

# CASE STORY



-Plate&Shell-® Heat Exchangers

## New type of Condenser for the Reconstruction of the Oldest Electric Power Plant of Moscow GES-1

OAO Mosenergo, including GES-1 plant, is the largest Russian power generating company running on organic fuel. Its total electricity production capacity is 11 500 MW and total heating capacity 40,2 GW.

Vahterus PSHE 14LL-880/1/1 was installed at GES-1 plant in September 2008. While operating at full load the flow rate of district heating water per unit is 110 t/h with heating capacity over 72 MW.

Following the installation of Vahterus PSHE steam condenser the capacity of GES-1 is now exceeding 72 MW - whilst the heating capacity is estimated to be about 1200 MW. The modernized GES-1 supplies heating to the Central District of Moscow, including the Kremlin, State Duma, Old Square, Lubyanskaya Square and a part of Moscow Metro lines. The GES-1 buildings are included in the UNESCO World Heritage List as a unique industrial architectural monument.



Vahterus PSHE condenser installed at turbine hall #2 at GES-1

GES-1 panorama (Kremlin, to the right)



PSHE piping at the oldest power plant in Moscow

OAo Mosenergo specialists noted several advantages of using Vahterus -Plate&Shell-® Heat Exchangers in such applications:

- Reduced risk of leakage due to unique design of fully welded round plates which enable PSHE to handle temperature and pressure fluctuations
- Compact design due to high thermal efficiency of the PSHE
- Low pressure drop
- Capability to sub-cool the outgoing condensate
- PSHE is price competitive compared to other compact type plate heat exchangers

Vahterus PSHE steam condenser is installed 3,5 m below the turbine hall from where the exhaust steam comes from. The condenser's design allows the adjustment of condensate level inside the PSHE itself and the design eliminates the need for an extra condensate collection tank before boiler feed pumps, thus reducing considerably the capital costs of the new equipment for this project.

Vahterus global experience, combined with the local expertise, have led to the implementation of Vahterus -Plate&Shell-® Heat Exchangers in the Russian energy industries.

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Vahterus Oy is the pioneer and inventor of -Plate&Shell-® Heat Exchangers (PSHE) technology. PSHE combines the high heat transfer capabilities and compact nature of plate exchangers, with the temperature and pressure capabilities of Shell & Tube. Since 1990, Vahterus have been working to design, manufacture and deliver the most compact and cost effective solutions to our clients in many sectors, in many applications.

More information and contact details for all countries can be found at [www.vahterus.com](http://www.vahterus.com)