



ConnectHeat

Community engagement for clean heat

The warmth of cooperation: Heating and cooling communities for Southern Europe

Transnational webinar

27 May 2025

11:00 - 13:00 CET





TODAY'S PROGRAMME

- 10h00-10h10 – What is a heating & cooling community? **Riccardo Battisti**, Senior Project Manager, Ambiente Italia
- 11h10-11h25 – H&C communities in practice: A case from Italy (**Manuela Ortis**, Communication Manager, Energy Agency of Friuli Venezia Giulia)
- 11h25-11h40 – H&C communities in practice: A case from Spain (**Pilar Navarro Rivero**, Head of Renewable Energy Department, ITC)
- 11h40-12h00 – Tools for heating & cooling communities (**Chiara Lazzari**, Senior Project Manager, Ambiente Italia)
- 12h00-12h20 – Which role for the local heating & cooling plans? (**Joana Fernandes**, Coordinator of Technical Projects, ADENE)
- 12h20-12h40 – Boosting renewable heating and cooling via the NECPs (**Vassiliki Drosou**, Head of Department RES, CRES)
- 11h40 – 12h00 – Q&A session



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SPEAKERS FOR TODAY



Riccardo Battisti
Senior Project Manager
Ambiente Italia



Manuela Ortis
Communication Manager
APE FVG



Pilar Navarro Rivero
Head of Renewable
Energy Department
ITC



Chiara Lazzari
Senior Project Manager
Ambiente Italia



Joana Fernandes
Technical Projects
Coordinator
ADENE



Vassiliki Drosou
Head of Department
Solar Thermal Systems
CRES

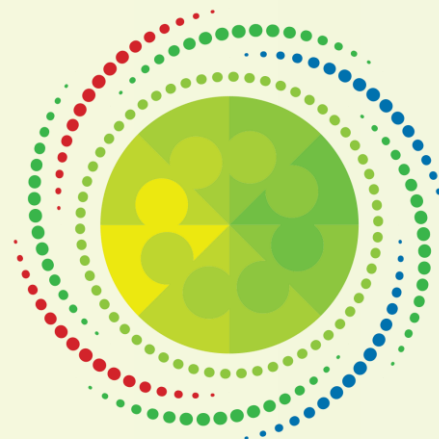


Martin Stroleny
Innovation Manager
Euroheat & Power



The LIFE21-CET-SMARTREADY-SRI-ENACT project has received funding from the European Union's LIFE Programme under grant agreement N°101077201





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WHAT IS A HEATING AND COOLING COMMUNITY?

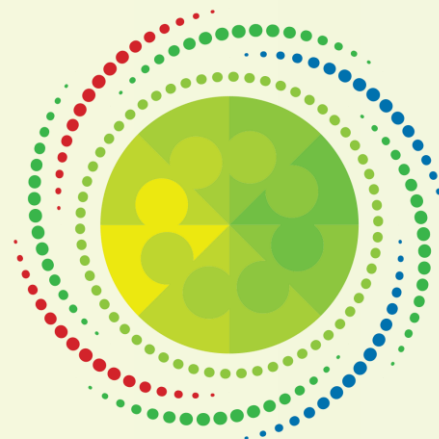
Riccardo Battisti

AMBIENTEITALIA
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Transnational webinar, 27 May 2025



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THE WARMTH OF COOPERATION: HEATING AND COOLING COMMUNITIES FOR SOUTHERN EUROPE

FVG PILOT CASE

APE FVG – Manuela Ortis

Transnational webinar, 27/05/2025



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PILOT PROJECT

GEMONA DEL FRIULI

- Small town (10.000 inhabitants)
- Situated at the bottom of the Friulian alps, in the north-east of Italy close to the Austrian and Slovenian borders
- Mountain area with availability of local wood biomass
- Part of the «Comunità di Montagna del Gemonese» the Mountain Community of the Gemona territory, alongside other five Municipalities



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FEATURES OF THE PILOT PROJECT:

- Located in a high heat demand area: **school complex**
- Possibility to recover **waste heat** from the nearby crematory
- Two different **financial sources**:
 - Regional funds
 - National funds: NRRP – National recovery and resilience plan

the Municipality at the end of 2022 participated and won a Green Community call – aiming to boost a sustainable development in the local planning, involving different sectors (energy, water, agriculture, mobility, tourism).

The fund states as mandatory the finalization of the project by march 2026

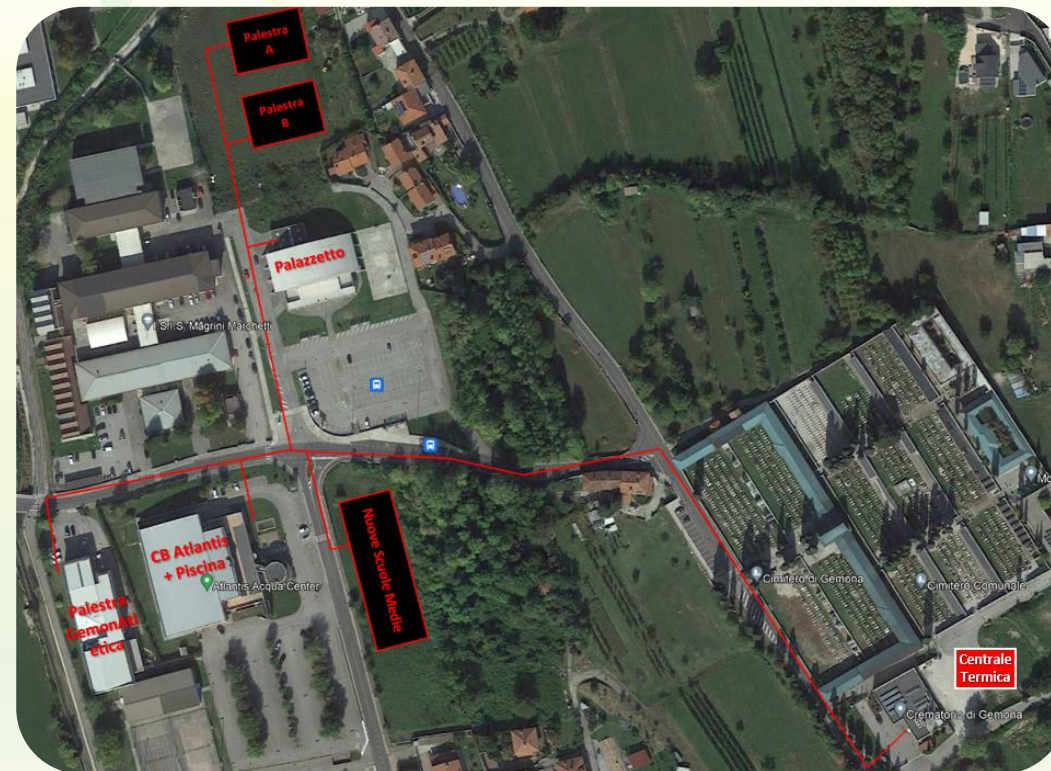




THE DH NETWORK

USERS	OWNER	SUPPLY [MWh/y]
Sports hall	Municipality	350
School gym*	Municipality	100
School gym*	Municipality	80
New school building*	Municipality	150
Swimming pool and wellness centre	Private	750
Gym	Private	220

*under development (not yet constructed)



Total annual supply: 1650 MWh with 700 meters of network

Linear heat density: 2,4 MWh/m year

Two biomass boilers each with a capacity of 450 kW



THE QM STANDARD

- Quality standard for woody biomass district heating systems for heating and domestic hot water
- Created by partners from Switzerland, Germany and Austria, **it covers all phases of planning, construction and operation**
- **Guarantees energy efficiency, low emissions, operational reliability and economical fuel logistics**

The QM standard has been adopted in Italy (Friuli Venezia Giulia region) thanks to the Interreg Central Europe ENTRAIN project in 2019.

QM

QM
Sistema Qualità
Impianti termici a legna

QM IMPIANTI
TERMICI A LEGNA

Q-linee guida

PRIMA EDIZIONE ESTESA
VERSIONE 01 - MARZO 2022





SUPPLY CHAINS AND CERTIFICATION

Certification	Goal	Core principles	Process	Benefits
PEFC	Environmental sustainability	• Forest planning • Land management	☐ Independent controllers ☐ Periodic checks and updates	→ Long-term environmental conservation → Creation of ecosystem services
CoC	Traceability	• Each step of the supply chain must comply with the standards	☐ Audit on separate systems for certified materials	→ Transparency and credibility towards consumers
QM	Economic and environmental sustainabilities	• Certified Biomass • State of the art boilers • Efficiency	☐ Controls in design and operational phases	→ Lower emissions → Lower consumption → Low and controlled costs for users



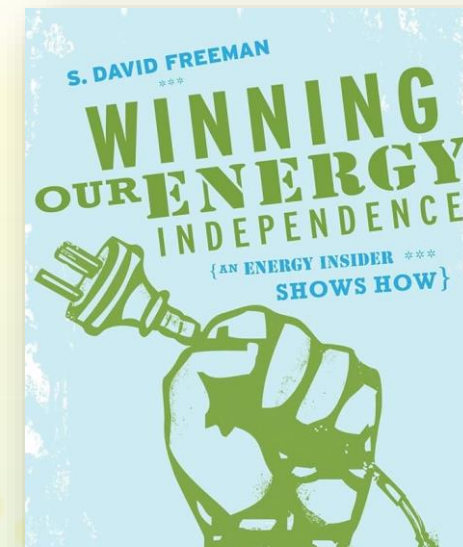


BENEFITS FOR THE USERS:

- Better price of heat
- Conversion from fossil fuels to renewable energy
- Significant reduction of energy costs (especially for the swimming pool)

BENEFITS FOR THE COMMUNITY:

- Use of local resources (greater energy autonomy)
- Creation of local jobs
- Sustainable management of the whole supply chain





MAIN OBSTACLES:

- Top-down project
- Stringent deadlines imposed by the National Recovery and Resilience Plan funding
- Difficult dialogue and cooperation with the Municipality, who does not want to involve the population at this stage of the process
- Necessity to scale down the project, after some stakeholders left
- Changes in the plant's building design and bureaucratic delays





COMMUNITY MODEL

ACTORS INVOLVED

LOCAL
MUNICIPALITY

OWNERS/MANAGER
S OF THE BUILDINGS

FORESTRY
COMPANIES

DISTRICT HEATING
NETWORK
OPERATOR

PRIVATE CITIZENS



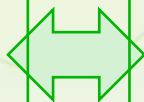
POSSIBLE CONFIGURATION OF THE FOREST & HEATING COMMUNITIES:

- PRODUCTION

Local cooperative forestry company



Forestry association
Certified local supply chain
Multi-year contracts



- MANAGEMENT OF THE DH NETWORK



QM standard: qualified technicians / members of the heating community



- FINAL USERS

Heating community (cooperative model)



Thermal heat demand density (economic and environmental sustainability)

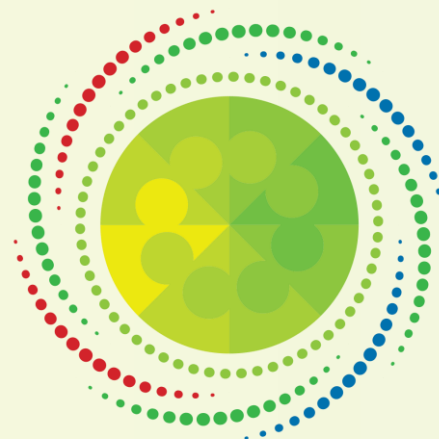
Supply contract

Control over the cost of thermal kWh



BIOMASS DISTRICT HEATING MEETS HEATING COMMUNITIES

Activity	Description	Actors involved
Production	Heat generation from renewable sources, local use	Professionals / Companies
Share of thermal energy	Distribution of heat through the DH network	Heating community
Management of the plant and sale of thermal energy	Selling surplus to non-members, creating additional income for the community	Management of the DH network
Community ownership	Collective participation in the ownership or procurement of the wood biomass	Production community (forestry cooperative)
Collective purchase	Shared purchasing of technologies or fuels to reduce costs and improve accessibility	Community



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Thank you!



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The warmth of cooperation:
Heating and cooling communities for
Southern Europe (27/05/2025)

PILOT CASE | PLAYA DEL INGLÉS (SPAIN)

Pilar Navarro Rivero
Instituto Tecnológico de Canarias



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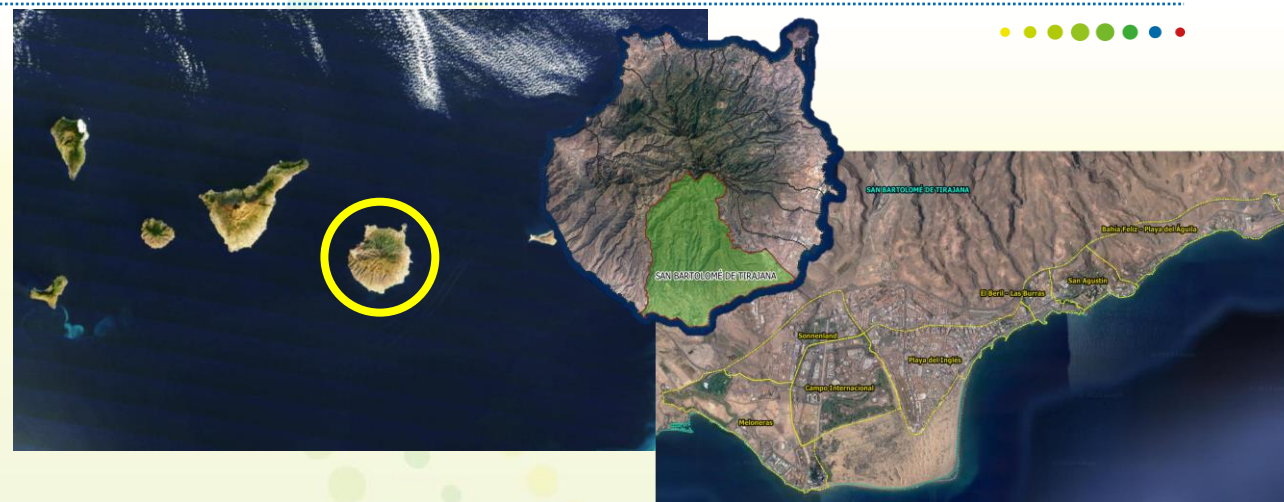
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Gobierno
de Canarias

PILOT CASE LOCATION

- San Bartolomé de Tirajana has a population of 52,936 inhabitants (large floating population due to the tourism).
- Highest concentration of tourist establishments in Gran Canaria, which entail 67.5% of the tourist places on offer (87,529 pax)
- Consolidated urban tourist areas are characterized by the coexistence of high-category hotels, extra-hotel and lower category hotel establishments and residential buildings in densely built-up urban areas



AREA OF ACTION:

- 15 extra-hotels and lower category hotels (SMEs)
- 8 residential buildings, 149 dwellings (citizens)
- 5 high category hotels (LE)

Total thermal demand (SMEs and citizens): 3134 MWh/year

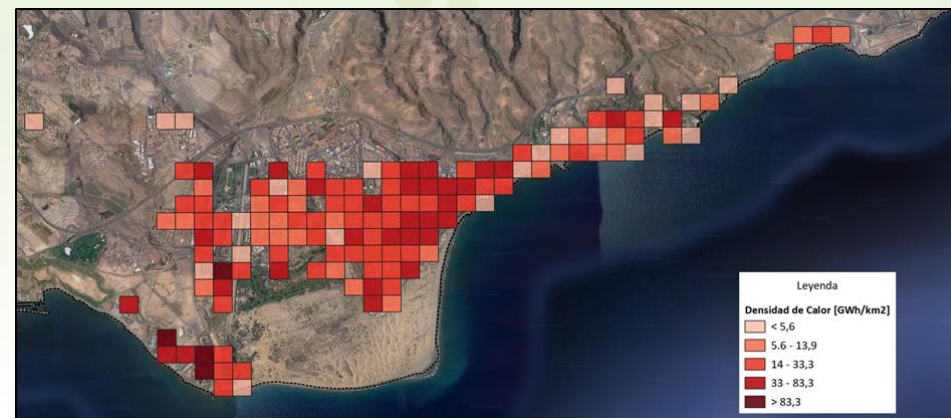


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LOCAL CONTEXT

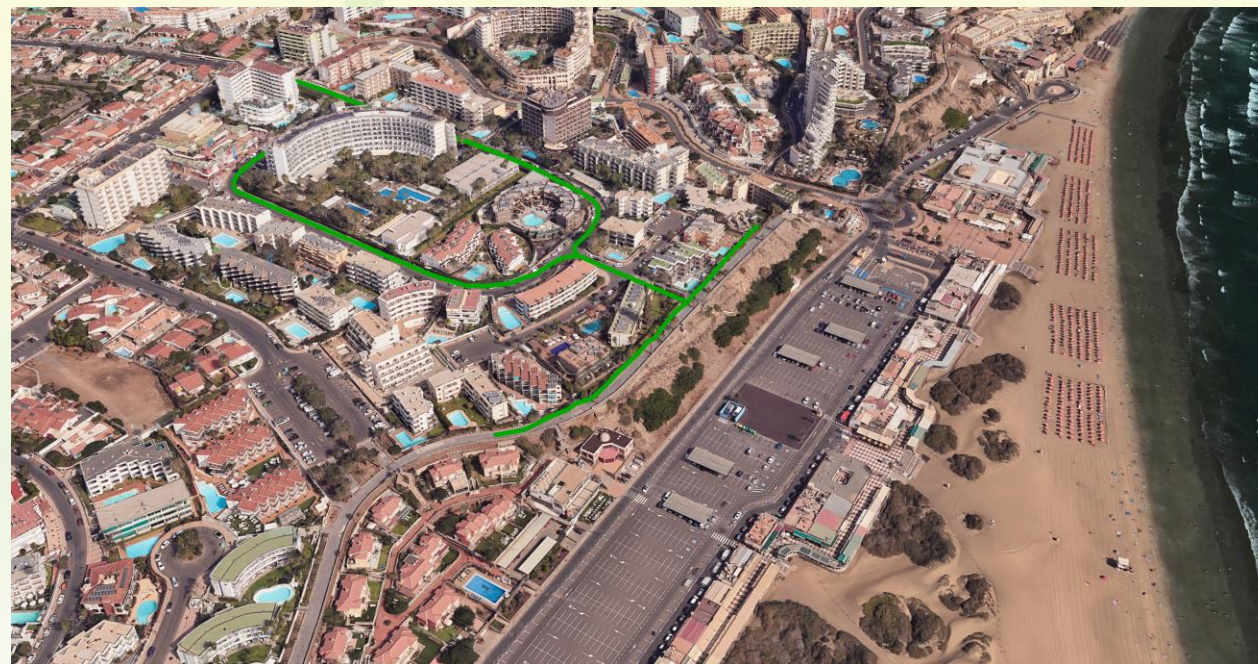
- The tourism sector in the Canary Islands accounts for 35.5% of GDP, 39.7% of employment and 14% global electricity demand.
- The tourism sector has traditionally been a pioneer in the use of high-efficiency technologies and renewable energies.
- The sector faces the challenge of reducing its carbon footprint in order to respond to an increasingly demanding market in this regard.
- ITC has developed a methodology for assessing H&C demand in the tourism sector based on GIS tools. In the municipality tourist accommodation establishments consumed 221.2 GWh/year for H&C with outdoor swimming pool heating accounting for 59.4% of the total H&C demand.
- There are not DH&C networks, although tourist areas represent a great opportunity for the development of such projects.





OBJECTIVES

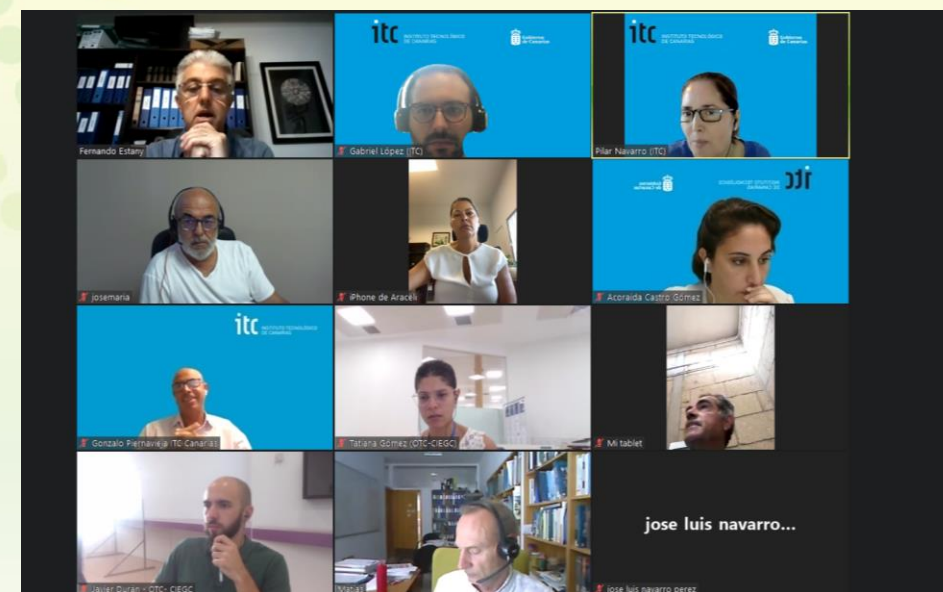
- **ConnectHeat-Playa del Inglés community energy project** aims to establish a Renewable Energy Community (REC) to promote the construction of a DH&C system as a key element in the decarbonisation of the tourist centre of Playa del Inglés.
- **Replicable energy community model** throughout the rest of the territory to guarantee emission-free buildings and affordable energy solutions for citizens and SMEs, strengthening the resilience of tourist areas to external factors such as energy cost volatility and extreme weather events.
- **Positive social environmental and economic impact:** reduction of carbon footprint and energy costs of citizens and SMEs, boosting urban regeneration, creation of local and green employment and strengthening of social cohesion.

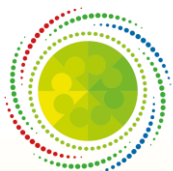




STAKEHOLDER ADVISORY GROUP, SAG

- Relevant stakeholders: Las Palmas Federation of Hostelry Business and Tourism (FEHT), Municipality of San Bartolomé de Tirajana, Gran Canaria Island Government, Sustainable tourism and development research group of University of Las Palmas de Gran Canaria (TIDES) and Technological Institute of Canary Islands (ITC)
- Ongoing communication between the Las Palmas Federation of Hostelry Business and Tourism (FEHT) and Technological Institute of Canary Islands (ITC) to raise awareness in the sector and assess interest in community energy projects in the field of renewable H&C and electricity.
- Target groups: extra-hotel establishments ranging from 1 to 4 stars (SMEs), Citizens (residential buildings).
- Inputs/Suggestions received from SAG to explore potential pilot cases where it would be possible to promote a H&C community energy project.

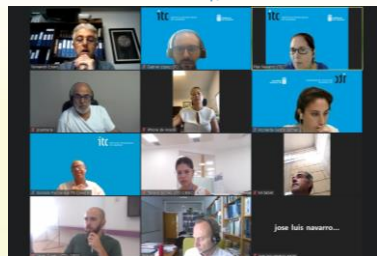




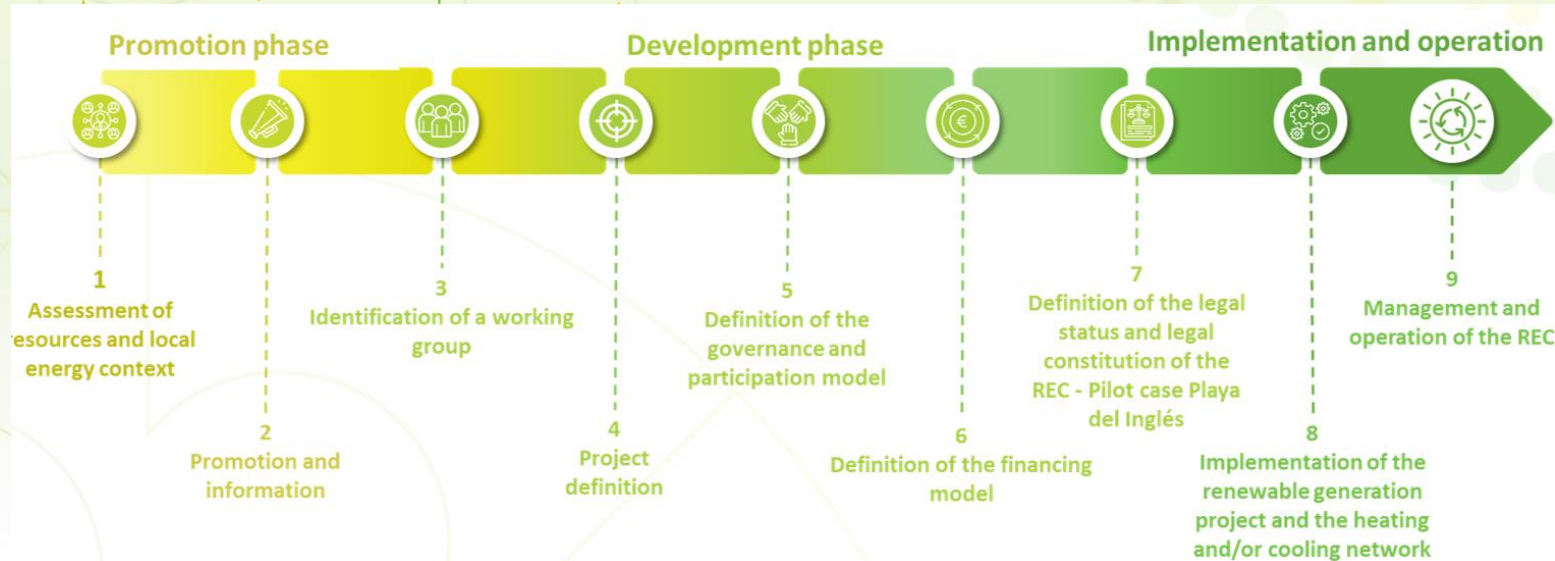
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Hoja de Ruta (2030 – 2050) y Guía Práctica para el desarrollo estable de Comunidades Energéticas Renovables (CER) que incluyan el vector térmico. Diseminación y replicación de resultados



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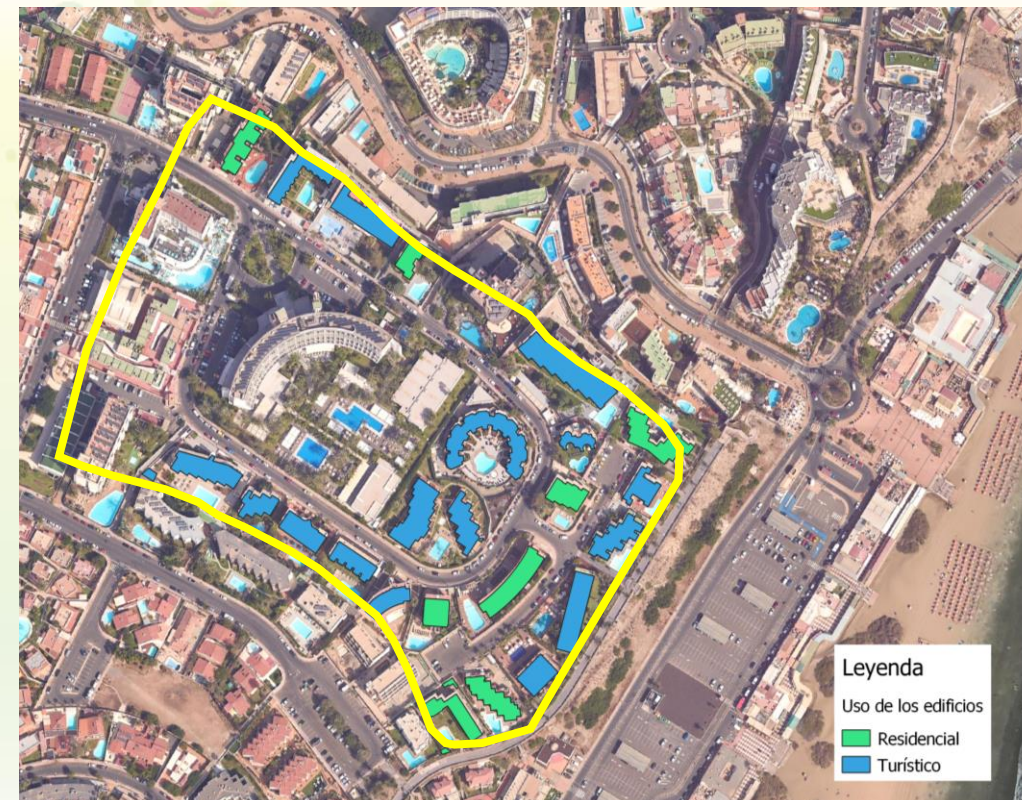


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Community Energy Board (CEB): 4 tourism SMEs, 1 community of owners of a 24-unit residential building both located in the pilot case, and Las Palmas Federation of Hostelry Business and Tourism (FEHT).

ConnectHeat-Playa del Inglés community energy project meets the objectives and guidelines agreed upon by the members of CEB and SAG:

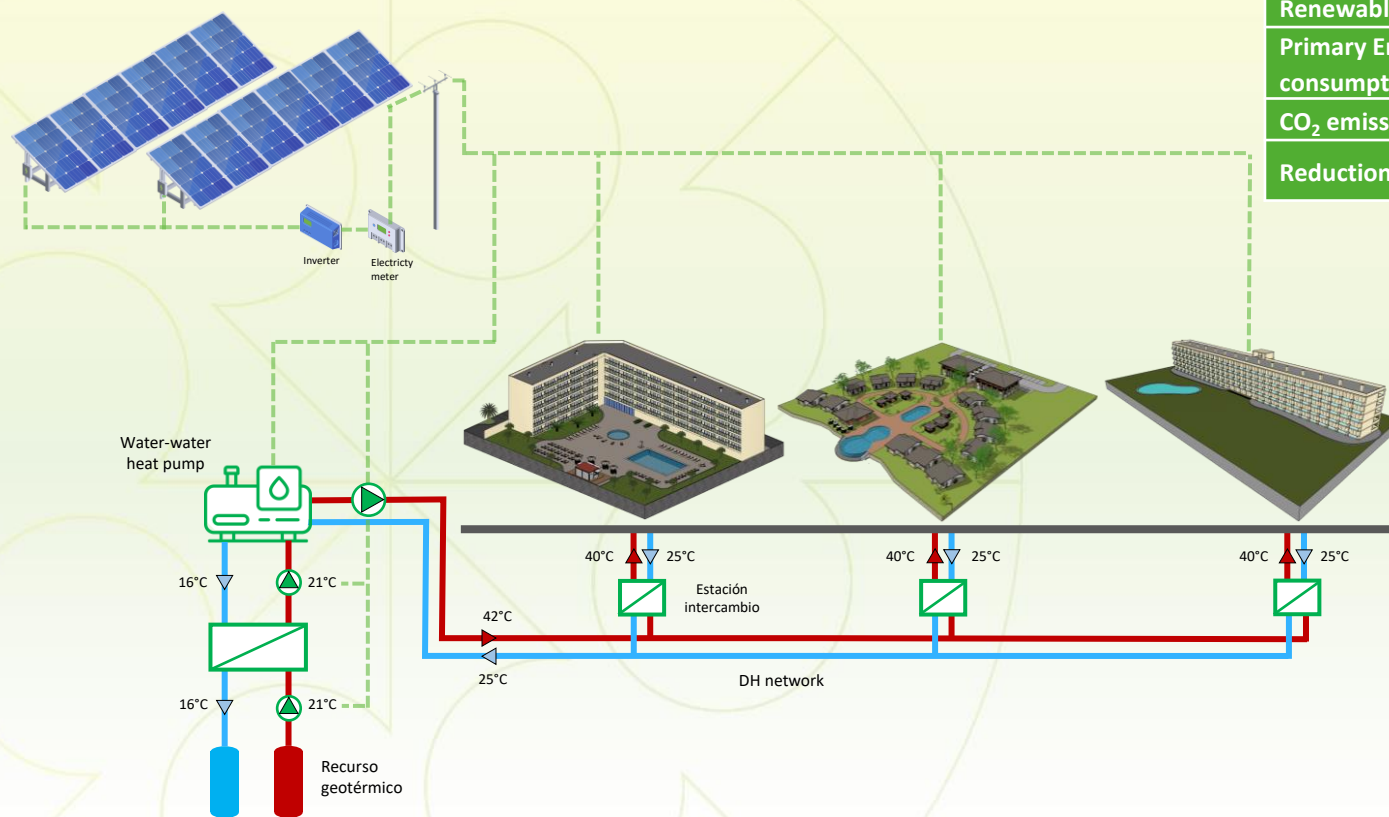
- ✓ 100% renewable heat generation.
- ✓ Maximize local renewable energy resources.
- ✓ Robust design, proven technologies, security of energy supply, independence from fossil fuel imports to prevent energy price escalations.
- ✓ Competitive cost: the price of renewable heat distributed through the DH system must be lower than or equal to the price currently paid (0.04€/kWh).
- ✓ Integration into urban environments
- ✓ Creation of synergies with other energy carriers.
- ✓ Creation of green and local jobs.



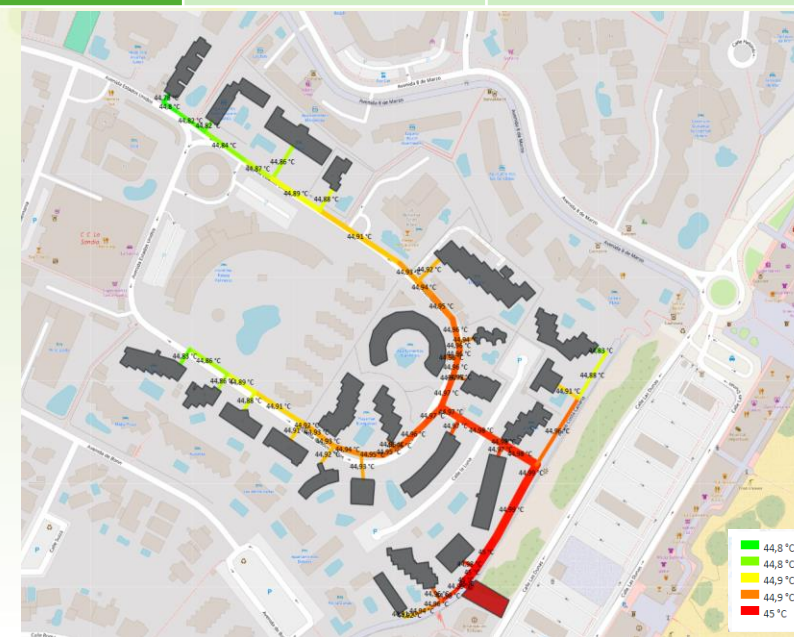
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TECHNOLOGICAL CONFIGURATION



	Current technological scenario	DH REC ConnectHeat-Playa del Inglés
Heat demand	3134 MWh/y	3177 MWh/y
Electricity demand	958,6 MWh/y	443,6 MWh/y
Renewable Energy rate	69,4%	86,0%
Primary Energy consumption	2870,1 MWh/y	1327,2 MWh/y
CO ₂ emissions	743,9 tCO ₂	344,0 tCO ₂
Reduction of CO ₂ emissions	-	53,8%





COMMUNITY MODEL

Legal form

- ✓ Legal entities that best fit the definition of REC are Associations and Cooperatives. *ConnectHeat-Playa del Inglés* community energy project will adopt the legal form of a **non-profit consumer and user cooperative**.

Governance

- ✓ Democratic governance based on the principle of **'one member, one vote'** ensures autonomy in internal decision-making.

Financial model

- ✓ combines public economic incentives and contributions from REC's members to cover both the initial investment and operating costs.
- ✓ The investment required to implement the project is 1,588,317€ and the projected incomes from the renewable heat and electricity sales business lines in the first year of the project is 138,101.5€.
- ✓ Net Present Value (NPV) for a period of 25 years of 463,754.1€, while the Internal Rate of Return (IRR) stands at 16.8% and the payback period is 8.69 years.
- ✓ LCOH= 0.034€/kWh



NEXT STEPS

In the short term,

- establish the *ConnectHeat-Playa del Inglés* Renewable Energy Community and to draw up the technical projects necessary to obtain the permits and concessions required for the execution of the project. To this end, the CEB has applied for *non-competitive grants for the creation and operation of energy communities, within the framework of the Sustainable Energy Strategy for the Canary Islands (Programme 2, Line 2), funded by the European financing instrument 'Next Generation EU', within the framework of the Recovery, Transformation and Resilience Plan (Component 7, Investment 2), BOC 171, Regional Ministry of Ecological Transition and Energy, Government of the Canary Islands.*
- promote the participation of citizens and SMEs located in the area where the DH network will be deployed, comprising 7 residential buildings representing 125 dwellings and 11 extra-hotel establishments.

In the medium to long term,

- the objective is to apply for the national programme of incentives for unique pilot projects in energy communities (CE IMPLEMENTA) managed by the Institute for Energy Diversification and Saving (IDAE). The programme's incentives allow for a reduction of up to 60% in the cost of the community project, which would make its implementation economically viable.

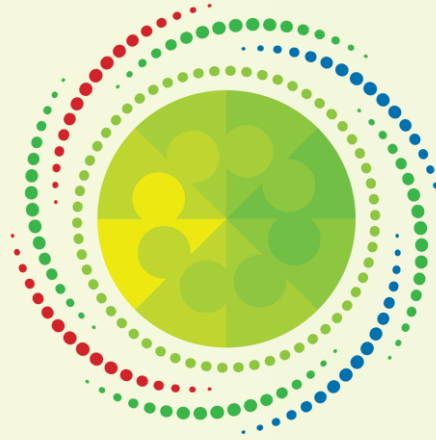


CHALLENGES

- Lack of awareness among citizens and Public Authorities about REC as a crucial tool for reaching a fair energy transition.
- Lack of free public and private spaces available for the installation of renewable energy systems.
- Not enough public buildings with energy demand that would allow the promotion of a REC emerging as a public initiative.
- Extension of the renewable energy community concept beyond renewable electricity generation.
- Complexity: Identify a technology partner with the technical capacity and experience to carry out the project and define a solid governance model, establishing clear agreements between both parties.

LESSONS

- Involvement of local authorities in community energy projects from the beginning through an broader, long-term project, including social actions, such as improving accessibility, and adapting urban spaces to climate change through climate shelters.
- Improve the capacities of community members, analyze existing models and success stories from other operational RECs, looking forward synergies with the pilot case.
- The need to understand from the beginning that energy communities are not simply a renewable energy project, but are a tool for a just energy transition, offering the opportunity for citizens to actively participate in the energy transition and in the urban and environmental rehabilitation of their surroundings.



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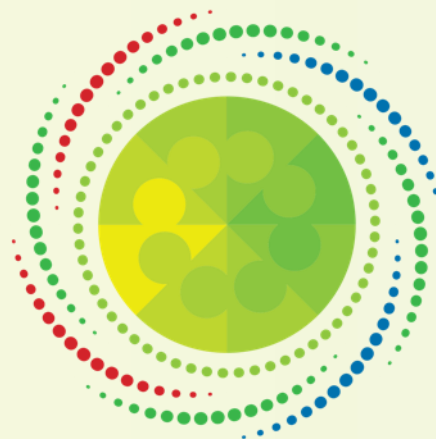
Thank you for your attention

Pilar Navarro Rivero. Instituto Tecnológico de Canarias

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THE WARMTH OF COOPERATION: HEATING AND COOLING COMMUNITIES FOR SOUTHERN EUROPE

TOOLS FOR HEATING & COOLING COMMUNITIES

Chiara Lazzari, Ambiente Italia srl

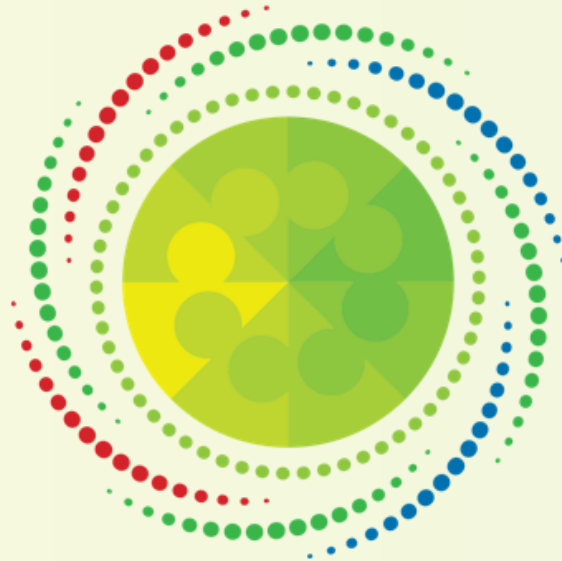


Transnational webinar, 27 May 2025



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The first European initiative promoting and developing **Heating & Cooling Communities**



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THE STARTING POINT – KEY BARRIERS

Transposition and recast of RED II
still partial or not effective enough as for H&C

Lack of suitable supporting schemes
hindered so far Energy Community initiatives
development in the H&C

...making it the almost exclusive preserve of electricity





MAIN OBJECTIVE

To outline and develop an **enabling policy and strategic framework** paving the way to the development of **Energy Community** initiatives in the **Heating&Cooling** sector





HOW?

Implementation of concrete initiatives in 6 target areas from 6 EU countries

1. Gemona del Friuli – **Italy**
2. Zagreb – **Croatia**
3. San Bartolomé de Tirajana – **Canary Islands**
4. Anzegem – **Belgium**
5. Stuttgart – **Germany**
6. Plovdiv – **Bulgaria**





WHAT DO WE NEED?

Some concrete proposals of tools and measures for H&C community projects development, initialization, replication and diffusion as the result of the ConnectHeat project activities implementation

...but work are still in progress...stay tuned





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You do not have to invent the wheel and start from scratch

Investigate and learn from already existing experiences

Research, exploit and adapt approaches, methodologies and results from existing/ongoing **community energy initiatives in the electric sector** and **RES H&C success stories** all around EU



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You do not have to invent the wheel and start from scratch

Investigate and learn from already existing experiences

The legislation about RECs is clearly lagging behind the real life, since **examples of community-led projects for H&C have been already operating for many years in several EU countries**, such as Austria, Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Spain and Sweden.





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You do not have to invent the wheel and start from scratch

Investigate and learn from already existing experiences

- **Participative approach** for the project development
- Heat supplied by a **massive use of local RES**, often by combining **several energy sources and technologies**, thus making the whole system more flexible and resilient with respect to unexpected changes in the market value chain, in the energy and fuel costs, etc.



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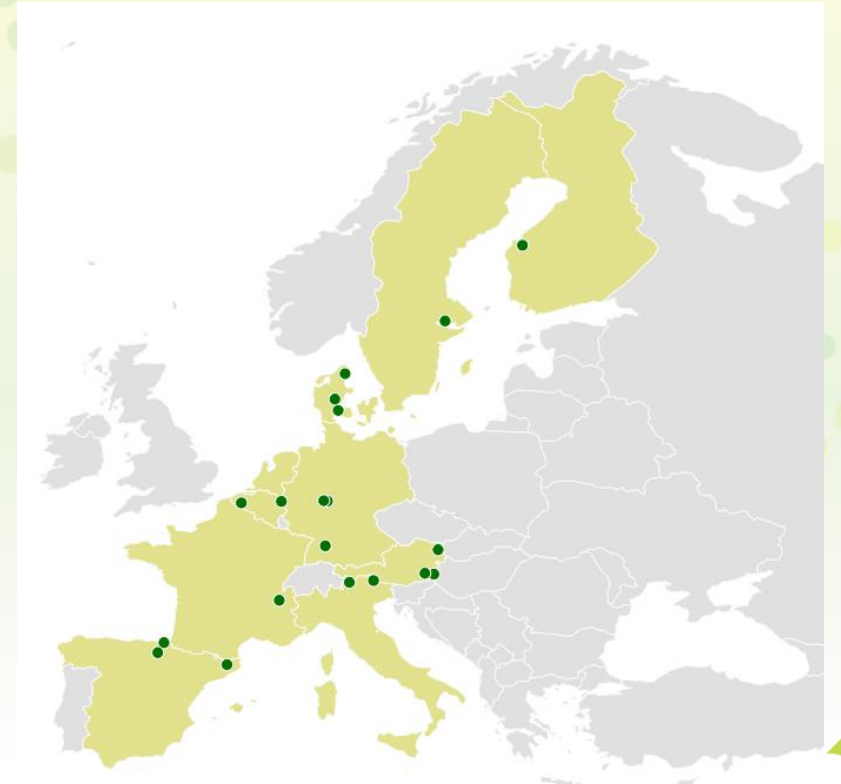
The map of existing community H&C projects

<https://connectheat.ambienteitalia.it/hcc-map/>

Have a look at the **online map** developed by the ConnectHeat project collecting the most relevant community H&C existing projects in Europe!

Fill the online form providing information about the example and, if relevant, we will be happy to include it in the map.

https://docs.google.com/forms/d/1V4rtk-njAnE-D5eLcTGApETIDxOumudOOmtdabDguFw/viewform?edit_requested=true



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Setting the scene

Create a solid base of knowledge of the local H&C context

- The national and regional frameworks (Legislative, Regulatory, Policy, Strategic)
- The Local strategies and plans (energy, urban, territorial, etc.)
- The local energy system main trends and critical aspects of the energy and H&C local demand and supply in different sectors





Prepare the ground and build capacity

- **Identify and map** target groups and key actors – **know the territory**
- **Provide information** to increase local awareness and increase acceptability – **tailor made initiatives targeting different target groups**
- **Transfer knowledge and train** to enhance local skills and expertise and enable towards energy transition and H&C community





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Prepare the ground and build capacity

The ConnectHeat activities and outcomes

- **> 30 training sessions** to prepare the ground for pilot H&C communities in target areas, targeting project partners and local stakeholders
- **3 key EU areas webinars** to stimulate replication in the countries outside the project consortium
- **2 EU thematic webinars** targeting policy makers and LRPA networks influencing the EU general and local policies
- **7 national events** to stimulate replication within the project countries



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Prepare the ground and build capacity

The ConnectHeat activities and outcomes

- **7 pilot replicators** being trained and supported in setting up community energy initiatives on the basis of ConnectHeat approach
 - 2 in Italy, 3 in Germany, 2 in Belgium
- **A H&C Community Energy Developer's Blueprint** being prepared for further replication of ConnectHeat methods and approaches



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Promote pilot projects and initiatives

- **To detect barriers**
- **To investigate and test most effective approaches, models, technical solutions**
- **To verify and monitor the overall sustainability (costs, socio-economic benefits, impacts)**





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Promote pilot projects and initiatives

The ConnectHeat activities and outcomes

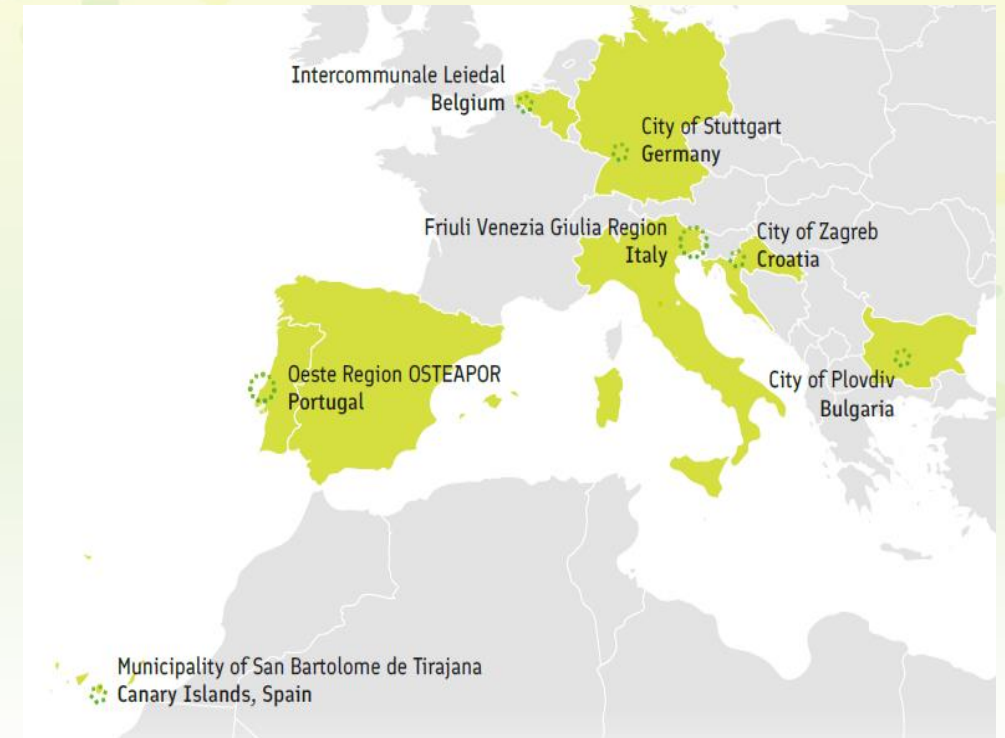
Implementation of pilot H&C community energy initiatives in project target areas



Technical feasibility and the socio-economic and environmental sustainability



Pilot factsheets soon available on the project web-page



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Assign a central role to Local and Regional PAs

H&C strongly depend on local conditions and it is necessary to look at it from a systems perspective

LRPAs have cross-sectoral responsibilities and roles as decision makers and target setters, urban planners and regulators, service providers, building stock and public facilities owners and managers, promoters of partnerships and supporting schemes

LRPAs can make the difference





Assign a central role to Local and Regional PAs

Prepare long-term and short-term local strategies for H&C community energy initiatives development and diffusion

- **Revision and update of existing energy strategies (SECAP, SEAP, etc.)**
- **Development of Local Heating and Cooling Plans (art. 25 of EED to be transposed within October 2025)**
- **Translation of long-term strategies in short-term Action Plans for H&C Community Energy**





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Assign a central role to Local and Regional PAs

The ConnectHeat activities and measures

6 Roadmaps being prepared in project target municipalities/regions (to be finalized within July 2025)

- **Legislation & Regulation** - Necessary amendments to improve the regulatory environment at regional/municipal levels
- **Financing & Incentives** - Detection of most effective supporting schemes to be promoted (incentives, permitting, tax reductions, etc.);
- **Integrated energy planning across multiple levels of government** (interaction across different local policy planning fields and harmonization with other key policy documents)
- **Local RES and enabling technologies**



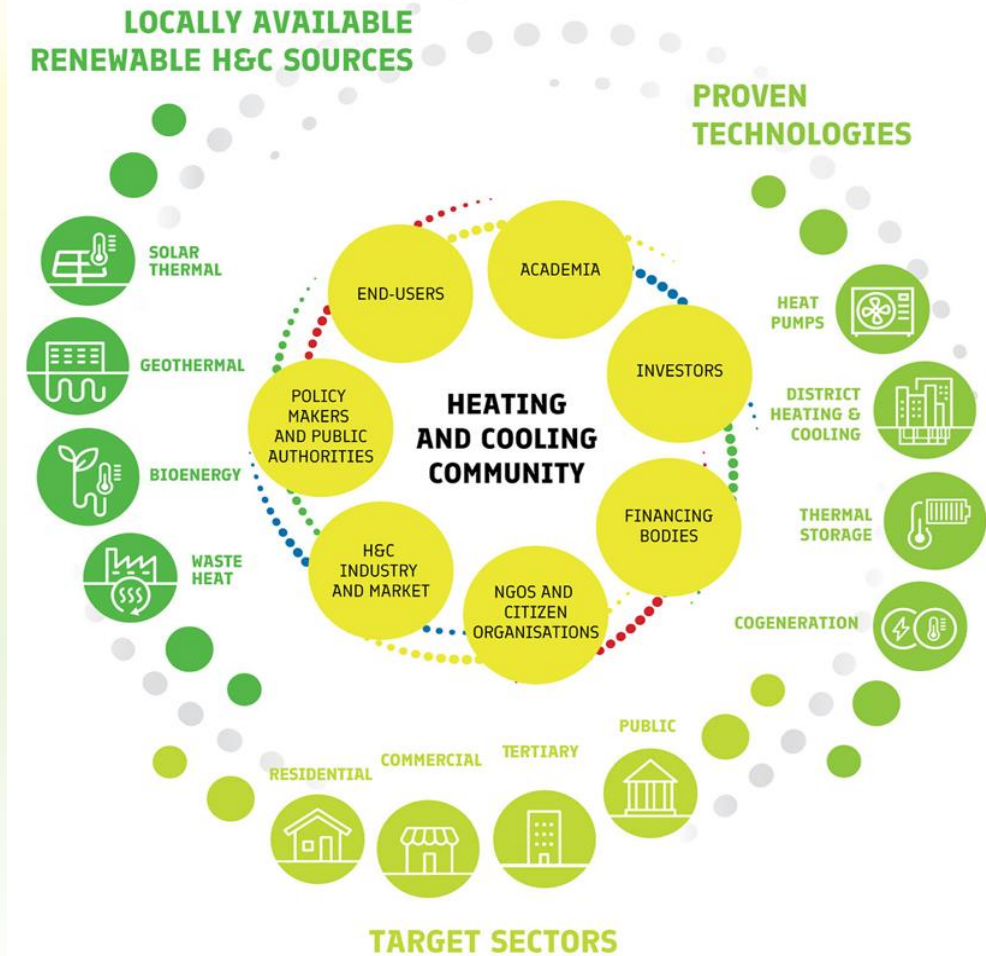
The LIFE21-CET-ENERCOM-CONNECTHEAT project has received funding from the European Union's LIFE Programme under grant agreement N°101076258





ConnectHeat
Community engagement for clean heat

**ConnectHeat is here to foster
community energy in
H&C...by connecting key
solutions, stakeholders and
renewables in long-lasting
communities**



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Stay tuned

and visit our web and linkedin page

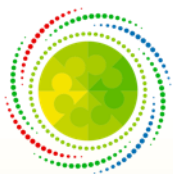
connectheat.ambienteitalia.it

<https://www.linkedin.com/showcase/connectheat/>



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<https://connectheat.ambienteitalia.it>



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Training toolbox - <https://connectheat.ambienteitalia.it/training-toolbox/>

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CAPACITY BUILDING WEBINAR #3

INNOVATIVE FINANCING AND BUSINESS MODELS FOR THERMAL COMMUNITIES

13 NOVEMBER 2024
10H00 - 11H30



CATCH UP ON OUR THIRD WEBINAR: INNOVATIVE FINANCING AND BUSINESS MODELS FOR THERMAL COMMUNITIES

By Martin Stroleny on November 21, 2024

On November 13, ConnectHeat hosted the final webinar in its capacity-building series: **Innovative Financing and Business Models for Thermal Communities**. Organized by **Euroheat & Power...**

READ MORE

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CAPACITY BUILDING WEBINAR #2

THE SOCIAL ASPECT IN HEATING COMMUNITIES: GETTING PEOPLE ONBOARD

31 OCTOBER 2024
09H30 - 11H30



CATCH UP ON OUR SECOND WEBINAR: THE SOCIAL ASPECT IN HEATING COMMUNITIES: GETTING PEOPLE ONBOARD

By Martin Stroleny on November 4, 2024

On October 31, ConnectHeat hosted its second webinar in the series, **The Social Aspect in Heating Communities: Getting People Onboard**. Organized by **Euroheat & Power...**

READ MORE



TRAIN THE TRAINERS 6 – PRESENTATIONS AND INTERVIEW

By Martin Stroleny on October 23, 2024

The purpose of our 6th Train the Trainers session organised physically was to visit and learn about **Bioenergiedorf Breitenholz**, a successful example of a sustainable heating community...

READ MORE



THE BREITENHOLZ CASE: INSPIRING EXAMPLE OF COMMUNITY COOPERATION IN HEATING – INTERVIEW

By Martin Stroleny on January 28, 2025

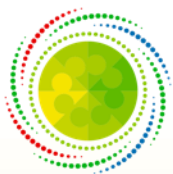
The bioenergy village of Breitenholz, near Tübingen, operates with **100% renewable energy**, using a combination of wood chips from regional sources (65%) and solar thermal energy (35%). The system includes 2,000 square...

READ MORE



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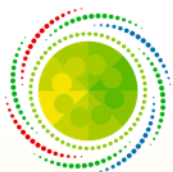
The knowledge hub

Events - <https://connectheat.ambienteitalia.it/events/>



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Publications - <https://connectheat.ambienteitalia.it/publications/>

D2.3 COMMUNITY ENERGY POTENTIAL AND PILOT CASES

D2.3 COMMUNITY ENERGY POTENTIAL AND PILOT CASES

By Martin Stroleny on April 22, 2024

The D2.3, aims to develop recommendations for an effective enabling framework for heating and cooling community energy at the local level. The deliverable focuses on assessing the potential for diffusion in target...

READ MORE

D2.1 H&C COMMUNITY ENERGY: THE CONTEXT IN THE TARGET AREAS

APE FVG

D2.1 H&C COMMUNITY ENERGY: THE CONTEXT IN THE TARGET AREAS

By Martin Stroleny on May 17, 2023

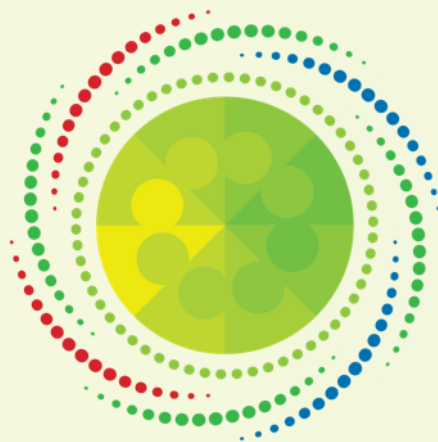
The scope of D.2.1 is to report on the initial survey carried out at project pilot area level. The survey includes: 1) Assessment of the national and regional legislation framework and of...

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Thank you!

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Chiara Lazzari, project coordinator

AMBIENTEITALIA
we know green

chiara.lazzari@ambienteitalia.it



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PLAN4COLD

SUPPORTING SOUTH EUROPE MUNICIPALITIES IN THE
DEFINITION OF SUSTAINABLE LOCAL
HEATING AND COOLING PLANS

Webinar: The warmth of cooperation: Heating and cooling communities for Southern Europe

Which role for the local heating & cooling plans?
27.05.2025



Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.





ABOUT Plan4COLD

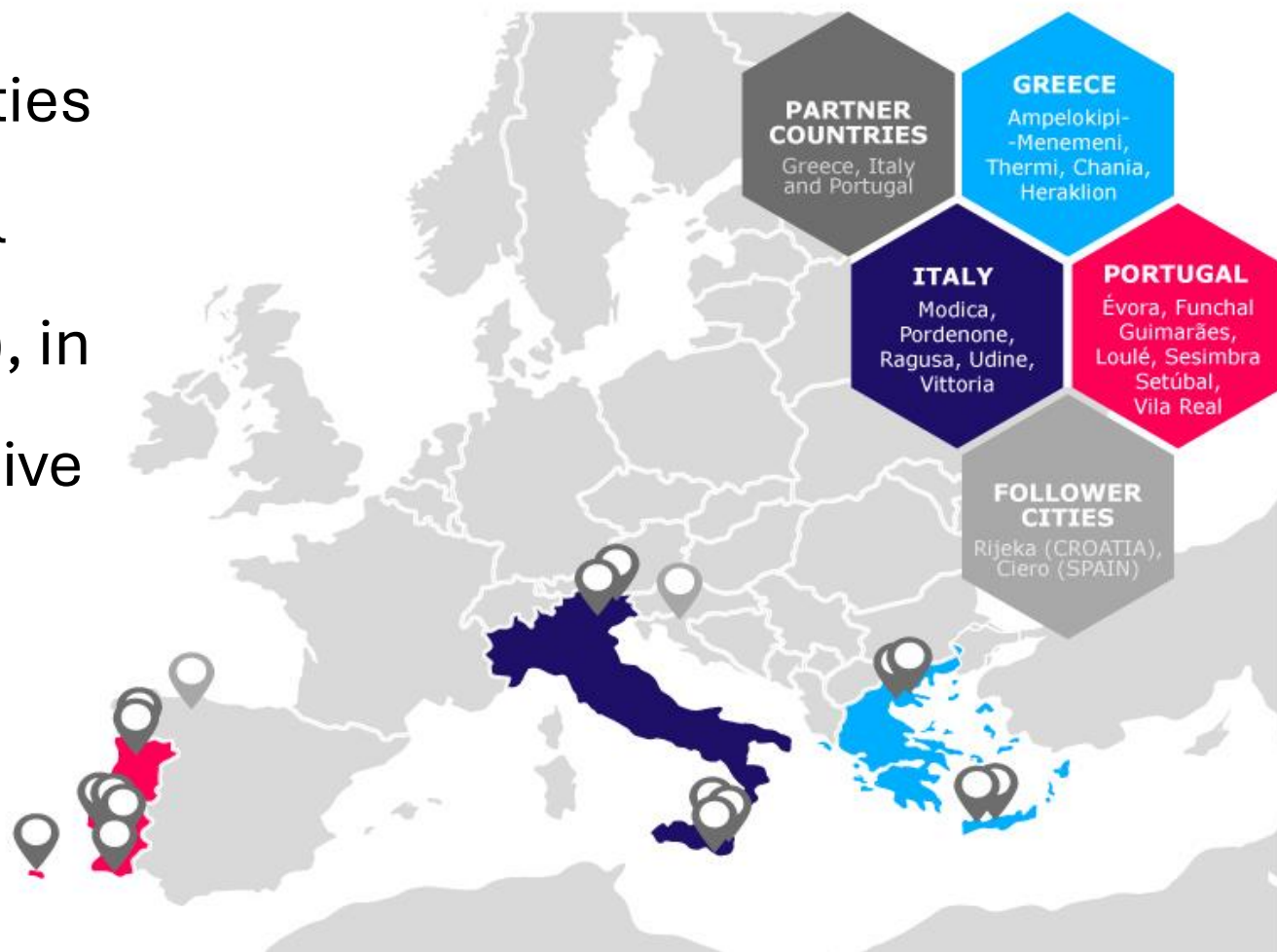
- Life co-funded project | GAP-101167534
- Running from October 2024 – September 2027
- Duration 36 months
- 15 partners
- Active in 3 countries: Greece, Italy and Portugal
- Followers in 2 countries: Croatia and Spain



Plan4COLD partners, kick off , Setubal October 2025

OBJECTIVE

Support South European municipalities in the definition of Sustainable Local Heating and Cooling plans (SLHCPs), in line with the Energy Efficiency Directive requirement for municipalities with more than 45.000 inhabitants.



PLAN4COLD CONSORTIUM



Agência para a Energia



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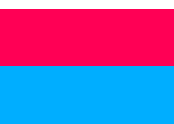
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per lo sviluppo sostenibile ETS



TECHNICAL
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CONTEXT

H&C represents nearly half the EU's energy consumption;

EU Member States approach to H&C is very diverse;

There's a lack of:

- data,
- resources,
- know-how and,
- appropriate financing.



CHALLENGES IN SOUTH EUROPE

- Decentralized infrastructure, most South European cities do not have DHC networks;
- Rising cooling needs;
- Inefficient building stock:
 - Low refurbishment rates
 - Old and inefficient heating appliances
 - Low replacement rate of old heating appliances
- Lack of targets and ambitious policies concerning H&C;
- Short financial capacity.



FRAMEWORK

Renewable Energy Directive (RED III)

- New headline target to double the existing share of renewable energy sources;
- Strong policy framework that promotes the decarbonisation of heating and cooling and the uptake of renewable H&C solutions;
- Electrification based on renewable energy and the use of renewable fuels.

Energy Efficiency Directive (EED)

- MSs to collectively achieve an additional 11.7% reduction in energy consumption by 2030 compared to the projected levels in 2020;
- Obligation for municipalities above 45,000 inhabitants to perform local heating and cooling planning.

Energy Performance of Buildings Directive (EPBD)

- Minimum energy performance standards and trajectories for progressive renovation;
- Increased deployment of solar technologies;
- More detailed assessment of heating, ventilation, air conditioning and DHW systems in the EPCs.

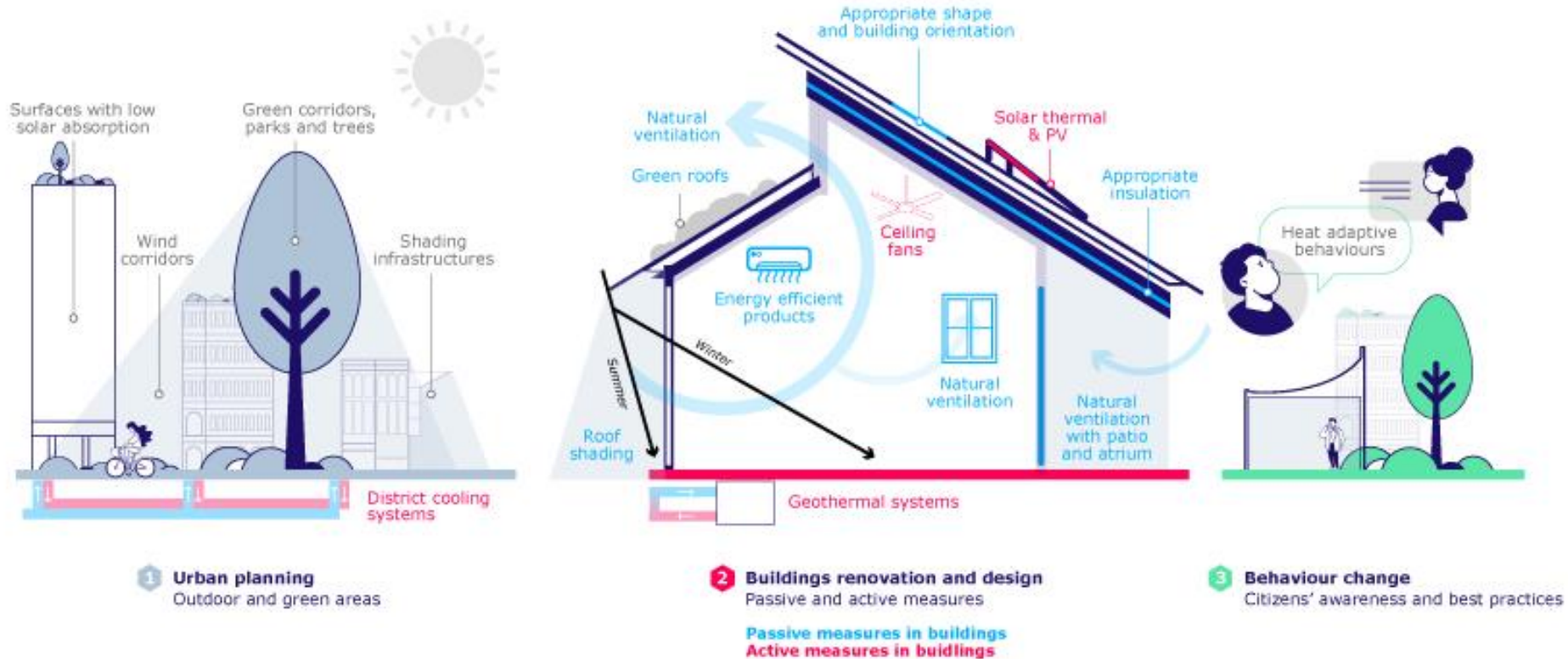


FRAMEWORK | EED, article 25.6

The plans should at least:

- (a) based on ... comprehensive assessments ... **estimate and mapping of the potential** for increasing energy efficiency, ...
- (b) be compliant with the **energy efficiency first principle**;
- (c) include a strategy for the **use of the identified potential** pursuant to point (a);
- (d) **involve** ... regional/local **stakeholders**, TSO/DSO and ensure the participation of **general public**;
- (e) consider the relevant **existing energy infrastructure**;
- (f) consider the **common needs of local communities** and multiple local/regional administrative units;
- (g) assess **energy communities/consumer-led initiatives** that contribute to local H&C projects;
- (h) analysis of **H&C appliances and systems in local building stocks**, considering the potentials for energy efficiency measures and addressing **worst performing buildings and vulnerable households**;
- (i) assess **how to finance the policies/ measures** and identify financial mechanisms to shift to RH&C;
- (j) include a **trajectory to achieve the goals** ... and monitoring of the progress of the implementation;
- (k) aim to **replace old and inefficient H&C** appliances in public bodies with highly efficient alternatives;
- (l) assess **synergies neighbouring regional/local** PAs to encourage joint investments and cost efficiency.

The Plan4COLD concept



Source: ADENE|Plan4COLD

Inspired by: European environment Agency approach to urban planning for cooling (source: EEA, 2022, "Cooling buildings sustainably in Europe: exploring the links between climate change mitigation and adaptation, and their social impacts", European Environment Agency, EN PDF: TH-AM-22-022-EN-N - ISBN: 978-92-9480-512-6 - ISSN: 2467-3196 - doi: 10.2800/36810).



Plan4COLD roadmap

- Define **guidelines** to support the definition of LHCPs focusing on South European municipalities;
- Map and make available **resources and tools** to support the definition process
- Engage the **relevant stakeholders** at local, regional and national level
- Develop **capacity building** materials
- Organize **training sessions**
- Work **side-by-side** with the Municipalities
- Identify best practices and share **recommendations**



<https://blog.get-merit.com/>



Plan4COLD policy dimensions

NATIONAL

- Foster multi-level dialogue;
- Comply with national targets and strategies | NECP, etc.;
- Share key success factors, learnings and best practices
- Support the definition of recommendations for regional and local authorities;
- Provide financial support

LOCAL

- Engage local stakeholders, initiatives and structures;
- Ensure customization to local needs, resources and competences;
- Mobilize public and private players,
- Consider vulnerable consumers and energy communities

REGIONAL

- Promote regional dialogue with key stakeholders;
- Capitalize RES potential for H&C;
- Maximize joint/trans-local investment in infrastructures



TOP 5+

Main outputs

- **Methodology|Guidelines** to define, operationalize and monitor SLHCP
- **Toolbox of existing tools and resources** fitted to the geographical context of South European Cities
- **Capacity building sessions** to public authorities and private stakeholders
- **10 SLHCP** developed in collaboration with local and regional authorities
- **Policy recommendations** and replication initiatives



TOP 5+

- **Methodology** | **Guidelines** to define, operationalize and monitor SLHCP

Baseline
assessment

Intervention and
decarbonization
scenarios

Evaluation and
comparison of
scenarios -
Roadmap

TOP 5+

● Toolbox of existing tools and resources fitted to South European Cities

- **Map existing tools and resources**
(taking advantage of already available knowledge, previous experiences and initiatives)
- **Evaluate existing tools and resources**
 - Data availability to South European cities
 - Adequacy to South European reality and needs
 - Free versus paid
- **Select the most adequate** resources and compile in a toolbox
- **Guarantee coherence** between tools/resources and the methodology **and interoperability**

Summary of criteria assessment

Applicability 	Robustness 	Suitability for H&C plan 	User friendliness 	Tech know-how required 
Costs 	Language 	Flexibility/customization 	Compatibility and interoperability 	
Technical support 	Compliance 	Data requirements 	Env. and climate impact assessment 	



TOP 5+

- Organize **capacity building sessions** to public authorities and private stakeholders
- Prepare capacity building materials
- At the local level identify the most adequate tools/resources from the toolbox and training needs
- Tailor/adequate/translate the capacity building materials to the local needs
- Activate the LoCPs to guarantee the involvement of a wider network of stakeholders
- Organize training sessions for the public authorities but open to the private sector as well.



TOP 5+

- **10 SLHCP** developed in collaboration with local and regional authorities

- Work side by side with the Municipalities
- Actively involve the LoCPs in the process
- Prepare Sustainable Local Heating and Cooling Plans
- 10 SLHCPs developed and five assumed as a Political Commitment



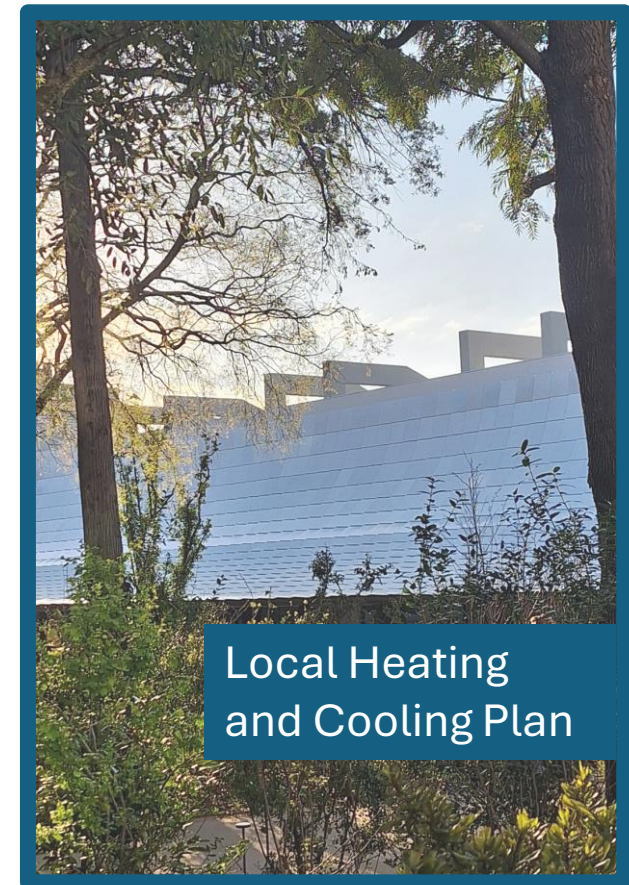
Plan4COLD work session in Vila Real

TOP 5+

- 10 SLHCP developed in collaboration with local and regional authorities

Not a recipe, but guidelines, tools and 10 inspiring plans

- Different levels of data
- Different infrastructure
- Different stakeholders
- Different sets of input and output data
- Different methodologies (tools, simulations, etc.)
- Different targets and compromises
- Different policies and strategies to align with
- Different resources needed
- Different investment



A horizontal bar with a red top half and a blue bottom half.

Local Heating and Cooling Plans should:

- Establish goals for the decarbonization of H&C demand and define mid to long term strategy;
- Identify high potential areas (data and zoning): crossing H&C needs with potential to deploy RES based solutions;
- Define priorities and opportunities;
- Provide technical and economical feasibility studies/orientations;
- Ensure the integration of the different initiative and solutions in the wider energy system;

A horizontal bar with a red top half and a blue bottom half.

Municipalities can:

- Set the legal ground and provide policy support for community led initiatives to emerge;
- Reinforce regulations, namely for new and renovated buildings;
- Lead by example, namely with public service buildings and public initiative housing;
- Provide incentives, namely for citizen led investment;
- Engage with consumer led initiatives;
- Ensure the dialogue and cooperation between the relevant stakeholders to the H&C planning process.



TOP 5+

- **Policy recommendations** and replication initiatives

Lead cities will serve as models for others, enabling policy recommendations and ensuring accessible tools for the effective implementation of the EED.

The share of experiences between the Plan4COLD participating cities will enable the definition of policy recommendations for South European Municipalities but also support MS responsible authorities in the definition of “recommendations recommendations supporting the regional and local authorities to implement policies and measures in energy efficient and renewable energy based heating and cooling at regional and local level utilising the potential identified.” (EED, article 25.6)

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ADENE
Lisbon| Portugal





Boosting renewable heating and cooling via the NECPs

V. Drosou, R. Christodoulaki

Dr. Vasiliki Drosou

Head of Solar Energy and Storage Dept.
Centre for Renewable Energy Sources and Savings
Pikermi, Greece,
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The REDI4Heat project

Objective

- Acceleration of Renewable energy sources in heating and cooling
- Advisory services in 5 EU MS (EL, DE, PL, PT, HR) on how to comply with the new regulations

Methodology

- Policy studies
 - Assessment / review of current legislation
 - Development of Strategic policy priorities
 - Drawing of Policy adoption measures
- Online tools
 - [Knowledge sharing centre](#)
 - [Heat Transition Toolbox](#)
- Dissemination & training
 - Meetings with stakeholders
 - Workshops and training
 - Publications

Oct 2023

Oct 2025

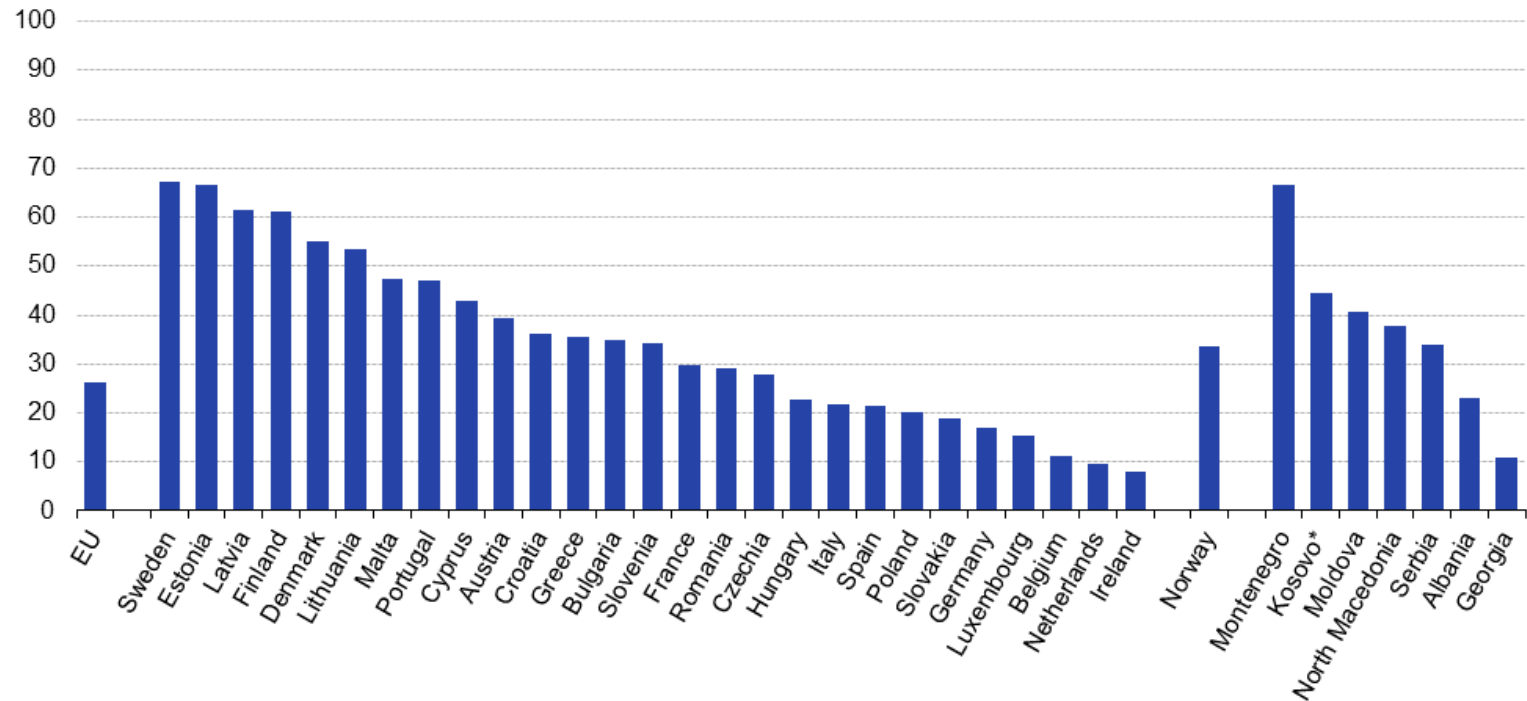
Oct 2024



Energy Consumption

- Total energy consumption
 - 50% heating and cooling
 - 30% transportation
 - 20% electricity
- Heating and Cooling
 - 40% of the global CO₂ emissions
 - 26.2% of energy used for heating and cooling comes from renewable sources
 - 11.7% increase in share of RES, from 2004 to 2023

Share of energy from renewable sources in heating and cooling, 2023



Greatest share of energy from RES: Sweden (67.1%), Estonia (66.7%), Latvia (61.4%), Finland (61.3%), Denmark (54.9%) and Lithuania (53.6%).

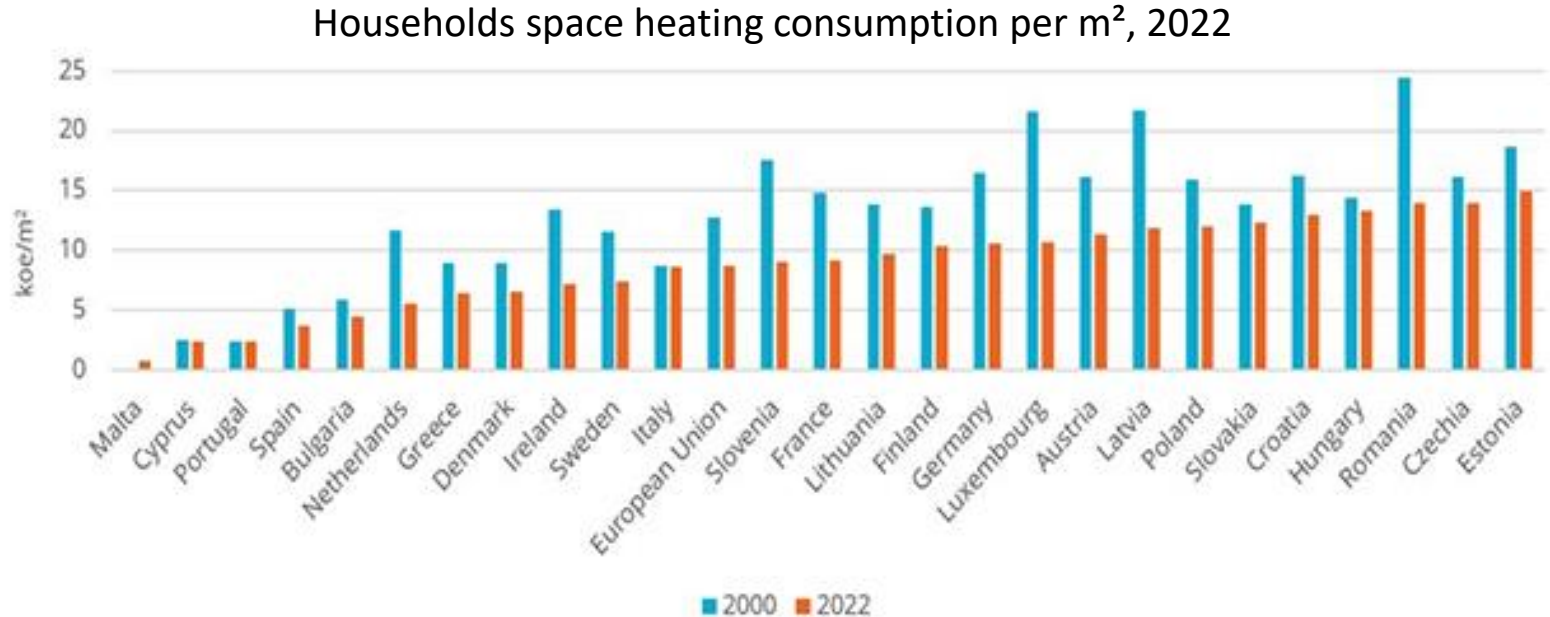
https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_consumption_in_households

Energy consumption in households - EU

- Households represent 25.8% of final energy consumption in EU.
- Specific consumption of households for space heating (koe/m^2) has decreased in all EU-MS.

EU average -1.7%/year

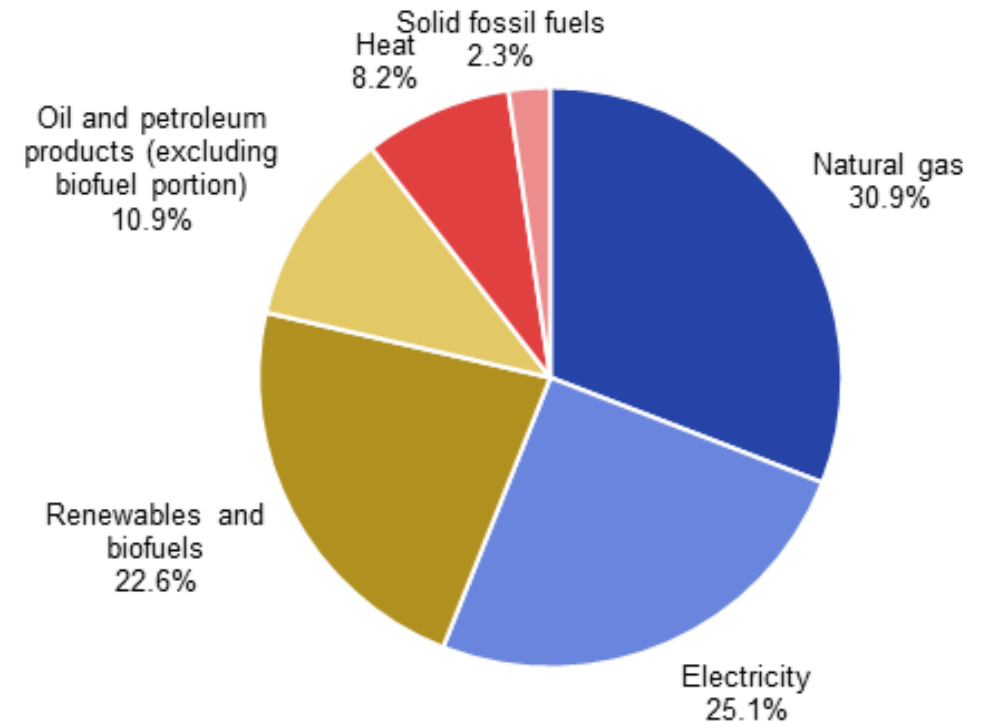
6 countries (Ireland, Latvia, Luxembourg, Netherlands, Romania, Slovenia) >-2.5%/year



<https://www.enerdata.net/publications/reports-presentations/efficiency-trends-households.html>

Energy consumption in households - EU

- Breakdown of energy sources
 - **Natural gas 30.9%**
 - **Electricity 25.1%**
 - Renewables 22.6%
 - Heating oil 10.9%
- Main uses of energy
 - **Space heating 63.5%**
 - **Water heating 14.9%**
 - Electricity 13.9%
 - Space cooling 0.6%



Final energy consumption in the residential sector by fuel, 2022

https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_consumption_in_households

Legislation related to heating & cooling

Renewable Energy Directive

Nov 2023

Energy Efficiency Directive

Sept 2023

Energy Performance of Buildings Directive

Apr 2024

National Energy and Climate Plans

Dec 2024

Legislation related to heating & cooling

Energy Efficiency Directive

- Mandatory reduction of energy consumption by 1.9% annually
- Mandatory renovation of 3% of public building area every year
- Local H&C plans for municipalities > 45.000 inhabitants
- Upgrade / expansion / decarbonisation of district heating & cooling networks

Energy Performance of Buildings Directive

- Phase out fossil fuel boilers by 2040 / No subsidies for fossil fuel boilers after 2025
- From 1/1/2028 All new public buildings will be ZEBs
- Mandatory renovation of all buildings into ZEBs by 2050
- Minimum energy performance standards, priority to worst performing building
- Set up of national schemes for renovation passports

Renewable Energy Directive

- Binding target to increase RES in H&C by 1.1% annually from 2026-2030
- Indicative target to reach the 49% of RES in buildings by 2030
- Indicative target to increase RES in industry by 1.6% for 2026-2030

National Energy and Climate Plans NECPs

- Part of the Clean energy for all Europeans package.
- Principal documents produced by EU Member States to detail their key climate targets and actions for the next decade and beyond.
- Outline how the EU countries intend to address the 5 dimensions of the energy union: decarbonisation, energy efficiency, energy security, internal energy market, research, innovation and competitiveness.
- The previous full set of plans was finalised in 2019, drafts were submitted in 2023 and the next set was due in June 2024.
 - Only 5 met the mandatory submission deadline
 - Today, 24 have submitted. 3 are still pending (Belgium, Estonia, Poland).

https://commission.europa.eu/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en

National Energy and Climate Plans NECPs

[2024 State of the Energy Union report](#)

The Commission's assessment of the draft NECPs 2023:

- Significant progress has been made on renewable energy.
- Further improvement is needed, in the electrification of heating equipment and the rate of renovation of buildings.
- Ambition gaps, bottlenecks and missing links towards the EU 2030 targets.
- All EU countries must submit their final updated National Energy and Climate Plans as soon as possible, to ensure collective achievement of the 2030 energy and climate goals.

Review on the NECPs - H&C

Methodology

- Focus at 5 MS (**EL**, **DE**, HR, PT, PL)
- Focus at heating and cooling plans

Aim

- To highlight the main points of concern
- To pave the way and set the right direction towards a timely and accelerated energy and climate policy implementation

TARGETS – Renewable Energy Systems in H&C

GREECE

- 2025-2030: Rapid penetration of RES in electricity generation and construction of infrastructure.
- 2030-2040: Fast electrification of final energy consumption
 - Dramatic increase in the electrification of heating of buildings through heat pumps is expected, in particular taking into account:
 - ban on the sale of new oil burners from 2025.
 - blend heating oil with bio-diesel by at least 30% from 2030.
- 2040-2050: Rapid development of green hydrogen and synthetic fuels, for the hard to abate sectors.
- Electrification of heat generation – complete decarbonisation by 2050
- Deployment of heat pumps and solar thermal systems.
- No extension of the use of biomass to avoid air pollution burden.

GERMANY

- Increase the share of RES in gross final energy consumption to at least 41% by 2030
- Increase the share of RES for heating and cooling
 - by 1.8% each year from 2021 – 2030 (or 0.7% from 2026-20230).
 - overall share of RES for heating and cooling 32% by 2030
- Building Energy Act: 65% use of RES in all new heating systems, ban on fossil-fueled heating systems from 2045
- Electrification of heat generation – full decarbonisation by 2045
- Deployment of heat pumps
 - Key technology in district heating networks
 - Heat pump campaign
 - Installation of at least 500,000 heat pumps every year
- Heating and cooling networks:
 - Expansion: Connect at least 100,000 new buildings every year.
 - Decarbonisation: 50% of grid-connected heat from RES (heat pumps) and/or waste heat by 2030
- Biomass: increase at 8.4GW by 2030

TARGETS – Energy efficiency in the building sector

GREECE

- Primary energy consumption: -13% in 2030 compared to 2019 (17.8 Mtoe in 2030).
- Exemplary role of the public sector.
- Reduction of the final energy consumption of all public bodies by at least 1.9 % per year compared to 2021.
- Annual upgrade of at least 3 % of the total floor area of public buildings.
- Municipal plans to reduce GHG by at least 10 % for 2025 and 30% for 2030 compared to 2019.
- Reduction of the primary energy use in residential buildings by 16 % by 2030 and by 20-22 % by 2035.
- Renovation of the 16% of the worst performing buildings by the year 2030 and 26% of the worst-performing buildings by the year 2033.
- Residential buildings renovation rate
 - 68,000 buildings per year from 2025 to 2030.
 - 64,000 buildings per year from 2031 to 2040.
 - 83,000 buildings per year from 2041 to 2050.

GERMANY

- Primary energy consumption: -24.5% in 2030 compared to 2024.
- Final energy consumption: -25% in 2030, compared to 2024.
- Exemplary role of the public sector.
- For public buildings consuming
 - >3GWh/a reduction of the final energy consumption by at least 2% /a.
 - 1-3GWh/a simplified energy management system
- Annual upgrade to nZEB or ZEB of at least 3% of the total floor area of public buildings.

MEASURES - RES for H&C

- Promotion of RES systems to cover heating and cooling needs
- Adjustments to building regulation
- Ban fossil fuels
- Promotion of energy sharing
- Promotion of coupling technologies to achieve maximum potential by RES
- Trainings for RES installers and specialists

MEASURES - Energy efficiency in the building sector

- Energy efficiency improvement of public buildings and exemplary role of public buildings
- Renovation strategy for the residential and tertiary sector building stock
- Expansion / upgrade of heating and cooling networks
- Energy performance contracting by ESCOs
- Direct production of heating, cooling and hot water
- Hybrid RES (solar thermal with heat pumps/geo, photovoltaics with heat-pumps)
- Produced energy on-site or nearby from RES, to support decentralization
- Seamless implementation of the 'Energy Efficiency First' principle
- Educate/inform/train professionals and consumers
- Addressing energy poverty

Main Findings

Good

- ✓ NECPs are a powerful tool for the EU and its Member States to drastically accelerate climate action and the energy transition already in this decade.
- ✓ The 2024 final NECPs showed improvements compared to the older versions and drafts.
- ✓ The RES and EE targets have improved to better align with EU legislation.

Bad

- ✗ Gaps and inconsistencies between the stated targets and planned measures,
- ✗ Unclear policies and investments attached to the targets,
- ✗ Insufficient incorporation of just transition elements (i.e. energy poverty),
- ✗ Inefficient support framework for energy efficiency,
- ✗ Unclear schedule and targets for the phase out of fossil fuels,
- ✗ Gaps in the transparency and quality of climate and energy data.

Conclusions

Decarbonising the heating and cooling sector is central to achieving the EU's energy and climate objectives.

The new NECPS include substantial improvements, but further work is needed to align with EU benchmarks (RED, EED, EPBD, EEFIRST), let alone with the Paris Agreement:

- Detailed plan and timeline to phase out fossil fuels and relative subsidies
- Measures to reduce Primary Energy Consumption and to put Energy Efficiency 1st
- Coherent policies and equitable measures to achieve national energy efficiency contributions and renewable energy trajectories
- Measures to address energy poverty and just transition



KAPES
CRES

CENTRE FOR RENEWABLE
ENERGY SOURCES AND SAVING

Accelerating Renewable Heating and Cooling for a Decarbonised Europe

Final Conference  **REDI4HEAT**

23 September 2025 | 09:30 - 14:30

Mix Brussels



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in



 **REDI4HEAT**



Are you ready
for heat?





ConnectHeat
Community engagement for clean heat

Q&A



Riccardo Battisti
Senior Project Manager
Ambiente Italia



Manuela Ortis
Communication Manager
APE FVG



Pilar Navarro Rivero
Head of Renewable
Energy Department
ITC



Chiara Lazzari
Senior Project Manager
Ambiente Italia



Joana Fernandes
Technical Projects
Coordinator
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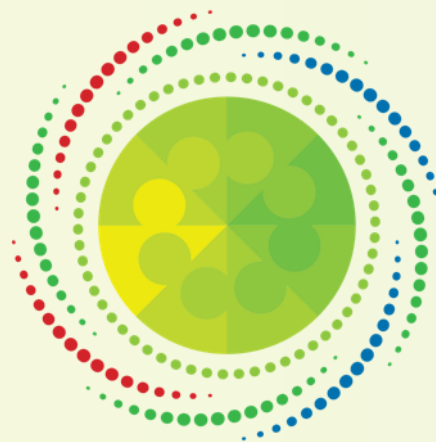
Vassiliki Drosou
Head of Department
Solar Thermal Systems
CRES



Martin Stroleny
Innovation Manager
Euroheat & Power



The LIFE21-CET-SMARTREADY-SRI-ENACT project has received funding from the European Union's LIFE Programme under grant agreement N°101077201



ConnectHeat

Community engagement for clean heat

Thank you!

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