

EDITOR'S PAGE

OIL SHALE RESOURCES IN TURKEY



Energy production is still one of the most important concerns of the world. The inevitable dependence of the industrialized world on energy requires sustainable development of power industry. To develop an energy policy that can both ensure current needs and meet future expectations, a number of aspects have to be considered. These aspects cover a variety of topics such as new techniques for efficient utilization of resources, exploration of new reserves, and finding the evaluation possibility of potential alternatives.

The need and supply of energy is a critical concern also for Turkey, a developing country with its population more than most European and Middle East countries. During the period 1990–2001, the energy consumption of Turkey was recorded to increase from 53 to 77 Mtoe (million tonnes of oil equivalent) corresponding to a rise of around 50%. Because of the growing population and increase in industrialization, rapid growth of energy consumption was predicted to continue for the next 15 years. The oil and natural gas reserves in Turkey are of minor scale, and solid fossil fuels account for the primary potential as energy sources.

Oil shales are the second largest fossil fuel potential of Turkey. Oil shale deposits in Turkey are widely distributed in middle and western Anatolia. The information on the deposits is generally based on drilling data. Oil shales in Turkey are of Paleocene-Eocene and Middle-Upper Miocene age. The host rocks are marl and clays, in which organic matter is hetero-

geneously and finely dispersed. Current reserves of oil shales in Turkey are ~1865 million tonnes, located mainly in four different deposits *Himmetođlu*, *Seyitömer*, *Hatıldađ* and *Beypazarı*. The *Himmetođlu* formation occurs in a succession of predominantly brown and brownish-grey oil shale layers between pyroclastic outcrops around the margin of the basin, which is bordered north and south by uplift areas. Although the economic-grade oil shales of *Himmetođlu* are of average to poor quality, it contains rich shale with an oil content of 43 wt%. In *Seyitömer* oil shale field, the unstable conditions prevailed during the formation and filling of the basin in the older Eocene. Bituminous marl unit crops out around *Seyitömer* and is penetrated by many drill holes for lignite prospecting. The main mineral components of *Seyitömer* oil shale are quartz, dolomite, muscovite-illite and smectite. On average, the calorific value is 3550 kJ/kg and the oil content is 5 wt%. Bituminous sediments of *Hatıldađ* generally consist of brown-grey, brown and banded bituminous calcareous or dolomite marl. The lithology and content of bituminous organic material change rapidly in the vertical direction. On average, the calorific value is 3240 kJ/kg and the oil content is 5.3 wt%. In *Beypazarı* oil shale field, the mineral matrix of bituminous marl is composed of dolomite and quartz as main components. The secondary components and traces may consist of magnesite, feldspars, illite and smectite. On average, the calorific value is 3890 kJ/kg and the oil content is 5.4 wt%.

The other potential oil shale reserves in *Mengen*, *Ulukıřla*, *Burhaniye*, *Demirci* and *Sarıcakaya* have not been investigated in detail. The information about these deposits relies on preliminary geological drilling data and analysis, thus it is not possible to make certain economic evaluation about these fields in the current report.

Prof. Dr. *Mustafa Versan KÖK*
Department of Petroleum and Natural Gas Engineering
Middle East Technical University