



Smart
Energy
Systems
ERA-Net

Let's collaborate!

**SCOPING FOR MULTINATIONAL RDD PROJECTS ON DIGITAL ENERGY
SYSTEM TRANSFORMATION**

National Energy Research and Policy Conference, 20 November 2019

Moderator: Ludwig Karg, ERA-Net SES Knowledge Community Management

- **Benefits of the multilateral Joint Programming Platform for SMEs, Research Institutes, Need Owners**
Dr. Lucy Corcoran, SEAI
- **Key Notes: Unleashing the potential of digitalisation and the energy transition**
Dr. Susan Rea, CIT; Dr. Alan Mc Gibney, CIT
- **Cooperation between applying and funded projects, funding agencies and associated partners**
Talk with Niall Conway, REDAP project; Fabiano Pallonetto, EV CHIP project; Aoife McCarthy, PIGergy project (tbc)
- **Co-Creation Workshop: Future RDI topics in the field of digital transformation and energy systems**
- **Questions, Answers & Networking**



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BENEFITS OF THE MULTILATERAL JOINT PROGRAMMING PLATFORM FOR SMES, RESEARCH INSTITUTES, NEED OWNERS

Dr. Lucy Corcoran, SEAI

National Energy Research and Policy Conference, 20 November 2019

1. SEAI Research, Development & Demonstration Programme

- Funds innovative energy RD&D Projects
- Open to companies, RPOs, semi-state and public bodies

2. SEI Plan Steering Group

3. Horizon 2020 – Delegate for Energy

4. UNFCCC - Technology

5. International Energy Agency



Lead & coordinate energy research funding in Ireland

Joint Programming Platform Smart Energy Systems ...

30 funding partners from 23 European countries and regions

Austria, Croatia, Denmark, Finland, Flanders, France, Germany, Hungary, Ireland, Israel, Italy, Latvia, Lombardy, Norway, Poland, Portugal, Romania, Scotland, Slovenia, Spain, Sweden, Switzerland, the Netherlands, Turkey & Wallonia



ERA-Net Smart Energy Systems has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreements No. 64603 and No. 775970.

Joint Programming for Flourishing Innovation: From Local and Regional Trials towards a Transnational Knowledge Community



Goal

Organize learning to enable the right technologies, market designs and customer adoption to achieve the smart energy system vision & goals of Europe

www.eranet-smartenergysystems.eu

From Smart Grids to Smart Energy Systems



Focus Initiative Smart Grids Plus

- 3 transnational calls
- > 30 projects
- > 80 mio EUR funds

Focus Initiative Integrated Regional Energy Systems

- Extended scope beyond grids
- Involvement of Associated Partners
- First transnational call May 2018 (> 30 mio EUR funds)

Knowledge Community

- Working Groups
- Knowledge Platform
- Spotlights & Policy Briefs



www.eranet-smartenergysystems.eu



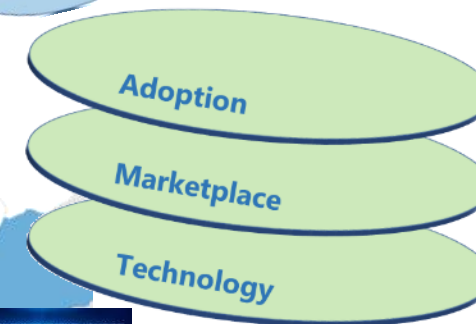
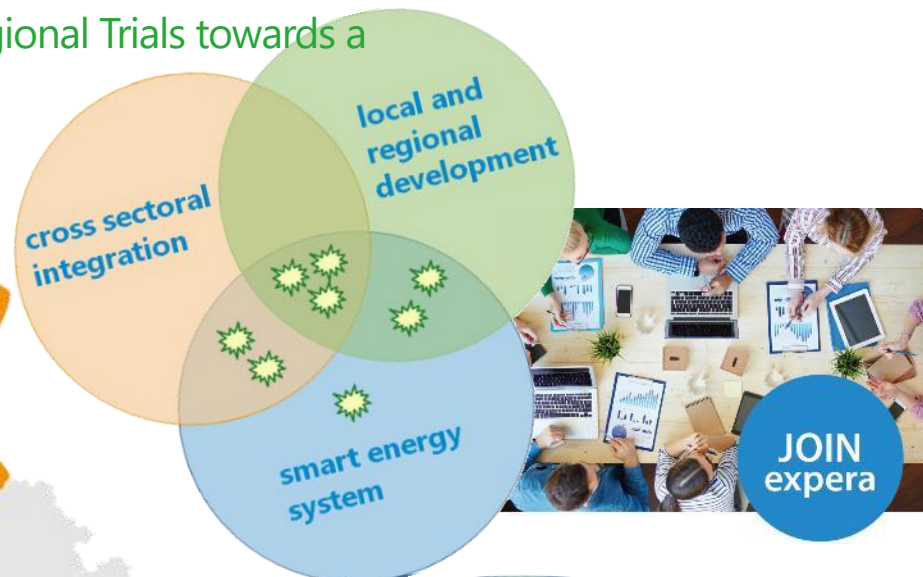
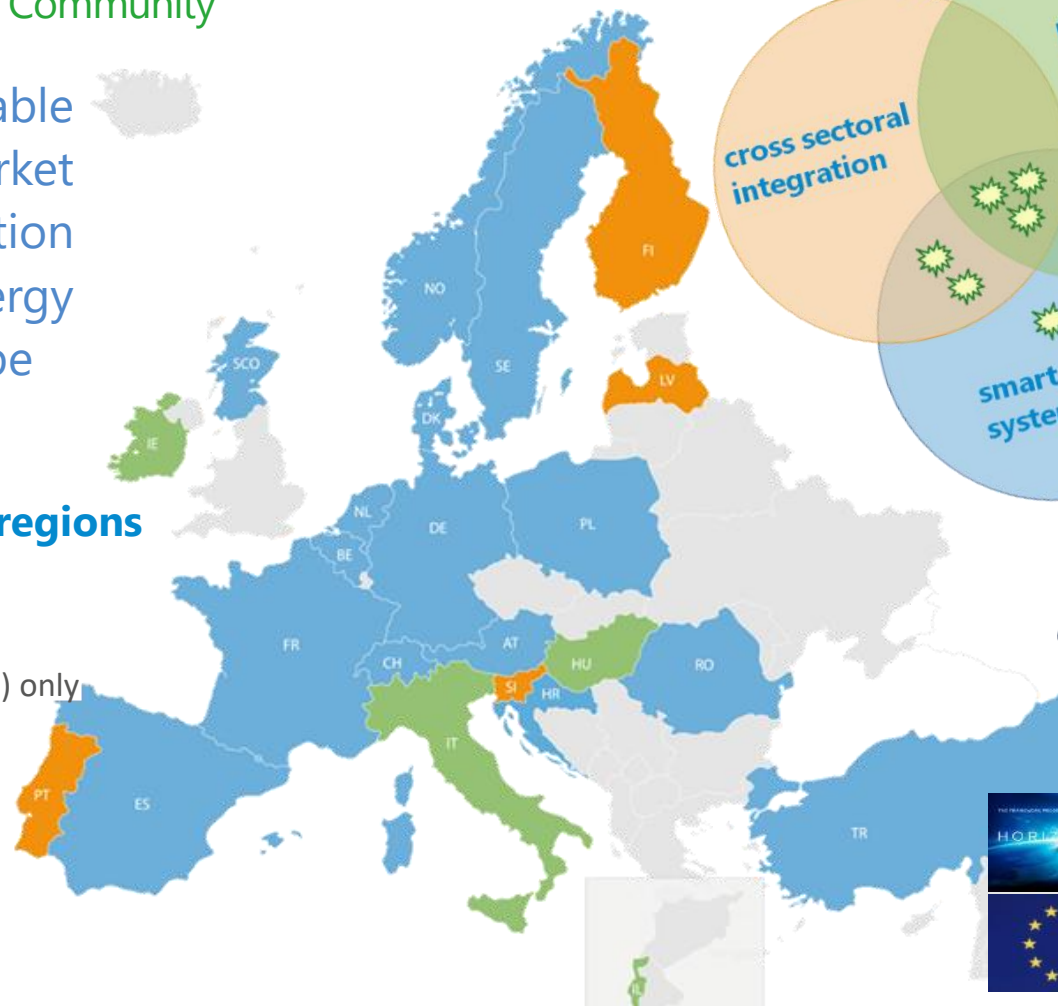
ERA-Net Smart Energy Systems

Joint Programming for Flourishing Innovation from Local and Regional Trials towards a Transnational Knowledge Community

Goal Organize the learning to enable the right technologies, market designs and customer adoption to achieve the smart energy system vision & goals of Europe

30 funding partners from 23 European countries and regions

- both focus initiatives
- focus initiative „Regional Energy Systems“ (RegSys) only
- focus initiative „Smart Grids Plus“ (SG+) only



www.eranet-smartenergysystems.eu



ERA-Net Smart Energy Systems has received funding from the European Union's Horizon2020 research and innovation programme under grant agreement No 646039 and No. 775970.

2018 JOINT CALL - SEAI JOINED AS A FUNDING PARTNER

- Opportunity for Irish researchers to participate in transnational collaborative RDI projects
- €33.3M in funding available
- €500,000 in SEAI support, with additional European Commission co-funding, towards Irish participation in transnational projects
- Great interest from the Irish energy RDI community

IRISH SUCCESS – 2018 JOINT CALL

- In total - 24 projects recommended for funding
- 5 Projects with Irish Partners – involving both industry & academia
- 3 - Irish led
- International project partners include partners from - Austria, Italy, Norway, Scotland, Spain & Sweden

Associated Partners Model

Joining forces with many kinds of non-funded partners to ...

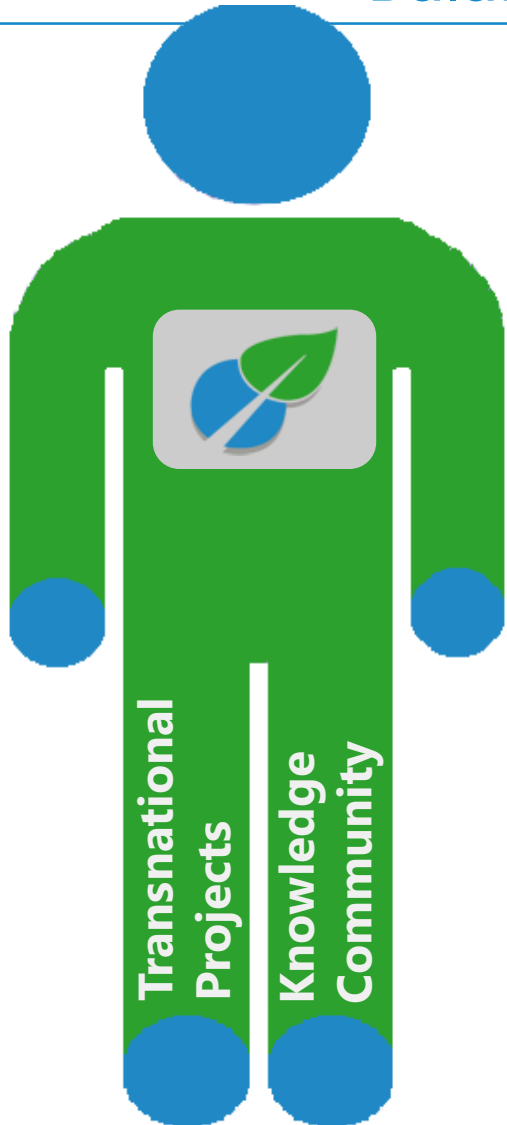
- jointly foster development of technology and business solutions
- make sure that projects meet real needs of energy efficiency and energy transition processes
- link local and regional level to overall energy system
- connect to business domains way beyond the energy sector
- give RDD consortia confidence that their results will be adopted.

The involvement of stakeholders as Associated Partners will not only improve the quality of the funded RDD projects but increase their overall impact.

Associated Partners (Oct. 2019)



Balance between projects & knowledge community



- Transnational Projects
 - national funding with EU top-up funds
 - selected in ERA-Net Calls
 - communication and evaluation by Support Team
- Knowledge Community
 - from and for the ERA-Net SG+ projects
 - national and international experts
 - unique networking and knowledge base

Three Dimensions of Integration

cross sectoral integration:

- transport
- industry and trade
- municipal infrastructure
- agriculture
- ...

local and regional development:

- governance
- planning
- innovation system
- SMEs and startups
- transnational knowledge base
- ...

smart energy system:

- renewable energy
- distributed generation
- cross carrier synergies
- automation ...

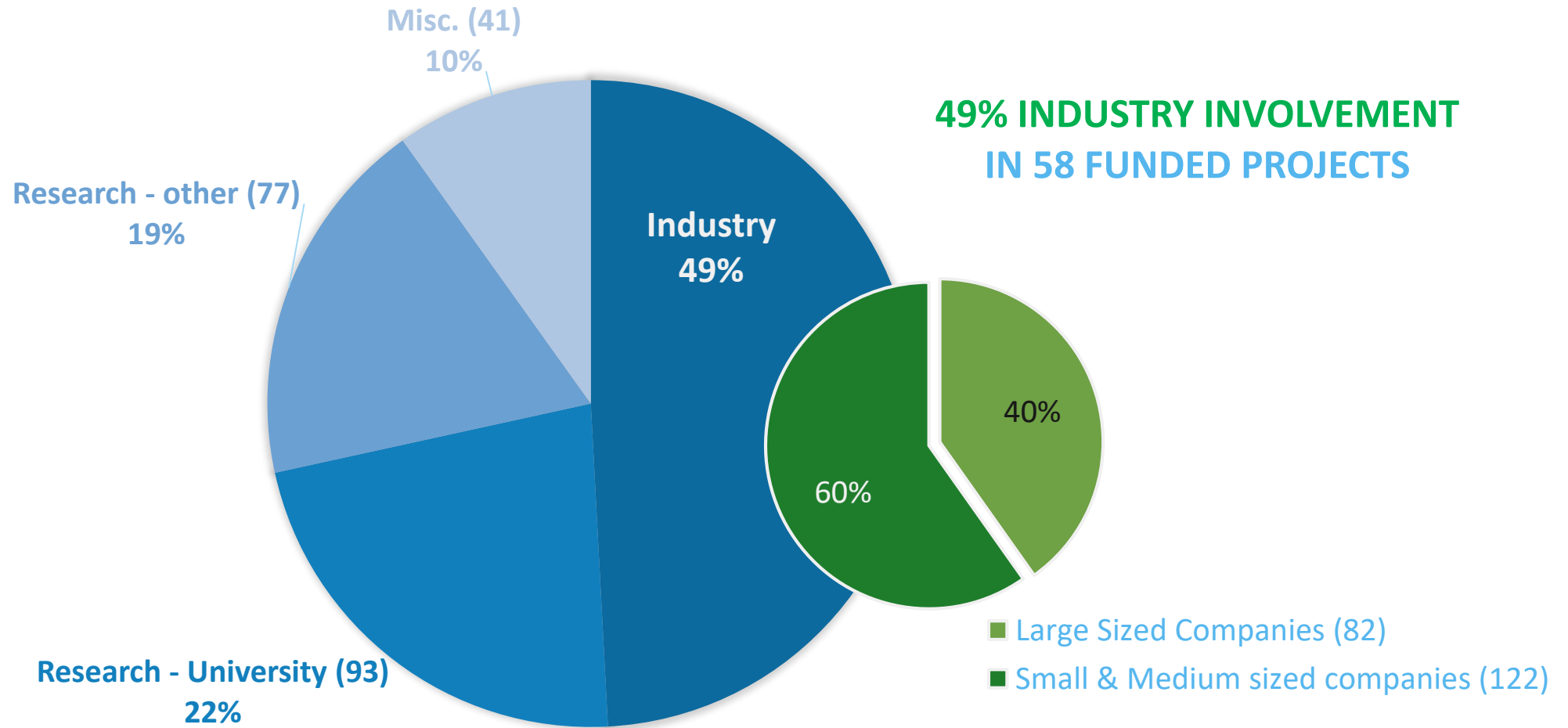
The ERA-Net SES Knowledge Community

MEMBERS

- ERA-Net SES projects
- National and transnational projects
- International RDD projects
- Smart Grids practitioners
- Agenda setters and policy makers

TOOLS

- Living Documents
- Working Groups
- Project Profiling („Evaluation“)
- Expert Repository
- Spotlights and Policy Briefs





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Success Stories

Hear from successful Irish awardees





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KEY NOTES: UNLEASHING THE POTENTIAL OF DIGITALISATION AND THE ENERGY TRANSITION

Dr. Susan Rea, CIT,
National Energy Research and Policy Conference, 20 November 2019

Unleashing the Potential of Digitalisation & the Energy Transition

Dr. Susan Rea

Group Lead: Network Management
Cork Institute of Technology
susan.rea@cit.ie



Energy Transition

At European and National level energy policy is geared towards decarbonising the energy system

- through the promotion of ***Energy Communities***
- where ***Consumers*** are seen as being ***Active*** & ***Central Players*** on the energy markets of the future



Energy Citizen

EU Renewable Energy Directive & the Common Rules for the Internal Energy Market in electricity ***outline frameworks for energy communities***

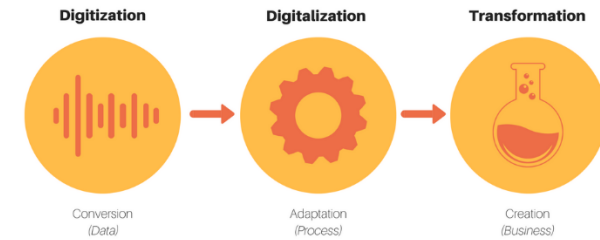
- However, they ***do not consider the needs from a digital perspective***

Climate Action Plan commits to:

- ***Scale-up*** and improve the Sustainable Energy Communities (SEC) and Better Energy Communities programme
- SEAI SEC shall ***Expand from 256 now to 500 by 2020, & 1500 by 2030***



Digitalisation is the ***Revolutionary Enabler*** for the transition of the energy sector



- Digitalisation is key to ***managing the availability of data, facilitating collaboration & interaction*** among stakeholders (energy community members)
 - The variety of stakeholders involved & the heterogeneity in infrastructure adds ***significant complexities to data sharing across third parties and systems***
 - This is largely due ***to potential threats to privacy, security, safety and the confidentiality*** of commercial intelligence
 - Digitalisation can ***overcome these challenges providing functionality to automate data services and to provide a secure backbone*** for data flows among entities



DigiBlocks

SEAI 2018 RD&D Programme 18/RDD/262

DigiBlocks provides a suite of tools that provides an integrated innovative solution for district energy management using IoT and DLT for Secure, Informed Decision making & Collective Action

<http://www.nimbus.cit.ie/digiblocks/>



DigiBlocks





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KEY NOTES: UNLEASHING THE POTENTIAL OF DIGITALISATION AND THE ENERGY TRANSITION

Dr. Alan Mc Gibney, CIT,
National Energy Research and Policy Conference, 20 November 2019

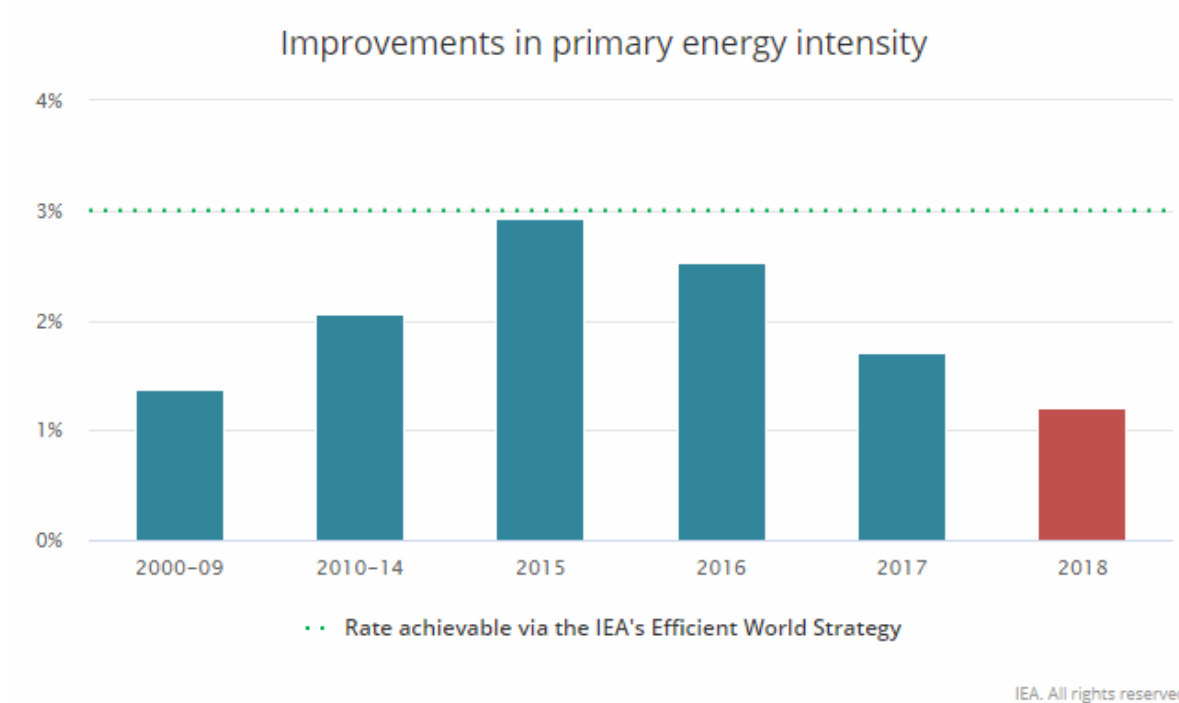
Unleashing the Potential of Digitalization and the Energy Transition

Dr. Alan McGibney
Group Lead: IoT System and User Interaction
alan.mcgibney@cit.ie

Accelerate the potential..



In 2018 Energy Intensity improved by just 1.2%, the slowest rate since 2010*



Influencing Factors

- Weather (although EU milder winter helped)
- Industrial Production
- Transport/Buildings/Devices
- Policy
- Investment

* International Energy Agency, [Energy Efficiency 2019](#)

How can digitalization help accelerate Energy Transition?

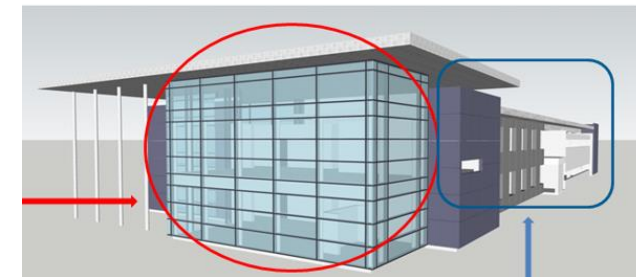


1. Energy Efficiency

Be more productive with every unit of energy we generate



A Fitness Tracker
for your building



Well Living

Clean air for all

Carbon Dioxide | Light VOC | Global VOC | Particles

We are living healthy
The air quality in your building is of a very good standard.

Feeling Fresh Love

Well Being

Its all about being happy

Temperature | Humidity | Illuminance | Noise

Comfortable
The building is in a comfortable state.

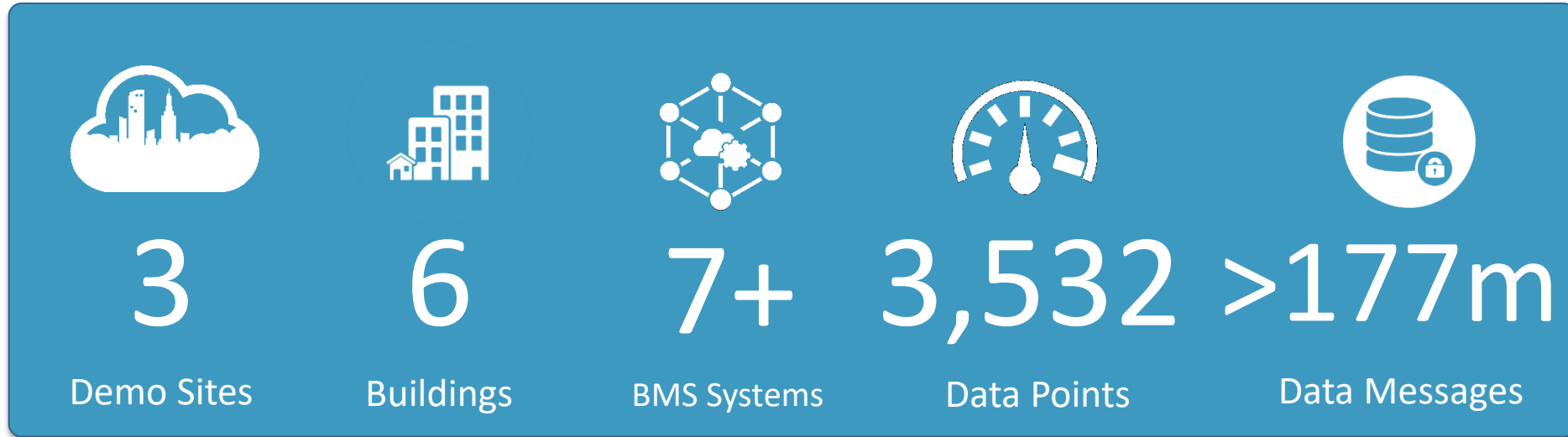
Feeling comfy! Love



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 676760.



Tools for continuous Energy Performance Auditing



How can digitalization help accelerate Energy Transition?



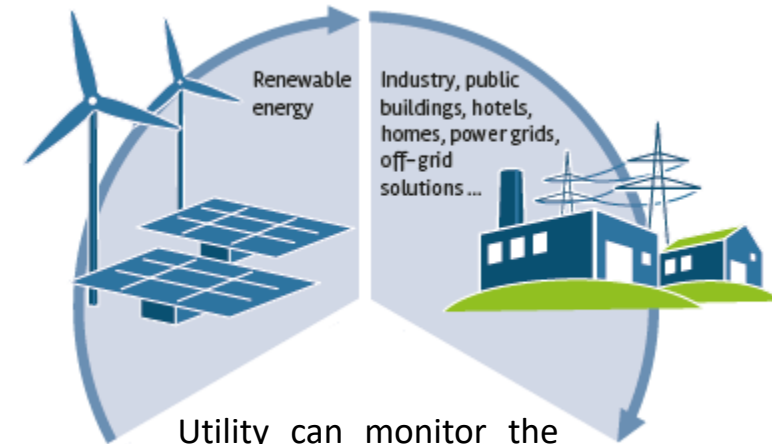
2. Integrate Renewables for Flexibility & Reliability

Connect energy consuming sectors with the energy-producing sectors



Energy Efficient
Manufacturing Systems

- IIoT
- Big Data
- Digital Twin
- Artificial Intelligence
- 5G



Utility can monitor the grid, determine where there is pressure and procure the services needed to keep the system running.

How can digitalization help accelerate Energy Transition?



3. Collaborate to drive Innovation

Digital Markets/Ecosystem building/Large scale Pilots

Without **collaboration and the cross-disciplinary fertilization** that it enables, it's difficult to generate radically new ideas.

Vicki Huff Eckert, PwC

"The world urgently needs to put a laser-like focus on bringing down global emissions. This calls for **a grand coalition encompassing governments, investors, companies and everyone** else who is committed to tackling climate change."

Dr Fatih Birol, IEA Executive Director

'Working together is key: a digital energy system that depends on the easy, secure and seamless exchange of data is nothing without EU-wide support.'

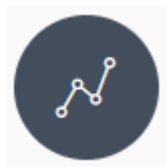
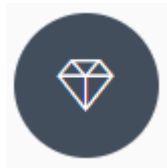
European Commission

Research Priorities



- Make communication and installation of smart solutions **EASIER**
- A decentralised energy system needs **RELIABLE** digital infrastructure
- **DATA SHARING** between different energy stakeholders
- **NEW MARKETS** to enable services from consumers to network operators (Regulation, Governance)

Technology and data



People and digital skills



Cyber Security





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Cooperation between applying and funded projects, funding agencies and associated partners

Talk with Niall Conway, REDAP project; Fabiano Pallonetto, EV CHIP project; Aoife McCarthy, PIGergy project, Fredrik Lundström, ERA-Net SES Call Management; Bradley Eck, IBM

National Energy Research and Policy Conference, 20 November 2019



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Cooperation between applying and funded projects, funding agencies and associated partners

Talk with Niall Conway, REDAP project
National Energy Research and Policy Conference, 20 November
2019

WHAT:

Energy System Digitalisation

HOW:

Geographic Information Systems

WHY:

O&G Projects

Sustainability

Urban Planning

Partners:



CHALMERS
UNIVERSITY OF TECHNOLOGY



AIT
AUSTRIAN INSTITUTE
OF TECHNOLOGY



ICHEC
Irish Centre for High-End Computing



codema
Dublin's Energy Agency

Funding Agencies:



**Swedish
Energy Agency**



FFG
Austrian
Research Promotion Agency



seai SUSTAINABLE
ENERGY AUTHORITY
OF IRELAND





PRINCIPLES:

TRUST

ICT, Data, Process

PURPOSE

Built Env: Mobility & Building

FUNCTION

Monitoring & Reporting

Benefits of ERA-Net

COLLABORATION international, multidisciplinary, integration

NEED-OWNERS real world challenge & process

FOCUS energy systems, digitalisation, innovation



City of
Gothenburg



energy demand. understood.



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LET'S COLLABORATE: SCOPING FOR MULTINATIONAL RDD PROJECTS ON DIGITAL ENERGY SYSTEM TRANSFORMATION

Fabiano Pallonetto, EV CHIP project, University College Dublin, Energy Institute

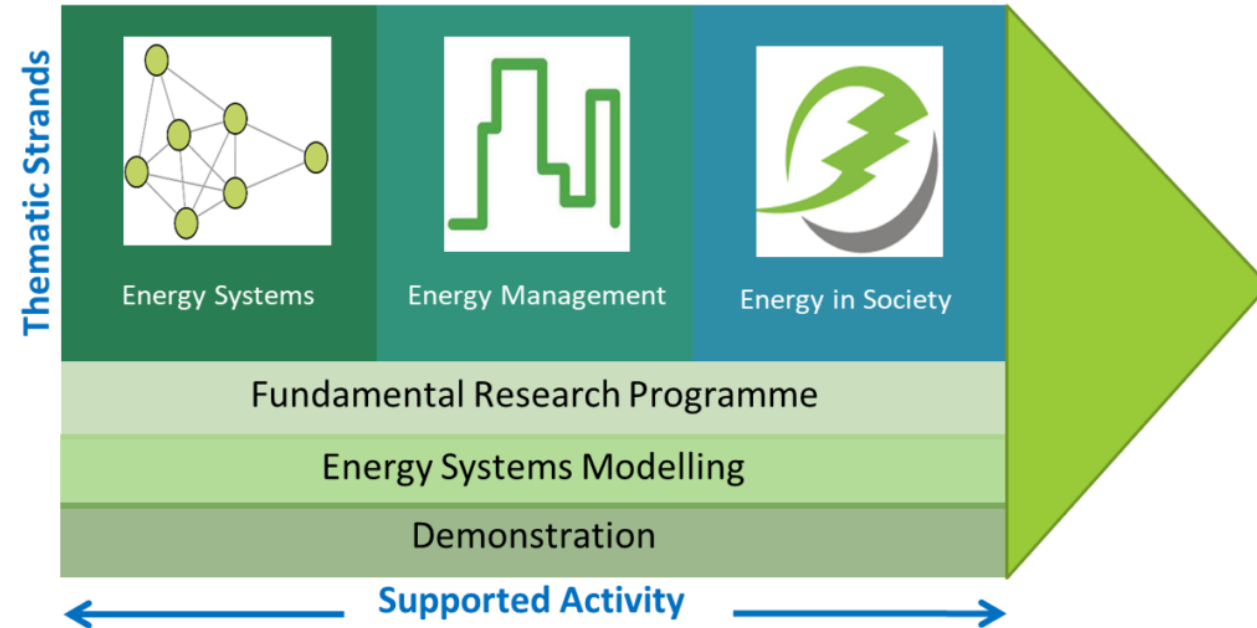
National Energy Research & Policy Conference, 20 November 2019

Please introduce shortly your institution



We drive the evolution of research into practice into action and strive to:

- Close the research to industrial deployment gap
- Influence energy policy implementation at Irish and EU level
- Grow and strengthen our positive international profile
- Impact constructively on economic growth
- Develop a talent pipeline and graduate training for the Irish energy sector



Please introduce your ERA-Net SES project



EVCHIP

Electric Vehicle Charging Platform
for Community Demand Response Aggregators

- The objective of the EVCHIP project is to explore and validate a business model for realising the commercial value of EV charging services aggregation. In doing so, the project team aims to create a replicable, enduring modelling capacity within the participating institutions, and to produce scalable prototype software for the integration of electric transportation in the power grid.
- The benefits of the EVCHIP proposal are multi-fold, and include positive social, environmental, and economic impacts. Evaluating EVCHIPs social impact in particular yields two primary benefits: social engagement through execution of the project itself, and value creation on the basis of socialised behaviours in a smart energy system through validation of the underlying business model.

<https://evchip.ucd.ie/>

Please mention what you like about ERA-Net SES

- Opportunity to be part of an international community for the creation of shared content and knowledge on smart energys systems
- Evaluate solutions and projects from a transnational European perspective and expand our horizons to the whole EU
- Contribute to develop an optimised European power system, focussing on the decarbonisation of our society
- Apply research outcomes to increase the flexibility of the power system focussing on the integration of renewables and low carbon technologies

GlasPort Bio

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LET'S COLLABORATE: SCOPING FOR MULTINATIONAL RDD PROJECTS ON DIGITAL ENERGY SYSTEM TRANSFORMATION

Dr. Aoife McCarthy, PIergy project, GlasPort Bio Ltd.

National Energy Research & Policy Conference, 20 November 2019

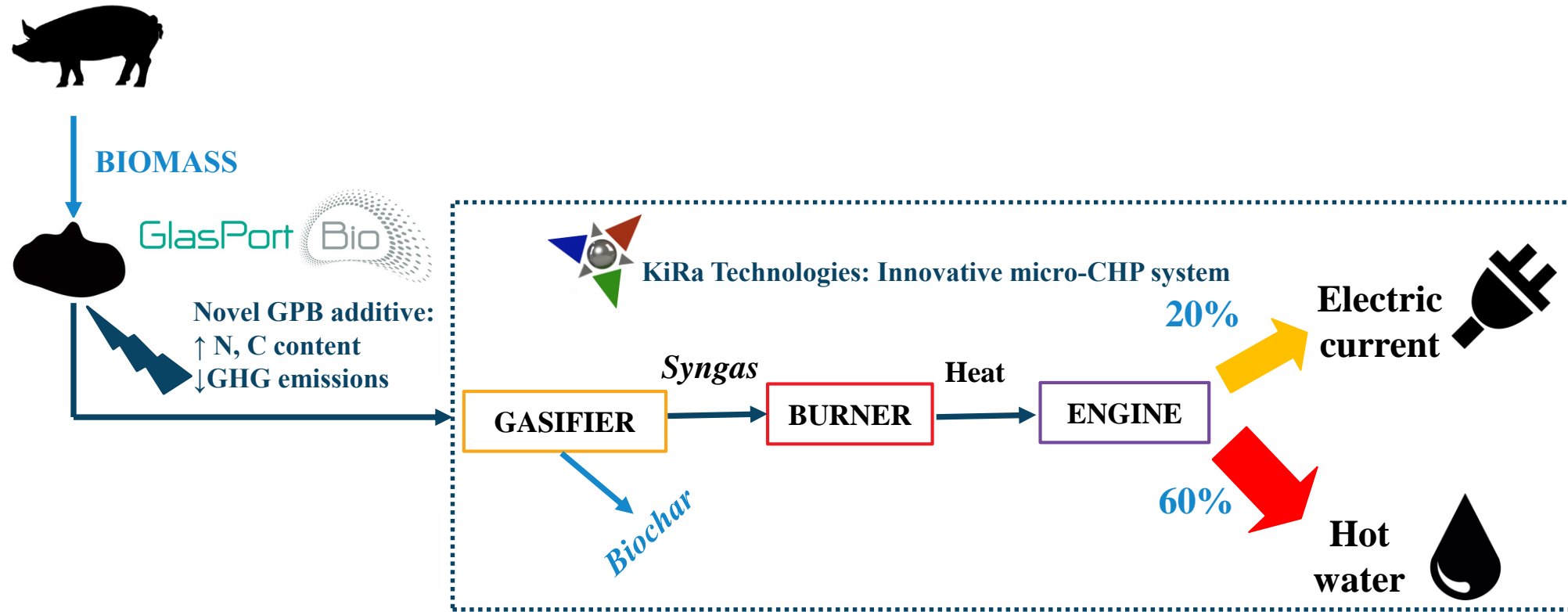
- Irish biotechnology company who have developed a natural, novel anti-microbial agent to treat agricultural manures.
- Reducing ammonia and methane release to the atmosphere.
- Generating a valuable carbon-rich feedstock for energy production.
- Feedstock varieties being investigated.
- Various energy output technologies being explored.



Animal Manure

- ✗ major source of GHG emissions
- ✓ renewable energy source
- ✓ fertilizer source

PIGergy: A novel means of unleashing the energy potential of pig waste



ERA-Net SES: positives

- Encourages cross-country collaborations.
- Facilitates unique project proposals.
- Brings together a broad range of research.
- Knowledge Community Meetings: allow new projects to learn from past projects.
- Open to a range of collaboration combinations.





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ERA-Net Smart Energy Systems Focus Digital Transformation

Fredrik Lundström, ERA-Net SES Call Management

Dublin, November 2019

What we are: -Joint Programming Platform Smart Energy Systems ...

30 funding partners from 23 European countries and regions

Austria, Croatia, Denmark, Finland, Flanders, France, Germany, Hungary, Ireland, Israel, Italy, Latvia, Lombardy, Norway, Poland, Portugal, Romania, Scotland, Slovenia, Spain, Sweden, Switzerland, the Netherlands, Turkey & Wallonia



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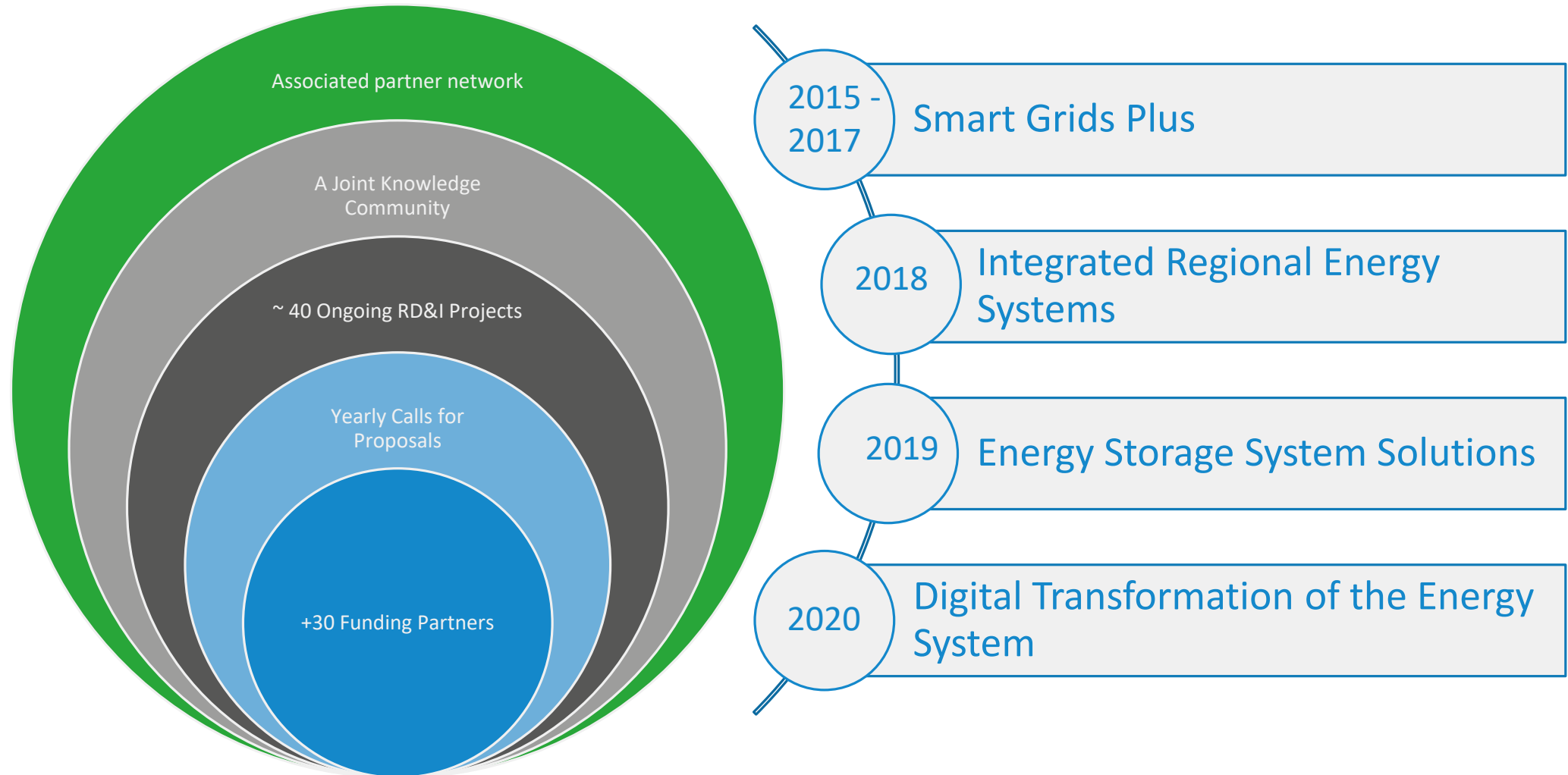


Goal

Organize the learning to enable the right technologies, market designs and customer adoption to achieve the smart energy system vision & goals of Europe

www.eranet-smartenergysystems.eu

What we do: -Enhancing Innovation on Smart Energy Systems



Focus Area Digitalisation and Digital Transformation of the Energy System

Long Term Objective (expected impact)

- Unleashing the potential of digital transformation for the Energy System
- Supporting the energy transition towards a decarbonised, secure and resilient system

Medium Term Objective (expected outcomes)

- Sustainable alignment of RDD and deployment programmes throughout Europe, coordinated by the EU SET-Plan
- Increasing the development and uptake of latest digital innovation and solutions
- Facilitate well established open and harmonised marketplaces that better connects the ICT and the Energy domain
- Better knowledge and awareness for policy makers, regulators and utilities on digital solutions

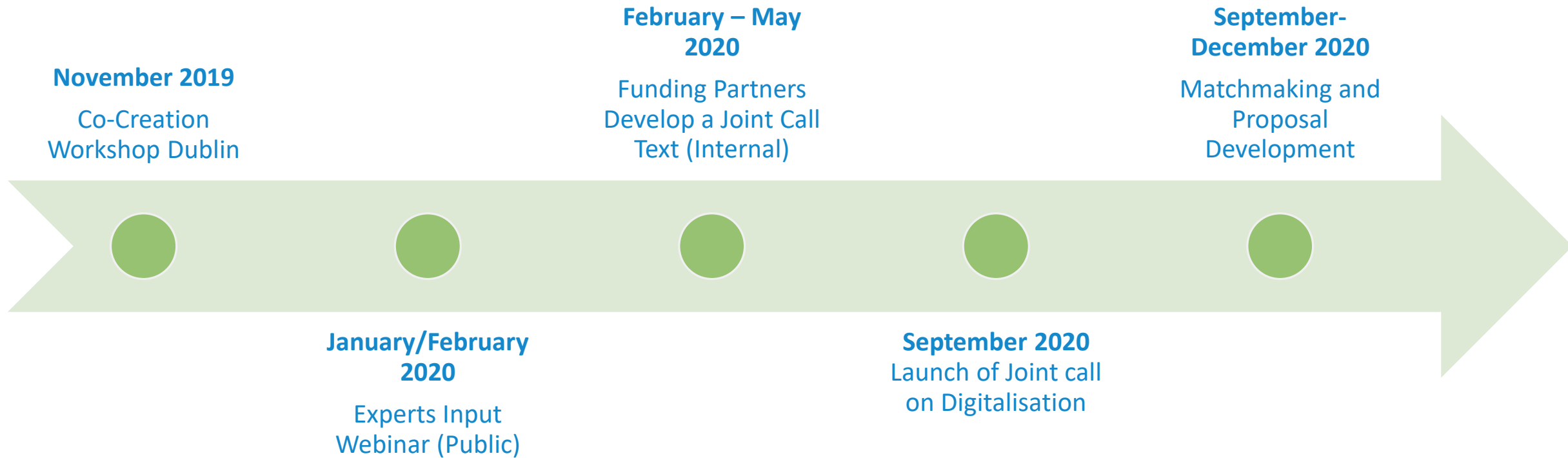
Goals (expected results)

- 10-15 funded transnational RDD projects
- A transnational validation ecosystem of 10 to 40 existing and upcoming living labs
- A European collaboration platform for interoperability testing

Activities

- Calls for transnational RDD projects
- Initiating a transnational validation ecosystem
- Initiating a European collaboration platform for interoperability testing
- Organise a knowledge community

Developing a Dialogue on Digital Transformation



Workshop Objective and Structure



Long term Objective: Support the Energy Transition Towards a Decarbonised, Secure and Resilient Energy System

For each of the 4 domains identify:

3 key challenges in relation to the long term objective

3 key opportunities in relation to the long term objective



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ERA-Net Smart Energy Systems Focus Digital Transformation

Bradley Eck, IBM

Dublin, November 2019



Co-Creation Workshop: Future RDI topics in the field of digital transformation and energy systems

National Energy Research and Policy Conference, 20 November 2019

Workshop Objective and Structure



Long term Objective: Support the Energy Transition Towards a Decarbonised, Secure and Resilient Energy System

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Contact the Joint Programming Platform

Office ERA-Net Smart Energy Systems

office@eranet-smartenergysystems.eu

Call Management

callmanagement@eranet-smartenergysystems.eu

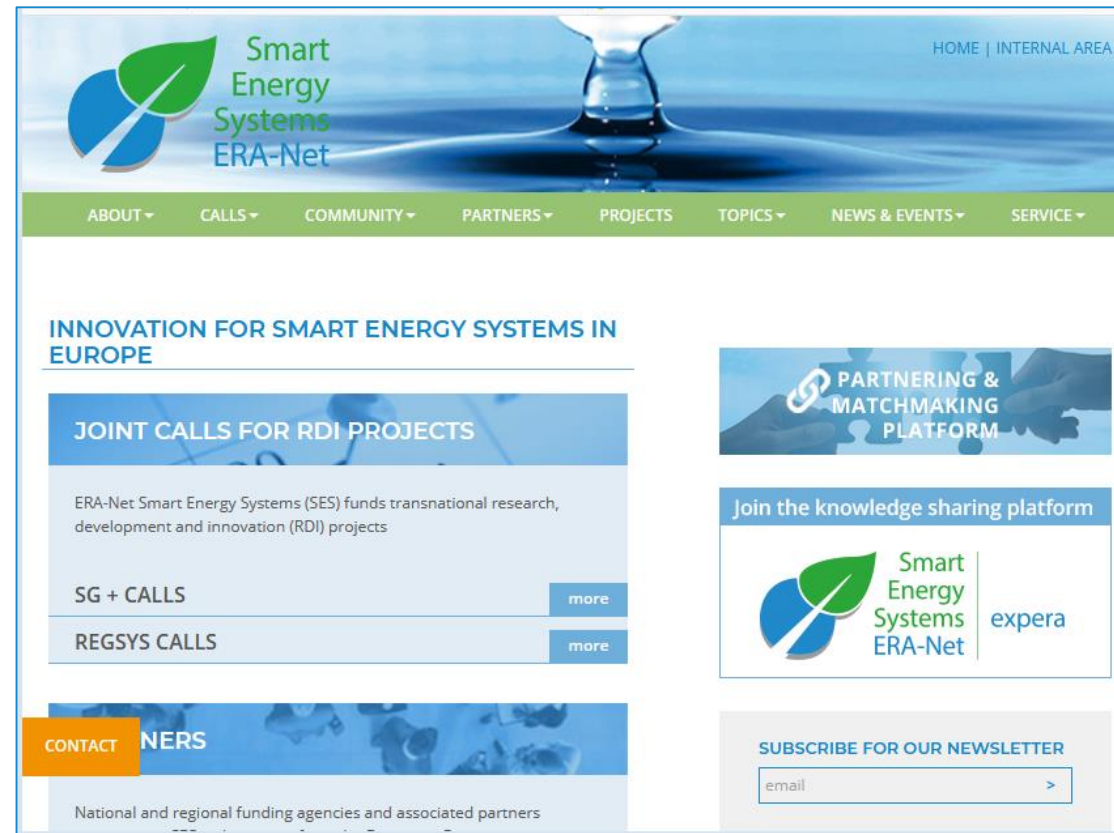
Knowledge Community

knowledgecommunity@eranet-smartenergysystems.eu

Coordination

Austrian Ministry for Transport, Innovation and Technology

Coordinator: Michael Hübner



The screenshot shows the homepage of the Smart Energy Systems ERA-Net website. The header features the logo and navigation menu. The main content area highlights 'INNOVATION FOR SMART ENERGY SYSTEMS IN EUROPE' and 'JOINT CALLS FOR RDI PROJECTS'. A sidebar on the right includes a 'PARTNERING & MATCHMAKING PLATFORM' section and a 'SUBSCRIBE FOR OUR NEWSLETTER' form.

Smart Energy Systems ERA-Net

HOME | INTERNAL AREA

ABOUT ▾ CALLS ▾ COMMUNITY ▾ PARTNERS ▾ PROJECTS TOPICS ▾ NEWS & EVENTS ▾ SERVICE ▾

INNOVATION FOR SMART ENERGY SYSTEMS IN EUROPE

JOINT CALLS FOR RDI PROJECTS

ERA-Net Smart Energy Systems (SES) funds transnational research, development and innovation (RDI) projects

SG + CALLS [more](#)

REGSYS CALLS [more](#)

PARTNERING & MATCHMAKING PLATFORM

Join the knowledge sharing platform

Smart Energy Systems ERA-Net | expera

SUBSCRIBE FOR OUR NEWSLETTER

email >

CONTACT NERS

National and regional funding agencies and associated partners

Funding Partners



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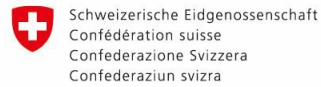
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ADEME



Agence de l'Environnement
et de la Maîtrise de l'Energie



Swiss Federal Office of Energy SFOE

