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## SUSTAINABLE DEVELOPMENT AND LIFE-CYCLE ANALYSIS

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**Abstract.** LCA can give opportunity to a special kind of analysis for sustainability's regional aspects or corporations' responsibility and steps taken towards sustainability too. It can be a basic tool to measure environmental performance or to develop eco-efficiency (factor 4, 10, 20). Analyses have shown that it can be used to measure the movements to the direction of sustainable development if time series of data stand at disposal. In connection with sustainability we regard it very important to spread life cycle effect analysis to the field of energy production too. Energy production came to the focus of attention in a double way. On the one hand the long run secure way of energy supply, the accomplishment of both the EU's and Hungary's strategy is a major question, focusing on the ever longer stocking of fossil fuels and on the larger share use of renewable resources. On the other hand more and more emphasis is put on environmental effects, firstly on the reduction of green house gases but of other effects as well, and on the improvement of eco-efficiency too. Several effect studies were made when forming the Hungarian energy strategic concept which besides the aspect of economic efficiency put emphasis on the analysis of carbon-dioxide emission too. But to now no life cycle based comparative analysis has been accomplished the energetic use of different primary resources. This would be very useful though, when we aim to measure the average environmental effects of the domestic energy mix or the external effects of distinct energy resources. This need is emphasized even more by the analysis of alternative resources. If all input and output side effects can be analysed complexly in a life cycle framework based on 1 MJ produced energy, by their contribution to global problems we can compare the environmental effects of distinct resources used in energy production, and its eco-efficiency indicator. This can serve as additional information when trying to make economic regulations more perfect.

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