Second Train the Trainer session – Fundings, Economics and Financing
June 18th 2020 (online)

Second Train the Trainer session:

Fundings of Renewable District Heating

ENTRAIN |Energie Agentur Steiermark| Heidrun Kögler

Fundings of Renewable District Heating Systems in Austria

WHY SCHOOLD WE FUND RENEWABLE DHS?

1) Contribute to the global and EU target of decarbonising our heating sector,

2) highly positive effect on creating local jobs and increase the regional added value.

→ Funding criteria:

- Highly efficient operation
- Economically sustainable operation
  - Fuel supply from regional forests
  - 12 billion euros are generated in the forestry and wood sector
  - Generates regional jobs and
  - increases the regional added value

OVERVIEW OF FUNDING FOR RENEWABLE DHS IN AUSTRIA

1) Investment Fundings: Operator side
   - Special is here the QM Heizwerke, which is obligatory to get investment subsidies

2) Consultation for older biomass District Heating Systems

3) Subsidies on customer side

General information

- One-time, non-refundable investment subsidies,
- processed by the Austrian Funding Agency KPC,
- application must be handed in before the start of the project,
- Eligible are all companies, other entrepreneurial organizations, associations and cooperatives and religious denominations,
- The funding is only provided for projects whose investment costs exceed 10,000 Euros (geothermal heating plants: 35.000 Euros),
- CO2-emission savings must be at least 4 tons per year,
- For all investment grants an additional funding is possible:
  - 5 % (max. 10.000 €) for EMAS certified companies;
    5 % sustainability grant
  -

www.umweltförderung.at; own processing

1. INVESTMENT FUNDINGS: OPERATOR SIDE

What will be funded?	tech. requirements	funding base and funding rate	funding max
1) New biomass heating plants and heating grids (heat supply for at least 2 separate spatial objects and 2 different owners; for DHS with less than 4 connected objects, the connection of a new building is not eligible) Included plant components are: → New construction of the heating plant, machinery equipment and the fuel depot, → District heating pipelines and district heating substation (if it is owned by the applicant), → Measures to increase the efficiency of the heating plant – such as fuel drying or solar thermal systems, …	- Total fuel utilization rate of min.75%; - return flow temperature of max. 55°	**Funding base:** additional costs for the environment relevant investment (eligible costs less costs for equivalent fossil heating systems) **Funding rate:** 25% of the funding base 30% if EU co-financing criteria are met → www.umweltfoerderung.at/uploads/_eler_auswahlkriterien.pdf	900 €/t CO2 saved by the costumers or required investment support according to online application
2) Expansion of existing heating grids based on biomass, geothermal or industrial waste heat Included are: → excavation work → District heating pipelines and district heating substation (if it is owned by the applicant) → Necessary adaption of the heating plant and hydraulic system	- Total utilization rate of the DHS (=sold heat vs. fuel input) has to be min.75%; - A reduction of return flow temperature	**Funding base: e**ligible costs of environment investment **Funding rate:** 25% of the funding base; 30% if EU co-financing criteria are met	1.350 €/t CO2 saved or required investment support according to online application
3) Optimization of heating plants and networks Included are: Measures for optimization of the DHS to reduce the fuel input: - Primary sided: control system and plant components, that are relevant for the fuel input such as fuel gas condensation, puffer storage, fuel drying system, .. - secondary sided: such as optimization measures of the district heating substation and measures to reduce the return flow temperature.	- Primary side: Reduction of fuel consumption - Secondary side: reduction of return flow temperature - Increase overall efficiency	**Funding base:** eligible costs of environment relevant investment **Funding rate:** Primary sided: 15%, secondary sided: 20% of the funding base, Primary sided: 20%, secondary sided: 30% if EU co-financing criteria are met.	required investment support according to online application
4) Renewal of boilers in existing biomass DHS Included are: → **Biomass boilers which are smaller or of equal size as the previous ones**	- Increase of efficiency	**Funding base: e**ligible costs of environment relevant investment **Funding rate:** 15% of funding base; 20% if EU co-financing criteria are met	

1. INVESTMENT FUNDINGS: OPERATOR SIDE

What will be funded?	tech. requirements	funding base and funding rate	funding max
5) Biomass cogeneration (CHP): with or without distribution grid Included plant components are: → Establishment of new heating plant and fuel depot → Boiler (steam generator or thermal oil boiler) → Conversion into electricity (cogeneration unit or steam turbine) → District heating pipelines and delivery station	- Biomass cogeneration must have a fuel conversion efficiency of at least 60 % and - Min. 30 % heat of cogeneration has to be used annually	**Funding base:** additional costs for the environmental investment (eligible costs less costs for equivalent fossil heat generator) **Funding rate:** 20 % of funding base (is the heat usage less than 100%, there will be a proportional reduction of funding)	675 €/ton CO_2 saved or required investment support according to online application
6) Geothermal heating plants for individual customers or for DHS Included plant components are: → **Deep drilling for geothermal plants for individual customers and DHS** → **Geothermal cogeneration** → **Subsequent use of existing geothermal drillings**	- Execution und evaluation of test drilling to prove technical usability of geothermal potential - Acceptance tests of the system	**Funding base**: additional costs for the environment relevant investment (eligible costs less costs for equivalent fossil heat generator) **Funding rate:** 30% of funding base	1.350 €/ton CO_2 saved or required investment support according to online application
7) Densification of renewable heating plants and networks Included are: → Up to 25 DH customer substations on existing lines of DHS up to 50 kW nominal heat output: • excavation work • District heating pipelines and district heating substation (if it is owned by the applicant)		Amount of the funding: € 4.000,- for each DH customer substations/connections. It is limited with 35% of the investment costs.	

www.umweltförderung.at; own processing

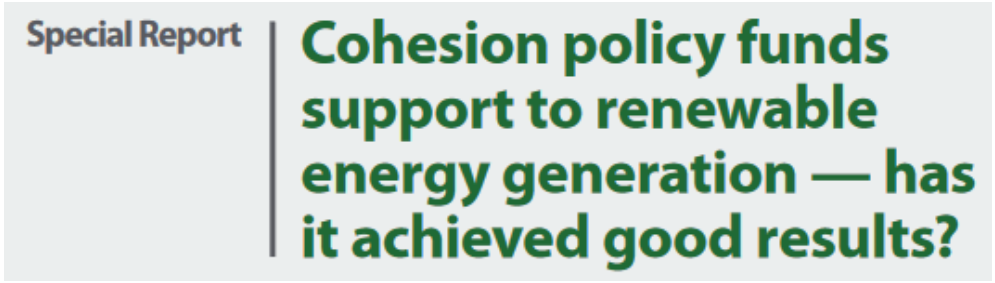
Funding is coupled to Quality Management system

QM Heizwerke is obligatory to get investment subsidies

(nominal boiler load ≥ 400 kW and/or ≥ district heating route length ≥ 1000 m)

- New heating plants and networks
- Enlargement of heating plants/networks

That is why the Austrian funding system was recommended by the European Court of Auditors:



CURIA RATIONUM
EUROPEAN COURT OF AUDITORS

www.umweltförderung.at; own processing

What will be funded?

Advice services for the technical, organizational and economic improvement of the operation of biomass DHS

- Modernisation and renewal of plant components
- Continuation of the optimization of plants
- Expansion and densification of the heating plant and the grid
- Integration of other renewable heating sources (sorlar thermal energy, waste heat,…)

Plant has to be older than 20 years.

- **Maximum of 80 hours of consultancy** (total value of advisory **package € 3,200)** and a maximum of **50% of this is funded.**
- possibility to start with a nearly **cost free start up consultation before**
- List of available WIN consulters (=quality managers) of klimaaktiv QM Heizwerke is online

www.win.steiermark.at; own processing

General information

- In Austria the funding for costumers for biomass based DHS is different in each federal state
- Tenants and owners of houses or flats as well as the property management can get the funding
- DH connections are eligible for the subsidy:
  - if changing from existing individual heating systems and
  - for new buildings of one- and two-family houses.

Source: www.wohnbau.steiermark.at; own processing

Funding requirements

- No other fundings from federal state agencies are allowed
- Corresponding agreements between the DHS operator and the Land of Styria
- The DHS has to be completely or partially (at least 80%) feed of sources of renewable energy, highly efficient cogeneration plants or other waste heat
- customers have to commit to obtain their heating energy for at least 3 years from the DHS.

Source: www.wohnbau.steiermark.at; own processing

3. SUBSIDIES ON CUSTOMER SIDE: OVERVIEW FUNDING RATES PROVINCE OF STYRIA

Number of Housing Unit (HU)	fundig Land Styria (€) max	funding of the DHS operator (€) max	total funding (€) max
	private home/housing unit		
funding rates: switch to district/local heating			
private home (one/two family house)	600	600	1.200
apartment building with 3 to 4 HU (housing units)	300	300	600
apartment building with 5 to max. 20 HU	250	250	500
apartment building more than 21 HU	150	150	300
Funding rates: new buildings			
private home (one/two family house)	600	600	1.200

Source: www.wohnbau.steiermark.at; own processing

Fundings of Renewable District Heating Systems in Germany

Project Meeting No. 3, June 17th 2020 (online)

Funding possibilities of RES DH in Region Neckar-Alb, Germany

Solites (PP 4), HEF (PP 7), RVNA (PP 8)

HEATING NETWORK SYSTEMS 4.0

- Funding of innovative total systems
- Feasibility study, implementation, information measures and cooperation with scientific institutions
- Boundary conditions of DH (max. supply temperature), producer structure (mainly RES, max. 50 % biomass)
- Funding level max. 50 %, 15 Mio. € per project
- Investment grant

Bundesförderung für effiziente Wärmenetze (Wärmenetzsysteme 4.0)

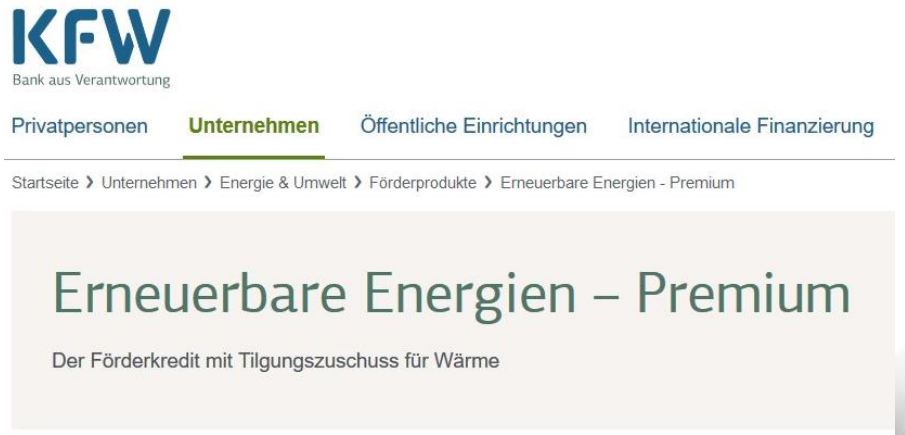
Mit der Bundesförderung für effiziente Wärmenetze (Wärmenetzsysteme 4.0) werden innovative Wärmenetzsysteme mit überwiegendem Anteil erneuerbarer Energien und Abwärme adressiert.

https://www.bafa.de/DE/Energie/Energieeffizienz/Waermenetze/waermenetze_node.html

MARKET INCENTIVE PROGRAMME: HEAT FROM RES FOR MUNICIPALITIES

- Funding of investments in DH, large heat storages and large RES
  - Solar thermal energy (up to 45 % of the investment costs)
  - New heating networks (20 €/kW_{th}, max. 1.000.000 €)
  - House transfer station (1.800 € per station)
  - Thermal storage from 10 m^3 (250 €/m^3, max. 30 % of the investment costs, max. 1.000.000 €)
  - Central heat pump (80 €/kW_{th}, max. 100.000 €, min. COP = 3,8)
- Various requirements for renewable energy shares, connected buildings, etc.
- Loan with repayment subsidy

https://www.kfw.de/inlandsfoerderung/Unternehmen/Energie-Umwelt/Finanzierungsangebote/Erneuerbare-Energien-Premium-(271-281)/



CHP LAW, INNOVATIVE CHP SYSTEMS

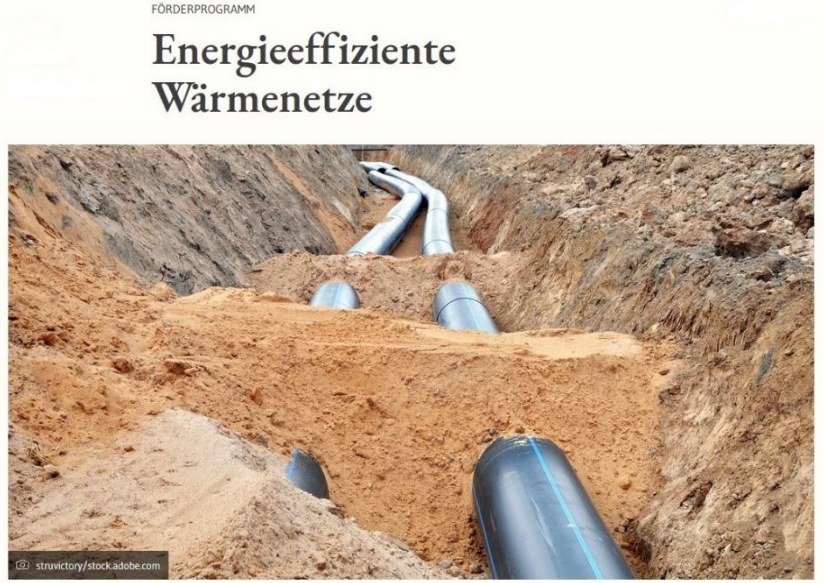
- Tenders for plants between 1 and 50 MW
- Fixed surcharges for remaining plant capacities
- Renewable energies via innovative CHP systems with three mandatory components (also call for tender):
  - Highly efficient new or modernised CHP plant
  - Innovative renewable heat (solar thermal, geothermal, heat pump), min. 30 % of the reference heat
  - Electrical heat generator (electrode boiler, electrical auxiliary heating

Resulsts of the tendering round for iCHP systems	June 2019	December 2019
Tendered quantity (kW)	30.385	25.000
Awarded quantity (kW)	22.493	20.514
Max. permitted level(ct/kWh)	12,00	12,00
Average quantity-weighted surcharge value (ct/kWh)	11,17	10,25
Lowest bid value (with surcharge) (ct/kWh)	9,70	9,38

https://www.bafa.de/DE/Energie/Energieeffizienz/Kraft_Waerme_Kopplung/Stromverguetung/stromverguetung_node.html

FUNDING PROGRAMME FOR ENERGY-EFFICIENT DH IN BADEN-WUERTTEMBERG

- Regional funding only in Baden-Wuerttemberg in addition to federal funding
- Investment funding for new or expansion of energy-efficient DH
  - Use of RES
  - High-efficiency CHP
- Diffrent bonuses possible
  - Solar thermal
  - Waste heat utilisation
  - Large heat storage
  - Reduction of return flow temperature
- Max. 20 % of the eligible costs max. 200.000 €
- 50.000 € per bonus on top -> max. 400.000 €



https://um.baden-wuerttemberg.de/de/energie/informieren-beraten-foerdern/foerdermoeglichkeiten/energieeffiziente-waermenetze/

Fundings of Renewable District Heating Systems in Croatia

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Fundings of Renewable District Heating in Croatia

ENTRAIN | Iva Tustanovski I North-West Croatia Regional Energy Agency

CROATIA - RENEWABLE DHS FUNDING

- Pokupsko DHS is the first communal biomass DHS in Croatia, commissioned in late 2015.
  - Financed by the EU's Instrument for Pre-Accession Assistance in Rural Development (IPARD) as well as the Croatian Environment Protection and Energy Efficiency Fund.
  - 1 MW capacity and 1,2 km long DH network.
  - Total investment amounted to approx. 1,6 million EUR.
- Currently, no funding available for renewable DHS
  - Individual renewable heating systems are incentivised (national and/or county level, up to 50% of the investment)
  - Co-financing of renewable DHS is not available in this programming period, but biomass powered DHS is included in the draft of the strategic document for the next programming period (2021-2027) developed by the Ministry of Agriculture Working Group.
  - H2020 KeepWarm project – CBA for integrating solar energy into Zagreb's DHS.

Fundings of Renewable District Heating Systems in Italy

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Fundings of Renewable District Heating in Italy

ENTRAIN | Matteo Mazzolini I Energy Management Agency of Friuli Venezia Giulia

National tax credits on RES-based DHS

- credit of € 21,93 / MWh on end-user consumption (ref. item 8 par. 10 law 448/98)
- credit of 20,66 / kW (ref. item 29 law 388/2000) to connect to small DH networks

Regional investment funding

- Localization, promotion and funding of DHS supplied with biomass is up to the Region (as provided for in the Regional Energy Plan)
- To date, an annual call is opened to Public Authorities to get grants up to 70% of eligible costs
- Eligible measures: design of new DHS supplied with biomass or extension of existing ones
- Max contribution: € 800.000

Rural Development Programme for FVG

Resources for the development of plants operated by agro-forestry businesses, for the establishement of local value chains and of logistic platforms for biomass storage and management

Fundings of Renewable District Heating Systems in Poland

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Fundings of Renewable District Heating in Poland

ENTRAIN | The Association of Municipalities Polish Network "Energie Cités"

FUNDING FOR RENEWABLE DHS IN POLAND

The financial support is mainly implemented by the National Fund for Environmental Protection and Water Management programs:

- ***Efficient heating and cooling systems*** - was implemented with national resources.

  The objective of the program was to support projects in an existing enterprise, i.e. the construction of generating units with connecting them to a district network in which at least:
  - 50% renewable energy or
  - 50% waste or
  - 75% heat from cogeneration or
  - 50% use a combination of such energy and heat

  is used to produce heat or cold.

- ***Support for investment in production of energy from renewable sources and connection of these sources to the grid distribution/transmission*** - was implemented with EU funds.

Funded by National Fund for Environmental Protection and Water Management

FUNDING FOR RENEWABLE DHS IN POLAND

The National Fund for Environmental Protection and Water Management, the Ministry of Environment and the Ministry of Investment and Development have announced programs largely aimed at supporting the use of renewable energy in heating.

- ***DISTRICT HEATING*** - support includes the possibility of funding projects focusing on: reducing or avoiding harmful emissions into the atmosphere; reducing the consumption of primary raw materials, improving energy efficiency, new heat and electricity sources, modernization/expansion of heating networks and energy use of geothermal resources.
- ***ENERGY PLUS*** - it supports projects in the field of reducing or avoiding harmful emissions to the atmosphere, reducing the consumption of primary raw materials, improving energy efficiency, new heat and electricity sources, modernization / expansion of heating networks, and energy use of geothermal resources.
- ***POLISH GEOTHERMAL PLUS*** - construction or modernization of a heating plant or combined heat and power plant based on a geothermal source.

Funded by National Fund for Environmental Protection and Water Management

FUNDING FOR RENEWABLE DHS IN POLAND

- **ENERGY CLUSTER** are a specific type of local energy communities, and their establishment is promoted and supported by the government. They make possible to coverage of local energy demand by use of local sources, and as a result contribute to increasing local energy security. The cluster members are key stakeholders interested in the development of distributed energy, who focus on achieving local energy goals, also in the field of development of renewable DHS.

- The provisions in the current RES Act do not meet expectations regarding the possibility of a broad development of heat production from RES.

2nd TRAIN TO TRAINERS MEETING
Web meeting (GoToMeeting), 18. 6. 2020

Fundings – Target region SI

ENTRAIN – Partner No. 9 – Zavod Kssena
ENTRAIN – Partner No. 10 – JSP

Fundings of Renewable District Heating Systems in Slovenia

TT2 – FUNDINGS

Is there funding for renewable DHS in your country and if yes, how does it function?

Yes, possibility is to get public funding for RES DHS:

NAME OF PUBLIC TENDER: „Public tender for co-financing of district heating on renewable energy sources“ common budget is 20 Million EUR.

WHO CO-FINANCING: Ministry of infrastructure

WHO CAN GET FUNDS: Companies and cooperatives

AMOUNT OF FUNDS: Depend on the size of the company

Small company: up to 55%

Medium sized company: up to 45%

Big company: up to 35 %

(of justified costs)

PROCEDURE:

- Preparation of necessary documentation (investment programme, design documentation incl. building permit)
- Application for Ministry

TT2 - FUNDINGS

Please describe how the government supports the introduction of renewable DHS and/or the connection on of customers to renewable DHS.

On the way we described on the previous slide: PUBLIC TENDER

„Public tender for co-financing of district heating on renewable energy sources“

For residents - „EKO SKLAD“ – Eco fund

NAME OF PUBLIC TENDER: „Connection to the district heating network“

WHO CAN GET SUBSDY: Residents can get subsidy if install Heat station and connect to DHS.

AMOUNT OF SUBSDY: up to 50% of justified costs

TT2 - FUNDINGS

Are the funding possibilities investment grants? Are they incentivised tariffs? Anything else?

Grants:

- Ministry of infrastructure
- Eko Sklad (ECO found)

Loans:

- Eko Sklad

Feed ins for heat and power cogeneration:

Cogenerations on biomass (for electricity only):

170,08 EUR /MWh for op to 50 kW.

155,62 EUR / MWh for up to 1 MW.

152,35 EUR / MWh for up to 10 MW.

For fossil based (natural gas) between 117 EUR/MWh and 84 EUR/MWh

THANK YOU!

Heidrun Kögler, Energie Agentur Steiermark gGmbH
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Iva Tustanovski, REGEA
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