

# Cliff House Wind Turbine

## Fact Sheet



The National Park Service is considering a proposal for a wind turbine at the Cliff House. This pilot program represents a part of the park's overall sustainability plan. The turbine complies with SHPO (State Historic Preservation Office) regulations and has been reviewed to avoid impacts to wildlife as well as historical, visual and audible intrusions.

## Environmental Benefits

The amount of energy expected to be produced, 9433kW-hours per year, will be enough to power the Cliff House gift shop. This amounts to Green House Gas savings of 13,408 kg per year.

## Bird and Bat Friendly

The turbine works on the principle of "high torque – low RPM" and the rated power is achieved at only 85 rpm through the use of a newly-developed disk-shaped generator. The design has been reviewed and approved by NPS Wildlife Specialists; and bird and bat activity in the area will be monitored during operation. The monitoring program requires a zero bird injury rate or turbine will be stopped pending further study. Supplemental ultra-sonic and visual means to help birds avoid the windmill have been considered, but deemed unnecessary, as bird can see and avoid the blades. The design allows for installation of a physical barrier, but no bird injuries were reported during research & development and eight turbine-years of operation.

## Dimensions and Features

The results of the viewshed study are still accurate. See attached graphic with detailed measurements.

**Height:** The pole is 19' 8" and the turbine extends upward another 11' 1" with a total of 30' 9" above the Observation Deck. The highest part of the turbine is 8' 9" above the top of Sutro's Restaurant.

**Sound:** The turbine is noiseless; always less than the ambient wind noise. These YouTube videos demonstrate day and nighttime sound examples: DAY: <http://www.youtube.com/watch?v=aw0KUWCxs1s> and NIGHT: <http://www.youtube.com/watch?v=0QofZyfPavY>

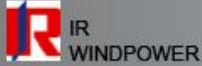
## Construction and Installation Timeline

With a proposed start date by July 1, 2012, a public barrier will be in place on the southwest corner of the deck during all construction, installation and cleanup to take place over seven mornings:

- 3 mornings to excavate and construct the base and mounting of electronics. No heavy equipment involved.
- 2 mornings to attach the brace. Scaffolding will be on the Observation deck. Welding on 1 day.
- 1 morning (3 hours) of crane operations. The pole and turbine arrive at the same time as the crane.
- 1 morning of clean-up and touch-up.

## Comments and Questions

NPS seeks public comment and questions by June 25. Please send comments and questions to: Alexandra Picavet at (415) 786-8021 or [Alexandra\\_Picavet@nps.gov](mailto:Alexandra_Picavet@nps.gov), or mail written comments to GGNRA, 201 Fort Mason, San Francisco, CA 94123.



Dimensions in Feet & Inches

*POINT LOBOS AVE – SIDEWALK*

