



# Mykolaiv City Energy Masterplan

## Stage 1 - Water supply and wastewater disposal system

*Status and investment opportunities*

Ukraine Recovery Conference  
July 2025





# Mykolaiv city overview

## *Landscape*

### General landscape

Residents	< 440'000
Area	259.8 km <sup>2</sup>
Children	18% of population
Median Age	39.9 years
Urban / Rural Split	~68.7% urban; 31.3% rural

### Energy landscape

- **Regional data is not consistently granular:** Ukraine's statistical reporting tends to focus on national aggregates, seldom breaking down to oblast or city levels.
- **War impacts visibility:** Ongoing conflict since 2022 has disrupted statistical reporting and data infrastructure, particularly in frontline areas like Mykolaiv.
- **Data gathering:** Work on the ground is required to collect critical information for specific infrastructure (water, heat, lighting, transport...)



# Mykolaiv city overview

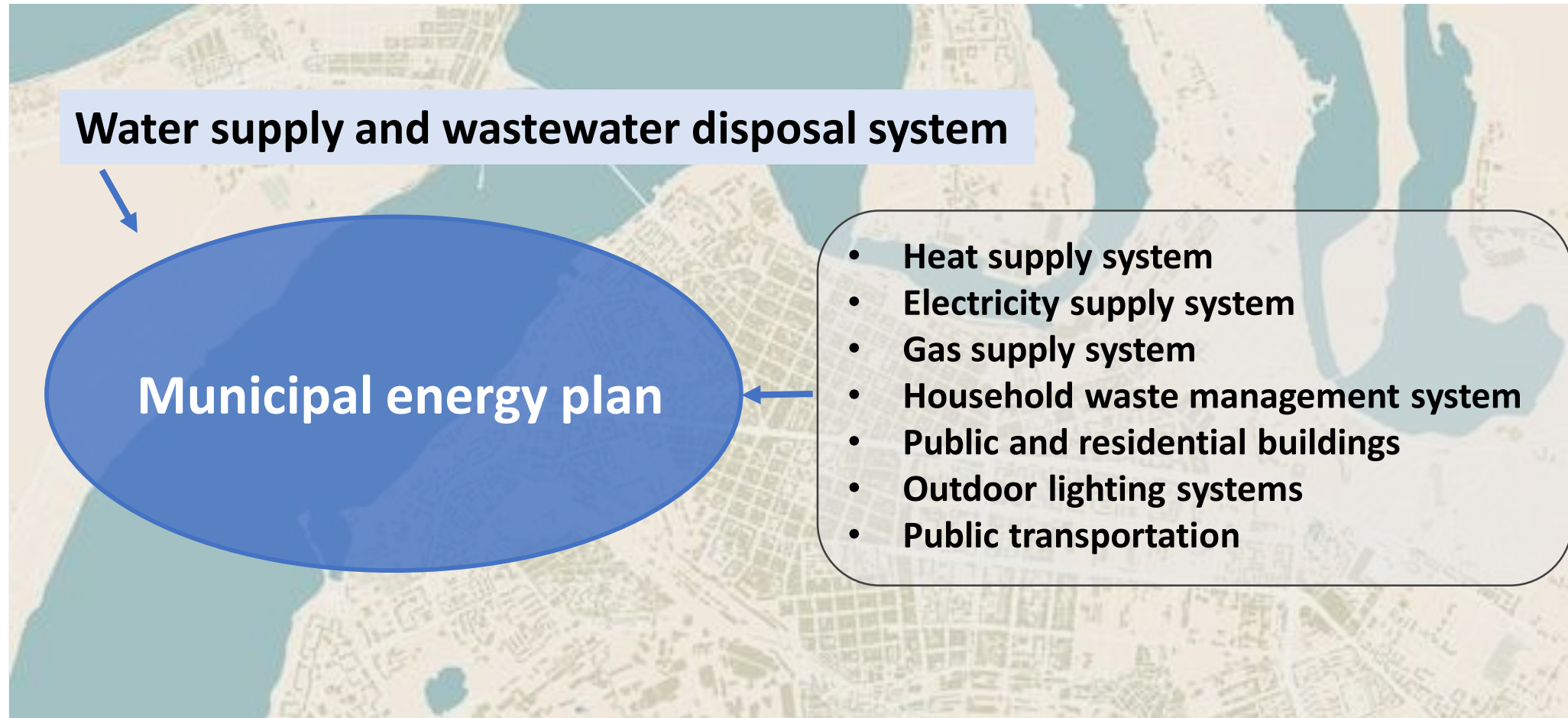
## Key damage summary

Residential Buildings	>12,000 damaged; 100+ fully destroyed
Government HQ	Regional Administration building struck, 37 killed
Healthcare	Hospitals & clinics hit; vital services disrupted
Education	€45M in damages; major university affected
<b>Water &amp; Heating</b>	<b>€55M total losses; city without clean water for ~2 years</b>
Energy Infrastructure	Substations attacked; city-wide blackouts in 2023–2024
Port	Targeted repeatedly; operations halted
Transport	Bridges/roads damaged; temporary crossings established



# Mykolaiv City Energy Masterplan

## Stage 1: Water Supply and Wastewater Disposal System







# Mykolaiv City Energy Masterplan

## Stage 1 - Water Supply and Wastewater Disposal System

### Basic Water Data

- Water supply to the network: 22'500'000 m<sup>3</sup>/year
- Population receiving water supply services and drainage: 395'000
- The total length of water supply networks: 1220.17 km.
- The total length of wastewater networks is 726.93 km.
- The city's water supply system includes 32 water pumping stations.
- The sewage system includes 34 sewage pumping stations located in different areas of the city





# Mykolaiv City Energy Masterplan

## Stage 1 - Water supply and wastewater disposal system

### Challenges faced today

- In 2024, drinking water losses reached 35%.
  - a. Severe infrastructure degradation, leaks, unbilled consumption, metering issues
  - b. Ukraine's national NRW average was already high pre-war (~25 - 30%); Mykolaiv's figure is above national norms, suggesting critical underinvestment and war-related damage.
- Multiple water treatment plants are at end of life
  - a. 40 - 60-year-old facilities; 50% of pipes are >35y old (some above 50y)
  - b. The main water intake and treatment facility, located at the Dnipro-Bug Estuary, suffered multiple missile attacks and now operates at reduced capacity (2022).
  - c. Many facilities have corroded tanks, outdated chlorine-based disinfection, and lack redundancy.
  - d. Water treatment infrastructure is deteriorated: Mechanical treatment capacity: 94,000 m<sup>3</sup>/day; Biological treatment: only 20,000 m<sup>3</sup>/day (efficiency & health concerns)





# Mykolaiv City Energy Masterplan

## *Stage 1 - Water supply and wastewater disposal system*

### Challenges faced today

- High energy losses due to water rise
  - a. System has no variable frequency drives (VFDs) or hydraulic modelling
- Significant negative impact on the environment
- There are practically no systems for providing energy from non-traditional sources (Still >99% reliant on grid electricity and diesel backup)
- The share of the cost of electricity in the adopted tariff for water supply is 33.74%, and in the tariff for water disposal - 29%.
- The company lacks modern management tools (e.g., SCADA)
  - a. GSM-based, analogue, low-bandwidth
  - b. No integration with digital flow meters or VFDs
  - c. Opportunity to support automated control or performance optimization with SCADA







# Mykolaiv City Energy Masterplan

## Stage 1 - Water supply and wastewater disposal system

### SWOT Analysis

Strengths	Weaknesses
Strong municipal commitment to infrastructure rehabilitation	Severe war-related damage to critical infrastructure
Existing technical documentation & investment plans	Lack of automated monitoring/control systems
Engaged technical universities & expert base	Limited availability of updated performance data
Opportunities	Threats
Access to international recovery and donor funding	Ongoing conflict and security risks
Potential for modernization with sustainable technologies	Limited local fiscal space for investment
Growing interest in digitalization & resilience planning	Potential delays in regulatory and procurement processes





# Mykolaiv City Energy Masterplan

*Stage 1 - Water supply and wastewater disposal system*

Existing projects for investors\*

01

**Wastewater Treatment Plant structure upgrade: USD 1.6M**

02

**Pumping Station Retrofit: USD 1.1M**

03

**MKE Sewage Pumping Station modernization: USD 2M**

**Expected benefits:**

- Improved reliability
- Reduced energy consumption (up to 20%)
- Reduced water losses (up to 90%)
- Real-time system control

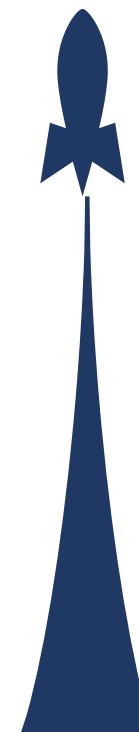


# Mykolaiv City Energy Masterplan

*Stage 2 - Water supply and wastewater disposal system*

Formation of investment-attractive projects

- **Environmental Performance:** system improvements
- **Energy Efficiency:** system upgrades
- **Management Efficiency** improved
- **Renewable, Non-conventional energy sources** introduced
- **Pipeline rehabilitation** projects
- **Retrofit and replacement** of obsolete equipment





# Mykolaiv City Energy Masterplan

*Stage 2 - Water supply and wastewater disposal system*

*Forecasted impact for infrastructure projects*

- 1 *Reduction of electricity consumption by up to 35%*
- 2 *Ensuring 100% wastewater treatment*
- 3 *Implementation of solar energy systems, approximate total capacity of about 1000 kW*
- 4 *Renewal of about 1000 km of networks*
- 5 *Ensuring effective management with the help of SCADA systems, etc.*
- 6 *Modernization of power equipment*
- 7 *Modern staff*



# Mykolaiv City Energy Masterplan

## Stage 2 - Water supply and wastewater disposal system

### Summary of priority projects (expert assessment)

Project	CAPEX (USD)	Readiness	Key Benefits
Modernization and replacement of power equipment	1.3 M	Feasibility study is required	Improved reliability, reduced energy consumption (up to 20%), real-time system control, reduced CO
Implementation of solar energy systems	1.1 M	Feasibility study is required	Improved reliability, reduced CO=0
Pipeline rehabilitation projects	180 M	Feasibility study is required	Improved reliability, reduced water losses (up to 90%), reduced energy consumption
Ensuring effective management with the help of SCADA systems, etc.	2,5 M	Feasibility study is required	Improved reliability, reduced water losses , reduced energy consumption (up to 40%), real-time system control, reduced CO

**THE EXPECTED VALUE OF THE INVESTMENT IS ABOUT 250 MILLION USD**





# Mykolaiv City Energy Masterplan

## *Stage 2 - Water supply and wastewater disposal system*

These projects represent deployment-ready investments to  
support Mykolaiv's resilient recovery.

We invite partners to join us in co-developing feasibility studies,  
supporting implementation, and helping scale these solutions.



# Mykolaiv City Energy Masterplan

Stage 1 - Water supply and wastewater system  
development projects

Ukraine Recovery Conference July 2025



**Thank you for your attention**

**May we move forward together toward peace,  
sustainability, and prosperity!**

## Contact us

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