

Academy for Co-creative Education of Environment and Energy Science (ACEEES)

Fourth Special Lecture- June 21, 2012, 16:45 – 18:00

Ishikawadai #3 Bldg., 3rd Floor, Room 304

Co-sponsor: Reinventing Japan Project at Tokyo Tech, Type B

“Renewable Energy Policy (Barriers and Motivation): Perspectives on Progress in Japan, Germany/EU, and the U.S.”

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Abstract: Energy policy in Japan has changed rapidly over the last year, since 311. To promote a shift to renewable energies (RE), the Japanese Diet in 2011 passed a Feed-in-Tariff (FIT), to encourage investment through guaranteed income to RE providers and access to the electrical transmission grid. Germany implemented a national FIT in 1990. In 2011, 20% of Germany's electricity was derived from RE. Furthermore, the European Commission put strong RE targets at the forefront of their 2020 and 2050 energy roadmaps. U.S. President Obama directed the U.S. Department of Energy to focus technology development towards electrifying transportation and to achieve the goal, that 80% of U.S. electricity will be clean .i.e. RE by 2035. U.S. RE electricity generation doubled from 2008 to 2011 (70 TWh to 140 TWh).

Renewable energy growth supported by an efficient nation-wide energy policy can satisfy concerns associated with the 3Es: **energy supply, economic growth, and environmental impact** (*the same 3Es in the ACEEES*). An effective policy portfolio would include guaranteed grid connections with rapid conflict resolution. A guaranteed market for RE sales, and the last and most strategic element would be “priority dispatch for RE”, i.e. RE is sold before fossil fuel electricity (FFE). These three policy mandates joined with a transparent wholesale electricity market will facilitate large scale penetrations of RE. In turn, this leads to the democratization of energy and a solution to the 3Es. Renewable energy:

1. ...is domestic and regional, with “fuel costs” fixed for the life of the RE infrastructure (+20 years) counter balanced by high upfront capital costs. -Provides a stable supply of energy.
2. ...has a lower energy density and distributed generation ensures that local workforce and economic developments are regional rather than directed to the small foot print of FFE or NE generation. –Continued economic development.
3. ...reduces CO₂ and other pollution, which then reduces environmental impacts (market externalities) generally not captured by lifecycle or cost analyses. -Health and environment improvements due to carbon free energy.

Strong, clear government policy accelerates the resolution to the unique challenge that the 3Es present. Within the next decade, RE will become cost competitive (grid parity) with most FFE for those countries that make it a policy priority.

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