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PROMOTING BIOMASS SWITCH IN DISTRICT HEATING (DH) IN THE BALKANS

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Serbia – City of Belgrade



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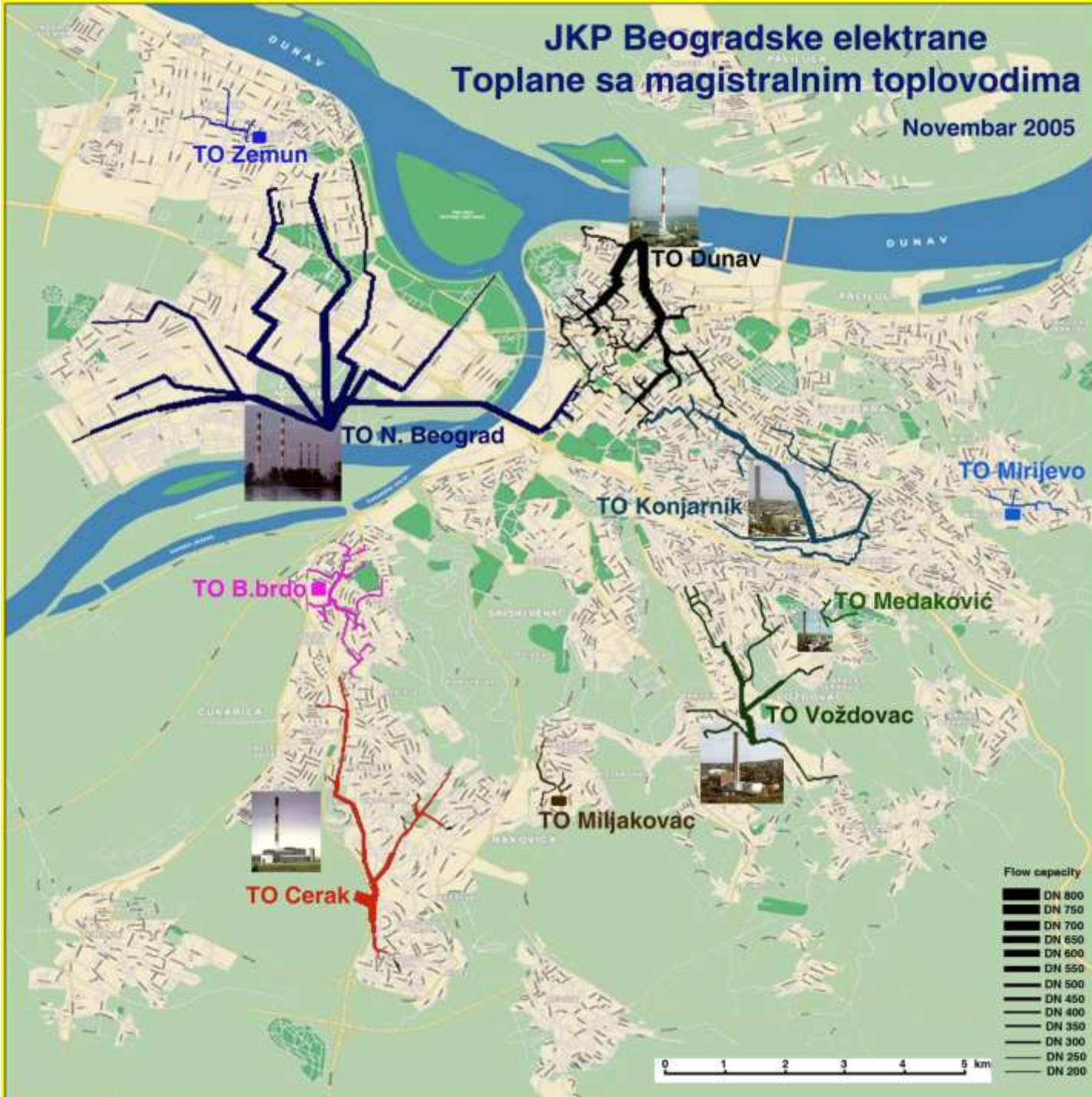
BELGRADE DH SYSTEM

- One of the largest DH networks (1,420 km length in total) in Europe (most of it built from 1960-80s)
- 15 individual heating plants around the City
- Main source of energy - natural gas, while to lesser extent crude oil and coal, biomass is being used only up to 0.5%
- Uses more than 50% of the country's natural gas supply that is being imported
- Dependency on costly imported gas and usage of crude oil, but also experiencing inefficient existing management structure - the City sought support in rehabilitation of their DH system



JKP Beogradske elektrane Toplane sa magistralnim toplovodima

Novembar 2005





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BELGRADE DH SYSTEM – CONT.

- In April 2015 the City joined the DES Initiative at the Tallinn Conference on global district energy
- The City - one of the champion cities worldwide (one of four) as a part of the global GEF project “Increasing Investments in District Energy Systems in Cities – a SE4All Energy Efficiency Accelerator”
- The City will benefit from a deep-dive approach to assessment of the DH system - DES approach: ground-truth and adapt policy best practice to the country/regional context





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BELGRADE DH SYSTEM – CONT.

- City of Belgrade is currently in preparatory process of establishing cooperation with the Initiative
- SE4All activities on “deep dive” should start end of 2016
- The outcome should bring forward benefits to the City and the DH system, particularly through exploring options for alternative fuel sources, improvements in management structure, air quality and extension of the DH network





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BELGRADE DH SYSTEM – CONT.

- Focus on renewable energies to power DH, including solar and wind power and of course extending the participation of biomass
- Strong commitment of local government to seek renewable options – understanding of high prices and stakes of other energy sources
- Deep dive will investigate the availability of renewables and possible supply chains
- Biomass should seek to replace to ever larger extent the non-renewables, including the natural gas





Bosnia and Herzegovina –
City of Banja Luka



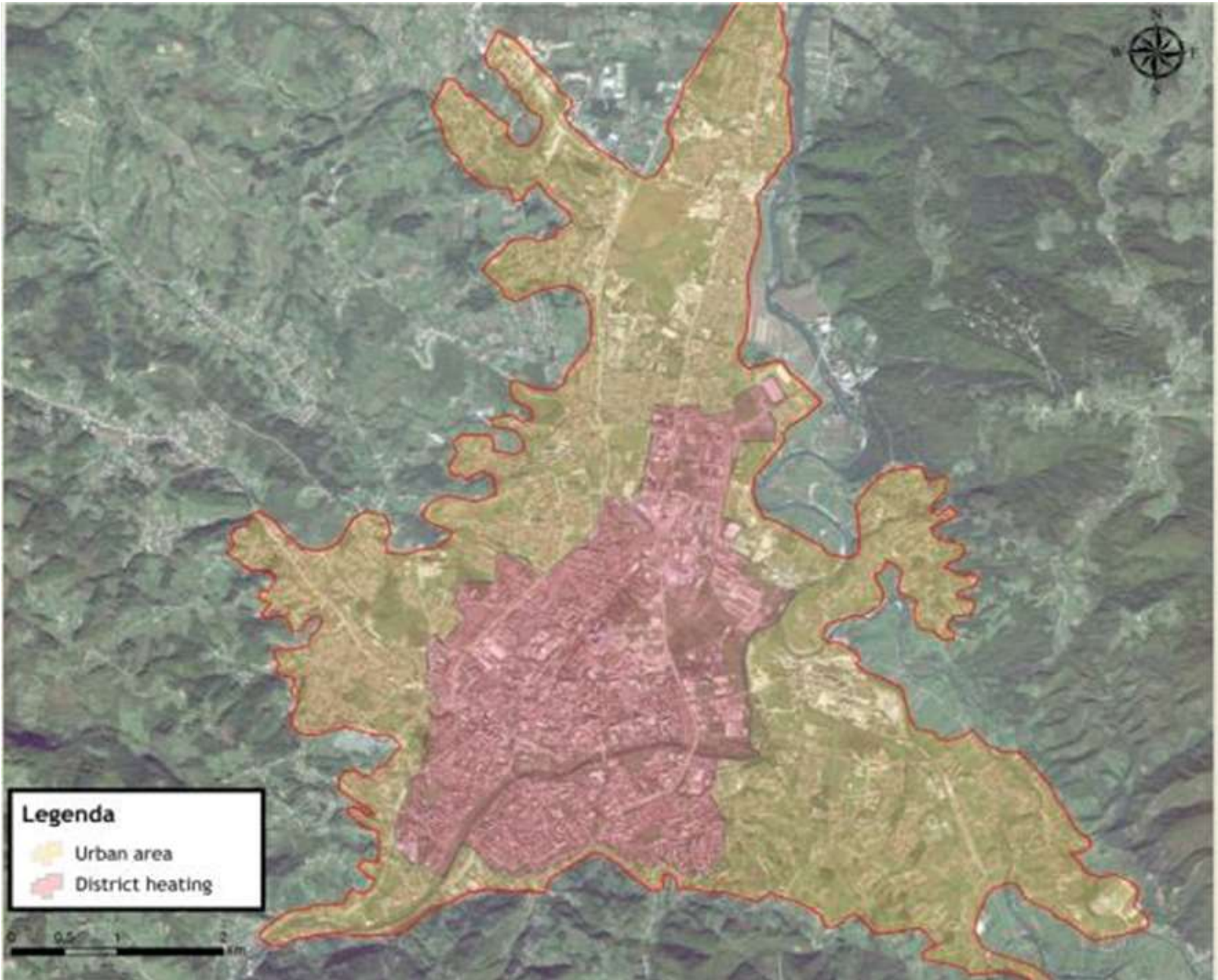
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BANJA LUKA DH SYSTEM

- City of Banja Luka participated the Tallinn Conference in April 2015 as well
- Joining forces with CTCN, UNEP developed a response plan indicating the status of the Banja Luka's DH system and necessary recommendations for rehabilitation and modernization of the DH network
- Following the response plan - a rapid assessment of the DH system to determine the main issues to be tackled and identify the most effective tools and solutions to be applied - to reach efficient operation and management of the DH system







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BANJA LUKA DH SYSTEM – CONT.

- Data acquired during the rapid assessment was presented to a wide scope of stakeholders in Sarajevo on 23 March 2016, including EBRD, Veolia, European Commission, etc.
- The rapid assessment showed - DH system was dependent mostly on crude oil that was being acquired in high prices and not compensated by the achieved income -> DH Company was under great losses that were piling up over the years





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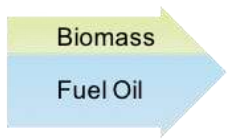
BANJA LUKA DH SYSTEM – CONT.

- The City has been affected by poor air quality due to the burning of crude oil which was not properly filtered
- The DH network only has two small new biomass boilers with capacity of 16 MW (total capacity is 232 MW)
- It purchases biomass with high prices from private sources, quality of biomass is not satisfactory





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Boiler efficiency

Network efficiency/
Leaking pipes

- Metering
- Policy

- Tariff system
- Disconnected customers
- Free-riders





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BANJA LUKA DH SYSTEM – CONT.

- The most urgent recommendation for the City is to shift to alternative fuel sources due to both high prices and the detriment to the environment (preferably biomass)
- The City is resolved to shift almost entirely to biomass, using crude oil only for peaks
- An additional study needs to be undertaken to thoroughly analyze the alternative options
- Including the availability of biomass and the supply chain
- For that matter, EBRD has recently approved the intervention with the City to produce a set of due diligence studies and define in detail the priority investment package, which could go up to €41 million





City of Sarajevo



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SARAJEVO DH SYSTEM

- Another city in Bosnia and Herzegovina being part of the DES Initiative as a replication city
- Largest DH system in the country, established in 1968 with total capacity of 502 MW
- The main source of energy is natural gas, supplemented with crude oil
- Total length of the pipeline network is 74 km with 187 substations providing for approx. 370 MW
- Most of the heating network is scattered around the City and has little connection with other parts of the system





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SARAJEVO DH SYSTEM – CONT.

- As a part of the primary engagement within the DES Initiative, a brief assessment of the DH system conditions was undertaken
- Due to the low coverage of the DH system in the City (48%), individual heating was contributing to high levels of air pollution
- Most commonly used coal, wood and to some extent crude oil
- Need for improving the efficiency of the management structure, as well as of the DH system
- Need for network extension and exploring options for alternative fuels sources and completely disposing off of crude oil – a more detailed study necessary



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UNEP

EnviroDay

17 August / Sarajevo





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SARAJEVO DH SYSTEM – CONT.

- French embassy in Sarajevo shown great interest in exploring new possibilities for improvement of the DH system
- Suggested to the Canton of Sarajevo to apply to the Private Sector Aid Fund - Emerging Markets Reserve (FASEP – RPE) and make a detailed study on alternative fuel sources
- UNEP has signed a letter together with the Prime Minister of the Canton on the joint programmatic approach to limiting CO₂ emissions and the particulate matter in the air in the Canton of Sarajevo on 22 March 2016





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OVERVIEW OF THE NEEDS OF THE THREE DH SYSTEMS IN THE BALKANS

- The main problems and needs of the three cities differ to some extent
- Belgrade DH system is highly dependent on natural gas and has not so far explored any renewable sources of energy (biomass to small extent)
- Banja Luka DH system is running on crude oil, which is affecting the City and the DH Company financially and causes huge environmental detriment (air pollution, among other)
- The Sarajevo DH system needs to look at alternative fuel sources and requires improvements in management and connection/extension of the existing heating network





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OVERVIEW OF THE NEEDS OF THE THREE DH SYSTEMS IN THE BALKANS – CONT.

- Even though different in nature of the issues, the three cities form a comprehensive scope of challenges in renewable energies in DH - allows for experience sharing between the cities, but also beyond
- Lessons learned from the three cities would provide a complete model of how to deal with any emerging issues related to energy sources in DH system nationally, regionally but also internationally







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THANK YOU FOR YOUR ATTENTION!

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