

ENVIRONMENTAL EFFECTS METADATA SURVEY FORM

Name of person updating the form

Xuwei

Date submitted

July 24, 2014

Project name: Wanxiang-II Project

Planned

In Operation

Completed

Project description:

Project Developer: Harbin Engineering University (HEU)

Technology Developer: Harbin Engineering University (HEU)

Technology type: Vertical-axis tidal turbine

Resource (wave, tidal): Tidal

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

Installed capacity (MW): 40 kW

Project Website:

Launch Date: 2005

End Date: 2005

Additional Description: It was installed in 2005 and consist of a bottom fixed vertical-axis tidal current energy plant, which has two H-shaped rotors with adjustable-angle blades and a vertical axle. It consists of a cabin, a pontoon, a cone, a caisson and riggers. The device differs from Wanxiang-I in that it is located on the seabed to avoid damage from typhoons, and it transports power to shore through seabed cables, where the power is converted and regulated to be used for a lighthouse. It can float to the surface when it requires maintenance. In the years since its deployment, Wanxiang-II has been proven to have improved energy conversion efficiency over Wanxiang-I.

The device consists of two 20 kW straight-blade vertical rotors, driven system and a platform. The platform consists of turbine nacelle, caissons and fixed legs. As a totally submerged system, the driven system and the generator are tightly sealed in the turbine nacelle.

Location:

Ocean/Water body:

Closest city: The tidal channel between Gaoting on Daishan Island in Zhejiang province and Duigangshan Island. Near Daishan, in the Zhejiang province.

Country: China

Coordinates: 30.223442°, 122.202591°

Process status: From 2007 to 2009, with the support of the National High-tech R&D Program of China (863 Program) and the United Nations Industrial Development Organization (UNIDO), HEU and Ponte Di Archimedes Co. of Italy jointly developed a 250 kW floating vertical axis marine current device, in which a cymbiform platform and the Kobold vertical axis turbine were adopted.

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: *brief description on the most important environmental issues raised by the project (e.g. Sensitive species/habitats/areas that were of particular concern and/or received special protection) and how they were addressed.*

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

Baseline studies and project effects studies: Wanxiang II				
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				
Other* (can be named)				
Reports or Papers	<ul style="list-style-type: none"> • China Funds Development Of New Tidal Current Energy Devices • 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. 			

Research Projects	N/A
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Monitoring and adaptive management: Wanxiang II				
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 Papers	(Key papers on the areas addressed should be listed here; when possible the files 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)			