

Ocean Energy – Wind Energy Potential

description

Wind is created due to uneven heating of the earth's surface by the sun. Wind energy is turned into electrical power through wind turbines (onshore and offshore) that capture the winds blowing across the earth's surface. This map shows the wind energy potential in Canada's Pacific Ocean. It has been extracted from a nation-wide modelled dataset, the Canadian Wind Energy Atlas, an initiative from Environment Canada to provide new meteorological tools for the use of Canada's wind energy industry.

The wind potential shown in Canadian Wind Energy Atlas is based on a set of 65 partially overlapping tiles. On each tile, climate is characterized by a large set of weather conditions, providing over 200 different possible atmospheric states. The climatic modelling finds a spatial solution for the wind flow in each of those states. Results are then post-processed with a statistical model representing the dominant winds in order to obtain weighted average wind velocities. For full analysis methodology see the Canadian Wind Energy Atlas (Environment Canada, 2008)

The Canadian Wind Energy Atlas provides information on mean wind speed and mean wind energy at 30, 50 and 80 metres above the Earth's surface annually and for winter, spring, summer and fall. At the 50 metre level, information about the frequency of occurrence of 12 wind sectors and 27 wind classes is also available. Tiles were downloaded from the Canadian Wind Energy Atlas and merged to create one file for the west coast. The resulting map shows mean wind energy as watts per square metre (W/m²) for the BC Marine Conservation Analysis (BCMCA) study area at 30 metres above the surface.

The data are displayed using equal interval categories, meaning that the data are divided into 5 equally spaced classes where each class may contain a different number of grid cells.



PHOTO: HANS HILLEVAERT

data sources

- Environment Canada, Canadian Wind Energy Atlas

data resolution

- 5 kilometres

date of analysis

- October 2008

reviewers

- Jessica McIlroy, Ocean Renewable Energy Group

reviewer comments

- The map should be verified against up-to-date resource information found online at the Ocean Renewable Energy Group.

caveats of use

- The map represents potential resources, not economically realizable resources. Offshore wind turbine installations require close proximity to transmission grids, relative shallow water and suitable seabed substrate.
- Recommended date of expiry for use of these data in a marine planning context: 2013-2018, although information should be verified against up-to-date information available through the Ocean Renewable Energy Group.

map, feature data and metadata access

- Visit www.bcmca.ca/data for more information.

references

- Environment Canada. *Canadian Wind Energy Atlas*. 2008. www.windatlas.ca/en/index.php
- Ocean Renewable Energy Group www.oreg.ca

BCMCA Atlas
Ocean Energy
Wind Energy Potential

Legend

Mean Wind Energy
(W/m²)

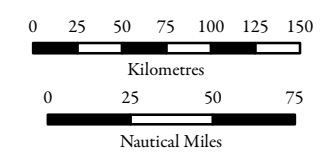
- 6 - 200
- 201 - 400
- 401 - 600
- 601 - 800
- 801 - 1000

Data Sources:
Environment Canada

Base Data:
ESRI Base Data, GeoBase, GeoBC,
NOAA, Natural Resources Canada,
USGS, Washington State Government

Thematic Data:
For more information on data sources
and methods please refer to the
facing page to this map

Projection: BC Albers NAD83



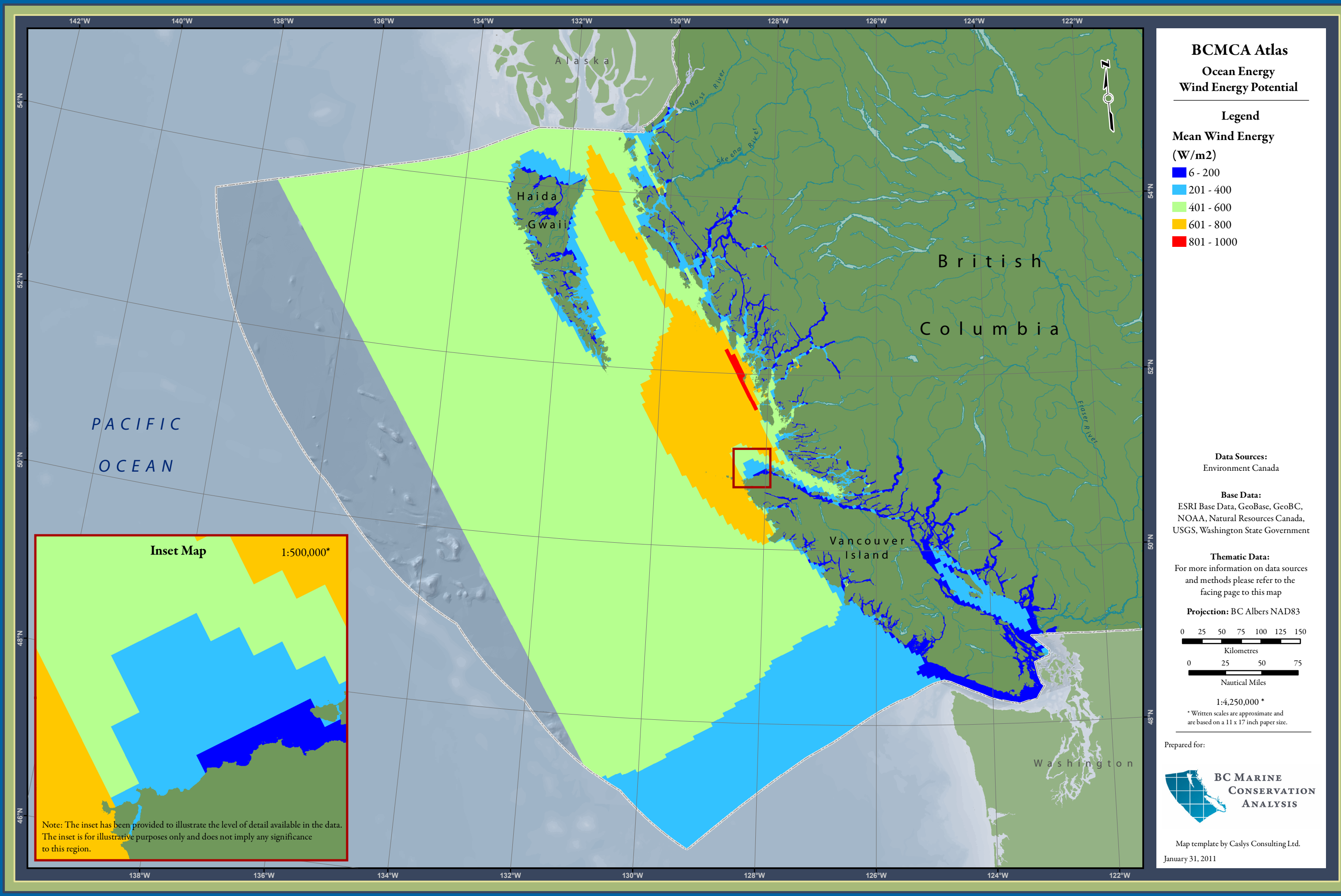
1:4,250,000 *

* Written scales are approximate and
are based on a 11 x 17 inch paper size.

Prepared for:



Map template by Caslys Consulting Ltd.
January 31, 2011



Inset Map 1:500,000*

Note: The inset has been provided to illustrate the level of detail available in the data.
The inset is for illustrative purposes only and does not imply any significance
to this region.