

## EDITOR'S PAGE

Simultaneous publication of this issue and activity of the International Symposium on Oil Shale in Tallinn mark a milestone in production of both oil-shale-based power and shale oil in the Estonian Republic.

Oil shale is certainly one of the most important mineral resources of Estonia. In the beginning of 1999, its mineable reserves were estimated to be 2203.4 million tons.<sup>\*1</sup> At the present level of oil shale consumption for producing oil and electricity, the reserves will last through some more generations.

Several methods of retorting have been used to process Estonian oil shale. Retorts (gas generators) and solid heat carrier units in use require further development. During the last years much attention has been paid to the Alberta-Taciuk Processor (ATP) retorting technology elaborated in Canada and already tested there for pilot-scale processing of Estonian oil shale. The possibility to retort crushed run-of-mine oil shale without its previous beneficiation is, of course, tempting. However, some complicated scientific-technical problems are to be solved before large-scale application of ATP in Estonia.

Over 90 % of electricity produced in Estonia is based on oil shale.<sup>\*2</sup> Though many scientists and engineers have been optimistic about long-term use of oil-shale-based energetics in the future, their opponents are of the opinion that this branch of industry will die out within the next twenty-five years.<sup>\*3</sup> Prof. E. Reinsalu founds his arguments on the fact that, on the one hand, mineable reserves are relatively limited, and, on the other hand, so are the reserves of the mining industry.

In February 1998, the Parliament of the Estonian Republic accepted the long-term (1998–2018) development plan for Estonian fuel and power management including tasks for the energy branch. It is perfectly clear that combustion of fossil fuels, oil shale among them, pollutes the environment. The international public pressure to extend the exploitation of the resources of renewable energy is constantly growing. Recultivation of mined-out areas of the oil-shale basins is a serious problem as well.



<sup>\*1</sup> Statistical Yearbook of Estonia 1999. Tallinn Book Printer. Tallinn, 1999.

<sup>\*2</sup> E. Reinsalu. Estonian Mineral Resources and Mineral Resource Industry. In: Future of Estonia. Tallinn 1996.

<sup>\*3</sup> Local Agenda 21. Institute of Thermal Energetics of TTU. No. 2. Tallinn 2000.

The giants of Estonian oil shale energetics – Baltic (1966) and Estonian (1973) Thermal Power Plants require complete renovation. However, application of novel combustion technologies is not possible without extra large-scale scientific-technological research. International co-operation is particularly important in this work.

Production of electricity from oil shale is accompanied by the formation of residues – ash (11.8 million tons in Estonia in 2000) and gaseous compounds – SO<sub>2</sub> (precursor of acid rains) and CO<sub>2</sub> (greenhouse gas). Basic oil shale ash causes local basic rains. However, oil shale energetics is and will be of vital importance for Estonia until other energy carriers will be taken into use. Utilization of fossil fuels for power generation in Estonia – more than 5500 kWh per capita – exceeded the EU average about 1.8 times<sup>\*2</sup>. For this reason Estonia requested special status for oil shale at negotiations to join EU. Estonia would open 35 % of the electricity market by Dec. 31, 2008 and meet all EU demands by Dec. 31, 2012.

Estonia applied also for including oil shale into the list of research topics co-financed by the Coal and Steel Science Fund of EU, fully acknowledging our commitment to pay the shares. At present Estonia is extremely interested in widening the range of oil shale research.

As for social-economic point of view, Estonian whole industrial and economic activity depends on oil shale production and utilization. For years the share of renewable energy resources in the state energy balance has been only 0.2 %. However, during the last decade the share of wood and peat in the primary energy production has been growing, first of all, in place of heavy oil. It is hard to agree with the scientists who have stated that “up to a third of Estonian requirements for electricity and heat could easily be satisfied by burning biomass”<sup>\*4</sup>.

*OIL SHALE* has developed from an Estonian publication focused mostly on local problems to an international scientific journal dealing with oil shale on a worldwide basis. Its publication is both an honour and an obligation. Our aim is to rise the journal to as high a standard as possible increasing the level of scientific generalization and the novelty and reliability of technical data. Since 1984, four issues have been published yearly. Just now you are holding No. 4 of the Volume No. 19 in your hands. Oil shale specialists from more than ten countries have published their papers here. Scientists from Russia, Israel, Jordan, China, and recently also from Mongolia and Turkey have joined the circle of our authors. *OIL SHALE* has undoubtedly become a centre drawing together more and more researchers all over the world to approach deeper scientific-technical generalizations in oil shale science.

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<sup>\*4</sup> Environment 2000. Statistical Office of Estonia. Tallinn 2001.