

The ExternE Project of the EU

The ExternE Team
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Abstract

This paper presents an overview of the ExternE (External Costs of Energy) Project series of the European Commission. The series began in 1991, initially in conjunction with a similar study by ORNL/RFF; a large number of experts from all countries of the EU have participated, covering all the necessary disciplines, including dispersion modeling, epidemiology, ecology and economics. ExternE has been continuing, with further development of the methodology (e.g. a multimedia model to account for impacts that pass through the food chain), extension to new applications and, in the current phase, the involvement of stakeholders.

Impact and damage cost of a pollutant are evaluated by means of an impact pathway analysis, i.e. of the chain emission→dispersion→dose-response function→monetary valuation. The damage cost of greenhouse gases has also been estimated. Apart from global warming the largest contribution to the damage cost comes from mortality due to PM, NO_x and SO₂ emissions. Mortality is evaluated in terms of years of life lost rather than number of premature deaths. The impact pathway analysis is combined with a life cycle assessment to evaluate an entire process chain. A software package, EcoSense, has been developed to carry out all the calculations. The methodology has been applied to electricity production (including nuclear and renewables), waste incineration, and transport (automotive, rail, ship).