

## **Towards Sustainable Energy Policy**

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The development of modern society has resulted in a constantly growing demand for energy and the exploitation of energy resources. The increase in energy demand has contributed to wealth in some parts of the world, but has at the same time caused major problems. The situation demands a major transition of the energy system and the development and deployment of new improved energy technologies. Such technologies will enable the use of (new) renewable energy resources such as solar energy, wind power and biomass. The potential of these resources is many times greater than present energy use. However, the introduction of renewable energy technologies face market barriers and will depend on policy instruments for their implementation.

Today, policy instruments for the support of renewable energy technologies are widely accepted. The crucial issue is how to design these incentives to be as effective and efficient as possible. A general conclusion is that technology policy can only be as effective as our understanding of the technology innovation and diffusion processes allows. Policy analysis needs to capture the complexity and the interactive nature of the innovation processes. Essential aspects related to knowledge development, spillover effects, learning processes and feedback processes need to be identified and analyzed. Research further shows that systemic technology change requires policy incentives to be aligned, coordinated and consistent. In all, there is a need to provide guidance to policymakers how to positively influence the development and diffusion of new energy technologies.

My presentation at WREC 2011 will highlight some general findings and guidance related to energy technology innovation policy; the main focus will relate to the case of wind power. Wind turbines have become a mainstream technology – a first choice for many when investing in new electricity generation facilities. Wind energy is a symbol for a greener development pathway and a successful innovation process. What is it then that characterizes the success story of wind energy? In my presentation I will highlight how governmental policy has been formulated and formed to support essential learning to achieve the prosperous innovation process of wind turbines. The presentation will further elaborate on the main findings that:

- RD&D is fundamental but not enough
- To support diversity in technology and market formation is essential
- To support technology quality insurance is essential
- To support interaction and networking is essential
- Support needs to have a systemic approach
- Support needs to be aligned, stable and continuous
- The support structure needs to be flexible
- Technology change takes time