



ASTRA International Engineering Ltd.

Project: District Heating Pumping Station in Comined Cycle Thermal Power Plant – Tereshkova, Moscow (Ref list item 34)

Purchaser and End User :

Zorlu Enerji, Meber of the Zorlu Holding, Istanbul Turkey

Zorlu Enerji, member of the Zorlu Group is internationally recognized constructor and operator of the power projects in Turkey, Russia, Israel and Pakistan. Projects are covering Thermal Power Plant, Hydro Power Plants as well as Wind Powered Plants.

After Zorlu signed contracts for:

Tereshkova regional heating energy production plant (Russia) – 170 MW, Phase I
Kojuhova regional heating energy production plant (Russia) – 170 MW , Phase I

Each power plant consists of 3 gas turbines, and one steam turbine.

They have issued tenders covering separate plant packages. Tenders and basic design were done by Slovakian company IEG, and later by ZEP, Russia. Tender for heating pumping stations was issued at the end of 2006. Astra International Engineering participated on Tenders and in March 2007, contracts for both heating stations were awarded to us.

Our contract required detailed design, coordination with the project main designer, coordination with the designers of other subsystems, procurement and delivery of equipment, supervision of the installation and putting into operation.

Our Scope in Tereshkova pumping station covered:

- Three centrifugal pumps 1850 t/hour, 140 met and design temperature 105 deg C.
- Pump motor drives with frequency speed control consisting of
 - 4 pole, 1300 kW, 690 V three phase double winding squirrel cage motors
 - 6/12 pulse 1000 kW, 690 V inverter for the motor speed control
 - Three-phase-cast-resin-transformer, 1270 (2x 635) kVA, 11500 / 2 x690V, 50 Hz
- System pressure, flow and level instrumentation
- Local control boxes
- Piping, strainers, base plates and other auxiliary material
- Cabling

Main equipment manufacturers: Sigma, Chec Republic, Siemens – Germany, Besides satisfying client with technical quality we had to fulfill strict and very short delivery term. All equipment was manufactured and delivered to the Client on EXW basis in August 2007.