

**Louisiana Department of Natural Resources
Office of the Secretary
Technology Assessment Division**

**History and Recent Developments in Louisiana Wind Energy
February 22, 2005 Update**

- 1) Offshore Louisiana was identified as having a significant potential for wind energy development in two 1979 U.S. Department of Energy (DOE) reports:

▶ Coastal Zone Wind Energy, Part II: Frequency Distribution of Winds by Direction for East and Gulf Coast Stations, Final Report, DOE/ET/20274-77/78/79-8, prepared by Michael Garstang and others, University of Virginia, Charlottesville, VA, under contract for U.S. Department of Energy; May 1979.

▶ Design Study and Economic Assessment of Multi-Unit Offshore Wind Energy Conversion Systems Application, Vol. 1: Executive Summary, WASH-2330-78/4 (Vol. 1), prepared by Westinghouse Electric Corporation, Advanced Systems Technology, East Pittsburgh, PA, under contract for U.S. Department of Energy; June 14, 1979.

Both reports indicated that sustained offshore winds were sufficient for development of wind energy, but that significant economic and infrastructure barriers would have to be overcome in the future for such development to be feasible.

A 2003 Stanford University study suggested that there may be much more wind energy potential than previously thought

▶ Spatial and temporal distributions of U.S. winds and wind power at 80 m derived from measurements: Christina L. Archer and Mark Z. Jacobson, Dept. of Civil and Environmental Engineering, Stanford University, Stanford, CA, May 13, 2003.
<http://fluid.stanford.edu/~lozej/winds/2002JD002076.pdf>

The study asserted that the two most common methods (power law and the logarithmic law) used to extrapolate 10 meter data to 80 meters (the height of large, modern wind turbine hubs) are limited, and thus not always accurate, so a new empirical method was developed (least squares fitting approach). The results showed that wind speeds at 80 meters were 1.3 – 1.7 meters/second faster than what is estimated by two other common methods of extrapolation. Results relevant to Louisiana were:

- The greatest uncharted reservoir of wind power in the continental U.S. is offshore and onshore along the southeastern and southern coasts.
- Louisiana had 4 (out of 6 total) coastal/offshore stations that were in the highest class (class 7, greater than 9.4 meters/second at 80 meters). Two were near shore, 2 were far offshore.

- 2) Onshore Louisiana has virtually zero potential for utilizing wind for energy. This is fully documented in a 1981 Louisiana Department of Natural Resources (DNR) report, Evaluating Wind Energy Potential in Louisiana by Mike French:
<http://www.dnr.state.la.us/sec/execdiv/techasmt/data/alternative/windreport1981.html>
- 3) On December 17, 2003, in an open session meeting of the Louisiana Public Service Commission (PSC), Mr. Harold Schoeffler, Lafayette area business man and head of the Sierra Club's Acadiana Chapter, made a brief presentation to the PSC about the potential of using abandoned offshore oil and gas platforms for mounting wind turbines to generate electricity, while saving the oil and gas industry hundreds of millions of dollars by avoiding the expense of removing the platforms at the end of their use for petroleum production. He said he was trying to assist some investors and former oil and gas platform design engineers who are interested in pursuing this idea. The PSC directed Mr. Schoeffler to organize a comprehensive presentation for the PSC and scheduled a PSC technical conference on wind power for February 26, 2004.
- 4) After the December PSC meeting, the PSC requested technical assistance from the DNR Technology Assessment Division to help them assess the issues of offshore wind power.
- 5) In January 2004, DNR Technology Assessment Division applied to DOE's Technical Assistance Program for help in trying to determine the current feasibility of offshore wind power in Louisiana. The application was denied because it did not fit DOE's objectives for the Technical Assistance Program. Mike French, Director of DNR Technology Assessment Division, appealed to Mr. Bill Becker, DOE's Central Region (the DOE region under which Louisiana falls) Director, for some kind of assistance from DOE in assessing the current offshore wind power potential. Mr. Becker arranged for a meeting with several DOE officials including himself, Dan Deaton, Peter Goldman, Stan Calvert, Kathy Iverson, the Texas Energy Office Director, Dub Taylor, and Mike French for February 9, 2004, in Washington, D.C. when these individuals were already scheduled to be in Washington for another meeting. Others involved in the meeting via teleconference were Larry Flowers from the National Renewable Energy Laboratory (NREL), Adan Martinez from the Texas General Land Office, Pam Groce from the Texas Energy Conservation Office, and David Mcgee and Bryan Crouch from the DNR Technology Assessment Division.

The Texas General Land Office discussed their ongoing plans to develop wind energy leases for Texas state waters, which extend nine miles from land, (Louisiana's state waters extend only three miles from land) and to have the procedures in place to offer state wind energy leases in 2004. No wind power projects are yet planned offshore Texas, but the Land Office is getting ready, as onshore wind power in Texas is booming.

Peter Goldman, Director of DOE's national Office of Wind and Hydropower Technologies, and Stan Calvert, DOE's Wind Energy Team Leader for the Wind and Hydropower Technologies Program, are involved in an intense effort to develop wind power offshore of New England. Mike French presented summaries of the 1979 DOE studies and the Stanford

study. As a result of the meeting, DOE decided to have Marc Schwartz at NREL assess the wind resource in the Gulf of Mexico.

- 6) At the February 26, 2004 PSC wind power technical conference, Mr. Shoefler; Herman J. Schellstede & Associates, Inc.; W.E.S.T., L.L.C.; and Grand Vent, L.L.C. (collectively referred to herein as, WEST) made an extensive presentation about their plans for a demonstration project for three wind turbines on three abandoned platforms a few miles off the coast of Southwest Louisiana and the need for state incentives such as a renewable fuels portfolio standard (RPS) which many states already have. Such a standard requires electric utilities in that state to obtain a minimum specified percentage of their power from renewable or “green” sources such as solar, wind, biofuels, etc. Many states allow this “green” power to be obtained from out of state. Such a portfolio standard would guarantee a market for wind power generated offshore and motivate utilities both within and outside of Louisiana to seek more of it.

DNR Technology Assessment Division presented comments that available information indicated that wind speeds were sufficient to generate power offshore, but that more offshore wind speed data is needed and that there are many unanswered questions about the economic feasibility of offshore wind power including the technical and economic issues about the challenge of developing the infrastructure to move power onshore to tie in to the electric power grid. Additionally, there are many unanswered questions about the structural suitability of existing offshore oil and gas platforms to be used for mounting the giant wind turbines, which is an application they were not designed for.

- 7) In March 2004, WEST contacted DNR Secretary Scott Angelle requesting state assistance in obtaining data, information, permits and other items related to their wind power project. On April 13, 2004, WEST met the first time with DNR’s Secretary Angelle and Mike French to discuss WEST’s plans and request.
- 8) After meeting with WEST a couple of times, DNR Secretary Scott Angelle recognized that the State does not currently have the authority to permit offshore wind farms and that new legislation will be needed. Secretary Angelle asked Mike French to form a study group to scope out the issues involving siting, permits, royalties, liability, ownership of platforms, etc. It turns out that the jurisdiction for most of the issues falls under the jurisdiction of the State Land Office, not DNR. A group consisting of the State Land Office, and DNR offices of Conservation, Mineral Resources, Coastal Management, Legal, and Technology Assessment have been meeting regularly on this.
- 9) The results of the NREL study to update and evaluate existing wind speeds in the Gulf were completed and provided to DNR on July 22 by Marc Schwartz. In general, Class 3 wind resource is found close to the Louisiana coast, Class 3-4 along the upper Texas coast (Galveston Bay area), and Class 4 along the south Texas coast, especially from Corpus Christi to Brownsville. In the areas west of the Mississippi River where wind power facilities would most likely be sited, Louisiana offers a high Class 3 / low Class 4 wind energy resource (Class 7 being maximum and Class 3 considered the threshold for feasible wind power development). Wind classes at 50 meters break down as follows: class 1, less

than 12.5 mph; class 2, 12.5-14.3 mph; class 3, 14.3-15.7 mph; class 4, 15.7-16.8 mph; class 5, 16.8-17.9 mph; class 6, 17.9-19.7 mph; class 7, greater than 19.7 mph.

- 10) Since their first presentation to the PSC, WEST has broadened their proposal to potentially incorporate platforms in active production as well as construction of new platforms designed expressly for wind turbines. WEST indicated that due to the large number of oil platforms in the Gulf of Mexico, Louisiana already had the infrastructure necessary to support wind energy generation. Mr. Schoeffler reported that currently there are approximately 5200 offshore platforms in offshore Louisiana. Out of the 5200, approximately 1,017 platforms are candidates for wind power contingent upon the general conditions of pre-existing infrastructure and the actual wind data. As envisioned by WEST, wind farms of 50 megawatts will also include a new sole-purpose platform to supplement existing platforms. These new platforms can be constructed in Louisiana fabrication yards. Existing platforms will be used both as electrical gathering stations and as support structures for wind turbines placed on new satellite platforms.

This shift in focus from the original WEST concept of using only abandoned platforms is due to the requirement that wind-energy production on a scale that would be economically feasible would require the clustering of numerous turbines, and by their location existing oil and gas platforms do not necessarily offer that opportunity. Offshore platforms are located in Federal and State offshore waters, and the distinction is significant for a number of reasons, according to WEST. Among them is the potential for virtually cost-free long-term lease of platforms in State water bottoms if the experimental project is associated with a State university. Another factor is the requirement that platforms in Federal waters be removed within a year of the end of oil and gas production. Platforms maintained in energy production would not face removal, saving their owners this substantial cost.

WEST reported that the wind turbines to be used would be approximately 80 meters high, with blades from 250 feet to 310 feet in diameter. Each wind turbine would produce 1.5 to 3.6 megawatts of electricity. After the experimental demonstration project, the WEST concept for commercial development is a series of wind farms, each consisting of a complex of 23 offshore platforms comprised of a mix of existing and new structures producing a total of 50 megawatts of electricity.

WEST has advised the PSC and DNR that it intends to go forward in 2004 with the demonstration project in which the company intends to build three turbines on three separate platforms at a Southwest Louisiana site about 5.5 miles offshore. The pilot program would generate approximately ten megawatts of power.

Additionally, WEST now advises that it is applying for approval to develop 10 areas along the coastline for installation of 500 megawatts of power to be transmitted to shore. Final wind farm design will be completed in November 2004 and additional wind data collection studies are being conducted at this time in State waters.

- 11) Office of State Lands and DNR staff continue meeting to coordinate in supplying WEST information and guidance on what regulatory requirements the state currently has or does not

have in place regarding offshore wind power siting and to supply WEST with available information about ownership and status of oil and gas platforms, pipelines, leases, and other facilities in state waters. DNR is also guiding WEST on how to use DNR's SONRIS database to obtain much of the data they seek.

- 12) Noting the uncharted and complex legal issues offshore wind power leasing, regulation, and development raise, Secretary Angelle's Executive Counsel, Monique Edwards is requesting assistance from staff of the Legislature in researching these issues and drafting comprehensive wind power legislation for the 2005 legislative session. The PSC may also be pursuing legislation. If so, all of this legislation might be able to be included in a single comprehensive wind power bill.
- 13) On September 29, 2004, at the PSC's open session, PSC attorney Matthew Loftus presented his report on offshore Louisiana wind energy. The report stated that PSC's only jurisdiction over the WEST project would be in regard to interconnection between the WEST facility and the electricity grid and the possible implementation of an RPS. The report also recommended that the PSC undertake a feasibility study of an RPS in Louisiana. The PSC agreed, and charged Mr. Loftus to proceed with the study.
- 14) On November 3, 2004, the WEST group met with DNR Secretary Scott Angelle, his legal counsel, Monique Edwards, and the DNR Technology Assessment Division. The WEST group gave an update on their project and stated that they have a customer that wants WEST to provide 12 MW of power directly (no grid connection) to them via wind turbines. They also want to place wind monitoring equipment on barges in various locations for 6 months to determine the best locations for wind farms. The discussion centered around different ways for them to obtain permits to pursue these activities as there are no current mechanisms in place for them to do so.

Immediately after this meeting, members from the DNR Conservation, Mineral Resources, and Coastal offices, the State Land Office, the PSC, legislative staff, and Mr. Scott Kirkpatrick of the Governor's office joined the group for further discussion. The WEST group gave an update again and fielded questions. Permitting and legislation were the main topics. Secretary Angelle stated that DNR had decided to contract with the law firm of Middleberg Riddle & Gianna to help author legislation that will be needed for offshore wind power to move forward. Monique Edwards is going to be working with the legislative staff and Middleberg Riddle & Gianna over the next few weeks and will schedule another meeting after that.

- 15) On December 9, 2004, the following met:
Governor's Office: Scott Kirkpatrick
DNR: Scott Angelle, Bryan Crouch, Monique Edwards, Mike French
State Lands: Clay Carter, Charlie St. Romain
 - Scott Kirkpatrick stated the concerns of the Governor's office over giving W.E.S.T. exclusive permits and leasing rights for offshore wind power development.

- The ensuing discussion centered on how to accommodate W.E.S.T.'s requests without giving them an unfair advantage and stifling any competition.
- It was decided that W.E.S.T. does not need and would not be granted any exclusive permits for wind resource data collecting, or wind surveying. Wind resource data gathering would need to operate the same way seismic surveying is handled for oil and gas exploration. This is based on them using barges for wind measurement and not being moored for more than 90 days at a time as long as there is no dredging required for barge placement. If they needed to be at any given site for more than 90 days, they could unmoor, move off and then back into the same or adjacent spot without obtaining a permit.
- It was then decided that W.E.S.T. could then nominate sections to be put up for lease bidding in a public bid process similar to oil and gas leasing conducted by Mineral Resources.
- It was agreed that State Lands would be the appropriate agency to hold lease sales, grant leases, collect royalty payments, and otherwise administer "wind power" leases.
- Clay Carter stated that W.E.S.T.'s project would fall under RS 41:1710

§1710. Leases for encroachments wholly upon public lands; leases for encroachments under this Title

A. Where an encroachment is located wholly upon state waterbottoms and not proximate to any bank or shore, a lease may be granted under the procedure, terms and conditions for the leasing of public lands contained in R.S. 41:1213 through R.S. 41:1217, except that any lease of encroachments under this Section shall be limited to an area reasonably required to operate or maintain the encroachment as described in the permit for its construction.

- The price structure for leasing and royalty payments needs to be worked out. Bryan Crouch will research what other states are doing.
- Monique Edwards will have the legislation drafters complete a rough draft of the proposed legislation by 2/1/05, and distribute it to DNR, State Lands, and the Governor's office. Comments regarding the rough draft will be due by 2/17/05. The next draft will be completed by 3/1/05.

16) On February 22, 2005, the following met:

Governor's Office: Scott Kirkpatrick

DNR: Scott Angelle, Bryan Crouch, Monique Edwards, Mike French

State Lands: Charlie St. Romain

Middleberg: Julie Fusilier

Senate Natural Resources Committee: J.W. Wiley
House Environmental Committee: Tyler McCloud

- Contract Attorney Julie Fusilier presented a general rough draft of the wind legislation.
- Because leasing of state lands or water bottoms for wind energy production involves the same or similar functions, procedures, auditing and other activities as leasing same for minerals production, it was decided that the DNR Office of Mineral Resources would be the appropriate State agency to administer wind power leases (and presumably, any other renewable energy leases such as tidal or wave power), rather than the State Land Office. Mineral Resources, though, would need to get clearances from the State Land Office and from the Department of Wildlife and Fisheries on such things as oyster lease, pipeline right-of-way and other conflicts before offering a given plot for lease for surface renewable energy production.
- Royalties would need to be constructed to be paid on electricity production from a renewable resource, not on the usage of wind, per se, since the State Constitution says that the “air” is free. The “free air” issue needs some investigation in order to draft the appropriate language to accommodate wind power leasing. Additionally, additional legal research is needed to avoid “free air” concepts from raising new issues related to water issues, such as what constitutes a publicly accessible waterway and free access to navigable water bodies.
- Monique brought up the issue of a renewable portfolio standard (RPS). It was decided to hold off and that it should probably come through the LPSC. Monique will set up a meeting for Scott Kirkpatrick, Scott Angelle and her to meet with Tubby St. Blanc, Executive Secretary of the PSC, to discuss PSC plans and interests in RPS.
- A second, more detailed draft of the wind legislation will be completed in a week or so.

17) On May 24, 2005, the following met:

Governor’s Office: Scott Kirkpatrick

DNR: Scott Angelle, David Meloy, Monique Edwards, Mike French, Bryan Crouch

State Lands: Clay Carter

LPSC: Matthew Loftus, Bill Robertson

Oats & Hudson: Mark Hudson

Middleberg: Julie Fusilier

WEST: H.J. Schellstede, Harold Schoeffler

- The agenda was to discuss an updated draft of the wind legislation (HB 428), address the bird kill issue, and to begin discussions regarding rules and regulations.
- WEST presented details on bird migration and strategies to minimize the risk of collisions with wind turbines.
- It was suggested to share state revenues from wind farms with local governments, but exclude them from the permitting process.

- 18) HB 428 was signed by the Governor on July 12, 2005 and designated as Act No. 481.
- 19) At the July 13, 2005 Mineral Board Meeting, Julie Fusilier and Monique Edwards briefed the Board on HB 428.
- 20) Currently, David Meloy is drafting the preliminary rules and regulations

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