




Smart
Energy
Systems
ERA-Net


ERA-Net Smart Energy Systems

Flux 50, Brussels June 7, 2018



ERA-Net Smart Energy Systems - Background

A transnational Joint Programming Platform to Initiate Co-Creation and Promote Energy System Innovation



Need for a fundamental transformation of our energy systems towards a sustainable, low carbon and climate friendly economy.

The European Union's ambition is to become a leader in renewable energy. Strong, innovative and competitive European companies should provide the technology and services needed to deliver energy efficiency and low carbon energy solutions inside and outside Europe.

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ERA-Net SES - The Mission



A transnational Joint Programming Platform to Initiate Co-Creation and Promote Energy System Innovation

- ERA-Net SES is a Research, Development and Innovation (RDI) initiative.
- It calls for and awards transnational Research, Development and Demonstration (RDD) projects.
- In addition, it liaises with other RDI actors to build a European Knowledge Community (KC).



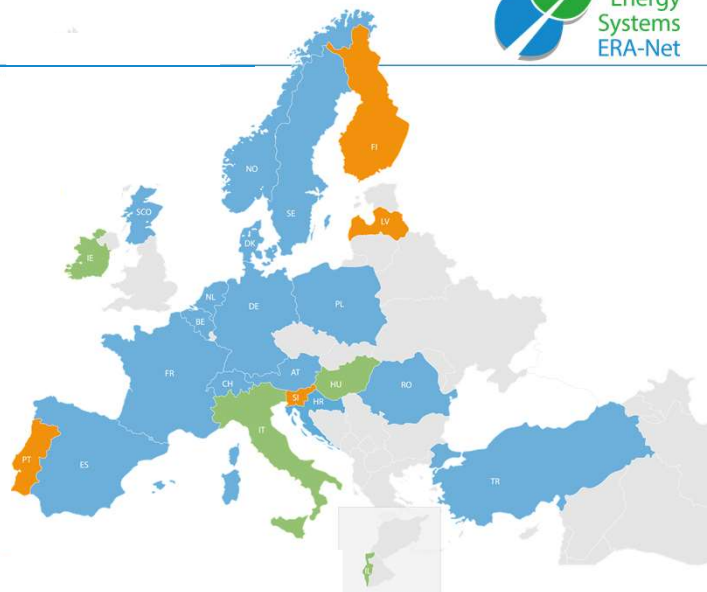
ERA-Net SES Funding Partners



30 funding partners from 23 European countries and regions involved

Austria	Latvia
Belgium (Flanders/Wallonia)	Norway
Croatia	Netherlands
Denmark	Poland
France	Portugal
Finland	Romania
Germany	Scotland
Hungary	Slovenia
Ireland	Spain
Israel	Sweden
Italy (Lombardy)	Switzerland
	Turkey

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



ERA-Net SES – The goal & status quo



A transnational Joint Programming Platform to Initiate Co-Creation and Promote Energy System Innovation



- Projects shall develop technologies, systems and solutions that make it possible for regional and local energy systems to supply, host and utilize up to 100% renewable energy by 2030, at the same time considering a sustainable use of local and global resources.
- 33 projects – partners from industry, network and infrastructure providers, research and academia, regions and cities (funds > 60 MEUR).

ERA-Net SES 2018 joint call on integrated regional energy systems (RegSys)



- Deadlines: Project outline - September 11, 2018
Full project proposal - November 2, 2018
Funding decision - March 8, 2019
- Call budget: ~33 MEUR (including EC top-up funding)
- 19 countries/regions involved
- Submission through the application portal available through the ERA-Net SES webpage
- NB! Some national/regional funding agencies may require additional documentation from the project partners according to national/regional regulations . These should be submitted directly to the relevant funding agency through their national/regional submission system (if applicable).



(for details check: www.ernet-smartenergysystems.eu/Calls/Regsys_Calls/RegSYS_Joint_Call_2018)

ERA-Net SES – RegSys call focus



Fundamental transformation in regional and local energy systems and networks in the coming years:

- increasing uptake of new and improved technologies for decentralised energy systems
- the boosting digitalisation and associated business models
- major changes of the current societal trends



Need for solutions answering to specific critical needs within a local/regional energy system, where a “need-owner” is identified and involved in the solution development.

„need-owner“: an entity (e.g. public agency, local/regional authority, energy grid manager/owner, company, building owner etc.) that seek a solution to a specified need (problem) within its area of operation.



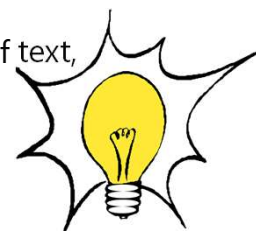
ERA-Net SES – Project outline



Deadline project outline: 11 September 2018

→ extent of the project outline will be no more than 2-3 A4 pages of text, including:

- scope of the project
- general time-line and goals
- initial project partners
- amount of funding applied for from the individual regional/national funding agencies (including intensity of support (in %))



Projects start before 15 December 2019, project end (including all reporting) by 15 December 2022 (i.e. max duration 36 months, min duration 24 months).

ERA-Net SES – Advisory period



Compulsory advisory period: 18 September – 2 November 2018

- Receive feedback from funding agencies
 - Scope, eligibility, priorities and desirability
- Opportunity to revise the project proposal, partners and obtain necessary information on specific funding agency requirements
- Information on whether any project partner(s) must also submit a full national/regional proposal

Information on contact details for your national/regional contact points available at:
www.eranet-smartenergysystems.eu/Calls/Regsys_Calls/RegSYS_Joint_Call_2018

Full proposal deadline: 2 November 2018



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ERA-Net SES – Project set-up



RegSys call proposals are asked to elaborate on:

1. Identification of needs and “need-owner(s)”:

- process and methodologies for identifying critical needs
- collaboration with the most significant “need-owner(s)” and other stakeholders (e.g. infrastructure operators, end users, communities etc.)



2. Description of R&I activities and co-creation of solutions (main part):

- activities in the fields of research, development and demonstration and/or real environment testing.
- chosen processes and methods for collaboration between project partners, “need-owner(s)” and other stakeholders.
- how “need-owner(s)” and relevant stakeholders should participate in the planned R&D demonstration to ensure that the viewpoints, knowledge and expertise of the “need-owner(s)” and relevant stakeholders are involved in all solution development stages, from concept creation to demonstration. This is defined as a *solutions’ co-creation process*.



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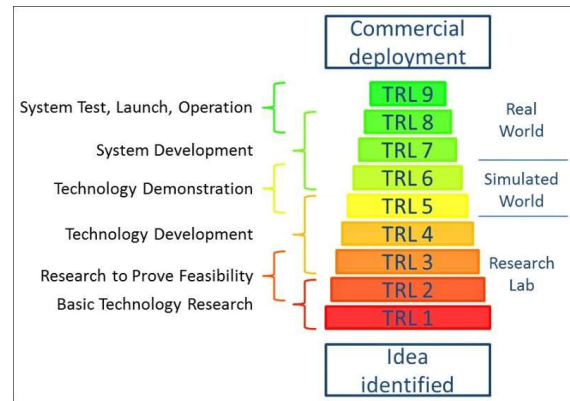
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ERA-Net SES – Project Set-up



3. Scaling up, replication and dissemination strategy:

- potential for subsequent scaling up, replication and achieving market-readiness (TRL 8-9) for the solutions developed in the course of the project and reaching up to TRL 7.



ERA-Net SES – Project requirements



Criteria for project proposals (excerpt Ch. 4.1) – the projects should :

- be **transnational** by nature, involving at least two independent participants from two different countries (whereof at least 1 EU member state), participating in the joint call.
- implement the **Three-Layer Research Model** encompassing Stakeholder/Adoption, Goods and services and Technology (see Annex A)
- address the **Three Dimensions of Integration** (see Annex B)
- address **critical needs** within a specific regional/local energy system. Projects should involve regional/local "need-owner(s)" and other relevant stakeholders to ensure market viable solutions based on concrete needs. At the same time, the aspects of **replicability and transferability of solutions** should be considered.



ERA-Net SES – Project requirements



- consider diversity perspectives related not only to gender, but also ethnicity, age, socio-economic status, physical abilities, political beliefs, geography etc. throughout the project.

Examples of project types – see Annex E

National/regional eligibility criteria must be respected in addition to the ERA-Net SES RegSys project requirements (see Annex C). It is mandatory that they contact their respective national/regional contact points during the advisory period.

ERA-Net SES – Three layer model



Stakeholders / Adoption – *overcoming: why do or don't we do it?*

(innovation and transition processes with stakeholders, consumer acceptance, education, policy, retail, community and society, social research, etc.)

Goods and Services – *structuring: how do we organize it?*

(business models, regulatory framework, market design with new goods and services, economic research etc.)

Technology – *enabling: which technology do we need?*

(incl.: how can we make technologies from other sector available for the energy system? -telecommunications, machine learning, cross energy carrier solutions, grid automation, technological research etc.)

ERA-Net SES – Three layer model



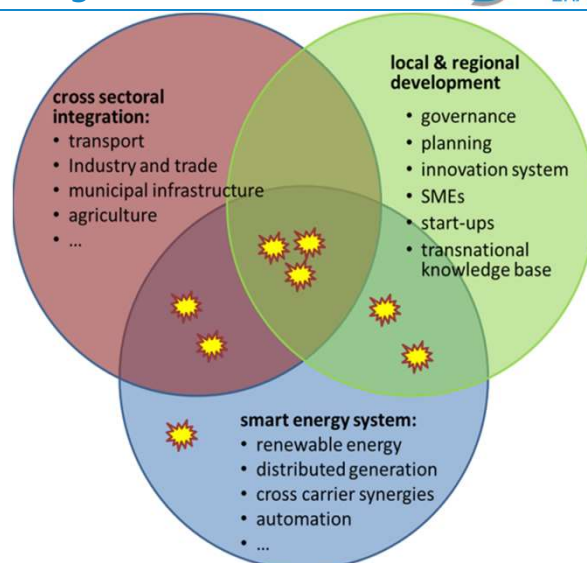
- Prefer projects that cover more than one of these three research layers (ideally all three).
- Projects covering stakeholder/adoption and/or goods and services layers as well, will be given priority over single layer projects.
- Projects should therefore clearly state goals for the stakeholder/adoption and goods and services layers in relation to technological issues.

ERA-Net SES – Three dimensions of integration



“Seeing the whole picture”

Projects have to cover at least the “Smart Energy System Integration” dimension. ERA-Net SES will prefer projects that cover more than one of these three dimensions of integration (ideally all three). Projects covering additional dimensions of integration will be given priority.



ERA-Net SES – Full proposal evaluation



The evaluation and eligibility process comprises three steps:

1. National/regional eligibility check

The projects will be considered on a national/regional basis, governed by national/regional funding agency regulations.

2. Transnational evaluation of the project proposals

In the evaluation phase a panel of at least three independent experts will evaluate each project proposal. The independent expert panel will evaluate the proposals based on three main criteria:

- a) Excellence
- b) Impact
- c) Quality and efficiency of the implementation

More detailed explanation of each criterion in Annex F.

No preference is given to projects with partners from numerous different countries/regions.

ERA-Net SES – Full proposal evaluation



3. ERA-Net SES selection and outcome

The final step of the evaluation process is a joint meeting of the ERA-Net SES consortium to select projects for funding according to the ranked list from the independent experts. The outcome will be reported to the applicants by the 8 March 2019.



ERA-Net SES – upcoming events & matchmaking opportunities



Webinars will be held on the following dates:

- June 14, 2018, 14:00-15:00 h CEST
- July 12, 2018, 14:00-15:00 h CEST
- August 23, 2018, 14:00-15:00 h CEST

Applicants and interested parties may get information on:

- the topic of the call
- (formal) application requirements
- Timelines
- networking and matchmaking opportunities for obtaining project partners
- benefits of becoming a member of the ERA-Net SES community
- Q&A session



Connection details will be provided before the webinar to all registered participants via email.

Online matchmaking platform will be available through the ERA-Net webpage

ERA-Net SES - Contact the Initiative



Office ERA-Net Smart Energy Systems

office@eranet-smartenergysystems.eu

Call Management

callmanagement@eranet-smartenergysystems.eu

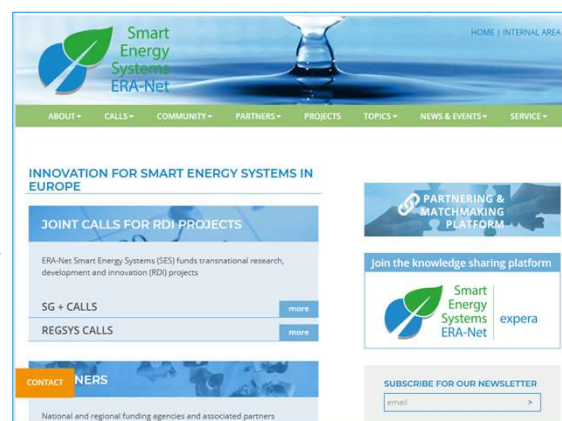
Knowledge Community

knowledgecommunity@eranet-smartenergysystems.eu

Coordination

Austrian Ministry for Transport, Innovation and Technology

Coordinator: Michael Hübner



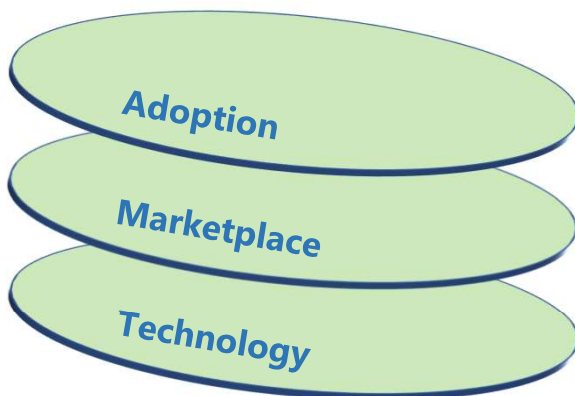


A bit more Background ...

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Three Layer Research Model

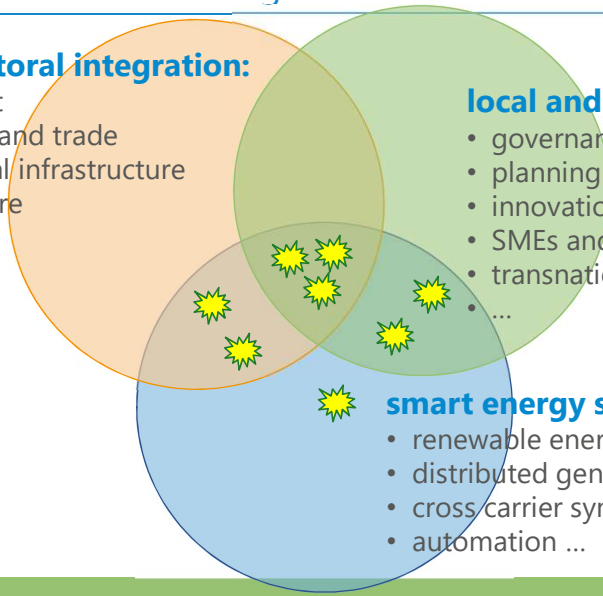


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Three Dimensions of Integration



cross sectoral integration:


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


local and regional development:

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

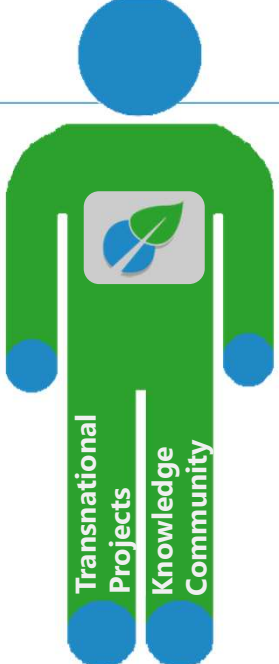
smart energy system:

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

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Walking on two legs



Transnational 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

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The Knowledge Platform *expera*



BROWSE PAGE EDIT EXPERT PR

Smart Energy Systems ERA-Net *expera*

LIVING DOCUMENTS SPOTLIGHTS WORKING GROUPS PROJECTS EXPERTS EVENTS NEWS SETPLAN A4 ENE

EDIT LINKS

Living Documents

- System Architecture and Modelling
- Storage and Cross Energy Carrier Synergies
- Standards and Interoperability
- Regulatory and Market Development
- Consumer and Citizen Involvement
- Scalability and Replicability
- Glossary

Working Groups


- Interoperability and Standardisation
- Consumer and Citizen Inv
- Regulatory and Market D
- Storage and Cross Energy
- System Architecture and I



www.smartgridsplus.eu

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ERA-Net SES Working Groups



System Architecture and Modelling	(regional data stores, ...)
Storage and Cross Energy Carrier Synergies	(heat & cold, CH ₄ , H ₂ , ...)
Interoperability and Standardisation	???
Regulatory and Market Development	(regional marketplaces, ...)
Consumer and Citizen Involvement	(citizens, regional stakeholders,...)
Regional Value Chains (innovation, technology-transfer, new formats, regional investment ...)	

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Associated Partners



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.

Involvement of stakeholders as Associated Partners does not only improve the quality of the funded RDD projects but increase their overall impact.



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Roles of Associated Partners



- provide reach-out beyond involved funding agencies to get good projects and consortia and multiply results
- participate in co-creation of
 - concepts for projects (e. g. in order to get beyond traditional and R&D only approaches)
 - solutions during the run-time of a project (e. g. linking consortia to specific supporters)
 - networks and favorable mindsets for the success of the program and its projects
- shape projects to meet the partners needs at their best
- help start-ups and other candidates with limited experience to apply
- act as technical enablers (e. g. by providing software modules)
- co-finance ERA-Net SES projects
- support accompanying product development
- help taking solutions developed in ERA-Net SES projects to practice
- provide aggregated input to ERA-Net SES program and projects

marked in blue: key aspects for May 2018 call



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List of Associated Partner Candidates (June 4, 2017)

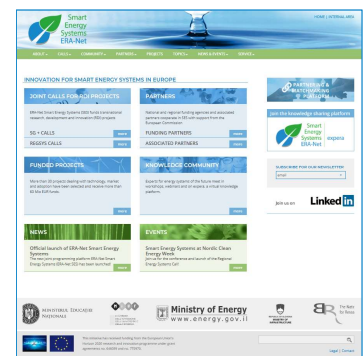


Berlin Partner für Wirtschaft und Technologie	Germany
Borderstep Institut für Innovation und Nachhaltigkeit	Germany
Cluster CAP 2020 ASBL	Belgium
Deutsche Energie-Agentur - German Energy Agency	Germany
Energieagentur der Regionen	Austria
Energy Web Foundation	World
Eurosolar	Europe
ICLEI	Europe
FIWARE Foundation	Europe
Flux50	Flanders
InnoEnergy Scandinavia	Sweden
Regional Energy e.V.	Austria
Smart Innovation Norway	Norway
Standortagentur Tirol	Austria
Think Smartgrids	France
UEFISCDI	Romania

Communicating the Initiative and the Projects



- Website
- Communication material (roll-ups, leaflets etc.) describing
 - initiative
 - knowledge platform expira
- Communication guidelines for projects





Creating Value for Regions

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Regions



ERA-Net RegSys looks at political and planning entities

- smaller than nations or federal states
- bigger than a single municipality

NUTS 2 regions (800.000 inhabitants and more) are appropriate for a RegSys project.

NUTS 1 regions (starting from 150.000 inhabitants) are welcome, especially in a rural context.

(NUTS = nomenclature des unités territoriales statistiques)

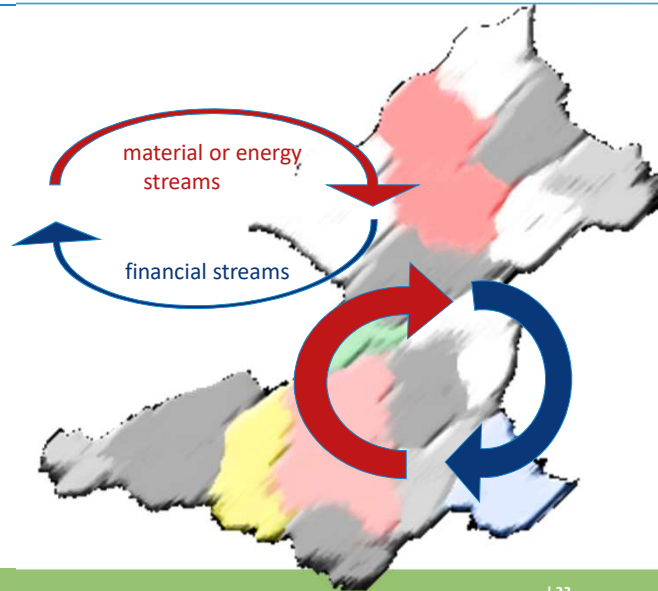
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Typical Goals of Regional Development



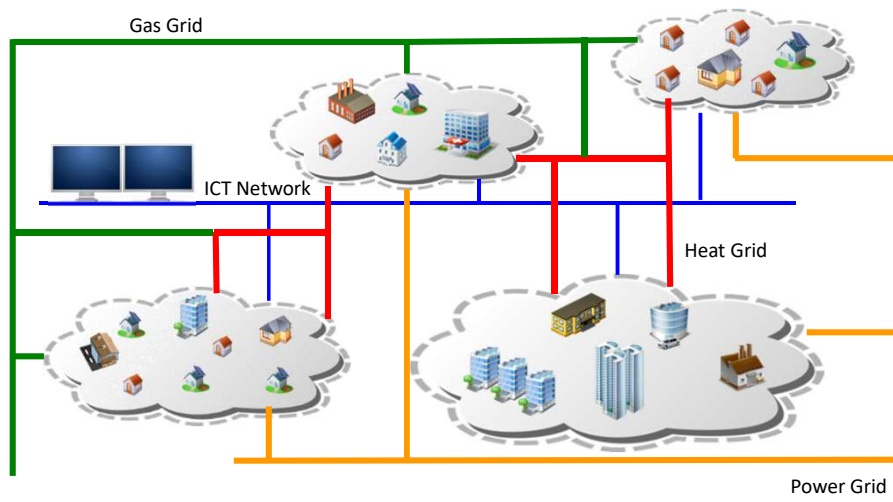
- exploitation of regional resources
- protection of regional resources
- long chains of added value
- equal chances for all society
- regional identity



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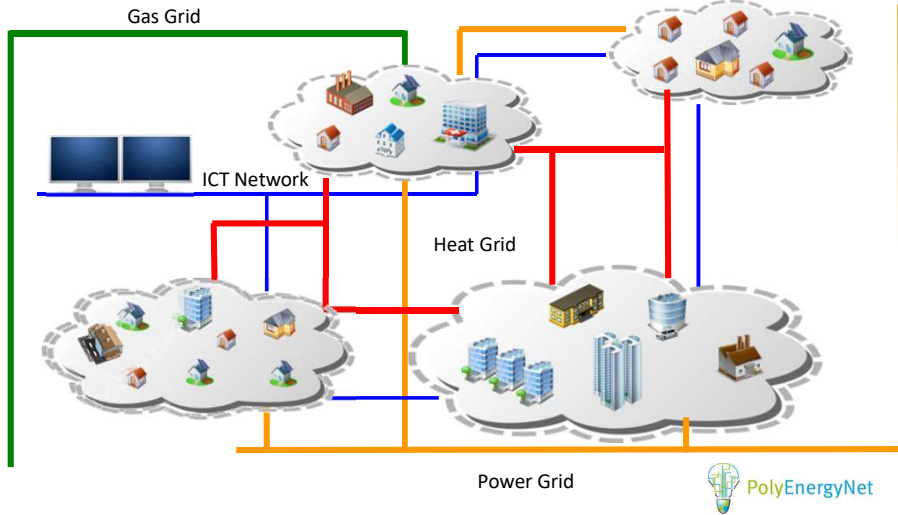
Hierarchical Supply System



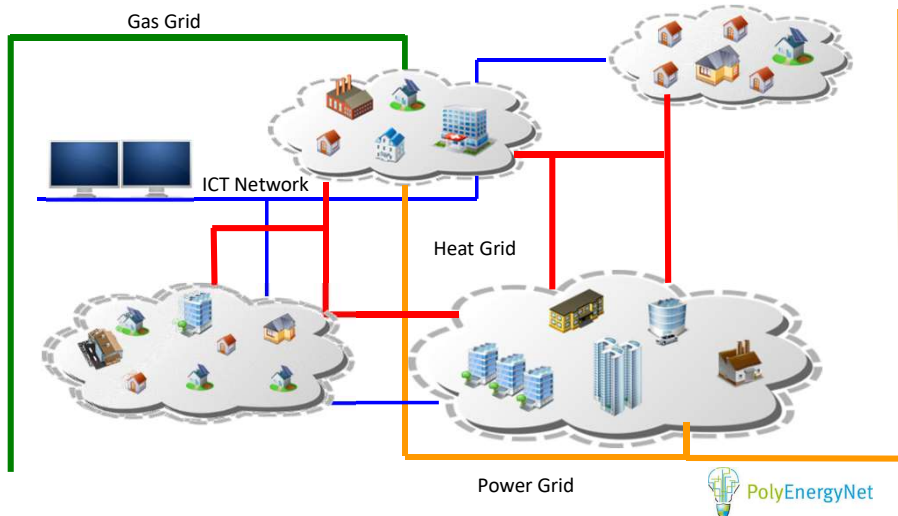
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Microgrids, Polygrids and Islands



Microgrids, Polygrids and Islands

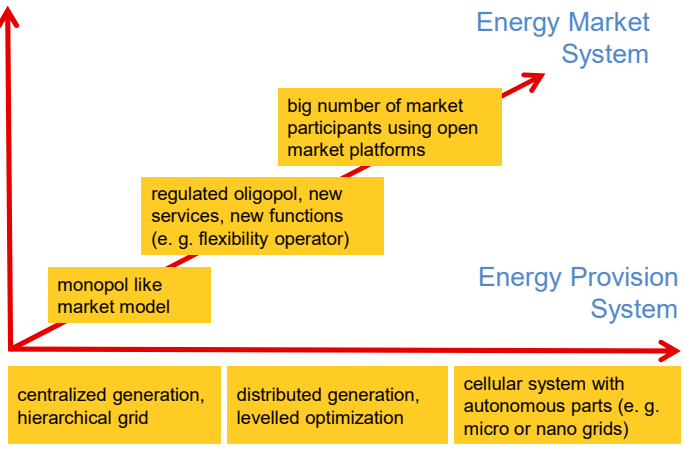





Smart Energy: a System of Systems

Energy Information System


- cellular organism, de-central processing and control, encapsulation of errors
- central control, bidirectional communication to generation, storage and consumption
- central control, limited ICT with grid components, generation and consumption appliances







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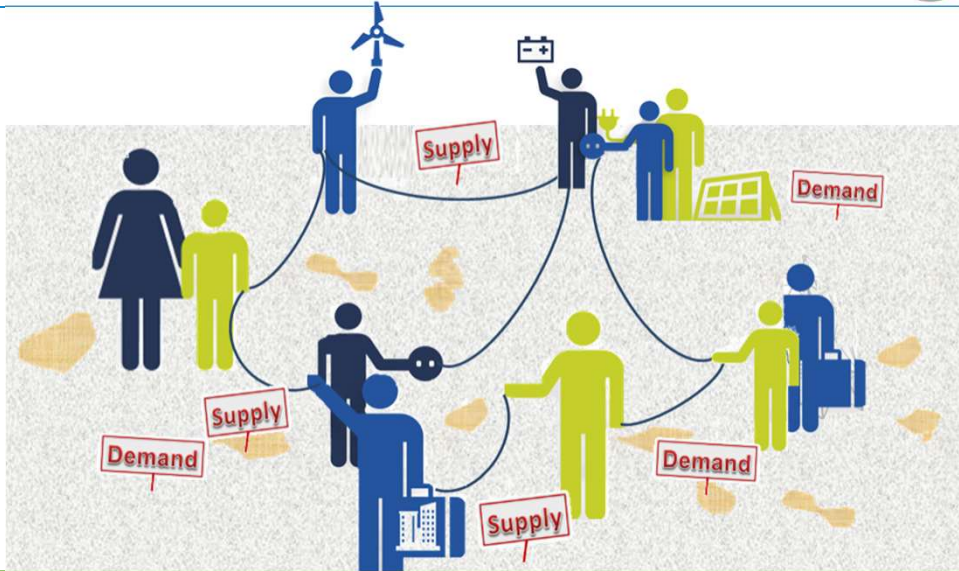
The Wall?





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The Network!



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Let's co-create projects!

Pieces describing the **needs** for RDD



30 min

● RD&D need:

peer-to-peer regional energy trading (with the option to add renewable power from distant sources)

need owner: *association of digital utilities*


associated partner: *Alpine Mountains Institute*

Pieces for the **solutions** to needs

● research activity:

user friendly translation of smart contracts

AMT



provider of RDD capacity: *Molestie Consequat, Vel Illum*

associated partner: *???*



60 min +

Matching RDI demand and supply



23/05/2018

Funding Partners



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