Renewable District Energy in Western Balkans Fund – ReDEWeB

Clean Air Regions Initiative

Air Quality Planning Guidance Session V – District Heating and Air Quality

February 2022
EBRD District Energy Projects

- More than 60 DE projects in 18 countries
- EBRD financing: more than EUR 0.7 billion
- Total projects’ capex: EUR 1.6 billion
Why District Energy is crucial for air quality in urban areas?

- Zero local emissions from Renewable District energy Technologies – solar thermal, heat pumps, geothermal, waste heat;
- Bringing renewable and clean energy to dense urban areas where it is otherwise difficult;
- Shutting down polluting boilerhouses and individual stoves;
- Decrease necessity for buildings energy refurbishment in cases it is not possible or cost effective;
- Cost effective solutions for end consumers.
What 2021 has brought new in the field of renewable sources in district heating and cooling?

What kind of institutional and financial support is needed?

Can we change the share of renewable energy sources in district heating and cooling?

Can we reduce air pollution and CO$_2$ emissions by improving the operation of district heating systems?

Do we have grounds to be optimistic?
Sofia Declaration on the Green Agenda for the Western Balkans

- It was signed on November 10th 2020 by the countries of the Western Balkans

- It is based on 5 pillars:
  - Climate, energy, mobility
    - Circular economy
    - Depollution
  - Sustainable agriculture and food production
  - Biodiversity

- The main aims are harmonization with the EU Climate Law, setting energy and climate goals by 2030 in accordance with the framework of the Energy Community and the EU acquis, development and implementation of integrated energy and climate plans, harmonization with the EU Emissions Trading Scheme, to review and revise, as appropriate, all relevant laws to support the progressive decarbonisation of the energy sector and ensure their full implementation, in particular through the Energy Community, increasing the share of renewable energy sources and providing investment conditions, in line with the EU and Energy Community acquis etc..
## Focus, necessities and space for improvements

### Electrical power system (EPS)
- Installed power: 7.3 GW
- Energy generated: 36,000 GWh/year
- Renewable energy share: >32%

### District heating system
- Installed power: 6 GW
- Energy generated: 7,000 GWh
- Renewable energy share: 0.4%

Extension of District heating systems and renewable and waste energy share should enable:
- decreasing excessive electricity consumption and peak power generated by the consumers who use electricity for heating (in inefficient way), which then helps decreasing coal fired thermal plants utilisation;
- reducing air pollution from shutting down inefficient boiler-houses and individual stoves (PM10, PM2.5, NOx, SO2, soot);
- reducing CO2 emissions;
- increasing comfort conditions,
- delivery of renewable and waste energy where it is otherwise difficult (dense urban city areas).
Existing Barriers in WeB

1. Insufficient conversation about RES in district heating;
2. Insufficient thought to increase the share of RES in the fuel mix;
3. No efficient supporting mechanisms for RES;
4. Limited application of integrated planning for RES city infrastructure;
5. There are many prejudices about the RES;
6. Montenegro and Albania do not have any district heating / cooling system;
7. Limited awareness about technology applications and their multiple benefits and savings.

- What is ReDEWeB and how can it help?
Renewable District Energy in the Western Balkans (ReDEWeB)

PROGRAMME DESCRIPTION
• ReDEWeB aims to enable renewable district energy investment in the Western Balkans
• EUR 4 m funds available for 2019-2022, for both technical assistance and investment grants, funded by the Government of Austria
• Additional EUR 8.5m funded by SECO, to be utilised in Serbia for CAPEX grants, policy and TC work

TARGET ACTIVITIES
TA component will support four areas of activity:

I. National policy activities developed in close cooperation with Energy Community Secretariat - ECS (supporting development of country Renewable District Energy action plans, supporting countries to meet their RE and EE targets from Energy Community Treaty)

II. City policy activities (integrating ReDE sources, generation and storage into municipalities’ urban planning, introducing ReDE generation and EE measures for selected cities, advocating consumption based billing, etc.)

III. Project preparation support to cities and developers (mapping of DE consumption in selected municipalities, mapping of economically feasible RE sources, preparation of Feasibility studies, designs and PPP proposals for ReDE, etc.)

IV. Capacity building (education, networking and knowledge sharing; establishing a network of ReDE professionals; organising annual ReDEWeB conferences)

V. Capex grants for selected projects

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GEOGRAPHY
• All WB countries

TYPE OF SUPPORT PROVIDED
• Policy support for renewable district energy
• Project preparation and feasibility studies
• Capacity building and networking
• Capex grants

GEOGRAPHY
• All WB countries
The price of thermal energy from fossil fuels and renewable sources in district heating

Indicative prices for heat energy including all life-cycle costs:

**Fossil fuel:**

- Natural gas - boiler – 50 €/MWh

**Renewable sources of thermal energy:**

- Solar thermal – between 30 and 45 €/MWh.
  - After the repayment of the investment - 2 €/MWh
- Heat pumps (without a high temperature geothermal) - between 30 and 40 €/MWh
- Heat from the waste incinerator – up to 30 €/MWh
- Biomass – 40 - 45 €/MWh
- Geothermal energy - depends on temperature, yield and distance.
- Waste heat (data centers, industry, refineries ...) – depends on conditions
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<th>Technology used</th>
<th>Partners</th>
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<td>Pančevo (Serbia)</td>
<td>Solar thermal with seasonal storage and geothermal energy with heat pump</td>
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<td>Novi Sad (Serbia)</td>
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## Projects and technologies 2/2

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<td>ReDE Serbia with the Ministry of Infrastructure and Energy</td>
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Novi Sad Solar Thermal District Heating Project
Serbia

Total area: 175,500 m²

Height: 9 m
Depth: 4 m

Earth needed: 82,700 m²
Volume: 323,880 m³

Solar

Seasonal Storage

Lost: 2 GWh 323,880 m³

AHP 27 MW

Flue Gas 2 MW

90 °C 47 °C 25 °C

Total renewable 45.4 GWh 5%

Collector field

17 March, 2022
EFW Project “Vinca”
Serbia

Main project parameters:

Heat production: 56MW
Electricity production: 20.9 MW
Heat to be delivered: more than 200 GWh
Reliable baseload heat for Belgrade district heating system

EBRD Finance € 78 million
Banja Luka Biomass Project
Bosnia and Hercegovina

EBRD Finance € 8.35 million
GHG Reduced 45,750 tonnes of CO₂ eq / yr

Supporting the City of Banja Luka for the purchase of an equity stake in a new district heating Company ‘Eko Toplane’.

• New 49 MW biomass boiler plant replacing heavy fuel oil based capacity
• Green City Action Plan preparation
• City adopted a new tariff structure
In Conclusion

The Bank will continue to support technical innovation in the sector and enhanced private sector participation across the EC countries.

- Renewable heat generation (solar, heat pumps, geothermal and biomass), EfW and waste heat utilisation

- Thermal storage and integration with renewable electricity generation

- Capacity building and networking, jointly with ECS and District Heating and Cooling Associations
Questions

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