

ESTIMATING THE ENERGY RELATED SULPHUR OXIDES PRODUCTION IN GREECE, FOR THE NEXT DECADE

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EXTENDED ABSTRACT

The leading part of energy in everyday life activities is well recognized in contemporary human societies. The energy production process, however, is found responsible for severe air pollution, beyond the monetary and macroeconomic cost.

According to previous studies, Greek economy is almost exclusively based on fossil fuel, i.e. locally extracted low-quality lignite and imported crude-oil, while only recently a remarkable natural gas penetration is encountered in the local energy market. On top of that, the electricity consumption increase has approximated 5% per annum, while the total national energy consumption increase is almost 3.5%.

Considering, therefore, the air pollutants production per economic sector and fuel used, the proposed work presents an integrated numerical model, able to estimate the air pollutants quantities resulting from the various energy resources utilized. The model developed not only allows for the available official historical data but also for several energy-related scenarios, accompanied by the corresponding possibility value. On top of that, special attention is paid to include any technological or production volume changes for each individual economy sector.

Thus, by using the proposed model, one may estimate on a medium-term time horizon the evolution of the air pollutants production, according to selected typical scenarios. The estimation of energy related sulphur oxides forms a first case study, demonstrated in this paper. Finally, the analytically developed frame provides all necessary information -scientifically documented- in order to display the air pollution impact during the forthcoming energy choices. Recapitulating, the results obtained may clarify the existing situation and assist Greek society in taking vital decisions regarding the energy production sector for the next few years, seriously considering the significant air pollution impact on everyday life.

Key words: energy, air pollutants production, fossil fuels, electricity consumption, economic sector, numerical model, air pollution impact, sulphur oxides