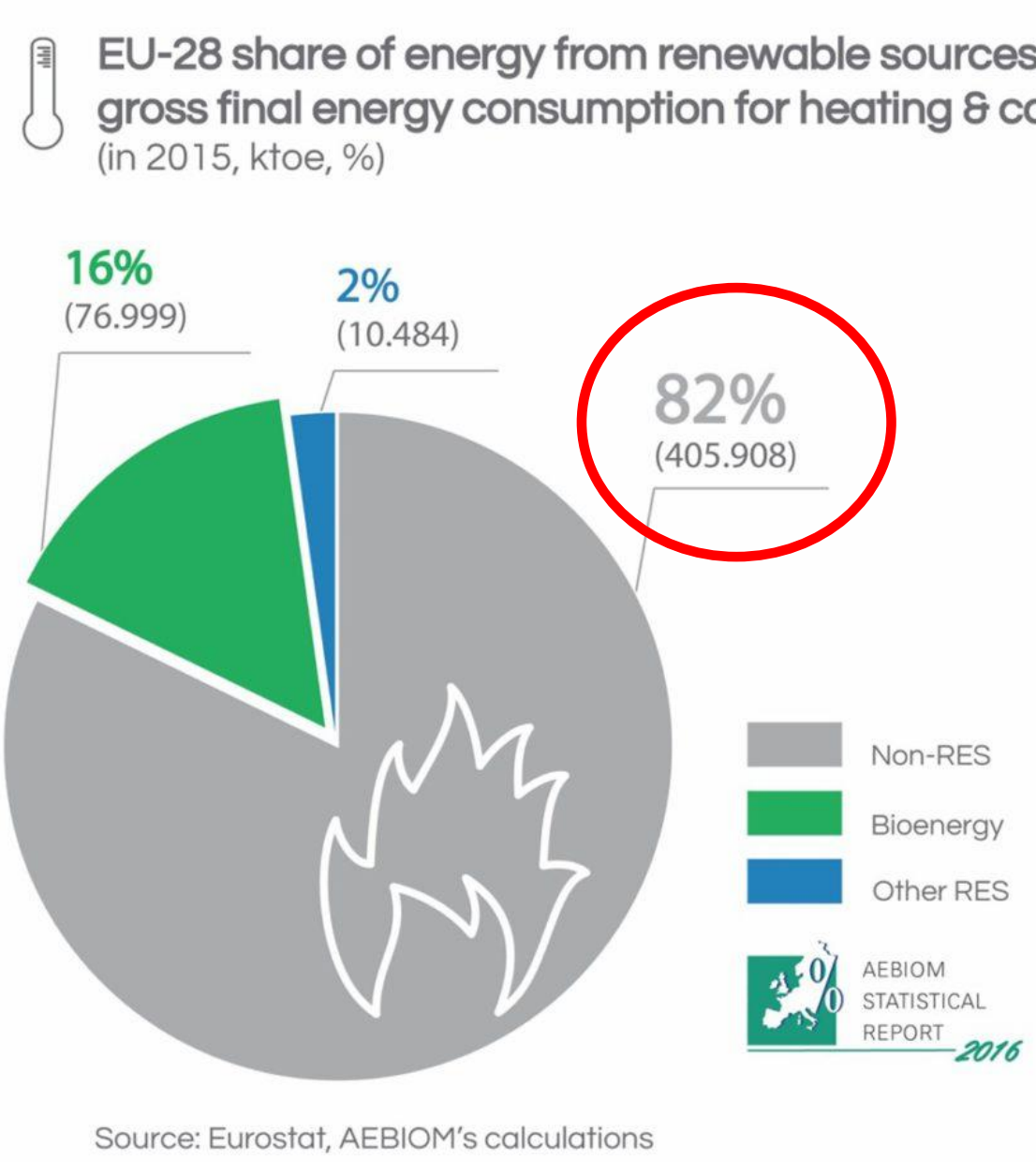
SMALL MODULAR RENEWABLE HEATING AND COOLING GRIDS FOR COMMUNITIES

Dominik Rutz
WIP Renewable Energies

Final International Conference of the EU H2020 Projects
BioVill and CoolHeating
„Market Uptake of Renewable Energies for Heating and Cooling“

28 November 2018

Manos Conférence Centre
Chaussée de Charleroi n°135
Brussels, Belgium



- Politics mainly focuses on the electricity sector, in the meantime also on the transport sector!
- **We need a RADICAL change in the heating sector!**
- The main challenge are not new buildings, but the **existing buildings**!

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WIP RENEWABLE ENERGIES

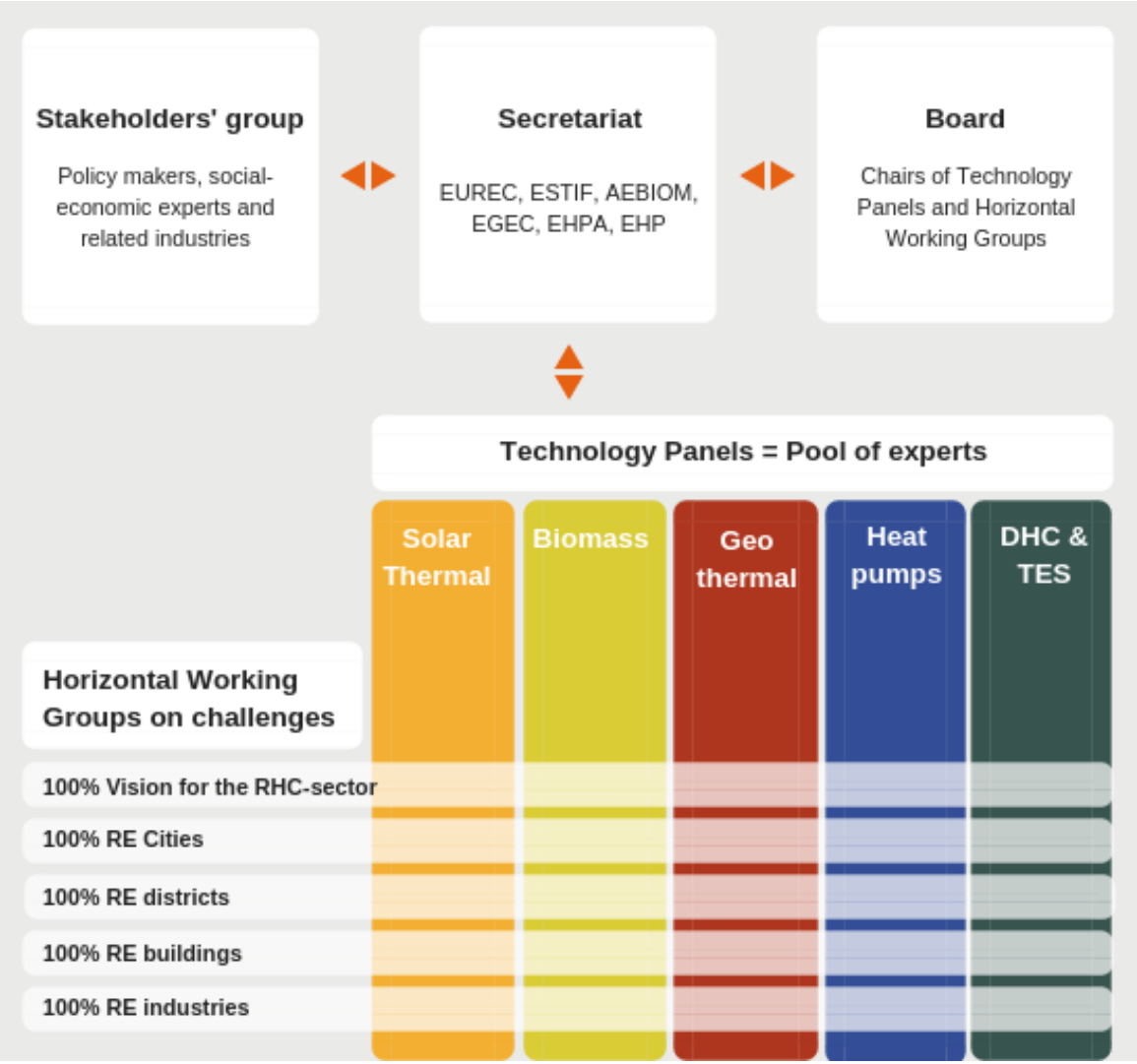
Renewable Heating & Cooling

European Technology and Innovation Platform

- The **European Technology and Innovation Platform on Renewable Heating & Cooling** (RHC-ETIP) brings together stakeholders from the biomass, geothermal, solar thermal and heat pump sectors – including the related industries such as district heating and cooling, thermal energy storage, and hybrid systems – to define a **common strategy for increasing the use of renewable energy technologies for heating and cooling**.
- The European Strategic Energy Technology (**SET**) **Plan** was proposed by the EC in order to accelerate the deployment of low-carbon energy technologies
- The SET Plan recognises the **essential role of renewable energy sources for heating and cooling** as a part of the EU's strategy to improve the security of the energy supplies and to foster a competitive edge in the related highly innovative industries.
- SET-Plan Temporary Working Groups → SET-Plan Implementation Working Groups

- Get involved: www.rhc-platform.org

RHC-ETIP structure



COOLHEATING

- Duration: January 2016 – December 2018
- Supported by: EU Horizon2020 programme

- Objective: support the implementation of "*small modular renewable heating and cooling grids*“ for communities in South-Eastern Europe

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COOLHEATING CONSORTIUM

WIP Renewable Energies, Germany

PlanEnergi, Denmark

Güssing Energy Technologies GmbH, Austria

University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Croatia

Skupina Fabrika d.o.o., Slovenia

International Center for Sustainable Development of Energy, Water and Environment Systems - Macedonian Section, Macedonia

University of Belgrade, School of Electrical Engineering, Serbia

JP Elektroprivreda BiH d.d.-Sarajevo, Bosnia-Herzigovina

City of Šabac, Serbia

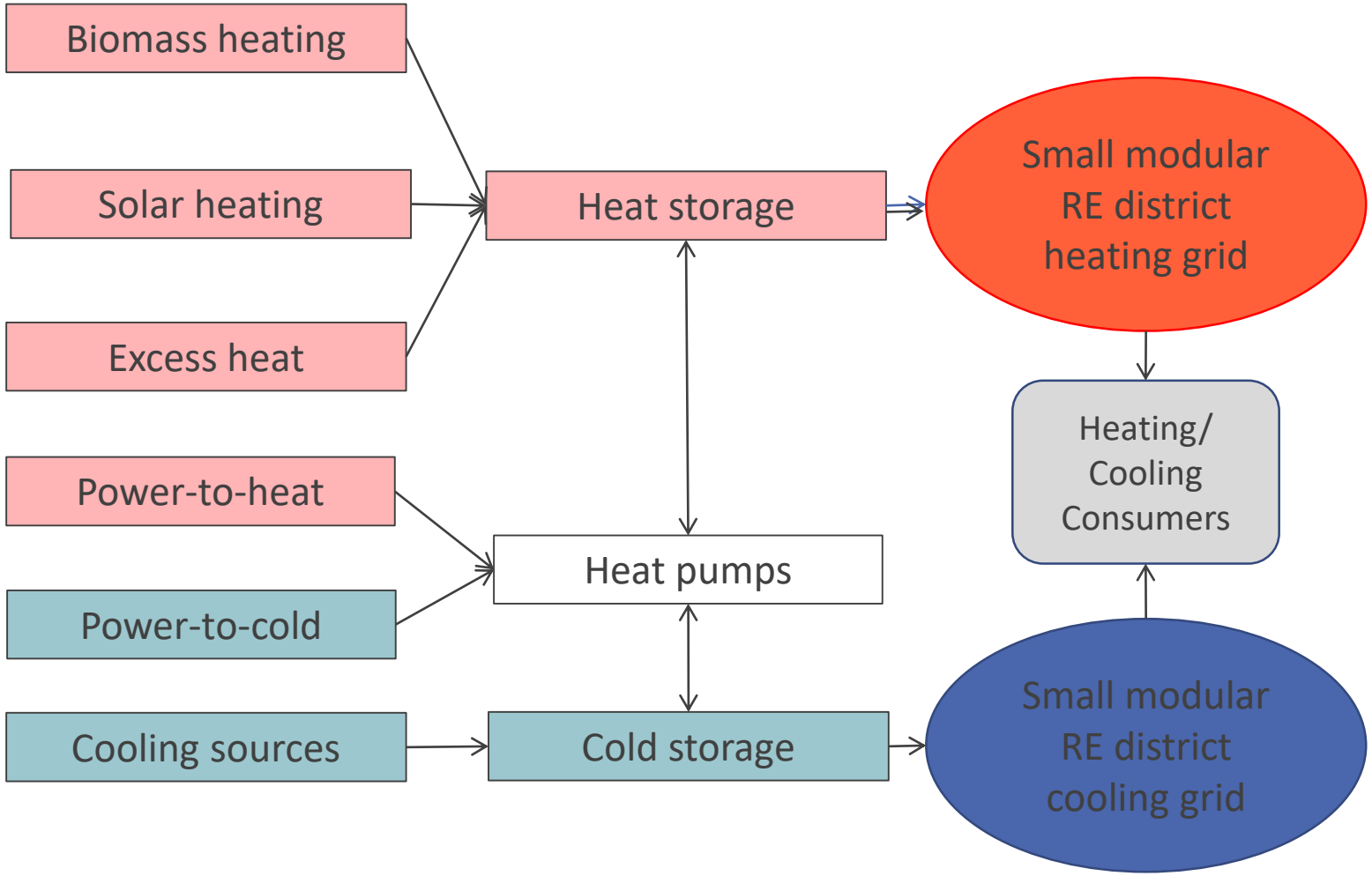
Opcine Visoko, Bosnia-Herzigovina

Občina Ljutomer, Slovenia

STATUS QUO:
RENEWABLE SMALL-SCALE DISTRICT HEATING

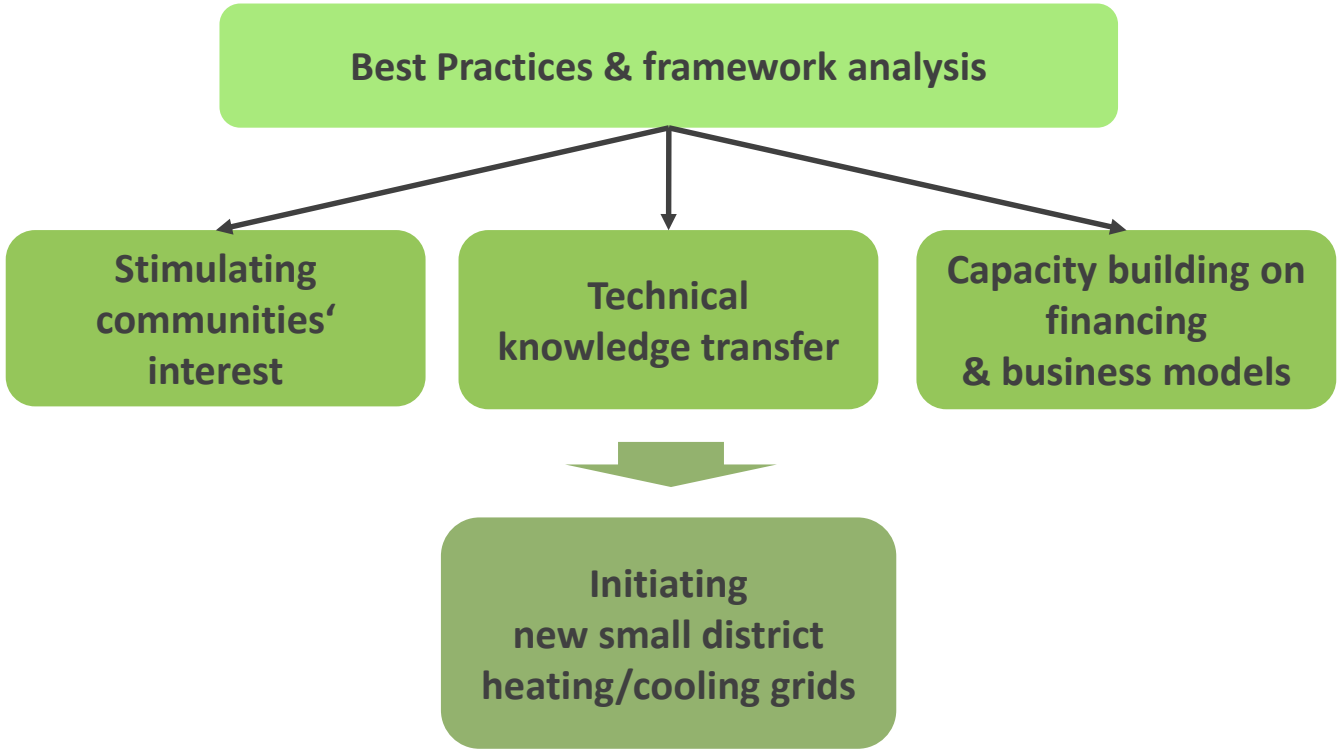
- Mainly biomass (wood-chips) dominated
- Only few solar district heating examples
- Only very few modular RE heating examples
- Very limited district cooling examples
- Only little development in South-Eastern Europe

SMALL, MODULAR, RENEWABLE HEATING AND COOLING



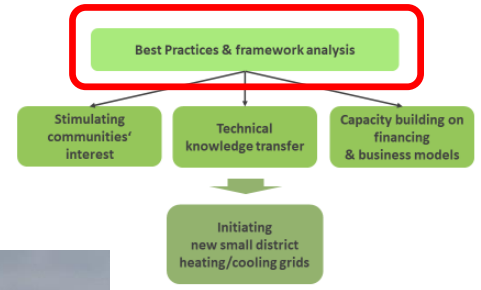
GEOGRAPHICAL FOCUS

PROJECT SETUP



Objective: **Stimulating projects up to the investment stage!**

BEST PRACTICE EXAMPLES IN DENMARK



BEST PRACTICE EXAMPLES IN DENMARK

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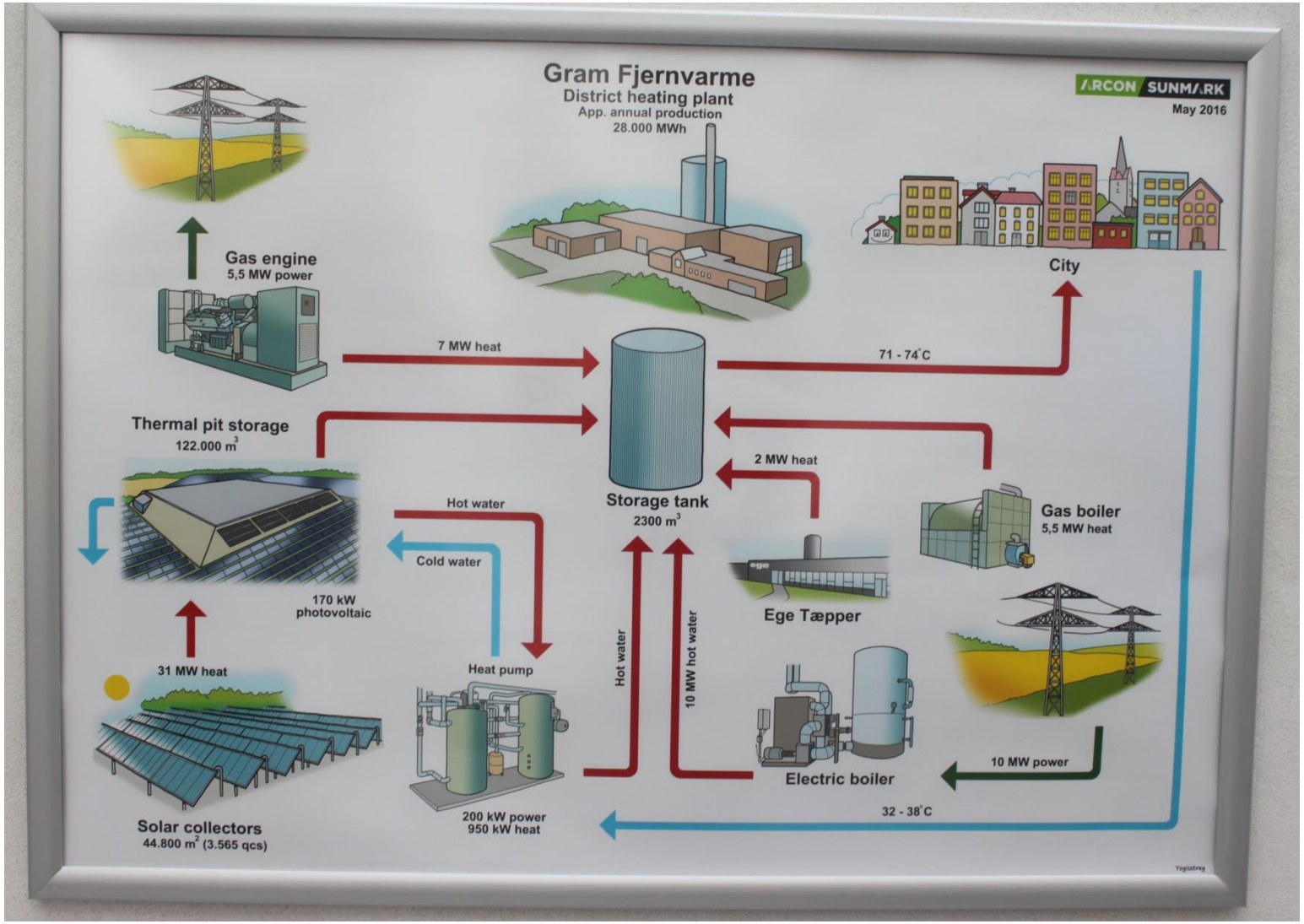
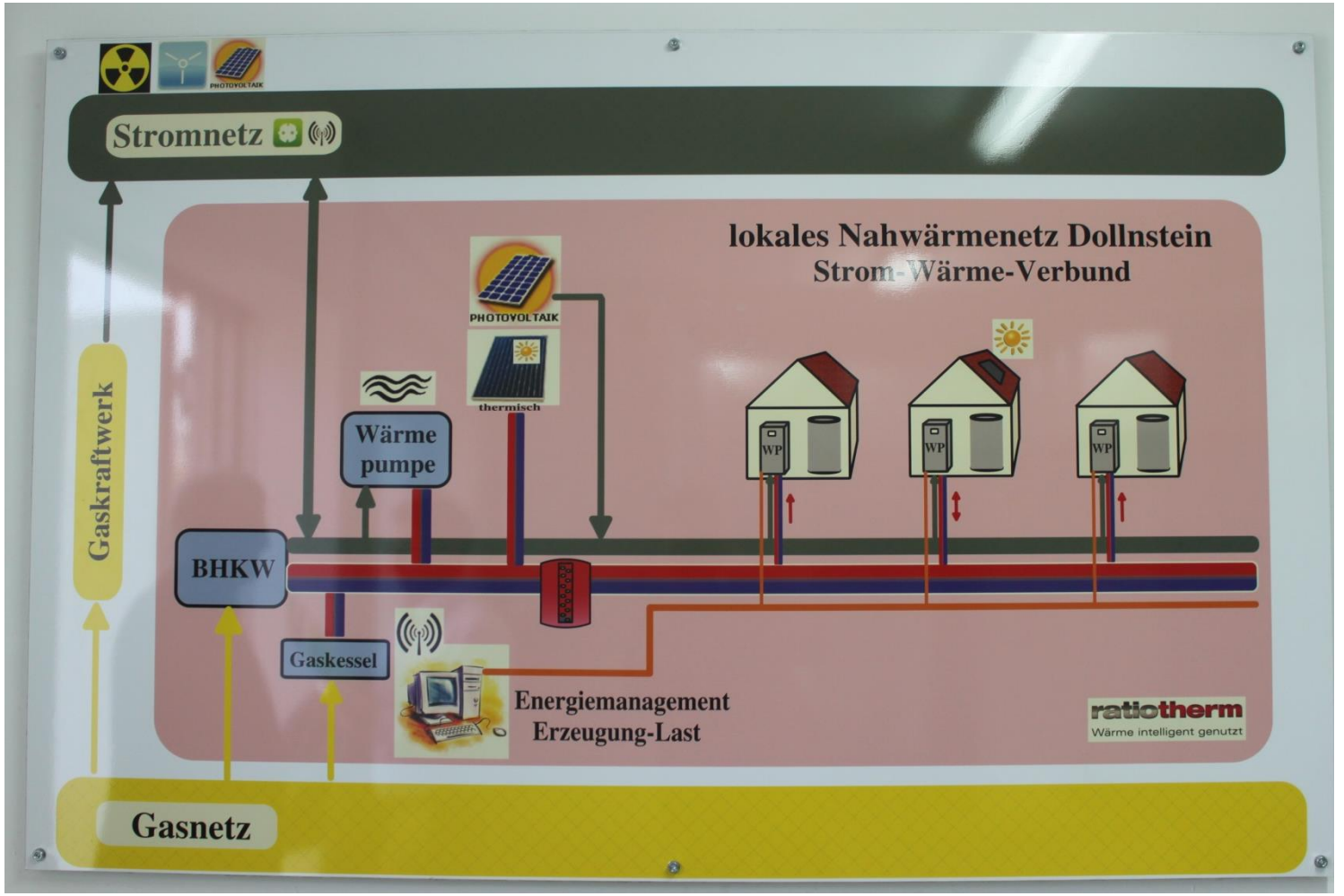
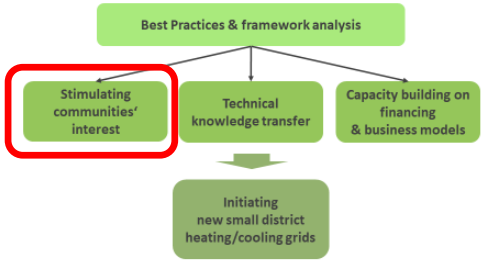


BEST PRACTICE EXAMPLES IN GERMANY



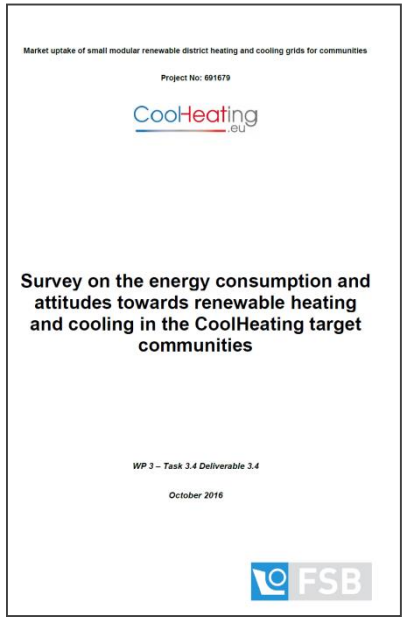
→ seasonal low temperature (30°C) heating grid (summer/winter operation)

DATA ASSESSMENT AND PUBLIC PARTICIPATION



Surveys with the following focus:

- Awareness about the CoolHeating project
- Status of building
- Enegy demand of building and hot water
- Type of applied enregy for heating, cooling, hot water
- Interest in district heating


Market uptake of small modular renewable district heating and cooling grids for communities

Project No: 691679

CoolHeating.eu

Survey on the energy consumption and attitudes towards renewable heating and cooling in the CoolHeating target communities

WP 3 – Task 3.4 Deliverable 3.4

October 2016

FSB

Source: http://www.coolheating.eu/images/downloads/CoolHeating_Survey_3.4.pdf

SURVEY RESPONSES

	Households	Collected questionnaires	Response rate
Ozalj, Croatia	2,283	390	17.1%
Cven (Ljutomer), Slovenia	226	98	43.4%
Visoko, Bosnia and Herzegovina	12,900	512	4.0%
Karposh, Macedonia	19,680	739	3.8%
Sabac, Serbia	39,166	608	1.6%
Total:		*2,344*	

CURRENT ENERGY SOURCES: DIFFERENT RESULTS…

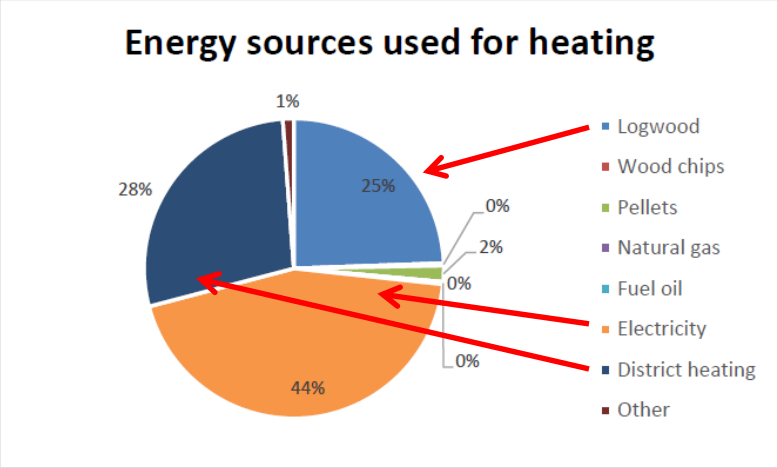


Figure 89. Energy sources used for heating of households in the Municipalty of Karposh

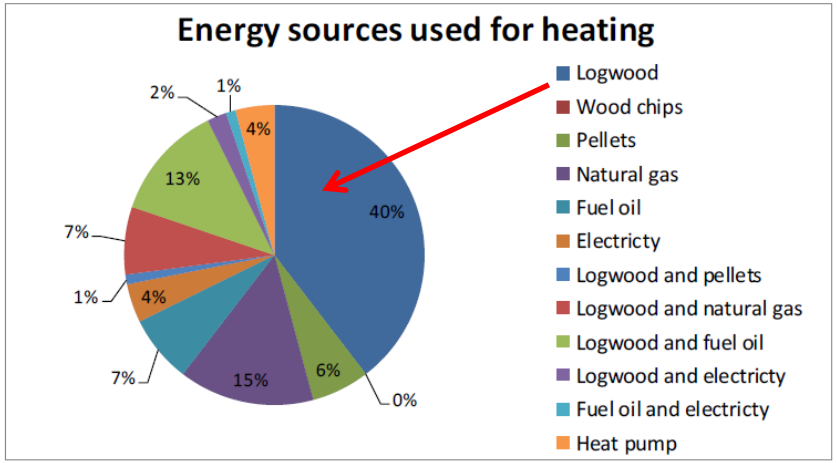


Figure 35. Energy sources used for heating of households in Cven

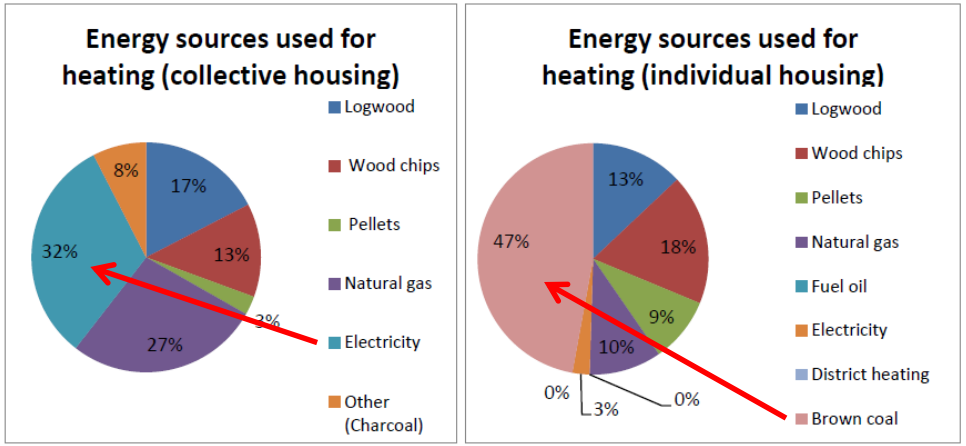


Figure 58. Energy sources used for heating of households in Visoko

OPINION TOWARDS DH

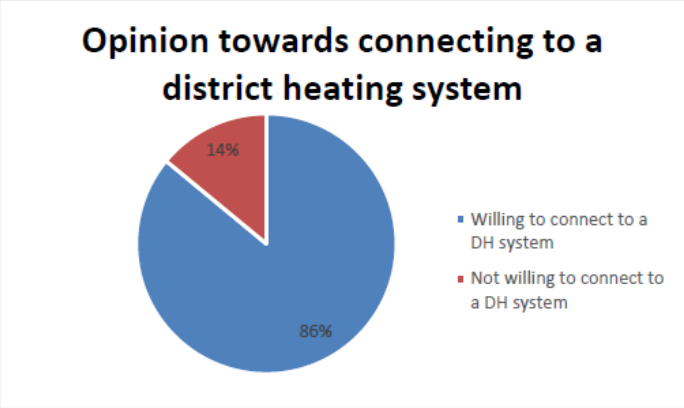


Figure 99. Opinion of citizens of Karposh towards connecting to a district heating system

→ Different results for the communities…!

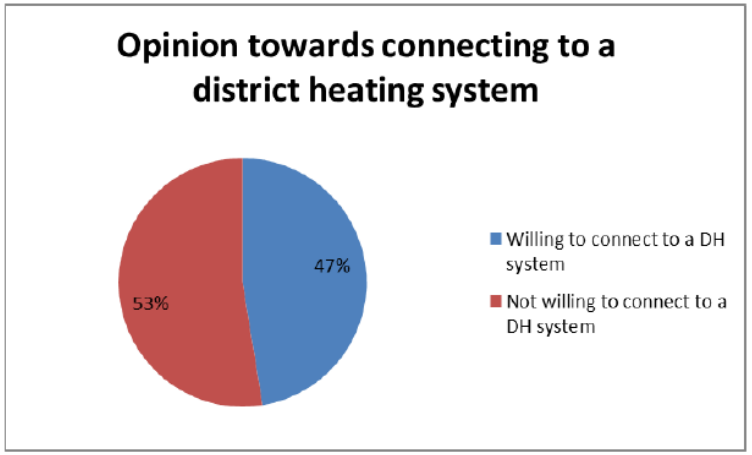
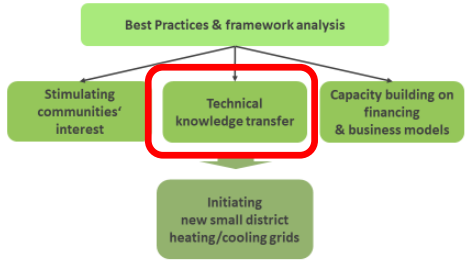
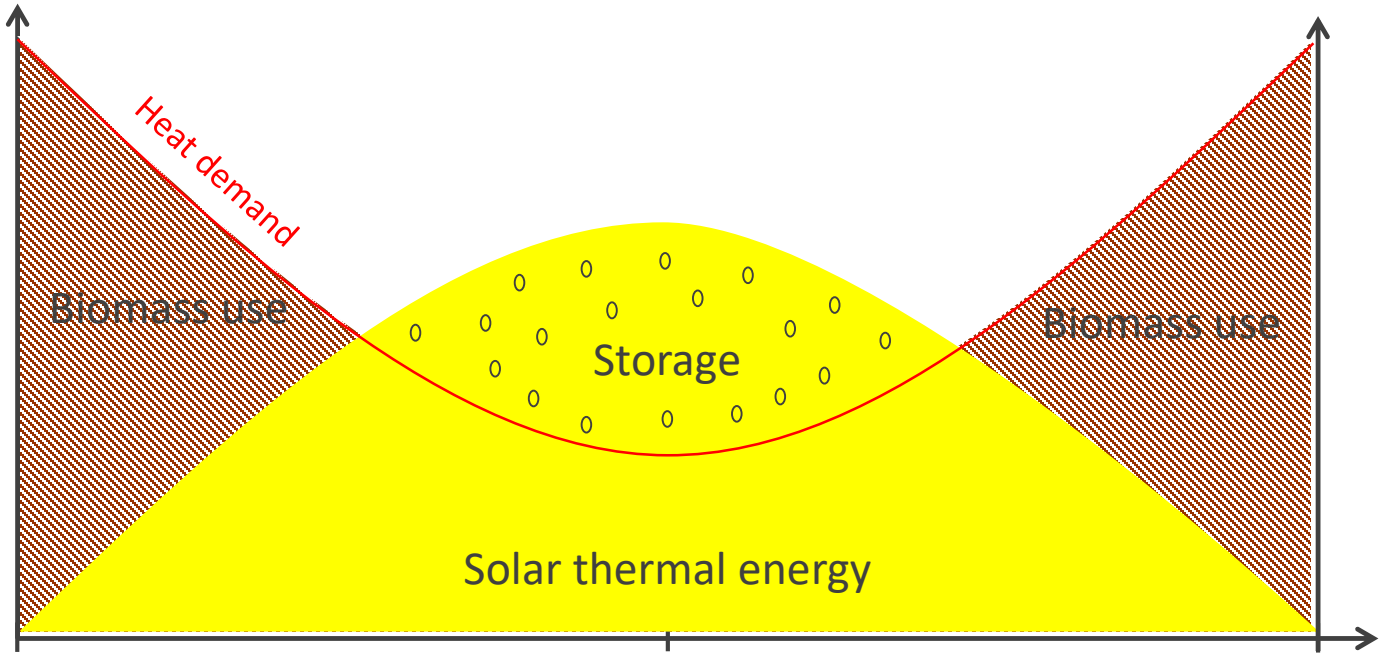


Figure 121. Opinion of citizens of Šabac towards connecting to a district heating system

COMBINATION OF BIOMASS/SOLAR

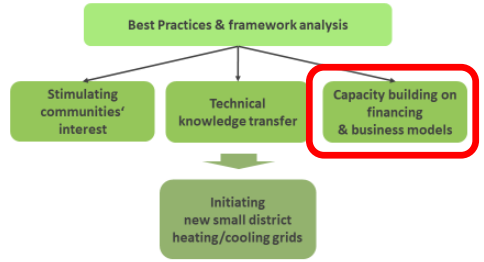


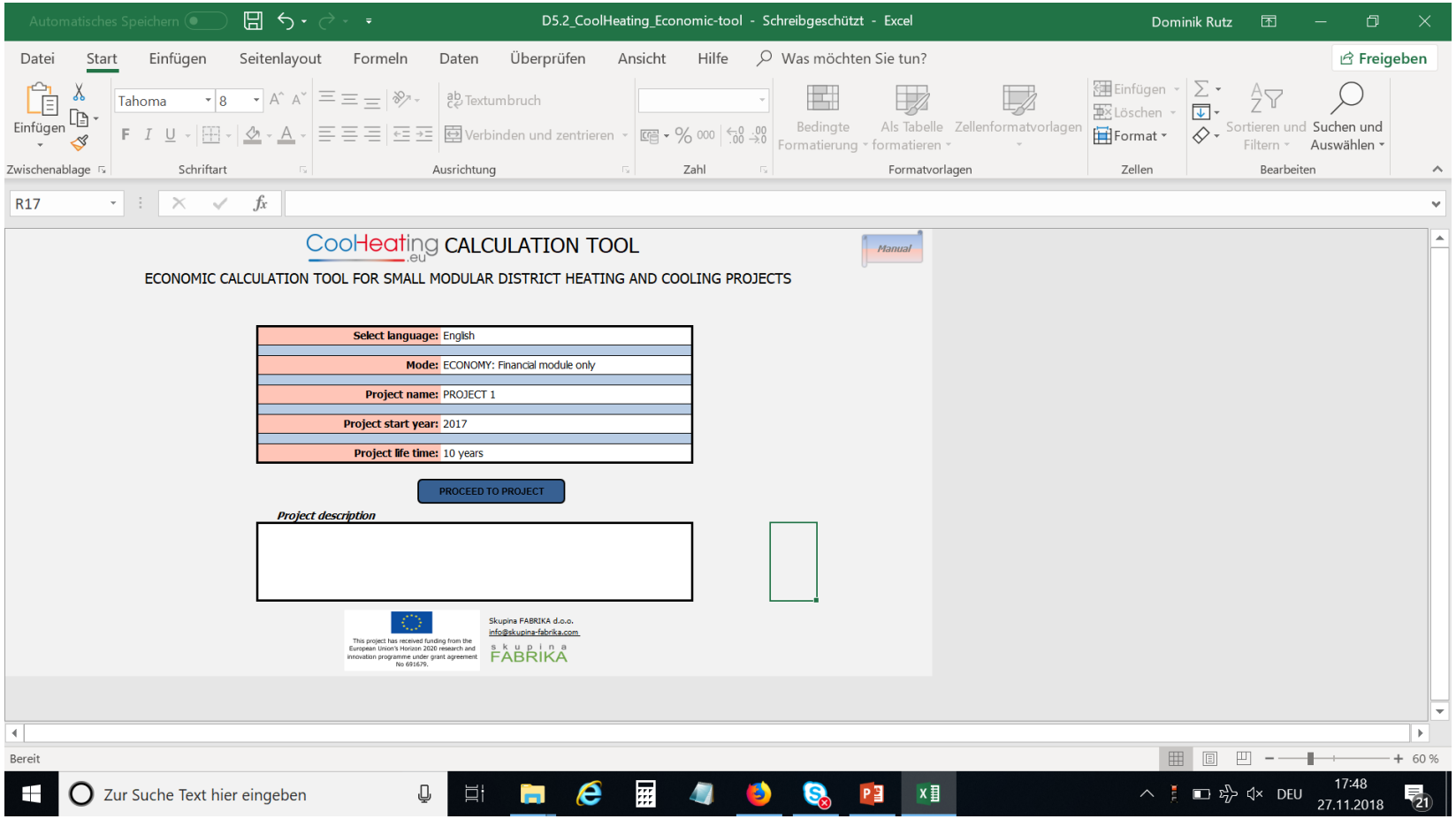


Advantages:

- Reduced demand for biomass
- Lower maintenance needs of biomass boilers
- Reduced need for solar storage capacity

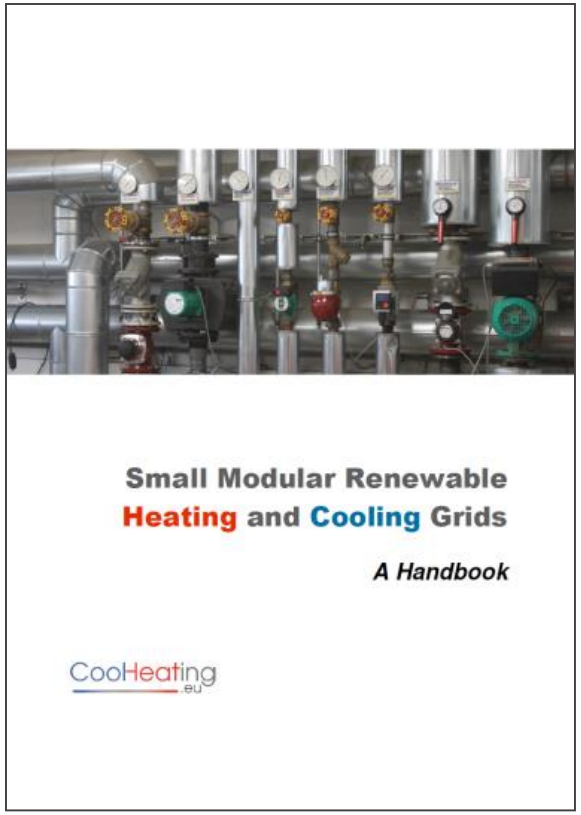
SUPPORT ON FINANCING AND BUSINESS MODELS



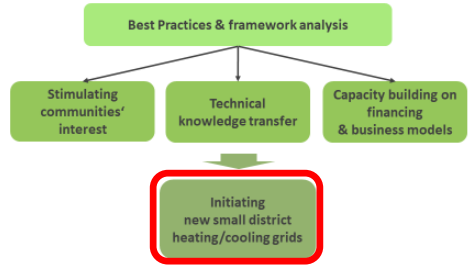


COOLHEATING HANDBOOK

- **Idea**: providing up-to-date information on DHC for the target countries
- In **English** already available
- Soon coming up: national versions in **Bosnian, Croatian, Macedonian, Serbian, Slovenian, German**
- 110 pages
- Available for **free**: http://www.coolheating.eu/images/downloads/CoolHeating-Handbook.pdf



MANY EVENTS



- Workshops, study tours, bi-lateral meetings, training courses, seminars….
- … for citizens, mayors, key stakeholders…

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DISSEMINATION THROUGH SOCIAL MEDIA

https://www.facebook.com/groups/CoolHeating/

COMMITTMENTS!

BOSNA I HERCEGOVINA
FEDERACIJA BOSNE I HERCEGOVINE
ZENIČKO-DOBOJSKI KANTON
OPĆINA VISOKO
OPĆINSKA NAČELNICA

Broj: 01/2-02-327-1/18
Datum: 17.10.2018. godine

To:
European Commission - Innovation and Networks
Executive Agency (INEA)
Daniel MARAVER DE LEMUS, PhD
Project Officer Horizon 2020 – Energy Research
Chaussée de Wavre 910
W910 03/26
B-1049 Brussels/Belgium

+32 2 295 29 69
daniel.maraver@ec.europa.eu
http://ec.europa.eu/inea

Letter of commitment of the involved

In the framework of the project CoolHeating with the tit
heating and cooling grids for communities" (Grant A
Horizon 2020 research and innovation progra
have been elaborated by the consortium.

We, **The Municipality of V**
Ekoenergija as the fir
manager, are und

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savings,
", increased

al and legal aspects have been

pumps, solar collectors (thermal and PVs), gas

,000 €;
atity;
redit line (75%) and investment **subsidy** (25%);
energy over the project lifetime will be equal or lower than the average existing
area;
condition will be set in order to keep the lowest possible heating price;
quity internal rate of return for the project will be around 10% and the payback time will be around 12
years.

Ulica A. Izetbegovića br.12A, 71300 Visoko, tel:032/732-501, fax:032/738-330, mail: nacelnica @visoko.gov.ba

BOSNA I HERCEGOVINA
FEDERACIJA BOSNE I HERCEGOVIN
ZENIČKO-DOBOJSKI KANTON
OPĆINA VISOKO
OPĆINSKA NAČELNIC

On behalf o

Ulica A. Izetbegovića br.12A, 71300 Visoko, tel:032/732-501, fax:032/738-330, mail: nacelnica @visoko.gov.ba

For each of the 5 concepts **Letters of Committments** were signed by high level representatives (Mayors)

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CONCLUSION

- The calculated **heat price** for the consumers will infl… …isation of the concepts
- Main focus on heating, not so much o…
- 5 projects include **biomass** …
- 3 projects includ…
- In all … …ed
- Su… …ply) was discussed, as … …sses

1 project **in the implementation!**

2 projects with **high implementation potential within next 3 years**

2 projects with implementation potential within next 5 years

THANK YOU TO ALL…

EC / INEA
PROJECT PARTNERS
STAKEHOLDERS
CONFERENCE PARTICIPANTS

Dominik Rutz

WIP Renewable Energies
Sylvensteinstrasse 2
81369 Munich, Germany

Dominik.Rutz@wip-munich.de

www.wip-munich.de