

3.12 Component No. 12. Boiler house area Pyrogov, 17 Lityn

BASELINE

Location

The boiler house is located in the city of Lityn, on the premises of Lityn Central City Hospital



Basic equipment

Equipment name	Type	Q-ty, pcs.	Capacity
Gas boiler	E-1.0-0.9G-3	2	0.65 Gcal/h
Solid fuel boiler	ARS 400 VM	2	0.36 Gcal/h
Circulation pump	K80/65	2	100 m³/h
Circulation pump	K80/50	1	45 m³/h
Circulation pump	GRUNDFOS MA 111 MC2	1	n/a
Feed pump	VK 2/26 AY-2	1	7,2 m³/h
Booster pump	DAB	1	n/a

Source: Communal Enterprise "Vinnytsiaoblteploenergo".



Figure. Pyrogov, 17

Existing condition

- **Boilers** – satisfactory condition. Solid fuel boilers are in poor condition and require immediate replacement.
- **Pumping equipment** – unsatisfactory, replacement required. Frequency converters are not available.
- **Chemical water treatment** – to be replaced. An automatic water softening system has been installed, which is morally and physically obsolete.
- **Heat networks** - unsatisfactory condition. 100% replacement required
- **Building** – requires refurbishment and replacement of windows for reducing heat losses.
- **Territory** – not fenced.

Heating Network

Source: Communal Enterprise "Vinnytsiaoblteploenergo".

Note: The total length of the heat network is **650 m**.

Connected heat load

The total connected thermal load of the boiler house is **0,482 Gcal/h**.

In total, 9 consumers are connected to the heat supply system of the **boiler house**



Heating

0,482 Gcal/h

Source: Communal Enterprise "Vinnytsiaoblteploenergo"

Features

- Solid fuel boilers are in an emergency condition. Repair of the tube section was carried out using welding.
- There are significant heat losses through the windows, which require replacement (single glazing is damaged in many places, wooden frames).
- Energy, heat, and water metering available.

RATIONALE



Replacement of worn-out gas generation equipment with more modern installations with higher efficiency



Improving the reliability and flexibility of the heat supply system through diversification of energy sources and maintaining reserve capacities.



Reducing operating costs and CO₂ emissions by improving energy efficiency and optimizing equipment operation.



Improving the reliability and quality of heat supply to consumers, reducing heat energy losses during transportation by replacing 100% of heat networks.



Integration of solar power plant for electricity generation by increasing the share of renewable energy.



Improving safety operation by installing modern protection and control systems.

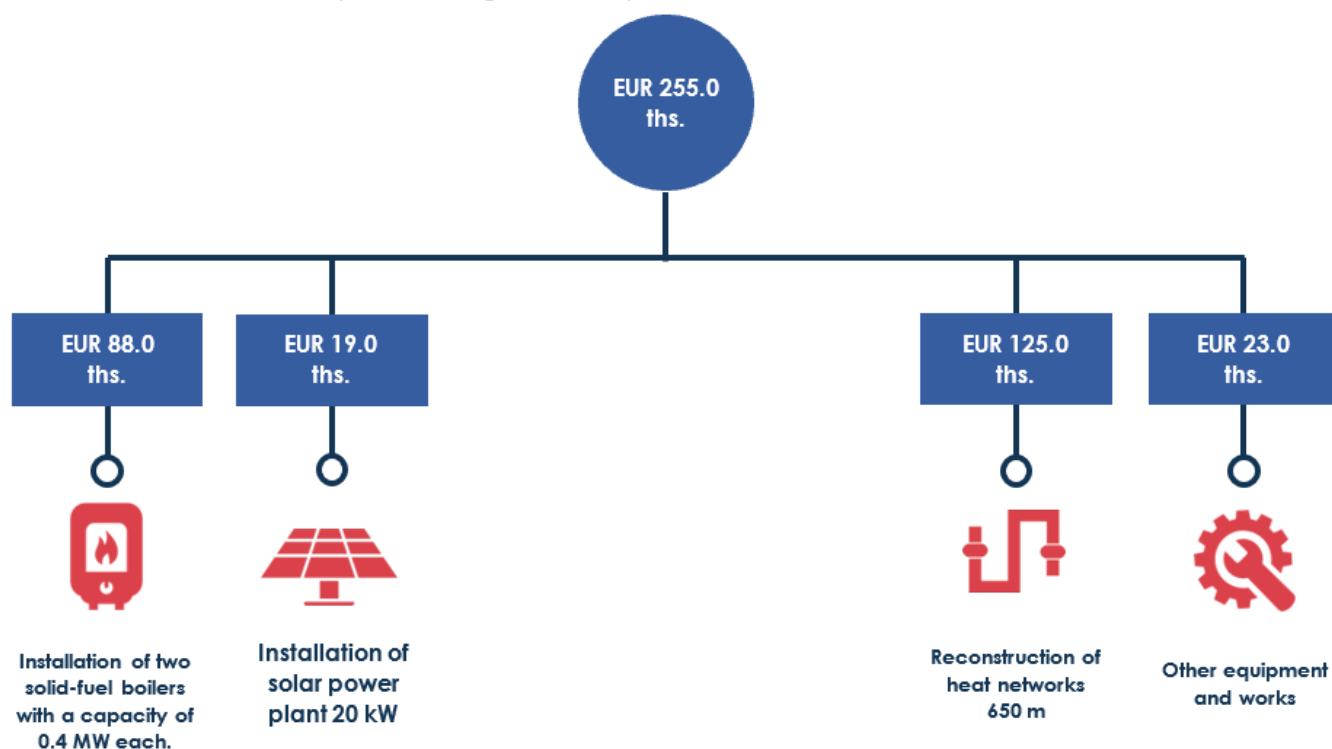
INVESTMENT COMPONENT DETAILS

No.	Component	Clarification
1	Installation of two solid-fuel boilers with a capacity of 0.4 MW each and a gas-fired boiler with a capacity of 0.6 MW.	The new solid fuel boilers replace the existing boilers that shall be dismantled. This ensures efficiency and reliability of heat supply. Gas boilers remain in reserve to ensure continuity of heat supply.
	Reconstruction of heat networks – 650 m.	Improving the reliability and quality of heat supply to consumers, reducing heat energy losses during transportation
2	Installation of solar power plant with a capacity of approximately 15 kW on the boiler house roof	Increased share of renewable energy. Power supply for own production
3	Replacement of pumping equipment (MN, PN 2 pcs. + FC,)	Improved energy efficiency and reliability due to the installation of modern frequency-controlled pumps and emergency backup.

No.	Component	Clarification
4	Replacement of chemical water treatment	Ensuring stable quality of treated water to reduce deposits and extend the service life of equipment.
5	Other additional measures for the boiler house: 1. Installation of fire alarm system. 2. Installation of fire extinguishing system. 3. Installation of gas detection alarm system. 4. Installation of heating and ventilation systems. 5. Installation of lightning protection system. 6. Installation of grounding system.	A set of measures to bring the boiler house into compliance with the modern safety requirements, improving operating conditions, and protecting equipment.

COST

The estimated cost of implementing this component is **EUR 255.0 ths.**



Source: Consultant's calculations.

Note: The item «other equipment and works» includes replacement of pumping and water treatment equipment, other additional measures for the boiler house, etc.

SAVING

The result of the implementation of this component is reduced electricity and solid fuel consumption through the installation of energy-efficient equipment and reduced losses during transportation after replacing 100% networks.

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