Liberalization and Sustainable Energy Supply: Perspectives of Nuclear Energy and Renewable Energy Sources

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The "sustainable development" model has been widely accepted as a normative development concept over the past few years. Together with liberalization, i.e. the introduction of competition and deregulation in the power industry using transmission lines, it constitutes the framework within which the perspectives for various energy sources and energy systems can be derived.

In the light of the different interpretations of this model especially in the energy sector, its contents must be defined more sharply if the concept is to guide future energy supply policies. Restricting the principle of "sustainable development" to problems of the environment and climate does not really meet the point. Actually, the model stands for a development path which so intertwines continued economic development, the exploitation of natural resources, and the preservation of the natural foundations of life as not to rob future generations of their means of sustenance and development. This comprehensive definition of sustainability allows quantitative guidelines to be developed for the different energy options with respect to the resource, environment and economic dimensions of sustainable energy supply; this is done by means of the life cycle analysis. A number of selected examples of such life cycle analyses will be presented for various electricity generating systems.

Of course, the introduction of competition and the liberalization of the power industry are not ends in themselves but only means to an end. Employing them in our economic activities is justified not only under aspects of economic theory but, especially, by practical experience, i.e. by the finding that efficient management, economical management of scarce resources, is achieved not through government planning and regulation, but by the allocation efficiency of markets. As the efficient use of scarce resources is a key aspect of

"sustainable development," competitive markets are an adequate and, at the same time, efficient instrument of control on the road to sustainable energy supply, provided that also the use of scarce environmental resources is integrated into market operations. Against this backdrop, the perspectives of nuclear power and those of renewable energy sources will be discussed.