

Technical and Environmental Assessment of Lignite-fired Electricity Generation in Greece

Vassilis Dedoussis

Department of Industrial Management & Technology
University of Piraeus
80 Karaoli & Dimitriou st., 18534 Piraeus, Greece
vdedo@unipi.gr

Abstract

The electricity generation system of Greece relies heavily on conventional fossil fuel thermoelectric power plants. A high proportion of the electricity generated in Greece, in particular, comes from lignite-fired power plants. The purpose of this paper is to assess the performance of lignite-fired electricity power plants that are currently operating in Greece. Electricity generation units are considered as linear multi-input/-output systems. A standard data envelopment analysis tool is utilized in order to evaluate their overall efficiency. Technical and environmentally adverse performance indices are employed. Computational results included in the paper are presented and discussed in detail. Implied future electricity generation policies are also identified.

Keywords

Electricity generation system in Greece, Lignite-fired power generation, Environmental assessment, Technical assessment.

Vassilis Dedoussis, is Professor in Industrial Systems Techniques at the Department of Industrial Management & Technology, University of Piraeus. He has received the Dipl. Ing. degree from the National Technical University of Athens (Mechanical Engineering, 1981), and the M.Sc. (with distinction) and Ph.D. degrees in Computational Aerodynamics from Imperial College, London (Aeronautics 1983, 1988). He is a member of the Technical Chamber of Greece and the Greek Association of Computational Mechanics. His published work focuses on computer aided engineering, investigation and optimisation of aircraft, industrial and energy systems, as well as commercial product components. His current research interests include also CAD and additive manufacturing applications for product design and development.