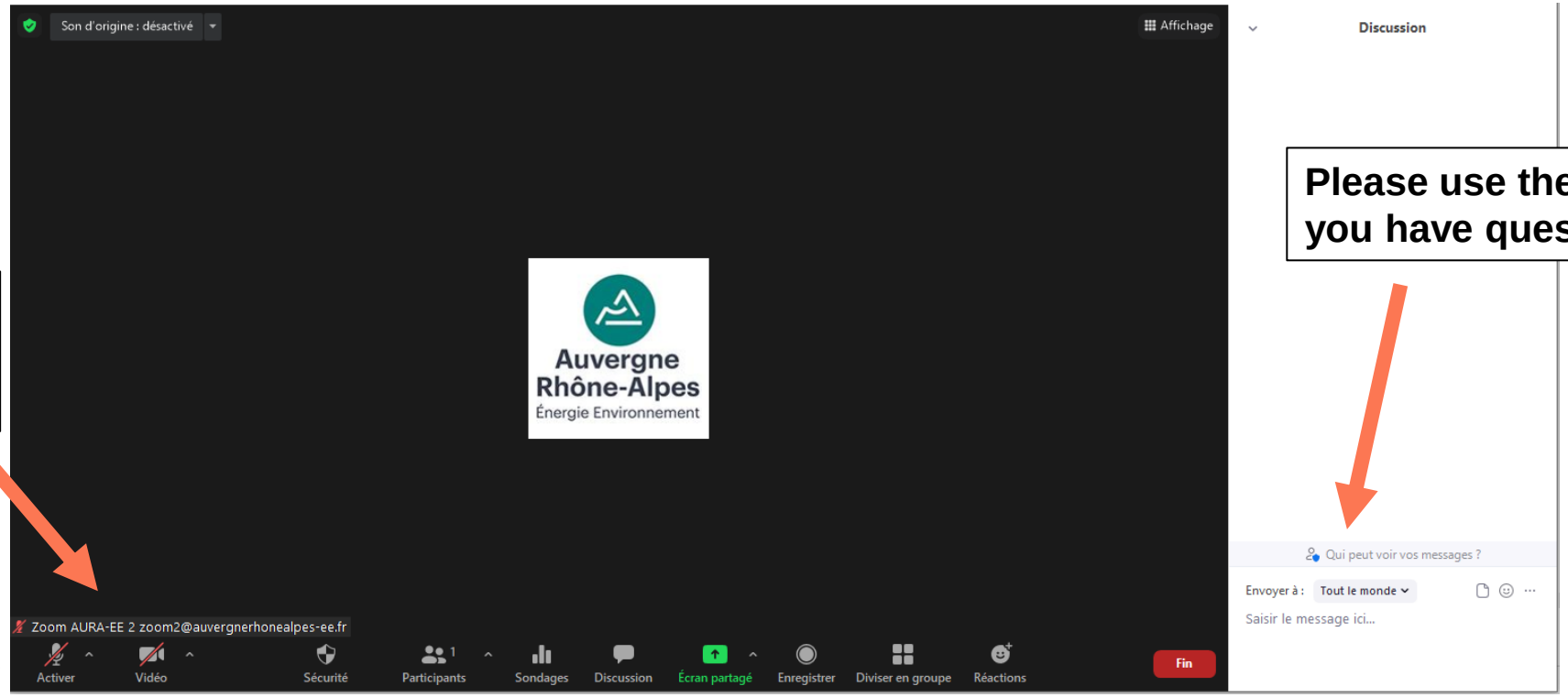
HOW TO USE ZOOM :

Switch off your camera and your microphone



Please use the chat if you have questions

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EUSALP AG9 ENERGY SERIES 2021

Local Energy Communities : « A Win for All in the Energy Transition »

17th November 2021 – Lyon & online

Innovative technologies such as microgrids : what benefits for local energy communities?

Ce document est cofinancé par l'Union européenne. L'Europe s'engage en France avec le fonds européen de développement régional et le fonds social européen.

AGENDA – SESSION 1 | 10H – 11H
LOCAL ENERGY COMMUNITIES IN THE ALPS

Welcome and interactive session with audience: Patrick BIARD, AURA-EE

Keynote speech:

Ludwig KARG, BAUM

Showcasing projects and initiatives supporting the development of local energy communities in the Alps

- SHREC (Interreg Europe) : Silvio DE NIGRIS, Piemonte Region
- TRENTINO initiative : Sara VERONES, Provincia Autonoma di Trento
- ALPGRIDS (Alpine Space): Patrick BIARD, AURA-EE
- DECIDE (H2020): Ludwig KARG, BAUM

DSOs perspectives on energy communities: Remy GARAUDE, ENEDIS

Q&A session

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EUSALP AG9 ENERGY SERIES 2021

Local Energy Communities: «A Win for All in the Energy Transition»

Ludwig Karg, B.A.U.M. Consult GmbH München

17th November 2021 – Lyon & online

Ce document est cofinancé par l'Union européenne. L'Europe s'engage en France avec le fonds européen de développement régional et le fonds social européen.

ENERGY COMMUNITIES AS A PART OF THE CLEAN ENERGY PACKAGE

Renewable Energy Community

- Limited Membership & Specific Governance
- Proximity to Generation
- All sources of RES
- 100 % RES

Citizen Energy Community

- Specific Governance, but Broad Membership
- No geographical limitation
- Electricity only
- Technology neutral

Art. 22 of the Directive on the promotion of the use of energy from renewable sources on "Renewable Energy Communities" (RED II)

national transposition by June 30, 2021

Art. 16 of the Directive on the Internal Market for Electricity Directive on "Citizen Energy Communities" (EMD)

national transposition by December 31, 2020

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THE DEFINITION IN THE EC DIRECTIVES

A Renewable Energy Community (REC) is a legal entity

(a) which, in accordance with the applicable national law, is based on open and voluntary participation, is autonomous, and is effectively controlled by share-holders or members that are located in the proximity of the renewable energy projects that are owned and developed by that legal entity;

(b) the shareholders or members of which are natural persons, SMEs or local authorities, including municipalities;

(c) the primary purpose of which is to provide environmental, economic or social community benefits for its shareholders or members or for the local areas where it operates, rather than financial profits;

A Citizen Energy Community (CEC) is a legal entity

which is based on voluntary and open participation, effectively controlled by shareholders or members who are natural persons, local authorities, including municipalities, or small enterprises and microenterprises.

The primary purpose is to provide environmental, economic or social community benefits for its members or the local areas where it operates rather than financial profits. A citizens energy community can be engaged in electricity generation, distribution and supply, consumption, aggregation, storage or energy efficiency services, generation of renewable electricity, charging services for electric vehicles or provide other energy services to its shareholders or members.

To manage supply or sharing of electricity, a CEC can operate (part of) a grid – if national regulation allows to do so.

LEGISLATIVE STATUS OF (JULY 2021)

Country	Renewable energy communities	Citizen energy communities
Austria	✓	✓
Belgium: Wallonia	✓	draft
Belgium: Flanders	✓	✓
Czech Republic	-	-
Croatia	draft	draft
Denmark	draft	✓
Estonia	draft	draft
Finland	-	-
France	✓	✓
Greece	✓	✓
Hungary	draft	-
Ireland	draft	draft
Italy	✓	draft
Lithuania	✓	-
Luxemburg	✓	-
Portugal	✓	-
Poland	draft	draft
Romania	-	draft
Slovenia	✓	draft
Spain	draft	-
Sweden	draft	draft

Andreas Tuerk, 2021

MANY FLAVOURS ....

No	Name	LEC Taskforce
class 1	Collective generation and trading of electricity	all types of territorial or commercial groupings of generators – whether active on the market or under feed-in mechanisms (often called Virtual Power Plants)
class 2	Generation-Consumption Communities	certified sourcing of electricity in a closed group of generators and consumers - not necessarily in proximity but including local or regional energy markets
class 3	Collective residential & industrial self-consumption	generation, storage and consumption in residential cases with multiple dwellings; includes Tenant-Power (Mieterstrom) - models
class 4	Energy positive districts	districts with residential and business entities operating their energy supply systems under their own regime
class 5	Energy islands	real islands or parts of the distribution system that can be operated standalone (e.g. cellular system as in SINTEG, holonic model as in PolyEnergyNet)
class 6	Municipal utilities	existing organizations for energy production, supply and grid operation under citizens' control – directly (e.g. cooperative) or indirectly (e.g. controlled by local government)
class 7	Financial aggregation and investment	a "community" of investors joins to scale the amount of or manage the investment in generation systems (without further involvement in organisation etc.)
class 8	Cooperative Financing of Energy Efficiency	citizens jointly investing in efficiency means of SMEs and municipalities, possibly in their own region (e.g. contracting / ESCO, crowd-funding
class 9	Collective service providers	all types of commercial groupings of energy services (e.g. grouping of EV charging stations, aggregation of demand side management services)
Class 10	Digital supply and demand response systems	all types of digitally controlled energy systems (e.g. implemented with blockchain), these days possibly operated as a sandbox-model

● potentially linked with microgrid

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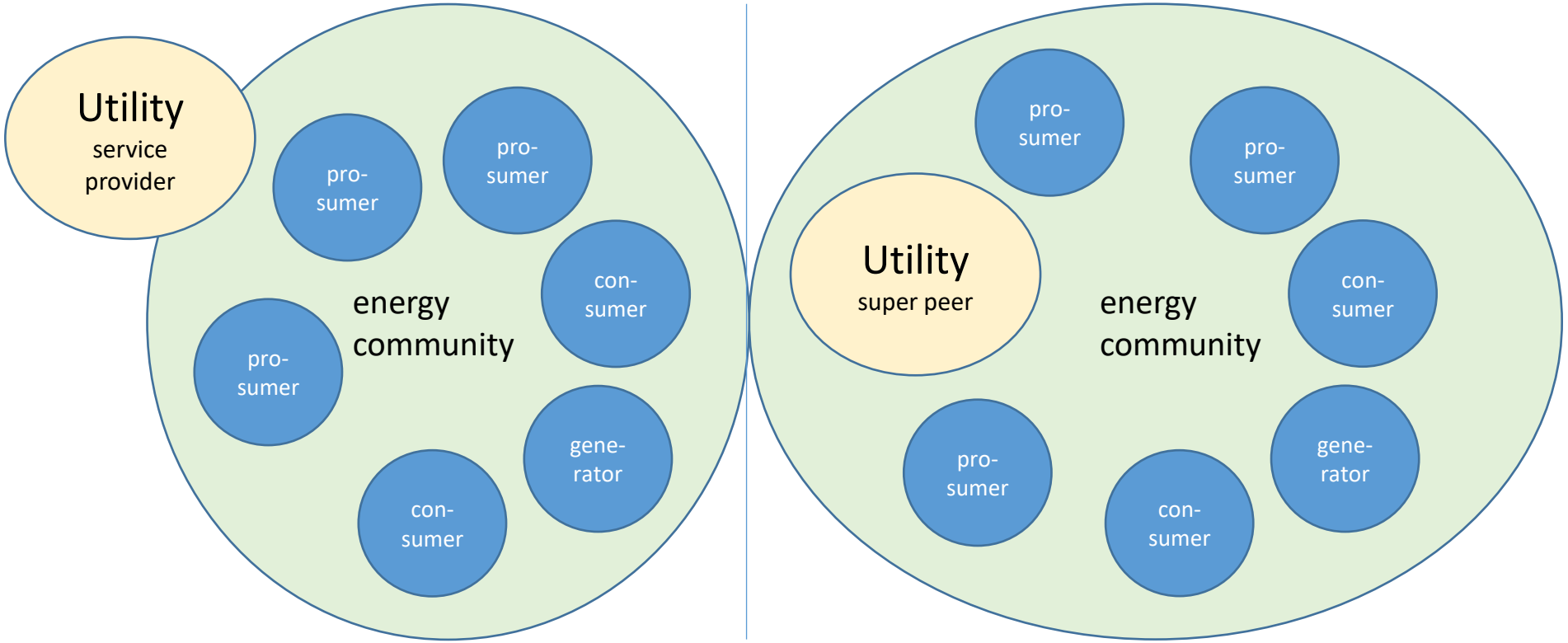
UTILITIES AND ENERGY COMMUNITIES



Platone

EDGEFLEX

GOFLEX

FEVER

ALPGRIDS

EUSALP EU STRATEGY FOR THE ALPINE REGION

FRANCE 2020 Presidency

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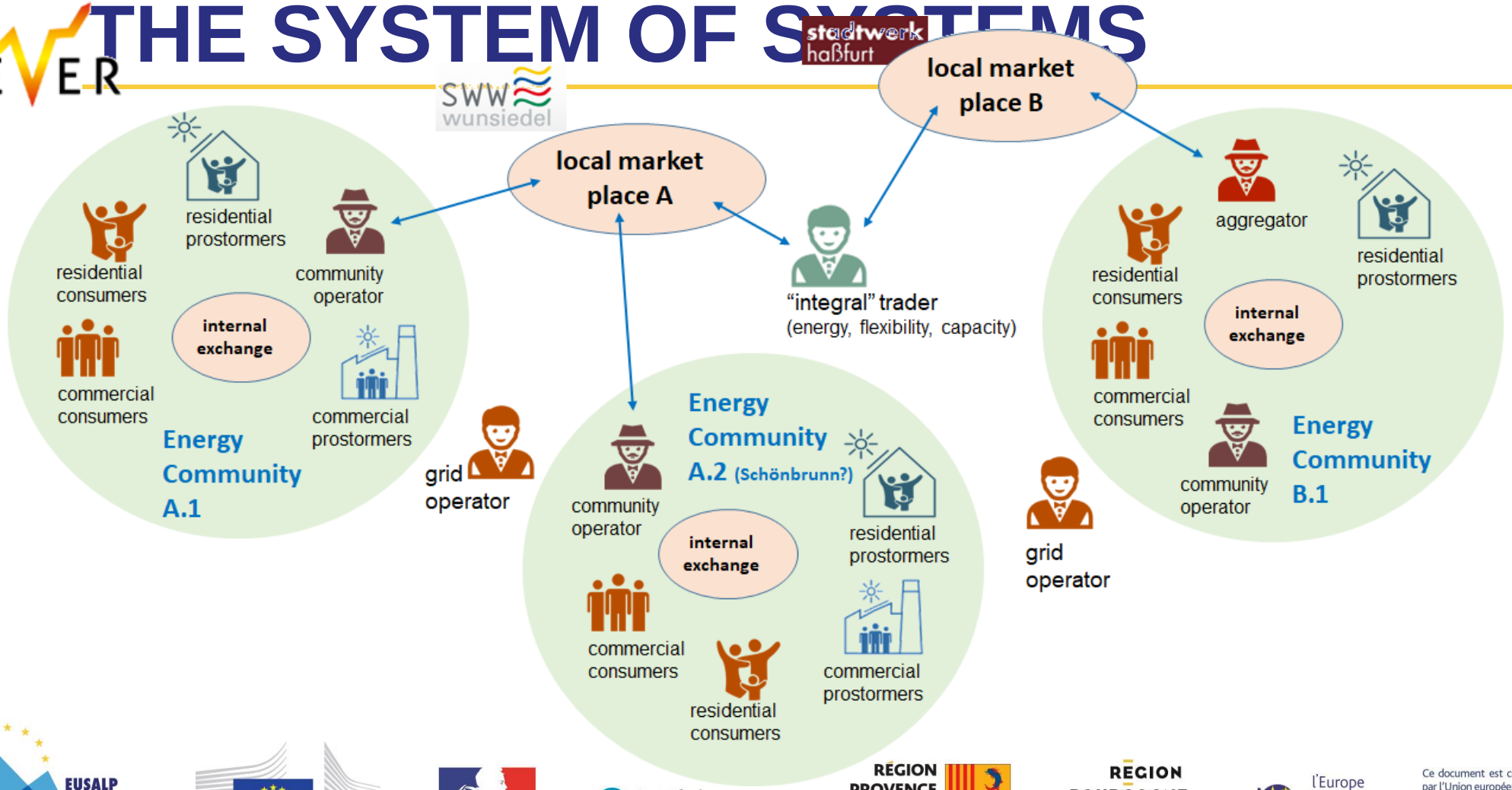
UNION EUROPÉENNE

THE SYSTEM OF SYSTEMS



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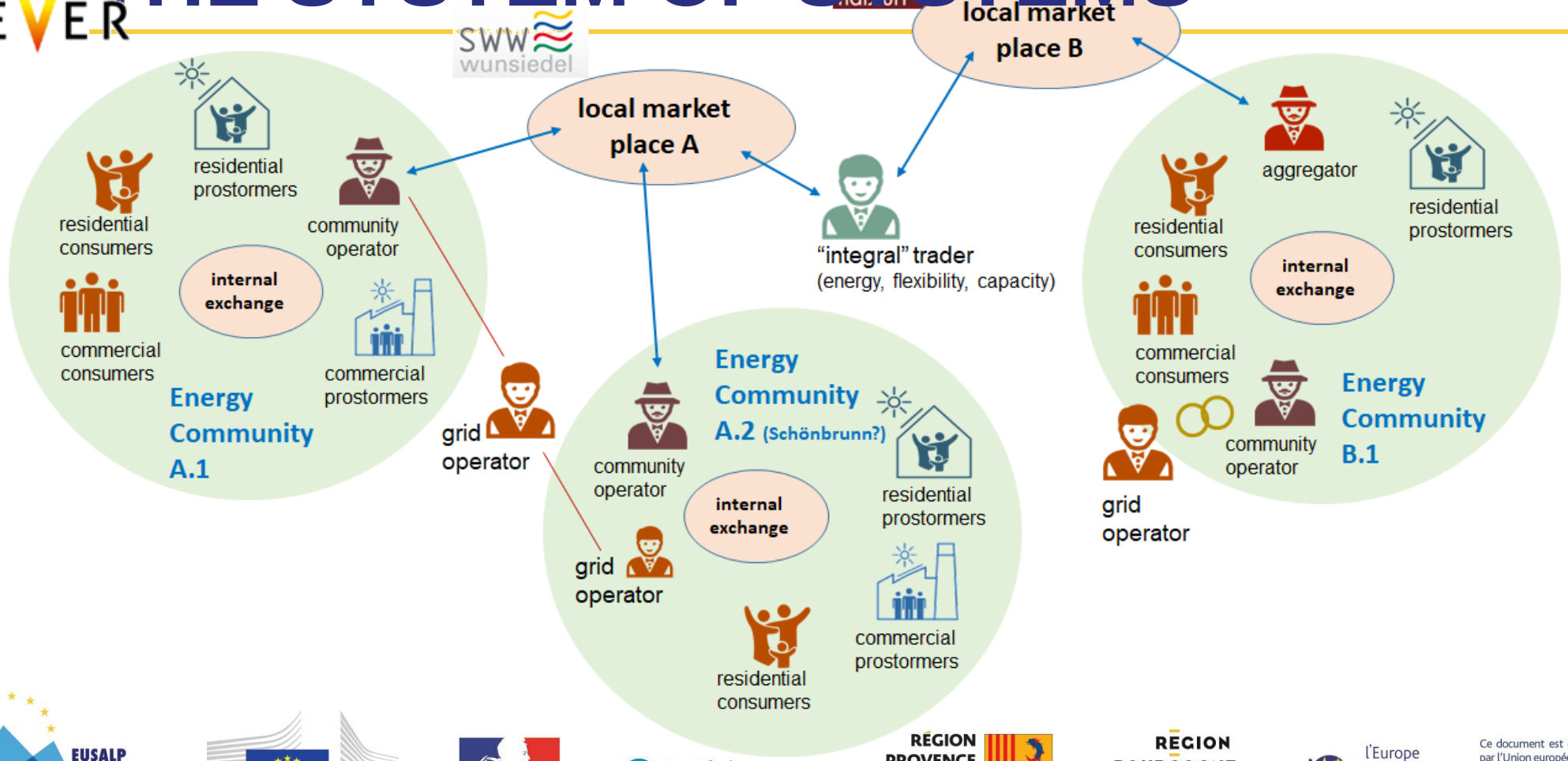
THE SYSTEM OF SYSTEMS



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WHAT CAN WE EXPECT?

- more countries to transpose EC directives
- big variety of (ICT) support tools for Energy Communities
- modelling of a system of systems:
  role of utilities, regional exchanges, tariffs, municipal and rural planning …
- integration of Energy Communities in the Harmonized Electricity Market Role Model (HEMRM)
- many funded projects to come for capacity building
  (Horizon Europe, Life, Interreg, …)

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Ludwig Karg

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SHREC (INTERREG EUROPE)

Silvio DE NIGRIS, Piemonte Region

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TRENTINO INITIATIVE

Sara VERONES, Provincia Autonoma di Trento

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REGIONAL LEGISLATIVE ACTIVITIES

Energy provincial law 20/2012 (modified in 2020):

Art. 8 → inclusion of Energy Communities into Energy Provincial Board

Art. 18Bis → (technical, procedural and economic-financial) support to Energy Communities

STUDY-RESEARCH ACTIVITIES

Collaboration with Ricerca Sistema Elettrico (RSE) and University of Trento to analyse energy, social and economic KPI for Trentino

SUPPORTING ACTIVITIES @ Agency for Water Resources and Energy

- establishment in October 2021 of Provincial Energy Board
- establishment of Provincial Renewable Energy Communities List
- Info Point
- by January 2022, two or more EU Project Proposals submitted
- by June 2022, provincial financial-economic mechanism

ALPGRIDS PROJECT

Patrick Biard, AURA-EE

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What is ALPGRIDS?

Increasing renewables uptake through MICROGRIDS in the Alps

Interreg Alpine Space

ALPGRIDS

oct 2019 - jun 2022

36 observers

Supporting the creation of local energy communities

EUSALP EU STRATEGY FOR THE ALPINE REGION

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What is ALPGRIDS?

Increasing renewables uptake through MICROGRIDS in the Alps

Interreg Alpine Space
ALPGRIDS

- by testing microgrid solutions in **7 pilot sites** addressing various collective actions in sustainable energy
- by creating an **enabling environment** for Alpine communities
- by **replicating** the findings in 12 alpine territories

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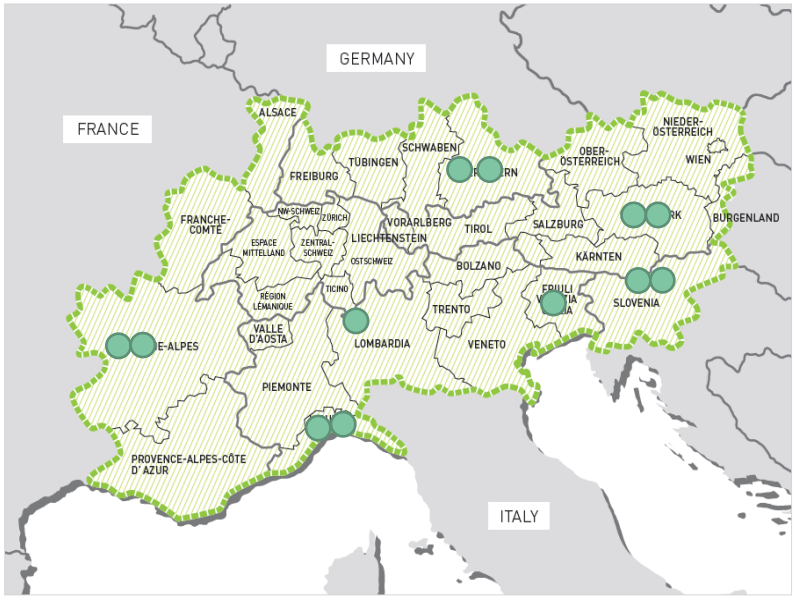
What is ALPGRIDS?

AUSTRIA:
Energy and Innovation Centre of Weiz
4ward Energy Research Ltd
GERMANY:
B.A.U.M. Consult GmbH
Rothmoser GmbH & Co. KG
FRANCE:
Auvergne-Rhône-Alpes Energy Environment Agency
CNR
ITALY:
IRE spa - Regional agency for Infrastructures, building Renovation and Energy of Liguria
Design and Management of Electrical Power Assets
Municipality of Udine
University of Genoa
SLOVENIA:
Energy Agency of Podravje - Institution for sustainable energy use
Municipality Selnica ob Dravi

COOPERATION AREA



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About microgrids

A microgrid is a **small-scale energy system** that can operate autonomously (islanded from the main grid) or connected to the main grid. It groups several **RES producers and consumers** on a given territory.

IT technology solutions: Simulation tools, Energy Management System, Controllable loads, Smart meters,..

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Drivers for microgrid solutions

Increasing needs from local stakeholders to implement collective actions in sustainable energy

- Collective self-consumption, RES production, aggregation, shared e-mobility, etc.

Need to develop more resilient energy system in alpine territories

- Black-outs, power outages

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Drivers for microgrid solutions

Smart technologies are available that can provide solutions to territories

- Key EU-based solution providers

Changing/Enabling policy environment supporting local initiatives and citizens' energy rights

- EU Directives and policy package (RES, Electricity market)
- Fit for 55 package
- National and Regional low-carbon policies
- EUSALP AG9

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Alpgrids forthcoming activities

Presentation of the pilot results (Jan. 2022)

- Online microgrid model

Policy package (Feb. 2022)

- Online policy tools and recommendations

Replication activities

- Bi-lateral exchanges
- Summer school (online and in-person) on June 2022

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THANK YOU!

For more information: https://alpine-space.eu/projects/alpgrids/en/home

Patrick.biard@auvergnerhonealpes-ee.fr

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EUSALP AG9 ENERGY SERIES 2021

Local Energy Communities: Let's DECIDE

Ludwig Karg, B.A.U.M. Consult GmbH München

17th November 2021 – Lyon & online

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Developing Energy Communities through Informative anD collective actions

decide4energy.eu

- gain a better understanding of how energy communities and energy efficiency services are established and managed
- identify which kind of communications and interactions work best to encourage participation in energy communities
- test and transfer knowledge in pilot projects across Europe.

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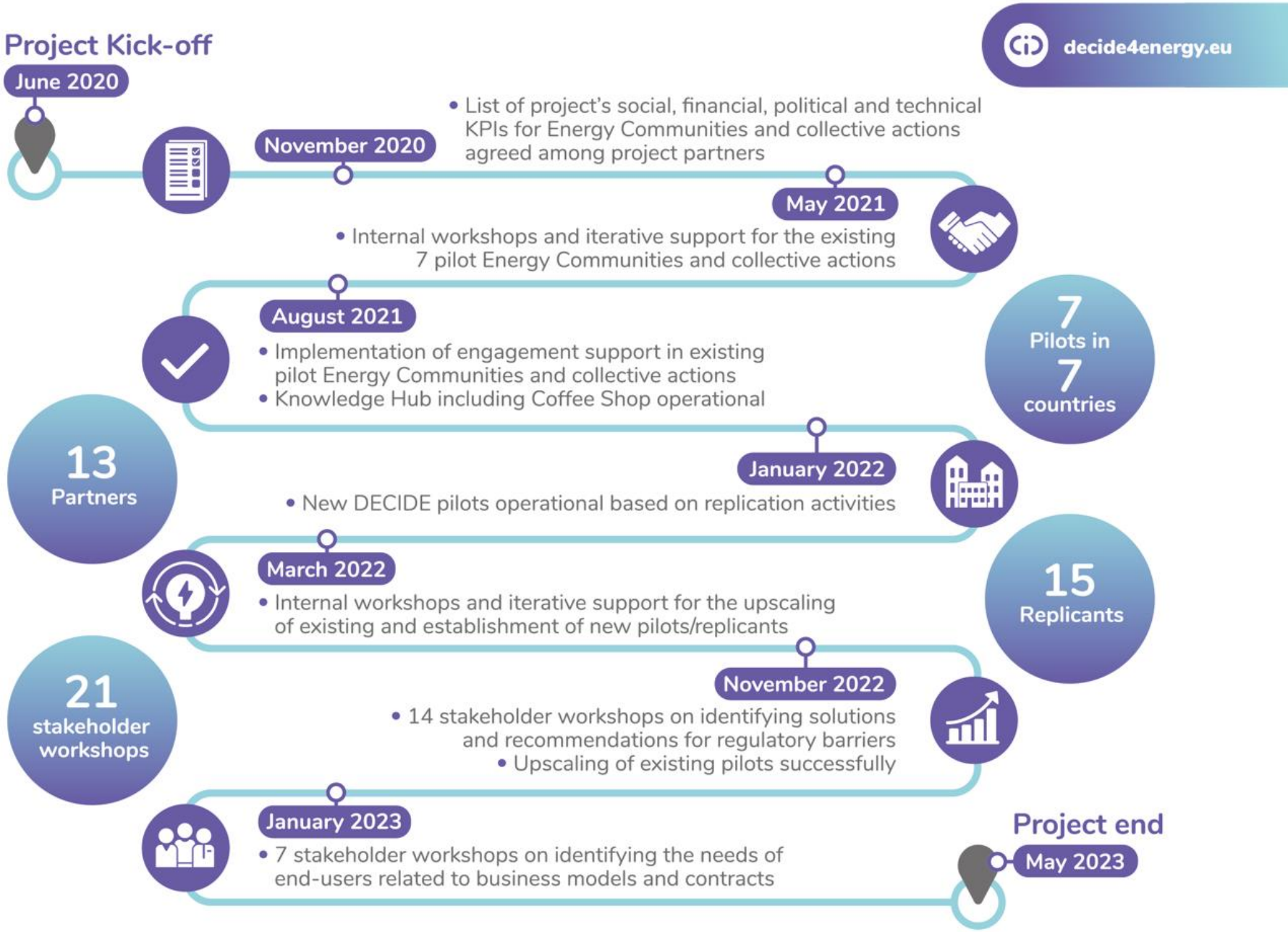
PROJECT TIMELINE



PROJECT PARTNERS

decide4energy.eu

Think E
JOANNEUM RESEARCH LIFE
B.A.U.M.
prospex institute
THERMO VAULT
ENBRO
Tartu Regiooni Energiaagentuur
Tartu Regional Energy Agency
our power
DIE ENERGIE COOPERATIVE
HERON
domX
UNIVERSITÄT MANNHEIM
Fakultät für Betriebswirtschaftslehre
ICLEI
Local Governments for Sustainability
EUROPE
EWIH
ENERGIE & SERVICE

THE PILOTS

Elektrizitätswerke Hindelang e.G. (EWH): cooperative founded in the 1920's, goes for 100 % RE in power, heat and mobility by 2030

OurPower: emerging energy cooperative in Austria operating a peer-to-peer marketplace for RES electricity generated by its members.

ThermoVault: a company based in Belgium that offers a software and hardware solution of electric energy services of residential thermal appliances

ENBRO: provides energy brokerage, guidance, advice, etc. to reduce energy bill for residential, commercial, industrial and public consumers in Belgium, France, Germany and the Netherlands

DomX: unique retrofit solution for the automation of legacy gas-based heating systems in Greece.

HERON: linking electrity and gas domains in Greece

TREA: enabling collective supply and consumption in residential areas in Estonia

CLASSES OF ENERGY COMMUNITIES

decide4energy.eu

No	*Name*	
class 1	Collective generation and trading of electricity	all types of territorial or commercial groupings of generators – whether active on the market or under feed-in mechanisms (often called Virtual Power Plants)
class 2	Generation-Consumption Communities	certified sourcing of electricity in a closed group of generators and consumers - not necessarily in proximity but including local or regional energy markets
class 3	Collective residential & industrial self-consumption	generation, storage and consumption in residential cases with multiple dwellings; includes Tenant-Power (Mieterstrom) - models
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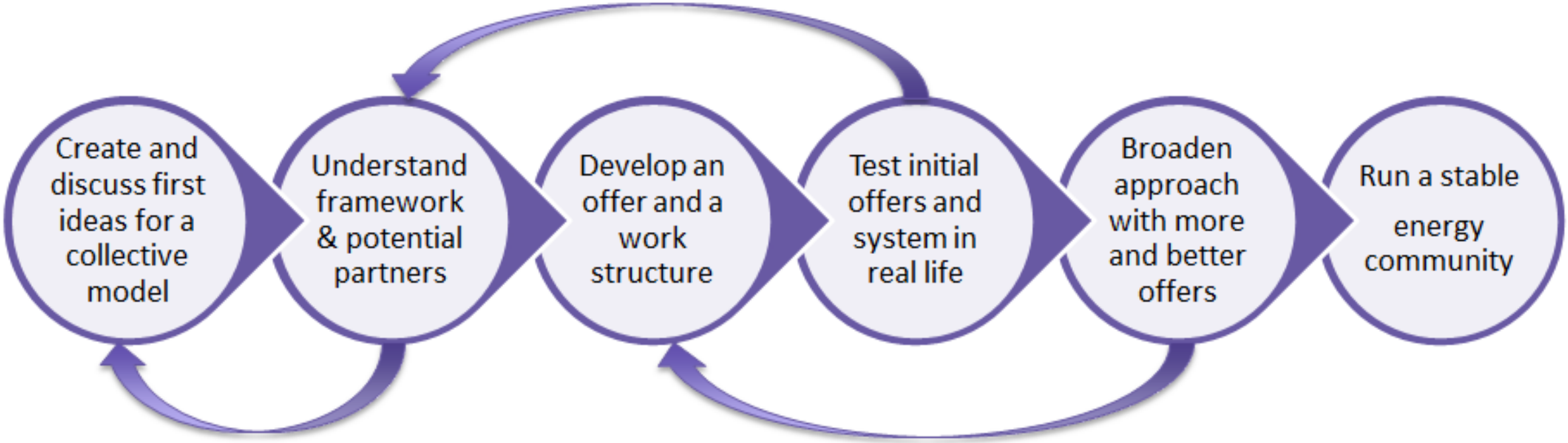
DEVELOPMENT PROCESS



BUSINESS CANVAS CASE 2: GENERATION-CONSUMPTION IN (ENERGY) COMMUNITIES FOR ELECTRICITY

decide4energy.eu

Key Partners

Equipment vendors, flexibility market operators, grid operator, local government and administration, EC

Key Activities

Manage and maintain technical facilities, controlling generation and consumption, trading surplus and shortage

Key Resources

Community operator, motivated and active members

generation facilities

Value Proposition

Generate renewable electricity, make it available avoiding traditional energy markets

Monitoring of generation and consumption of electricity per generator and consumer.

Maximising self consumption by managing flexibilities of our community members

Customer Relationships

Maintain community spirit

Trading on regional marketplaces with energy communities

Channels

Local electricity distribution grid

database, software

Customer Segments

All members of the community, other energy communities

Cost Structure

Investment costs for renewable energy plants, grid fee, investment costs for smart meter, management software

Personnel costs for community management

Revenue Streams

Trading of surplus and shortages with other energy communities

Monetary balance for imbalanced generation/consumption between members

BUSINESS CANVAS CASE 5: ENERGY COMMUNITY AS AN ISLAND WITH ONE CONNECTION TO GRID

decide4energy.eu

Key Partners

Equipment vendors, one energy provider (can be EC) outside the island, local government and administration

Key Activities

Manage and maintain technical facilities, controlling generation and consumption, trading surplus and shortage

Key Resources

Community operator, motivated and active members

generation facilities

Value Proposition

Generate renewable electricity and heat for the island and provide it to its inhabitants using the local grid

Maximising self consumption by adapting usage patterns to energy generation

Customer Relationships

Maintain community spirit

Trading on regional marketplaces with energy communities

Channels

Local electricity/heat distribution grid

database, software

Customer Segments

All inhabitants of the island

Cost Structure

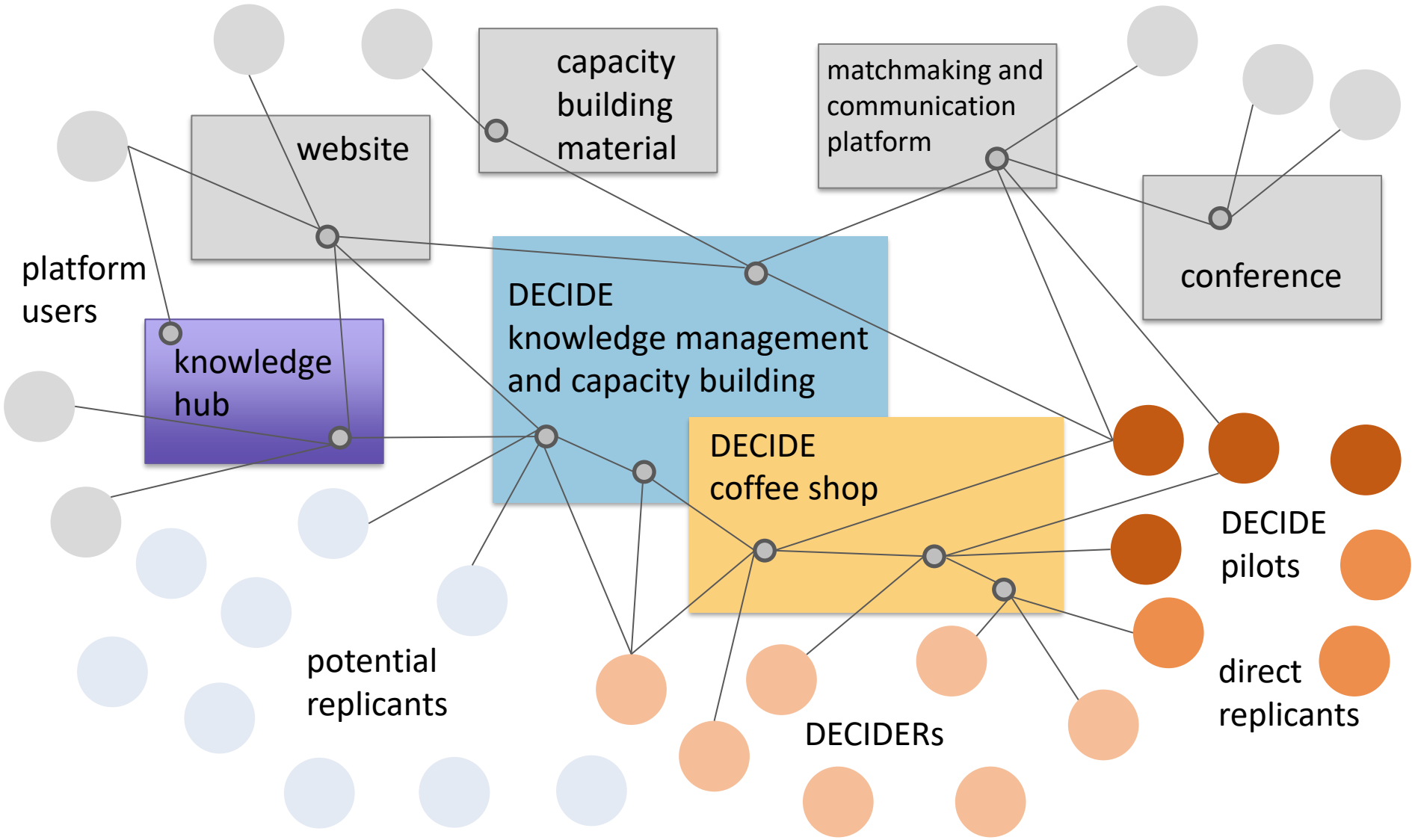
Investment costs for renewable energy plants, investment costs for one smart meter, management software, storage solution

Personnel costs for community management

Revenue Streams

Trading of surplus and shortages with a provider outside the island

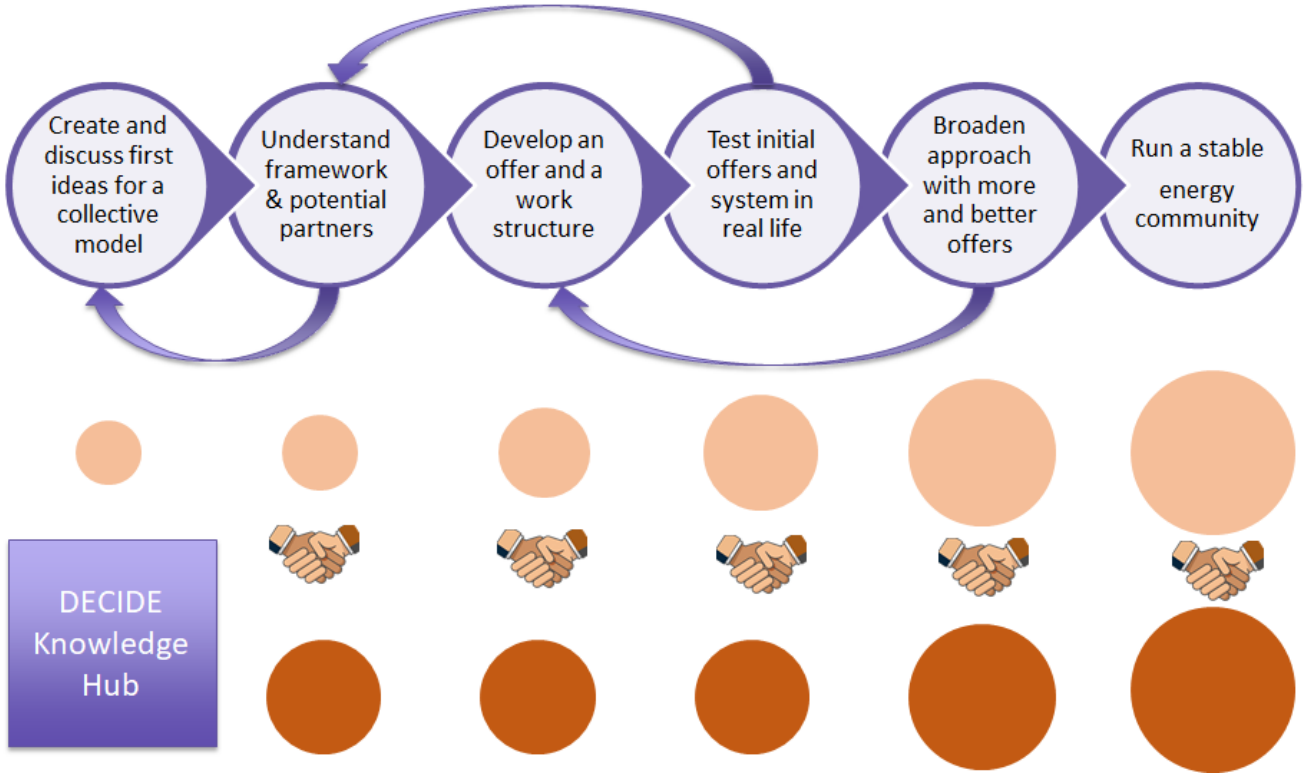
KNOWLEDGE MANAGEMENT AND CAPACITY BUILDING



YOU NEVER WALK ALONE

- **DECIDERs:** 10 + 15 replicants forming tandems with pilot
- **Coffee Shop**: structured but agile development process

stay tuned: next call for DECIDERs to start soon!



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DSOS PERSPECTIVES ON ENERGY COMMUNITIES

Remy GARAUDE, ENEDIS

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COLLECTIVE SELF CONSUMPTION : A PATHWAY TO ENERGY COMMUNITIES ? OVERVIEW IN FRANCE

17 November 2021

- [ ] Libre
- [ ] Interne
- [x] Restreinte
- [ ] Confidentielle

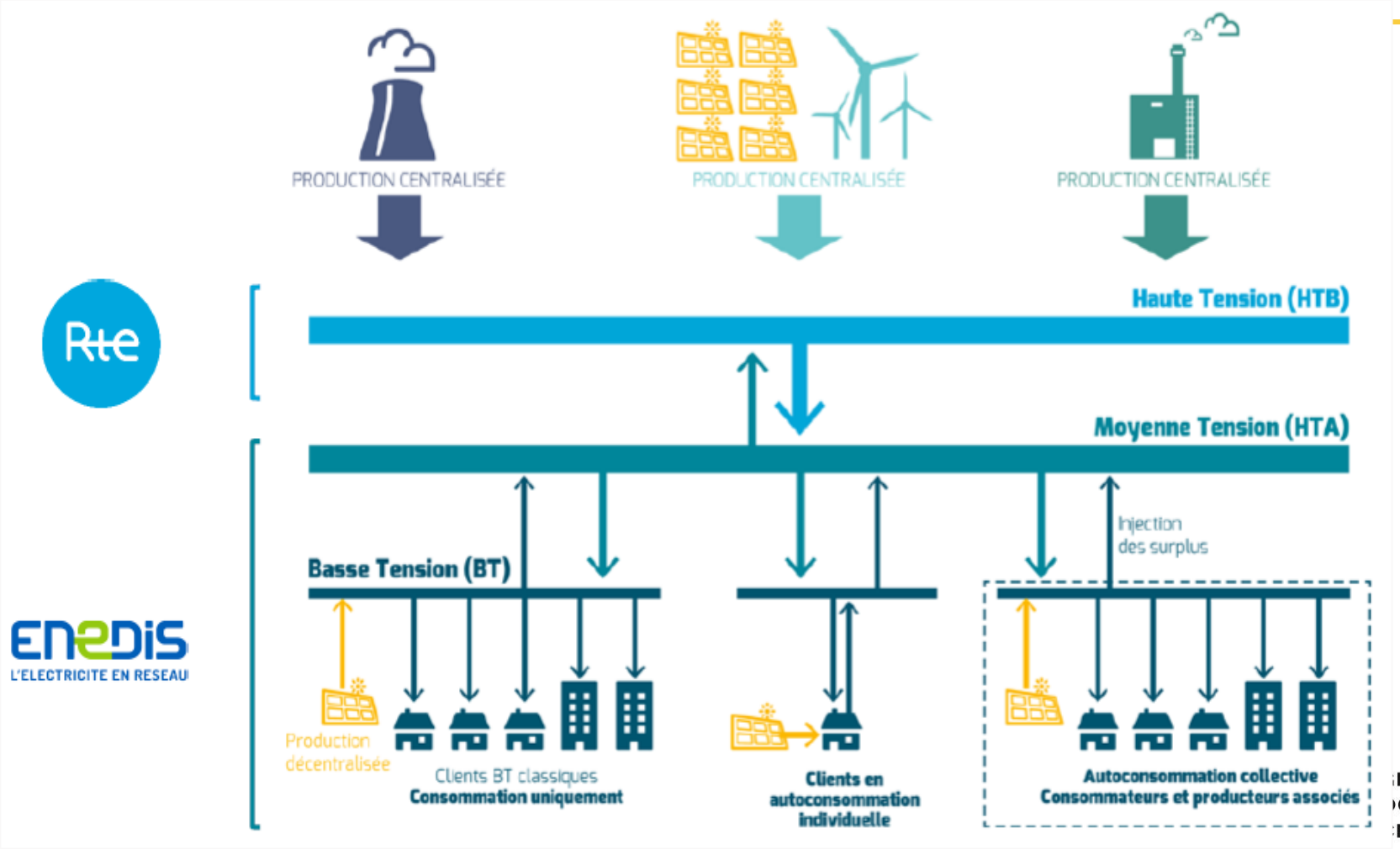
1. INTRODUCTION
THE GREEN TRANSITION *: MORE THAN A PROMISE, A REALITY*

Rising social expectations
More renewables, citizen empowerment, local distribution channel, …

A proactive policy
Clean Energy Package, EU Green Deal, EU and French Climate Laws

Enedis and the Industrial & Human Project
Strengthen our expertise at the service of the Green Transition

2. SELF-CONSUMPTION PRINCIPLES



Whether it is individual or collective, self-consumption is a growing way of consuming energy that is locally produced.

Main added values of self-consumption

+Savings on the energy bill

+More choice for the final customer

+Green Transition for local authorities

3. COLLECTIVE VS INDIVIDUAL SELF CONSUMPTION (CSC)

1 Individual self-consumption (ISC)

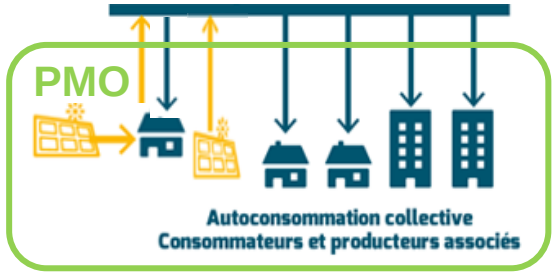
Network

- *The public grid does not see the energy that is 'self-consumed' by the user, only the surplus is injected into the public distribution network.*

Finance

- *No supply nor distribution billing on the self-consumed part*
- *Feed-in tariffs and renewable obligation certificates qualified*

2 Collective self-consumption (CSC)



Network

- *All the streams, including the self-consumed ones (from the local production), pass through the public grid.*

Finance

- *Distribution billing on self-consumed and allo-consumed parts of the bill*
- *Opportunity to subscribe to a specific distribution tariff*
- *Not yet qualified to feed-in tariffs and renewable obligation certificates*

Thanks to an increasing demand in local distribution channel, combined with a growing rate of citizens willing to consume greener and responsibly, the collective self-consumption model represents a promising solution to reach these expectations.

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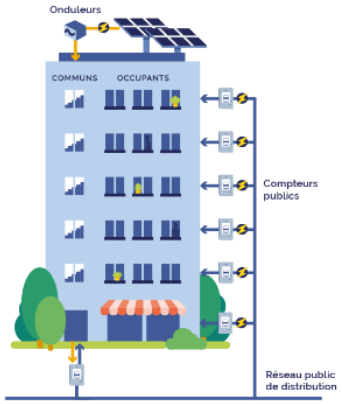
4. THE TWO MODELS OF CSC OPERATIONS

1 Same building



- ✓ In a same building
- ✓ Distribution network (medium and low voltage)
- ✓ No power restrictions

2 Extended area

Standard

- ✓ 2 km max between the furthest participants
- ✓ Low voltage : no restriction on the production technology
- ✓ Medium voltage : restricted to renewable technologies
- ✓ 3 MW max of aggregated production

Rural exemption

- ✓ Special exemption delivered by the French Energy and Climate ministry
- ✓ 20 km between the furthest participants
- ✓ Provide supporting documents justifying the isolation of the project and the low population density of the area
- ✓ Low voltage : no restriction on the production technology
- ✓ Medium voltage : restricted to renewable technologies
- ✓ 3 MW max of aggregated production

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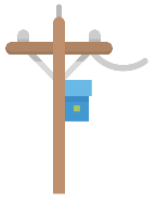
5. GRID ASPECTS AND LEGAL PERSON (PMO) FEATURES

MAIN PREREQUISITES



All of the participants must be connected to the public distribution network (in standard conditions)

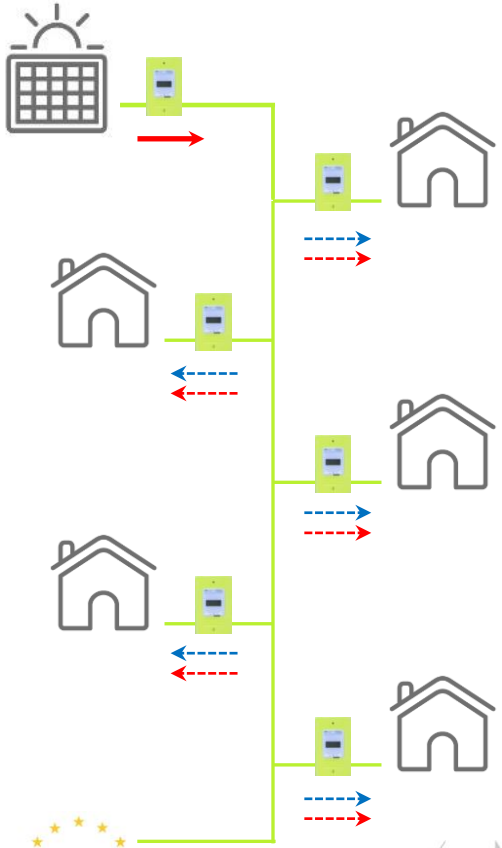
All of the participants must be equipped with smart meters (if not yet rolled-out, Enedis accelerates the deployment for the participant)

- **All consumers must have a contract with a supplier**
- **All producers must have a contract with a balance responsible entity**
- **The PMO must sign a contract with Enedis**

THE PMO AND ITS LEGAL STRUCTURE

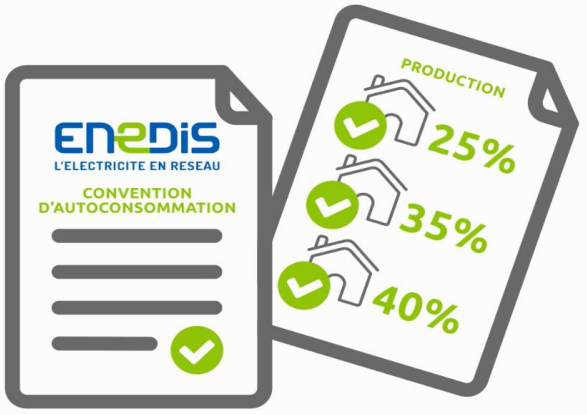
- All of the participants must be gathered through a legal person, also called PMO.
- The PMO does not have a specific and imposed legal structure. However, a legal balance needs to be found regarding the status of each entity and their compliance with the PMO activities.
- According to the type of operation, a legal analysis might be required to define the right legal structure of the PMO.
- The DSO ENEDIS does not provide the stakeholders with legal advice.

6. PMO AND CONTRACT FRAMEWORK



The project is developed through:

- The creation of a legal entity, contractually binding producers (mainly PV) and consumers.
- The signature of a <u>collective self-consumption contract</u> between the legal entity and Enedis.



The collective self-consumption contract sets the practical details organizing the allocation (static or dynamic) of the electricity production between consumers.

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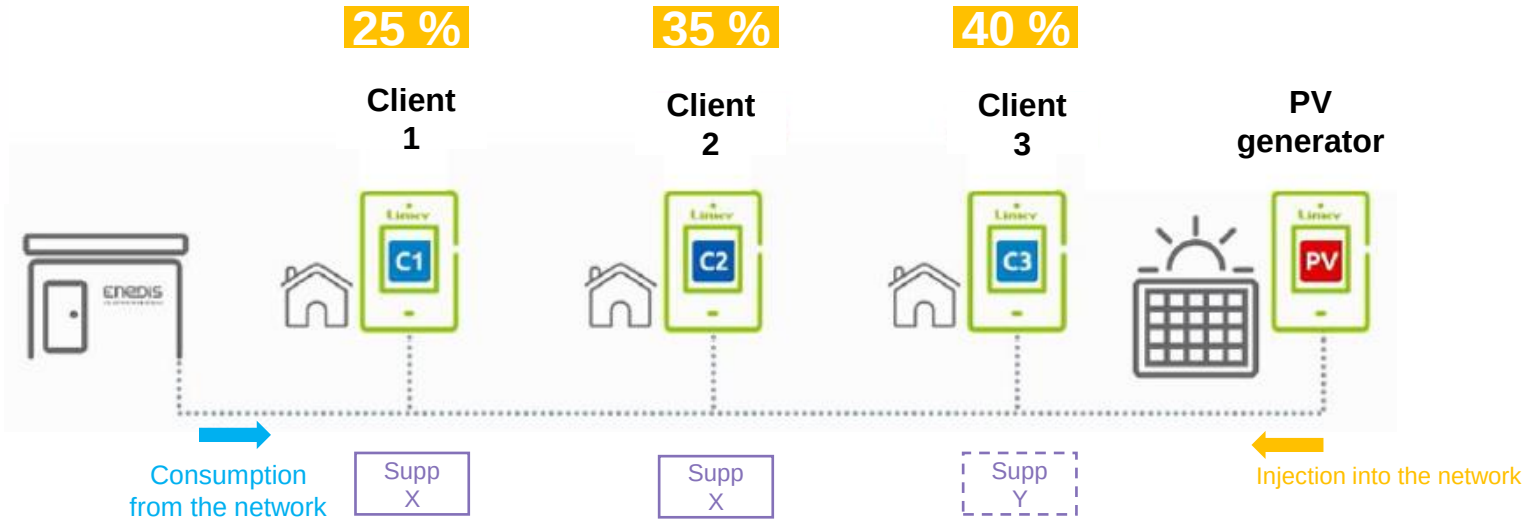
7. USE CASE : THE DISTRIBUTION OF PRODUCTION THROUGH THE CSC OPERATION

Each month…..

2

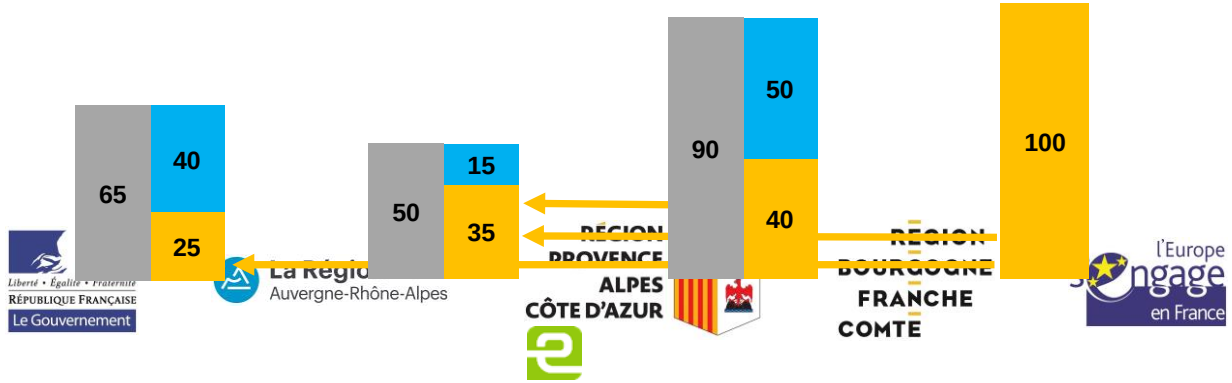
1

Every 30 min



3

Finally, each month, Enedis sends the relevant data (loads, …) to the PMO, suppliers, producers and balance responsible entities.



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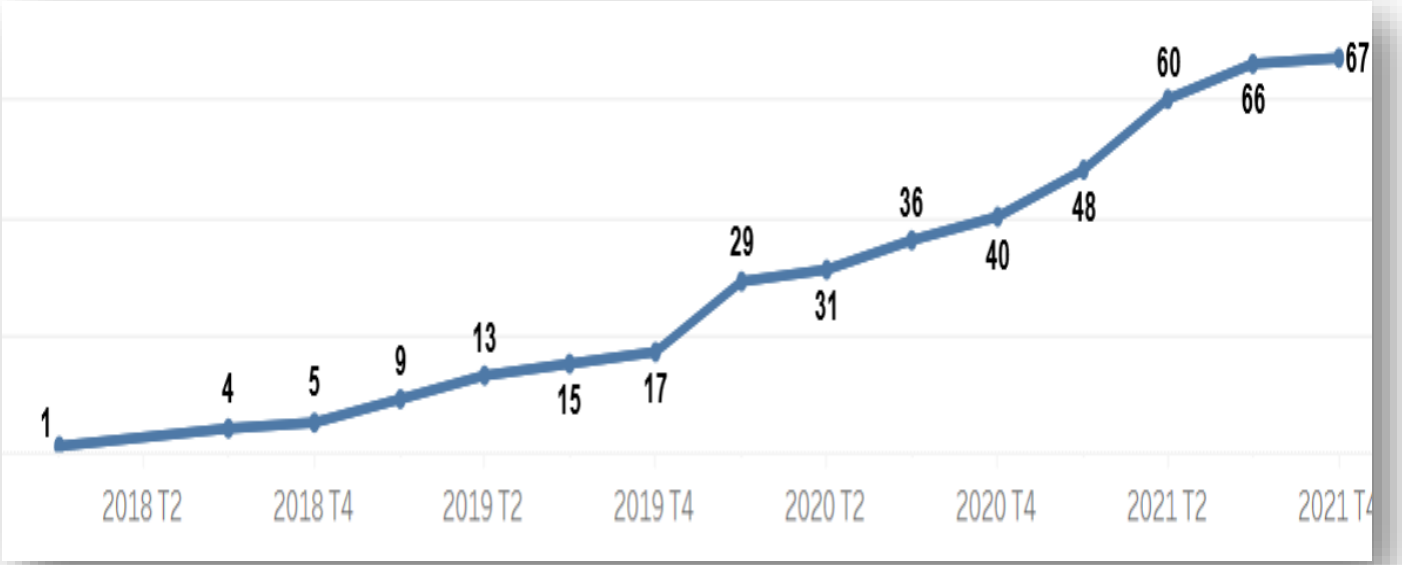
7. CSC KEY FIGURES (AS OF NOVEMBER 2021)

68
Active CSC operations

815
Participants
116 producers
699 customers

76
In project CSC operations

Evolution of the aggregated number of CSC operations in service



Despite of the long-lasting covid-19, the number of CSC operations have almost than doubled compared with 2019 and 2020.
The latest regulatory evolutions, with the extension of the geographical perimeter and the opening of CSC operations to medium voltage, are likely to confirm this trend.

7. USE CASES OF CSC OPERATIONS IN FRANCE

Enedis' industrial solution can be adapted to different cases

Residential building

Housing community

Social housing

Local generation cooperative

Tertiary or Commercial complex

Mixed situation : residential, tertiary, commercial

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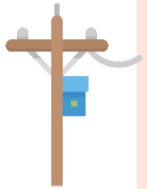
CSC BY ENEDIS AT A GLANCE

THE DSO AS A PILLAR OF THE CSC

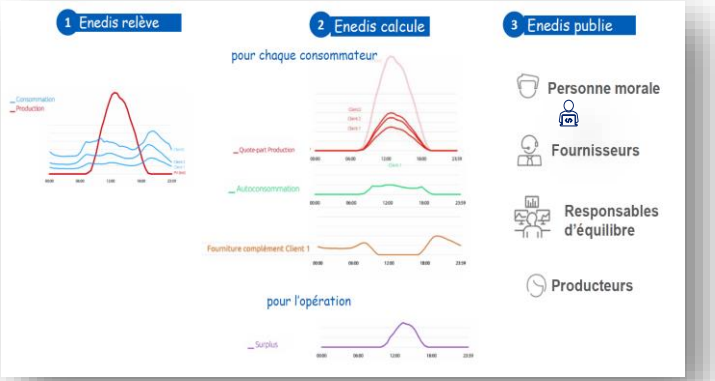


- All of the participants are connected to the public distribution network in standard conditions, the energy exchanges are simply virtual and do not necessitate any specific or direct join.
- A reliable and high quality electricity supply, even in the absence of local production.

- All of the participants are equipped with smart meters.
- If the area is not yet rolled-out, Enedis accelerates the deployment planification for the CSC operation.

- All consumers must have a contract with a supplier
- All producers must have a contract with a balance responsible entity
- The PMO must sign a contract with Enedis

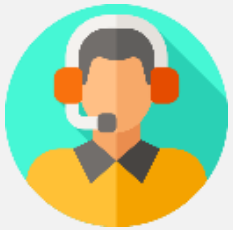
CERTIFICATION AND DATA EXCHANGES WITH THE STAKEHOLDERS



- Thanks to Enedis' measures, calculations (self consumption, supplier complement and surplus production), and data releases to the main stakeholders of the CSC operation, the final customers can save money on their energy bill.
- So as to simplify the data interactions with the PMO, Enedis improves its IS tools dedicated to the CSC and its interfaces destinated to all types of PMO.

EVERYWHERE IN FRANCE

- In close relationships with the PMO, Enedis assists the initiation, the launch and the follow-up of the CSC operation.
- A reception desk by administrative department for all kind of question about a CSC project.
- A regular monitoring of the active operations thanks to dedicated and trained points of contact.



Q&A SESSION

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AGENDA – SESSION 2 | 11H – 12H
ALPINE POLICY ROUNDTABLE ON ENERGY COMMUNITIES

Introduction

Patrick BIARD, AURA-EE and Alessandro MAZZESCHI, Municipality of Udine

Policy gaps and policy instruments: key findings of the ALPGRIDS project

- Policy gaps at National level: Noémie POIZE, AURA-EE & Thomas NACHT, 4WARDENERGY
- Policy instruments and policy measures at regional & local levels: Alessandro MAZZESCHI, Municipality of Udine & Barbara Bonvini, UNIGE
- Q&A session

Panel discussion about ALPGRIDS findings and policy recommendations:

ALPGRIDS project partners and observers with feedback from the audience

Closing

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INTRODUCTION – SESSION 2

Patrick BIARD, AURA-EE and Alessandro MAZZESCHI, Municipality of Udine

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POLICY GAPS AND POLICY INSTRUMENTS: KEY FINDINGS OF THE ALPGRIDS PROJECT

Policy gaps at National level: Noémie POIZE, AURA-EE & Thomas NACHT, 4ER

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POLICY GAPS IN AUSTRIA

- No definition of micro grids
- No definition of services for grid operators (grid services, or flexibility services)
- Much room for interpretation when it comes to direct lines
- No clear definition of storages, flexibilities, etc.
- No grid operation for energy communites
- Grid operation fees obstructs community storages

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POLICY INSTRUMENTS AND POLICY MEASURES AT REGIONAL & LOCAL LEVELS

Alessandro MAZZESCHI, Municipality of Udine

Barbara Bonvini, UNIGE

Tomaz Robic, ENERGAP

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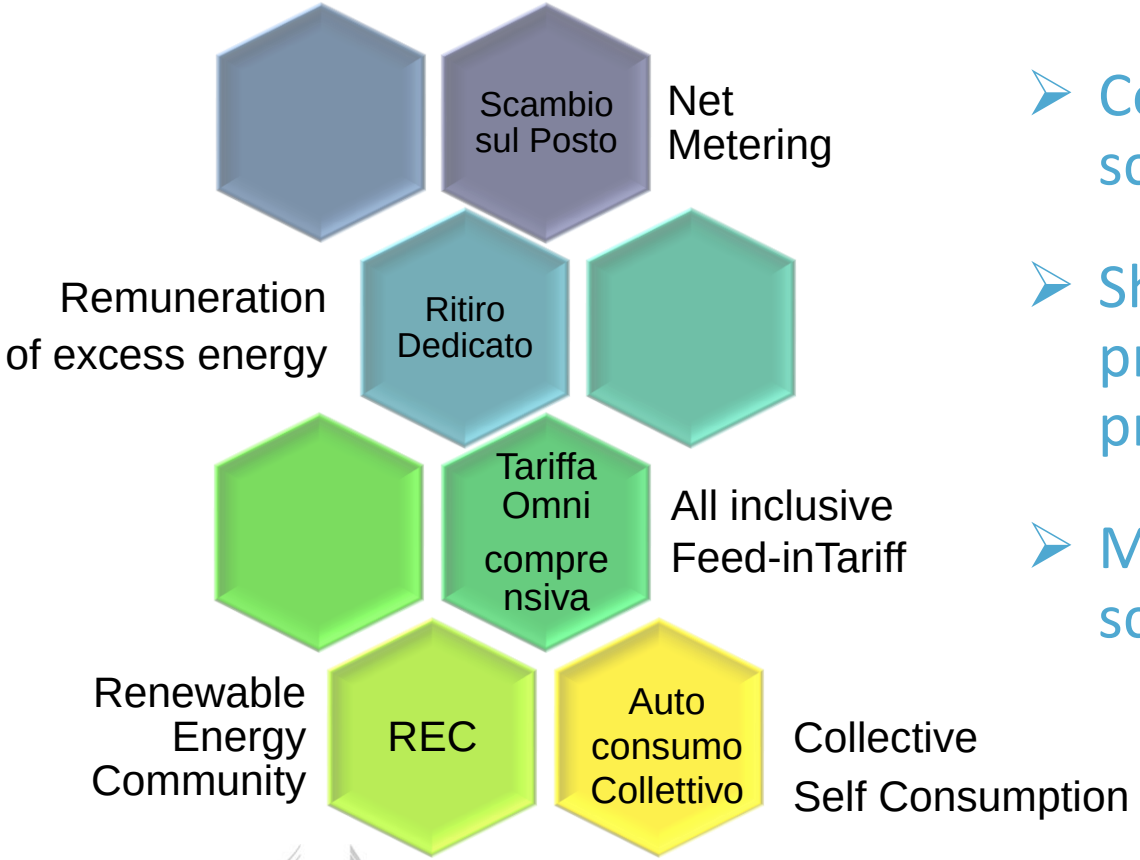
INCENTIVE SCHEME FOR RES IN ITALY



- Could a new and simpler incentive scheme be useful?
- Should the incentive level be prioritized based on the most promising configuration?
- Must the currently most used schemes be preserved?

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ROAD TO 2030

- In 2020 about 750MW of new PV capacity has been installed in Italy, (+3.8% with respect to 2019): the trend is far from the one needed to achieve the 2030 goal
- **The most used incentive has been the “Scambio sul Posto” (57%)**

Is the REC incentive scheme cost effective?

Will the benefits from incentives justify the major effort to establish and manage an Energy Community?

Will the REC framework be helpful in achieving 2030 targets?

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RES ON BUILDINGS
Barriers and recommendations

Photovoltaic Roofs	Increase the requirement for new construction	Additional requirement + incentive dedicated to existing buildings
Expenses Deduction on RES installation (50% to 110%)	Stabilization of the legislation	Simpler rules Faster checks

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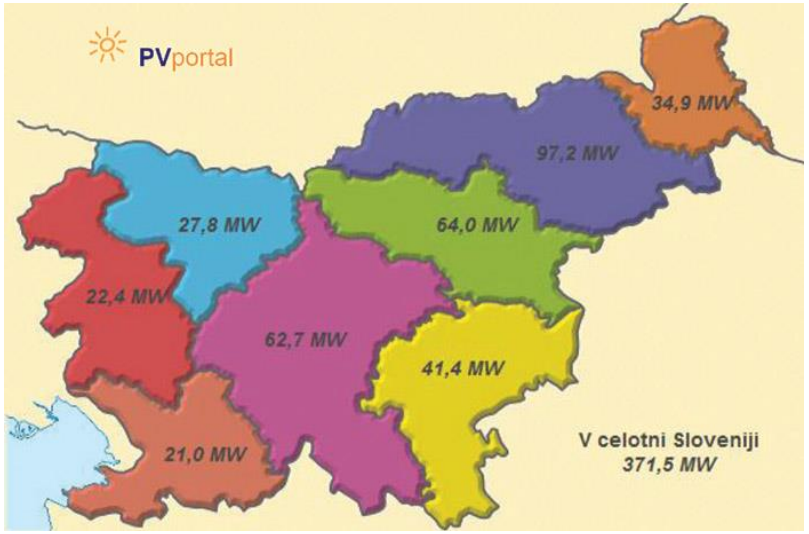
RES AND EE LEGISLATION IN SLOVENIA



At the end of 2020 a total of 11.990 PV plants were installed in Slovenia with a total capacity of 371.5 MW.

- **Decree on the self-supply of electricity from renewable energy sources** (entered into force on 4 April 2019)
  - Individual self-sufficiency
  - Self-sufficieny of a multi-apartment building
  - RES community (2 or more self-supply devices on the same TP)
- **Electricity Supply Act (ZOEE)** (entered into force on 13 November 2021) - describes Citizen Energy Community – (CEC)
- **Act on the Promotion of the Use of Renewable Energy Sources (ZSROVE)** (entered into force on 7 August 2021) – describes Renewable Energy Community - REC

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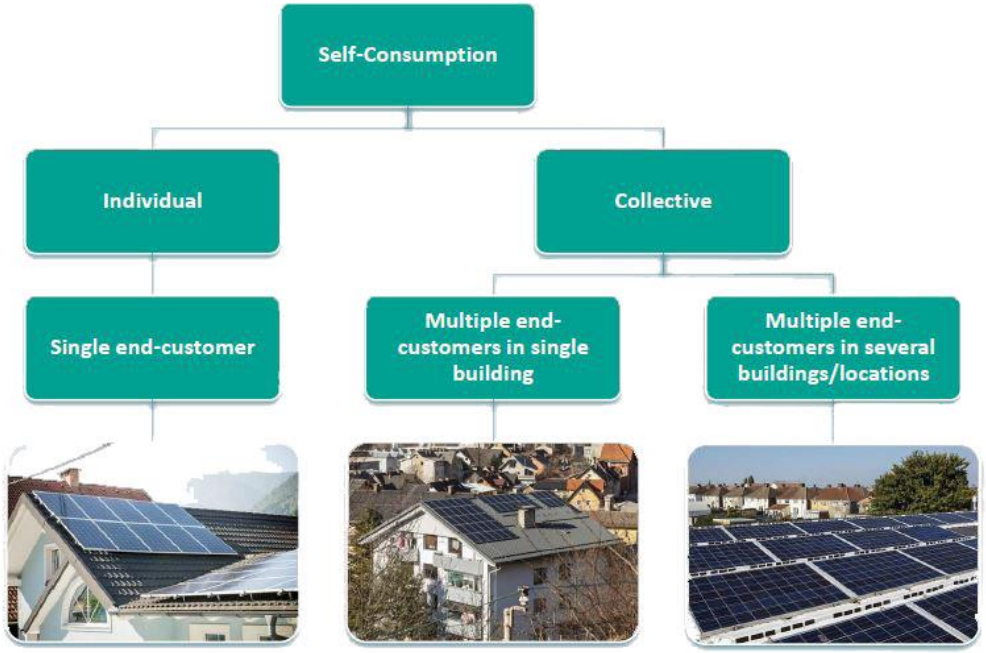
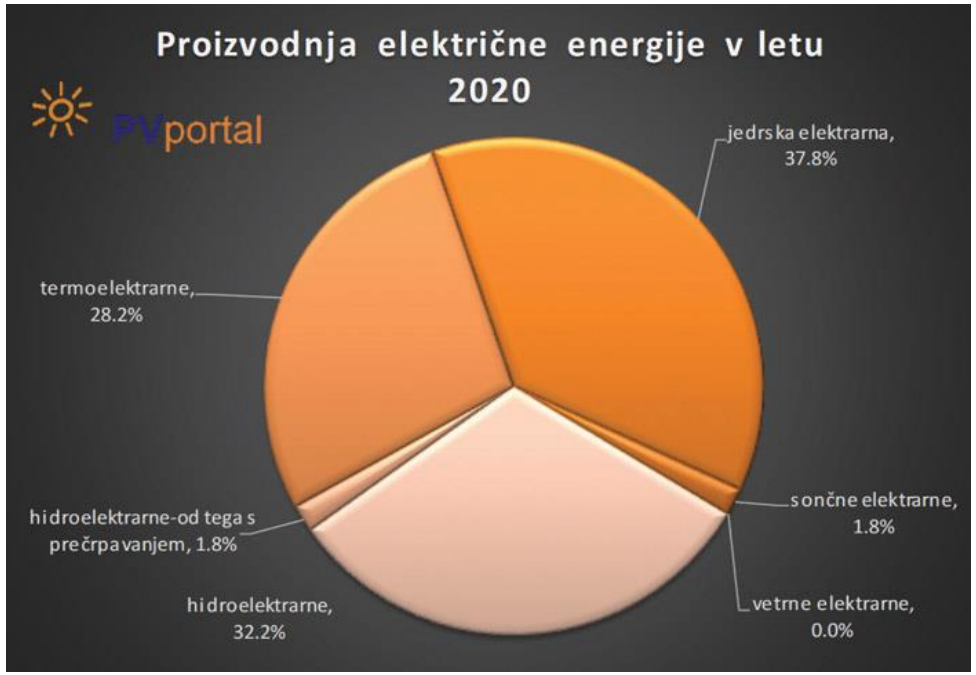
RES TARGET 2030

How will Slovenia achieve a 27% RES share in final energy use by 2030?





EUSALP EU STRATEGY FOR THE ALPINE REGION
FRANCE 2020 Presidency
Commission européenne
Liberté • Égalité • Fraternité RÉPUBLIQUE FRANÇAISE Le Gouvernement
La Région Auvergne-Rhône-Alpes
RÉGION PROVENCE ALPES CÔTE D'AZUR
RÉGION BOURGOGNE FRANCHE COMTÉ
l'Europe s'engage en France
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BARRIERS AND RECOMMENDATIONS

- Complexity of administrative procedures (for the regulation of self-sufficient community the investor needs almost three times more documentation than in the case of individual self-sufficiency).
- Long waiting periods for obtaining consent for the connection of power plants by electricity distributors and in many cases refusing consents due to network incapacity
- Increased investments in strengthening already built networks and investments in intelligent networks with new technologies that take into account the dynamic demands of consumption and planned diversified production
- Eliminate administrative requirements and barriers for customers that prevent them from choosing to participate in collective self-sufficiency or Energy communities

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Q&A SESSION

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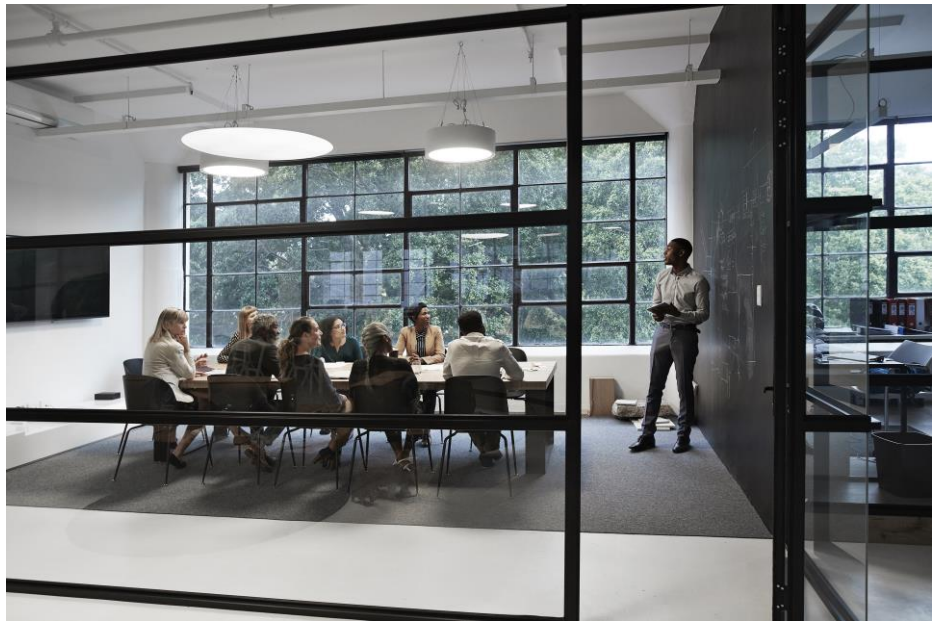
PANEL DISCUSSION ABOUT ALPGRIDS FINDINGS AND POLICY RECOMMENDATIONS:

ALPGRIDS project partners and observers with feedback from the audience



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CLOSING

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