

MINUTE ITEM

This Calendar Item No. 45  
was submitted for information  
only, no action thereon  
being necessary.

INFORMATIONAL CALENDAR ITEM

45.

10/80  
Gorfain  
W 30014

CALIFORNIA DEMONSTRATION SOLAR POND POWER PLANT

The use of solar ponds together with low-temperature turbines to generate electrical power offers the potential of generating 5,000 megawatts in California by the end of the century, displacing the consumption of 50 million barrels of oil per year in California and 200 million barrels of oil per year in the Western United States. Photos of the world's only solar pond power plant, on the Dead Sea in Israel, and a schematic diagram showing its power generation cycle are on file in the Office of the Commission.

An initial reconnaissance of California reveals that sites potentially suitable for eventual commercial scale generation, amounting to several thousand megawatts, include the Salton Sea, desert dry lake-beds, Owens Lake, Mono Lake, the San Joaquin Valley and the Colorado River Basin. Several of these sites are sovereign lands of the State.

For the past year and a half, the State of California, Southern California Edison Company, the Jet Propulsion Laboratory, Ormat Turbines, Ltd. of Israel, WESTEC Services, Inc., and the Federal Departments of Energy and Defense have participated in a feasibility study of a 5 megawatt commercial solar pond power plant at the Salton Sea in the Imperial Valley. Detailed design of this plant is about to begin, with plant operation expected in 1984. Based on their work, it appears that the Salton Sea could eventually generate up to 600 megawatts of electricity, 2/3 the capacity of Rancho Seco, while, at the same time, ensuring adequate control of the Sea's salinity level to protect its marine life. Similar investigations of the feasibility of electrical power generation at the Great Salt Lake in Utah are about to get under way.

The basic ingredients necessary for solar pond power plants are the availability of land, salt and water to compensate for evaporation, and sufficient solar radiation. Once in operation, solar pond power plants incur no fuel costs and require little maintenance. Because of their unique ability to store the sun's energy, they can be operated year-round, day or night. Solar pond technology also avoids the adverse environmental effects typically associated with conventional modes of electrical power generation.

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In order to demonstrate the feasibility of this promising new and innovative technology at the earliest possible time, a 300 kilowatt solar pond power plant is being proposed in California. Construction of such a plant by 1982, the first of its kind in the United States, will enable the State to gain direct operating experience with the technology, provide a training ground for operators of subsequent commercial plants, serve as a research and development facility for advancing the State of the art toward optimal power production, and be a place for visitors and potential power producers. The cost of such a project would be \$2,000,000, to be equally shared by the State and Federal Governments.

Several sites are currently being considered for the proposed demonstration project. Key factors in selecting a final site for it are the sufficiency of local insolation; availability of land, salt or brine, and make up water; proximity to utility transmission facilities; and public access and visibility. Because of the importance of early completion of the project, the site selected must be acceptable from an environmental standpoint.

One of the leading sites for the project is at the abandoned PPG soda ash plant at the northwest corner of Owens Lake. If located at that site, it is expected that the solar pond will occupy one of the former salt ponds, on sovereign lands of the State currently not under lease. The turbine and visitor facilities will be located on PPG-owned land immediately adjacent to Highway 395. In addition, staff is examining the overall potential for solar pond power generation at Owens Lake, which could also help solve the dry lake-bed dust problem in the area. Staff will continue to report to the Commission any progress on this matter.