

EXPERIENCE OF ESTONIAN OIL SHALE COMBUSTION BASED ON CFB TECHNOLOGY AT NARVA POWER PLANTS

A. HOTTA^(a), R. PARKKONEN^(a)
M. HILTUNEN^(b), H. ARRO^(c),
J. LOOSAAR^(c) T. PARVE^(c),
T. PIHU^{(c)*}, A. PRIKK^(c), T. TIIKMA^(c)

^(a) Foster Wheeler Energia Oy
P.O.Box 201, Fin-78201 Varkaus, Finland

^(b) Foster Wheeler Energia Oy
P.O.Box 66, FI-48601 Karhula, Finland

^(c) Department of Thermal Engineering,
Tallinn University of Technology
116 Kopli St., Tallinn 11712, Estonia

Estonian basic power supply is over 90% covered by oil shale-fired thermal power plants. The original units, commissioned between 1959 and 1973, used pulverized firing (PF) technology. Because of their age and problems related to environmental and economical performance, it was decided to replace two old blocks with new ones applying a more advanced circulating fluidized-bed (CFB) technology. In 2001 AS Narva Elektriijaamad contracted Foster Wheeler to repower two blocks, Block No. 8 at the Eesti Power Plant and Block No. 11 at the Balti Power Plant. The first of the renovated blocks started commercial operation at the Eesti Power Plant near the town of Narva at the beginning of 2004.

Now, when the repowering project is virtually complete, it is time to review how well the new units have met expectations. Foster Wheeler's concept for oil shale combustion in CFB brings multiple benefits and opens up new opportunities for using oil shale as a clean-burning fuel capable of meeting today's emission standards. This paper will review Foster Wheeler's boiler concept for combustion of Estonian oil shale and the first operational experiences of the new units. The environmental and economical performance of the old PF and the new CFB units is compared.

* Corresponding author: e-mail tpihu@sti.ttu.ee