

INTRODUCTION

OIL SHALE ENERGY IN ESTONIA

Dear reader! This special issue of *Oil Shale* focuses on electrical power engineering, which in Estonia is mainly based on the combustion of local oil shale in power plants. Estonia's power industry has been based on oil shale from the very beginning.

During the past decade global power industry has been in the turmoil of change. Once an epitome of monopoly, it is now exposed to competition. While network services will remain national monopolies also in the future, competition can be introduced in power generation and sales.

The introduction of competition serves one purpose mainly – higher economic efficiency throughout the whole sector. At the same time ever more emphasis is laid on reducing the environmental impact of the power industry, leading to increasingly stringent environmental requirements and growing subsidies to renewable energies. This boosts the costs incurred by power companies. More and more often questions are being asked whether all these changes bring us closer to or rather distance us from the main goal, which is to ensure the availability of affordable and environmentally sustainable electrical energy to all customers at any point in time.

Let us take a look at the possible developments of oil shale power engineering in the light of the above-mentioned changes. We can see that the production of electrical energy from oil shale involves several serious challenges. Estonia secured several transitional periods for oil shale power during the EU accession negotiations, but new EU directives (the emissions trading directive, in particular) make further extensive renovation of our oil shale power plants a complicated task. The emissions trading is going to have a major effect on the future of power engineering in Estonia, since CO₂ emissions from oil shale-based generation are among the highest in the world.

In the future, oil shale electricity has to compete in the free market with the electricity produced by technologies other than oil shale combustion technology with perhaps many times lower environmental impact. Estonia has launched extensive investment programmes to convert to new oil shale combustion technologies. The future of oil shale electricity depends mainly on the fact whether we will be able to substantially reduce its environmental



impact. In addition, we need to optimize technical and economic operations throughout the electric power value chain.

The management and development of modern power engineering involves tackling both technical and economic optimizations at the same time. We can accurately measure things of the past and present, yet only evaluate and forecast what is going to happen in the future. That is why the various optimization and evaluation issues dominate this issue of *Oil Shale*.

I believe that the articles of this issue are important not solely in terms of the development of Estonia's power industry, but they can also be of broader interest to professionals worldwide.

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