



Ramboll's work Across Ukraine

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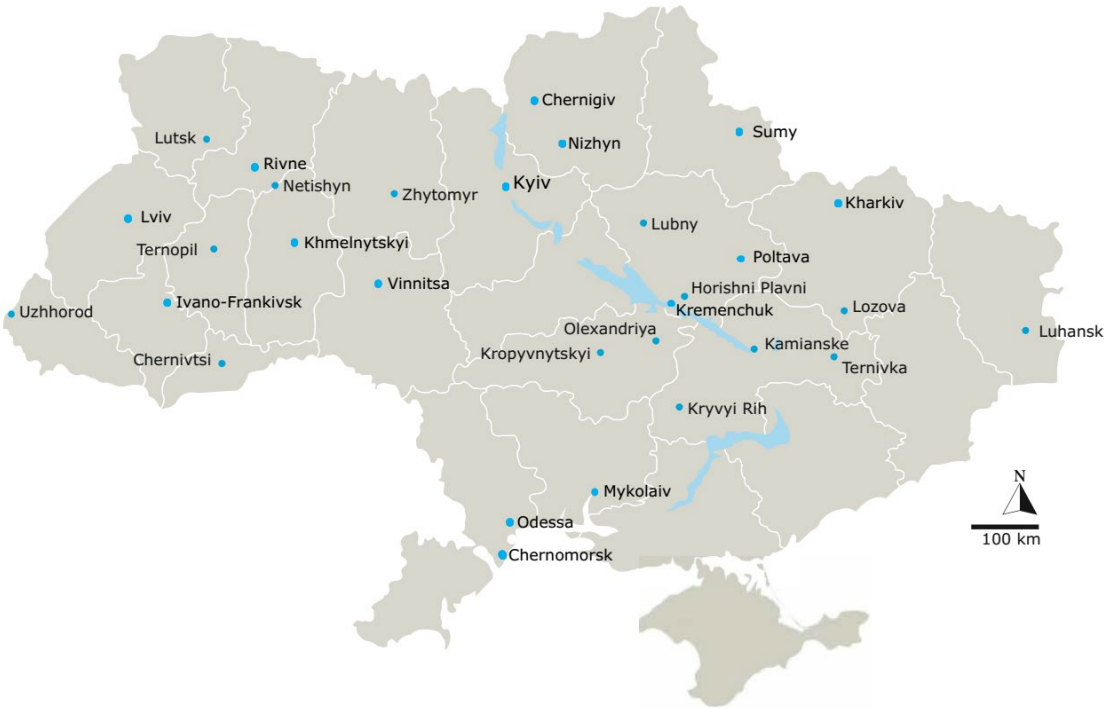
PRESENTATION OVERVIEW

1 Introduction of Ramboll Ukraine

2 Key challenges

3 Projects in Ukraine

RAMBOLL GEOGRAPHICAL FOOTPRINT IN UKRAINE



District Heating projects

Feasibility Studies

Kyiv
Horishni Plavni
Kryvyi Rih
Lozova
Oleksandriia
Chernivtsi
Luhansk
Luts'k
Ternopil
Kremenchuk
Mykolaiv
Rivne

PIU Projects

Kyiv
Chernivtsi
Luts'k
Zhytomyr
Horishni Plavni
Kremenchuk

Energy Efficiency Projects

PIU Projects including project preparation stage

Ternivka
Netishyn
Kropyvnytskyi
Kryvyi Rih
Uzhhorod
Kam'yanske
Lubny
Nizhyn

Energy Efficiency Technical Assistance Support

Kharkiv
Kyiv
Odesa
Ivano-Frankivsk
Vinnytsia
Lviv
Sumy
Chernihiv
Poltava
Luts'k
Rivne

Waste Services

Kyiv
Chernivtsi
Khmelnytskyi
Ivano-Frankivsk
Uzhhorod

Water Management

Chernomorsk
Odesa

Management Consulting

Mykolaiv
Khmelnytskyi
Novovolynsk
Ivankiv

KEY CHALLENGES

- **OLD AND REDUNDANT EQUIPMENT**
- **DH - LARGE HEAT LOSSES – LEAKAGE**
- **FUEL SUPPLY**
- **HEAT METERING**
- **TARIFF STRUCTURE**
- **ONGOING WAR – INFRASTRUCTURE DAMAGE**
- **RISK OF CORRUPTION**
- **FINANCING – FUNDING**
- **COORDINATION**

WAR IN UKRAINE – IMPACT ON THE SUPPLY SYSTEMS

Electricity

- Voltage fluctuations – low voltage/high voltage
- Electricity supply according to the schedule
- Blackouts up to 72 hours

Gas supply

- Reduced pressure
- Loss of Gas supply

Water supply

- Reduced pressure
- No city water

*Photos from open sources



CONSULTANT CHALLENGES

- **DATA COLLECTION**
- **PROJECT MANAGEMENT – (LOCAL PRESENCE / SITE VISITS)**
- **TRAVEL DIFFICULTIES**
- **LANGUAGE BARRIERS**
- **FINANCING**
- **UNDERSTANDING THE CURRENT ENERGY SYSTEM**
- **UNDERSTANDING THE LOCAL LEGISLATION**
- **USING SUB-CONTRACTOR**
- **FEW CONTRACTORS AVAILABLE**
- **TIME MANAGEMENT**

BOILER HOUSE CONSTRUCTION/REHABILITATION

Horishny Plavni

- Up to 90 MW complete rehabilitation
- Replacement of boilers, pumps, heat exchangers etc.
- Replacement of old burners in order to reach EU emission level



BIOFUEL BOILER HOUSE CONSTRUCTION



Lutsk DH project - Completed

- Capacity – 5 MW
- Fuel: Wood chips

Zhytomyr DH project - Retendering

- Capacity – 1.8 MWe, more then 8 MWth
- Fuel: Wood chips

Horishny Plavni DH project - Ongoing

- Capacity – 7 MW
- Fuel: Sunflower Husk Pellets

Energy Efficient Rakivka - Tendering

- Capacity – 4 MW
- Fuel: Agro Pellets



MOBILE BOILER HOUSES

Kremenchuk - Completed

- 10 Mobile Boiler Houses
- Fuel: Diesel, Natural gas
- BH capacity – 3,9 MW, overall capacity – 39 MW



DH NETWORKS REHABILITATION

- Acting as an Engineer under the FIDIC contract
- Approximate length of replaced networks across Ukraine: 8700 m trench



KYIV DISTRICT HEATING OWNER ENGINEERING

- Ramboll has recently been awarded the role of Owner's Engineer on an EBRD funded project
- Implementation Support and Works Supervision
- Supply and installation of around 100MW of electricity and around 100 MWt thermal CHP.
- Project period 2025-2029



One of existing CHP in Kyiv Source <https://kte.kmda.gov.ua/>

FEASIBILITY STUDIES

Mykolaiv Pre-Feasibility for a biomass power plant – On-going

- NEFCO funded project
- Evaluation of the biomass market, biomass types and availability
- Understanding of the current implemented and future projects in Mikolaiv
- Definition of the expected capacity of a potentially biomass CHP
- Recommended technology and evaluation of the main project risks

Lutsk Feasibility Study for a new construction of a power and/or heat generating - On-going

- Fact finding to define the current situation and market factors that will impact the techno-commercial analysis
- Verification of boiler capacity (desired heat output)
- Preliminary scoping of permitting, environmental and sustainability related aspects and impacts of the project including assessment on whether available biomasses meet EU's sustainability requirements.
- Techno-commercial analysis to define whether it's more advantageous to install a solid fuel fired steam boiler equipped with a steam turbine to enable generation of electricity in a CHP mode or a solid fuel fired hot water boiler for the production of heat only.

THANK YOU

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