

Methodology for defining the Hunter-Central Coast Renewable Energy Zone geographic area

The NSW Electricity Infrastructure Roadmap is enabled by the *Electricity Infrastructure Investment Act 2020*, which became law on 2 December 2020. Together, they outline the NSW Government's plan to deliver five Renewable Energy Zones (REZs) including in the Hunter-Central Coast. The Energy Corporation of NSW is the NSW Government-controlled statutory authority that is leading the delivery of NSW REZs.

Beginning in 2021, the Energy Corporation of NSW undertook a geospatial mapping analysis investigation of the Hunter and Central Coast regions to identify a nominal boundary for the REZ.

This initial analysis was undertaken in six key stages as summarised below:

1. Consultation with a range of NSW Government stakeholders from relevant agencies to identify key boundary considerations and source relevant data. 25 data layers were identified and collected.
2. Thirteen data layers were selected to create heatmaps of modelled land use considerations, technical constraints and optimal wind and solar resource locations. Each of these layers was broken down into sublayers, with the respective sublayers ranked to reflect the unique opportunities and constraints relevant to each data layer.
3. These sublayers were then combined using 50-metre wide cells to create heatmaps for wind and solar resource potential, land uses and key constraints.
4. Modelling was then run to identify the mean score for each 50-metre cell across all 13 data layers.
5. In addition to the above resource potential and technical feasibility layers, 12 further model layers were included to enable qualitative factors to be incorporated, such as environmental, economic and land-use considerations.
6. Project locations and network connection points identified through the industry Registration of Interest were considered as a reasonable indication of energy resources with a likelihood of being developed within the REZ geographic area. This data was used to inform the consideration of potential amendments to capture areas with greater prospects for wind and solar projects and proximal connection distances to transmission assets. This included seven offshore wind energy projects located in Commonwealth waters and intending to connect to the transmission network onshore.
7. The potential Hunter-Central Coast REZ boundary was then identified based on a balanced consideration of the quality of the energy resource, economic considerations, investor and community support and considerations of environmental, heritage and land-use constraints. Where suitable, the boundary proposes to use natural alignments such as coastline, roads, mountain ridges, rivers and other clear delineating features.

Data layers

The tables below detail the data layers used for identifying the Hunter-Central Coast REZ boundary.

Data layer	Source
Heatmap analysis layer	
Solar PV resource	DIGS, Geological Survey of NSW
Wind resource (speed)	DIGS, Geological Survey of NSW
Site slope	Geoscience Australia DEM_S_1s
Site aspect	Geoscience Australia DEM_S_1s
Site elevation	Geoscience Australia STRM 1s
Parcel size	NSW Spatial Service
Land use	Australian Bureau of Agricultural and Resource Economics, Catchment Scale Land Use of Australia 2014. Department of Planning and Environment.
Land cover	NSW Department of Planning and Environment
Protected areas	Collaborative Australian Protected Area Database 2020 and NPWS 2021
Prohibited areas	Geoscience Australia
Site elevation	Geoscience Australia DEM_S_1s
Land-use zoning	NSW Department of Planning and Environment
Biophysical Strategy Agricultural Land (BSAL)	NSW Department of Planning and Environment
Biodiversity	NSW Office of Environment and Heritage
Solar PV resource	DIGS, Geological Survey of NSW
Wind resource (speed)	DIGS, Geological Survey of NSW
Site slope	Geoscience Australia DEM_S_1s
Site aspect	Geoscience Australia DEM_S_1s
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Prohibited areas	Geoscience Australia
Site elevation	Geoscience Australia DEM_S_1s
Land-use zoning	NSW Department of Planning and Environment

Data layer	Source
Biophysical Strategy Agricultural Land (BSAL)	NSW Department of Planning and Environment
Biodiversity	NSW Office of Environment and Heritage
Population and housing density	Australian Bureau of Statistics, Census 2016
Registration of Interest projects	Results of industry Registration of Interest process for Hunter-Central Coast REZ, EnergyCo NSW
View layer	
Soil/Erosion area	NSW Department of Planning and Environment
Geology	Geoscience Australia
Easement	NSW Department of Planning and Environment
Watercourse corridor	NSW Department of Planning and Environment
Local Government Area	NSW Department of Planning and Environment
NSW Electorates	NSW Department of Planning and Environment
Bioenergy	DIGS, Geological Survey of NSW
Transmission corridors and capacity	NSW Department of Planning and Environment
Common Ground mining data - Mining Tenure	NSW Department of Planning and Environment
Heritage	NSW Department of Planning and Environment
Other planned energy developments	NSW Department of Planning and Environment
Land tenure details Crown/private	NSW Department of Planning and Environment

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