

ENVIRONMENTAL EFFECTS METADATA SURVEY FORM

Name

Xuwei

Date submitted

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Project name: Haishan Tidal Power Plant

Planned In Operation Completed

Project description:

Project Developer: Chinese Government

Technology Developer:

Technology type:

Resource (wave, tidal): Tidal

Project scale (test site, prototype, array, commercial): Commercial

Installed capacity (MW): 0.25 MW

Project Website:

Launch Date: December 1975

Additional Description: The Haishan TPP is noteworthy as it is the only linked-basins plant in existence in the world a plant featuring a high and a low-basin with the power plant in between these two basins, generating energy from water flowing from the high into the low-basin generating the power in only one direction. The inlet gate was set up at one projecting beach on a sea island. The station was placed at the link-up of the high and low reservoirs. The water outlet gate was set up at the southeast of the low reservoir. The area of the upper reservoir is 22.9 hectares and 0.8 hectares at lower reservoir. The average tidal range is 4.91m. The plant serves an isolated community of 760 families. This unit operated continuously. The energy was used partly to pump fresh water for domestic and irrigation use into the community reservoir.

Location:

Ocean/Water body: Maoyan Island, Zhejiang Province

Closest city:

Country: China

Depth:

Coordinates (please use Mercator): 28.232079°, 121.156404°

Process status: This power station was completed and put to use in 1972. The plant was designed for two 75kW units of which only one was installed and commissioned in 1975. The plant has since been upgraded to an installed capacity of 0.25 MW, producing 0.34GWh per year.

Since the sediment transport processes are changing, the advantage of the physical environment of the tidal power station has been changed.

Licensing information (brief description):

Please provide a brief description listing the organizations involved, licenses needed and duration of consent process. One paragraph should suffice.

Key Environmental issues: The mud and sand conditions of this power station are similar to that of Jiangxia power station. Yet its inlet was placed at the shallow shoal on projecting shore, where the two streams converge, carrying more sand and mud, more easily to be silted up. So when this power station is in operation, its sedimentation is so serious that it has silted up 63cm during eight years. One would expect however that, like most other seas, the Yellow and East China Seas are host to migratory fish species which need access to coastal bays, estuaries and rivers for their feeding and procreation. To what extent this has been taken into account by China's TPP engineering community is not clear.

Environmental webpage: *link to project official environmental webpage (if available)*

Baseline studies and project effects studies: Haishan Tidal Power Plant				
General description				
Receptor	Study description including question and/or objective (several can be listed per receptor)	Design and methods (brief description)	Results (brief description)	Status (planned, underway, completed, with dates)
Physical environment				
Benthos				
Fish and fisheries				
Large vertebrates				
Birds				
Marine uses / users		Practice	The stable environment of the	

			reservoir is suitable for algae, shellfish and shrimp growth. This formed a good condition for aquaculture, conducive to the comprehensive utilization of reservoir.	
Other* (can be named)				
Reports or Papers	<ul style="list-style-type: none"> • Wang S., Yuan P., Li D., Jiao Y., 2011. An overview of ocean renewable energy in China. Renewable and Sustainable Energy Reviews, 15, 91-111. • Barriers against tidal power. International water power and Dam Construction. 2003. • Xiaohua Liu, Liu Fagong. The practice of comprehensive silt proof measures in tide power stations. 			
Research Projects	N/A			

Monitoring and adaptive management: Haishan Tidal Power Plant				
General description				
Receptor	Monitoring program description including question and/or objective (several can be listed per receptor)	Design and methods (brief description)	Results (brief description)	Status (planned, underway, completed, with dates)
Physical environment				
Benthos				
Fish and fisheries				
Large vertebrates				
Birds				
Marine uses/ users				
Other* (can be named)				
Reports or	(Key papers on the areas addressed should be listed here; when possible the files			

Papers	themselves can be made available in downloadable PDF format, alternatively links to the files or project website can be provided when available e.g. SeaGen.)
Research Projects	(past or on-going environmental research projects at the site)