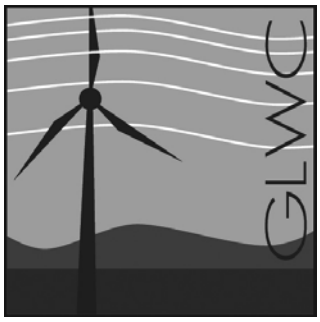
Great Lakes Wind Collaborative 1st Annual Meeting
Buffalo, New York
May 6-7, 2008



Meeting Summary

Overview

More than 120 Great Lakes policymakers, wind industry professionals and a host of other stakeholders interested in development of wind energy attended the first annual meeting of the Great Lakes Wind Collaborative, which convened May 6-7, 2008 in Buffalo, N.Y.

A diversity of topics were addressed by speakers during this two-day event. Larry Flowers, National Renewable Energy Laboratory, delivered an opening presentation which highlighted the national perspective on the progress of wind energy development in the Great Lakes region. Victoria Pebbles and John Hummer, Great Lakes Commission, reviewed the structure of the Great Lakes Wind Collaborative (GLWC) and its workplan for the first year. Tim Ryan, BQ Energy, discussed the challenges and opportunities of offshore wind in the Great Lakes. Jeff Gosse, U.S. Fish and Wildlife Service, described the potential wind facility interactions with wildlife. Brian Lammers, Horizon Wind Energy, reviewed the elements of a successful wind energy project. Last, Katie Kalinowski, RESOLVE, gave an overview and update of the National Wind Coordinating Collaborative. All presentations, as well as a photo slideshow of the meeting, are available online at www.glc.org/energy/wind/conf2008.html.

Participants took part in a field trip to "Steel Winds" on the former site of the Bethlehem steel plant on the Buffalo waterfront, the largest urban wind farm in the United States. The meeting included breakout sessions on both the benefits and challenges of a responsible wind future, and discussed the Wind Collaborative's near-term agenda and long-term priorities.

State and Provincial Updates

Illinois

Submitted by William Haas, Illinois Department of Commerce and Economic Opportunity; Read by Victoria Pebbles

Utility scale wind development in Illinois is moving forward at a staggering pace. The American Wind Energy Association (AWEA) recently announced that Illinois ranked third in the nation for the installation of new wind energy generation in 2007, behind only Texas and Colorado. Last year, Illinois added 592 megawatts (MW) of new wind power generation, increasing the total state wind generation capacity to 733 MW. In August of 2007, Governor Blagojevich signed into law one of the most aggressive Renewable Portfolio Standard (RPS) policies in the country, adopting a central plank of his energy independence platform. This renewable energy standard requires Illinois utilities to supply 2 percent of their power from renewable energy resources by 2008, 10 percent by 2015, and 25 percent by 2025, at least 75 percent of which must be generated by wind power. In addition to the 593 MW of wind

generation installed in 2007, the RPS is spurring development of an additional 3,400 MW of wind energy projects in Illinois that will establish Illinois as a national leader in wind power generation.

Indiana

Paul Cummings, Indiana Office of Energy and Defense

The first wind farm in Indiana was installed in Benton County which has a population of 8,000 people. The Fowler Ridge project is slated to go up to 700 MW in the future. Indianapolis Power & Light has just announced a 100 MW farm, called the Hoosier Wind Project, in Benton County. Horizon Wind Energy announced a 600 MW wind project for three different counties. 2,500 MW are under development, including a 50 kilowatts (KW) project to be installed in the city limits of Indianapolis. The Indiana Wind Working Group is holding a conference June 17-18. Indiana current has no RPS. It was discussed during the last policy session at 6 to 10 percent, which would include clean coal. Property tax issues dominated the short legislative session. In summary, Indiana is becoming both a wind and coal state.

Michigan

John Sarver, Michigan Energy Office

Michigan currently has three wind farms, totaling 55 MW. The main policy issue for the state is RPS. The State House passed it, and now it is in the Senate. The Michigan Public Service Commission is conducting a wind transmission study. Mike Klepinger, Michigan State University, completed a hypothetical dry run for an offshore wind project in Lake Michigan. In Saginaw Bay, Michigan Department of Natural Resources is developing a lakebed inventory for sensitive areas. The State Wind Outreach Team (SWOT) is conducting outreach to key stakeholders as well as convening a state conference in March 2009. The Michigan Energy Fair will be held in Onekema, MI June 27-29 with 100 exhibitors and 70 workshops. Governor Jennifer Granholm is interested in getting wind equipment manufacturers and suppliers to come to Michigan.

Minnesota

No Minnesota representative was present to deliver this update. Larry Flowers noted that the state is moving forward in developing 800 MW of wind energy. The state has gone through policy steps including facilitating community wind projects where farmers own wind turbines, collect revenue, and take advantage of tax benefits. Some wind farms use the "flip model". For example, John Deere owns a project for 12 years then "flips" the project to a host who will own the turbines for rest of their life. The flip model is made possible by the Minnesota Flip Law. The state's RPS for wind is at 20 percent by 2025, while the local utilities are striving for 25-30 percent.

New York

Jeff Petersen, New York State Energy Research and Development Authority (NYSERDA)

NYSERDA currently conducts wind research and prospecting programs. It has shared results of its environmental studies with developers. It is working with AWS TruWind and the National Renewable Energy Laboratory to measure wind speeds of Long Island and the Great Lakes. Additionally, NYSERDA has worked with RESOLVE and the New York State Department of Environmental Conservation on wind-wildlife issues. A multi-agency task force in New York has been established so that state agencies can learn from one another. NYSERDA developed an online wind energy tool. Furthermore, NYSERDA is working with associated regional commissions to ascertain interest in wind

energy, offer professional planning guidance; and provide community resources needed in the decisionmaking process. The state's RPS is NYSERDA's responsibility to procure. Currently in New York, 1300 new MW of renewables are being developed; 13 new wind projects are being built with the average price of $17/MW hour; and ratepayers are investing in 10-year contracts. The overall economic benefit of this work going to New York State is $1.5 billion, of which ratepayers will pay $565 million. Horizon Wind Energy has developed a DVD on community wind for the state's Maple Ridge wind farm, a 321 MW project. The DVD includes interviews with a good cross-section of community members. NYSERDA is conducting a post-construction wildlife study with Horizon for the project.

Ohio

Tony Logan, Ohio Dept. of Natural Resources

Ohio recently adopted an RPS that includes 25 percent of "advanced" energy by 2025, of which one half must be renewable. Three developers are ready for projects. No appreciable wind generating capacity is currently in the state. Three developers told Governor Strickland they were ready with $2.5 billion in investment as soon as the Ohio RPS passed.

Ohio DNR has a voluntary cooperative agreement out for comment (near final) which includes provisions for voluntary pre- and post-construction data submission. The Ohio Coastal Management Office recently started on a rulemaking that would establish an offshore permitting process. Discussions in the state are focused on terrestrial forms of wind development. Research is being conducted in Cuyahoga County focusing on offshore development through a grant to Case Western Reserve University.

Pennsylvania

Tom Tuffy, PennFuture

The state's RPS is four years old. Currently, nine wind farms are in place. By the end of 2008, Pennsylvania will have 700 MW of wind energy developed. Seventy-four projects of 50-100 MW each are in the pipeline. Other wind-related activities occurring in the state include a voluntary marketing program; a public/private wind collaborative meeting monthly over the past three years; and two years of Wind Energy Voluntary Cooperative Agreements (that address wind and wildlife issues). Nineteen companies signed such agreements, some cancelled and others modified it.

Wisconsin

Richard Hasselman, GDS Associates

The update on wind development in Wisconsin touched on four subjects: 1) growth in wind, 2) RPS (10 percent by 2013), 3) permitting challenges and, 4) the recent governor's task force on global warming. Wisconsin has developed 53 MW of wind energy since 2001. By the end of 2008, it will go up to 350 MW. Wind energy development is increasing in the eastern part of state with urban pressures from Milwaukee and Green Bay leading to permitting challenges at the local level. A competing vision for rural America was noted - bucolic landscape versus rural working landscape. Once a project is over100 MW, the developer can go to the Wisconsin Public Service Commission for a Certificate of Public Convenience and Necessity (CPCN) instead of getting local permits. Siting standards were discussed during the last legislative session, but did not make it through the legislature.

Ontario

Kevin Edwards, Ontario Ministry of Natural Resources

A 20-year electricity plan for the province was developed over the past few years. It is currently before regulators for approval. It calls for eliminating 7,500 MW of coal; doubles the amount of renewable from 7,000 to 15,000 MW; and calls for developing 5,000 MW of wind by 2025. Currently, Ontario's energy production is mostly hydro. Ontario has a "go green" strategy climate action plan. To meet this climate action plan, 40 percent of greenhouse gas emissions reduction will come from renewable energy. The province has a standard offer program for projects less than 10 MW and also has a RFP process for such projects. The province will announce a 500 MW wind project soon. Additionally, Ontario has completed a wind atlas for both onshore and offshore. This is an important tool for developers and will aid in pre-selecting sites. Because 87 percent of the land in Ontario is public land (including both submerged and onshore), the province has encouraged public land development. Guidelines addressing potential wind energy impacts on fisheries, birds and bats have been developed. To date 600 MW of generating capacity is available in the province; another 1,800 MW is under contract or under development. Most projects are in close proximity to waters of the Great Lakes and more specifically on the eastern end of Lake Ontario. A moratorium on offshore wind projects was lifted in January, illustrating that the province is serious about supporting wind. The Ontario Power Authority has calculated a 30,000 MW potential for wind energy in the province. June 24-26 Ontario is hosting the World Wind Conference in Kingston.

Québec

François Godin, Québec Ministère des Ressources Naturelles et de la Faune

Québec's current energy generation capacity is composed of 94 percent renewable resources and 6 percent non-renewable resources. The province developed a new Energy Strategy with the following key points: 1) accelerate the development of the province's hydroelectric potential, 2) develop wind power as a future energy source, 3) use energy more efficiently, 4) become an innovator in the energy field and, 5) consolidate and diversity sources of oil and gas supply. The Québec Energy Strategy forms the basis for 4,500 MW of new major hydroelectric and 4,000 MW of new wind by 2015, creating an estimated 70,000 new jobs in Québec. The priority actions for wind energy development in the province include:

- Complete the process launched by the two calls for bids (1,000 MW, 2,000 MW) - $2.5 billion will be invested in eight new wind farms, totaling 990 MW by 2013. Over 500 permanent jobs will be created. The Québec Government and Hydro-Québec approved 15 new projects for $5.5 billion for 2011-2015 at 10.5 cents/kw hour.
- Consolidate the regulatory framework for wind energy
- Launch a call for bids for the supply of 500 MW targeted for local communities and First Nations
- Strengthen the complementary use of hydroelectric and wind energy
- Establish combined wind/diesel generation for isolated networks
- Continue research and innovation investments

The province would like to continue wind development beyond the 4000 MW goal by 2015 in the hope of being a wind energy leader in North America.

Stakeholders Explore GLWC priorities

In breakout groups, the attendees discussed the benefits and challenges of responsible wind development as well as the Wind Collaborative's near-term agenda and long-term priorities in five issue areas: economic development aspects of wind power; environmental planning, siting and permitting; offshore aspects of wind; research and data management; and transmission and power system integration. Below are the highlights of needs/priorities developed by the breakout groups.

Economic Development Aspects of Wind Power

- Economic development analysis as well as the analysis of non-monetary benefits;
- A template for community stakeholders quantifying the benefits of wind development (e.g., taxes benefits, tourism revenue, jobs, lease payments) compared to other energy generation sources
- Calculate the net economic development effects of a robust wind scenario
- Identify the input-output effects of a robust wind future for particular states
- Tailor the results of the 20% wind report (www1.eere.energy.gov/windandhydro/pdfs/41869.pdf) to the Great Lakes region (National Renewable Energy Laboratory will do this.)
- Catalog manufacturers in current supply chain; Identify those manufactures that could be added; Determine the human resources and supply chain enhancements for the Great Lakes; market the Great Lakes region to manufacturers
- Identify the transportation challenges (including current state policies) of moving equipment in the Great Lakes and develop consistent standards from state-to-state
- Identify new revenue streams for wind development such as the use of tax-exempt bonds to attract manufacturing to region
- Examine the potential role of community wind (locally owned) in states and provinces across the region (cross-sharing)
- Examine the costs and benefits of state incentives for wind development
- Quantify externality costs of pollution and explore alternative policies
- Quantify value of water savings (value of water to the Great Lakes region) in comparison to the water usage and costs of traditional forms of energy generation such as nuclear and fossil-fuel.

Environmental Planning, Siting and Permitting

- Facilitate the sharing of communication, collaboration and coordination tools among stakeholders that address permitting and siting issues
- Establish an information clearinghouse on regulatory processes for both on- and off-shore siting and permitting
- Promote siting and permitting consistency across jurisdictions
- Agree on questions needed on perceived risk
- Establish criteria & thresholds for sites
- Investigate and quantify both cumulative benefits and impacts
- Promote studies investigating the wind impacts on migratory bats
- Examine how wind development mitigates carbon emission impacts
- On a lake-by-lake basis, identify the planning process/approach for wind development
- Encourage the development of predictive models of climate change effects on developed sites
- Conduct public outreach regarding environmental planning, siting and permitting of wind to address myths
- Facilitate synthesis and sharing of post-construction studies

- Get ahead of curve on offshore development; identify the myriad of issues, protocols, and processes proactively
- Standardization of review of projects; consistency of guidelines for pre- and post-construction studies

Offshore Aspects of Wind

- Existing resources should be recognized and utilized – a lot of habitat, physical and biological data on the lakes, cost assessments, studies, European experience
- Develop regional guidance on different aspects for offshore, modeled from cooperative agreements, impact assessments (pre and post), avian impacts, permitting offshore facilities; vet through the Midwestern Governors Association process
- Need more information on fish, bird and habitat usage; increase assessment of existing information
- Engage utilities more in process
- Leverage manufacturing, transportation and labor assets in the Great Lakes to lower costs for offshore development
- Create a bibliography specifically for offshore wind
- Communicate and disseminate offshore workgroup products to Great Lakes governors to secure political will needed

Research and Data Management

- Wind atlas with environmental factors and transmission corridors needs to move forward
- Wind atlas workgroup must coordinate with other atlas efforts underway including TNC and the federal wind advisory group, among others
- Lake (middle of the lake in particular) research is needed
- Fund the acquisition of proprietary data if necessary to make useful atlas
- Acknowledge that information gaps in atlas will be ongoing, especially with regard to environmental and wildlife issues; therefore, it needs to be maintained and updated over time as a living document
- Reference atlas with links to resource agencies on maps
- Survey wind development companies to determine data needs
- Identify funding sources for atlas and other research priorities: industry, utilities, foundations
- Set research goals

Transmission and Power System Integration

- Acknowledge and use existing transmission resources from groups such as NWCC, Utility Wind Integration Group (UWIG), Wind on the Wires, etc. and apply these resources to the Great Lakes
- Establish baseline on how much electricity is being consumed, where does it come from, what are the costs – establish a 6-month report to answer these questions – what are costs and net benefits; sets basis for making sound public policy decisions
- Transportation, pump storage, plug-in hybrids, could be electrified if we had enough transmission and transmission planning

Based on the breakout group reports, Victoria Pebbles, Great Lakes Commission, summarized overall findings. The purpose of the breakout sessions was to help inform the 2008 GLWC workplan and provide some guidance for GLWC work in the future. Following each of the numerical findings below is italicized text that provides a brief overview of how each finding fits into the current GLWC workplan or how it could be addressed in the future.

1. Harmonize regulatory environments by synthesizing information to inform a regional approach to planning, siting and permitting (e.g., Great Lakes specific guidelines for reviewing wind

projects).
Relationship to 2008 GLWC workplan: Item IV-C of the GLWC workplan addresses this item in part. The results of that work will be reviewed to see how it can address this recommendation as part of future work of the GLWC.

2. The Great Lakes Wind Collaborative can serve as an information clearinghouse function for Great Lakes studies and wind information.
Relationship to 2008 GLWC workplan: This is consistent with the purpose of the GLWC as stated in the GLWC Charter, and is reflected in the 2008 GLWC workplan, particularly item II which addresses communication and outreach. A Great Lakes wind wiki on the GLWC web site is the first start of such a function; see www.glc.org/energy/wind.
3. Need to look at cumulative environmental impacts and benefits of wind which needs to include effects on climate change and the value of water savings that wind offers.
Relationship to 2008 GLWC workplan: This issue is not addressed in the current GLWC workplan. This task will be considered by the Steering Committees in development of the 2009 GLWC workplan.
4. Need to examine the economic benefits and costs associated with wind
Relationship to 2008 GLWC workplan: The issue of the economic aspects of wind is addressed in section VII of the 2008 workplan, but a focused task to conduct an examination or analysis of benefits and costs is not supported by the current workplan. An economic development workgroup is being formed that will take on the task of addressing this issue to the extent practicable with existing resources during 2008 and/or include this task in next year's workplan, including working with the Steering Committee to try to secure funding to support this work.
5. Open lake environmental impact data is needed for offshore wind projects and efforts are needed to examine how to lower costs for offshore wind projects
Relationship to 2008 GLWC workplan: The issue of the offshore wind is addressed throughout the workplan, but specifically in Section V of the 2008 workplan. An offshore workgroup is being established to look at some aspects of offshore wind, including environmental impact data, but a focused task to look at lowering costs is not part of the current workplan.
6. The GLWC should produce an annual (or biannual) report on energy production and costs in the Great Lakes region, which requires compilation of baseline information on energy sources, consumption rates and production costs in the region.
Relationship to 2008 GLWC workplan: The issue of the energy production and consumption trends is not addressed in the 2008 workplan. The economic development and/or transmission workgroup could take on tasks that might address some of this recommendation. Some of this information could also be addressed by including relevant data layers as part of the work of the wind atlas workgroup. This issue will be revisited in the development of future GLWC workplans.
7. Public education and outreach on environmental costs, benefits, taxes and jobs related to wind must increase
Relationship to 2008 GLWC workplan: Sections I, and II of the current workplan provides direction for education and outreach on this issue to the extent that information on environmental and economic costs and benefits is produced by specific workgroups. See finding #4 above.
8. Carefully plan the focus of the Great Lakes Wind Atlas to ensure its utility for future use.
Relationship to 2008 GLWC workplan: This recommendation, and the detailed commentary that supported it, will be carried forward to the atlas workgroup.

What is Next?

Over the next quarter, the Great Lakes Commission staff will facilitate the Advisory Committee in establishing workgroups that will help carry out the activities identified in the first year work plan. These workgroups will also review the needs/priorities identified by the breakout groups listed above and modify their specific activities to address these recommendations within existing resource and time constraints. Recommendations that cannot be addressed or can only partially be addressed in 2008 shall

be considered by the Steering Committee (and Advisory Committee) in the development of the GLWC 2009 workplan.

If you are interested in participating on a workgroup please contact the appropriate Great Lakes Commission staff person listed below:

- Economic Development (Victoria Pebbles –vpebbles@glc.org)
- Environmental Planning, Siting and Permitting (Becky Pearson – bpearson@glc.org)
- Offshore Wind (John Hummer – jhummer@glc.org)
- Transmission (John Hummer)
- Wind Atlas Workgroup (Becky Pearson)