WIND RESOURCE MAPS OF OFFSHORE LOUISIANA
by
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DNR recently contracted with AWS Truewind of New York to construct maps of the offshore Louisiana wind resource. AWS Truewind employed their proprietary MesoMap weather modeling system to produce maps of the predicted mean annual wind speed at elevations of 10, 30, 50, 90, 150 and 300 meters above sea level, the predicted mean annual wind power density at an elevation of 50 meters, and the predicted mean monthly wind speeds at an elevation of 50 meters, for offshore Louisiana, extending 50 nautical miles offshore.

The MesoMap system was developed by AWS Truewind and consists of a large scale computer weather model that simulates regional weather patterns, a wind flow computer model that is sensitive to terrain and surface conditions, and several meteorological databases. This combination allows the mapping of large areas with a high level of detail. The typical margin of error between predicted and actual wind speeds is 5 – 7%.

The 50 meter elevation map shows predicted mean annual wind speeds of 6.5 to 7.0 meters per second (14.5 to 15.7 mph) from near shore to about 30 miles offshore for most of the Louisiana coast, and 7.0 to 7.5 meters per second (15.7 to 16.8 mph) from 30 miles to 50 miles offshore for most of the Louisiana coast. For the extreme western Louisiana coast, mean annual wind speeds over 7.0 meters per second are predicted within just a few miles of the shore line. The predicted mean power densities shown on the 50 meter elevation map mostly range from 300 to 400 watts per square meter (National Renewable Energy Laboratory class 3) with some areas over 400 watts per square meter (NREL class 4). NREL wind classifications range from 1 (no potential) to 7 (superb). Class 3 and 4 are listed as fair and good, respectively.

AWS Truewind consulted NREL for help to validate their model by comparing the predicted data to data gathered from various wind monitoring stations and satellite data.

A report by AWS Truewind describing the model in more detail, discussing the results, and giving guidelines on interpreting and using the maps can be accessed from DNR's website on the following page: http://dnr.louisiana.gov/sec/execdiv/techasmt/energy_sources/index.htm. Also available on the same page are the individual maps in Adobe PDF format, and an interactive map that can be viewed with ArcReader software from Environmental Systems Research Institute, Inc., which can be downloaded free of charge at: http://www.esri.com/software/arcgis/arcreader/download.html.
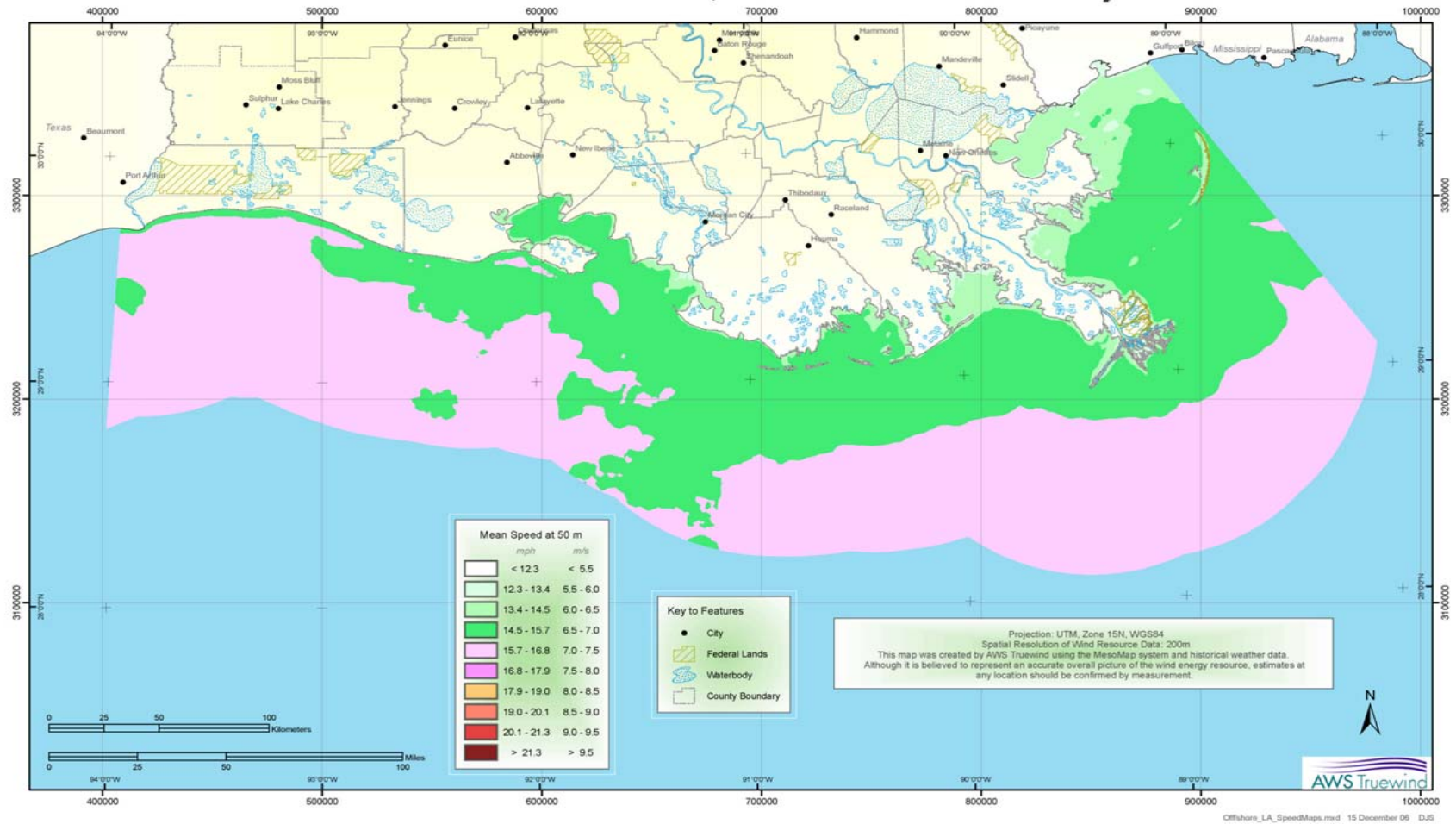
Figure 1. Mean Annual Wind Speed for Offshore Region of Louisiana at 50 m