



Energy Quarterly

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MRS Bulletin



Opening the grid across continents

The regional initiative in this issue on Desertec addresses plentiful solar energy from the Middle East and North Africa (MENA) for distribution in Europe. The concept of transmitting electrical power from one part of Europe to another is not new. Europe's grid allows countries like Denmark to boast about its relatively large fraction of electricity provided by wind, without the cost of in-house storage. When Sweden is lacking wind or hydroelectric capacity, excess generation capacity elsewhere can supply what is missing. However, Europe aims higher, and Desertec is a centerpiece of its plans to dramatically increase renewable sources in its energy supply mix.

Although Desertec will stretch over only 15% of the Northern Hemisphere's latitudes, it will be a first step toward Buckminster Fuller's dream of a worldwide electricity grid to allow uninterrupted solar and wind electrical power generation, with the grid serving in lieu of storage.

The Desertec initiative is both more ambitious and more complicated than similar projects. The reason is politics and political instability, especially in light of the recent developments in the MENA region. The existing European grid succeeded in an environment of political stability after the second World War.

Can Desertec succeed in the political climate surrounding it? While there is no question that countries like Morocco and Egypt have very serious interest in the program, involving the latter may well imply undersea connections with materials and other challenges, unless neighboring countries participate. Morocco, already connected through Spain, is presently in a better situation.

Still, looking at Europe's grid today shows how fast the interconnects can grow once the conditions are there. This should provide, in the face of any pessimism, further impetus to push the project forward. Indeed, it is possible that the materials and other research developments needed to make Desertec possible (e.g., self-cleaning panels, increased thermal storage, tamper-proof systems, safe and sealed cables with appropriate sensor systems) may find first use elsewhere or in a very small part of the proposed Desertec area. When these developments are in place and tested, and politics are right, the plan can be quickly realized.

David Cahen, George Crabtree, and Steve M. Yalisove