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DRAFT

Wind Power in the Great Lakes

March 18, 2011 Workshop Proceedings

Wind Powering America Regional Meeting

5 This document represents to the best of the coordinators ability a summary of
6 the notes and discussions that took place at the meeting. The document is
7 designed as a review draft to allow comments or corrections from those who
8 attended the meeting or those who were not able to attend. Comments to this
9 document are encouraged and to the extent applicable and appropriate, will
10 be incorporated into the final document.

U.S. DEPARTMENT OF
ENERGY



11 Wind Power in the Great Lakes:
12 March 18, 2011 Workshop Proceedings

13 Wind Powering America Regional Meeting

14 Ian Baring-Gould
15 Brie Van Cleve

16 March 31, 2011

17 Prepared by National Renewable Energy Laboratory and Pacific Northwest
18 National Laboratory for U.S. Department of Energy, Wind and Water Power
19 Program.

20 1617 Cole Blvd.
21 Golden, CO 80401

22 **Summary**

23 On March 18, 2011, Wind Powering America (WPA) held an all-day meeting with participants from Great
24 Lakes states to identify persistent deployment barriers, prioritize these barriers, and highlight successful
25 approaches to address the barriers identified. Participants represented industry, state government, non-
26 profit organizations, and regional partnership interests from Michigan, Minnesota, New York, Illinois,
27 and Wisconsin. Ohio and Indiana were not represented in person, although state updates were
28 included.

29 Through these discussions the top barriers identified included:

- 30 • Weak state wind power markets (19% of votes)
- 31 • Appropriate permitting and zoning (18% of votes with a strong regional focus)
- 32 • Social acceptance (16% of votes)
- 33 • Transmission (16% of votes with a strong regional focus)
- 34 • Financing for small and community wind (14% of votes)
- 35 • Funding for Stakeholder Engagement

36 For each issue, workshop participants identified solutions appropriate to the Great Lakes region. This
37 meeting provided an opportunity for Wind Powering America staff, State Wind Working Group
38 members, and other participants to discuss issues encountered in Great Lakes states and begin to
39 identify strategies to overcoming these barriers using a coordinated, regional approach.

40 This document represents a summary of the meeting and specific discussion of the key barriers. This
41 draft document will be made available for review and comment by those that were not able to attend
42 the meeting in person. A final document will be made available on the WPA website.

43

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69 **Introduction**

70 Wind Powering America’s mission is to educate, engage, and enable critical stakeholders to make
71 informed decisions about how wind energy contributes to the U.S. electricity supply and local economy.
72 For the past 10 years, WPA has supported education and stakeholder engagement activities through a
73 combination of technical assistance, funding for direct engagement, the production of informational
74 resources and implementation of collaboration opportunities, primarily at the state level. These
75 activities have helped the wind industry move from a small boutique market of just over 2,000 MW in
76 2000 in a few states to over 40,000 MW at the end of 2010 covering much of the nation.

77 Through the later part of the decade, the U.S. Department of Energy's Wind and Water Power Program
78 (WWPP) and Wind Powering America (WPA) conducted a dedicated effort to support the appropriate
79 deployment of wind technologies through the expansion of state based Wind Working Groups (WWG)
80 by providing funding for 3-year priority state activities and similar federal funding for medium- and low-
81 priority states. This was combined with the implementation of regional activities through the
82 development of the Regional Wind Energy Institutes and the support of other regionally based
83 stakeholder groups. Following an effort to determine how WPA can be most effective in helping the
84 Nation move towards a future as outlined in the *20% Wind Energy by 2030* report, WPA investments in
85 priority states will transition into a more regional focus, increasing intra-state coordination and strategic
86 planning. This regional approach is intended to maintain and build on the existing state-level WWG
87 networks and promote information sharing between regions in similar circumstances.

88 With the current round of state based activities coming to a close in late 2010, the desire to support the
89 request for more regional engagement expressed at the 2009 WPA All States Summit and a planned
90 transition to more regional focused activities, WPA hosted a series of 1-day regional meetings at
91 strategic locations around the country. Locations were chosen based on regional diversity and the
92 unique characteristics of the region, but were not meant to define the makeup of the region. State
93 representatives, Wind Working Group members, and other interested stakeholders from every region
94 were invited to attend and share experiences. These events will assist Wind Powering America staff and
95 participants to identify persistent deployment barriers, prioritize these barriers, and highlight successful
96 approaches to address the barriers identified. Meetings were held in the following locations over a three
97 week period in the spring of 2011:

98 Southwest: Las Vegas, Nevada – March 14

99 Mid-Atlantic: Arlington, Virginia – March 16

100 Great Lakes: Ann Arbor, Michigan – March 18

101 Northeast: Boston, Massachusetts – March 22

102 Northwest: Richland, Washington – March 25

103 Great Plains: Lincoln, Nebraska – March 29

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104 The meetings allowed wind stakeholders from each region to meet and discuss approaches to address
105 the most urgent market barriers, learn from experiences in other states, and help build regional
106 collaboration. Wind Powering America will also use the meeting results to help plan the Wind Powering
107 America Annual All-States Summit and future program activities.

108 Each meeting was initiated with a report on the wind market of each state in attendance, addressing the
109 following basic questions:

- 110 • Current state installed capacity
- 111 • What type of installations are being considered (distributed, community, utility, offshore)
- 112 • What were the barriers to deployment that have been successfully addressed
- 113 • What general methods were used to successfully address those barriers
- 114 • What key barriers remain
- 115 • What is the policy of the state regarding the deployment of wind
- 116 • What state financing opportunities are there to support continued WWG activities

117 Through these discussions, current barriers to wind deployment were identified and then a voting
118 process was used to identify the most urgent barriers. Participants then broken into breakout sessions
119 to discuss these barriers, identifying the key elements of the barrier, what approaches have been used
120 nationally to help address specific aspects of this barrier and then what approaches could be used to
121 help address the specific barrier in this region. Following a report from each breakout group, general
122 discussions addressed the remaining barriers and identified the challenges that the WWG network may
123 experience during the planned transition to a stronger regional approach for national wind stakeholder
124 engagement. The discussions during the workshop were meant to identify barriers and their possible
125 solutions, but not how to implement the solutions discussed. The workshop agenda is included in
126 Appendix A. This report provides an overview of the meeting held on March 18th in Ann Arbor, Michigan
127 to address issues in the Great Lakes Region. The participant list for this meeting is included in Appendix
128 B.

129 It is understood that not all of the relevant stakeholders were able to attend the meeting so as to allow
130 for expanded input this document is a review draft, with comments and further input requested. A
131 feedback form has been provided in Appendix D and is also available on the WPA Regional Meeting
132 website. Comments should be sent to Corrie Christol (corrie.christol@nrel.gov; fax: 303-384-7097) and
133 to the extent applicable and appropriate, will be incorporated into the final document which will be
134 released shortly. In some cases parts of this summary were authored by specific attendees, summarizing
135 the work of the breakout sessions, in these cases the author has been identified.

136 ***The Great Lakes Region***

137 Minnesota, Michigan, Wisconsin, Ohio, Illinois, Indiana, and New York are states in the Great Lakes
138 region. In terms of U.S. markets, States in the Great Lakes region could be considered having a mature
139 market with significant experience with project deployment.

140 **Illinois**

141 Update provided by David Loomis, Illinois State University

142 **Capacity and Activities**

143 Illinois currently has 2,173 megawatts (MW) of installed capacity with another 500 MW under
144 construction in spite of challenging economic times. Projects totaling 2700 MW are already permitted,
145 but awaiting financing for construction. Another 9,000-10,000 MW have been proposed by developers.
146 At the current rate of construction, Illinois is slated to become the 4th largest wind state by the end of
147 2011.

148 Most installed capacity in Illinois is utility scale, although there are some community-scale wind projects.
149 The state is still struggling to develop small wind. The chronic lack of funding from the state rebate
150 program means that the program accepts applications typically for only one month and even then
151 cannot fund all eligible applicants. Illinois metering laws help to make the state more attractive for wind
152 development and Illinois is a restructured state with competitive energy generation. Uniquely, the
153 legislation implementing the Illinois RPS created the Illinois Power Agency which has been procuring
154 renewable based power on behalf of Illinois utilities to meet their graduated RPS requirements. The
155 Illinois Power Agency has awarded some new contracts this year for in-state wind and large solar
156 systems.

157 The Illinois WWG organizes two annual conferences, most recently a siting, zoning, and taxation
158 conference was held in February for county zoning officials. The WWG also organizes land owner forums
159 on the web and in-person including a web-based “landowner 101” and a “landowner 201” with more
160 detailed, technical information.

161 **Barriers to Deployment**

162 Three major barriers affect wind development in Illinois. Firstly, opponents to wind in Illinois are well
163 organized. For example, at the WWG’s taxation workshop 6-12 picketers handed out flyers to officials
164 and staff attending the workshop and drew some media attention. Although well organized, opponents
165 are relatively few in numbers making it easy to get to know them and their concerns. Their position is
166 anti-wind and not particularly linked to local, NIMBY (Not-In-My-BackYard) concerns. They’re most
167 focused on health issues (i.e. headaches). Their activities have resulted in the state considering 1.5 mile
168 setbacks from wind turbines to adjacent property owners, which would effectively zone wind out of the
169 state. The vast majority of the concern is associated with one particularly poorly sited project.

170 The second barrier is economic impacts broadly defined and including the state deficit, current
171 economic challenges and how these factors will impact wind development. The third barrier is property
172 value impacts. Illinois is home to property value guarantee in only one county, which is highly coveted
173 by other counties. Developers claim wind energy installations have no impact on property values, but
174 are generally unwilling to sign a guarantee. This property value guarantee was put in place late in

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175 negotiations between a developer and the community and is not well defined. This guarantee has been
176 problematic for wind proponents in Illinois.

177 Indiana

178 No representative from Indiana attended a Regional Meeting – more information on the state will be
179 provided in a later draft.

180 Michigan

181 Update provided by John Sarver, Michigan Wind Working Group

182 Capacity and Activities

183 Michigan currently has 55 MW of installed capacity and the state expects another 700 MW of renewable
184 energy in 2012, 93% of which will be wind. Michigan’s RPS has a cost standard based on the cost of a
185 new coal power plant and, since wind energy is turning out to be cheaper than originally estimated, the
186 cost standard will need to be adjusted. Because the cost of wind electricity is lower than expected, the
187 Michigan WWG considers that the state has the first wind “rebate” in the country; approximately \$55
188 million will go back to customers.

189 Northern Power is now producing a new utility scale turbine and several have been installed on the
190 Upper Peninsula. There is also investment in producing small scale turbines. Michigan State University’s
191 anemometer loan program continues and is in its 5th cycle. There is interest in upgrading Michigan’s
192 storage capacity and they are investigating using electric car batteries for grid storage once they’ve been
193 removed from the electric vehicle.

194 In Michigan they have also invested in studies to understand the misinformation about wind and asked
195 several experts to help to separate fact from fiction. This effort will result in a report and a public
196 meeting. They are also supporting some polling on wind attitudes.

197 The annual Michigan Energy Fair is coming up (June 24-26. www.GLREA.org).

198 Minnesota

199 Update provided by Lisa Daniels, Windustry

200 Activities

201 In the early 1990s Minnesota had a WWG, but the group disintegrated with competition from early
202 development activities. The void left by the WWG was filled by two not-for-profit organizations, Wind
203 on the Wires and Windustry.

204 In Minnesota, the Community Based Wind Development law continues to promote community owned
205 wind. However, this law has been updated and changed annually making the program a moving target.
206 Also, a new bill (House file 805) promotes projects 25 MW and less through incentives to buy locally

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207 generated and owned wind. Like green pricing, the bill allows rate payers to opt-in and elect to pay
208 more so your utility buys small, locally owned power.¹ A major new transmission line is also being
209 developed from Fargo, ND to the Twin Cities, which will effect wind development along the new
210 transmission corridor.

211 **Barriers to Development**

212 Wind development in Minnesota first occurred in areas away from homes and now is occurring closer to
213 where people live, which is generating new permitting and siting concerns. In Minnesota, transmission is
214 at capacity for remote projects on agricultural lands. There is one project that has been particularly
215 problematic and has generated tremendous animosity between neighbors. That situation was
216 particularly acrimonious because the developer's business approach was to invite neighboring
217 landowners to invest in the project so this became a NIMBY issue for some neighbors while others had
218 money on the line. Interestingly, this county where wind development has been so controversial is
219 home to the states' most infamous nuclear power plant, Prairie Island, credited with bringing nuclear
220 waste issues to Minnesota. As a result of opposition to wind energy, the county passed an ordinance
221 requiring the equivalent of 10 rotor diameters from any property line of someone not invested in the
222 project. The ordinance, which is more stringent than the state's setback requirements, was contested
223 and was recently granted a hearing with an Administrative Law Judge to determine if the setback is
224 warranted and if there is sufficient evidence to support the stray voltage requirements.

225 **New York**

226 Update provided by Victoria Pebbles, Great Lakes Wind Collaborative

227 The RPS in New York is 29% renewable power by 2015 and the state currently has 1200 MW installed.
228 The state has also developed protocols for development, including survey protocols for birds and bats.
229 The state has strong interests in offshore wind. In 2009 the New York Power Authority issued a Request
230 for Proposals for offshore wind projects in the Great Lakes and any day will announce its selection. At
231 the same time, some local opposition has been generated. Three towns and one county have moved to
232 pass ordinances or resolutions opposing offshore wind.

233 **Barriers to Development**

234 Zoning and siting remain major barriers to wind development in Michigan and transmission is an on-
235 going issue. The Great Lakes Wind Council developed wind energy permitting language, but progress has
236 stalled in the current budget climate.

237 Manufacturing and other jobs associated with wind energy are an opportunity of interest to state law
238 makers. The Michigan WWG is covering all issues related to wind energy and the state wind outreach

¹ One participant noted that it's important to make sure participants in that green pricing program are not subject to regular price changes of brown power, whether up or down.

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239 team (SWOT) started by WPA, is continuing to provide education and outreach. The SWOT focuses
240 mainly on zoning and siting issues and there remains an ongoing need to educate the middle ground (i.e.
241 those neither opposed or for wind energy) as issues and concerns arise. Michigan has also recently
242 started a Wind and Health Technical Group, which is considering whether the current noise standard for
243 wind projects (55 dba at the property line) should be changed.

244 Progress has been made in recent years with respect to addressing transmission issues. Michigan now
245 has a Wind Energy Resource Zone Board which has identified two zones for expedited siting for
246 transmission. The primary site is the “thumb” area of Michigan and the second is Allegan County on Lake
247 Michigan. Also, the Public Service Commission has granted expedited permitting for transmission service
248 that would bring wind energy into load centers.

249 Wind energy related manufacturing is perceived as great opportunity. Michigan is home to 121
250 companies involved in the wind industry and has had some success using American Recovery and
251 Reinvestment Act (ARRA) funding to make Michigan companies competitive in making wind energy
252 components. This work supports the development of Centers of Energy Excellence in Michigan for
253 various manufacturing products (machining hubs, low cost carbon fiber for blades, etc).

254 Ohio

255 Update provided by Green Energy Ohio

256 Capacity and Activities

257 Ohio currently has 11 MW of installed capacity with a fair amount of project development, including
258 both distributed and community-scale wind. For distributed wind, there are currently 15 “NW 100”
259 projects underway. There are a number of community scale projects and new progress towards utility
260 scale projects. Currently a gigawatt (GW) worth of projects are approved for construction with another
261 gigawatt pending approval. There is strong interest in offshore wind in Ohio.

262 Barriers to Development

263 Key barriers to wind development in Ohio include public acceptance and a property tax structure that
264 makes wind energy more expensive than in other states. The property tax issues have been addressed
265 for this year, but the issue needs to be addressed long term.

266 Wisconsin

267 Update provided by Alex DePillis, Renew Wisconsin

268 Capacity and Activities

269 Wisconsin has an installed capacity of 469 MW. Installed capacity is growing somewhat, but is still only
270 1.5% of total annual generation. An increase of 167 MW is anticipated in 2012 from several projects
271 planned for construction, including utility, community, and small scale projects. Most of the wind

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272 resource is in the Southeast part of the state in Fond du Lac and Dodge counties. These counties are also
273 near the largest load centers, so transmission is not a primary concern.

274 Wisconsin is home to relatively more utility owned projects. Wisconsin's RPS allows developers to build
275 projects out of state as long as the power is brought into the state. As a result, they have 375 MW of
276 capacity in the state and another 330 MW out of the state.

277 In Wisconsin projects 100 MW or greater are approved through the Public Service Commission, but
278 projects less than 100 MW go through local government. This can be very difficult depending on the
279 view of wind energy from local residents and officials. In their experience, farmers relate to working land
280 and tend to support wind energy. Communities with small land holdings (5-30 acres) tend to be
281 concerned about wind development impacts on the landscape. There are currently 600 MW of wind
282 energy blocked by local opposition.

283 Several counties have passed ordinances that overstep their authority and go far beyond state law,
284 limiting counties to regulation of wind development for the protection of health and safety. Legislation
285 to reform siting has been developed and even though it has bipartisan support, the legislature isn't
286 considering it. On the other hand, the Governor has introduced a bill on behalf of the real estate lobby
287 which would require 1800 ft setbacks. In the debate in Wisconsin, utilities have been conspicuously
288 silent. Important advocates are Renew Wisconsin and Clean Wisconsin.

289 **Barriers to Development**

290 Permitting remains a major barrier as well as securing PPAs. Utilities in Wisconsin have been able to
291 meet the RPS by developing out of state and importing the electricity back into the state. The low RPS,
292 10% by 2015, is now acting as a disincentive for wind development. Proponents of wind development
293 have tried unsuccessfully to increase it. A third barrier is significant excess generating capacity (base
294 load and intermediate).

295 Recent experience suggests that these issues will need to be addressed through the state legislature;
296 education isn't enough. The state currently lacks a clear policy directive stating that wind energy and
297 wind energy jobs are a priority.

298 Comment: In Illinois problems with a couple clean coal and a coal to natural gas plant that's gone to
299 legislature to get guarantee for the price of their output. Public utilities are upset about this practice as
300 they feel they are being forced to purchase power that is not cost effective based on political direction.
301 For this reason the wind industry is reluctant to go through legislature without some Executive cover. In
302 Illinois other initiatives in other sectors are being developed that would put wind at a disadvantage if it
303 were to try this approach.

304 **Barriers and Opportunities**

305 Based on updates provided by representatives from states, workshop participants identified major
306 barriers to the wind industry to be permitting and siting issues, social acceptance, market issues,

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307 transmission, financing for small and community wind, and divorcing manufacturing from regional
308 development. Workshop participants broke into three small groups focused on permitting and siting
309 issues, social acceptance, and market issues to identify the elements or aspects of each issue and
310 potential solutions, especially solutions appropriate to the region. Transmission, the financing for small
311 and community wind, and manufacturing were discussed in the larger group with other barriers that
312 were identified. A list of all of the barriers identified is included in Appendix C.

313 **Weak State Markets**

314 Summary provided by Alex DePillis

315 Weak state markets is an issues in states where the RPSs have been met and in cases when low natural
316 gas prices and overcapitalization of coal and nuclear power plants result in a soft market for wind
317 power. This issue makes it challenging for perspective wind companies to secure a PPA, which would
318 allow closure on projects.

319 **Aspects or Elements**

- 320 • In many cases existing Renewable Energy Standards (RES or RPS) are not strong enough to
321 overcome existing weak markets. In addition some states contribute to weak state markets
322 through low RES, IPP set-asides for higher cost options, or in-state set asides.
- 323 • Power markets and low prices.
- 324 • National policy and no carbon pricing, no national RES, and no policy framework to address
325 externalities.
- 326 • Smaller projects lack a mechanism for capturing value (e.g. reduction in distribution or
327 transmission costs) or for making them economic.
- 328 • Unstable federal and state incentives (e.g. the production tax credit, investment tax credit, and
329 cash grant).
- 330 • Lack of integrated resource planning on regional basis (wind, distributed generation,
331 transmission, conservation, etc.) and lack of endpoints or goals.
- 332 • Price of new wind is compared unfavorably to existing, old capacity.
- 333 • Need a standard way to set the feed-in tariff rate sufficient to finance projects. Also need a
334 standard contract/offer (aligned with Bank's needs).

335 **Potential Solutions**

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- 336 • Reduce costs through lower transmission study feed, increased technical development to
337 reduce turbine costs and/or improve performance, and capture procurement efficiencies
338 through collaboration between developers (including utilities).
- 339 • To address the lack of national RES and weak prices, develop a national RES and national energy
340 policy highlighting renewable energy as national security and including goals for all renewable
341 energy sources.
- 342 • Feed-in tariffs should be set non-arbitrarily as being high enough to be used, generating an
343 adequate rate of return for the developer.
- 344 • Green pricing in the model of Austin Energy, whereby the price is *not* subject to fuel adjustment
345 charges of fossil fuels. Another example is the proposal HF 805 in Minnesota, which is tied to
346 locally owned resources.
- 347 • To address the lack of planning, undertake any kind of integrated resource planning, regional or
348 otherwise.
- 349 • Account for externalities by including them in the IRP. Price externalities through carbon trading
350 or taxation.
- 351 • Improve cost recovery on smaller projects by reforming utility regulation

352 **Potential Regional Solutions**

- 353 • Create a renewable friendly independent system operator capacity market
- 354 • Frame wind as an issue that is 21st century jobs, economic development
- 355 • Develop regional clean energy manufacturing clusters
356
- 357 • Target young people to support wind and clean energy (increase workforce development) and
358 young decision-makers (using polling and survey to find what messages and language works)
359
- 360 • Base targeting on polling or surveying
361
- 362 • Examine green pricing models, especially regional – provide consensus and best practices for
363 our region
- 364 • Examine feed-in tariffs models, especially regional – provide consensus and best practices for
365 our region
- 366 • Create a regional integrated resource plan (IRP)
- 367 • Establish some form of regional equipment procurement

368 **Appropriate Permitting and Zoning**

369 Arduous and excessive cost regulatory requirements and inconsistent and even overreaching local
370 zoning ordinances threaten to stall potentially wind projects throughout the region. Coordination among
371 regulatory agencies and appropriate permitting requirements are needed at the national, state, and
372 local levels.

373 **Aspects or Elements**

374 Regulations for wind development in the Great Lakes region are unclear and it is often difficult to
375 decipher what role the state plays in turbine siting, if any. Permitting and zoning varies among different
376 counties and townships, making it difficult to permit a project in multiple jurisdictions or take a more
377 regional approach to wind turbine project development. In many cases siting authority resting with local
378 governing bodies may lack the expertise or time to thoroughly understand the issues at hand and the
379 capacity to effectively balance a contentious public siting process. At times the respective roles of the
380 state and local elected officials are not clear and collaboration between the two may be strained by
381 distrust and competing interests. A perennial challenge for local elected officials is to balance their
382 official responsibilities with their personal interests as a resident of the community when making wind
383 turbine siting decisions. Poorly sited projects can give a bad reputation to all wind development.

384 Major aspects of this problem include:

- 385 • Confusing/unclear permitting and siting pathways
- 386 • Lack of publicly-available data and metrics on wildlife impacts, making comparisons across
387 different wind projects and other energy sources difficult.
- 388 • Lack of educational resources for educating local officials about wind energy.
- 389 • With regards to project development, no standards metrics exist for measuring project impacts
390 to wildlife, noise, and shadows flicker.
- 391 • Competing experts, making it difficult to sort fact from fiction
- 392 • “Turbine envy”, land owners becoming upset because their property was not selected for the
393 placement of a wind turbine, leading to preserved economic injustice and a mistrust of
394 neighbors motivations.
- 395 • Local planning bodies are swamped trying to become experts on every wind issue and they can’t
396 admit to lack of knowledge without losing credibility.
- 397 • Finding trusted experts that are perceived to be neutral is a major challenge. Foundations and
398 universities may be the best option.

399 **Potential Solutions**

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- 400 • Lease pools can be an effective solution to “turbine envy” by spreading the risk and reward of
401 project development, also reduces the outside capital costs required to procure larger turbines
402 by expanding the potential for local investment.
- 403 • Model ordinances can be useful to suggest effective ways to manage wind development. This
404 can be applied on a regional level with the creation of regional model ordinances.
- 405 • Identify trusted, neutral parties to educate local officials with unbiased information. Access to
406 trusted, neutral parties eliminates the need for planning staff to become experts in wind
407 development. Informational presentations to decision makers are useful for providing
408 background on wind energy and project-specific details. The public could participate in periodic
409 “Ask the Expert” panel events to get specific wind energy questions answered. In this outreach,
410 impacts from wind development should be compared to effects from conventional power
411 sources. Funding to support education and outreach is required.
- 412 • Create a wind development road map that can inform local decision making by laying out what
413 local officials can expect to see over the course of a project. This would also help guide
414 developers and local proponents through opposition and issues that are raised in a more
415 effective and efficient manner.
- 416 • Develop a default ordinance for siting wind projects, allowing counties to adopt the default or a
417 tailored ordinance.
- 418 • Mediators trained in wind energy issues could be used on a regional basis. Mediators must be
419 seen as objective and unbiased. 15 are already trained and available in Michigan.
- 420 • Establish a voluntary state siting review board to provide siting assistance to counties by
421 bringing in unbiased information.
- 422 • Explore ways of creating a consortium to promote consistent data collection and effective data
423 sharing, especially to local decision makers. Protocols are needed for consistent data collection,
424 sharing, and analysis. European data might be helpful where appropriate.
- 425 • In order to realize potential economies of scale from offshore wind, a regulatory framework at
426 the federal and state level is needed.

427 **Potential Regional Solutions**

428 The group identified two solutions that are especially promising in the Great Lakes region. First, the
429 state should develop a model ordinance tailored to the region and use this as a default unless counties
430 develop their own ordinances. It’s important to have clear and broad understanding of each clause in
431 any siting ordinance and ensure that it’s grounded in the authority of the local jurisdiction. Secondly, the
432 state or a regional entity should develop a voluntary siting review board to support local decision
433 makers. The process and selection of trusted experts should be carefully designed.

434 **Social Acceptance**

435 Local and public support or opposition is a determining factor in wind energy development. An
436 important distinction when approaching the opposition is position versus interest. Immovable
437 opposition may be a result of the scale of the landscape change associated with wind energy
438 development and fundamental distrust of the process. In this case, the opposition cannot be summed
439 up as NIMBY (Not In My Back Yards), but rather “BANANA” (Build Absolutely Nothing Anywhere Near
440 Anything).

441 **Aspects or Elements**

442 This barrier is divided into three audience groups:

- 443 1. Supporters are those who are either generally open to or in favor of wind power or a particular
444 wind project. Supporters tend to be local, progressive, property rights advocates,
445 environmentally motivated, and supportive of economic development. This group is often
446 comprised of school officials or labor supporters. Supporters are generally small in number at
447 the onset of project development and quieter than the other two groups about their views.
- 448 2. The undecided are those wondering “what’s in it for me?”. People in this group can be easily
449 influenced to move into the #1 or #3 audience groups. This group is large and often includes
450 potential lease holders, elected officials, and those who are ambivalent to the area or local
451 issues.
- 452 3. Detractors are those who don’t see anything positive for them in the project and believe there
453 should be. They can be characterized as sharing views associated with NIMBYs or BANANAs and
454 tend to be real estate developers or those who consider themselves “landscape guardians”.
455 Detractors may be local or from out of the area and they tend to be people who feel they have a
456 lot to lose if a wind project is developed.

457 The proportion of the population in each category can be illustrated using a standard bell curve where
458 the Y-axis is number of people and the X-axis is acceptance level. Audience groups #1 and #3 occupy the
459 tails of the bell curve while group #2 occupies the middle and majority of the area under the curve.

460 **Potential Solutions**

461 Approaches to each audience group should be tailored to address each group’s distinct position and
462 motivations. Identifying players in each group is an important first step. Ongoing efforts continue with
463 the objective being to retain and build the strength of supporters in group #1, take steps to influence
464 the undecided in group #2 and the detractors in group #3 to become supporters, and diffuse the
465 influence of detractors in group #3. A successful approach is greatly assisted by (1) the developer having
466 a “good neighbor” policy, and (2) sound understanding of local and state laws governing zoning.

467 Specific approaches for supporters (group #1) include:

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- 468 1. Ensure supporters have at least a minimal level of information or competence about the wind
469 project so they can be a credible advocate.
- 470 2. Organize supporters and keep them engaged throughout. This should be done by the project
471 developer or a credible third party.
- 472 3. Identify local champions with strong influence and social connections.
- 473 4. Encourage local economic development planners to complete economic analyses (tax revenue)
474 early even if results are preliminary. It's important that analyses be generated by local
475 government or a trusted and neutral party.
- 476 5. Help supporters to assume a moderate, rational approach so that project benefits are not
477 overstated which could result in lost credibility.

478 Specific approaches for the undecided majority (group #2) include:

- 479 1. Answer the question "what's in it for me?" to move the undecided to supporters. Once
480 successful, apply strategies above to maintain support.
- 481 2. Approach this group early and maintain contact (get in early and stay). A consistent presence
482 through a "drip campaign" (website, landowner groups) is important.
- 483 3. Rely on trusted third parties to generate and deliver information. Best sources of information
484 include WPA education infrastructure, the local university, peer reviewed information, and best
485 practices.
- 486 4. Be honest and transparent and have an open-door policy. Recognizing legitimate concerns is
487 important (i.e. don't claim wind turbines are quiet).
- 488 5. Take people on tours to wind farms for experiential learning.
- 489 6. Invest in surveys during planning to understand the local sentiment and germinating concerns in
490 order to best provide information to the undecided.
- 491 7. Undertake a broad and strategic communication effort, leveraging information distribution
492 opportunities. This could include social media if dialogue can be guided or moderated.
- 493 8. Encourage the use of novel leasing mechanisms (i.e., pooling) and pursue full or at least partial
494 disclosure of lease agreements.

495 Specific approaches to move detractors (group #3) to supporters or at the very least limit their
496 influence:

- 497 1. For detractors who are "free riders", pooling or financial compensation may influence them to
498 become supporters.

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- 499 2. One-on-one conversations, especially between the developer and detractors, are critical for
500 determining where the real issue is and what approach might be successful.
- 501 3. Understand and educate others about laws governing zoning (i.e. zoning can be used to protect
502 health and safety and *not* to ban wind outright).
- 503 4. Identify BANANAs and “out” detractors who are not local.
- 504 5. Decide on a strategy to deal with misinformation and respond in a controlled way. Either
505 address misinformation point-by-point in public meetings or address the larger issue with
506 correct information (i.e. go above it).

507 **Potential Regional Solutions**

508 Several regional actions should be implemented simultaneously with the audience-specific approaches
509 described above. Regional studies including local economic impact and property values are important
510 for informing the debate. These should include economic impacts of the project on taxing bodies, school
511 districts, and employment and should inform best practices for the project. Process development
512 studies should also focus on different types of development projects in the state or region to
513 understand project life cycle and to develop good processes and controls. In order to ensure that the
514 value of regional studies is realized, there should be a master plan in place and necessary analytical
515 infrastructure to receive and manage incoming data. It is also important to ensure studies are conducted
516 by a trusted source (i.e. National Laboratories, Universities, NGOs).

517 Lessons learned from a project in Michigan which was discussed found that working early and often with
518 towns and county residents in the development of a large wind project was very successful. Most critical
519 for success was engagement of the public early on for large community meetings. The company brought
520 in the businesses, the community, future farmers of America, churches together and went on a listening
521 tour. The organization worked to find the public leaders in the area and put forth the effort to go talk
522 with them. The metric of cups of coffee per MW was considered a viable metric. The project built on the
523 community focus on cooperatives. The extensive outreach effort really worked well. Use basic fund
524 raising techniques where you raise the first dollars with your best champions and then go to the public
525 for the last bit. Started outreach in 2005 and had more than 100 open houses for people to come and
526 listen to the turbines. 275 easements signed.

527 **Transmission**

528 Transmission barriers include lack of capacity and lack of necessary infrastructure in areas of wind
529 power generation. Institutional or legal issues associated with transmitting power across state lines are
530 also included.

531 **Aspects or Elements**

- 532 • Transmission infrastructure is high cost and can be insufficient in areas where it is needed.

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- 533 • Cost allocation is challenging to determine (project versus public) and unclear obligations
534 stymies progress, compounded by the fact that utilities may profit from transmission
535 constraints.
- 536 • High queue fees and a long analysis schedule create a strong barrier to project development.
- 537 • Transmission is often not viewed as an important issue, even for those that want to see more
538 wind developed.
- 539 • Lack of resource or portfolio planning so transmission infrastructure is not aligned with the
540 resource.
- 541 • Limited national coordination (20% by 2030 lays out the goal, but doesn't coordinate its
542 achievement).

543 **Potential Solutions**

- 544 • High power transmission lines (DC cables) connecting load centers to resources (e.g. Tres Amigas
545 in Clovis, New Mexico).
- 546 • Wind Energy Resource Zone Boards to identify regions for expedited transmission. Some good
547 experience with this solution in Michigan.
- 548 • Integrate pricing models for offshore and land-based wind.
- 549 • System economic and development models to evaluate solutions for efficiently matching power
550 demand and generation (e.g. building new transmission in remote areas as opposed to a more
551 distributed model where power is generated closer to load center and existing transmission
552 infrastructure is used or upgraded).
- 553 • Effective communication about transmission infrastructure needs including direct and ancillary
554 benefits (jobs, synergistic opportunities). Link transmission infrastructure with wind power.
- 555 • Improved regional planning
- 556 • Analysis of wind energy export market potential (local market expansion and export to the East
557 Coast). Export solves the barrier of RPSs being too low, which has become its own barrier to
558 wind development.

559 **Financing for Small and Community Wind**

560 Community and small scale wind projects face specific challenges not applicable to larger scale
561 development. The discussion focused on the lack of a small, distributed and community wind market in
562 the Great Lakes region, with the lack of funding and market motivations leading to this depressed
563 market.

564 **Aspects or elements**

- 565 • To attract financing, a strong market is needed, which requires financing (chicken v. egg
566 problem)
- 567 • Transaction costs/risks are high and are not really discounted for smaller projects
- 568 • Contract risks (i.e. utilities entering into contracts but requiring flexibility or escape clauses)
- 569 • Utilities are reluctant to deal with community wind scale projects (higher transaction costs,
570 smaller and more numerous projects). There are no drivers or legal framework to force utilities
571 to engage.
- 572 • Net metering laws in some locations have a limit of 20kw. This is sufficient for small-scale
573 residential applications but doesn't incorporate larger projects such as those for schools or
574 other institutions who might be interested in installing turbines of a larger size. Raising the limit,
575 even up to 100 kW would create incentives for more small/distributed wind projects.
- 576 • Poor size and cost options for mid-size turbine market.

577 **Potential solutions**

- 578 • Promote utilities to change their perspective on community wind with focused outreach to
579 utilities and possibly rural electrical cooperatives.
- 580 • Regional aggregation of projects or the development of community wind cooperatives
581 aggregates a number of the fees and activities. This umbrella structure might facilitate sharing
582 and could be done under MISO.
- 583 • Development of a process so that municipalities not in great resource areas could work with the
584 ISOs, allowing the municipalities to import power from outside of the area with a better
585 resource. This entails technical assistance to municipalities, policy change, outreach about
586 economic benefits, financing, aggregation, and financing.

587 **Limited Understanding and Support for Wind Manufacturing**

588 The Great Lakes region is well positioned to become a leader in manufacturing components for the wind
589 industry. In order to make manufacturing a stable industry in the region, it is necessary to decouple
590 manufacturing from wind energy deployment in the region so that manufacturing demand persists once
591 regional wind development opportunities are saturated. It also allows the manufacturing market to
592 expand well beyond the local market need, fostering a less competitive nature between the states. The
593 20% by 2030 report and current supply chain development shows that the GL region will benefit greatly
594 from an expanded national (and potentially international) wind market, but little work has been
595 completed to assist in making this happen.

596 **Aspects or Elements**

- 597 • The mental coupling of manufacturing and in state/region deployment is currently a barrier to
598 development of a robust manufacturing industry.
- 599 • Information/expertise is needed to help the region enter other wind markets, both nationally
600 and internationally.
- 601 • Lack large and small wind testing capabilities in the region
- 602 • Lack of information about the market (e.g. areas most promising for investment such as
603 community wind, large scale or offshore)
- 604 • Local costs and cost reductions in other parts of the world
- 605 • Support for value added innovation is lacking and the need for local deployment to help drive
606 the near term markets are not in place.

607 **Potential solutions**

- 608 • Funding focus to support improvements in manufacturing through programs such as ARPA-E and
609 direct DOE, DOC funding
- 610 • Advanced and directed supply chain.
- 611 • Strengthen and combine the supply chain. Regional coordination in the market will help make
612 the region competitive. Focus on coordinated processes and facilities.
- 613 • Good analysis of the wind industry including road maps and technical assistance to local
614 companies so support their ability to enter and innovate in the market.
- 615 • Funding for innovation in the supply chain. Synergies are most promising areas for competitive
616 innovation (solutions to multiple, simultaneous problems).
- 617 • Coordination of federal programs (DOE, DOC, NSF, EPA and others)
- 618 • Market analyses including risk assessments for potential export markets.

619 **Funding for Stakeholder Engagement**

620 Although not identified initially as a key barrier facing the wind industry, when it was brought up later
621 for discussion the lack of funding was identified in an oral vote as one of the key barriers to expanded
622 wind development in the region. Funding for active stakeholder engagement, allowing the potential
623 implementation of all of the previous ideas was seen as an obvious shortcoming and is an elemental
624 challenge in developing wind in the Great Lakes and other regions.

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625 Aspects or Elements

- 626 • General lack of funding to support wind development
- 627 • States are not prioritizing wind development for limited resources. States may see development
628 of this new industry as a federal responsibility.
- 629 • Tight budgets limit travel, making coordination between entities difficult
- 630 • Grant funding is limited and often lacks flexibility, while flexibility often generates the greatest
631 return on investment.
- 632 • There is a disconnect between real needs and resources provided from federal government,
633 states, and foundations. Wind development isn't seen as a critical part of the larger agenda to
634 green the Great Lakes.
- 635 • Baseline funding is needed to support the more general activities, opening the potential to
636 leverage other funding sources that may become available. Without the base, it is impossible to
637 find the leverage.
- 638 • There is a false belief that someone else will pay for wind development and associated costs
- 639 • Current economic situation and talent drain as human resources are recruited to work
640 elsewhere, both domestically and internationally, especially in the current market and political
641 climate
- 642 • Lack of knowledge about and interest in energy issues, especially among new residents in the
643 region

644 Potential Solutions

- 645 • Looking at Supplemental Environmental Programs (SEP) funding, based on fines leveraged
646 against corporate environmental damages claimed by state governments or other playing off
647 other environmental impacts using the wind's green energy advantage.
- 648 • Find linkages and alignment between the objectives of existing funding sources and wind energy
- 649 • More efficient outreach (i.e. using technological tools such as webinars to maximize impact,
650 peer-to-peer outreach), while recognizing the value of bringing in experts. Outreach and
651 education shouldn't be constrained to turbine installation only. On-the-ground results are
652 needed to justify continued investment in outreach.
- 653 • Challenge grants to help raise funds. Current funding sources may need to be adjusted to allow
654 challenge matching.

- 655 • Contrast investment in local wind energy jobs with investment in importing coal power from out
656 of the area. Demonstrate wind energy’s value through manufacturing opportunities and real
657 employment income as compared with the alternatives.

658 **Regional Strategy Development**

659 The purpose of this meeting was to cultivate the Great Lakes regional network to ensure continued
660 progress addressing wind development issues experienced by states in the region. There are several
661 existing examples of functioning networks in the region including the Great Lakes Wind Collaborative,
662 the Midwest Governor’s Association (similar interests, but a non-technical group), the Great Lakes Wind
663 Network (Ohio-based, good for supply chain issues), the Land Grant Universities through the Extension
664 Services, the Great Lakes Renewable Energy Association (has supported three projects regionally,
665 oversees and disseminates reports, participates in Michigan WWG), the USDA Natural Resource
666 Conservation Service, and industry associations. Workshop participants noted the importance of
667 recognizing the capabilities and strengths of these networks in order to effectively engage them.

668 Maintaining and expanding the state is important for achieving 20% by 2030. Participants acknowledged
669 the tendency of states to compete with one another in a region and noted that overcoming this barrier
670 to collaboration will be challenging. The group also noted that, while regional collaborating entities such
671 as the Great Lakes Wind Collaborative provide important functions, these groups cannot replace the
672 role of states in reaching out and responding to the public. One immediate beneficial role of regional
673 collaborating entities is to promote efficiency gains from sharing information generation and
674 dissemination roles. Participants expressed the need to be careful to not lose the focus on state policy
675 decisions when transitioning to a regional model. Many regional needs are at state level such as policy
676 decisions and these require state-specific knowledge of approach and timing. Continuing support of
677 WWGs is critical in maintaining state-specific knowledge.

678 WPA recognizes that manufacturing and watt generation are not necessarily synonymous, but includes
679 both in the program’s goal. Public perception of issues and promoting a public dialogue on these issues
680 are WPA’s highest priority, understanding that the level of knowledge and expertise on these issues has
681 to deepen. The generalized tools used in the past need to transition to tools that will be useful for
682 supporting decisions at the county or sub-region level.

683 **Conclusions**

684 WPA’s mission remains to *educate, engage, and enable critical stakeholders to make informed decisions*
685 *about how wind energy contributes to the U.S electricity supply in the support of a vision expressed in the*
686 *20% wind by 2030 report. Since the inception of WPA however, two things are changing. The first is the*
687 *market, meaning that the approaches that moved the country to 2% are not going to be the same ones*
688 *that will allow achieving 20% of our electrical energy from wind sources. In an effort to take a more*
689 *effective approach, the WPA focus is shifting to a regional approach and looking for ways to help states*
690 *work better together as a region. The second change is that we are seeing a clear decrease in available*
691 *Federal resources to support stakeholder engagement activities, creating the need for a more efficient*

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692 approach. Although the Obama Administration has expressed a strong interest in clean energy
693 deployment (80% by 2050), DOE is currently focused on technology development and recently increased
694 its focus on offshore wind development. This technology focus, when combined with the current fiscal
695 climate means that other public and private funding sources will have to be identified to augment
696 continued Federal funding.

697 A continuing and functioning network in the Great Lakes region requires continued education to
698 stakeholders in order to address public acceptance issues. A functioning regional network will also need
699 to include state-specific capability that can incorporate local knowledge of events and impacts.
700 Therefore, WWGs will have a continued important role as WPA transitions to a regional approach.

701 The Great Lakes region has a strong history of skilled manufacturing. The Great Lakes region can also
702 provide major load centers, being a critical crossroads for both logistics transportation and transmission.
703 The Great Lakes are also a promising area for offshore wind development.

704 **Appendix A: Regional Meeting Agenda**

705 **Wind Powering America Regional Workshop**

8:30 **Welcome and introductions**

9:00 **State Updates** – 10 minutes/state

Hear about activities and capacity of each state, identify major issues and opportunities. Identify top issues for small group focus.

10:15 **Break**

10:30 **Breakout Session: Regional Issues and Solutions**

Small groups dissect top issues, brainstorm what strategies have worked on a regional basis to address issues, and develop recommendations of strategies that could be used to address issues in the region.

12:00 **Lunch**

1:00 **Breakout Session: Regional Solutions Continued and Report Out**

Breakout groups wrap up and report out on the opportunities/solutions best suited to the region.

2:30 **Break**

2:45 **Group Discussion on Remaining Issues**

Participants discuss other issues not addressed in small groups, clarify the issues and identify knowledge/gaps.

3:30 **Regional Strategy Development**

Discussion on how the workshop topics contribute to a regional strategy, identify key players.

4:30 **Adjourn**

Appendix B: Great Lakes Participant List

Name:	Affiliation:	State
Jennifer Alvarado	GLREA	Michigan
Julie Baldwin	Michigan Public Service Commission	Michigan
Ian Baring-Gould	NREL - Wind Powering America	Colorado
Liesl Clark	5 Lakes Energy	Michigan
Mark H. Clevey, MPA	State Energy Office (BES)	Michigan
Lisa Daniels	Windustry	Minnesota
Alex DePillis	RENEW Wisconsin	Wisconsin
Jess Fernandes	Department of Energy	District of Columbia
Steve Harsh	Michigan State University	Michigan
Bennie Hayden	Marketing for Green, LLC	Michigan
Fred Iutzi	Illinois Institute for Rural Affairs	Illinois
Douglas Jester	5 Lakes Energy	Michigan
Tim Kumbier	Shepherd Advisors	Michigan
Dave Loomis	Illinois State University / Center for Renewable Energy	Illinois
Charles McKeown	MSU	Michigan
Michael Murray	National Wildlife Federation	Michigan
Golam Newaz	Wayne State University	Michigan
Allan O'Shea	Regional Coordinator for Gail Wind Project	Michigan
Victoria Pebbles	Great Lakes Wind Collaborative/Great Lakes Commission	New York
Steve Rice	JFNew	Michigan
John Sarver	MI WWG	Michigan
Mike Schutz	Metro Consulting Associates	Michigan
Nathan Steggel	Windlab	Ohio
Frank Szollosi	National Wildlife Federation	Michigan
Richard Vander Veen	Mackinaw Power	Michigan
Cliff Williams	Orisol Energy	Michigan

707 **Appendix C: Major Barriers in the Great Lakes Region**

708 Participants at the Great Lakes regional WPA meeting identified seven barriers. Voting was used to
 709 determine the top issues. Each participant cast four votes with two designated to represent the
 710 importance of the issue from a regional perspective. Although initially recognized as its own barrier,
 711 *legislative issues* was later combined with *appropriate permitting and zoning* for small group
 712 discussions.

Great Lakes Barriers	Votes	Weighted	Regional votes
Appropriate permitting and zoning/legislative issues	18	23%	13
Weak state wind power markets	15	19%	4
<i>Appropriate permitting and zoning</i>	<i>14</i>	<i>18%</i>	<i>12</i>
Social acceptance	13	16%	3
Transmission	13	16%	13
Financing for small and community wind	11	14%	2
Poor understanding of economic impacts of wind	7	9%	2
<i>Legislative issues</i>	<i>3</i>	<i>4%</i>	<i>1</i>
Limited understanding and support for manufacturing	3	4%	2

Appendix D: Feedback Form

During the month of March, the Wind Powering America team conducted [a series of regional meetings](#) to better understand the barriers that hamper the appropriate deployment of wind technologies and provide a collaborative discussion. After reading through the draft summary report for the Great Lakes Regional Meeting, we strongly encourage people to provide any comments or perspectives that were not already captured. Please use the Feedback Form to document your feedback. When appropriate, please reference line numbers. We request all comments be returned to Corrie Christol by May 31st, 2011, corrie.christol@nrel.gov, fax: 303-384-7097. Once all comments have been received, efforts will be made over the next several months to formally synthesize the input from these meetings so that Wind Powering America activities help to support the wind community.

The Great Lakes Region

Illinois

Indiana

Michigan

Minnesota

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New York

Ohio

Wisconsin

Barriers & Opportunities

Weak State Markets

Appropriate Permitting and Zoning

Social Acceptance

GL Review Draft

Transmission

Financing for Small and Community Wind

Limited Understanding and Support for Wind Manufacturing

Funding for Stakeholder Engagement

Regional Strategy Development

Conclusions

GL Review Draft

Other comments

Please provide any other comments on the content, organization of the document or other content that was not addressed above.