



## CAPE COD FOUNDATION DESIGN

**Client: Confidential**  
**Scope: Foundation design (2003)**  
**Location: USA**

### 420 MW at 5 to 17 metres

The Cap Wind project is built on Horseshoe Shoal, five miles off the Cape Cod shore in Massachusetts, USA.

The wind park includes 130 wind turbines rated at 3.6 Megawatts (MW) each, with a total rated output of 420 MW.

In average wind conditions the wind park will generate enough electricity to power three-quarters of the Cape and islands with renewable energy. The wind farm is located in a water depth of 5 to 17 m and monopiles are used as foundation for the turbines.

### Our services

Ramboll has provided services for the EPC contractor, including preparation of:

- Design basis
- Design drawings
- Scour protection definition
- Coating specification

- Welding procedures

In cooperation with the client the design is tailored to consider a mass production concept for the foundations in order to reduce the overall cost.

### A customised design

The design is performed according to the newly update of the Germanische Lloyd set of rules. Usually for large offshore structures, wind and waves are the governing factors for the foundation design.

However, for this project the wind farm is located in a sheltered area with rather shallow waves, which atypically has introduced the eigenfrequencies of the structure to be the driver for the foundation design.

### Ground-breaking scour protection

The permitted scour protection includes special artificial seaweed mats to be placed on the seabed. This is the first time such type of

scour protection is used for offshore wind park structures, and if successful is likely to break new ground for use of scour protection. To test the performance of the mats, trials are currently carried out at the existing met station.

### CONTACT

Søren Juel Petersen  
Business Development Director  
Offshore Wind  
D +45 4598 8760  
M +45 4032 8527  
[sjp@ramboll.com](mailto:sjp@ramboll.com)