

**INCORPORATING ENVIRONMENTAL EXTERNALITIES IN THE LONG-
TERM PLANNING OF THE GREEK ELECTRIC SYSTEM**

S. S. MIRASGEDIS, D. DIAKOULAKI

*Laboratory of Industrial & Energy Economics, Dpt of Chemical Engineering,
National Technical University of Athens, Zografou, Athens 15780*

ABSTRACT

The aim of this paper is to investigate the effects of incorporating environmental externalities in the planning of the electricity sector. To this purpose, the Greek interconnected electric system is analysed and an economic-engineering model (WASP III) is used in order to formulate and evaluate alternative capacity expansion plans. The results of the study confirm that the internalization of environmental externalities results in a significant penetration of clean technologies (such as renewables and coal gasification) into the Greek electricity sector. This penetration will induce considerable environmental and social benefits without substantially increasing the real private cost of electricity generation.