Geophysical Research Abstracts,
Vol. 11, EGU2009-11974, 2009
EGU General Assembly 2009

Policy approaches to renewable energy investment in the Mediterranean region

A. Patt (1), N. Komendantova (1), A. Battaglini (2), J. Lilliestam (2), and K. Williges (1)
(1) International Institute for Applied Systems Analysis, (2) Potsdam Institute for Climate Impact Research

Europe's climate policy objective of 20% renewable energy by 2020, and the call by the IPCC to reduce greenhouse gas emissions by 80% by 2050, pose major challenges for the European Union. Several policy options are available to move towards these objectives. In this paper, we will address the most critical policy and governance issues associated with one particular approach to scaling up renewable energy resources: reliance on large-scale energy generation facilities outside the European continent, such as onshore and offshore wind farms and concentrating solar power (CSP) facilities in the Mediterranean region.
Several feasibility studies completed over the past three years (German Aerospace Center 2006; German Aerospace Center 2005; Czisch, Elektrotechnik 2005, p. 488; Lorenz, Pinner, Seitz, McKinsey Quarterly 2008, p.10; German Aerospace Center 2005; Knies 2008, The Club of Rome; Khosla, Breaking the Climate Deadlock Briefing Papers, 2008, p.19) have convincingly demonstrated that large-scale wind and CSP projects ought to be very attractive for a number of reasons, including cost, reliability of power supply, and technological maturity. According to these studies it would be technically possible for Europe to rely on large-scale wind and CSP for the majority of its power needs by 2050—indeed enough to completely replace its reliance on fossil fuels for power generation—at competitive cost over its current, carbon intensive system.

While it has been shown to be technically feasible to develop renewable resources in North Africa to account for a large share of Europe's energy needs, doing so would require sustained double digit rates of growth in generating and long-distance transmission capacity, and would potentially require a very different high voltage grid architecture within Europe. Doing so at a large scale could require enormous up-front investments in technical capacity, financial instruments and human resources. What are the policy instruments best suited to achieving such growth quickly and smoothly? What bottlenecks—in terms of supply chains, human capital, finance, and transmission capacity—need to be anticipated and addressed if the rate of capacity growth is to be sustained over several decades? What model of governance would create a safe investment climate in consistence with new EU legislation (i.e. EU Renewable Energy Directive) as well as expected post-Kyoto targets and mechanisms?

The material that we present here is based on a series of workshops held between November 2008 and January 2009, in which a wide range of stakeholders expressed their views about the fundamental needs for policy intervention. Supplementing the results from these workshops have been additional expert interviews, and basic financial modeling.

One of the interesting results from this research is the need for a multi-pronged approach. First, there is a need for a support scheme, potentially compatible with in all cases supplementing the EU REN Directive, that would create a stable market for North African electricity in Europe. Second, there is a need for policies that facilitate the formation of public private partnerships in North Africa, as the specific investment vehicle, as a way to manage some of the uncertainties associated with large-scale investments in the region. Third, attention has to be paid to the development of supply chains within the Mediterranean region, as a way of ensuring the compatibility of such investments with sustainable development.