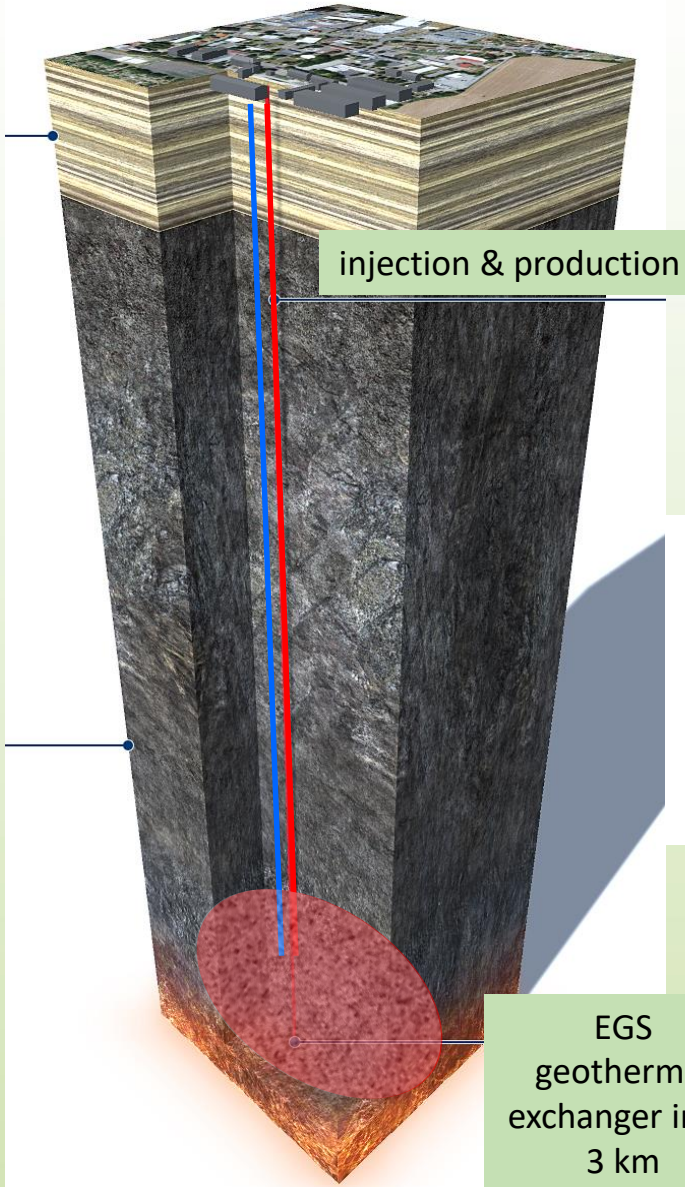
Main **above-ground** technologies



Main **underground** technologies



Borehole thermal energy storage



Geothermal energy source

Thank you for your attention!

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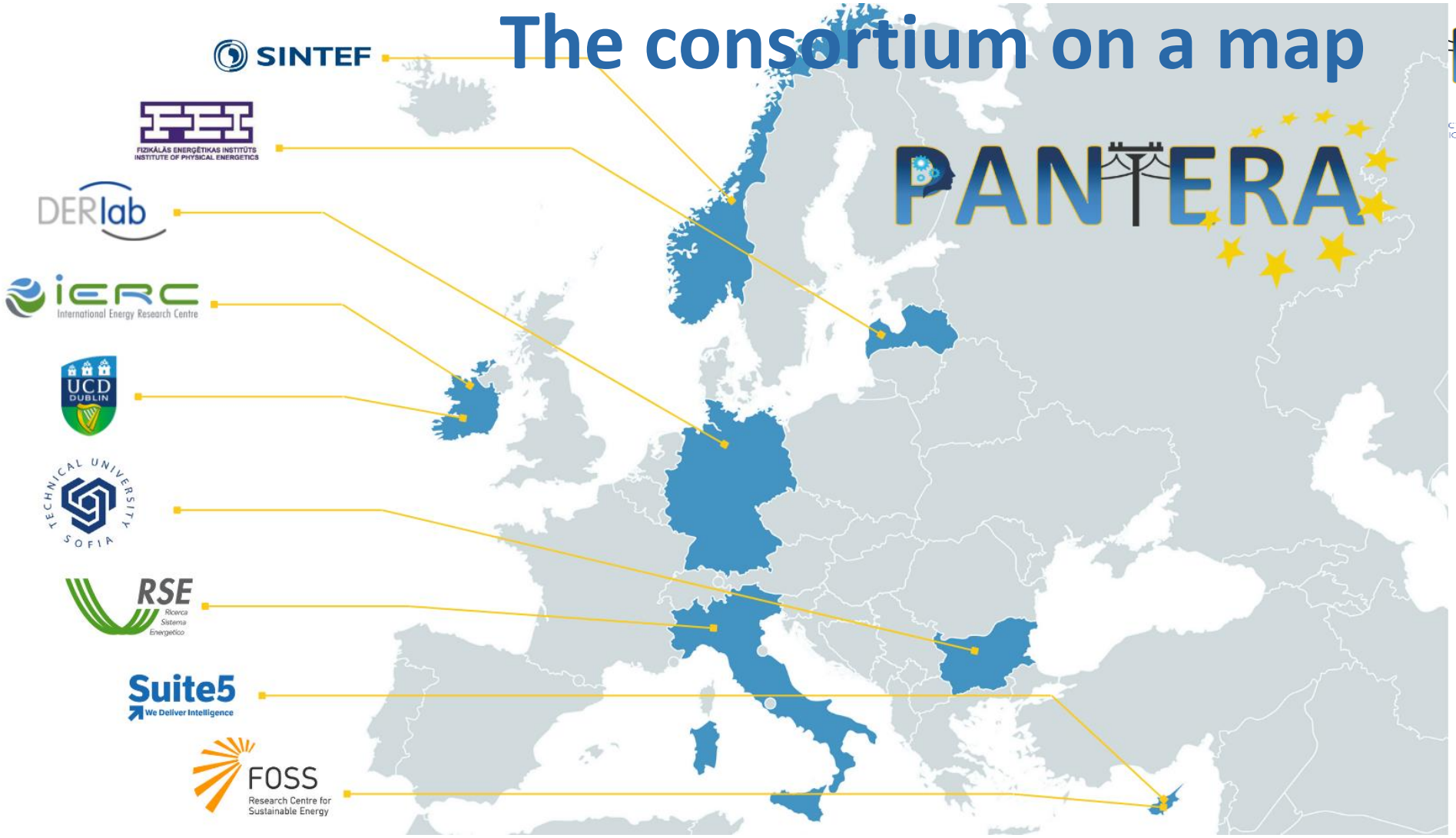
PANTERA project: A Pan-European Technology Energy Research Approach

EIRIE platform - a strong link for EU13

Pan-European Clean Energy Transition: ways to strengthen transnational cooperation

The consortium on a map



PANTERA

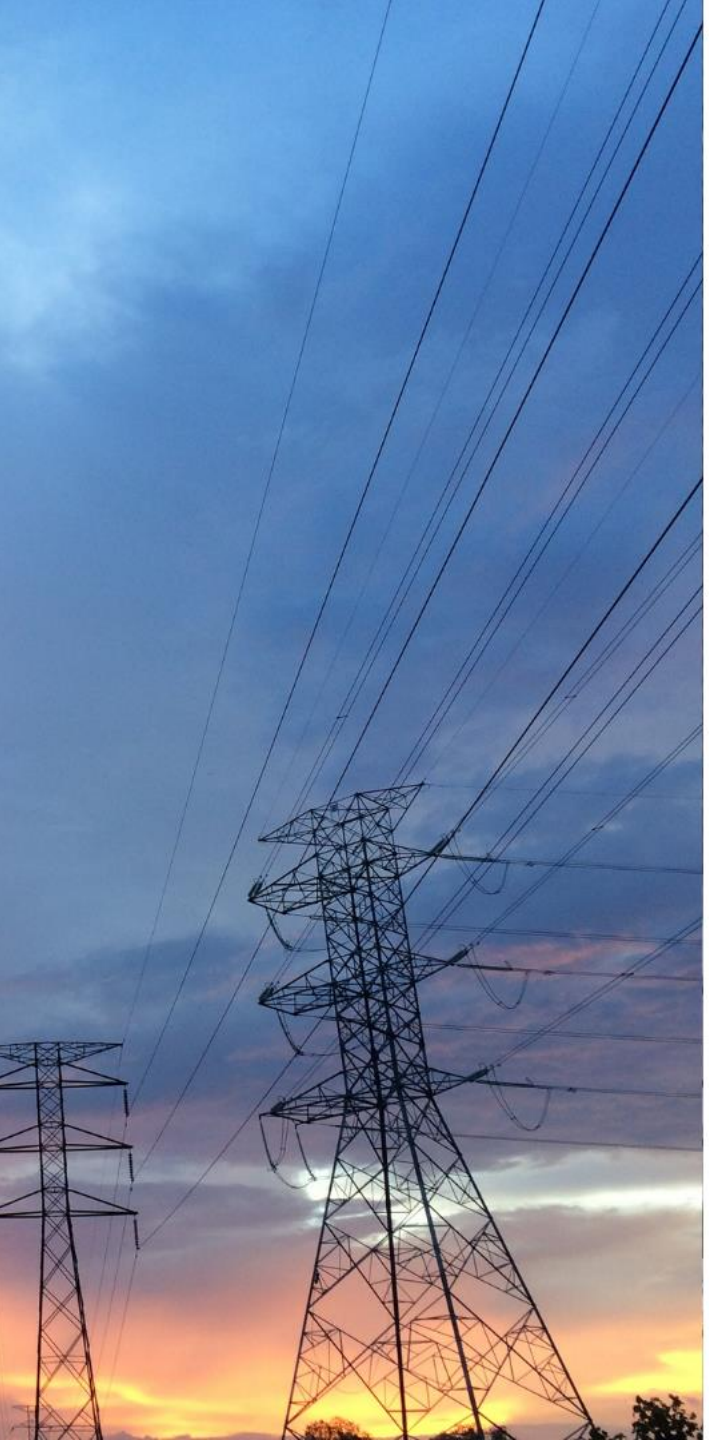
ERA

EERA
European Energy Research Alliance
Energy Storage

Strongly collaborating with EERA JP4SG, EERA JP Energy Storage and SUPEERA

EERA
European Energy Research Alliance
JP Smart Grids

EU H2020 Programme GA No. 824389



To ensure sustainable, secure and affordable energy supplies in the European Union, a fully integrated grid and energy market is required.

This is why PANTERA is identifying and implementing initiatives aimed at raising the participation of all EU countries in the needed R&I for developing technologies, systems and markets in support of the common energy market and the energy transition.

What is EIRIE?

EIRIE smart grids

EUROPEAN INTERCONNECTION FOR RESEARCH INNOVATION & ENTREPRENEURSHIP

PANTERA

- EIRIE will help bridge the gaps that currently exist in the energy field in Europe between Member States, by bringing together the attractiveness of successful partnerships being national, regional or European.

- EIRIE will act as THE meeting point of all actors active in the fields of smart grids, storage and local energy systems in Research & Innovation from all Europe and will contribute to the achievement of the envisioned carbon-free system of 2050.

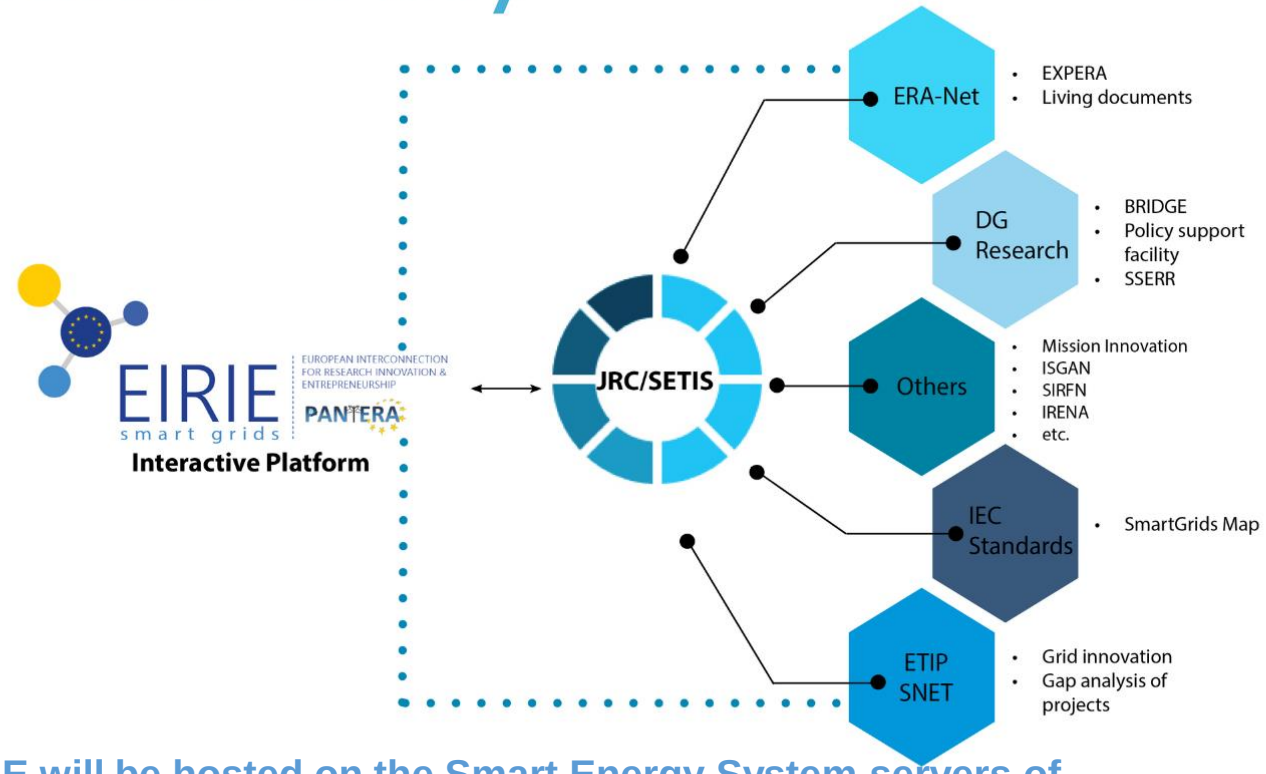
New partner in 2022 with 64 RIs dealing with storage: StoRIES

EU H2020 Programme GA No. 824389

Benefits of using the platform

- An easy access to information on potential funding and consortium building,
- A central point for collaborating on the issues relevant for the energy sector
- An active role in the community and a support in providing input to European policies,

Collaboration is key

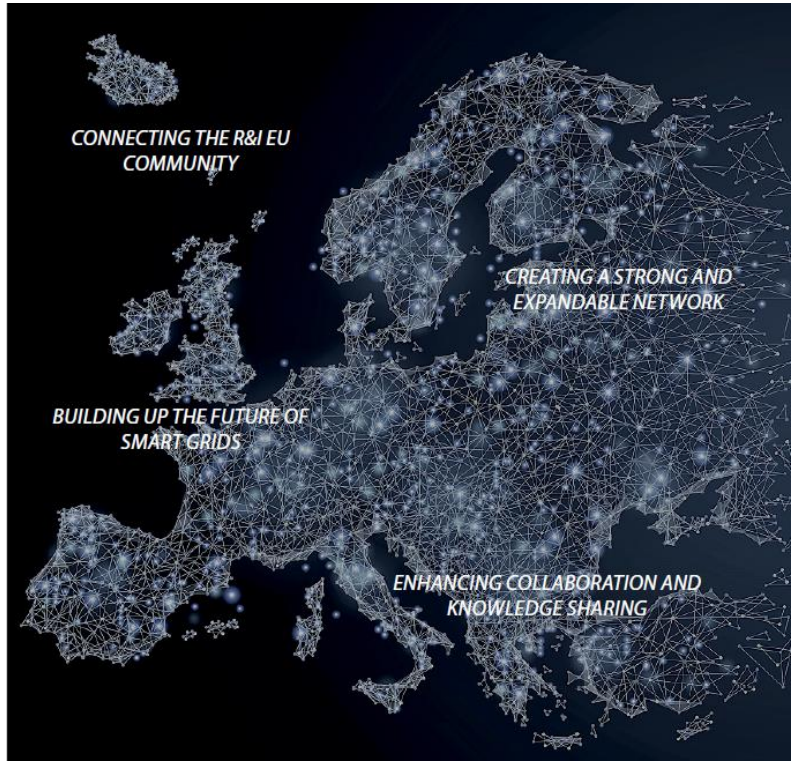


EIRIE will be hosted on the Smart Energy System servers of JRC and sustainability is guaranteed by DG Ener through a dedicated Service contract to take over from the PANTERA consortium on completion of the 4 years

SG Outlook/ Map | DiNeMo | resLoadSIM | SG Interactive Tool | DSO Observatory | SG Labs Inventory

PANTERA Regional Desks

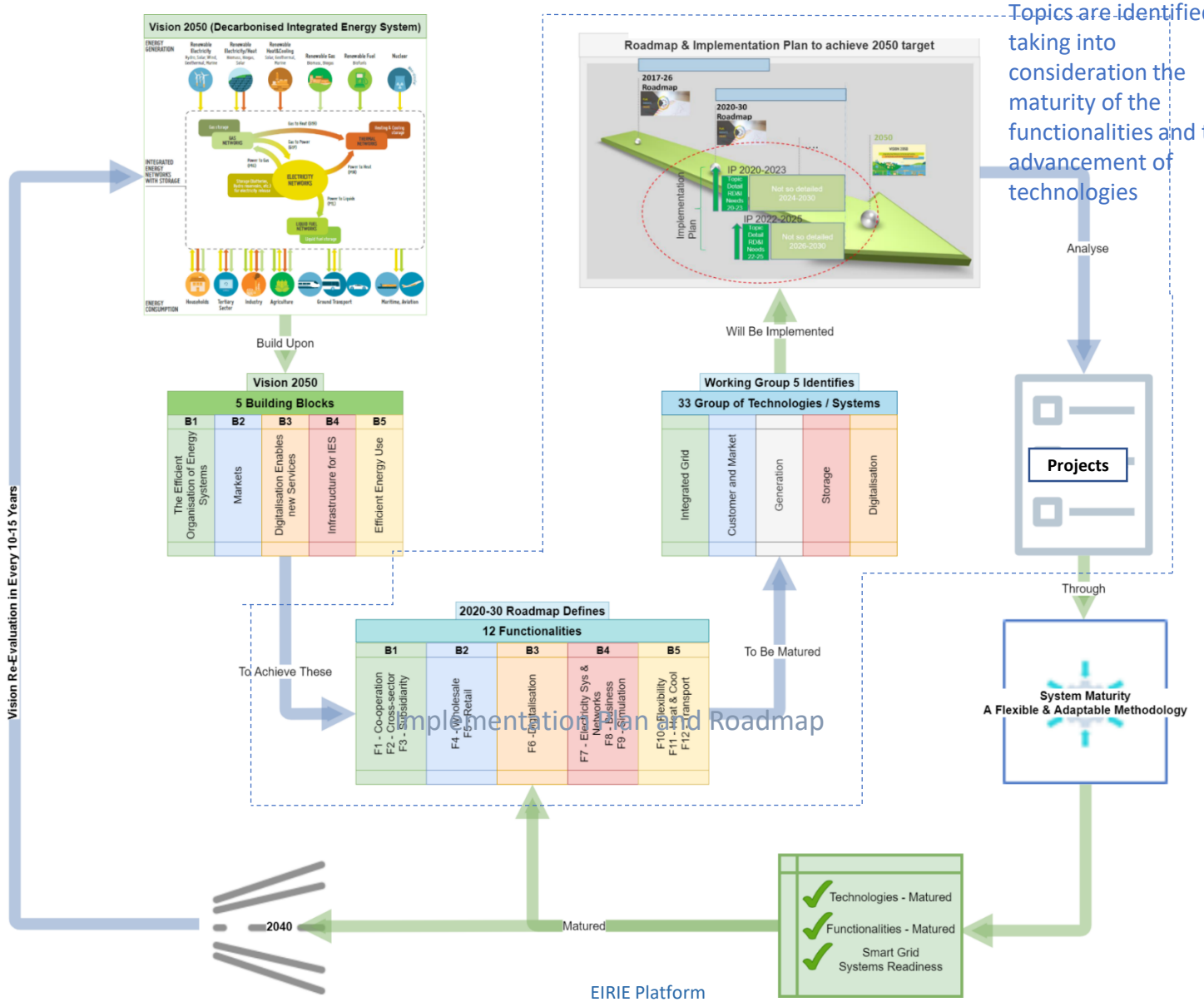
- Fully aligned with the national/regional research and innovation strategy for smart specialisation (RIS3) in content and approach.
- Link research and innovation with the regional priorities and competences in close cooperation with local actors.
- Link regions and local assets and capabilities to external sources of knowledge and value chains.
- Understand the local context and propose best practices that can be applicable for designing policies and strategies for regional and national goals.



The 6+1 Approach: Closer to local stakeholders

- **Six PANTERA Regional Desks** targeting countries which appear to have a lower rate of smart grid investment
- **One best-practice Desk** elaborating on gathering and systemising good experiences in projects and R&I governance from more successful countries.

PANTERA process for capturing evolution of system



Get in touch

https://pantera-platform.eu/

Dr Venizelos Efthymiou
efthymiou.venizelos@ucy.ac.cy

www.eirie.eu
or
https://ses.jrc.ec.europa.eu/eirie/en

AGENDA

Time	Title	Speaker
10:00	Welcome and objectives of the meeting	**Olga Sumińska-Ebersoldt** (IWG DG SU & EERA JP ES, KIT, DE)
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11:20 11:25	**EERA - European R&D organisations pot for collaboration** **JP Smart Cities** **JP Energy Storage**	 **Michal Kuzmič** (CVUT, CZ) **Alenka Ristić** (NIC, SI)
11:30	**Discussion and Questions**	
12:00	**End of meeting**	

Online

19. 1. 2021

EERA - European R&D organisations' pot for collaboration

Participation in the Joint Programme Smart Cities

Czech Technical University in Prague

University Centre for Energy Efficient Buildings (UCEEB)
Czech Institute of Informatics, Robotics and Cybernetics (CIIRC)

Michal Kuzmic, Urban Innovation Program Manager at the UCEEB
(michal.kuzmic@cvut.cz)

University Centre of Energy Efficient Buildings, CVUT

EERA European Energy Research Alliance Joint Programme Smart Cities

ČVUT ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ V PRAZE

GOALS & ACTIVITIES

The main objective is to develop strong research and innovation for smart planning, design and operation of urban energy systems, firmly integrated with cities' social, cultural, innovation, economic, regulatory and legal perspectives, to achieve the SET-Plan highly ambitious target of **developing 100 Smart Positive Energy Districts in Europe by 2025 (Action 3.2)**

Strategic Research Agenda, Topical Workshops, Policy Papers,
Knowledge Sharing, Match-making, joint proposals…

ROLES OF CVUT

- Member since very long time ago (2013/5)
- Brokerage event facilitator / organizer
- Supporting organisation of SC Expo 2018 participation
- Module coordinator (2018-2021) focusing on replication and mainstreaming and piloting national Positive Energy District Ecosystem approach
- Participating in multiple HEU proposals
- Spinning out to COST Action PED-EU-NET

(WG1 Lead on mapping and characterising of Positive Energy Districts)

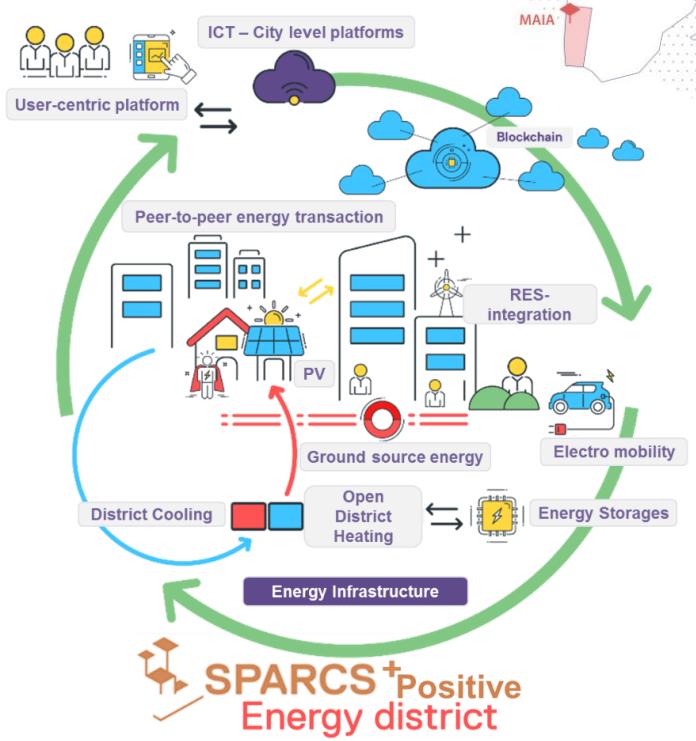
SPARCS

Sustainable energy Positive & zero cARbon CommunitieS

*"validate **innovative solutions** for planning, deploying and rolling out **integrated energy system** as an **efficient mean** for the **urban transition** into a **citizen centered zero carbon ecosystem** enabling a high quality of life"*

https://www.sparcs.info/

@SPARCSeu

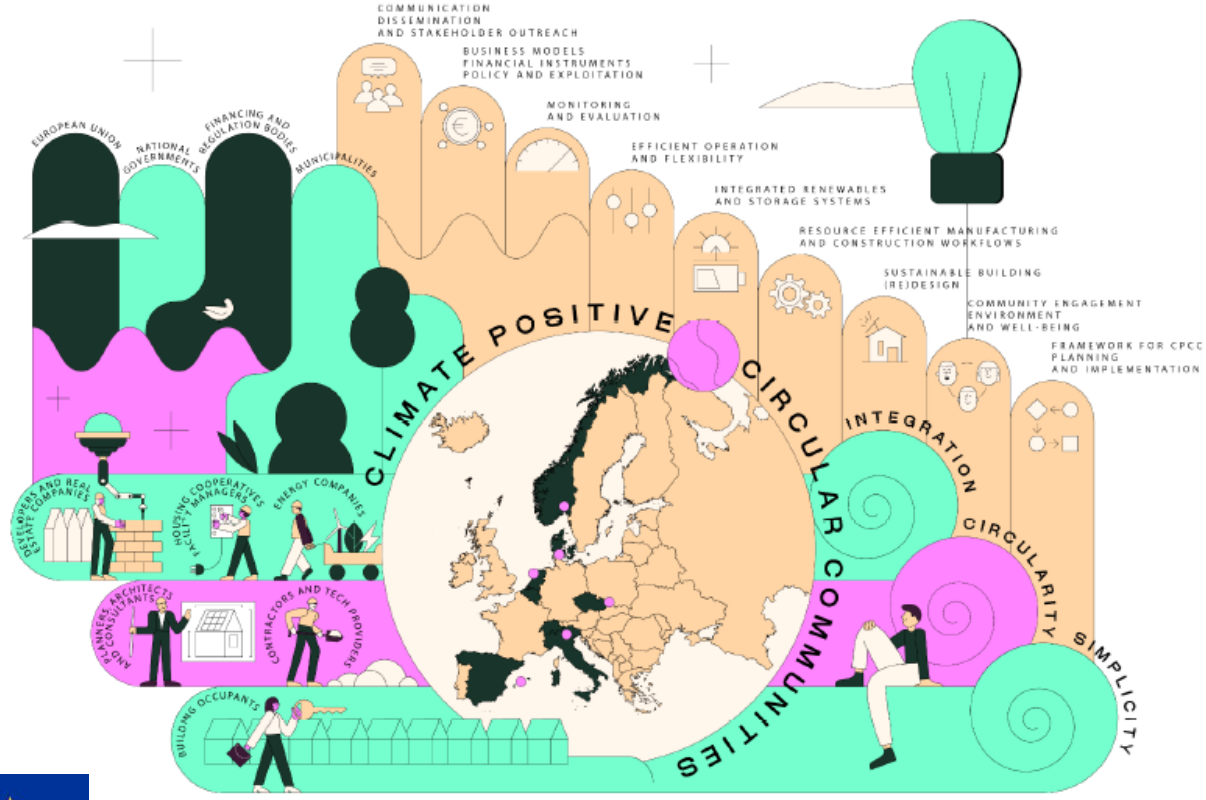


Horizon 2020
European Union funding
for Research & Innovation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 864242 Topic: LC-SC3-SCC-1-2018-2019-2020: Smart Cities and Communities

EERA
European Energy Research Alliance
Joint Programme Smart Cities

ARV project



Participant No.	Participant organisation	Participant organisation name	Country
1 (Coordinator)	Norwegian University of Science and Technology	NTNU	NO
2	Architects Council of Europe	ACE	BE
3	Czech Technical University	CVUT	CZ
4	Technical University of Denmark	DTU	DK
5	Danfoss AS	DAN	DK
6	ENFOR AS	ENFOR	DK
7	Project Zero	PZ	DK
8	EURAC Research	EURAC	IT
9	SINTEF	SINTEF	NO
10	Palma City Council	PALMA	ES
11	IBAVI	IBAVI	ES
12	Catalonia Institute for Energy Research	IREC	ES
13	METROVACESA	MET	ES
14	University of Applied Sciences Utrecht	HU	NL
15	Housing Europe	HE	BE
16	Buro de Haan	BDH	NL
17	Center Denmark/EU Digital Innovation Hub	EUDIH	DK
18	Sønderborg Andelsboligforening	SAB	DK
19	Green Digital Finance Alliance	GDFA	CH
20	Stichting Bo-Ex ‘91	BOEX	NL
21	RC Panels	RCP	NL
22	Utrecht University	UU	NL
23	Municipality of Utrecht	UTR	NL
24	Bos Installatiewerken B.V.	BOS	NL
25	iWELL	iWELL	NL
26	MEX Architects B.V.	MEX	NL
27	Mitros	MITR	NL
28	Stichting Portaal	PORT	NL
29	Municipality of Karvina	KARV	CZ
30	Dolomiti Energia	DOL	IT
31	Habitech	HAB	IT
32	University of Trento	UITR	IT
33	Politecnico of Turindi Torino	POLITO	IT
34	Oslobygg KF	OBY	NO
35	NanoPower	NANO	CZ
36	AIGUASOL	AIGUA	ES

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 101036723.

LESSONS LEARNED

The interaction catalyzes new ideas, brings **new inspiration and inputs to national context** (even without physical meetings). It has moderate policy impact as well.

Specific focus within the research agenda on the network level is more likely to generate real localized impacts.

It is better **coupled with research or CSA-like actions** (national/international).

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National Institute of Chemistry Slovenia

dr. Alenka Ristić

NATIONAL INSTITUTE OF CHEMISTRY

EERA European Energy Research Alliance Energy Storage

Department of Inorganic Chemistry and Technology

Laboratory for Adsorbents

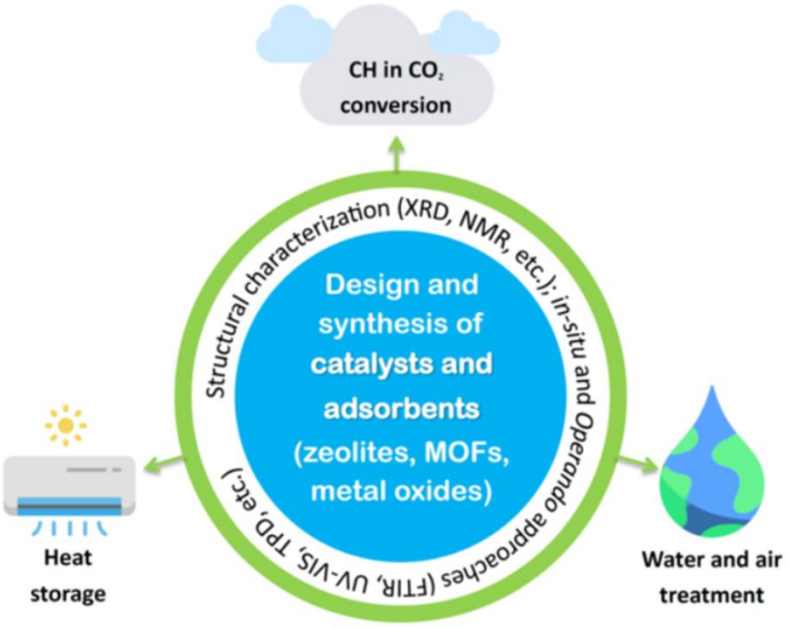
Head: prof. dr. Nataša Zabukovec Logar

Design and development of nanoporous adsorbents and **catalysts** for:

- H_2, CO_2 and heat (water, ethanol) storage,
- C-H and CO_2 conversion (phase methanol production, methane dry reforming, syngas chemistry,...),
- air and water purification.

In-depth investigation of structure-property-function relationships (research to proof of concept).

Development and application of methods to characterize materials during their operation (in-situ and operando approaches).



Research Infrastructure

High-resolution X-ray powder diffractometer PANalytical X'Pert PRO MPD
High-resolution X-ray powder diffractometer PANalytical X'Pert PRO (HTK)
Empyrean - XRD platform with different in-situ experimental cells (Malvern)
IMI-100 HTP (Hiden Isochema)
IGA-100 (Hiden Isochema)
IGAsorpXT (dynamic, water) (Hiden Isochema)
DVS Vacuum (Sigma, BLS)
Tristar II 3020 (Micromeritics)
iQ3 (Quantachrome)
Q5000 IR (TA Instruments Inc)
Q2000 Modulated DSC (TA Instruments Inc)
UV/VIS-DR spectrophotometer for *in-situ* characterization of materials (Perkin Elmer / Harrick)
Instrument for TPR/TPO/TPD and chemisorption analysis (Micromeritics)

Other expertize:
Solid-state NMR, XAS, SEM, TEM

Benefits

- **Networking**,
- **Collaboration** with research institutions working on TES,
- **Involvment in proposals** with **storage porous materials knowledge** and **state of the art research infrastructure:**
    - in-situ/operando approach for determination of material structure;
    - gravimetric high-resolution isotherms and kinetics adsorption profiles;
    - UV-Vis in-situ/*operando* characterization up to 900 ^{o}C;
    - atomic resolution scanning transmission electron microscope;
- **EERA awards** for outstanding PhD students and Post-docs presentations at energy storage conferences.
- Research Infrastructure provider and Selection Panel member in the StoRIES Projects

StoRIES

National Institute of Chemistry
KEMIJSKI INŠTITUT

Hajdrihova 19
1001 Ljubljana
Slovenia

Webpage: www.ki.si
e-mail: alenka.ristic@ki.si

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PANEL DISCUSSION

Hélène Chraye

Matthijs Soede

Marika Kowalska

Berta Matas Güell

Beata Kępińska

Zdeněk Venera

Venizelos Efthymiou

Michal Kuzmič

Alenka Ristić

Maria Śmietanka
NCP PL deputy

Andrius Sutnikas
Lithuanian Maritime Cluster &
Klaipeda Science and Technology Park

PAN-EUROPEAN CLEAN ENERGY TRANSITION: WAYS TO STRENGTHEN TRANSNATIONAL COOPERATION

JANUARY 19, 2022, ONLINE

Hélène Chraye

Matthijs Soede

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