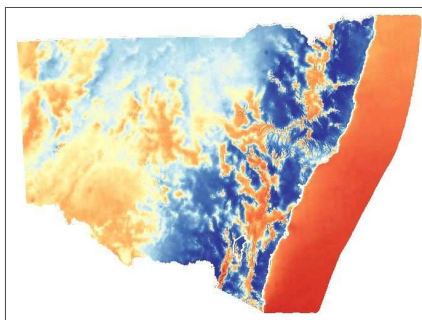


# Wind Speed 100m NN Clip NSW and Ocean 1km Buffer

## File Geodatabase Raster Dataset



### Tags

Wind speed, wind resources, renewable energy, NSW

### Summary

Garrad Hassan Pacific Pty Ltd, trading as DNV GL, was engaged to provide a proposal to the New South Wales Department of Planning & Environment. New South Wales Department of Planning & Environment requested that DNV GL provide a proposal to undertake wind mapping for the onshore and 250 km offshore of New South Wales (NSW), Australia.

### Description

The works: NSW Wind speed data

DNV GL generated a wind speed map covering onshore NSW and approximately 250 km offshore from NSW, in accordance with the Methodology described in the Lineage statement.

DNV GL considered the most efficient method for covering such a large area within the available budget was to make use of previously generated mesoscale modeling at a horizontal spatial resolution of approximately 5 km. DNV GL then used the mesoscale model outputs to create WAsP Wind Atlas Library (.LIB) files and conduct finer resolution 1 km microscale modelling.

DNV GL provided the microscale wind speed map across NSW at a horizontal spatial resolution of 1km in a GIS format able to be manipulated by the Department. The wind speed results were provided at one height, 100 metres, above ground level (AGL) specified by the Department.

### Credits

Garrad Hassan Pacific Pty Ltd, trading as DNV GL.

### Use limitations

Please refer to the 'Resource Constraints' section for limitations of use.

### Extent

**West** 140.985267    **East** 155.210267  
**North** -28.056995    **South** -37.516995

## Scale Range

**Maximum (zoomed in)** 1:5,000

**Minimum (zoomed out)** 1:150,000,000

## ArcGIS Metadata ►

### Topics and Keywords ►

THEMES OR CATEGORIES OF THE RESOURCE climatologyMeteorologyAtmosphere

\* CONTENT TYPE Downloadable Data

EXPORT TO FGDC CSDGM XML FORMAT AS RESOURCE DESCRIPTION No

THEME KEYWORDS RENEWABLES-Wind

*Hide Topics and Keywords ▲*

### Citation ►

TITLE Wind Speed 100m NN Clip NSW and Ocean 1km Buffer

PUBLICATION DATE 2016-07-25 00:00:00

REVISION DATE 2018-11-30 00:00:00

EDITION 1.3

EDITION DATE 2018-11-30

PRESENTATION FORMATS digital map

FGDC GEOSPATIAL PRESENTATION FORMAT raster digital data

#### OTHER CITATION DETAILS

It is recommended that this dataset be referred to as:

Wade S.L., Barry C.M., Nelson M.D. & Gammridge L. (compilers) 2018. Renewable energy map of New South Wales, Version 1.3 (Digital Dataset). Geological Survey of New South Wales, Maitland.

Please note the raw data has been sourced from "Garrad Hassan Pty Ltd"

We (the Department) are the Publishers, and the others (Garrad Hassan Pty Ltd) are the Custodians.

*Hide Citation ▲*

### Citation Contacts ►

#### RESPONSIBLE PARTY

ORGANIZATION'S NAME Garrad Hassan Pty Ltd

INDIVIDUAL'S NAME Head of Section, Developer Support Services

CONTACT'S ROLE custodian

#### CONTACT INFORMATION ►

##### PHONE

VOICE 0396001993

##### ONLINE RESOURCE

LOCATION <https://www.dnvgl.com/services/virtual-met-data-3964>

*Hide Contact information ▲*

#### RESPONSIBLE PARTY

INDIVIDUAL'S NAME Director of Geoscience Information  
ORGANIZATION'S NAME NSW Resources and Geoscience, Geological Survey of NSW  
CONTACT'S ROLE publisher

#### CONTACT INFORMATION ►

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ADMINISTRATIVE AREA New South Wales

POSTAL CODE 2320

COUNTRY AU

E-MAIL ADDRESS [geoscience.info@geoscience.nsw.gov.au](mailto:geoscience.info@geoscience.nsw.gov.au)

#### ONLINE RESOURCE

LOCATION <http://www.resourcesandgeoscience.nsw.gov.au>

NAME NSW Resources and Geoscience website

DESCRIPTION The website of the NSW Department of Planning & Environment, Division of Resources and Geoscience

FUNCTION PERFORMED information

*Hide Contact information ▲*

*Hide Citation Contacts ▲*

## Resource Details ►

DATASET LANGUAGES \* English (AUSTRALIA)

DATASET CHARACTER SET utf8 - 8 bit UCS Transfer Format

STATUS completed

SPATIAL REPRESENTATION TYPE \* grid

\* PROCESSING ENVIRONMENT Version 6.2 (Build 9200) ; Esri ArcGIS 10.4.0.5524

#### CREDITS

Garrad Hassan Pacific Pty Ltd, trading as DNV GL.

#### ARCGIS ITEM PROPERTIES

\* NAME NSW\_Wind\_Speed

\* LOCATION file:///Maitlfp11

\\group\Geosurvey\GeoInfo\GeoSpatial\Products\Mapping\State\NSW Renewables\2019  
\Online data\RenewablesData.gdb

\* ACCESS PROTOCOL Local Area Network

*Hide Resource Details ▲*

## Extents ►

#### EXTENT

##### GEOGRAPHIC EXTENT

##### BOUNDING RECTANGLE

EXTENT TYPE Extent used for searching

\* WEST LONGITUDE 140.985267

\* EAST LONGITUDE 155.210267

- \* NORTH LATITUDE -28.056995
- \* SOUTH LATITUDE -37.516995
- \* EXTENT CONTAINS THE RESOURCE Yes

EXTENT IN THE ITEM'S COORDINATE SYSTEM

- \* WEST LONGITUDE 140.985267
- \* EAST LONGITUDE 155.210267
- \* SOUTH LATITUDE -37.516995
- \* NORTH LATITUDE -28.056995
- \* EXTENT CONTAINS THE RESOURCE Yes

*Hide Extents ▲*

## Resource Points of Contact ►

POINT OF CONTACT

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INDIVIDUAL'S NAME Head of Section, Developer Support Services  
CONTACT'S ROLE custodian

CONTACT INFORMATION ►

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ONLINE RESOURCE

LOCATION <https://www.dnvgl.com/services/virtual-met-data-3964>

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CONTACT'S ROLE publisher

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POSTAL CODE 2320  
COUNTRY AU  
E-MAIL ADDRESS [geoscience.info@geoscience.nsw.gov.au](mailto:geoscience.info@geoscience.nsw.gov.au)

ONLINE RESOURCE

LOCATION <http://www.resourcesandgeoscience.nsw.gov.au>  
NAME NSW Resources and Geoscience website  
DESCRIPTION The website of the NSW Department of Planning & Environment, Division of Resources and Geoscience  
FUNCTION PERFORMED information

*Hide Contact information ▲*

*Hide Resource Points of Contact ▲*

## Resource Maintenance ►

## RESOURCE MAINTENANCE

UPDATE FREQUENCY unknown

SCOPE OF THE UPDATES dataset

[Hide Resource Maintenance ▲](#)

## Resource Constraints ►

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#### CONSTRAINTS

##### LIMITATIONS OF USE

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[Hide Resource Constraints ▲](#)

## Spatial Reference ►

#### ARCGIS COORDINATE SYSTEM

- \* TYPE **Geographic**
- \* GEOGRAPHIC COORDINATE REFERENCE **GCS\_WGS\_1984**
- \* COORDINATE REFERENCE DETAILS

##### GEOGRAPHIC COORDINATE SYSTEM

WELL-KNOWN IDENTIFIER **4326**  
X ORIGIN **-400**  
Y ORIGIN **-400**  
XY SCALE **11258999068426.238**  
Z ORIGIN **-100000**  
Z SCALE **10000**  
M ORIGIN **-100000**  
M SCALE **10000**  
XY TOLERANCE **8.983152841195215e-009**  
Z TOLERANCE **0.001**  
M TOLERANCE **0.001**  
HIGH PRECISION **true**  
LEFT LONGITUDE **-180**  
LATEST WELL-KNOWN IDENTIFIER **4326**  
WELL-KNOWN TEXT **GEOGCS["GCS\_WGS\_1984",DATUM["D\_WGS\_1984",SPHEROID ["WGS\_1984",6378137.0,298.257223563]],PRIMEM["Greenwich",0.0],UNIT ["Degree",0.0174532925199433],AUTHORITY["EPSG",4326]]**

#### REFERENCE SYSTEM IDENTIFIER

- \* VALUE **4326**
- \* CODESPACE **EPSG**
- \* VERSION **6.14(3.0.1)**

[Hide Spatial Reference ▲](#)

## Data Quality ►

#### SCOPE OF QUALITY INFORMATION ►

RESOURCE LEVEL **dataset**

[Hide Scope of quality information ▲](#)

DATA QUALITY REPORT - COMPLETENESS OMISSION ►

MEASURE NAME GSNSW testing and editing

CONFORMANCE TEST RESULTS

TEST PASSED Yes

RESULT EXPLANATION

Garrad Hassan Pacific Pty Ltd, trading as DNV GL have endeavoured to provide a complete dataset mapping wind speed 100m above the ground level at a horizontal spatial resolution of 1 km.

*Hide Data quality report - Completeness omission ▲*

DATA QUALITY REPORT - QUANTITATIVE ATTRIBUTE ACCURACY ►

MEASURE NAME GSNSW testing and editing

CONFORMANCE TEST RESULTS

TEST PASSED Yes

RESULT EXPLANATION

Garrad Hassan Pacific Pty Ltd, trading as DNV GL have endeavoured to provide accurate gridded wind speed predictions using modern technologies and methodologies as described in the lineage statement.

*Hide Data quality report - Quantitative attribute accuracy ▲*

DATA QUALITY REPORT - GRIDDED DATA POSITIONAL ACCURACY ►

DIMENSION horizontal

MEASURE NAME GSNSW testing and editing

CONFORMANCE TEST RESULTS

TEST PASSED Yes

RESULT EXPLANATION

The wind speed predictions should be representative of wind speeds over a 1 x 1km area, in line with the horizontal spatial resolution of 1km as described in the lineage statement.

*Hide Data quality report - Gridded data positional accuracy ▲*

*Hide Data Quality ▲*

## Lineage ►

LINEAGE STATEMENT

The wind atlas provided here was generated using the DNV GL Wind Mapping System (WMS). The WMS is a dynamical downscaling system developed to generate high-resolution mesoscale wind maps for any part of the world.

It represents the culmination of two decades of research and development, and combines the following two key technologies to generate ensemble downscaled time series over the area of interest:

- The Weather Research and Forecasting (WRF) model; a state-of-the-art community mesoscale model that has been thoroughly documented in the open-peer reviewed



literature.

- A well-validated, published, efficient ensemble downscaling technique based upon the "analog ensemble method".

In addition, there are a number of innovative aspects of the DNV GL WMS system that facilitate robust, accurate predictions of the wind regime, including:

- Use of the MERRA Reanalysis dataset; a state-of-the-art third generation global reanalysis of the satellite era.
- Use of an advanced and robust land surface model and high-resolution input datasets to represent the land- and sea-surface processes that strongly drive the boundary wind flows,
- Selection of an optimal grid configuration and use of the efficient analog ensemble technique which both permit a continuous multi-year simulation to be carried out that accurately represents the full range of wind and thermal stratification conditions.

Simulations have been carried out for a period of 10 years, using a nested grid configuration with horizontal spatial resolutions of approximately 25 km and 5 km. The yields a database of three-dimensional outputs across the whole of Australia with a temporal resolution of 1 hour and a horizontal spatial resolution of approximately 5 km. The physical process parameterizations are chosen for maximum numerical stability, and for producing the best overall representation of hub height winds within Australia. These choices are based on DNV GL's extensive validation studies conducted at more than 500 locations on every major continent. The mesoscale model outputs have then been used to initiate microscale wind speed modelling using the WAsP model, in order to generate a microscale wind speed map with a horizontal spatial resolution of 1 km.

The wind speed results presented in this map are derived from modelling output only and are unvalidated. DNV GL and Resources and Geoscience does not guarantee the accuracy of the maps, data, and visualizations presented, and accepts no responsibility for any consequence of their use. Wind speed values shown in maps should not be relied upon in an absolute sense. Rather they should be strictly interpreted as indicative (e.g., elevated windiness near mountaintops and escarpments). Users are strongly urged to exercise caution when using the information and data contained.

The data supplied here consists of a microscale wind speed map at a height of 100 m above ground level with a horizontal spatial resolution of approximately 1 km.

On request, DNV GL can also supply further outputs, for example:

- Finer resolution mesoscale or microscale wind speed maps over particular areas of interest;
- Mesoscale downscaled long-term time series of hourly wind speed and wind direction at specific locations;
- WAsP Wind Atlas Library (LIB) files containing the generalised wind climate at specific locations;
- Wind speed frequency distributions and/or direction frequency distributions (i.e., wind roses) at specific locations or over particular areas of interest;
- Diurnal and seasonal wind speed profiles at specific locations or over particular areas of interest.

For more information on this process or enquiries regarding provision of additional outputs, please follow the link below:

<https://www.dnvgl.com/services/virtual-met-data-3964>

Note: This dataset has been reviewed as part of the NSW Renewable Energy Mapping Project update (version 1.3, November 2018), with no updates required.

[Hide Lineage ▲](#)

## **Distribution ►**

**DISTRIBUTOR ►**

#### CONTACT INFORMATION

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ORGANIZATION'S NAME NSW Resources and Geoscience, Geological Survey of NSW  
CONTACT'S ROLE publisher

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COUNTRY AU  
E-MAIL ADDRESS [geoscience.info@geoscience.nsw.gov.au](mailto:geoscience.info@geoscience.nsw.gov.au)

#### ONLINE RESOURCE

LOCATION <http://www.resourcesandgeoscience.nsw.gov.au>  
NAME NSW Resources and Geoscience website  
DESCRIPTION The website of the NSW Department of Planning & Environment, Division of Resources and Geoscience  
FUNCTION PERFORMED information

*Hide Contact information ▲*

*Hide Distributor ▲*

#### DISTRIBUTION FORMAT

\* NAME File Geodatabase Raster Dataset  
VERSION 10.3.1

*Hide Distribution ▲*

## References ▶

#### PORTRAYAL CATALOGUE CITATION ▶

TITLE Wind Speed 100m NN Clip NSW and Ocean 1km Buffer  
PUBLICATION DATE 2016-07-25 00:00:00  
REVISION DATE 2018-11-30 00:00:00

EDITION 1.3  
EDITION DATE 2018-11-30

PRESENTATION FORMATS digital map  
FGDC GEOSPATIAL PRESENTATION FORMAT raster digital data

#### OTHER CITATION DETAILS

It is recommended that this dataset be referred to as:

Wade S.L., Barry C.M., Nelson M.D. & Gammridge L. (compilers) 2018. Renewable energy map of New South Wales, Version 1.3 (Digital Dataset). Geological Survey of New South Wales, Maitland.

Please note the raw data has been sourced from "Garrad Hassan Pty Ltd"

We (the Department) are the Publishers, and the others (Garrad Hassan Pty Ltd) are the Custodians.

[Hide Portrayal catalogue citation ▲](#)

[Hide References ▲](#)

## Metadata Details ►

\* METADATA LANGUAGE English (AUSTRALIA)  
METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format

METADATA IDENTIFIER 5840C7CA-50B2-4BEF-A7AE-A67C6A9C8C7C

SCOPE OF THE DATA DESCRIBED BY THE METADATA \* dataset  
SCOPE NAME \* dataset

\* LAST UPDATE 2019-02-11

ARCGIS METADATA PROPERTIES  
METADATA FORMAT ArcGIS 1.0  
STANDARD OR PROFILE USED TO EDIT METADATA ISO19139

CREATED IN ARCGIS FOR THE ITEM 2016-04-29 13:13:56  
LAST MODIFIED IN ARCGIS FOR THE ITEM 2019-02-11 15:35:11

AUTOMATIC UPDATES  
HAVE BEEN PERFORMED Yes  
LAST UPDATE 2019-02-11 15:35:11

[Hide Metadata Details ▲](#)

## Metadata Contacts ►

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INDIVIDUAL'S NAME Head of Section, Developer Support Services  
CONTACT'S ROLE custodian

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ONLINE RESOURCE  
LOCATION <https://www.dnvgl.com/services/virtual-met-data-3964>

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INDIVIDUAL'S NAME Director of Geoscience Information  
ORGANIZATION'S NAME NSW Resources and Geoscience, Geological Survey of NSW  
CONTACT'S ROLE publisher

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POSTAL CODE 2320  
COUNTRY AU  
E-MAIL ADDRESS [geoscience.info@geoscience.nsw.gov.au](mailto:geoscience.info@geoscience.nsw.gov.au)

ONLINE RESOURCE

LOCATION <http://www.resourcesandgeoscience.nsw.gov.au>  
NAME NSW Resources and Geoscience website  
DESCRIPTION The website of the NSW Department of Planning & Environment, Division of Resources and Geoscience  
FUNCTION PERFORMED information

[Hide Contact information ▲](#)

[Hide Metadata Contacts ▲](#)

## Metadata Maintenance ►

MAINTENANCE

UPDATE FREQUENCY unknown

[Hide Metadata Maintenance ▲](#)

## Thumbnail and Enclosures ►

THUMBNAIL

THUMBNAIL TYPE JPG

[Hide Thumbnail and Enclosures ▲](#)

## FGDC Metadata (read-only) ▼