Know More About Supergrids

A traditional electricity grid system consists of fuel, a power plant, transmission lines, and, ultimately, any electrical appliance. Considering that the energy extracted from the fuel is 100%, less than 2% of the energy is efficiently used. The rest of the energy is wasted in transmission and any undesired energy conversion (e.g. heat energy of a light bulb). What can solve this efficiency problem effectively? A Supergrid becomes the most promising candidate to solve the problem.

How super is the Supergrid?

The feature that makes the Supergrid outperform the traditional electricity grid system, is the ability to avoid energy loss along the transmission. Usually, electricity is lost due to the resistance of a material. The energy loss is converted to heat energy in most cases. Within a Supergrid, a superconductor is used to transmit electricity. Now, what makes superconductor super? A superconductor is a material that has no resistance against electric current during transmission. However, such condition can only be done when the material is at a very low temperature (near absolute zero). To achieve such these extremely low temperatures, liquefied gas is a good choice to do the cooling. Scientists are now incorporating liquefied hydrogen into the Supergrid system because liquefied hydrogen can then be used in different parts of a hydrogen economy.

Sources:
Grant, Paul M. et al. “A Power Grid for the Hydrogen Economy” Scientific American Magazine. July 2006.