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Energy Security Project

TECHNICAL INFORMATION ON THE PROJECT:

"IMPLEMENTATION AT CU KYIVTEPLOENERGO OF GLOBEMA DH.GIS SOFTWARE FOR MODELING OF DISTRICT HEATING SYSTEMS"

Kyiv, Ukraine
February, 2021

GENERAL INFORMATION ON GLOBEMA DH.GIS PROJECT AT KTE

DH.GIS (District Heating Geographic Information System) is a system based on the GE Smallworld platform, designed for district heating companies. GE Smallworld is a powerful system for fast and convenient access to data, reporting, statistics, investment planning and management of the district heating system (hereinafter – DHS) and its resources.

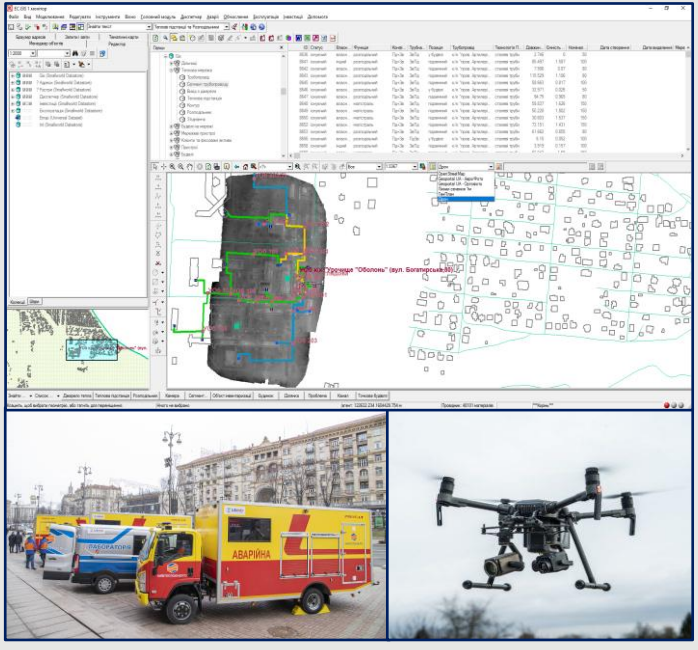
The use of **DH.GIS** allows controlling the municipal district heating system in real time, responding quickly to emergencies and reducing the possibility of their occurrence, offering solutions to ensure quality and uninterrupted heat supply, automatically updating information about DHS facilities through integration with the mobile laboratory equipment.

GENERAL INFORMATION ON GLOBEMA DH.GIS PROJECT AT KTE

The implementation of the DH.GIS system was started by the **USAID Municipal Energy Reform in Ukraine** project in September 2018 - March 2019. Equipment and software were purchased, initial training for utility personnel was conducted, data availability was assessed, and the model was integrated and filled, calibrated, and used.

After the start of operation of the software package, it became clear that the software requires refinement and adaptation. The management of Kyivteploenergo applied for technical assistance to the **USAID Energy Security Project** (hereinafter – USAID ESP). In September 2020, a contract was signed with software developer Globema Sp. z o.o. for additional licenses and software upgrades.

GLOBEMA DH.GIS OPERATIONAL FUNCTIONALITY

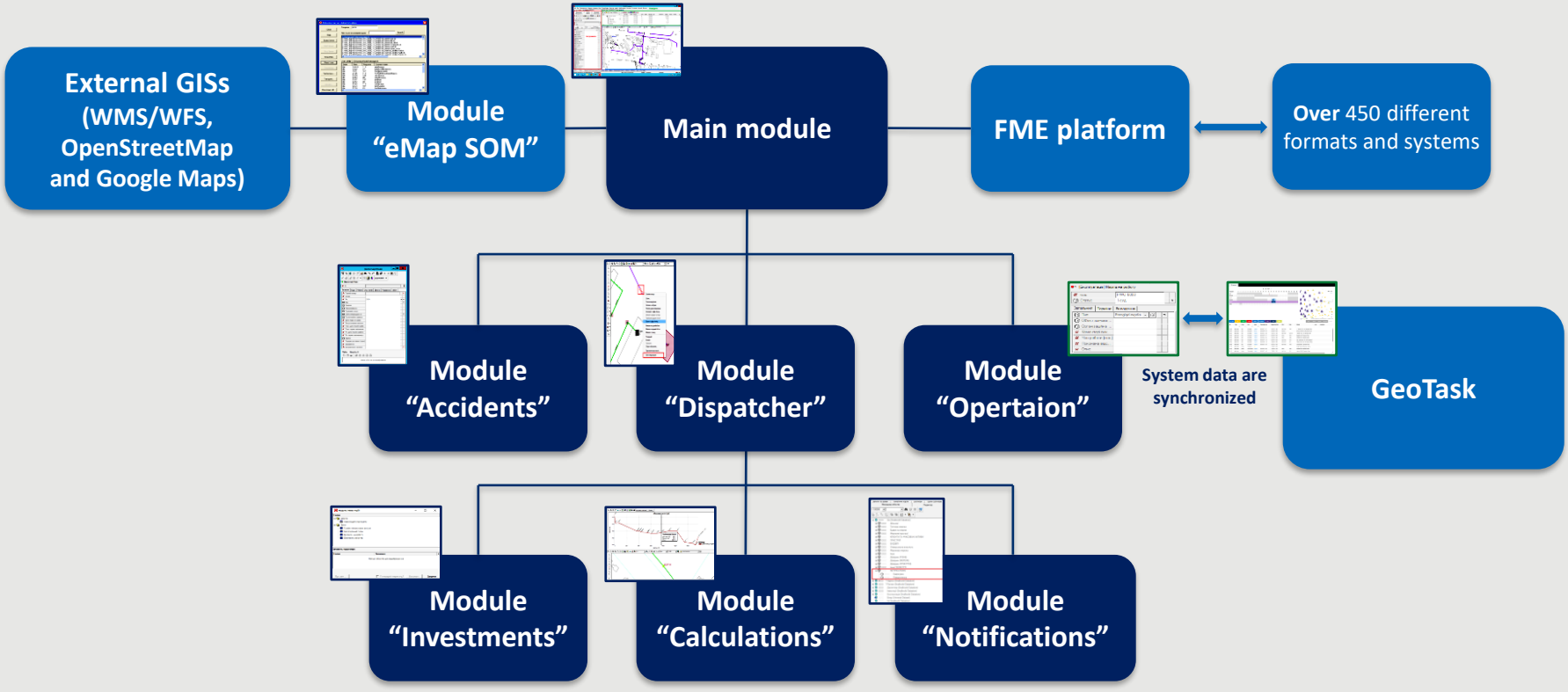


General functionality of **Globema DH.GIS** software for modeling of district heating systems:

modeling, storing and managing assets located in the network; disconnection of the damaged area by latches; creating event notifications; assessment of the amount of energy not supplied to consumers; access to maps with graphic display of heat network facilities, object editors; registration of events that occur in the network; access to up-to-date information on network settings; planning of modernization and creation of heat networks; performance of engineering calculations; assessment of the technical condition of heat networks; work and staff management in the field (FSM); geospatial data management, connection of external sources of cartographic data online.

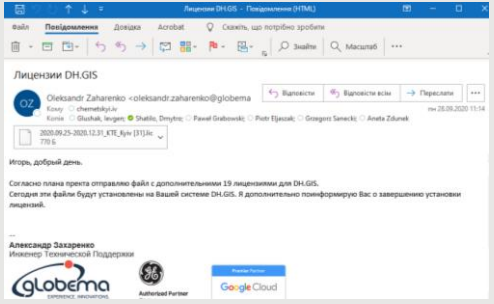
DH.GIS system can integrate any information that is tied to a known projection of the coordinate system and stored in common formats, including information generated on the basis of **mobile laboratory data** when flying over the heat network by drone.

GLOBEMA DH.GIS COMPONENTS INSTALLED AT KTE

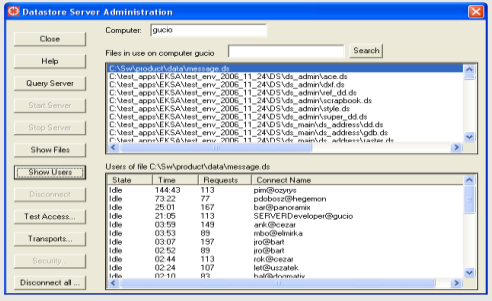


***Note:** This image and images below are real screenshots of software modules*

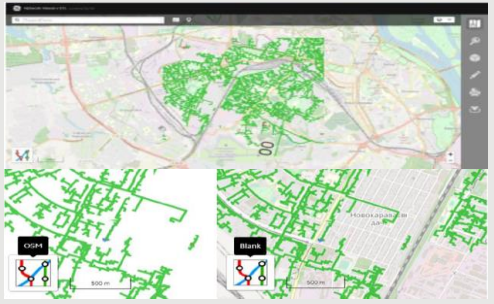
MEASURES TAKEN. GLOBEMA SP Z.O.O.



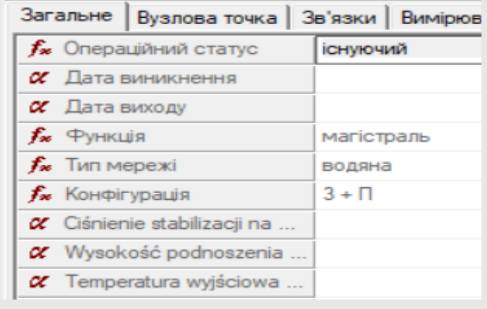
Additional 19 licenses of DH.GIS and "eMap SOM" module installed and configured



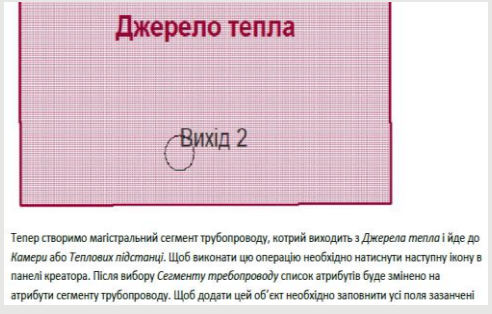
DH.GIS database re-configured for KTE



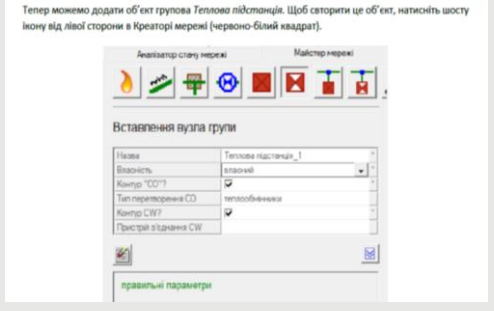
"eMap SOM" module configured



DH.GIS user interface in Ukrainian developed and integrated



User manuals in Ukrainian developed based on Ukrainian interface



Instructions given on building models of heat network facilities

MEASURES TAKEN. CU KYIVTEPLOENERGO

Based on FME system, tools for information exchange between DH.GIS and other GISs developed

For creating heat network model

Thermal orthophoto plan, buildings and structures in the city, as well administrative district limits and operational areas of heat networks entered into DH.GIS system

Geospatial data entered

- 23,300 power supply points
- 1,010 heat substations
- 24,000 heat chambers
- 191 heat sources
- 27,730 sections of heat networks

Lists of equipment and its characteristics adjusted and supplemented

Adjustments of network plans done for 155 heat sources

Settings prepared for calculation of 5 network models

IMPLEMENTATION RESULTS

Implementation of the above scope of work allowed:

- creating in the DH.GIS system the database of heat network equipment,
- displaying this equipment on a geographic map,
- specifying its location according to the thermal orthophoto plan of Kyiv,
- creating a web application to access this information.

Also with the help of the DH.GIS system, the estimated models of 155 small heat sources were created at CU KTE.

FINAL COMMENTS

Implementation of **DH.GIS system** allows increasing significantly the reliability of district heating system management in the capital of Ukraine, increasing the quality of customer service, preventing the possibility of accidents, reducing time of damage elimination, automating the process of updating information on the condition of heat networks based on mobile laboratories data, making decisions on investments in the development of heat networks.

Thank you!

Energy Security Project

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