

# Webinar Digitalization for optimizing integrated district heating systems

## Block I: policy framework and the big picture of digitalisation of energy infrastructures

This Webinar is held in the framework of two international cooperation programs:  
IEA DHC Annex TS3 “Hybrid Energy Networks“  
IEA DHC Annex TS4 “Digitalisation of District Heating and Cooling“.

**9. September 2020**

Ralf-Roman Schmidt AIT, Austria, [ralf-roman.schmidt@ait.ac.at](mailto:ralf-roman.schmidt@ait.ac.at) (leader TS3)

Dietrich Schmidt, Fraunhofer IEE, Germany, [dietrich.schmidt@iee.fraunhofer.de](mailto:dietrich.schmidt@iee.fraunhofer.de) (leader TS4)

*More information at*

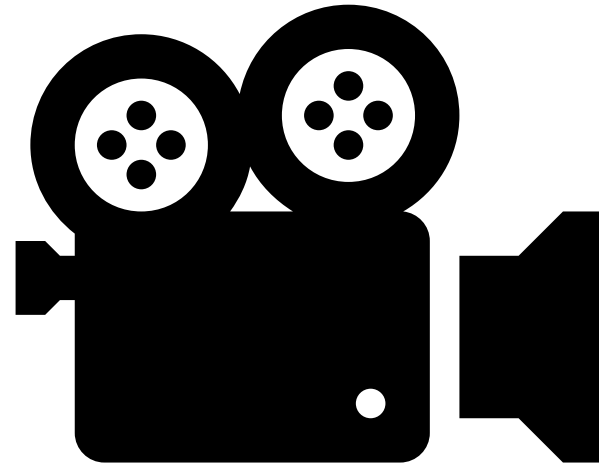
<https://www.iea-dhc.org/the-research/annexes/2018-2024-annex-ts4/>

<http://www.iea-dhc.org/the-research/annexes/2017-2020-annex-ts3-draft.html>





# This webinar is recorded



The video file will be available after the webinar on the IEA DHC  
YouTube channel

<https://www.youtube.com/channel/UCuYcqLjJi8thrUJCjzLbaow>

We will have a “group photo” at the end of the webinar, so please  
be prepared to turn on your webcam (participation voluntarily)

# Webinar Etiquette

- **The microphone should be muted by default**
  - They should only be switched on if you are speaking.
- **Only one person speaks at a time.**
  - Requests to speak are reported via chat ("**rts**"),
  - the moderator will ask then the speakers to speak.
  - Please state your name and institution before you speak
- **Please turn off your webcam!**
  - No general video transmission in order to reduce the bandwidth.
  - The camera can be used at short notice for spoken contributions.
  - We will make a “group-photo” at the end of each block
- **Caution with humor and sarcasm!**
  - much of the original effect between the lines can be lost

# Agenda Block I - policy framework and the big picture of digitalisation of energy infrastructures

9:30	Testing of technical connections
10:00	Introduction into the Webinar (Ralf-Roman Schmidt, AIT)
	National R&D perspectives for the digitalisation of the energy sector (Carsten Magaß, Project Management Juelich)
	<del>The role of digitalisation for future energy systems (Kathleen Gaffney, IEA Paris)</del> canceled
	The European framework (Alessandro Provaggi, DHC+/ Euroheat and Power)
	Interactive session and Q&A to all presenters
11:00	End of Block I



# Agenda Block II - Digitalization of district heating systems

12:00	Testing of technical connections
12:30	Introduction into the IEA DHC Annex TS4 project (Dietrich Schmidt, Fraunhofer IEE)
	The era net call on digitalization (Michael Hübner, Austrian ministry BMK)
	The utility perspective on digitalisation of district heating (Bernd Rüger & Karina Nold, Stadtwerke München)
	Digitalisation solutions for heat infrastructures (Martin Brüssau, SAMSON)
	Business opportunities from digitalisation (Steen Schelle Jensen, KAMSTRUP)
	Interactive session and Q&A to all presenters
14:00	End of Block II

# Agenda Block III - Hybrid energy system

15:00	Testing of technical connections
15:30	Introduction into the IEA DHC Annex TS3 project (Ralf-Roman Schmidt, AIT)
	Technologies for Hybridisation (Oddgeir Gudmundsson, Danfoss)
	GIS-based automated design of DH networks (Joseph Jebamalai, Comsof)
	Sector coupling between hydrogen and district heating (Hans Böhm, EI Linz)
	Interactive session and Q&A to all presenters
17:00	End of Block III

# The IEA technology cooperation program (TCP) on district heating and cooling (DHC)

- a platform for international experts
  - dedicated to helping to make DHC and CHP powerful tools for energy conservation and the reduction of environmental impacts of supplying heat
  - Current members: Austria, Belgium, Canada, China, Denmark, Finland, France, Germany, Korea, Norway, Sweden, United Kingdom, United States of America.
- The projects within the IEA DHC TCP are either
  - Funded through a **cost-sharing** approach (by the member states)
  - Funded through a **task-sharing** approach (the participants contribute resources in-kind for connecting existing national and international projects), e.g. Annex TS3 and TS4
- More information: <http://www.iea-dhc.org/home.html>

*Update: Italy recently joined!*



# National R&D perspectives for the digitalisation of the energy sector (*Carsten Magaß, Project Management Juelich*)



INTERNATIONAL ENERGY AGENCY TECHNOLOGY COLLABORATION PROGRAMME ON  
District Heating and Cooling including Combined Heat and Power





# The role of digitalisation for future energy systems (*Kathleen Gaffney, IEA Paris*)

Cancelled



INTERNATIONAL ENERGY AGENCY TECHNOLOGY COLLABORATION PROGRAMME ON  
District Heating and Cooling including Combined Heat and Power





# The European framework (*Alessandro Provaggi, DHC+/ Euroheat and Power*)



INTERNATIONAL ENERGY AGENCY TECHNOLOGY COLLABORATION PROGRAMME ON  
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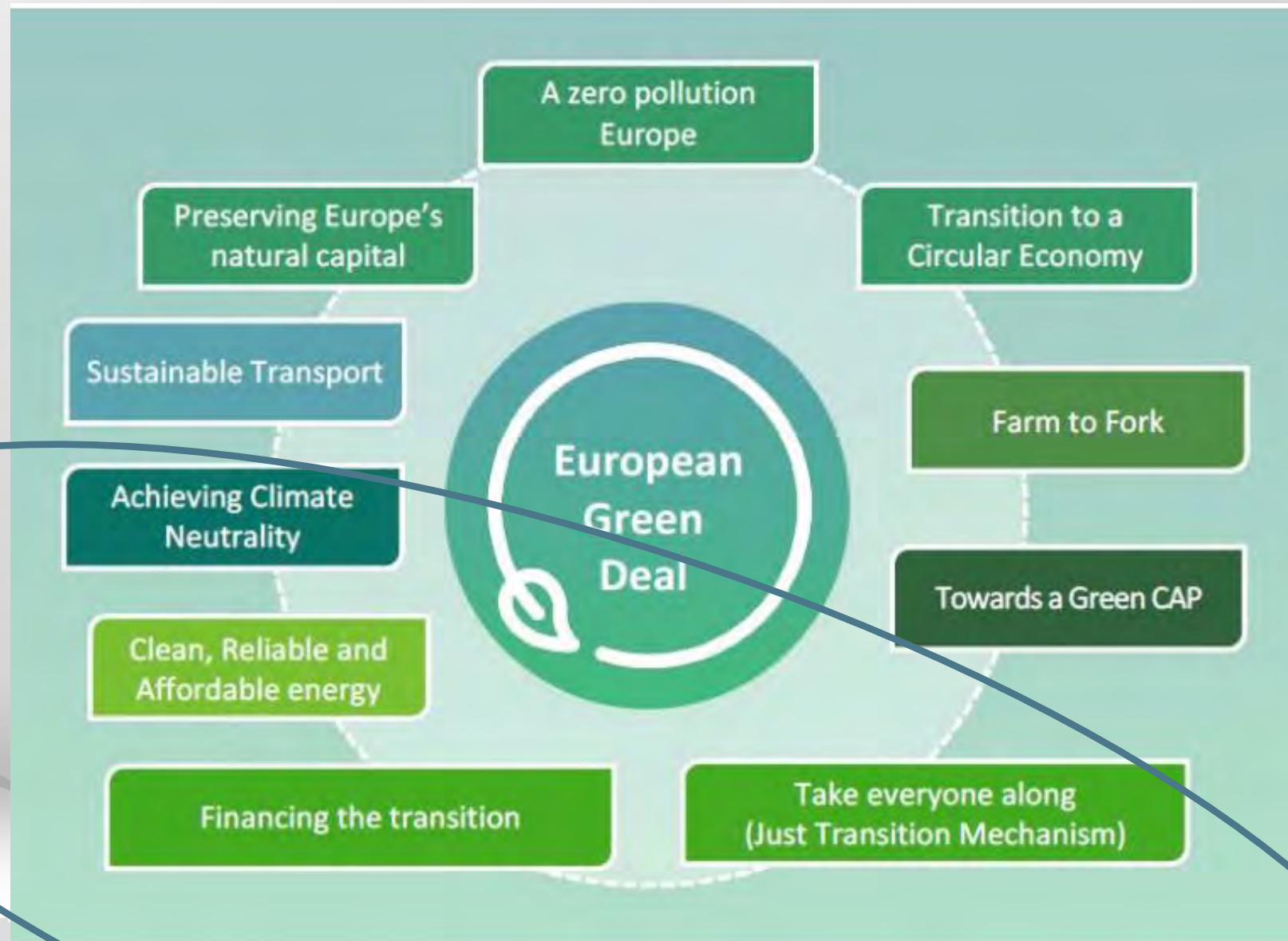




# The European framework for energy integration and digitalization in DHC

Alessandro Provaggi – Head DHC+ Platform

# From the Green Deal...





# ...To the Green Recovery



**Ursula von der Leyen**  @vonderleyen · Apr 28

As we start to rebuild our economies after the coronavirus, we need to invest in smartly. Our compass will remain the [#EUGreenDeal](#), which can transform our economies and societies to confront climate change. For the future of our planet and our children. [#GreenRecovery](#) 



**Frans Timmermans**  @TimmermansEU · Apr 28

The EU is ready to show climate leadership and take us out of the current economic crisis in a way that will increase our resilience.

We will translate the [#EUGreenDeal](#) into concrete recovery measures with quick results.

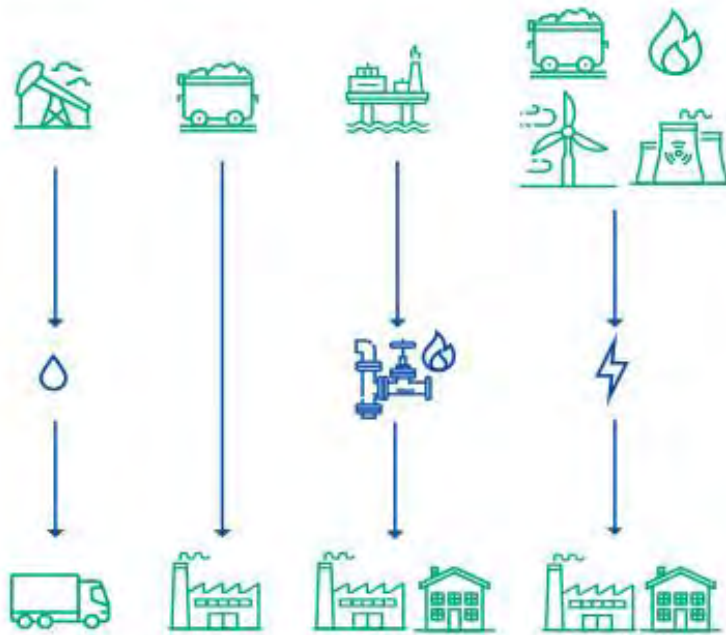


# Energy system integration

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN  
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL  
COMMITTEE AND THE COMMITTEE OF THE REGIONS

Powering a climate-neutral economy: An EU Strategy for Energy System Integration

**The energy system today :**  
linear and wasteful flows of energy,  
in one direction only



**Future EU integrated energy system :**  
energy flows between users and producers,  
reducing wasted resources and money





# What the strategy say about the role of DHC?

- *“Modern **low temperature district heating systems should be promoted**, as they can connect local demand with **renewable** and waste energy sources, as well as **the wider electric and gas grid** – contributing to the **optimisation of supply and demand across energy carriers**”.*
- *“On the circular economy side, **facilitate reuse waste heat** from industrial sites and **data centres**, through strengthened requirements for connection to DHC, energy performance accounting and contractual frameworks”.*

**AN EU ENERGY  
SYSTEM INTEGRATION  
STRATEGY**

**#EUGreenDeal**

# And about energy integration + digitalization ?

- *“Consumers play an active role in a ‘multi-directional’ system by exchanging heat in smart networks”.*
- *“Heat pumps and smart district heating to provide opportunities for "arbitrage" between electricity and gas markets”.*
- *“Union to maintain and leverage its leadership in clean technologies such as smart grid technologies and district heating system”.*
- Section on *“A digitalised energy system and a supportive innovation framework”*



# EU funding opportunities are scaling up !

- RES and digitalization are the priority !
- Green Deal call : 1 Billion extra of funding opportunities
- EU and Budget Horizon Europe under negotiation with EP
- 390 billion recovery funds to focus on energy and digital
- Focus digitalization: 5G, AI, cloud, cybersecurity, supercomputing



## Some tips

- Digital solutions as enabler for the operation of multi-source DHC networks.
- Digital transformation and digital infrastructure to co-create and test solutions with local communities, including changes in social practices and behaviour.
- So not only energy efficiency/optimization but usability, and secure operation ensuring optimal comfort for users and a healthier environment.
- Address skills gaps!

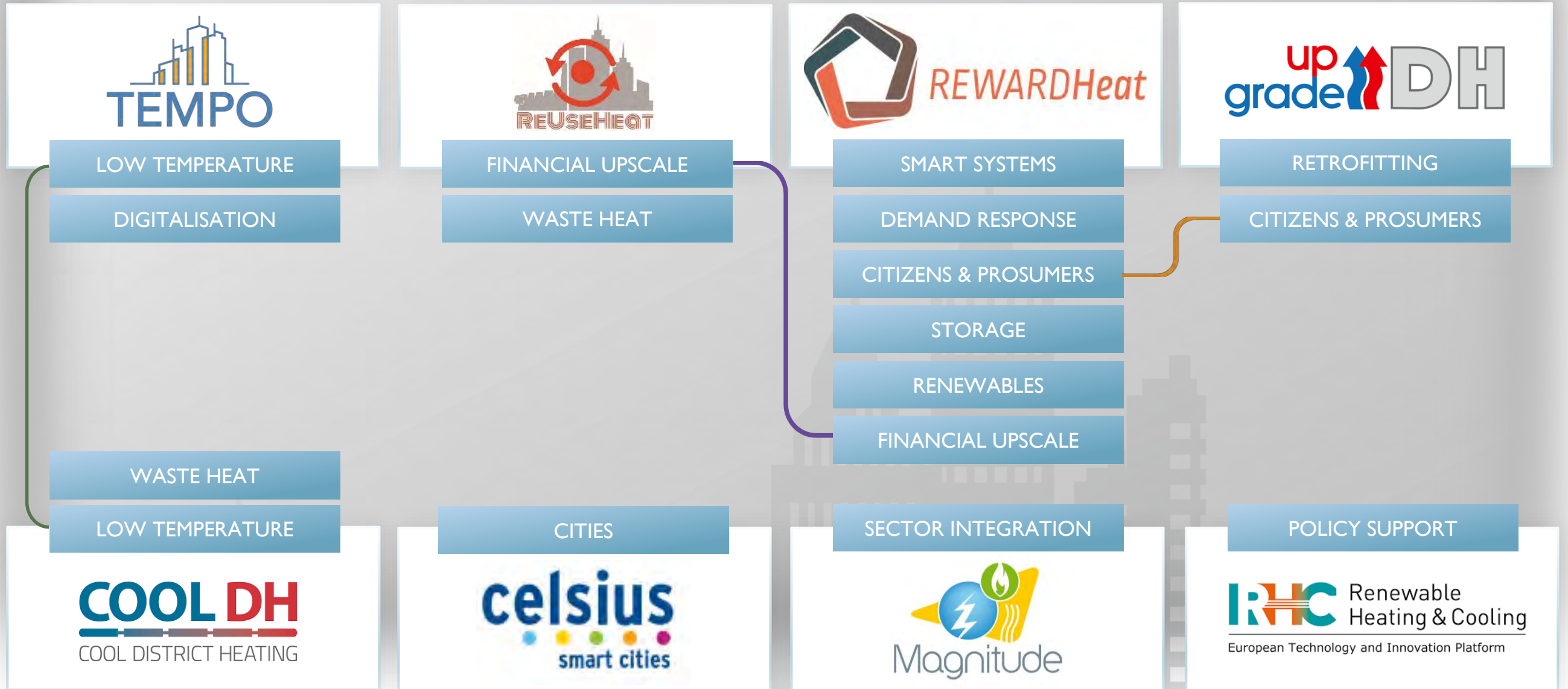


# DHC+ support for projects



- GENERAL SUPPORT FOR:
  - Partners searching for your consortium
  - Consortium building /search
  - Networking
  - Dissemination and Communication
  - Demo sites
  - Funding Opportunities monitoring

# ONGOING PROJECTS





# Thank you for your attention!

**DHC+**  
TECHNOLOGY PLATFORM



Under the umbrella of



Stay in touch!

✉ [ap@euroheat.org](mailto:ap@euroheat.org)

in [alessandro-provaggi](#)

🐦 [@aprovaggi](#)

# Q&A to all presenters

INTERNATIONAL ENERGY AGENCY TECHNOLOGY COLLABORATION PROGRAMME ON  
District Heating and Cooling including Combined Heat and Power



# Summary and next steps

- We will make the **recording of the webinar** available on the IEA DHC YouTube channel <https://www.youtube.com/channel/UCuYcqLjJi8thrUJCjzLBaow> and send out the **presentation slides**
- If you want to **join the IEA DHC Annex TS3 or TS4**, please contact
  - Ralf-Roman Schmidt, [ralf-roman.schmidt@ait.ac.at](mailto:ralf-roman.schmidt@ait.ac.at) (leader TS3)
  - Dietrich Schmidt, [dietrich.schmidt@iee.fraunhofer.de](mailto:dietrich.schmidt@iee.fraunhofer.de) (leader TS4)
  - AND: contact your national IEA DHC representative for funding opportunities <https://www.iea-dhc.org/home/>



**Group photo - please smile**





# Thank you for your attention!

**Webinar Digitalization for optimizing integrated district heating systems - Block I**

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