

Welcome to the CETPartnership Annual Conference!

We will start at 13:00 CEST

Voices of Transition: CETPartnership Projects Driving Europe's Energy transition - Project Presentations

Practicalities

- The meeting will be recorded, and the recording will be published for future watching
- Online data declaration: Please be aware that your name will be displayed in the list of participants as well as in the chat window
- Please ask questions to the presenters in the Q&A session



Agenda

13:00 – 13:10

Welcome & Introduction

13:10 – 14:00

Project Presentations I

PVT4EU - Gintare Vilke

STORE – Jiahe Chu

RENvolveIT – Javier Valdes

13:55 – 14:10

Coffee Break

14:10 – 14:40

Project Presentations II

ELECTROMET – César Escobar Claros

LEG-DHC – Hussein Mroueh

Man0EUvRE – Siri Mathisen

14:40 – 15:20

Q&A Session in 2 breakout rooms

15:20 – 15:25

Wrap-up by the moderators

15:25 – 15:30

Outlook to Day 2

PVT4EU

Photovoltaic and Thermal for Europe



Gintare Vilke

MG Sustainable Engineering AB



Co-funded by
the European Union

Introducing our Project & Consortium

PVT4EU - Photovoltaic and Thermal for Europe

Funding	CETPartnership Joint Call 2022 Joint Call 2022 TRI4 – Efficient zero emission Heating and Cooling Solutions Call module 4: Heating & Cooling
Budget	1.1 M€ (0.88 M€)
Partners	6 Institutions ▪ Industry: 3 ▪ Research: 1 ▪ Academia: 2
Start date	01 September 2023
End date	31 August 2026
Proposal ID	Cetp-2022-00403



Introducing our Project & Consortium

Industrial partners



MG Sustainable Engineering

Project coordinator

- Project management.
- Technical coordination.
- Communication and Dissemination
- Exploitation plan.



SolarPeak

PVT-SP collector producer

- Thermal management strategies.
- Design and simulations (active and passive cooling strategies).



Solarus

PVT-MG collector producer

- Impact assessment and market uptake.
- KPIs and the methodology to evaluate the PVT systems' impact.
- Market roadmap including the future plan of action.



University of Gävle

- Review of novel PV cells for PVT-MG collector.
- Final configuration of PV cells technologies (PVT-SOL).
- Assessment of spectral splitting response of PV cells.
- Scaled sample testing of PV cells.
- Conjugated CFD simulations for PVT-SP.
- Synergic configuration of the thermal and electrical management strategies.



National Laboratory of Energy and Geology

- Thermal efficiency enhancement review and selection for testing.
- Optical performance evaluation of PVT-SOL.
- Spectral splitting by simulation.
- Testing protocol definition.
- Final testing of V2 PVT prototypes.
- Industrial applications and their control strategies requirements definition.
- System level simulations contributions.



Technical University of Denmark

- Testing protocol definition.
- First stage testing of collectors.
- Identification of design enhancements opportunities.
- System level simulations.
- Residential applications and their control strategies requirements definition.
- Eco-design recommendations.
- Intelligent control strategies development and simulations.

Academic partners



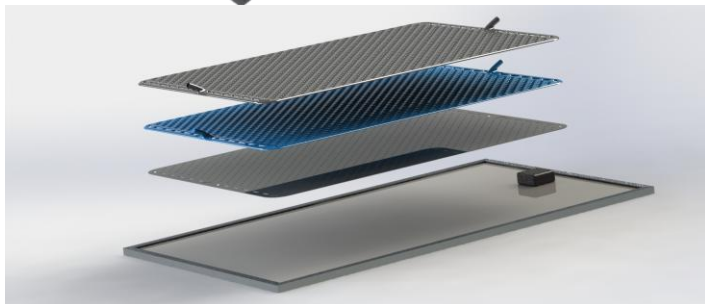
Co-funded by
the European Union

Our Research Focus & Key Innovations

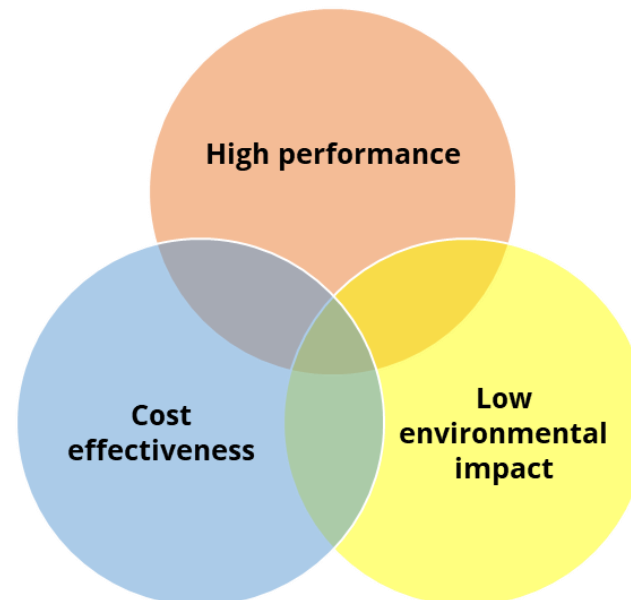
PVT4EU aims to develop/upgrade two PVT technologies:

PVT-SP

PV panels retrofit
Residential applications
($< 60^{\circ}\text{C}$)



Target



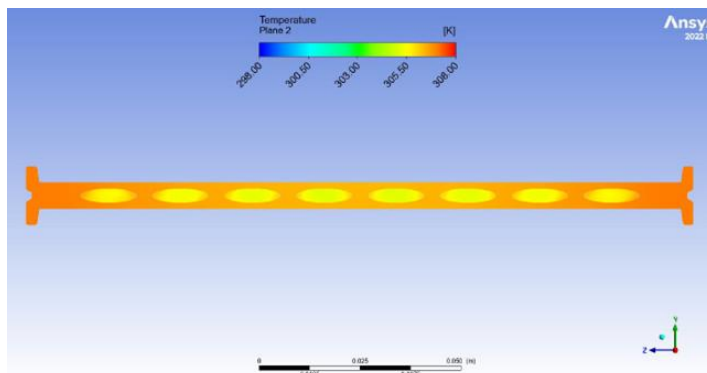
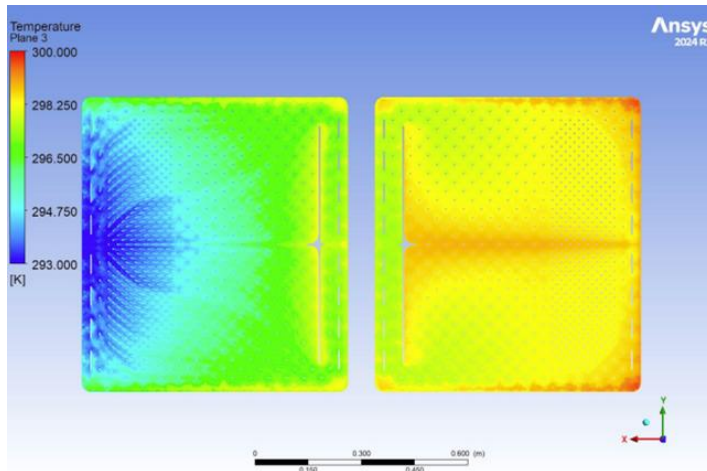
PVT-MG

Industrial applications
($< 140^{\circ}\text{C}$)

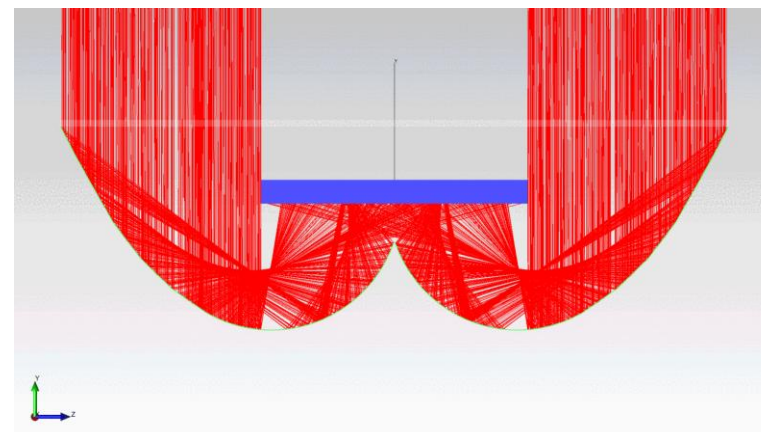
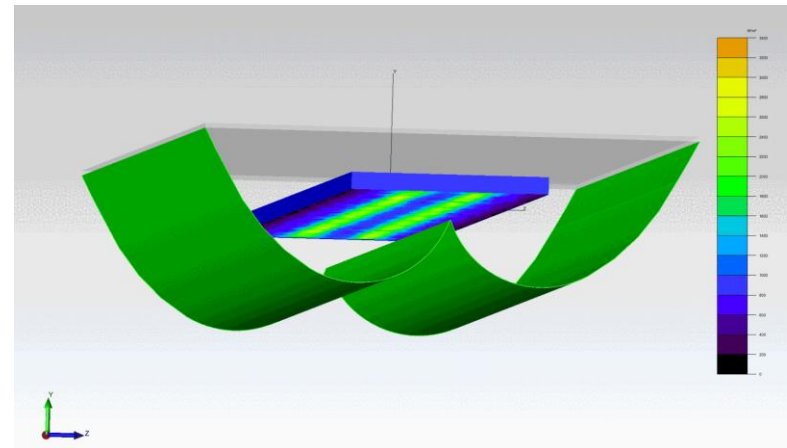


Our Research Focus & Key Innovations

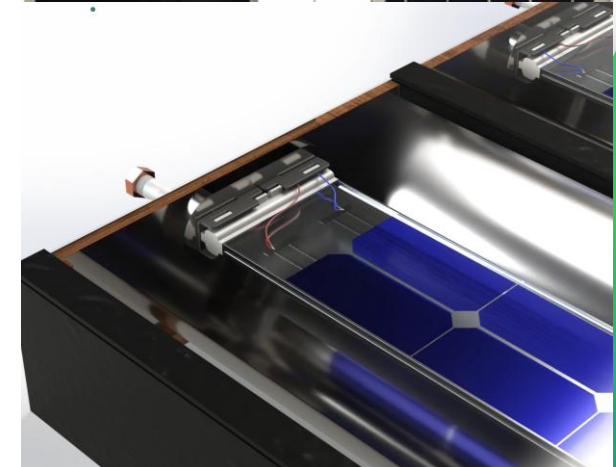
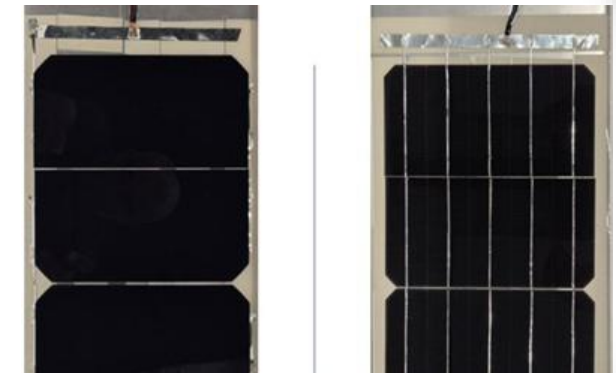
CFD simulations for absorber design



Optical performance evaluation

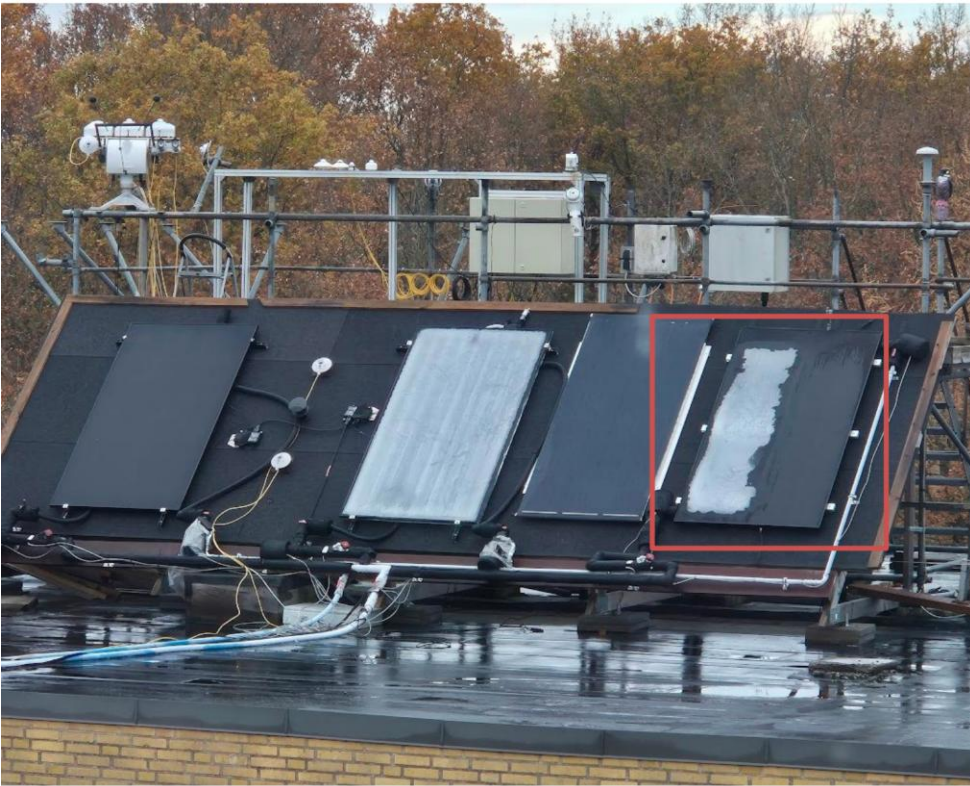


PV cells scaled samples testing



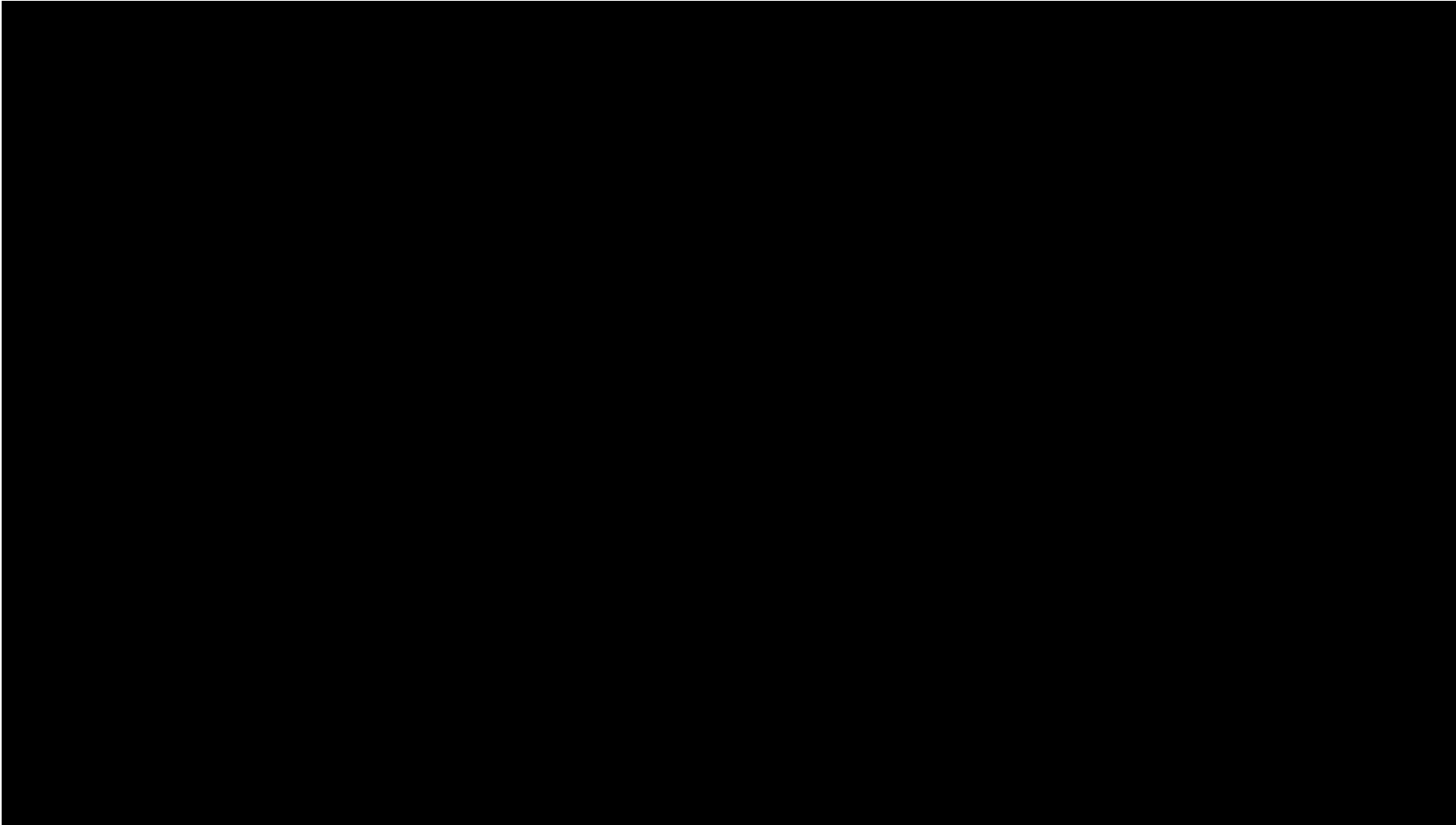
Our Research Focus & Key Innovations

Testing



Our Research Focus & Key Innovations

Testing



Our Goals & Expected Impact

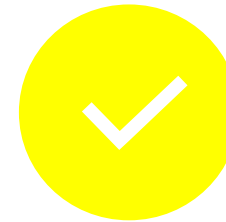
Accelerate the deployment of **Photovoltaic-Thermal (PVT) technologies** as a reliable solution for efficient, zero-emission heating and cooling in Europe.



Develop NextGen
PVT tech



Enhance
performance



Boost efficiency
with spectral
splitting



Target different
applications



Integrate eco-
design into
development



Establish European
innovation Network

Our Expected Impact

Energy Sector:



- Facilitate the **integration of solar heat & power into different applications**.
- Enable **greater flexibility** and **grid support** by combining thermal storage with PV generation.

Industry:



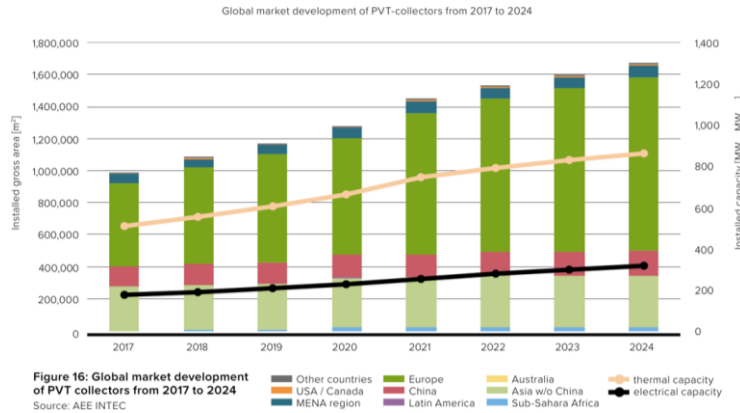
- Stimulate **innovation and competitiveness** among European SMEs
- Reduce production and installation costs through **design simplification and scalable manufacturing** approaches.
- Support **new business models** for local energy communities and service providers.

Community & Society:



- Contribute to **lower energy costs and emissions** for buildings and industries.
- Foster **green jobs and skills** in the renewable heating and cooling sector.
- Raise **awareness and acceptance** of PVT as a mainstream renewable technology.

Our project in the perspective of the Clean Energy Transition



SYSTEM-WIDE IMPACT AND CONTRIBUTION TO POLICY

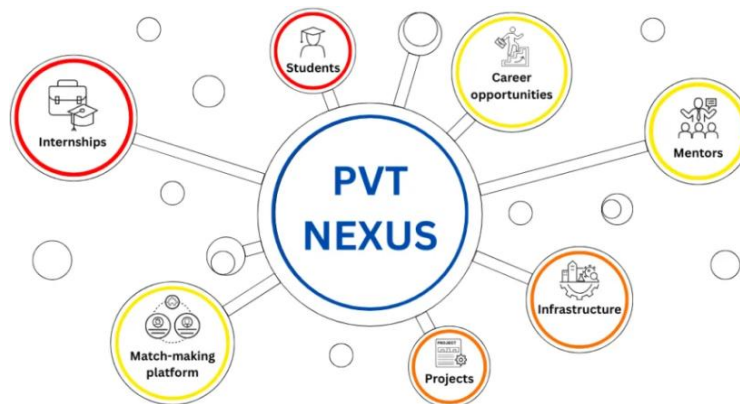
PVT technologies still need to enhance their competitiveness and **expand their applications to other sectors.**

PVT4EU provided **evidence-based insights** to inform national and EU-level **heating and cooling roadmaps** and contributes to ongoing **standardization efforts** for hybrid solar systems.

ADDRESSING FUTURE UNCERTAINTIES

Address the awareness gap and foster innovative PVT systems **throughout Europe and beyond by connecting stakeholders.**

By fostering collaboration across academia, industry, and policy, the project builds **adaptive capacity** to sustain impact despite evolving technological and socio-economic conditions.



Thank you!

Iván Acosta Pazmiño, Ph.D.
Head of Engineering
MG Sustainable Engineering, *Sweden*

Honorary Researcher
Clean Energy Processes Laboratory
Imperial College London, *UK*

Director
Red de Investigación en Energía Solar, *Ecuador*



STORE



Jiahe Chu, Institute of new Energy Systems, TH Ingolstadt

Introducing STORE & Consortium

*“Grid stability through AI-driven energy system integration:
Supermarkets as flexible prosumers”*



**Mediterranean
Europe Cyprus**



**Central Europe
Germany**



**North Africa
Tunisia**



**University of Cyprus
PV Technology**



**Technische Hochschule
Ingolstadt**
Institute of
new Energy Systems



SteinbacherCONSULT
BERATENDE INGENIEURE

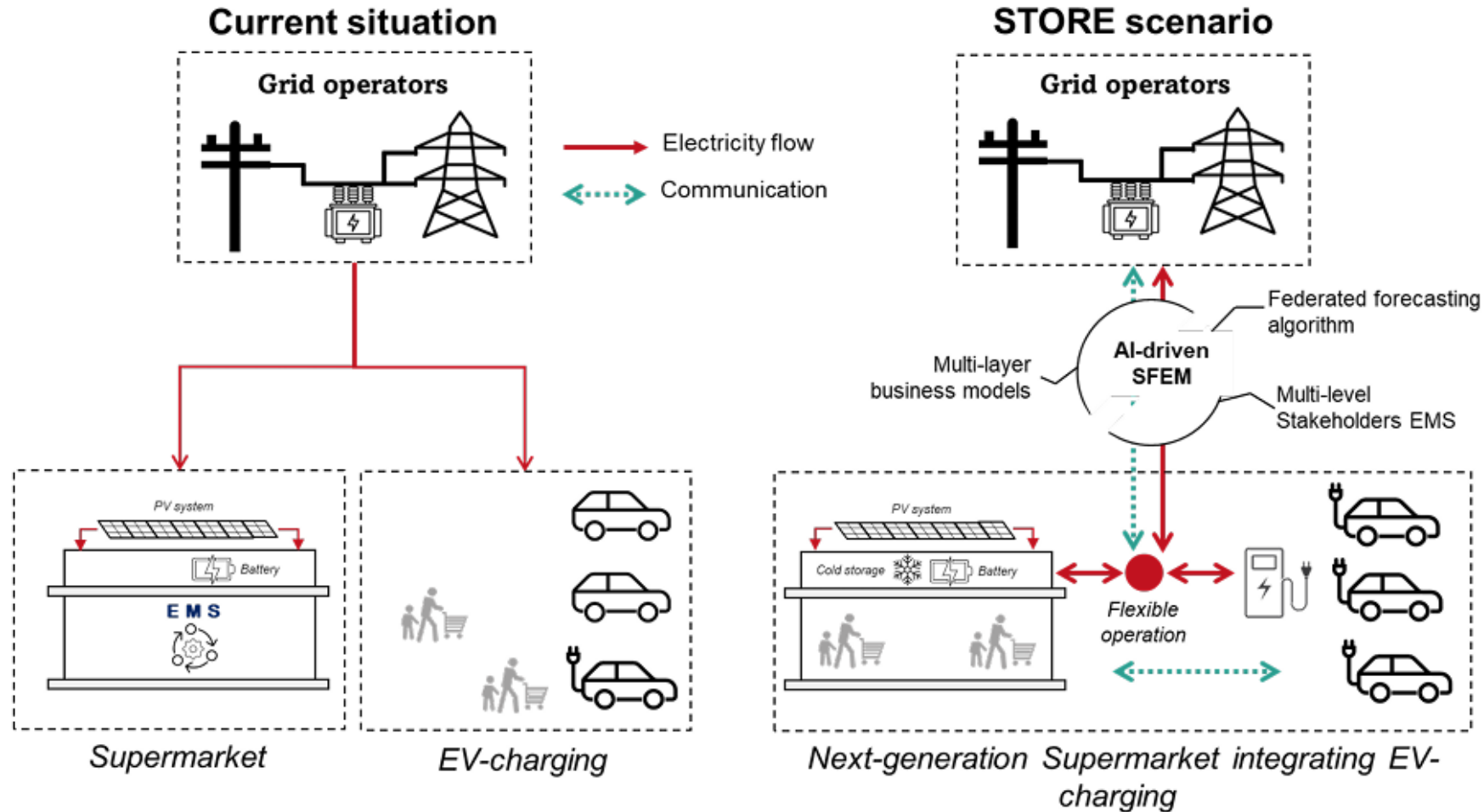


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the European Union

Our Research Focus & Key Innovations

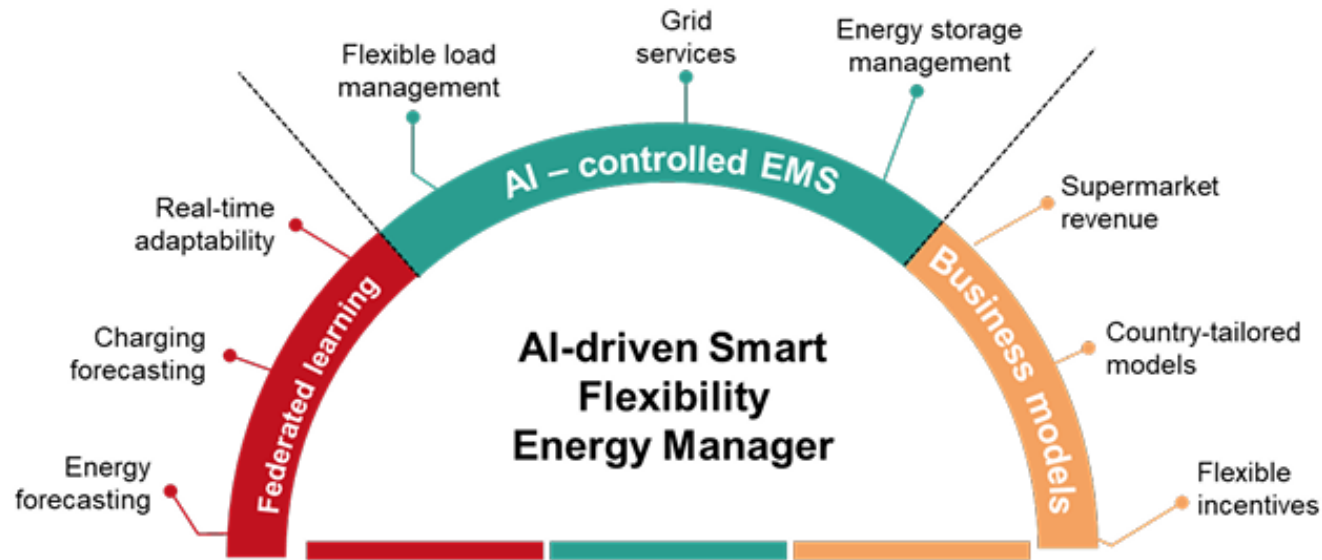
“to provide a techno-economic solution by developing an AI-driven Smart Flexibility Energy Manager (SFEM) for next-generation supermarkets equipped with large-scale EV charging infrastructure, aiming to harness flexibility potential for efficient grid integration.”

Our Research Focus & Key Innovations



Our Goals & Expected Impact


Technische Hochschule Ingolstadt
 Institute of new Energy Systems



 **SteinbacherCONSULT**
 BERATENDE INGENIEURE



*HiL Validation &
 Hybrid Environment*


LaRINA
 Laboratoire des Réseaux
 Intelligents & Nanotechnologie

*Primary goal is the AI-powered
 smart flexibility energy manager*

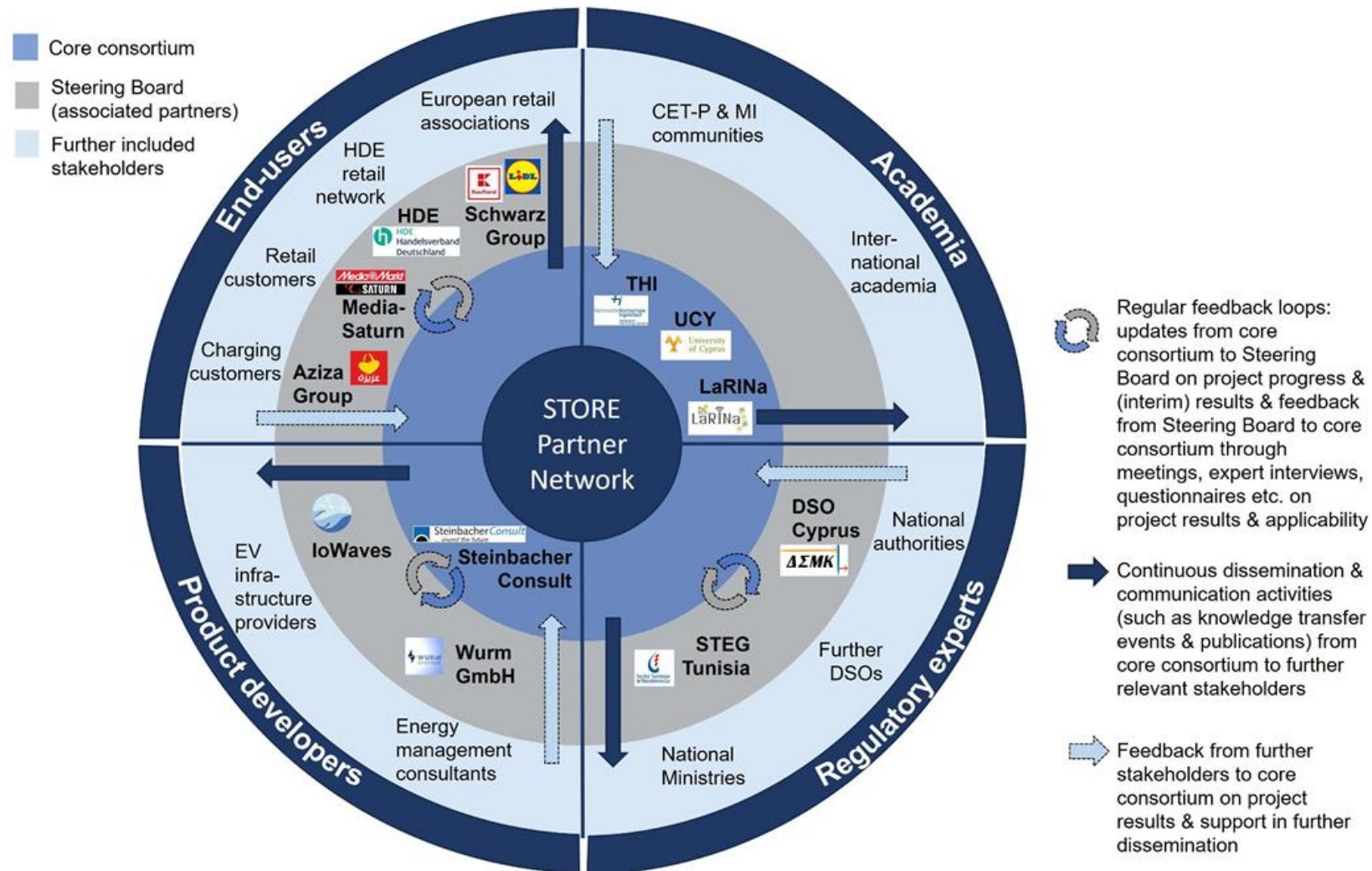


University of Cyprus
 PV Technology

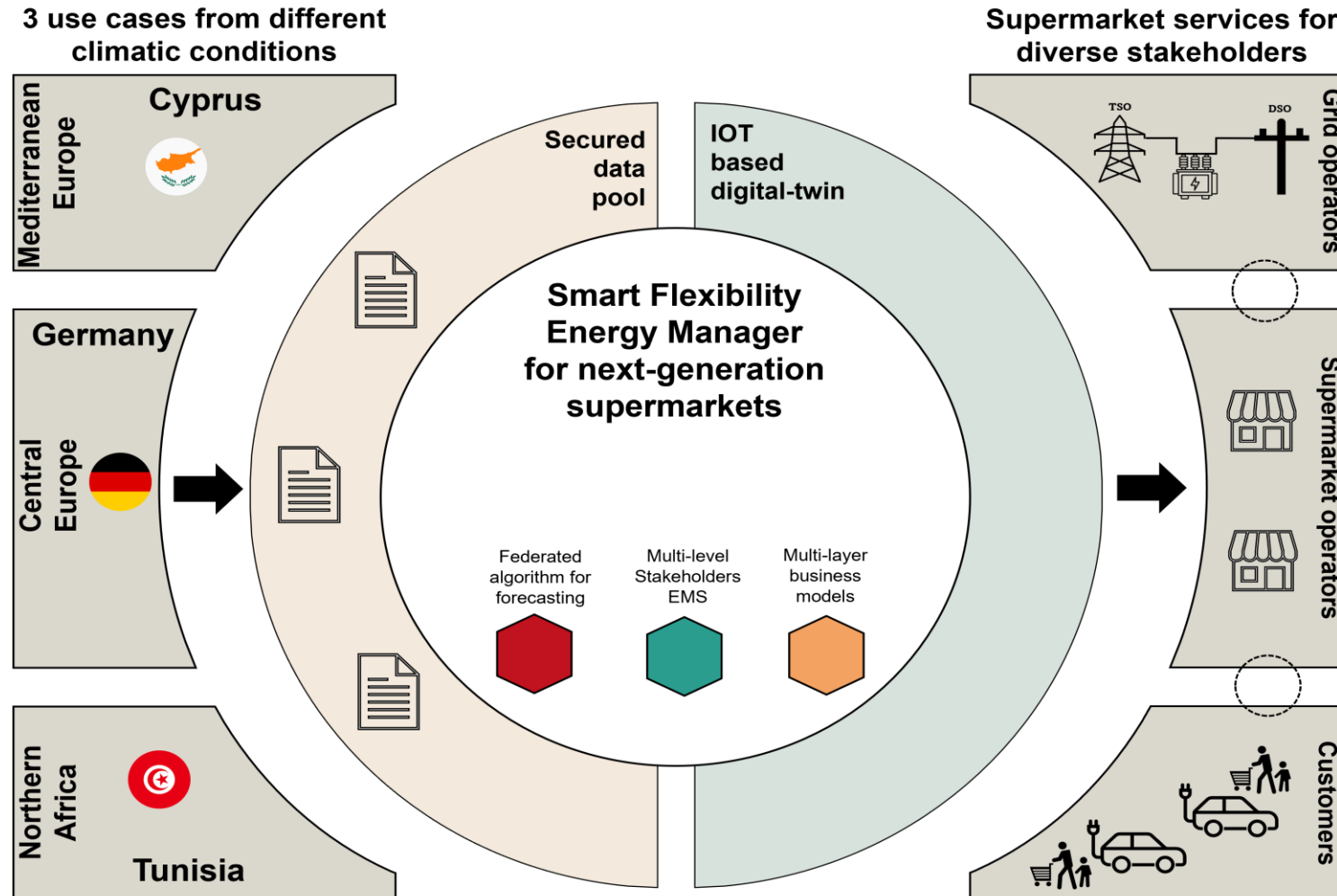


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STORE in the perspective of the Clean Energy Transition



STORE in the perspective of the Clean Energy Transition



Thank you!

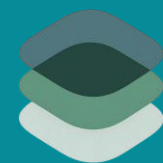
Contact

Jiahe Chu, M.Sc.
Jiahe.Chu@thi.de

*Institute of new Energy Systems
Ingolstadt Technical University of Applied Science*



Project Website

The logo for REnvolveIT, consisting of a stylized 'R' made of three overlapping, rounded rectangular shapes in shades of grey and green.

REnvolveIT



Javier Valdes, TH Deggendorf, Germany

Introducing our Project & Consortium

REnvolveIT – Regional Energy Networking: cross-sectional involvement through a modular interactive toolbox

Germany



BEZIRKSKLINIKUM
MAINKOFEN

Austria

University for
Continuing
Education Krems



The Netherlands



Czech Republic



Our Research Focus & Key Innovations

The development of a user-friendly toolbox for energy communities including six modular core tools are integrated into a central platform.

Morphological Box

Designed for orientation. It gives information about business models incorporating economic, technological, and legal constellations.

RGB Traffic Light

Is a digital service module providing individual energy usage signals. It indicates real-time energy availability within a community.

EnerplanET

Simulates and optimises power systems, focusing on renewable energy integration.

Community Aggregation Tool

Is a software asset that takes real-time energy measurement data from smart meters.

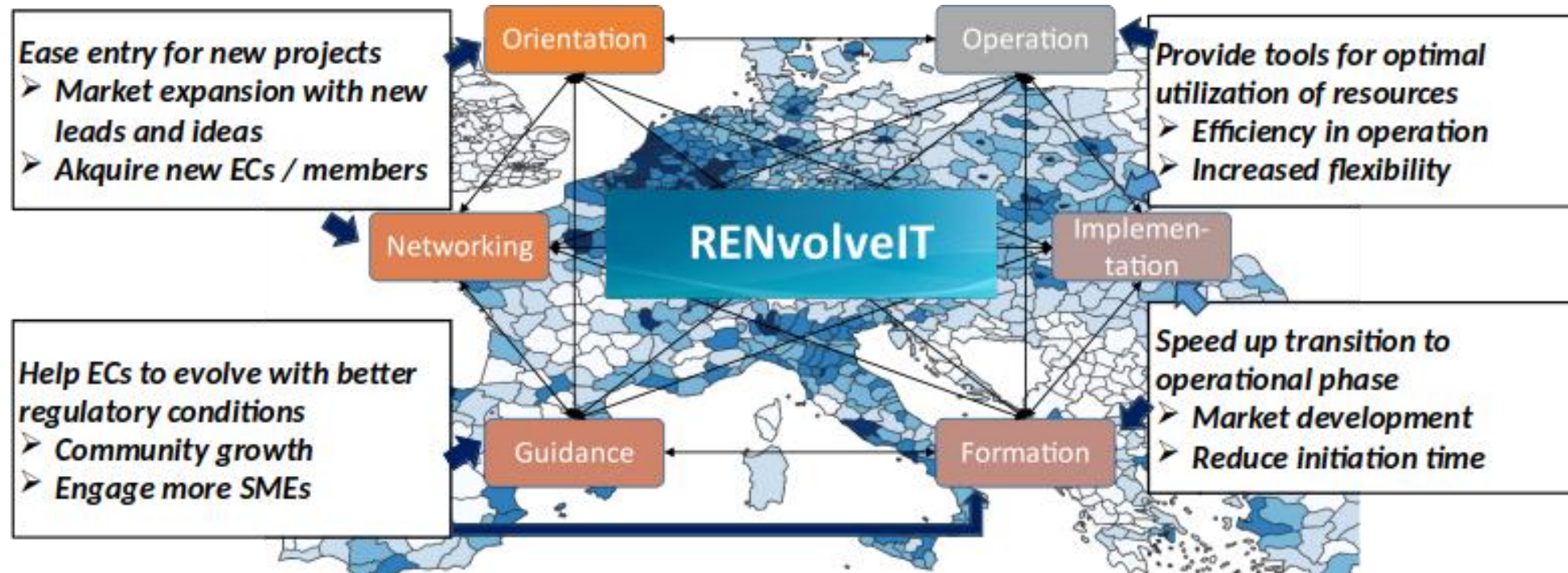
Integration Profiles

Enable the inter-operation of independently developed systems by aligning processes and interfaces with need owner specified inter-operation requirements.

Insights Portal

Collaboration between Stakeholders (e.g. mayors, citizens, engineers..) and project developers, project and GEO Informatic Services

Our Goals & Expected Impact



Support ECs from getting an idea to optimising EC operation:

Orientation / Networking / Guidance / Formation / Implementation / Operation

Our project in the perspective of the Clean Energy Transition

- RENvolveIT integrates technology, policy, and societal aspects applying a co-design approach.
- We align with markets needs by supporting new projects and expanding existing RECs:
 - Foster investments in RECs
 - Support the viability of decentralized RE generation and sharing
- Provide access to the toolbox to all pilots prioritizing: use of open-source and open-data, dialogue among RECs, and standardize tools integration.
- Uncertainties are taken into account through flexibility and modularization.

Thank you!

Contact

Javier Valdes
TH Deggendorf
javier.valdes@th-deg.de

Coffee break

We will continue at 14:10 CEST

14:10 – 14:40 Upcoming project presentations

ELECTROMET - César Escobar Claros

LEG-DHC - Hussein Mroueh

Man0EUvRE – Siri Mathisen



14:40 – 15:20 Breakout rooms Q&A

15:20 – 15:25 Q&A to panelists

Room 1: PVT4EU, STORE, RENvolveIT

Room 2: ELECTROMET, Man0EUvRE, LEG-DHC

15:25 – 15:30 Outlook to Day 2

Direct CO₂ ELECTROcatalysis for renewable METhane production



César Escobar Claros, CTC Technology Centre, Spain

Direct CO₂ **ELECTRO**catalysis for renewable **MET**hane production



50–90% CO₂

Aims to develop a sustainable and economical method for producing renewable methane (**RCH₄**) from carbon dioxide (**CO₂**) via direct electroreduction, integrating it as a renewable fuel into the gas market.

- **Coordinator:** CTC
- **Duration:** 3 years (12/2024 – 11/2027)
- **Countries involved:** 5.
- **Partners involved:** 1 Research Centre, **3 Universities**, **3 Industries** and **2 Stakeholders**.



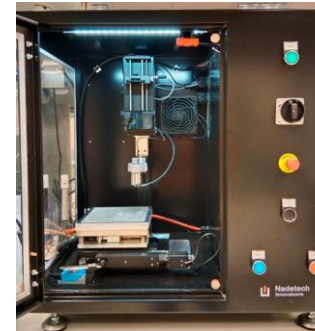
I **Catalyst Design:** 3 High-performance catalysts:

Inorganic, Organometallic (MOF) and Non-metallic (GQD).

Pillar I: Electrocatalysts



2 **Electrode Optimization:** A GDE configuration and automated Spray Pyrolysis technique for the electrode's fabrication.

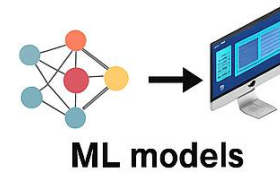


Spray Coater

- Targeting Faradaic Efficiency >80%, current density of 100 mA/cm².
- Lab scale reactor 5cm²
- A **SWOT** analysis will be employed.

3 Digital Twin: Will link experimental data and predictive models to optimise reactor design, scale up strategies and real time operation.

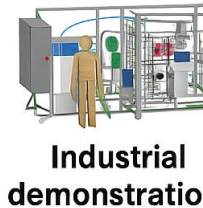
Pillar III: Digital twin



4 NZCO₂ Pilot: Industrial demonstration with real biogas streams.

- Scaling up to 100 cm² reactor
- Lab conditions → 100h → 500h

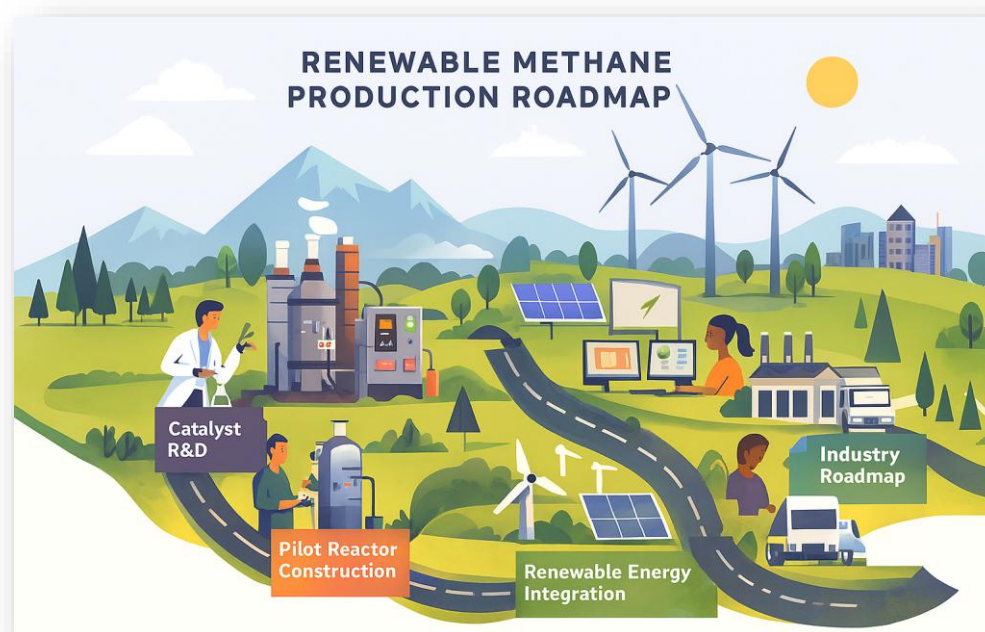
Pillar IV: NZCO₂ pilot



- Rejection of biogas plants implementation:
 - 🤢 Odors, increased truck traffic, potential pollution of soil and water, and changes to the landscape.
- Address these issues:
 - 📊 📄 Early citizen involvement and transparent communication (Workshops¹, social communications, press media, etc.). Initiatives such as [JustWind4All](#), [WENDY](#) and [Wimby](#) are examples.
 - 👤 👤 Ensuring tangible local benefits.
 - 🌸 🌳 Strict environmental protection.

Projected Impact & Future Roadmap

- Conducting **LCA**, and **LCC** to evaluate social-environmental impacts and market viability.
- Will create a **roadmap** for commercial deployment that addresses technical, regulatory and social barriers. Through interactive collaboration with government agencies and industry representative.



Thank you!

Contact

César Escobar Claros
CTC Technology Centre
cescobar@centrotecnologicoCTC.com

LEG-DHC

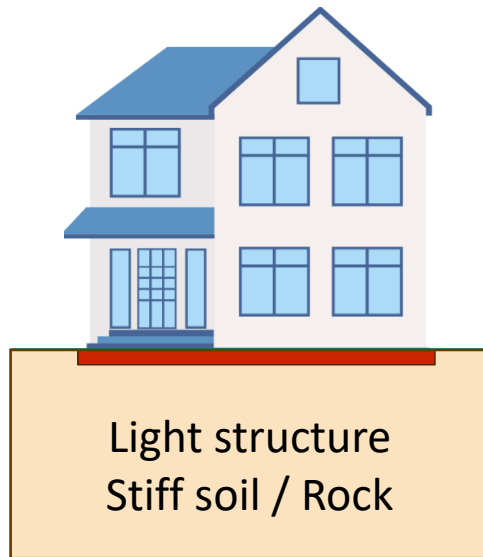
Large-scale climate neutral Energy Geostructures in
District Heating & Cooling systems/networks



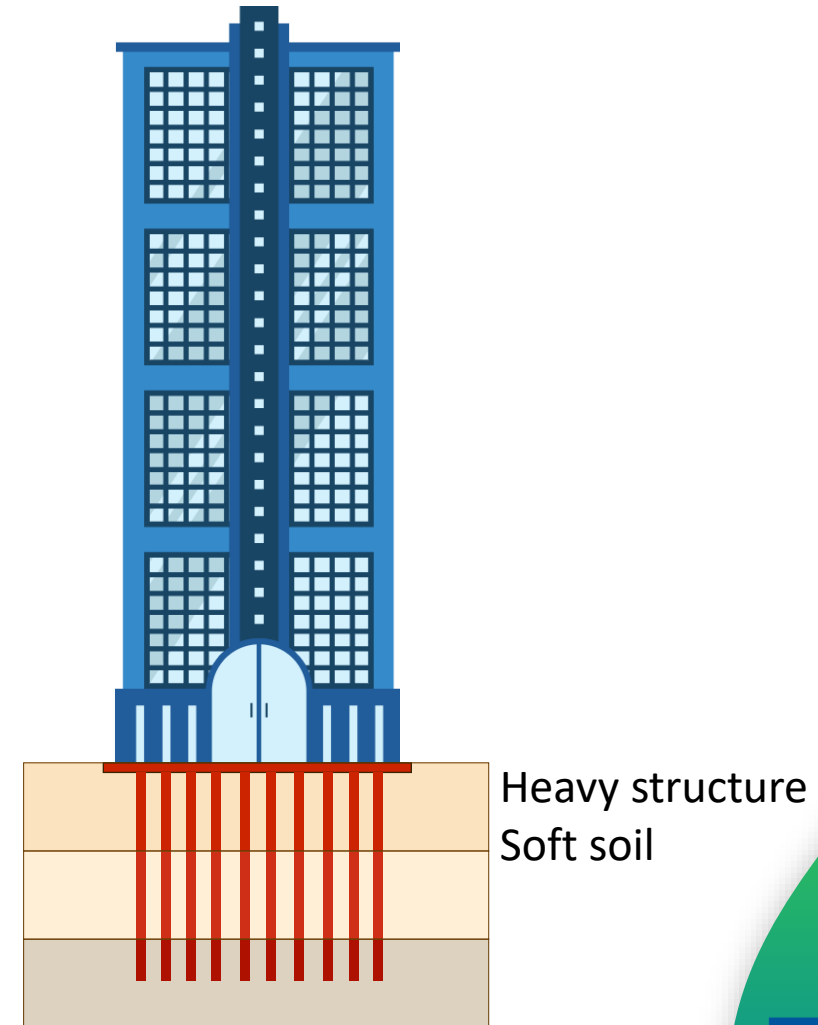
Hussein Mroueh, Université de Lille, LGCgE, France

Before Introducing our Project & Consortium...

All buildings need foundations !!!



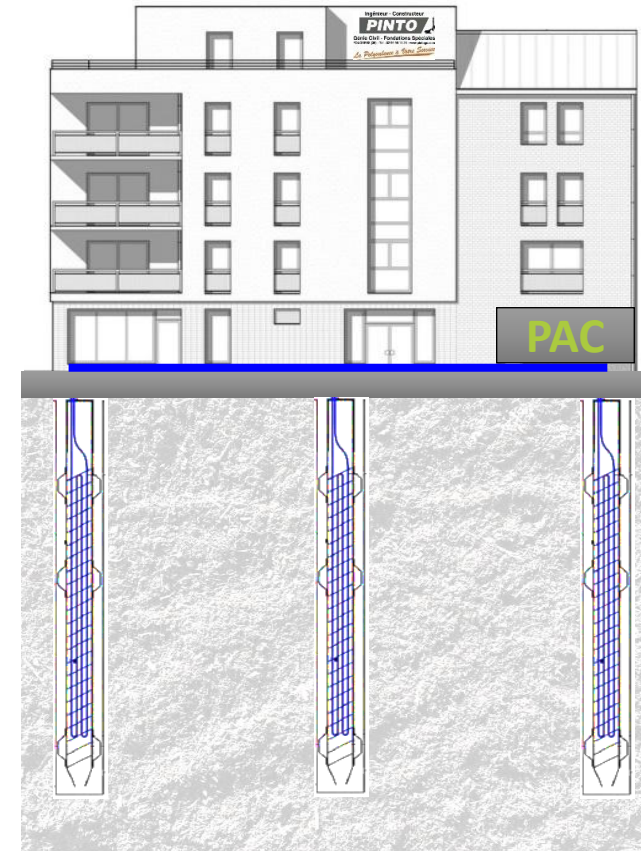
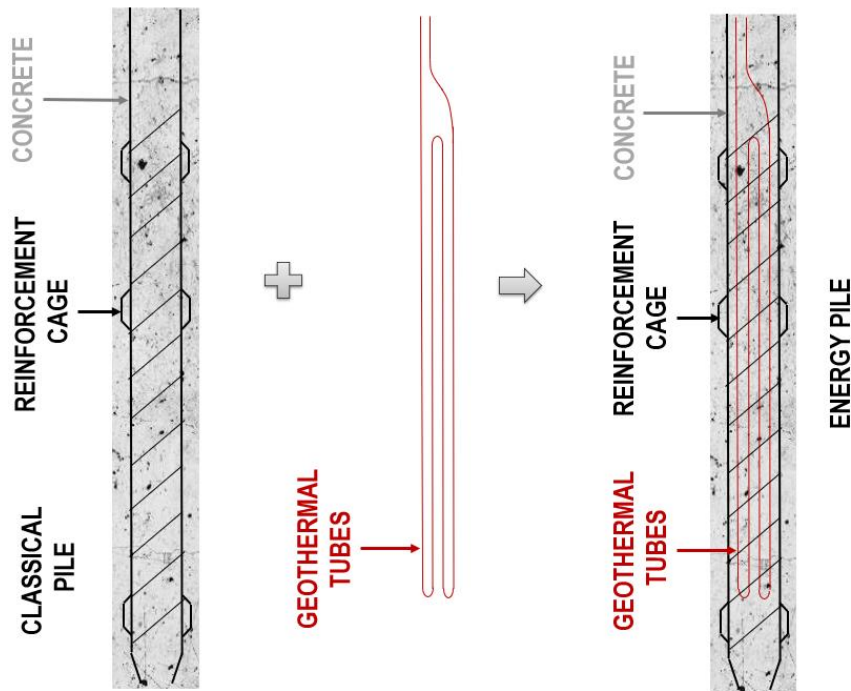
SHALLOW FOUNDATION



DEEP FOUNDATION

Before Introducing our Project & Consortium...

Heating and/or cooling
Energy piles+
Ground source heat pump (GSHP)



ENERGY GEOSTRUCTURES = FOUNDATIONS EQUIPPED TO PRODUCE HEATING AND COOLING (EVERYWHERE!)

LEG-DHC

Large-scale climate neutral Energy Geostructures in District Heating & Cooling systems/networks

- LEG-DHC project aims at demonstrating the global feasibility of implementing **Energy Geostructures** (EGs) on a large scale, even in complex sites.
- The project focuses on analysing **energy production**, costs, carbon reduction, and other critical data to improve the efficiency and durability of EGs.
- LEG-DHC seeks to advance the **integration** of these structures into district heating and cooling (DHC) networks, looking to **storage** feasibility and energy **distribution**.



LEG-DHC

Large-scale climate neutral Energy Geostructures in District Heating & Cooling systems/networks

16 partners from 6 countries

- France : **A. Di Donna** (UGA), **H. Mroueh** (ULille), **R. Vasilescu** (Pinto); SETEC
- Ireland : **Zili Li** (UCC) → TII, CODEMA
- Italy : **Diana Salciarini** (UNIPG) → WISE, INGV, GEOLAV
- Norway : **Rao Martand Singh** (NTNU)
→ Sandness and Jaerbetong, FAS, Eishbeck
- Estonia: **Anna Volkova** (TALTECH)
- Denmark: **Søren Poulsen** (VIA)



LEG-DHC

Large-scale climate neutral Energy Geostructures in District Heating & Cooling systems/networks



**Université
de Lille**



Norwegian University of
Science and Technology

WISEPOWER

UGA
Université
Grenoble Alpes

Sandnes & Jærbetong



GEOLAV s.r.l

**TAL
TECH**

**ISCHEBECK
TITAN**

PANGEO

Ingénieur - Constructeur
PINTO
Génie Civil - Fondations Spéciales
FOUGERES (35) - Tél : 02 99 99 11 26 - www.pintogc.com
La Polyvalence à Votre Service

**setec
terrasol**



Bring ideas to life
VIA University College

FAS



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the European Union

Our Research Focus & Key Innovations



WP1

Geothermal Heating & Cooling production

- EGs Pilot Case Studies
- Monitoring EGs
- Modelling EGs

WP2

GeoThermal storage

- Thermal Sources
- Optimization of Thermal Sources
- Thermal Performance of EGS
- Mechanical Performance of EGS

WP3

Geothermal Distribution

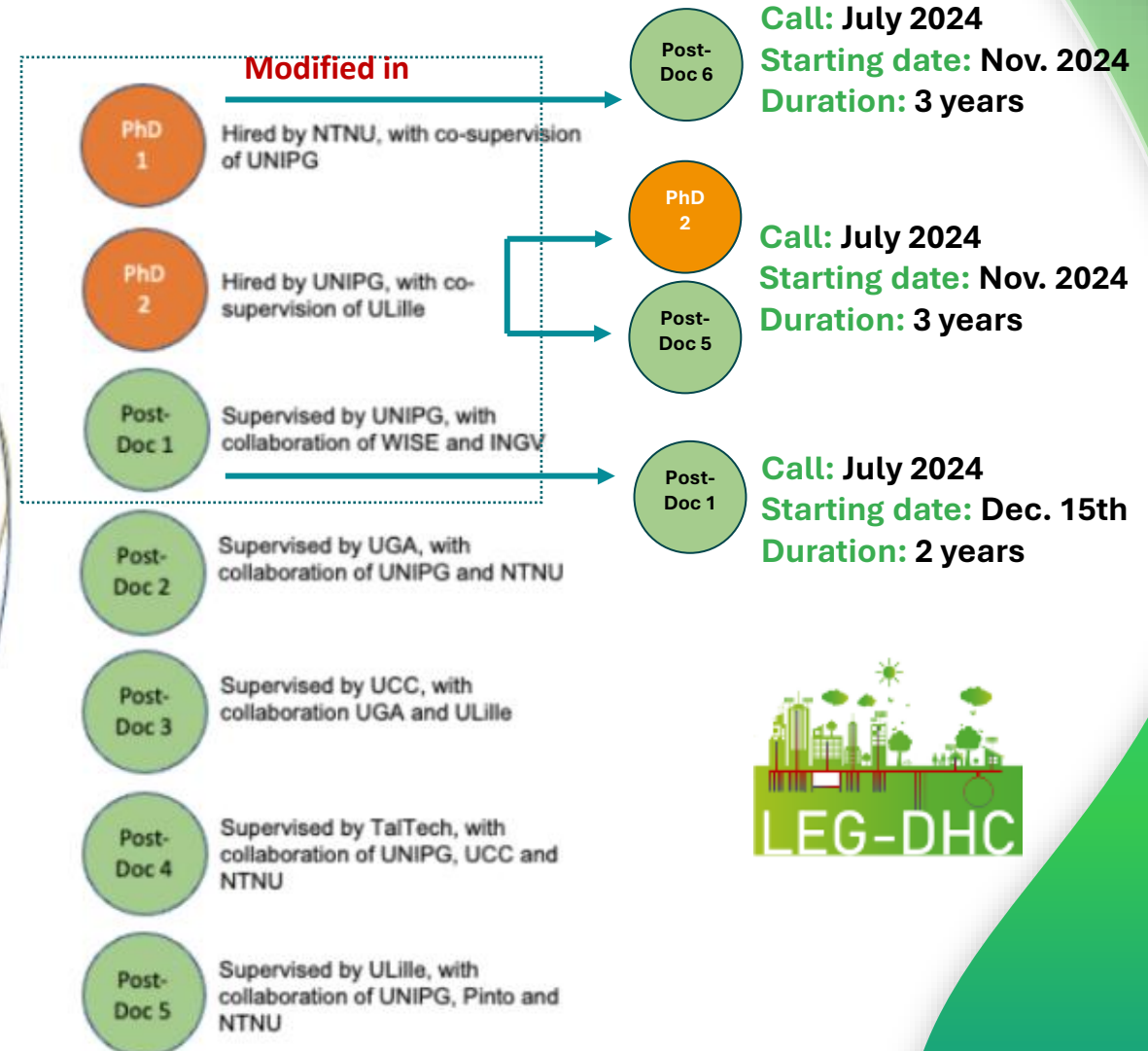
- Data collection in Pilot Case Studies
- 3D geographic information system (GIS) model
- Analysis of geothermal distribution in 5GDHC
- GIS simulation for geothermal distribution and 5GDHC

WP4

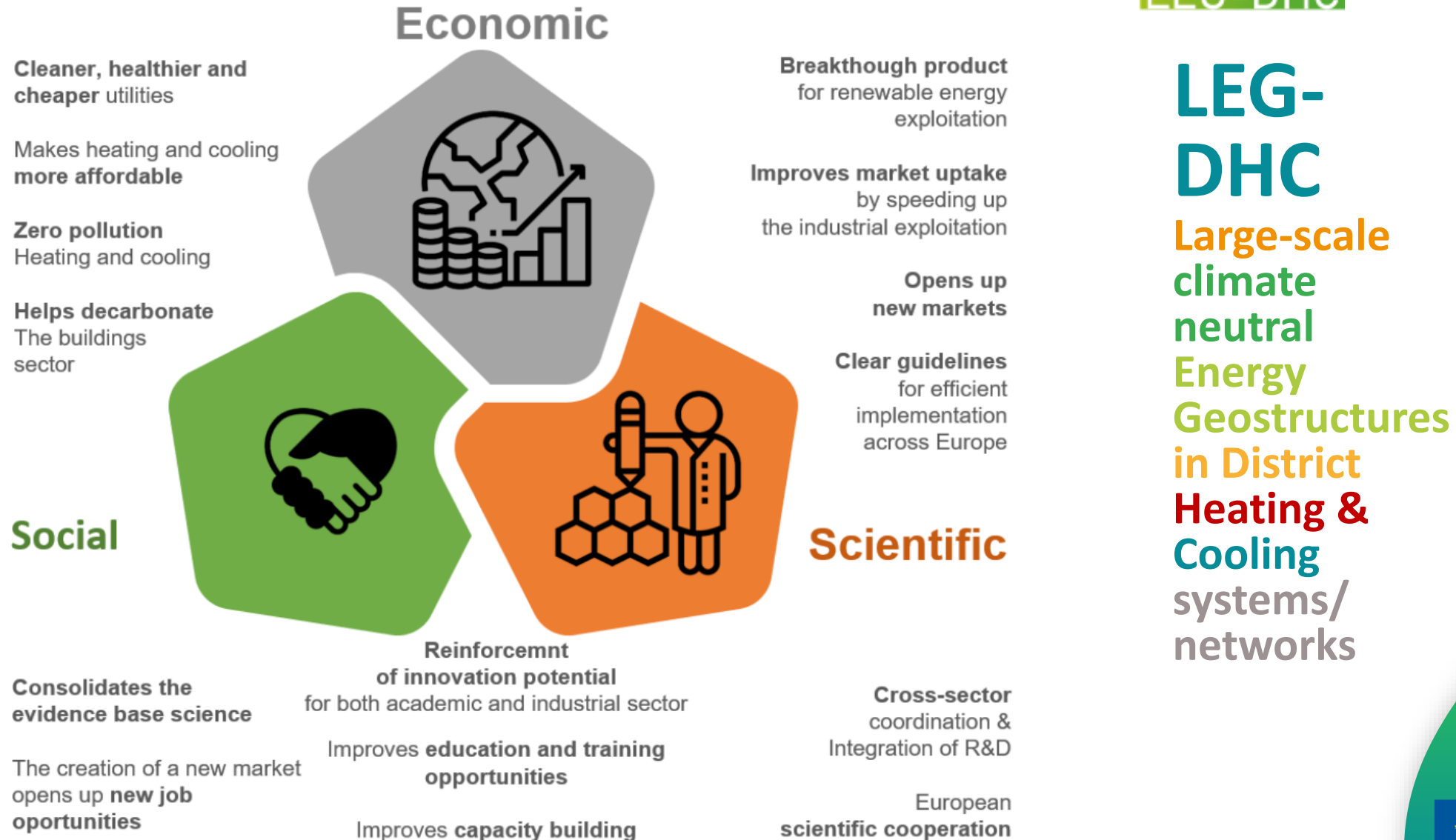
Knowledge Transfer & Dissemination

- Scientific guide, guidelines, and best practices
- Website, social media, conferences, training schools, webinars
- IPR strategy and FAIR data compliance;

LEG-DHC

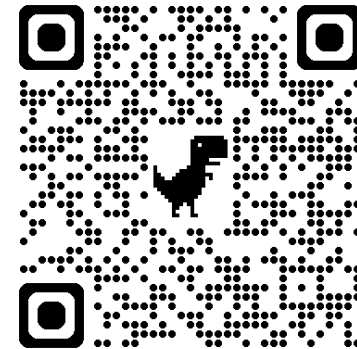


Our Goals & Expected Impact



Our project in the perspective of the Clean Energy Transition

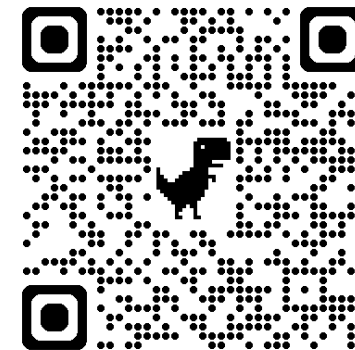
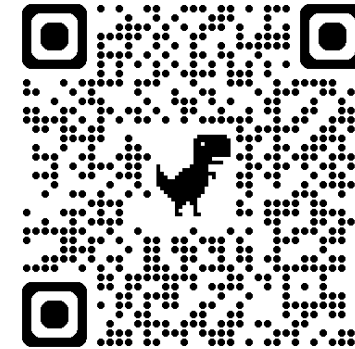
- **Bridging technology, policy & society:** Turning foundations into active energy systems for cities.
- **Policy alignment:** Contributing to EU goals under Fit for 55, EPBD & RED III.
- **Adaptable solutions:** Scalable design tools for diverse soils, climates & infrastructures.
- **Future-ready:** Resilient to climate shifts, demand changes & evolving energy markets



LEG-DHC

Large-scale climate neutral Energy Geostructures in District Heating & Cooling systems/networks

- Upscaling implementation of EGs from single buildings to District level
- Several pilot cases (France, Italy, Norway)
- Several real cases studies (Denmark, Estonia, Ireland)
- Scientific papers already accepted or under review
- Knowledge transfer to industry → **Workshop in Denmark**
 - Technical advances, business models, and financing strategies
 - December 4-5, 2025



Thank you!

Contact

Hussein Mroueh
Université de Lille
hussein.mroueh@univ-lille.fr

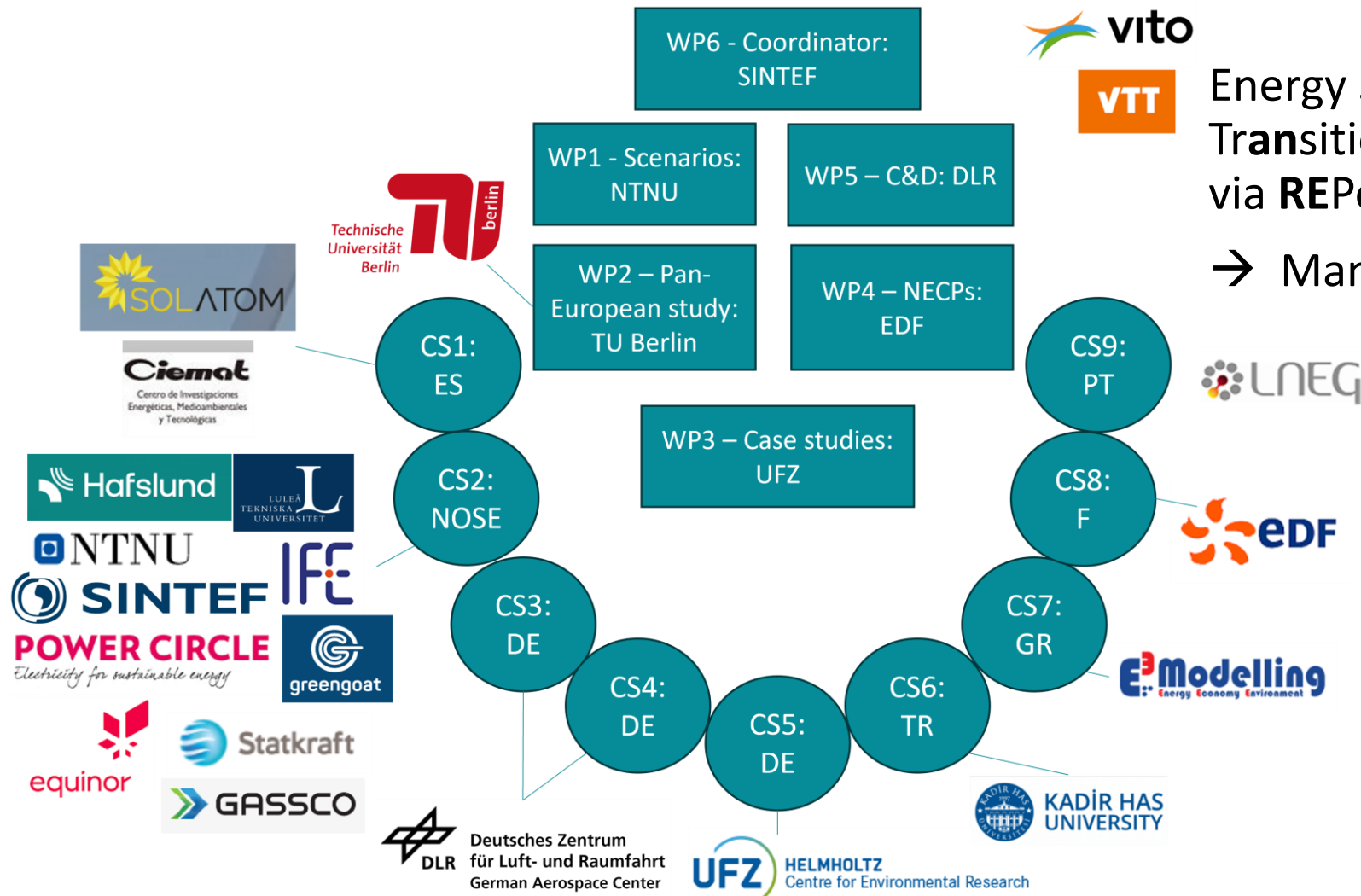
Roxana Vasilescu
PINTO
rvasilescu@pintogc.com

Man0EUvRE



*Siri Mathisen,
SINTEF Energy Research, Norway*

Introducing our Project & Consortium



Energy System **Modelling** for Transition to a net-**Zero** 2050 for **EU** via **REPowerEU**

→ Man0EUvRE

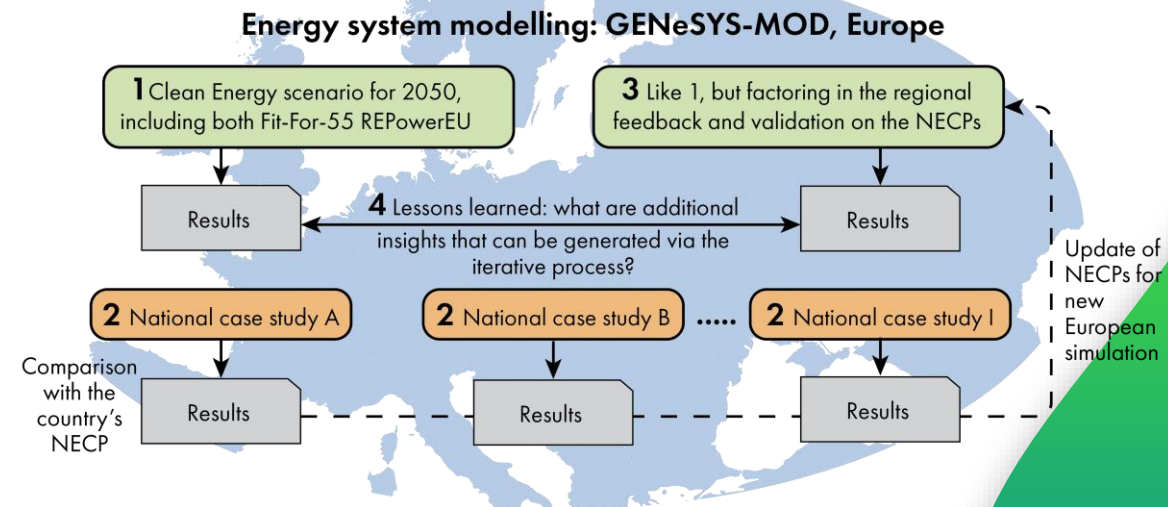
- noun: a movement or series of moves requiring skill and care.

Our Research Focus & Key Innovations

- Improve and coordinate energy system modelling across Europe and provide open scientific evidence and research-based results that facilitate emissions reductions for a clean energy transition, while incorporating the measures suggested in recent policy suggestions

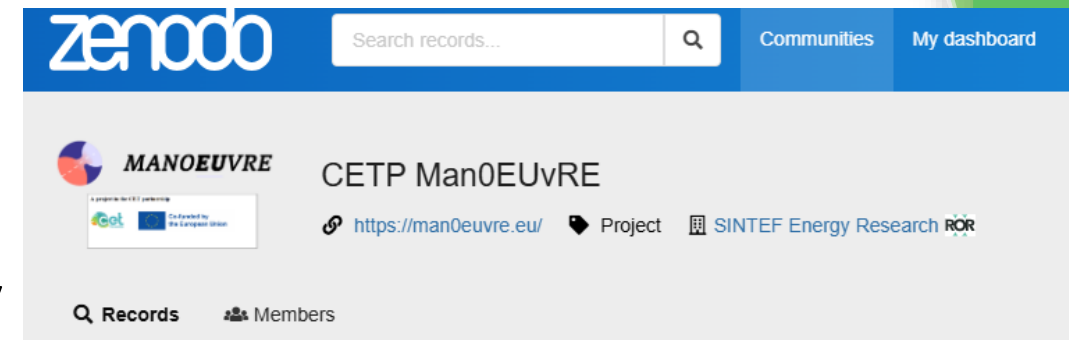
Energy system modelling:

- Pan-European scenarios finding pathways for CET
- Regional case-studies using pan-European scenarios → feedback to pan-European model
- Pan-European perspective to NECP development, enabling joint undertaking with lower costs



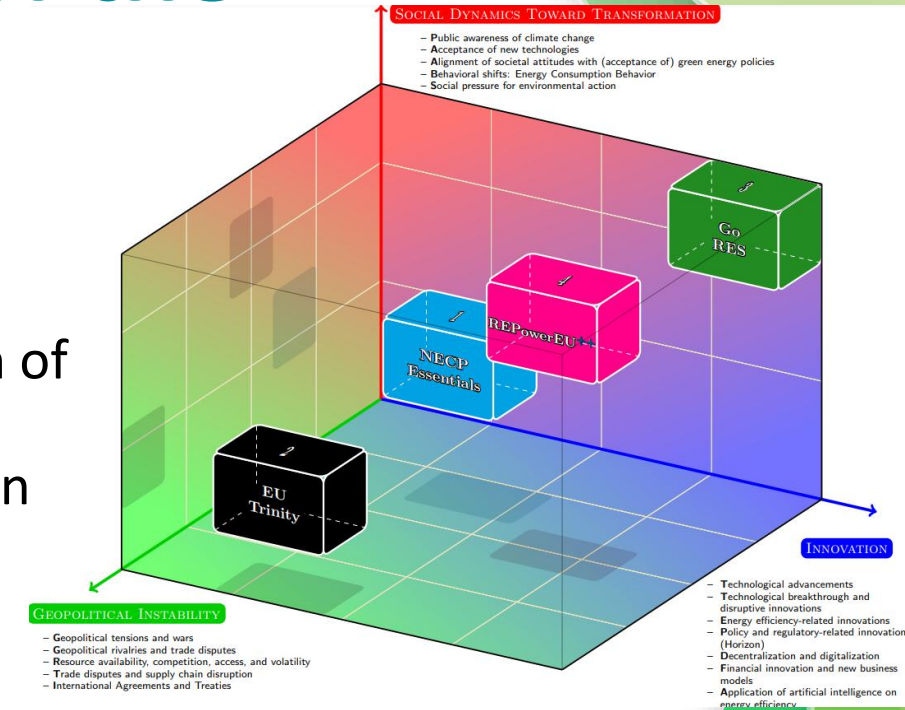
Our Goals & Expected Impact

- End goals:
 - [EU EnVis-2060](#) scenarios
 - Pan-European energy system model dataset in IAMC format including feedback from case studies
 - Supporting strategic priorities for European policy makers
 - Combining established strengths in energy system modelling and work towards consistent models and standardised data formats
- Impact
 - Value of energy system models → industry and policy makers
 - NECPs: Structured feedback and suggestions
 - Transnational ↔ national energy system perspectives
 - Effects of variabilities and flexibility on power systems
 - Openly available datasets → contribute to industrial and academic research and plans



Our project in the perspective of the Clean Energy Transition

- Pan-European scenarios for energy transition: narratives describing societal changes along several axes
 - NECP Essentials: NECP WEM until 2040 → continuation of today's trends
 - REPowerEU++: Paradigm shift – energy independence in the EU
 - Trinity: Pessimistic
 - GoRES: Optimistic
- Feedback from 9 case studies from different regions and sectors ensure robustness of results with respect to geographical and sectorial differences
- Stochasticity:
 - Different scenarios
 - Climatic variability



Thank you!

Contact

Siri Mathisen
SINTEF Energy Research (Norway)
Siri.Mathisen@sintef.no

Q&A session

Group moderators



Michael Huebner

CETPartnership Coordinator
Federal Ministry Innovation,
Mobility and Infrastructure
Republic of Austria



Isabel Cabrita

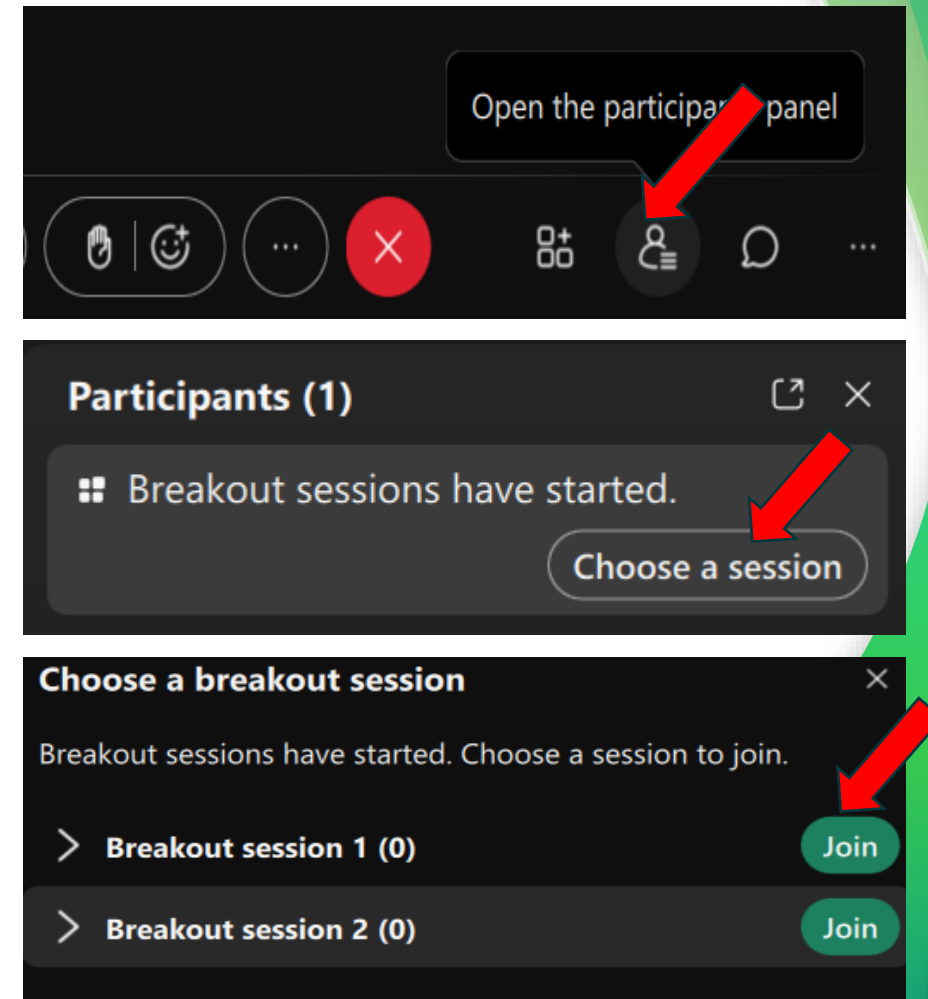
Professor/Expert
Portugal Science and Technology Foundation
Lisbon, Portugal

Group allocation

Rooms	Projects	Moderator
Room - 1	PVT4EU, STORE, RENvolveIT	Michael Huebner
Room - 2	Man0EUvRE, LEG-DGC, ELECTROMET	Isabel Cabrita

How to join breakout rooms

- Please go to **participants panel** on the **bottom right**.
- In the participants panel, please select **choose a session** at the top.
- Click **join** to enter a breakout-room



We are in the breakout rooms

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Wrap-up of group discussions

Outlook on Day 2



Coming up tomorrow!

Funding the Future: Investor Insights & Innovation Readiness

09:00 – 09:55

Introduction & Presentations

- Recap of Day 1, Introducing the Knowledge Community and Impact & Exploitation activities
- Presentation by Maria Velkova, EC Deputy Head of Unit – Finance for Innovation
- Presentation by Dr. Alex Cruz, Emerging Technologies Leader – Baker Hughes
- Q&A

10:00 – 11:45

Two Breakout-room Sessions (in parallel)

- **Knowledge Community Session:** *Peer Learning for System Transition Challenges*
- **Impact Session:** *Investor Readiness for System-Scale Demonstration*

11:45 – 12:10

Wrap up and next steps

12:10 – 12:15

Final words from the coordinator



Attention!!!: new link for tomorrow's session

How to join?

Funding the Future: Investor Insights & Innovation Readiness

Participate in the hands-on investor readiness workshops that help demonstration-ready projects secure funding and promote collaborative peer learning sessions where early-stage innovators tackle transition challenges together

Wednesday 22 October 2025

09:00 - 12:30	Funding the Future: Investor Insights & Innovation Readiness  Video conferencing Get direct insights from investors setting the foundation for overcoming funding barriers in system transitions. Participate in the hands-on investor readiness workshops. Join here  Join now ▶
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Thanks!

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