

**BEFORE THE STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION**

**BADGER WIND, LLC
BADGER WIND PROJECT – LOGAN AND MCINTOSH COUNTIES
SITING APPLICATION**

CASE NO. PU-22-086

**PRE-FILED TESTIMONY OF NICHOLAS GEBAUER
ON BEHALF OF BADGER WIND, LLC**

June 8, 2022

1 **I. INTRODUCTION AND QUALIFICATIONS**

2

3 **Q. Please state your name, employer, and business address.**

4 A. Nicholas Gebauer. I am employed by Ørsted Onshore North America, LLC (“Ørsted”).
5 My business address is 401 North Michigan Ave, Suite 501, Chicago IL 60611.

6

7 **Q. What is your position with Ørsted?**

8 A. I am a Director of Development at Ørsted.

9

10 **Q. Briefly describe your work history and education.**

11 A. I have twelve years of experience in the renewable energy industry, leading or
12 supporting multiple phases of wind and solar development throughout the USA for
13 Ørsted and other energy companies. I have a Bachelor of Science degree in
14 Meteorology, Earth Science & GIS from Michigan State University, along with a Master
15 of Arts degree in GIS for Development and Environment from Clark University in
16 Worcester, MA. A copy of my statement of qualifications is attached as proposed
17 **BW Exhibit 30-A.**

18

19 **Q. What is your role with respect to the Badger Wind Project (“Project”)?**

20 A. As the director overseeing the development of the Project, I am responsible for
21 ensuring the Project is developed in a way so that it adheres with all regulations and
22 best practices and is financeable and economically viable. I oversee a team of project
23 developers that have contributed to the Project and coordinate with various Ørsted
24 departments and external parties to keep the Project schedule on track.

25

26 **Q. Who will construct, own, and operate the Project?**

27 A. Badger Wind, LLC will construct, own, and operate the Project.

28

29 **Q. What is the relationship between Badger Wind and Ørsted with respect to the**
30 **Project?**

31 A. Badger Wind is a wholly owned subsidiary of Ørsted. Ørsted is assisting Badger
32 Wind with development of the Project.

33

34 **Q. Please describe Ørsted's experience in the renewable energy industry.**

35 A. Ørsted is an independent renewable energy company based in Chicago, Illinois.
36 Ørsted is one of the largest players in the North American onshore renewable energy
37 market and has publicly announced plans to own and operate 17.5 gigawatts ("GW")
38 of onshore renewable energy capacity by 2030. Operating assets currently under
39 Ørsted's ownership represent 3 GW, and a further 1.5 GW of projects to be owned
40 and operated by Ørsted are currently under construction. Ørsted's development
41 pipeline is rapidly expanding across all North American markets to meet its 2030
42 target.

43

44 **Q. What proposed hearing exhibits are you sponsoring in your testimony?**

45 A. I am sponsoring the following proposed hearing exhibits:

- 46 • BW Exhibit 1: Certificate of Site Compatibility Application
- 47 • BW Exhibit 2: Updated Figures 1-11 in support of the Project's Application for
48 Certificate of Site Compatibility
- 49 • BW Exhibit 3: Comparison Figure
- 50 • BW Exhibit 4: Updated Application Table 7-1 Potential Permits and Approvals
- 51 • BW Exhibit 6: Additional Noise Waiver Obtained
- 52 • BW Exhibit 7: Updated Shadow Flicker Analysis Report
- 53 • BW Exhibit 8: Updated Sound Analysis Report
- 54 • BW Exhibit 12: Project Receptor Chart
- 55 • BW Exhibit 16: Emergency Response Plan
- 56 • BW Exhibit 17: TV Signal Baseline Measurements Report
- 57 • BW Exhibit 18: Logan County Conditional Use Permit/Wind Energy Facility
58 Siting Permit
- 59 • BW Exhibit 19: Letter of Support
- 60 • BW Exhibit 23: Red Lake Township Correspondence
- 61 • BW Exhibit 26: Preliminary Building Inventory Figure

- 62 • BW Exhibit 27: Signed Certification Relating to Order Provisions – Wind
- 63 Energy Conversion Facility Siting, with accompanying Tree and Shrub
- 64 Mitigation Specifications
- 65 • BW Exhibit 30-A: Gebauer Resume
- 66

67 **Q. What is the purpose of your Direct Testimony?**

68 A. The purpose of my testimony is to provide an overview of the Project, including:

69 development history; interconnection; site selection; layout and facility design; land

70 acquisition; landowner coordination; land use compatibility; local permitting and

71 coordination; agency coordination; and Project benefits. I will also discuss the results

72 of the sound and shadow flicker analyses conducted for the Project. Finally, I will

73 provide an overview of Project construction, operation, and decommissioning.

74

75 **II. UPDATES TO THE APPLICATION**

76

77 **Q. Is proposed BW Exhibit 1 Badger Wind’s Application for Certificate of Site**

78 **Compatibility for the Badger Wind Project (“Application”), which was filed with**

79 **the PSC on February 25, 2022?**

80 A. Yes.

81

82 **Q. Have there been any updates to the Application?**

83 A. Yes. As discussed further below, since filing the Application, Badger Wind has

84 continued to coordinate with agencies and landowners on development of the Project,

85 incorporate additional information, and further refine the Project layout. As a result,

86 Badger Wind has made minor adjustments to the Project layout. The updated Project

87 layout was filed with the PSC on May 26, 2022. The minor adjustments to the layout

88 compared to what was filed with the Application are also depicted in the Comparison

89 Figure (proposed BW Exhibit 3) and updated Application Figures 1-11 (proposed BW

90 Exhibit 2).

91

92 Proposed **BW Exhibits 2** and **3** also depict minor Project boundary adjustments.
93 During title review, Badger Wind determined that a small quarter-quarter section of
94 land had been carved out of a parcel prior to being leased by Badger Wind, and a
95 second small parcel on the edge of the Project Area boundary was not fully excluded
96 from the Project Area. As a result, the Project Area has been updated to show these
97 two parcels and the residence associated with the first parcel as nonparticipating. The
98 same changes have been made in the sound and shadow flicker modeling. The
99 corrections do not impact the Project layout, which remains in compliance with all
100 applicable setback and sound requirements.

101

102 **Q. Since the Application was filed, have any additional or updated reports been**
103 **completed?**

104 A. Yes. Since the Application was filed, Badger Wind completed or updated the
105 following:

- 106 • Updated Shadow Flicker Analysis Report (proposed **BW Exhibit 7**);
- 107 • Updated Sound Analysis Report (proposed **BW Exhibit 8**); and
- 108 • TV Signal Baseline Measurements Report (proposed **BW Exhibit 17**).

109

110 Additional reports and updates to reports are discussed in the Direct Testimony of
111 Sarah Aftergood (proposed **BW Exhibit 29**).

112

113 **III. DESCRIPTION OF THE PROJECT**

114

115 **Q. Could you provide a general description of the Project, including where it is**
116 **located, its proposed output, and facilities?**

117 A. The Project is within an approximately 31,467.45-acre Project Area ("Project Area")
118 located in McIntosh and Logan Counties, North Dakota. As currently designed, the
119 Project nameplate capacity will be up to 251.6 megawatts ("MW"), with up to 250 MWs
120 of electricity delivered to the grid. The Project's facilities would include:

- 121 • up to 74 wind turbines (79 potential turbine locations, including alternates) and
122 related equipment;

- 123 • new gravel access roads and improvements to existing roads (as needed);
- 124 • collector substation;
- 125 • buried electrical collection lines and communication lines, with aboveground
- 126 junction boxes and/or underground splices;
- 127 • up to three permanent meteorological (“met”) towers (using three of the five
- 128 potential permanent met tower locations included in the Project layout);
- 129 • light-mitigating technology (currently anticipating use of an Aircraft Detection
- 130 Lighting System (“ADLS”));
- 131 • Operations and Maintenance (“O&M”) facility; and
- 132 • additional temporary facilities, including a three-acre temporary batch plant, a 15-
- 133 acre laydown yard for construction offices, a seven-acre multi-purpose laydown
- 134 area for construction activities, a ten-acre marshaling yard to assist with logistics
- 135 during turbine component deliveries, crane paths, and intersection and road
- 136 improvements.

137

138 **Q. Where will the Project interconnect to the grid?**

- 139 A. The Project will interconnect to the grid via an approximately 0.75-mile 230-kilovolt
- 140 (“kV”) transmission line extending from the Project substation and interconnecting to
- 141 the Wishek Junction 230-kV substation owned and operated by Montana-Dakota
- 142 Utilities Company (“MDU”), located approximately 1.2 miles west of Wishek, in Section
- 143 8, Township 132 North, Range 71 West, McIntosh County.

144

145 **Q. What is the status of executing a Generator Interconnection Agreement (“GIA”)**

146 **for the Project?**

- 147 A. Badger Wind has a generation interconnection queue position in the Midcontinent
- 148 Independent System Operator’s (“MISO”) DPP-2018-APR-West cluster and the GIA
- 149 was fully executed in May 2022.

150

151 **Q. Has the Project identified an off-taker for the Project?**

- 152 A. Badger Wind is in the process of identifying and negotiating an off-taker agreement
- 153 for the Project’s output. Potential off-takers include utilities and commercial or

54 industrial customers seeking a physical or virtual power purchase agreement (“PPA”).
155 Alternatively, the Project may run “merchant,” selling its power directly into the MISO
156 market, or the Project may be sold to a utility that would use the power to directly
157 supply its customer base.

158

159 **Q. What is the anticipated schedule for the construction and in-service of the**
160 **Project?**

161 A. Project construction is anticipated to begin as soon as September 2022 and be
162 completed by the end of October 2023. Badger Wind anticipates full commercial
163 operation to occur by the end of Q4 2023.

164

165 **Q. What is the estimated total cost of the Project?**

166 A. The estimated total cost to construct Badger Wind is approximately \$390 million.

167

168 **IV. PROJECT DEVELOPMENT AND PROJECT AREA SELECTION**

69

170 **Q. Please provide an overview of the Project’s development history, including the**
171 **alternatives considered and any changes made to the Project site.**

172 A. Badger Wind’s development of the Project began in early 2017. Over the course of
173 the following five years, Badger Wind refined the Project Area as a result of numerous
174 environmental studies and in consultation with environmental agencies and other
175 stakeholders. The history is outlined in more detail in Section 1.2.5 of the Application
176 (proposed **BW Exhibit 1**), but the following provides a high-level overview.

177 • In early 2017, Badger Wind identified the approximately 125,954-acre Study Area
178 as a potentially suitable site for a wind project. Badger Wind also began its land
179 control efforts, community outreach, and acquired land for placement of a
180 temporary MET tower.

181 • In 2018, Badger Wind initiated a series of environmental studies as part of its site
182 selection process. Throughout 2018, Badger Wind continued its land leasing
183 efforts and hosted public dinners in Wishek to introduce the Project to the

184 community and provide interested landowners the opportunity to learn more about
185 the Project.

186 • In January 2019, Badger Wind initiated coordination with Logan County. In spring
187 of 2019, Badger Wind continued its environmental studies, which included
188 preconstruction avian use surveys, eagle and raptor nest surveys, acoustic
189 monitoring for bats, and grouse lek monitoring.

190 • In early 2020, Badger Wind initiated consultation with North Dakota Game and
191 Fish (“NDGF”) and U.S. Fish and Wildlife Service (“USFWS”) regarding wildlife
192 and associated study protocols. Badger Wind completed a second year of avian
193 use studies, eagle and raptor nest surveys, bat acoustic monitoring, and grouse
194 lek monitoring in 2020. Additionally, grassland and bat habitat assessments took
195 place in 2020. Also in 2020, Badger Wind initiated coordination with McIntosh
196 County.

197 • In 2021, Badger Wind performed additional habitat assessments of grasslands
198 and special status species. In consultation with NDGF and USFWS, Badger Wind
199 iteratively refined its layout to avoid unbroken grassland and minimize impacts.
200 Micro-siting efforts took place on site in May, July, and October of 2021. Badger
201 Wind continued coordination with Logan and McIntosh Counties and hosted a
202 community open house and landowner dinner in 2021. Also in 2021, Badger Wind
203 also began coordinating with the Wishek Municipal Airport.

204 • In 2022, Badger Wind has continued working closely with participating
205 landowners, the surrounding community, wildlife agencies, the interconnecting
206 utility, potential Project contractors, Wishek Municipal Airport, and other
207 stakeholders to refine the proposed layout and further refine the Project Area. The
208 result of these efforts is the currently proposed Project Area and Project layout.
209

210 **Q. What factors make the Project site a good site for wind development?**

211 A. Badger Wind selected the Project Area because of its excellent wind resource,
212 proximity to an accessible point of interconnection to the electrical grid, strong
213 landowner support, and compatibility with existing land uses and environmental
214 features.

15

216 **Q. Has Badger Wind obtained the necessary property rights to construct the**
217 **Project within the proposed Project site?**

218 A. With one exception, Badger Wind has secured voluntary wind energy lease
219 agreements and easements with landowners covering all land that is needed for the
220 Project. Badger Wind is currently in the process of amending one of the wind lease
221 and easement agreements to include a parcel that was inadvertently omitted from the
222 agreement. That is the only parcel not currently under lease.

223

224 **V. LOCAL OUTREACH**

225

226 **Q. Please describe Badger Wind's community outreach with respect to the Project.**

227 A. Badger Wind has been an active part of the local community throughout the course of
228 the development process. Badger Wind has conducted group and individual outreach
229 from 2017 to present, including public dinners in April and October of 2018, and a
30 community open house and landowner dinners in October 2021 and April 2022.

31

232 **Q. Discuss Badger Wind's outreach with the Logan and McIntosh Counties.**

233 A. Badger Wind initiated coordination with Logan County in January 2019. Badger Wind
234 engaged with Logan County to understand the local permitting process and attended
235 several Logan County Commissioners' meetings to provide information and updates
236 on the Project and answer questions. Logan County approved Badger Wind's
237 application for a conditional use permit/wind energy facility siting permit on May 11,
238 2022. Additionally, Badger Wind is in the process of negotiating a road use agreement
239 with Logan County which is expected to be approved and executed by the Logan
240 County Commissioners in June 2022.

241

242 Badger Wind initiated coordination with McIntosh County in January 2020. Badger
243 Wind has negotiated a road use agreement with McIntosh County, which was finalized
244 and approved by the McIntosh County Commissioners in March 2022.

245

246 **Q. Were any concerns raised by the community regarding the Project?**

247 A. In addition to typical questions we received regarding wind projects, there were some
248 minor requests we were able to accommodate. For example, as discussed further
249 below, Badger Wind removed five potential turbine locations to address concerns
250 raised by the Wishek Municipal Airport and the North Dakota Aeronautics
251 Commission. Additionally, Badger Wind coordinated with the Federal Aviation
252 Administration ("FAA") to make minor shifts to two turbine locations (now Turbines 33-
253 A and 70-A) to address the FAA's concerns. Concerns were raised by some tenant
254 farmers who lease land owned by participating landowners who have chosen to sign
255 wind energy lease agreements and easements for that land for the Project. Badger
256 Wind has listened to these concerns and sited roads to minimize disruption to the
257 tenant farmers' operations.

258

259 **Q. Please describe the changes to the Project layout made in coordination with the**
260 **Wishek Municipal Airport and the North Dakota Aeronautics Commission.**

261 A. During Badger Wind's discussions with the Wishek Municipal Airport and the North
262 Dakota Aeronautics Commission, the Wishek Municipal Airport and the North Dakota
263 Aeronautics Commission identified concerns with five potential turbine locations. As
264 a result, Badger Wind removed those locations from further consideration (i.e., those
265 turbines are not included in the proposed Project layout). The Wishek Municipal
266 Airport and North Dakota Aeronautics Commission indicated that removal of those
267 turbines addressed their concerns.

268

269 **Q. Has the Project received any support from the community?**

270 A. Yes. Proposed **BW Exhibit 19** contains a letter of support from the Wishek Job
271 Development Authority expressing its support for the Project because of its economic
272 benefits, such as tax revenue generated for the state and local governments and local
273 school district, creation of high-paying jobs, and lease payments to local landowners.
274 Additionally, during the local permit hearing for Logan County, seventeen members of
275 the community offered a show of support for the Project and the local permit was
276 unanimously approved by the Logan County Commissioners.

77

278 **Q. Did Badger Wind specifically take into consideration landowner input in the**
279 **Project's design?**

280 A. Yes. Beginning in January 2022, Badger Wind conducted site plan reviews with
281 individual landowners to review the preliminary layout and receive feedback before
282 finalizing the layout. Comments and suggestions made by participating landowners
283 were considered and incorporated into the final layout, when possible.

284

285 **VI. PROPOSED PROJECT LAYOUT**

286

287 **Q. Please describe the factors considered when developing the Project layout.**

288 A. Badger Wind identified preliminary turbine locations based on a wind resource
289 analysis, engineering considerations, site inspections, topography, known
290 environmentally sensitive areas, and input from local, state, and federal agencies and
291 stakeholders. The design of the proposed layout optimizes the wind resource,
292 minimizes impact on existing resources and potentially sensitive areas, avoids or
293 minimizes potential environmental impacts, complies with the PSC's setback
294 requirements and all local zoning requirements, and incorporates stakeholder input.

295

296 **Q. Discuss the changes made to the Project layout between filing the Application**
297 **with the PSC and submitting the final Project layout.**

298 A. After filing the Application, Badger Wind made minor adjustments to the preliminary
299 Project layout. As discussed above, to address FAA concerns, Badger Wind made
300 minor shifts of less than 150 meters to two turbine locations (now Turbines 33-A and
301 70-A) in coordination with the FAA. Adjustments have also been made to some
302 collection lines, access roads, and crane path locations based on further site analysis
303 and stakeholder coordination. The minor layout revisions are shown on proposed **BW**
304 **Exhibit 3**. The most current proposed layout for the Project is shown in the updated
305 figures in proposed **BW Exhibit 2**. As noted above, the Project layout is the same as
306 what was filed with the PSC on May 26, 2022.

307

308 **Q. Has Badger Wind determined what turbine model it will use?**

309 A. No. Badger Wind is still determining what turbine model to use for the Project.

310

311 **Q. What turbines are currently under consideration for the Project?**

312 A. The General Electric ("GE") 3.4-MW turbine is currently being considered for the
313 Project and is the turbine model used throughout the Application for analysis
314 purposes. However, Badger Wind plans to select the most appropriate technology for
315 the Project in terms of cost efficiency and optimization of wind and land resources,
316 which may result in a different turbine model being selected.

317

318 **Q. Are the turbine sites dependent upon which turbine model or models you**
319 **select?**

320 A. No. Badger Wind has sited the Project so that all proposed turbine locations meet the
321 PSC and Logan County setbacks for a turbine with an up to 98-meter (approximately
322 322.5-foot) hub height, an up to 140-meter (approximately 459.3-foot) rotor, and a
323 total tip height of 168 meters (approximately 551.2 feet), which provides flexibility in
324 the selection of the turbine model. Regardless of the turbine model selected, the
325 Project will meet all applicable PSC and Logan County setbacks and other
326 requirements.

327

328 **Q. Will Badger Wind limit the total number of turbines constructed within the**
329 **Project Area to up to 74 turbines?**

330 A. Yes. Although a total of 79 potential turbine locations are proposed, only up to 74
331 turbines would be installed.

332

333 **Q. Will Badger Wind limit the total megawatts of wind energy constructed within**
334 **the Project Area to up to 251.6 MW?**

335 A. Yes. The Project will have a nameplate capacity of up to 251.6 MW, with up to 250
336 MW delivered to the grid. Installing up to 251.6 MW will enable the Project to account
337 for and overcome losses that are associated with turbine availability, turbine

38 performance, and electrical losses within the collection system that may otherwise
339 reduce the output below the authorized interconnection threshold.

340

341 **VII. SETBACKS**

342

343 **Q. Is the Project designed to comply with all the setback requirements in the Siting**
344 **Act and the PSC's rules?**

345 A. The Project is designed to comply with all setbacks outline in Table 4-2 in the
346 Application (proposed **BW Exhibit 1**).

347

348 **Q. Is the Project also designed to comply with all applicable local setback**
349 **requirements?**

350 A. Yes. Badger Wind has designed the Project to comply with all applicable Logan
351 County requirements. McIntosh County has not enacted zoning and, therefore, does
352 not have setback requirements for wind energy projects.

353

354 **Q. In calculating your setback distances, did you measure from the edge of the**
355 **base of the turbine to the closest edge of the applicable feature or specified**
356 **right-of-way?**

357 A. Yes. All setbacks have been applied measuring from the closest edge of the turbine
358 tower base to the closest edge of the referenced feature.

359

360 **Q. Has Badger Wind prepared a figure that depicts setbacks and other siting**
361 **constraints for the Project?**

362 A. Yes, that information is depicted in the setbacks map provided as updated Figure 5
363 (proposed **BW Exhibit 2**).

364

365 **Q. Does the setbacks map show participating and non-participating residences?**

366 A. Yes. The dark green squares are non-participating occupied residences, and the light
367 green squares are participating occupied residences.

368

369 **Q. Since Badger Wind submitted its Application, has Badger Wind identified an**
370 **additional inhabited residence near the Project Area?**

371 A. Yes. During a discussion with a nonparticipating landowner, we learned of a third
372 inhabited residence (Receptor 696) on that landowner's property, located less than
373 150 feet from another inhabited residence. That receptor was added to the figures
374 and incorporated into the updated sound and shadow flicker reports.

375

376 **Q. Since Badger Wind submitted its Application, has Badger Wind made any other**
377 **updates to the list of inhabited residences near the Project Area?**

378 A. Yes. During calls with landowners, Badger Wind confirmed that two receptors that
379 had been conservatively identified in the materials filed with the Application as
380 inhabited residences (Receptors 33 and 45) were permanently abandoned.
381 Accordingly, these structures were removed from the receptor list and are not included
382 in the updated sound and shadow flicker reports.

383

384 **Q. How were inhabited residences identified?**

385 A. Badger Wind applied multiple conservative strategies to identify occupied residences,
386 such as reviewing publicly available aerial imagery, field reconnaissance on the site,
387 collecting global positioning system ("GPS") locations, and getting feedback from
388 landowners. More specifically, Atwell, LLC ("Atwell"), on behalf of Badger Wind,
389 conducted a desktop review of aerial imagery (Google Earth imagery data and
390 National Agriculture Imagery Program data) to identify buildings in the area under
391 consideration for the Project at the time, plus a 1.5-mile buffer. The buildings identified
392 during the desktop review are shown on proposed **BW Exhibit 26**. Atwell then
393 conducted field reconnaissance of the buildings identified through desktop review to
394 identify inhabited residences and community buildings. Badger Wind conducted
395 additional field reconnaissance and spoke with landowners to identify inhabited
396 residences and community buildings.

397

398 As a result of the analysis, 39 inhabited residences were identified as receptors within
399 5,512 feet of Project turbines and the substation transformers. One inhabited

00 residence (Receptor 3) was not included in the updated sound analysis because it is
401 not located within one mile of a Project turbine or substation transformer (the distance
402 used for sound modeling), but was included in the updated shadow flicker analysis
403 and the Project Receptor Chart (discussed below). Additionally, to comply with the
404 PSC's sound requirement, six community buildings were identified as receptors.

405

406 **Q. Are there any other features to be considered in turbine siting that are not**
407 **depicted on the map?**

408 A. Yes. This map does not show the location of cultural resources, which are
409 confidential. Additionally, Exclusion Areas are shown on updated Figure 3 and
410 Avoidance Areas are shown on updated Figure 4 (proposed **BW Exhibit 2**).

411

412 **Q. Has Badger Wind also prepared a chart summarizing information pertaining to**
413 **receptors in and around the Project Area?**

414 A. Yes, the Project Receptor Chart is provided as proposed **BW Exhibit 12**. The chart
415 lists the participant status of the structure, the type of structure, the nearest turbine to
416 each structure, the distance in feet from the nearest turbine to the structure, the
417 modeled sound power level in dBA, the modeled shadow flicker in hours per year, and
418 whether a sound waiver is required/obtained.

419

420 **Q. In that Chart, seven residences are shown as having estimated sound levels**
421 **above 45 dBA. Has Badger Wind obtained waivers from the owners of those**
422 **seven residences?**

423 A. Yes. Badger Wind has obtained waivers from the owners of those seven residences
424 (see proposed **BW Exhibit 1**, Appendix J; see *also* proposed **BW Exhibit 6**).

425

426 **Q. In that Chart, one residence is shown as having estimated shadow flicker above**
427 **30 hours per year. Will Badger Wind obtain a waiver from the owner of that**
428 **residence?**

429 A. Yes. The owner of this inhabited residence is a participant in the Project and has
430 signed a wind energy lease agreement and easement that includes a shadow flicker
431 objection waiver (see proposed **BW Exhibit 1**, Appendix J).

432

433 **Q. What is the shortest distance between a Project turbine and a participating**
434 **landowner's occupied residence?**

435 A. The shortest distance between a Project turbine and a participating landowner's
436 occupied residence is 1,558 feet. This is the distance between Receptor 263 and
437 Turbine 42.

438

439 **Q. What is the shortest distance between a Project turbine and a non-participating**
440 **landowner's occupied residence?**

441 A. The shortest distance between a Project turbine and a non-participating landowner's
442 occupied residence is 2,101 feet. This is the distance between Receptor 676 and
443 Turbine 81.

444

445 **VIII.SOUND ANALYSIS REPORT**

446

447 **Q. What sound may be generated by modern utility-scale wind turbines, such as**
448 **those that will be used by the Project.**

449 A. The sound commonly associated with a wind turbine is described as a rhythmic
450 "whoosh" caused by aerodynamic processes. This sound is generated by wind
451 turbines due to turbulence at the blade tips, from mechanical systems in the hub or
452 nacelle (which radiates throughout the structure), and from transformers at the base
453 of the turbine mast. Sound increases with wind speed until maximum blade rotational
454 speed is reached, which usually occurs when wind speeds reach 8-10 meters per
455 second at the turbine hub.

456

57 **Q. Are you aware of any federal or state sound level regulations for wind energy**
458 **conversion facilities located in North Dakota?**

459 A. There is no federal sound level regulation for wind turbines. The PSC requires that
460 sound produced by wind turbines not exceed 45 A-weighted decibels (“dBA”) within
461 100 feet of an inhabited residence or a community building, unless a waiver is obtained
462 from the owner of the inhabited residence or the community building.

463

464 **Q. Does McIntosh County have a sound requirement for wind energy conversion**
465 **facilities?**

466 A. No.

467

468 **Q. Does Logan County have a sound requirement for wind energy conversion**
469 **facilities?**

470 A. No.

471

72 **Q. Was a sound modeling analysis conducted for the Project?**

473 A. Yes. Badger Wind retained DNV Energy USA Inc. (“DNV”) to conduct a sound
474 modeling analysis to determine if the Project would comply with the applicable PSC
475 requirement. DNV conducted a sound modeling analysis for the preliminary Project
476 layout, and the associated report was submitted as Appendix E to the Application (see
477 proposed **BW Exhibit 1**). DNV also conducted updated sound modeling for the
478 current Project layout, and that report was filed with the PSC on June 8, 2022 (see
479 Updated Sound Analysis Report, proposed **BW Exhibit 8**). The methodology used
480 and the modeling results are detailed in each report.

481

482 **Q. What turbine model was used for the sound modeling analysis?**

483 A. The sound modeling analysis was conducted using GE 3.4 MW turbines with 140-
484 meter rotor diameters (approximately 459.3 feet), 98-meter hub heights
485 (approximately 322 feet), and fitted with low-noise trailing edges (“LNTE”). Although
486 only up to 74 turbine locations would be constructed, all 79 potential turbine locations

487 were modeled. Additionally, as an industry best practice, Badger Wind included the
488 Project substation (two step-up transformers) in the sound modeling.

489

490 **Q. What assumptions were included in the model?**

491 A. The modeling utilized conservative assumptions and was conducted in accordance
492 with International Organization for Standardization ("ISO") 9613-2, which is the
493 international standard used for propagating outdoor sound levels from specific
494 sources. Specifically, ISO 9613-2 uses omnidirectional downwind sound propagation
495 and worse-case directivity factors. In other words, the model assumes that each
496 turbine and transformer transmits its maximum sound level in all directions at all times.
497 Because the model calculates the worst-case scenario for downwind sound
498 propagation, predicted sound levels tend to be higher than what would actually occur.

499

500 Additionally, all turbines were assumed to be operating at maximum power output (and
501 therefore, maximum sound levels) at all times to represent worst-case noise impacts
502 from the wind farm as a whole. The model also assumed atmospheric conditions that
503 are favorable to sound propagation. Specifically, the analysis assumed an
504 atmosphere of ten degrees Celsius and seventy percent humidity. Although ground
505 attenuation is expected to be high due to soft ground, the model used a conservative
506 ground attenuation value of 0.5. These assumptions further added to the
507 conservativeness of the model, which was designed to conservatively estimate even
508 worst-case modeled sound levels. The modeling incorporates the topography of the
509 Project site. Foliage, which has potential to reduce sound levels, was not considered
510 in the analysis. Additionally, the modeling assumes that wind turbines at all 79
511 potential turbine locations are operational, even though only up to 74 turbines will be
512 constructed. Further, the calculated results include a +2 dB adjustment to the
513 published wind turbine sound power level. The sound model therefore included a total
514 sound power level of 108.8 dBA per turbine. These assumptions were made to
515 maintain the inherent conservativeness of the model and to estimate the worst-case
516 modeled sound levels.

517

18 **Q. Please discuss the sound barrier around the Project substation transformers.**

519 A. Badger Wind plans to construct a 15-foot-tall two-sided sound barrier on the south
520 and east sides of the two substation transformers. This sound barrier was included
521 in the updated sound modeling analysis. The sound barrier will minimize sound
522 emissions from the transformers.

523

524 **Q. What receptors were included and how were they identified?**

525 A. The receptors in the sound modeling analysis included inhabited residences and
526 community buildings, as those are the receptors identified in the PSC's applicable
527 sound regulation, within one mile of a Project turbine or substation transformer. As
528 discussed above, receptors were identified by Badger Wind via a combination of
529 publicly available aerial imagery, field reconnaissance on the site, collecting GPS
530 locations, and getting feedback from landowners. As a result, 44 receptors (including
531 38 inhabited residences and six community buildings) were identified and included in
532 the analysis as receptors. One inhabited residence (Receptor 3) that was included in
33 the updated shadow flicker analysis and Receptor Chart was not included in the
534 updated sound analysis because it is not located within one mile of a Project turbine
535 or substation transformer.

536

537 **Q. Please summarize the results of the updated sound modeling analysis.**

538 A. Based on the updated sound modeling analysis conducted, seven inhabited
539 residences were modeled above 45 dBA within 100 feet of the residence. The owners
540 of six of these inhabited residences are participants in the Project and have signed
541 wind energy lease agreements and easements that waive the sound requirement (see
542 Appendix J to the Application, proposed **BW Exhibit 1**). Badger Wind obtained a
543 waiver from the owner of the remaining one inhabited residence (a non-participant),
544 which is included in proposed **BW Exhibit 6**.

545

546 For all other inhabited residences and community buildings, the modeled sound level
547 within 100 feet of the receptor is at or below 45 dBA. As a result, the Project will
548 comply with the PSC's sound requirement.

549

550 **Q. If a different turbine model were ultimately selected for the Project, would**
551 **Badger Wind conduct an updated sound modeling analysis?**

552 A. Yes, if a different turbine model were selected for the Project, Badger Wind would
553 have an updated sound modeling analysis conducted to ensure continued compliance
554 with the PSC's sound level requirement.

555

556 **IX. SHADOW FLICKER REPORT**

557

558 **Q. What is shadow flicker?**

559 A. Like any tall structure, wind turbines cast a shadow when the sun is visible. When the
560 wind turbine blades rotate and pass in front of the sun, a flickering or flashing effect
561 may occur when the shadows of the rotating blades cause alternating changes in light
562 intensity at a given stationary location, a receptor, such as the window of a home. This
563 recurring change in light intensity is known as shadow flicker.

564

565 Shadow flicker occurs only under very specific conditions. For example, shadow
566 flicker can only occur when the sun is shining and the turbine is in operation (i.e., when
567 the turbine blades are rotating). Moreover, shadow flicker is generally most notable
568 when a turbine is facing a receptor, as this results in the widest-possible shadow being
569 cast.

570

571 Shadow flicker intensity and frequency at a given receptor are determined by a
572 number of interacting factors, such as sun position, wind direction, turbine locations,
573 receptor locations, terrain, and time of day. The intensity of shadow flicker varies
574 significantly with distance, and as separation between a turbine and receptor
575 increases, shadow flicker intensity will generally diminish as shadows diffuse and
576 become imperceptible.

577

78 **Q. Are you aware of any federal, state, or local shadow flicker regulations for the**
579 **Project?**

580 A. Shadow flicker is not currently regulated in applicable federal, state, or local law.

581

582 Although the PSC does not have a shadow flicker requirement specified in statute or
583 rule, the PSC typically expects applicants to limit shadow flicker at occupied
584 residences to 30 hours per year or less, unless the owner of the residence grants a
585 waiver. Badger Wind has designed the Project to comply with the industry standard
586 of 30 hours per year or less of shadow flicker at non-participating and participating
587 occupied residences, absent a waiver.

588

589 **Q. Was a shadow flicker analysis conducted for the Project?**

590 A. Yes. Badger Wind retained DNV to conduct a shadow flicker analysis to determine if
591 the Project would comply with Badger Wind's voluntary commitment. DNV conducted
592 a shadow flicker analysis for the preliminary Project layout, and the associated report
593 was submitted as Appendix F to the Application (see proposed **BW Exhibit 1**). DNV
594 conducted an updated shadow flicker analysis for the current Project layout, and the
595 report was filed with the PSC on June 8, 2022 (see Updated Shadow Flicker Analysis
596 Report, proposed **BW Exhibit 7**). The methodology used and the assessment results
597 are detailed in each report.

598

599 **Q. What assumptions were included in the model?**

600 A. The shadow flicker modeling was performed using a conservative approach, with
601 some Project Area-Specific conditions. For example, the model utilizes a
602 "greenhouse" approach which models each receptor as having windows on all sides
603 and effectively causing the home to be susceptible to flicker effects in all directions.
604 The model utilizes topography data to place turbines and receptors at the proper
605 elevation.

606

607 Obstacles located between a receptor and a turbine, such as vegetation or buildings,
608 may reduce or eliminate the duration and/or intensity of shadow flicker. The modeling

609 did not include any vegetation or other shielding effects (physical barriers) around
610 receptors.

611

612 Additionally, the modeling assumes that wind turbines at all 79 potential turbine
613 locations are operational. However, only up to 74 turbines will be constructed. The
614 model also assumes that the turbines are always spinning, which is very conservative.

615

616 **Q. Does the updated shadow flicker analysis include results for an “expected
617 case” and an “astronomical worst case”?**

618 A. Yes. The “expected case” takes into account the average monthly cloud cover and
619 the site-specific wind direction distribution in order to get a more realistic estimate;
620 however, the “expected case” is still conservative because the other conservative
621 assumptions (discussed above) are applied.

622

623 The “astronomical worst-case” represents the number of hours of annual shadow
624 flicker that does not take into account attenuating factors, such as cloud cover or the
625 site-specific wind rose. The “astronomical worst-case” is unrealistic because it
626 assumes situations that are nearly impossible to occur in reality. For example, the
627 impact of cloud cover and wind direction will significantly reduce shadow flicker
628 events. For instance, there is at least 43.5 percent cloud cover for any given month
629 during the year where shadow flicker will not occur. In terms of wind direction, shadow
630 flicker events are unlikely when the turbine rotor is parallel to the line of sight between
631 house and receptor, which is related to wind direction. The astronomical worst-case
632 model assumes a fictitious spherical rotor that simultaneously faces all houses, and
633 ignores the influence of wind direction. It is important to take both these effects into
634 account and both are included in the expected case analysis.

635

636 **Q. What turbine model and locations were used for the shadow flicker analysis?**

637 A. The shadow flicker analysis was conducted using GE 3.4 MW turbines with 140-meter
638 rotor diameters (approximately 459.3 feet), 98-meter hub heights (approximately

39 322.5 feet), and fitted with LNTE. Although only up to 74 turbine locations would be
640 constructed, all 79 potential turbine locations were modeled.

641

642 **Q. What receptors were included in the analysis?**

643 A. The receptors in the shadow flicker analysis included inhabited residences within
644 5,512 feet of a Project turbine. Thirty-nine receptors (inhabited residences) were
645 identified and included in the analysis as receptors. These are the same 38 inhabited
646 residences (both participating and non-participating) identified for the sound analysis,
647 plus one additional inhabited residence (Receptor 3) located within 5,512 feet of a
648 Project turbine.

649

650 **Q. Please summarize the results of the updated shadow flicker analysis.**

651 A. Based on the updated shadow flicker analysis conducted, one inhabited residence is
652 expected to experience more than 30 hours per year of shadow flicker. The maximum
653 modeled shadow flicker (hours per year) is 38 for participating residences and 25 for
54 non-participating residences. Additionally, 30 of the 39 residences have ten or less
654 hours of modeled shadow flicker.

655

656
657 **Q. Has Badger Wind obtained a shadow flicker waiver from the owners of the
658 inhabited residence with modeled shadow flicker above 30 hours per year?**

659 A. Yes. The owner of this inhabited residence is a participant in the Project and has
660 signed a wind energy lease agreement and easement that includes a shadow flicker
661 objection waiver (see Appendix J to the Application, proposed **BW Exhibit 1**).
662 Accordingly, the Project will comply with Badger Wind's voluntary commitment of 30
663 hours per year or less of shadow flicker at non-participating and participating occupied
664 residences, absent a waiver.

665

666 **Q. If a different turbine model were ultimately selected for the Project, would
667 Badger Wind conduct an updated shadow flicker analysis?**

668 A. Yes, if a different turbine model were selected for the Project, Badger Wind would
669 have an updated shadow flicker analysis conducted to ensure compliance with
670 Badger's Wind's voluntary shadow flicker commitment.

671

672 **Q. Do existing wind farms impact the sound and shadow flicker modeling analyses**
673 **for the Project?**

674 A. No. There are no operational wind farms near the Project.

675

676 **X. EXISTING INFRASTRUCTURE**

677

678 **Q. Was a microwave beam path study conducted for the Project Area?**

679 A. Yes. Badger Wind conducted a study identifying microwave beam paths and towers
680 in the Project Area, and a copy of the study is included in Appendix C to the Application
681 (proposed **BW Exhibit 1**).

682

683 **Q. Do Project facilities avoid all microwave beam paths?**

684 A. Yes. One microwave tower is in the Project Area. There are two microwave beam
685 paths between the City of Forbes and City of Wishek that overlap the Project Area
686 (see updated Figure 8, proposed **BW Exhibit 2**). Badger Wind sited the Project's
687 turbines to avoid the identified microwave beam paths.

688

689 **Q. Was an off-air television report conducted for the Project Area?**

690 A. Yes. Badger Wind conducted a study identifying off-air television stations within 150
691 kilometers of the proposed turbines. The study also examined the coverage of the
692 stations and the communities in the area that could potentially have degraded
693 television reception due to the location of the proposed wind turbines. A copy of the
694 study is included in Appendix C to the Application (proposed **BW Exhibit 1**).

695

696 **Q. Was a baseline TV reception analysis conducted for the Project Area?**

697 A. Yes. At the request of PSC Staff, Badger Wind conducted an analysis of the baseline
698 (existing) TV reception around the Project Area (proposed **BW Exhibit 17**).

99

700 **Q. Will the Project avoid impacts to off-air television stations?**

701 A. As discussed in the Off-Air TV Analysis (proposed **BW Exhibit 1**, Appendix C) and
 702 TV Signal Baseline Measurements Report (proposed **BW Exhibit 17**), five full-
 703 powered, licensed, and operating digital TV stations within 150 kilometers of the
 704 Project turbines may have their reception disrupted in and around the Project. The
 705 areas primarily affected would include TV service locations within 10 kilometers of the
 706 turbines that have clear line-of-sight to a proposed wind turbine but not to the
 707 respective station. However, modern digital TV receivers have undergone significant
 708 improvements to mitigate the effects of signal scattering, which limits the likelihood
 709 that disruptions to digital TV would occur. If residents who rely on antennas
 710 experience signal disruption as a result of the Project, Badger Wind will coordinate
 711 with the resident to mitigate the disruption. TV reception at residences relying on
 712 cable or satellite TV service will not be impacted by construction or operation of the
 713 Project.

14

715 **Q. Does the Project comply with the recommended avoidance distances in the**
 716 **Telecommunication Studies conducted for the Project (proposed **BW Exhibit 1**,**
 717 **Appendix C)?**

718 A. Yes. The Federal Communications Commission ("FCC") requires that turbines are
 719 setback at least 77.5 meters from land mobile stations. Badger Wind will comply with
 720 this setback requirement. Impacts to communication systems are not anticipated.

721

722 **Q. Did you consider existing infrastructure in Project design?**

723 A. Yes. In addition to applying required setbacks from specified structures, Badger Wind
 724 has designed the Project to avoid impacts to other existing infrastructure, including
 725 domestic, stock, industrial, and observational water wells and oil and gas wells and
 726 storage tanks. For example, Badger Wind has voluntarily sited turbines 168 meters
 727 (approximately 551 feet) (turbine tip height) away from inactive oil and gas wells in the
 728 Project Area; no active oil and gas wells were identified within the Project Area. Prior
 729 to and during construction, Badger Wind will continue to coordinate with existing

730 infrastructure owners to ensure compatibility between the Project and existing
731 infrastructure.

732

733 **XI. ENGINEERING AND OPERATIONAL DESIGN**

734

735 **Q. Will the collection system be installed underground?**

736 A. Yes, with the exception of any required above-ground junction boxes, the collection
737 system will be installed underground.

738

739 **Q. Please describe the foundations that will be constructed for the turbines.**

740 A. Final size and design for foundations are dependent on geotechnical analyses and
741 turbine model selection, but it is estimated that the foundation will be approximately
742 65 feet in diameter and seven to 13 feet in depth.

743

744 **Q. How wide will the access roads be?**

745 A. During construction, access roads will be up to 100 feet wide. After construction, the
746 permanent access roads will be approximately 16 feet wide.

747

748 **Q. What light mitigation technology will be used for the Project?**

749 A. The Project will utilize a light-mitigating technology that is consistent with applicable
750 requirements, subject to FAA approval. Badger Wind will coordinate with the FAA on
751 potential implementation of an ADLS for the Project. Lighting would be installed on
752 wind turbines in accordance with FAA requirements.

753

754 **Q. What is your understanding of how ADLS functions once activated?**

755 A. ADLS is a sensor-based system designed to detect aircraft as they approach an
756 obstruction or group of obstructions. The system will function by monitoring the area
757 near the Project (typically within three nautical miles) for aircraft. When an aircraft is
758 detected in proximity to the Project, the FAA lights will automatically turn on until they
759 are no longer needed by the aircraft (e.g., the aircraft clears the area).

760

61 **Q. With respect to the light mitigation technology to be used for the Project, has**
762 **FAA approval been obtained?**

763 A. Badger Wind has not yet filed for ADLS FAA approval because Badger Wind has not
764 yet selected the turbine(s), which is an important element to the ADLS. Badger Wind
765 will seek the necessary FAA approval once the final turbine model(s) has been
766 selected.

767

768 **XII. PROJECT CONSTRUCTION**

769

770 **Q. Discuss the personnel that will be involved in construction of the Project.**

771 A. The Project is expected to employ up to 400 temporary workers, both skilled and
772 unskilled, to support Project construction.

773

774 **Q. Please describe the temporary facilities that will be required for construction of**
775 **the Project.**

776 A. The temporary facilities that will be required for the construction phase of the Project
777 include a three-acre temporary batch plant, a 15-acre laydown yard for construction
778 offices, a seven-acre multi-purpose laydown area to support the Project's construction
779 activities, a temporary ten-acre marshaling yard to assist with logistics during turbine
780 component deliveries, crane paths, and temporary intersection and road modifications
781 to facilitate turbine component delivery. Following construction, temporarily impacted
782 areas will be restored to pre-construction conditions to the extent practicable, in
783 accordance with landowner agreements.

784

785 **Q. Please provide an overview of Project construction.**

786 A. A variety of activities must be completed to carry the Project through construction.
787 Prior to commencement of construction, Badger Wind will prepare detailed
788 engineering design plans of the Project electrical components, Project substation,
789 access roads, and turbine foundations. During the construction phase, Badger Wind
790 will prepare construction areas; construct access roads and install collection lines;
791 construct the Project substation; construct permanent MET towers; install tower

792 foundations and associated electrical transformers; and erect towers and set turbines.
793 Upon completion of construction, heavy equipment will be removed from the Project.
794 Following completion of construction, Badger Wind will restore disturbed areas not
795 intended for permanent aboveground facilities, test Project facilities, and begin
796 commercial operation.

797

798 **XIII. PROJECT OPERATION AND MAINTENANCE**

799

800 **Q. Discuss the personnel that will be involved in the operation and maintenance of**
801 **the Project.**

802 A. Badger Wind will employ up to 10 full-time workers during operations.

803

804 **Q. Will there be routine, scheduled inspections of the Project to ensure it is**
805 **operating appropriately?**

806 A. Yes. Following construction, the Project will undergo detailed inspection and testing
807 procedures before becoming operational. Inspection and testing will occur for each
808 component of the wind turbines, as well as the associated communication,
809 meteorological, collection and Supervisory Control and Data Acquisition ("SCADA")
810 systems. Once operational, the Project will undergo routine inspections consistent
811 with industry standards. For more information on these routine inspections, see
812 Section 5.3.3 of the Application.

813

814 **Q. How will the Project be monitored between inspections?**

815 A. The Project will be monitored by operations staff via a SCADA system. The SCADA
816 system provides information on generation, availability, meteorological conditions,
817 and communications for each turbine, allowing for remote monitoring, reporting,
818 troubleshooting, and control of turbine equipment and performance. The SCADA
819 system enables constant monitoring of the Project and transmission of alerts of
820 communication errors to a remote operations center. Permanent operations staff will
821 perform maintenance and service for the Project with the aid of this system.

822

23 **Q. Will the Project be designed, constructed and operated in compliance with all**
824 **applicable federal, state, and local regulations?**

825 A. Yes.

826

827 **XIV. ONE-CALL/EMERGENCY RESPONSE**

828

829 **Q. Will the Project participate in the North Dakota One-Call program, both prior to**
830 **construction and as a facility owner once the Project is constructed?**

831 A. Yes.

832

833 **Q. What steps will the Project take to prepare for a potential emergency situation**
834 **at the Project site?**

835 A. Badger Wind has developed an initial Emergency Response Plan (see proposed **BW**
836 **Exhibit 16**). The plan will be finalized in close coordination with emergency service
837 providers and will conform to manufacturer and vendor safety information for the
38 specific equipment installed at the Project, upon selection.

o39

840 **XV. DECOMMISSIONING AND RESTORATION OF PROJECT AREA**

841

842 **Q. Discuss the estimated life of the Project, and decommissioning and restoration**
843 **of the Project site.**

844 A. The estimated life of the Project is 30 years; however, the Project may extend beyond
845 30 years, particularly if the technology is upgraded. Badger Wind will file a
846 decommissioning plan for review by the PSC prior to the commencement of
847 operations and comply with the applicable financial assurance provisions. When the
848 Project is decommissioned, Badger Wind will restore the site in accordance with the
849 PSC's and Logan County's decommissioning requirements.

850

851 **XVI. PROJECT BENEFITS**

852

o53 **Q. What are some of the benefits of the proposed Project?**

854 A. The Project offers participating landowners the opportunity to generate additional
855 income with minimal disruption to their existing agricultural use, allowing these
856 landowners to diversify their agricultural operations, and provides a steady income
857 source. Additionally, the Project will generate tax revenue both locally and for the
858 State. Over the 30-year life of the Project, Badger Wind would pay approximately
859 \$35.1 million to state and local taxing authorities (including approximately \$11.7 million
860 to the State of North Dakota, approximately \$7 million to the Logan County general
861 fund and approximately \$9.1 million to Wishek #19 School District). The Project will
862 also provide temporary and long-term employment opportunities. Further, the Project
863 is anticipated to increase spending/revenue in the vicinity of the Project due to
864 increased demand for lodging, food services, fuel, and general supplies. Finally, the
865 Project provides an additional renewable energy source and increases the capacity of
866 the regional electric grid.

867

868 **XVII. PERMITS AND APPROVALS**

869

870 **Q. Are other permits besides the Certificate of Site Compatibility required for this**
871 **Project?**

872 A. Yes. Potential permits and approvals for the Project were identified in Table 7-1 of
873 the Application, and an updated version of that table is provided as proposed **BW**
874 **Exhibit 4**.

875

876 **Q. Please discuss the permit and approval updates provided in proposed BW**
877 **Exhibit 4**.

878 A. The table provided as proposed **BW Exhibit 4** was updated to reflect that Logan
879 County approved Badger Wind's conditional use permit/wind energy facility siting
880 permit application on May 11, 2022 (see proposed **BW Exhibit 18**).

881

882 **Q. Does the Project need to obtain zoning permits from McIntosh County?**

883 A. No. As explained in a letter from the McIntosh County Board of Commissioners,
884 McIntosh County has not enacted a zoning ordinance; as such, the Project will not

85 require any zoning permits/approvals from McIntosh County (see proposed **BW**
886 **Exhibit 1**, Appendix D).

887

888 **Q. Is a conditional use permit required from any of the townships?**

889 A. No. According to a letter from the McIntosh County Board of Commissioners, the
890 Project is not located within any townships in McIntosh County that have their own
891 zoning ordinances (see proposed **BW Exhibit 1**, Appendix D). Additionally, as
892 explained in a letter from Red Lake Township, Red Lake Township has not enacted a
893 zoning ordinance; as such, the Project will not require any zoning permits/approvals
894 from Red Lake Township (see proposed **BW Exhibit 23**).

895

896 **Q. Has Badger Wind committed to obtaining all necessary federal, state, county,**
897 **and township permits?**

898 A. Yes.

899

900 **XVIII. CERTIFICATION RELATING TO ORDER PROVISIONS FOR WIND ENERGY**
901 **CONVERSION FACILITY SITING**

902

903 **Q. Has Badger Wind provided a signed Certification Relating to Order Provisions**
904 **for Wind Energy Conversion Facility Siting, with accompanying Tree and Shrub**
905 **Mitigation Specifications?**

906 A. Yes. Proposed **BW Exhibit 27** is the Certification, signed by Philip C. Moore on behalf
907 of Badger Wind. Mr. Moore has the authority to bind Badger Wind with respect to
908 adhering to the Certification.

909

910 **Q. Please discuss the changes Badger Wind is proposing to paragraph 20 of the**
911 **Certification.**

912 A. Badger Wind has included proposed changes to paragraph 20 of the Certification to
913 clarify the provision. These changes are consistent with certifications in prior siting
914 dockets.

915

916 **XIX. CONCLUSION**

917

918 **Q. Based on the studies and analyses conducted, and the testimony you have**
919 **presented today, what are some of the conclusions Badger Wind has reached**
920 **regarding the proposed Project?**

921 A. Badger Wind has sited the Project to comply with applicable local zoning and the
922 PSC's siting requirements, as well as to minimize potential impacts to existing land
923 uses, cultural resources, natural resources, and existing infrastructure. The Project
924 also has strong landowner and community support and will provide significant benefits
925 to the local community and the state. Therefore, Badger Wind respectfully requests
926 that the PSC issue a Certificate of Site Compatibility for the Project.

927

928 **Q. Does this conclude your Testimony?**

929 A. Yes.

930