

ReDEWeB Fund - New Support for Renewable Energy Sources in the Western Balkans District Energy Systems

Bojan Bogdanovic

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The price of thermal energy from fossil fuels and renewable sources in district heating



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

Fossil fuel:

- Natural gas - boiler – 45 €/MWh

Renewable sources of thermal energy:

- Solar thermal – between 22 and 35 €/MWh.
 - After the repayment of the investment - 2 €/MWh
- Heat from the waste incinerator – up to 30 €/MWh
- Biomass – 30 - 35 €/MWh
- Geothermal energy - depends on temperature, yield and distance.
- Heat pumps (without a high temperature geothermal) - between 30 and 40 €/MWh
- Waste heat (data centers, industry, refineries ...) - ????

What is the ReDEWeB?

- **R**enewable **D**istrict **E**nergy in the **W**estern **B**alkans
- ReDEWeB Programme aims to support the establishment of a market for ReDE investment through a range of measures
- **R**enewable sources:
 - Biomass
 - Biogas
 - Geothermal
 - Solar thermal
 - Heat pumps
 - Waste heat
- **DE**: District Heating (DH) & District Cooling (DC)
- Beneficiaries are **WeB** countries:
Albania, BiH, Macedonia,
Kosovo, Montenegro, Serbia.



1. Lack of knowledge and insufficient conversation about RES in district heating;
 2. The goal of increasing the share of RES in the DE systems fuel mix, usually is not a part of DE companies strategy goals;
 3. Limited application of integrated urban planning for RES city infrastructure;
 4. RES in DE are not sufficiently financially supported and subsidized;
 4. There are many prejudices about the RES;
 5. Montenegro and Albania do not have any district heating / cooling system;
 6. Limited awareness about technology applications and their multiple benefits and savings.
- **How the ReDEWeB can help?**

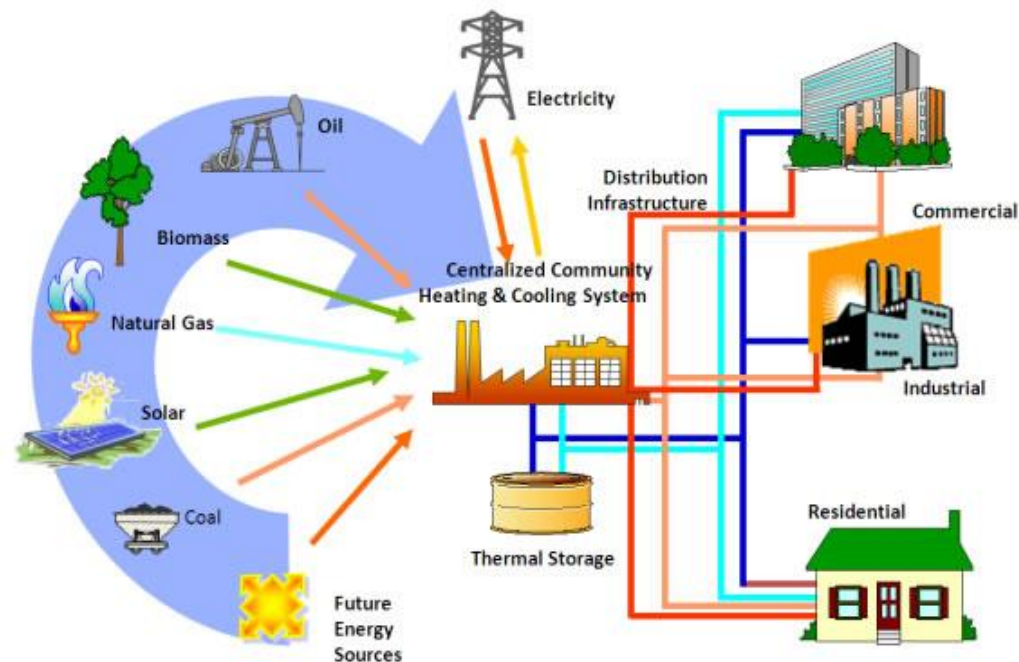
- Major WB municipalities mostly have a long tradition of DH (with exception of Albania and Montenegro). DH systems mainly fuelled with gas, fuel oil or coal.
- Only 12% of commercial and residential buildings in WB use DH.
- DC non-existent in any of the WB countries; cooling provided at an individual building level from electric chillers (electricity mainly generated from fossil fuels).
- H&C is the biggest energy end-use sector, ahead of transport, constituting more than half of overall energy consumption.
- There is potential in WB for improving existing and constructing new DE systems by introducing renewables sources.

DE trends in the EU



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- Heating and cooling in the EU is still heavily dependent on fossil fuels (75%), with a more modest but growing share of renewable energy (18%).
- A new **EU Strategy on Heating and Cooling** adopted in 2016 (part of the sustainable energy security package) calls for a stronger integration of renewable energy sources in DE systems.
- The strategy gives an indication on how the H&C sector should be adapted in order to improve energy efficiency, promote renewable energy sources and combat climate change.
- Efficient DE systems can play a key role in achieving the EU's energy objectives, ultimately leading to increase of the EU's security of energy supply.



- EBRD launched the Green Economy Transition (GET) approach in 2015 to put investments that bring environmental benefits at the heart of our mandate.
- GET approach seeks to increase the volume of green financing from an average of 24% of EBRD annual business investment during 2006-2016 to 40% by 2020.
- EBRD partnered with the Government of Austria in setting up ReDEWeB.
- Key objectives:
 - Support both public and private stakeholders to deliver sustainable investments into ReDE;
 - Assist WB countries in reaching their obligations from EC Treaty and advancing in readiness to negotiate Chapter 27;
 - Support private companies in preparing renewable H&C projects for their own use (industrial parks, shopping malls, airports, etc).

ReDEWeB work areas – How to overcome barriers!



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- Fund budget and timeline: EUR 4 million to be utilised 2019-2022
- Both technical assistance (TA) and investment grants
- Investment grants available to finance or co-finance eligible projects
- 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 ReDE action plans, supporting countries to meet their RE and EE targets from Energy Community Treaty, etc.);
 - 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. **Small capex grants for selected projects.**

Project preparation support to cities and developers – brainstorming phase



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Country	City	Technology	Project description	Project preparation phase	
Serbia	Pancevo	Solar thermal	Available land - 10.7 hectares + old landfill + Biogas from old landfill	Expression of interest form signed and submitted by DH Company Ongoing development of the Pre-feasibility study	
	Bor	Solar thermal	Big solar thermal plant at location of old sludge basin within copper mine and adjacent to existing coal thermal DH plant	PUC - will send Expression of interest form for the Big solar thermal project	
	Novi Sad	Solar thermal	Land in near proximity to the existing CHP plant	PUC - will send Expression of interest form for the Big solar thermal project	
	Belgrade	Solar thermal	Cerak and Batajnica locations	Coordination with UNEP to jointly develop study for solar thermal within District Energy in Cities Programme	
	Nis		Biomass, heat pumps and geothermal	Work on concept	Work on concept
			Energy efficiency in heating plants	Economisers + other EE measures	Work on concept
	Sabac	Heat pump using Waste water treatment facility as a source	8MW heat pump utilising the heat form the exisiting waste water treatment facility	Work on concept	
	Subotica	Heat pump using Waste water treatment facility as a source	Work on concept	Work on concept	

Project preparation support to cities and developers – brainstorming phase



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Country	City	Technology	Project description	Project preparation phase
Bosnia and Hercegovina	Sarajevo	Geothermal borehole + Heat pump	Ilidza geothermal energy use in existing DH system. 58C - underground water.	Work on concept
		Support for the DH network extension and shutting down boiler houses	Work on concept	Work on concept
	Tuzla	Renewable energy from heat pumps using excessive heat from condensation part of Thermal power plant	Work on concept	Work on concept
		Biomass woodchips boiler	Work on concept	Work on concept
		Solar thermal	plants at 2 locations within the city	Work on concept
		Big solar thermal plant at location of old sludge basin from coal power plant	Big solar thermal plant at location of old sludge basin from coal power plant	Work on concept
	Zenica	Exploring potential for 20 - 25 MW RES + modernisation + EFW project initiated by the City	Energy from waste EFW - project PUC Company expressed necessity to develop 20 - 25 MW of RES heat source, to extend network and connect additional customers, but also to modernise existing substations / increase their efficiency	Will be disused and supported by GCAP procedure
	Doboj	Biomass or heat pumps Substation modernisation Frequency control for pumps	Replacing the use of the coal with RES technologies	Existing feasibility study analysis

Project preparation support to cities and developers – brainstorming phase



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Country	City	Technology	Project description	Project preparation phase
Kosovo	Pristina	Solar thermal	Big solar thermal plant at location of old sludge basin from coal power plant - development of solar thermal and new DH network.	Ongoing feasibility study elaborating together with KfW
	Djakova	Solar thermal		
North Macedonia	Skopje	Absorption heat pump 22MW at existing CHP	Increasing of energy efficiency of existing CHP and introducing RES	Work on concept
Montenegro	Zabljak	Biomass	Biomass boiler Greenfield DH - Development of network	Pre-feasibility
	Kolasin	Biomass	Biomass boiler Greenfield DH - Development of network	Work on concept
Albania	Albania Context - There are no District heating systems in Albania. Outdoor temperatures during the heating season are relatively high. Geothermal potential for heating and solar thermal potential for heating + cooling + domestic hot water preparation should be explored			

- Policy support:
 - National - Guidelines for the DE sector (in coordination with ECS);
 - City level - Guidelines for standardization of regulation on the City level for all cities (rulebooks on: supplied energy cost allocation, rules of the system operation, rules for disconnection of customers, t=etc.).

- Capacity building:
 - Establishment of the WeBNADEC specialized conference for ReDE;
 - Workshop in Montenegro – how to develop a greenfield DE system;
 - Spiking on conferences, panels and workshops;

Why Solar Thermal District Heating in the WeB?

- WeB is one of the southernmost regions with a large district heating system and delivery of DHW.
- The low temperature network in systems (average return temperature usually approximately 45C) is extremely convenient.
- Installation on the ground is 30% cheaper than on roofs.
- The only realistic solution for collective residential buildings.
- Analyses have shown that it is economically viable.
- WeB has 30% more insolation than Denmark.
- Value of investment in construction is lower than in Denmark.
- Maintenance costs are lower than in Denmark.
- Over 100 such plants have already been built in Denmark.

Contact



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Bojan Bogdanović
Principal Fund Manager, Renewable District Energy
Municipal and Environmental Infrastructure

Email: bogdanob@ebrd.com
redeweb@ebrd.com