

16.1 **Estonia's experience in reusing oil shale ash**

Tõnis Meriste

Enefit, Tallinn, Estonia

Estonian oil shale is rich in minerals. Of the original shale, 44-45% remains as ash following combustion in the boilers at Eesti Energia's Narva Power Plants. Over one year, an average of 5 million tons of oil shale ash is generated in the power plants. Most of the oil shale ash is transported to the ash landfill area using a closed hydrotransport system. Ash that can be utilized or sold is separately handled for transport and storage via a pneumatic system. As of today, the ash landfill areas of Estonia and Baltic Power Plants (which together make up Narva Power Plants) contain approx. 255 million tons of oil shale ash. While Eesti Energia has sought as broad an application for the oil shale ash as possible, in previous years we found use for a maximum of only 233 tons, which is less than 5% of the oil shale ash generated at Narva Power Plants. Today oil shale ash is used mainly in construction to produce cement, concrete blocks and dry mixtures. Oil shale ash has successfully been used for neutralizing acidic soils in agriculture and for fertilizing fields. We are researching the applications of granulating oil shale ash for agriculture. Recently we have found new areas for practical application of oil shale ash, mainly as a stabilizer, including: stabilization of polluted soils found in regional ports, stabilization of soft soils (e.g. bogs and wetlands) in road construction, backfilling underground oil shale mines and in production of bricks and various concrete mixtures in the construction industry. Currently, research is being carried out to develop methods for using oil shale ash in ecological projects, mainly as absorbents to bind sulphur and atmospheric carbon dioxide. We are also investigating the possibilities of using oil shale ash in the plastics industry. Eesti Energia's goal is to take advantage of the stabilizing and binding qualities of oil shale ash in various industries and utilize the ash as extensively as possible. In the coming years, we expect the recovery of oil shale ash to increase many times over owing to the extensive use in traditional and proven fields as well as in newly researched areas of use.