

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

**KEITH AND DEANNA KESSLER
V.
MINNESOTA POWER, A DIVISION OF ALLETE, INC.**

CASE NO. PU-20-194

**PRE-FILED TESTIMONY OF BARRY GARTNER
ON BEHALF OF MINNESOTA POWER**

March 8, 2021

1 **I. INTRODUCTION AND QUALIFICATIONS**

2

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

4 A. My name is Barry Gartner. I am a Project Development Leader for Minnesota
5 Power, a division of ALLETE, Inc. ("Minnesota Power"). My business address is 30
6 West Superior Street, Duluth, MN 55802.

7

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

9 A. I have been with Minnesota Power since January 2013. In my role as Project
10 Development Leader, I develop, screen, and implement projects and strategies that
11 support Minnesota Power's short and long-term plans. This involves assessing
12 project opportunities, including monitoring new technology developments and
13 industry trends; providing analytical and technical services for potential energy
14 projects; and managing projects through the development process, including
15 negotiating key project contracts.

16

17 Before joining Minnesota Power, I was a systems engineering supervisor at Xcel
18 Energy's Prairie Island Nuclear Generating Plant. Prior to working at Xcel Energy, I
19 was in various engineering and project management roles at Northwest Airlines and
20 Boeing Commercial Aircraft Company.

21

22 I have a Bachelor of Science in Mechanical Engineering from North Dakota State
23 University in Fargo, ND and a M.B.A. from the University of Minnesota, Minneapolis,
24 MN. A copy of my resume is provided as proposed **MP Exhibit 2-1**.

25

26 **II. PURPOSE OF TESTIMONY**

27

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

29 A. The purpose of my testimony is to discuss my role with respect to the Bison 4 Wind
30 Project ("Project") as it relates to the issues identified in the North Dakota Public
31 Service Commission's ("PSC") Notice of Hearing, including:

- 32 • Developing the turbine layout presented during the Certificate of Site
33 Compatibility Application (“CSC Application”) process;
34 • Identifying occupied residences for the CSC Application process; and
35 • Attending/testifying at the public hearing on the CSC Application.
36

37 **Q. What proposed hearing exhibits are provided with your testimony?**

38 A. The following proposed hearing exhibits accompany my testimony:

- 39 • MP Exhibit 2-1: Gartner Resume
40 • MP Exhibit 2-2: Exhibit 4 Exclusion and Avoidance Areas (from the CSC
41 Application)
42 • MP Exhibit 2-3: Exhibit 2 Exclusion and Avoidance Areas (part of the
43 supplemental materials filed with the PSC on August 7, 2013 and provided as
44 Exhibit 2 at the public hearing on September 13, 2013)
45 • MP Exhibit 2-4: Portions of the 2011 Oliver County Plat Book & Directory
46 • MP Exhibit 2-5: September 13, 2013 PSC Public Hearing Sign In Sheet
47 • MP Exhibit 2-6: Transcript of September 13, 2013 PSC Public Hearing
48

49 **III. PROJECT ROLE**

50
51 **Q. Please describe your role with respect to the Project.**

52 A. When I started with Minnesota Power in 2013, I took over the role of manager for the
53 Project. As Project manager, I coordinated with external consultants and internal
54 Minnesota Power teams (e.g., real estate, environmental, and engineering) to
55 design, permit, and construct the Project. With respect to the CSC Application
56 process, I provided design, turbine, and layout-related information, including the
57 location of occupied residences. I also testified on behalf of Minnesota Power at the
58 September 13, 2013 public hearing held by the PSC on the CSC Application.
59

60 **IV. PROJECT LAYOUT DEVELOPMENT**

61

62 **Q. Were you involved in development of the Project layout filed with the**
63 **Commission on August 7, 2013 and included in public hearing Exhibit 2 in**
64 **Case No. PU-13-127?**

65 A. Yes.

66

67 **Q. What process did Minnesota Power use to develop the Project layout?**

68 A. Our initial step was to identify preliminary layouts for the various turbine models
69 under consideration that complied with applicable siting, engineering, and
70 constructability requirements based on desktop analysis and available site-specific
71 data. The next step was to conduct micro-siting to optimize the designs, confirm
72 avoidance of sensitive resources, and ensure constructability. As part of the micro-
73 siting process, a team of internal Minnesota Power personnel and external
74 consultants (including Westwood, EAPC, Merjent, and Ulteig) visited each proposed
75 turbine location to gather site-specific data. Additionally, wetland/waterbody and
76 cultural resource field surveys were conducted (by WEST and Merjent). The site-
77 specific data was then used to adjust the designs, as needed. Once the turbine
78 model was selected, sound and shadow flicker modeling was conducted (by EAPC)
79 to confirm compliance with the PSC's sound requirement and shadow flicker
80 recommendation.

81

82 **Q. Is Turbine 441 the turbine location closest to the structure in Section 15,**
83 **Township 141 North, Range 87 West, Oliver County, North Dakota ("Section 15**
84 **Structure")?**

85 A. Yes.

86

87 **Q. Did you visit the proposed site of Turbine 441 during micro-siting?**

88 A. Yes, the micro-siting team visited each of the 83 proposed turbine locations,
89 including the proposed location of Turbine 441, during our micro-siting visit.

90

91 **Q. When did the micro-siting site visit occur?**

92 A. The micro-siting site visit occurred over four days, May 14-17, 2013.

93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121

V. IDENTIFICATION OF OCCUPIED RESIDENCES

Q. Did Minnesota Power identify occupied residences in the Project vicinity for the CSC Application?

A. Yes. Occupied residences were identified in Exhibit 4 Exclusion and Avoidance Areas, which was an appendix to the CSC Application (attached hereto as **MP Exhibit 2-2**). Additionally, occupied residences were included in the updated Exclusion and Avoidance Areas map labeled as Exhibit 2 in the supplemental materials filed with the PSC on August 7, 2013, which were also provided as public hearing Exhibit 2 (attached hereto as **MP Exhibit 2-3**).

Q. What are the differences between Exhibit 4 Exclusion and Avoidance Areas provided with the CSC Application, and the updated Exhibit 2 Exclusion and Avoidance Areas provided with the supplemental materials/hearing exhibit?

A. The main differences between Exhibit 4 to the CSC Application and Exhibit 2 presented in the supplemental materials and at the public hearing are as follows:

- The Project boundary was reduced in Exhibit 2;
- Occupied residences that were no longer within the Project boundary were removed from Exhibit 2;
- The locations of Project turbines, a meteorological tower, and access roads were added to Exhibit 2; and
- Cultural sites, National Gap Analysis Program (“GAP”) Landcover Prairie, and Areas of Prairie Farmland were removed from Exhibit 2.

Q. Were you involved in identifying the occupied residences shown in MP Exhibits 2-2 and 2-3?

A. Yes.

122 **Q. How were occupied residences identified?**

123 A. We initially identified occupied residences based on information gathered for the
124 prior Bison Wind Projects 1-3, information provided in the 2011 Oliver County Plat
125 Book & Directory (“Plat Book”), and review of satellite imagery. Additionally, during
126 the micro-siting site visits, we looked at structures in the vicinity of the proposed
127 turbine locations to see if they were occupied.

128

129 **Q. Did you confirm that all occupied structures depicted in MP Exhibits 2-2 and 2-
130 3 were, in fact, occupied?**

131 A. No. If a structure was identified as occupied in the Plat Book or had been previously
132 identified as occupied in connection with development of the prior Bison Wind
133 Projects 1-3, we identified the structure as occupied. There were no conflicts
134 between the Project design and the occupied residences identified, so based on that
135 information, there wasn’t a concern that would have led us to question further
136 whether each residence was, in fact, occupied. As a result, we knew that we were
137 likely being over-inclusive when we identified occupied structures.

138

139 **Q. Was the structure in Section 15, Township 141 North, Range 87 West, Oliver
140 County, North Dakota (“Section 15 Structure”) identified as an occupied
141 residence?**

142 A. No.

143

144 **Q. Why did you determine the Section 15 Structure was not occupied?**

145 In my view, the Section 15 Structure was not occupied. The Section 15 Structure
146 was not shown as occupied in the Plat Book, relevant portions of which are attached
147 hereto as **MP Exhibit 2-4**. The Plat Book maps include the following information:
148 “Farmsteads with livable buildings are indicated with an asterisk (*) and the name of
149 the current resident is listed next to the asterisk.” (See **MP Exhibit 2-4**, page 3.) A
150 resident name was not listed for the Section 15 Structure. I also reviewed satellite
151 imagery, which did not indicate the Section 15 Structure was occupied. Further,

152 nothing our team identified in the field led us to believe the Section 15 Structure was
153 occupied.

154

155 **Q. Were there instances on this Project where someone with Minnesota Power**
156 **asked you to confirm compliance with siting requirements because of**
157 **something they saw on site?**

158 A. Yes. As an example, Matt Freudenrich asked me to confirm that the occupied
159 residence setback distance was met for Turbine 463 after driving by that turbine
160 location and the Aasmundstad place, which I did confirm.

161

162 **Q. What setback requirements applied to the Project with respect to occupied**
163 **residences?**

164 A. Neither the PSC nor the County had a specified setback from occupied residences
165 at the time the Project was permitted. However, the PSC had a sound requirement
166 limiting sound levels to 50 dBA within 100 feet of an inhabited residence or
167 community building. Additionally, at the request of PSC Staff, Minnesota Power
168 voluntarily committed to a 1,400 foot setback from occupied residences. Minnesota
169 Power also designed the Project to comply with the PSC's recommended shadow
170 flicker limit of 30 hours per year at occupied residences.

171

172 **Q. When you identified occupied/inhabited residences, what definition did you**
173 **use?**

174 A. Neither occupied residence nor inhabited residence are defined in PSC statute or
175 rules, so there wasn't a specific definition to apply. As noted above, we carried-over
176 some "occupied residence" designations from prior projects, and we included
177 structures identified as inhabited per the Plat Book. As to other structures, we took a
178 common sense approach and tried to identify each residential structure where
179 someone was living (i.e., their home) as an "occupied residence."

180

181 **VI. PSC PUBLIC HEARING**

182

183 **Q. Prior to the public hearing, did Minnesota Power provide information to**
184 **participating landowners about the proposed Project layout?**

185 A. Yes. On August 9, 2013, Minnesota Power sent a letter to participating landowners,
186 which informed them of the public hearing on the CSC Application, stated that a map
187 of the Project layout was available on the PSC's website, and provided the website
188 address and case number. The letter also provided contact information for the
189 Project's right-of-way agents, Wade Isaacson and Scott Monroe. A copy of this
190 letter was included in the supplemental materials filed on August 7, 2013 and
191 provided as Exhibit 2 at the September 13, 2013 public hearing, and is provided as
192 **MP Exhibit 5-2** to the Direct Testimony of Todd Simmons.

193
194 **Q. You indicated above that you attended and testified at the public hearing**
195 **conducted by the PSC on the CSC Application, is that correct?**

196 A. Yes.

197
198 **Q. Attached as MP Exhibit 2-5 is the public hearing sign in sheet filed in Case No.**
199 **PU-13-127. To your knowledge, does the sign in sheet identify the Minnesota**
200 **Power employees who attended the hearing?**

201 A. Yes.

202
203 **Q. On September 13, 2013, did you speak with Keith or Deanna Kessler**
204 **("Kesslers") before, during, or after the public hearing?**

205 A. No.

206
207 **Q. Have you reviewed the transcript of the public hearing?**

208 A. Yes.

209
210 **Q. Based on your recollection of the public hearing and your review of the**
211 **transcript of the same, to your knowledge, did the Kesslers speak with any**
212 **Minnesota Power employees before, during, or after the public hearing?**

213 A. Mr. Kessler testified during the public hearing about concerns related to an
214 underground water line, weed and vegetation management along roads, and access
215 road placement. Matt Freudenrich, who was with Minnesota Power at the time,
216 responded on the record to the concern regarding the underground water line, noting
217 that Minnesota Power would work with the landowners to avoid impacts, and would
218 be responsible if any impact did occur. Other than that exchange, I am not aware of
219 the Kesslers speaking with any Minnesota Power employees on September 13,
220 2013. A copy of the public hearing transcript is provided as **MP Exhibit 2-6** to my
221 testimony.

222

223 **Q. Did either of the Kesslers testify at the September 13, 2013 public hearing**
224 **regarding a concern about the placement of any turbines, including Turbine**
225 **441?**

226 A. No.

227

228 **Q. Did either of the Kesslers testify at the September 13, 2013 public hearing**
229 **regarding the Section 15 Structure?**

230 A. No.

231

232 **Q. Prior to the PSC's issuance of an Order granting a Certificate of Site**
233 **Compatibility to the Project on September 25, 2013 ("Order"), were you aware**
234 **of any planned use by the Kesslers or their sons of the Section 15 Structure?**

235 A. No.

236

237 **Q. Had you known the Kesslers' son planned to live in the Section 15 Structure**
238 **prior to issuance of the PSC Order, would that have factored into the Project's**
239 **design?**

240 A. Yes. Minnesota Power tries to work with landowners to avoid conflicts on wind
241 projects, as they are long-term assets that depend on a partnership with the
242 landowners. To that end, even though the Section 15 Structure wasn't occupied or

243 inhabited in 2013, if I had known there were plans for someone to live in the
244 structure in the future, I would have factored that into the design.

245

246 **Q. When was the Project constructed and operational?**

247 A. Construction of the Project started in late September 2013, continued through 2014,
248 and the Project began commercial operations in January 2015.

249

250 **Q. When did you first learn the Kesslers had a concern regarding the placement
251 of Turbine 441 in relation to the Section 15 Structure?**

252 A. I first learned of a concern regarding the placement of Turbine 441 in relation to the
253 Section 15 Structure in 2017. In February 2017, I learned that Mr. Kessler had just
254 informed Minnesota Power his son was living at the Section 15 Structure near
255 Turbine 441 and had indicated a concern regarding noise.

256

257 **VII. CONCLUSION**

258

259 **Q. Does this conclude your Direct Testimony?**

260 A. Yes.

261

Barry J Gartner

EDUCATION

Bachelor of Science, Mechanical Engineering – North Dakota State University, Fargo, ND, 1986

M.B.A., Strategy and Operations – University of Minnesota, Minneapolis, MN, 1999

PROFESSIONAL EXPERIENCE

MINNESOTA POWER – Duluth, MN

1/2013 – Present

Project Development Leader

Develop, screen, and implement projects and strategies that support short and long-term company plans. Provide analytical and technical services for energy project analysis, opportunity assessment, company generation development, and customer project support. Monitor new technology developments and industry trends. Manage projects through the development process and negotiate key project contracts.

- Project developer and project manager for the 200 MW Bison 4 Wind Project. Led negotiations for Turbine Supply Agreement and the Service and Maintenance Agreement.
- Negotiated Long Term Service Agreement for the Bison Wind Energy Center.
- Led Hydro Optimization Study to understand economics of individual hydropower facilities.
- Negotiated amendments to Power Purchase Agreements for repowering NextEra’s 100 MW Oliver County Wind Projects, providing Minnesota Power with cost savings and contract extensions.
- Led the 2016 Wind RFP and negotiations for a 250 MW Power Purchase Agreement, providing 1 million MWh annually.
- Developed innovative ownership structure and coordinated partnership discussions with Tenaska, resulting in ALLETE purchasing an ownership stake in the 250 MW Nobles 2 Wind Project.
- Technical and operations subject matter expert for obtaining tax equity financing for ALLETE’s share of the Nobles 2 Wind Project.

XCEL ENERGY – Prairie Island Nuclear Generating Plant – Welch, MN

9/2010 – 12/2012

Systems Engineering Supervisor, Balance of Plant

Supervised a team of seven system engineers responsible for the mechanical equipment used in power generation totaling over 1,100 MW. Duties included performing causal analysis, supporting work management, reviewing engineering products, and reinforcing safety standards. Monitored equipment performance and drove improvements in reliability and safety. Optimized equipment maintenance programs and developed life cycle management plans.

NORTHWEST AIRLINES – St. Paul, MN

5/1990 – 11/2009

Project Manager, Technical Projects

4/2009 – 11/2009

Identified and implemented cost reduction opportunities that resulted from the merger of Northwest Airlines and Delta Airlines. Focused on engine and component maintenance programs and processes. Coordinated efforts of Engineering, Production, Planning, and Supply Chain.

- Analyzed opportunity and wrote proposal for swapping life limited parts between two different gas turbine engine models, saving \$43M over five years. Led cross-functional team in developing operational procedures for implementation.

NORTHWEST AIRLINES – continued

Director Ramp Standards

9/2005 – 3/2009

Directed a team of seven managers. Controlled all ramp policies and procedures affecting 4,000 employees at 120 stations worldwide. Managed aircraft deicing, cleaning, and emergency response programs. Led initiatives to improve safety, reliability, and quality.

- Developed and implemented \$10M initiative to substantially improve aircraft interior cleaning performance, resulting in a 40% reduction in customer complaints.
- Implemented automation changes to the flight load entry process, reducing load errors by 44%.
- Created a project manager function to lead and coordinate major Ground Operations projects.

Project Engineer, Technology/Process Automation

9/2004 – 8/2005

Researched and developed technologies for luggage, aircraft, and passenger handling to improve labor productivity and customer service. Evaluated mature and emerging technologies. Performed financial and operational feasibility analysis.

- Identified opportunity, evaluated technical feasibility, and wrote business case to install automated luggage handling systems on 757 aircraft, improving labor efficiency and saving over \$5M annually.

Strategic Planning Manager, Technical Operations

1/2004 – 8/2004

Developed and implemented strategies to outsource all non-core component maintenance (\$170M annual spend). Selected by executive management for this special project.

- Created prioritization methodology to control outsourcing 7,000 aircraft components in one year.
- Developed processes to automate and streamline outsourcing transactions and related material handling. This reduced cycle time by up to two days for over 20,000 transactions annually.

Production Manager, Engine Build and Test

5/2002 – 12/2003

Directed team of 50 mechanics and inspectors. Managed the repair and overhaul of gas turbine engines to meet budget and schedule goals. Participated in engine workscoping and production planning.

- Converted under-utilized engines for use on a different aircraft type, saving \$4M in overhaul costs.
- Led lean initiatives to improve component repair cycle times and reduce inventory.

Finance Manager, Technical Projects

12/1999 – 4/2002

Senior Financial Analyst, Technical Projects

2/1999 – 11/1999

Managed a team of four financial analysts. Directed analysis of maintenance/material contracts, capital equipment, and major engineering projects. Optimized allocation, utilization, and control of resources. Generated written analysis and justification for presentation to senior management.

- Created financial model for increasing the accuracy of estimating on-going aircraft maintenance costs, which is a key factor in aircraft purchase and retirement decisions.
- Analyzed financials and wrote business case to gain approval for a cost-per-flight hour contract for transmission repair materials, saving \$20M over ten years.
- Led team that improved financial control of \$273M DC9 Structural Upgrade Program.

Project Engineer

12/1995 – 1/1999

Senior Engineer

6/1991 – 11/1995

Engineer

5/1990 – 5/1991

Created and supported engineering projects to improve the safety and reliability of 747 aircraft structure and systems. Managed engineering projects by coordinating with Production, Finance, Supply Chain, and Planning. Performed root cause analysis and implemented corrective actions, including on-going inspection programs and preventive modifications. Provided technical support to Production.

- Appointed Designated Engineering Representative (DER) with the authority to approve engineering data for the FAA.

Stress Engineer, 747 Aircraft Structures

Performed stress analysis (ultimate, fatigue, and damage tolerance) on wing structure of 747 aircraft.

Developed design specifications for wing components. Developed repairs for in-service fleet. Provided technical support to Manufacturing.

- Prepared ultimate, fatigue, and damage tolerance analysis of wing structure for FAA certification of the 747-400 aircraft.
- Prepared certification analysis of wing attach structure for missile defense system on the Air Force 1 aircraft.

**Application to the
North Dakota Public Service Commission for a
Certificate of Site Compatibility
to Construct the
Bison 4 Wind Project**

Case # PU-13-127

By
Minnesota Power

May 3, 2013



Exhibits

Exhibit 1 Study Area Selection Map

Exhibit 2 Preliminary Layout – 2010 Imagery

Exhibit 3 Preliminary Layout - USGS Topographic Map

Exhibit 4 Exclusion and Avoidance Areas Map

Exhibit 5 NLCD Land Cover Map

Exhibit 6 Prime Farmland Soil Distribution Map

Exhibit 7 Soil Parent Material Map

Exhibit 8 National Wetlands Inventory Map

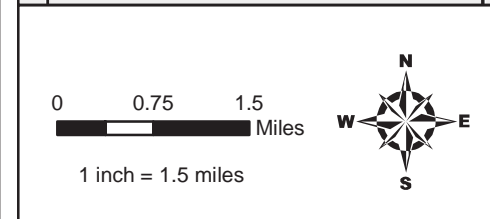
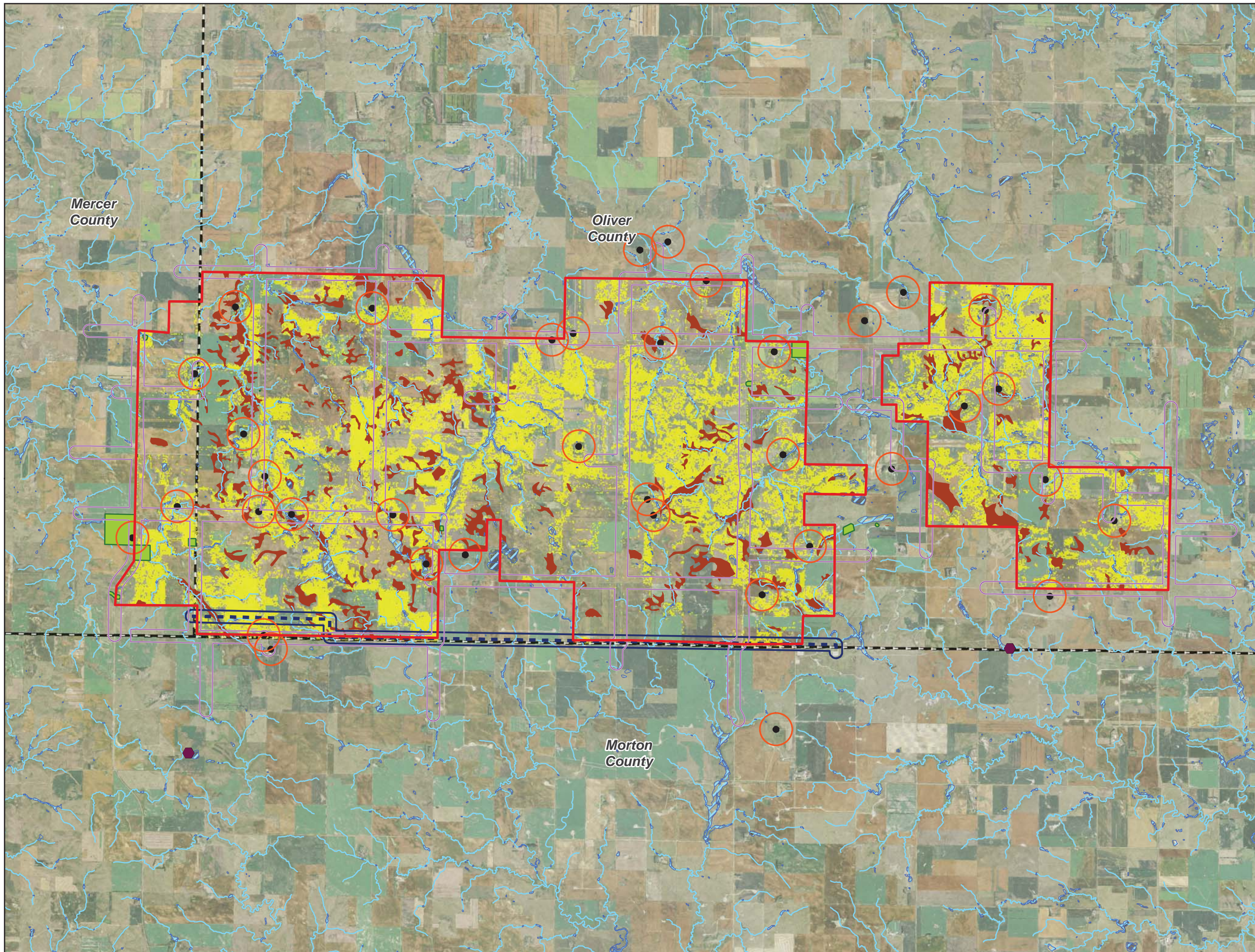
Exhibit 9 Lignite Resources Map

Exhibit 10 Wind Turbine Design Features

Appendices

Appendix A Studies and Assessments

Appendix B Agency Letters



- Occupied Residence
- ◆ Threatened or Endangered Species
- - - 230kV Line
- ▭ Preliminary Project Boundary
- ▭ 1400ft Occupied Dwelling Setback
- ▭ 544ft Maintained Road Setback
- ▭ 544ft Transmission Line Setback
- NHD Stream
- ▭ Cultural Site
- ▭ NWI Wetland
- ▭ GAP Landcover Prairie
- ▭ Areas of Prime Farmland
- - - County Boundary

Exhibit 4
Exclusion and
Avoidance Areas

Minnesota Power
Bison 4 Wind Project

Mercer and Oliver
Counties, North Dakota



30 west superior street / duluth, minnesota 55802-2093 / fax: 218-723-3955 / www.allete.com

David R. Moeller
Senior Attorney
218-723-3963
dmoeller@allete.com

August 7, 2013

Mr. Darrel Nitschke
Executive Secretary
North Dakota Public Service Commission
600 E Boulevard Avenue, Department 408
Bismarck, ND 58505-0480

**Re: Compiled Supplemental Materials supporting the Application for a
Certificate of Site Compatibility – Bison 4 Project
Case Number PU-13-127**

Dear Mr. Nitschke:

On behalf of Minnesota Power, enclosed please find several supplemental materials that are being submitted in support of Minnesota Power's Bison 4 Certificate of Site Compatibility application for the proposed Bison 4 Project in Oliver County. Included in this submittal are project layout maps with proposed turbine locations, a wetlands summary memo, a cultural resources survey summary report, the Oliver County special use permit, and sound and shadow flicker reports. All documents are submitted as hard copies as well as electronic copies on compact disk.

Please call me at 218-723-3963 with any questions.

Yours truly,

A handwritten signature in black ink that reads "David R. Moeller". The signature is written in a cursive, flowing style.

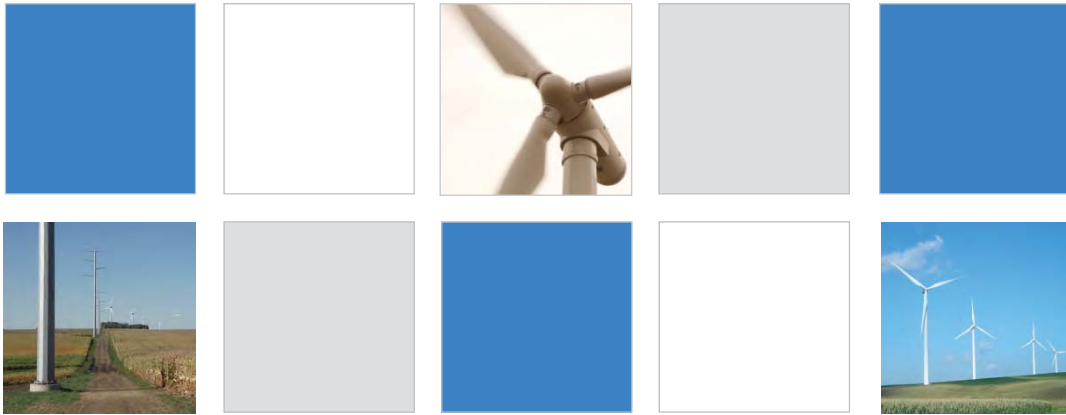
David R. Moeller

kl

c: Tom Coughlin, ALLETE
Barry Gartner, Minnesota Power
William Sawyer, Minnesota Power
Matt Freudenrich, Minnesota Power
Daniel McCourtney, ALLETE

35 PU-13-127 Filed 09/17/2013 Pages: 271
Exhibit 2 of September 13, 2013 formal hearing
Allete, Inc.





**Supplement to Application for
North Dakota Public Service Commission
Certificate of Site Compatibility
to Construct the
Bison 4 Wind Project**

Case # PU-13-127

**By
Minnesota Power**

August 7, 2013

Table of Contents

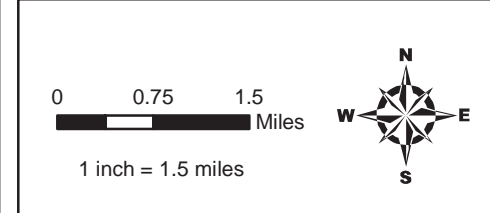
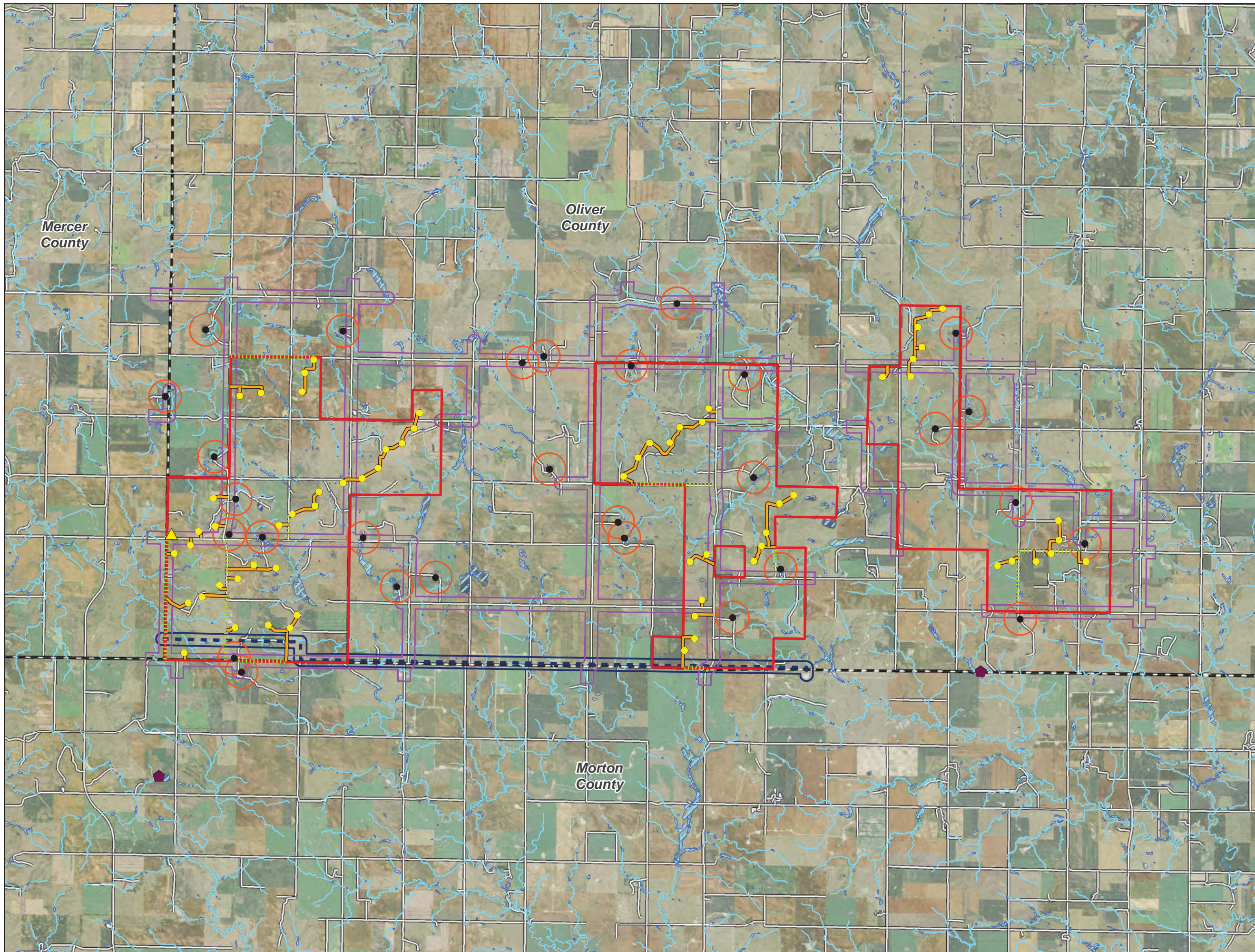
1.0	Introduction	1
2.0	Project Scope and Schedule Update	1
3.0	Environmental Studies, Consultations, and Permitting Update.....	2
3.1	Field and Desktop Studies	2
3.1.1	Wetlands.....	2
3.1.2	Cultural Resources	2
3.1.3	Sound and Shadow Flicker.....	3
3.2	Consultations	3
3.2.1	National Telecommunications and Information Administration.....	3
3.2.2	North Dakota State Historic Preservation Office	4
3.3	Permitting.....	4
3.3.1	County Conditional Use Permits.....	4
3.3.2	Compliance with the Energy Conversion and Transmission Facility Siting Act.....	4
3.3.3	Other Permits	4
4.0	Landowner Coordination.....	5

Appendices

Appendix A	Studies and Assessments
Appendix B	Agency Consultations and Approvals
Appendix C	Landowner Correspondence

Exhibits

Exhibit 1	Proposed Layout – 2010 Aerial Imagery (1a) and USGS Topographic Map (1b)
Exhibit 2	Exclusion and Avoidance Areas Map



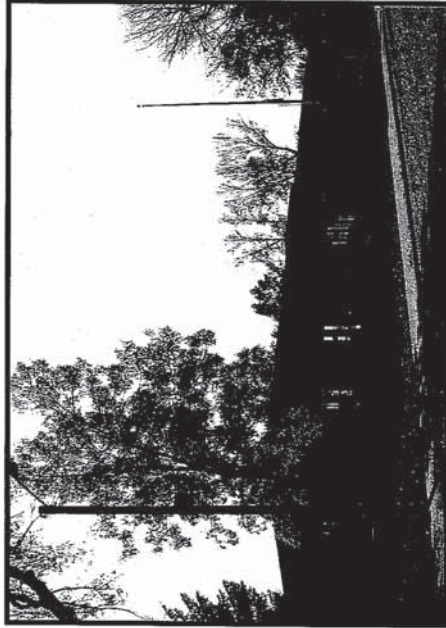
- Preliminary Project Boundary
- Turbine
- ▲ MET Tower
- Access Road
- County Road Upgrade
- Occupied Residence
- ◆ Threatened or Endangered Species
- 230kV Line
- 1400ft Occupied Dwelling Setback
- 544ft Maintained Road Setback
- 544ft Transmission Line Setback
- NHD Stream
- NWI Wetland
- County Boundary
- Road

Exhibit 2
Exclusion and
Avoidance Areas

Minnesota Power
Bison 4 Wind Project

Oliver County, North Dakota

OLIVER COUNTY PLAT BOOK & DIRECTORY



OLIVER COUNTY COURTHOUSE
CENTER, NORTH DAKOTA



PO Box 1931
JAMESTOWN, ND 58402
(701) 251-1612

\$49.00
www.greatplainsdirectory.com

G R E A T P L A I N S D I R E C T O R Y S E R V I C E

OLIVER COUNTY

Center, North Dakota

58530

COUNTY OFFICIALS

County Auditor	Judy Hintz	794-8721
County Treasurer	Lee A Benjamin	794-8737
County Sheriff	David Hilliard	794-3450
States Attorney	John Mahoney	794-8760
Clerk of Court	Kim Wilkens	794-8777
County Recorder	Kim Wilkens	794-8777
Tax Director	Jacquelyn Rae Schulte	794-8721
Superintendent of Schools	Judy Hintz	794-8721
911 Coordinator	Carmer Reed	745-3302
County Agent	Rick Schmidt	794-8748
DES Coordinator	Sandy Olin	794-8760

COUNTY COMMISSIONERS

Kent Albers	794-3294
Dwaine Helmers	794-3205
Lee Husfloen	794-3181

TABLE OF CONTENTS

County Officials/Contents	Page 1
Township Directory	Page 2
How To Use	Page 3
Township Abbreviations, Zip Codes	Page 4
Rural Residents Alphabetical Directory	Page 5-13
Town History	Page 14
Land Survey System	Page 15
County Highway Map	Page 36-37
Alphabetical Land Owner Listing	Page 64-69
Business Directory	Page 70-72

OLIVER COUNTY, NORTH DAKOTA
 COPYRIGHT 2011 GREAT PLAINS DIRECTORY SERVICE

R81W	R82W	R83W	R84W	R85W	R86W	R87W
AX	AW	AV	AR	AQ	AP	AO
PAGE 62-63	PAGE 62-63	PAGE 60-61	PAGE 52-53	PAGE 50-51	PAGE 48-49	PAGE 46-47
AU	AT	AS	AK	AJ	AI	AH
PAGE 50-59	PAGE 56-57	PAGE 54-55	PAGE 38-39	PAGE 34-35	PAGE 32-33	PAGE 30-31
AN	AM	AL	AD	AC	AB	AA
PAGE 44-45	PAGE 42-43	PAGE 40-41	PAGE 22-23	PAGE 20-21	PAGE 18-19	PAGE 16-17
AG	AF	AE				
PAGE 28-29	PAGE 26-27	PAGE 24-25				

KEYS
 ET UX - AND WIFE
 ET VR - AND HUSBAND
 ET AL - AND OTHERS
 ET MAR - AND HUSBAND
 LE - LIFE ESTATE
 (FIRST & LAST NAME) - CONTRACT FOR DEED
 ← → - SAME OWNERS FOR BOTH PLATS

LEGENDS
 DIVIDED HIGHWAY
 PAVED ROADS
 GRAVEL ROADS
 DIRT ROADS, TRAILS
 SECTION LINES
 RAIL ROADS
 CITY BORDER
 SUBDIVISIONS

FEDERAL HIGHWAY
 STATE HIGHWAY
 COUNTY HIGHWAY
 CEMETERY



MAHONEY & MAHONEY

John Mahoney
 Ann Mahoney
 Attorneys at Law
 General Practice of Law
 In Practice Since 1978

PHONE: 701-794-8769
 Fax: 701-794-3229

124 West Main St
 PO BOX 355
 CENTER, ND 58530

OLIVER COUNTY
 COPYRIGHT 2011 GREAT PLAINS DIRECTORY SERVICE

HOW TO USE YOUR DIRECTORY

ALPHABETICAL: Rural residents are listed alphabetically by: Last Name, First Name, or Initial, Mailing Address, Township, Section number where residing and Phone Number.

LAND OWNER LISTING: Land owners are listed alphabetically by: Last Name, First Name, or Initial, and township codes and section numbers where land is owned.

HOW TO READ YOUR MAPS

PLAT MAPS: The borders of each plat are shown with the owner's name and acreage taxed within those borders. If more than one owner is shown on the tax records, the first name listed is normally used followed by ETAL (meaning "and others"). Land being purchased on a Contract for Deed will show the purchaser's name in parenthesis. If space permits the original owner's name will be listed. Plats of less than 40 acres are normally listed with a capital letter in the plat area and a listing on the bottom of the page with the owner's name and number of acres following the section number and identifying letter.

DIRECTORY MAPS: Types of roads and numbers of Federal, State, and some County roads are as shown in the "Legends" section. Farmsteads with liveable buildings are indicated with an asterisk (*) and the name of the current resident is listed next to the asterisk.

Information for this Plat Book/Directory was compiled from data procured in September, 2011. While every effort has been made to assure it's accuracy and completeness, no representation is made as to complete accuracy and we cannot accept responsibility for any errors or omissions.

COPYRIGHT LAWS PROTECT ALL MAPS AND OTHER COPY IN THIS PLAT BOOK/DIRECTORY. NO PHOTO COPIES CAN BE MADE OF ANY ITEM IN WHOLE OR IN PART NOR CAN THEY BE TRACED, REPRINTED, OR COPIED IN ANY WAY.

NEW SALEM CREDIT UNION



RONALD W. SCHULZ, MANAGER
NEW SALEM, ND 58563



316 MAIN

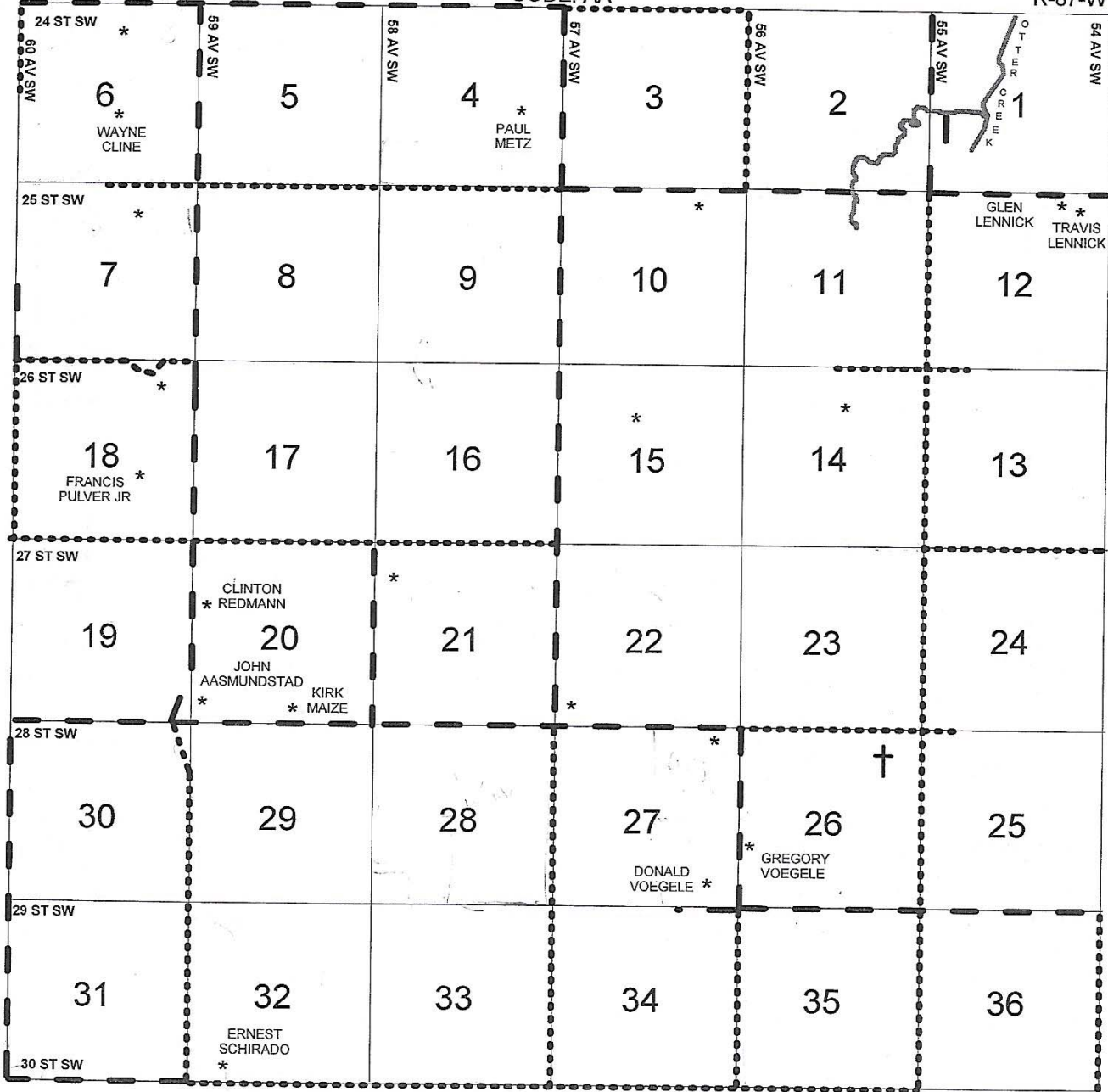
OFFICE: 843-7504

TWP 141N - R87W DIRECTORY

T-141-N

CODE: AA

R-87-W



				AV	AW	AX
AO	AP	AQ	AR	AS	AT	AU
AH	AI	AJ	AK	AL	AM	AN
AA	AB	AC	AD	AE	AF	AG

OLIVER COUNTY
© COPYRIGHT 2011 GREAT PLAINS DIRECTORY SERVICE

Sign in Sheet

PSC Allete hearing

9/13/13

Names	Company	Contact info.
Pat Ward	OAH - ALB	701-223-2711
MATT FREUDENRICH	MN POWER	320 492 7012
BARRY GARTNER	MN POWER	218-355-3333
Dan McGinty	MN Power	218-355-3515
Dan Buelgin	Oliver Co. Planning + Zoning	701-220-9064
Darrell Berger	Oliver Co Commissioner	701-794-3199
Jon Coughlin	MN Power	218-353-1415
BILL SAWYER	MN POWER	218-355-3580
Violet Struss	MN Power	218-355-3109
Todd Simmons	MN Power NCSACC	701-426-7820
Keith + Deanna Kessler	Land owner	701-873-5303
Marvin + Louise Bickel	Land owner	701-348-3126
Heidi Brunt Vande		348-33106
April Baumgarten	Hazen Star	701-891-1639
Teri Schulte	Oliver Co Tax Director	701-794-3129

Draft Copy

In The Matter Of:
BISON 4 WIND PROJECT
NORTH DAKOTA PSC - PU-13-127

September 13, 2013

Shaddix & Associates
7400 Lyndale Avenue South
Suite 190
Richfield, MN 55423

Min-U-Script® with Word Index

Page 1		Page 3	
1		1	Cross-Examination by Mr. Lein 92
2		2	Examination by Chair Kalk 93
3		3	Examination by Commissioner Christmann 99
4		4	Examination by Commissioner Fedorchak 101
5		5	Continued Cross-Examination by Mr. Armstrong 107
6		6	Continued Examination by Commissioner Fedorchak 108
7		7	Continued Examination by Chair Kalk 111
8		8	Continued Cross-Examination by Mr. Armstrong 112
9		9	BARRY GARTNER 114
10	NORTH DAKOTA PUBLIC SERVICE COMMISSION	10	Further Examination by Commissioner Christmann 114
11	SEPTEMBER 13, 2013	11	Further Examination by Chair Kalk 115
12	PU-13-127	12	Further Examination by Commissioner Fedorchak 116
13		13	KEITH KESSLER 119
14		14	EXHIBITS: Mrk'd Ofr'd Rec'd
15		15	1 13 13 13
16		16	2 13 13 13
17		17	3 13 13 13
18		18	
19		19	
20		20	
21		21	
22		22	
23		23	
24		24	
25		25	
Page 2		Page 4	
1	I N D E X	1	JUDGE WARD: Okay. On the record.
2	WITNESS PAGE	2	Good morning, everyone. My name is Pat
3	BARRY GARTNER 14	3	Ward, I'm an Administrative Law Judge by temporary
4	Direct Examination by Mr. Moeller 14	4	appointment designated by the Office of
5	Cross-Examination by Mr. Armstrong 21	5	Administrative Hearings upon the request of the
6	Cross-Examination by Mr. Lein 22	6	Public Service Commission to serve as the procedural
7	Examination by Chair Kalk 23	7	hearing officer for this hearing.
8	Examination by Commissioner Christmann 29	8	This is a hearing on the application of
9	Examination by Commissioner Fedorchak 34	9	ALLETE, Inc., Minnesota Power Company, for a
10	Continued Examination by Commissioner Christmann 42	10	certificate of site compatibility to authorize
11	Continued Examination by Chair Kalk 44	11	Bison 4 Wind Project. The case number is North
12	Redirect Examination by Mr. Moeller 46	12	Dakota Public Service Commission case number
13	Recross-Examination by Mr. Armstrong 47	13	PU-13-127. The project involves using up to 70 wind
14	MATT FREUDENRICH 48	14	turbine generators to generate up to 210 megawatts
15	Direct Examination by Mr. Moeller 48	15	of electricity.
16	Cross-Examination by Mr. Armstrong 55	16	The record will show it is a little past
17	Cross-Examination by Mr. Lein 58	17	9:00 a.m., Friday, September 13th, 2013, and we're
18	Examination by Chair Kalk 59	18	at the Oliver County Courthouse, 11 West Main
19	Examination by Commissioner Christmann 62	19	Street, Center, North Dakota, which is the time,
20	Examination by Commissioner Fedorchak 66	20	date and place set by the Notice of Filing and
21	Recross-Examination by Mr. Armstrong 71	21	Notice of Hearing issued by the Public Service
22	DAN MCCOURTNEY 74	22	Commission on July 10th, 2013.
23	Direct Examination by Mr. Moeller 74	23	On May 6th, 2013, MPC filed its
24	Cross-Examination by Mr. Armstrong 83	24	application for a certificate of site compatibility.
25		25	The application requests are set forth in the Notice

Page 5

1 of Filing and Notice of Hearing and proposed
 2 location is shown by the map which is also part of
 3 that notice. This has all been duly noticed and
 4 published in accordance with the requirements of
 5 North Dakota statute and the Commission's rules.
 6 The Notice of Filing and Notice of
 7 Hearing for this hearing specified the following
 8 issues to be considered and determined upon this
 9 hearing by the Public Service Commissioners. Number
 10 one, will the location, construction and operation
 11 of the proposed facilities produce minimally adverse
 12 effects on the environment and upon the welfare of
 13 the citizens of North Dakota? Number two, are the
 14 proposed facilities compatible with environmental
 15 preservation and the efficient use of resources?
 16 And number three, will the proposed facility
 17 locations minimize adverse human and environmental
 18 impact while ensuring continuing reliability and
 19 integrity and ensuring that energy needs are met and
 20 fulfilled in an orderly and timely fashion?
 21 Mr. Moeller, would you please state your
 22 appearance for the record and anyone that's sitting
 23 with you at the table?
 24 MR. MOELLER: Sure. Thank you, Your
 25 Honor.

Page 6

1 David Moeller on behalf of Minnesota
 2 Power. With me I have three witnesses, Dan
 3 McCourtney, Matt Freudenrich, and Barry Gartner.
 4 JUDGE WARD: Okay. Thank you.
 5 And Mr. Armstrong, please state your
 6 appearance and the appearance of any members sitting
 7 at your table.
 8 MR. MITCHELL: Mitch Armstrong, Special
 9 Assistant Attorney General on behalf of the Public
 10 Service Commission. With me is Jerry Lein, a public
 11 utilities analyst for the Commission, Commission
 12 staff. I request that Mr. Lein be allowed to ask
 13 questions today.
 14 JUDGE WARD: Thank you.
 15 Is there any objection to --
 16 MR. MOELLER: No. No objection.
 17 JUDGE WARD: Okay. That'll be permitted.
 18 If there's anyone else present in the
 19 room other than witnesses for Minnesota Power or the
 20 Commission who will or may testify or comment
 21 concerning this matter, would you please raise your
 22 hand right now if you have any intention of coming
 23 up and testifying at the hearing so I can -- okay, I
 24 don't see any right now. You have the right to do
 25 that and so if you do, I will allow that on the

Page 7

1 completion of Minnesota Power and the PSC's
 2 presentation. And if you do, I encourage you to
 3 take that opportunity to tell the Commissioners
 4 anything you think the Commission should know about
 5 the matter and offer any information you may have
 6 for the Commission's decision. If you intend to do
 7 that, we'll be taking a little break after the
 8 presentation by the PSC and by the Minnesota Power
 9 Company, and so if you're inclined to testify or put
 10 an exhibit into evidence or something, please let me
 11 know during that break so we can coordinate how
 12 that's going to be done and get you prepped to do
 13 that.
 14 Before we begin, any opening remarks by
 15 the Commissioners?
 16 Chairman Kalk.
 17 CHAIR KALK: Thank you, Your Honor, and
 18 thank you everyone today for coming out. The Public
 19 Service Commission, some of the best things we do
 20 are we're able to get out into the counties and have
 21 hearings such as this. The way the law is set up,
 22 that the county where the project is going to be
 23 built is where we hold the hearings. And so in a
 24 case like this where it's kind of a point in the
 25 map, we come to Oliver County Courthouse, we look

Page 8

1 forward to hearing the company's case, we look
 2 forward to anyone from the public that wants to come
 3 and tell us good, bad, different about these
 4 projects. We actually were just in Williston until
 5 last night at about, I don't even know, 6:00, 7:00
 6 for a power line hearing, and that particular
 7 hearing group was 200 and some miles of a power
 8 line, we had three different hearings, and we had a
 9 lot of public input. And the public input is really
 10 the part that we really like the best. Because we
 11 read the case from the company, we see all their
 12 things ahead of time, we will ask them questions
 13 today, but if you have anything at all you want to
 14 say, this is your chance to do it because this is
 15 when the official record is put together. So thank
 16 you very much for coming out today. I look forward
 17 to a good hearing.
 18 And then, Jay, I want to thank you, too.
 19 Jay is our sound guy, he's been following us all
 20 over the place, so he left Williston last night the
 21 same time as we did. And I think you drove with all
 22 that equipment, too, so thank you, Jay.
 23 JAY: Thank you, Your Honor.
 24 JUDGE WARD: Commissioner Christmann.
 25 COMMISSIONER CHRISTMANN: Well, I want to

Page 9

1 welcome everybody and thank you for coming out.
 2 This is sort of about my third opportunity to have
 3 kind of an old home situation where I do something
 4 in what was my legislative district. And I had the
 5 opportunity to serve those of you that are from
 6 town, from the area here, for 18 years in the senate
 7 and it was an honor and I appreciate the opportunity
 8 that I have now.
 9 One thing that's -- as we've done on a
 10 previous wind farm hearing, a lot of the public
 11 feedback had to do with the economic activity of it,
 12 the local economic development activity, and I just
 13 want to point out that that's not the only factor
 14 that we look at being whether the people want it
 15 there. Because when enough money is poured into a
 16 project, typically it'll be popular in that area.
 17 However, as the Judge pointed out, there are a lot
 18 of other things that need to be factored in, and at
 19 the end of the day we need to make sure that we have
 20 a good, dependable and affordable system of
 21 electricity in the state and in the region. So
 22 there's a lot of factors that need to be weighed in.
 23 But we do do our best to come out and have these
 24 hearings in the areas that are directly impacted
 25 because if there's one thing I've learned in 20,

Page 10

1 almost 20 years of public service, the best
 2 decisions aren't made by just sitting in the
 3 capitol. I think that taking these opportunities,
 4 coming out, hearing from people who are directly
 5 impacted, is the way that we are best able to make
 6 good decisions for the whole overall system. So
 7 thanks for coming out.
 8 And lastly, I just want to say, you know,
 9 whatever your thoughts are on the project, if you
 10 call us tonight, it's not on the record and we can't
 11 really take it into consideration. Because this is
 12 similar to a court action, if you have thoughts on
 13 it that you want to be considered, we need you to
 14 come on the record and state your opinions rather
 15 than calling or visiting about it over coffee. So
 16 that's the way the system works and so this is the
 17 opportunity for that kind of feedback. And we
 18 really need that feedback in order to make the best
 19 decisions.
 20 JUDGE WARD: Thank you, Commissioner.
 21 Commissioner Fedorchak.
 22 COMMISSIONER FEDORCHAK: Good morning,
 23 everyone, and welcome. We're glad to see a nearly
 24 full room. So that's great to see this morning.
 25 I just wanted to make a couple personal

Page 11

1 comments. Yesterday, as Brian mentioned, we were in
 2 Williston, which was my hometown, so that was kind
 3 of a fun day. And today we're in Center, which is a
 4 new home of ours, my husband and I recently, last
 5 year, purchased some land in your county, in Oliver
 6 County, so I'm getting to know some of my new
 7 community members. We don't live out here full
 8 time, we live in Bismarck, but we spend as many
 9 moments as we can possibly find out on land just
 10 west of Hanover that we bought. So glad to meet
 11 many of you for the first time and look forward to
 12 getting to know you better.
 13 This hearing is an exciting hearing.
 14 I've been involved in government in North Dakota for
 15 about 25 years starting at Schafer back in the '90s,
 16 I worked on his staff when he was governor. And the
 17 challenges we faced then were very different than
 18 what we're facing today. They were challenges of
 19 decline and everyone was bemoaning the fact that we
 20 had no opportunities in our state, too many young
 21 people were leaving. Well, today we have turned the
 22 tables a bit and we have a lot of opportunities for
 23 young people and people from all walks of life from
 24 all over the country. And this is a great
 25 opportunity for us, it also present some challenges.

Page 12

1 And so we have a challenge here of siting
 2 this wind -- wind farm, and it looks like the
 3 company's gone through all the appropriate processes
 4 to work this through the community and this is a
 5 final step to get your thoughts on how you feel
 6 about this next phase in this project. And I'm glad
 7 to see you all here, because when you -- every day
 8 we look in the news and we hear about countries
 9 where the people have no choices, they couldn't show
 10 up in a public meeting like this and express their
 11 opinion about a project, and that's something to
 12 really treasure and appreciate and also not take for
 13 granted.
 14 So that's -- your presence here today
 15 shows that you aren't taking that for granted, that
 16 you're expressing yourselves and getting involved in
 17 the process, and that makes our jobs all the more
 18 easy to fulfill. So thank you for your time, look
 19 forward to working with you, and look forward to a
 20 good hearing.
 21 JUDGE WARD: Thank you, Commissioners.
 22 Mr. Moeller, are you ready to proceed?
 23 MR. MOELLER: I am, Your Honor.
 24 JUDGE WARD: Would you like to start by
 25 offering exhibits?

Page 13

1 MR. MOELLER: I would. We have three
 2 exhibits that were previously marked by Your Honor.
 3 Exhibit -- do you want me to walk through
 4 those?
 5 JUDGE WARD: Yes, please.
 6 MR. MOELLER: Okay. Exhibit 1 is our May
 7 2013 application. Exhibit 2 was our August 2013
 8 supplemental information that was filed with the
 9 Commission. And then our Exhibit 3 is our August
 10 2013 certification.
 11 JUDGE WARD: Thank you.
 12 Mr. Armstrong, any objection?
 13 MR. ARMSTRONG: No objection.
 14 JUDGE WARD: Those exhibits we'll be
 15 received.
 16 (Exhibits 1, 2 and 3 offered and
 17 received.)
 18 JUDGE WARD: You may proceed to call your
 19 first witness.
 20 MR. MOELLER: Thank you, Your Honor.
 21 Our first witness is Barry Gartner.
 22 JUDGE WARD: Mr. Gartner, before we
 23 begin, I'm required by law to advise you of the law
 24 regarding perjury in this state. Perjury is a false
 25 statement under oath of a material fact made by a

Page 14

1 person who knows or does not believe the statement
 2 to be true at the time it is made. Perjury is a
 3 class C felony. A class C felony is subject to a
 4 maximum penalty of five years imprisonment, a fine
 5 of \$5,000, or both may be imposed.
 6 Having been advised of the penalty for
 7 perjury, please raise your right hand so I can
 8 administer the oath.
 9 Do you promise to tell the truth, the
 10 whole truth, and nothing but the truth in this
 11 proceeding.
 12 THE WITNESS: I do.
 13 JUDGE WARD: Thank you, sir.
 14 And would you spell your name for the
 15 record, please?
 16 THE WITNESS: Barry, B-A-R-R-Y, Gartner,
 17 G-A-R-T-N-E-R.
 18 JUDGE WARD: Thank you very much.
 19 BARRY GARTNER
 20 DIRECT EXAMINATION
 21 BY MR. MOELLER:
 22 Q. Mr. Gartner, please state your name, your employer,
 23 and your occupation?
 24 A. My name is Barry Gartner. I am employed by
 25 Minnesota Power at 30 West Superior Street, Duluth,

Page 15

1 Minnesota 55802, as a project development leader in
 2 our Strategy and Planning Department.
 3 Q. Mr. Gartner, please provide your educational
 4 background?
 5 A. I received a bachelor of science degree in
 6 mechanical engineering from North Dakota State
 7 University in Fargo, North Dakota in 1986 and a
 8 master of business administration from the
 9 University of Minnesota in 1999.
 10 Q. Please provide a brief description of your
 11 professional background?
 12 A. I've been employed by Minnesota Power for the past
 13 seven, eight months now, and I've been involved in
 14 product development of wind generation facilities
 15 and management of renewable compliance obligations.
 16 Prior to joining Minnesota Power, I was employed as
 17 a systems engineering supervisor at Xcel Energy in
 18 Red Wing, Minnesota.
 19 Q. Have you previously provided testimony before the
 20 Public Service Commission?
 21 A. No.
 22 Q. Okay. What is your role in connection with the
 23 Bison 4 Wind Project?
 24 A. I'm the project development leader for the Bison 4
 25 Wind Project. I am responsible for coordination and

Page 16

1 oversight of project development activities,
 2 including determination of location, timing, and
 3 projected cost of the project, turbine supply
 4 arrangements and general layout of the turbines at
 5 the site.
 6 Q. What is the purpose of your testimony at this
 7 proceeding?
 8 A. The purpose of my testimony is to provide an
 9 overview of the project, the need for the project
 10 and specifics on wind turbine technology.
 11 Q. Please describe the Bison 4 Wind Project?
 12 A. The proposed project includes 64 Siemens model SWT
 13 3.2-113 wind turbines and associated facilities.
 14 The Siemens turbines have a hub height of 92.5
 15 meters, which is about 303 and a half feet, a rotor
 16 diameter of 113 meters, which is equivalent to a
 17 370.7 feet, and a 3.2 megawatt direct drive
 18 generator for a total installed capacity of 204.8
 19 megawatts. The turbine selected for the Bison 4
 20 project is the same manufacturer being used for the
 21 Bison 1, 2 and 3 projects, but the model has changed
 22 to increase energy generation. The SWT 3.2-113 is a
 23 variant of the SWT 3.0-101 turbine used for the
 24 Bison 2 and 3 projects and a portion of the Bison 1
 25 project.

Page 17

1 All of the wind turbines would be located
 2 in Oliver County. The project area is located
 3 approximately 12 miles northwest of New Salem, North
 4 Dakota and encompasses an area of approximately
 5 22,629 acres. The Bison 4 project is anticipated to
 6 permanently affect approximately 133 acres of land,
 7 which amounts to less than .5 percent of the total
 8 project area.
 9 Q. What is the estimated cost of the project?
 10 A. The project is estimated to cost approximately \$345
 11 million, including associated substation and
 12 transmission facilities.
 13 Q. Please briefly describe the market forces driving
 14 this project?
 15 A. Minnesota Power is seeking to build the Bison 4
 16 project now in order to take advantage of three
 17 unique and time sensitive opportunities.
 18 First, the wind turbine capital costs
 19 continue to be competitively priced and consequently
 20 a significantly lower installed cost for building a
 21 wind project.
 22 Secondly, the federal production tax
 23 credit, or PTC, is available for facilities that
 24 begin construction prior to the end of 2013 with
 25 extension beyond this date uncertain.

Page 18

1 Finally, the location of the Bison 4
 2 project is ideal, combining the strength of the wind
 3 resource in North Dakota with the ability to
 4 leverage existing transmission lines for reliable
 5 delivery of the wind energy.
 6 Q. Mr. Gartner, please explain why Minnesota Power's
 7 proceeding with Bison 4 at this time?
 8 A. Minnesota Power's renewable resource development is
 9 guided by its 2013 integrated resource plan that
 10 incorporates a diverse renewable strategy including
 11 hydroelectric, biomass and wind resources. The
 12 Bison 4 project is a key component of this strategy
 13 and further progresses Minnesota Power's North
 14 Dakota wind initiative, which began with acquisition
 15 of the DC line between Center, North Dakota and
 16 Duluth, Minnesota, and the implementation of the
 17 Bison 1, 2 and 3 wind projects. These actions give
 18 Minnesota Power unique access to the vast wind
 19 resources in central North Dakota.
 20 The construction schedule that Matt
 21 Freudenrich -- Mr. Freudenrich will discuss is
 22 driven by the current expiration of the federal PTC.
 23 In order to provide the benefit to ratepayers,
 24 Minnesota Power's planning on starting construction
 25 of the Bison 4 project this fall. When the Bison 4

Page 19

1 project is fully operational in 2015, it will meet
 2 approximately 7 percent of Minnesota Power's retail
 3 energy needs by increasing renewable energy supply
 4 approximately 835,000 megawatt hours per year.
 5 Q. Where is Minnesota Power at in terms of the
 6 Minnesota Renewable Energy Standard?
 7 A. Minnesota's Renewable Energy Standard requires that
 8 utilities generate 25 percent of their power from
 9 renewable energy by 2025. With the addition of the
 10 Bison 4 project, Minnesota Power anticipates that
 11 renewable wind, biomass and hydro energy will
 12 account for nearly 25 percent of its projected 2025
 13 electric sales.
 14 Q. How was the location of the project selected?
 15 A. The proposed location of the Bison 4 project is
 16 adjacent to the Bison 1, 2 and 3 projects. The site
 17 was selected based on good land, compatibility,
 18 excellent wind quality data, and close proximity to
 19 the interconnection point at the Bison substation
 20 and the new Tri County substation previously
 21 approved by the Commission.
 22 North Dakota is well suited for wind
 23 development because it features vast land area
 24 available for wind turbine siting with large open
 25 terrain and an absence of trees. Within 20 miles of

Page 20

1 the Bison substation, there are hundreds of square
 2 miles that are suitable for wind development and
 3 Minnesota Power has secured a sufficient amount of
 4 wind easement options with cooperative landowners to
 5 support its planned wind projects.
 6 Q. What is the capacity and planned utilization of the
 7 250 kV Center to Arrowhead DC line?
 8 A. The 250 kV DC transmission line has a rated capacity
 9 of approximately 500 megawatts, which is being
 10 expanded to approximately 550 megawatts in 2013.
 11 Currently, the DC line is utilized for the 455
 12 megawatt Milton R. Young 2 power plant, the 99
 13 megawatts, all of our county wind projects and
 14 Minnesota Power's Bison wind projects.
 15 When Minnkota Electric Cooperative's new
 16 Center to Grand Forks 345 kV AC transmission line is
 17 placed in service, currently scheduled for February
 18 2014, Minnesota Power will begin a scheduled
 19 reduction in purchased power from Young 2, which
 20 ultimately ends in 2026 and Minnkota power will
 21 begin flowing its portion of the Young 2 over their
 22 new transmission line.
 23 This important milestone frees up a
 24 significant amount of transmission capacity on the
 25 DC line. The plans for utilizing this transmission

Page 21

1 capacity include the 99 megawatt Oliver County wind
 2 projects, the collective 292 megawatts from Bison 1,
 3 2 and 3, and now the Bison 4 wind project.
 4 Q. Does this complete your direct testimony?
 5 A. Yes.
 6 JUDGE WARD: Mr. Armstrong. Any
 7 questions for Mr. Gartner?
 8 MR. ARMSTRONG: Thank you, Your Honor.
 9 CROSS-EXAMINATION
 10 BY MR. ARMSTRONG:
 11 Q. Mr. Gartner, I think any questions I have are
 12 probably more for a later witness, so if I ask you
 13 something that is for a later witness, just let me
 14 know, okay?
 15 A. Yes.
 16 Q. I'm looking at Exhibit 2, which is the supplement to
 17 your application. Do you have that available to
 18 you? If you could turn to the exhibits tab in the
 19 back, the maps. I'm looking at Exhibit 1-A. Is
 20 that -- it's my understanding that this is the map,
 21 the current map of what Minnesota Power is asking
 22 the Commission to site; is that correct?
 23 A. That's correct.
 24 Q. Except for the Tri County substation is not part of
 25 this application, it was part of a previous

Page 22

1 application?
 2 A. That is correct.
 3 Q. Okay. And same with the Bison substation?
 4 A. That is correct.
 5 MR. ARMSTRONG: That's all the questions
 6 I have for this witness.
 7 JUDGE WARD: Mr. Lein, any questions for
 8 Mr. Gartner?
 9 CROSS-EXAMINATION
 10 BY MR. LEIN:
 11 Q. You said you were upgrading the Center line?
 12 A. Yes, we're upgrading the --
 13 Q. What does that entail?
 14 A. We are upgrading the direct current, the DC line
 15 that runs from Center to Duluth, Minnesota from 500
 16 megawatts to 550 megawatts.
 17 Q. And what are you doing to make that happen? I mean,
 18 what are you doing physically to the line?
 19 A. There are some upgrades needed to the switch gear at
 20 either end of the line and there may be some other
 21 additional upgrades that I'm not familiar with.
 22 Q. Okay. I was just curious.
 23 MR. LEIN: That's all I had, thanks.
 24 JUDGE WARD: Commissioners, any questions
 25 for Mr. Gartner?

Page 23

1 Chair Kalk.
 2 CHAIR KALK: Thank you, Your Honor.
 3 EXAMINATION
 4 BY CHAIR KALK:
 5 Q. Thank you, Barry, for your testimony.
 6 I noticed you hadn't testified before
 7 this Commission till now and I noticed you're an
 8 NDSU grad, so I wonder if that wasn't because the
 9 company knew a majority of the Commission was NDSU
 10 grads that you've now been asked to testify.
 11 Anyway.
 12 To follow up on Mr. Lein's question about
 13 the from 500 megawatts to 550. So is there any way
 14 that you can quantify how many more Bison wind
 15 projects can be added to this DC line? Like
 16 hopefully we work through Bison 4 today, does this
 17 mean there's room for another Bison 5 at 100
 18 megawatts and a Bison 6 at 200 megawatts? I mean,
 19 how many more megawatts do you think that you could
 20 put down this line?
 21 A. The challenge is, because wind is a variable
 22 resource, there will be times when the wind is not
 23 blowing and you're not producing any energy and so
 24 you're not transmitting any power on the line. And
 25 then there are times when the wind is blowing at

Page 24

1 high speed and all of the wind farms are producing a
 2 lot of energy, at which point, with the Bison 4
 3 project, we'll be producing more energy than can be
 4 moved on the DC line. So that portion above the
 5 capacity of the DC line will have to move on the AC
 6 system. And so adding additional wind farms, some
 7 portion of that energy for the new wind farms would
 8 be able to move on the DC line, but an increasing
 9 amount of the energy would have to go on the AC
 10 system. So it's something that we will be studying
 11 once we get through this project, we'll be studying,
 12 you know, what the implications of that are and
 13 whether it's -- what the AC system curtailment and
 14 limitations are. But certainly -- so there's more
 15 capacity on the DC line at some times of the year,
 16 depending on the wind condition, and then at other
 17 times will be maxed out.
 18 Q. Sure, that makes sense. That kind of led into my
 19 next question, the interconnection. How does the
 20 interconnection limits tie into this? Is there
 21 interconnection concerns?
 22 A. Yes. So we need to -- each project needs to get an
 23 interconnection agreement from MISO. And so the
 24 interconnection agreement has a defined limit as to
 25 how many megawatts of capacity you can add under

Page 25

1 that agreement. So Bison 4 uses two nominal 100
 2 megawatt interconnection agreements, that's why it
 3 is around 200 megawatts, slightly over. So for each
 4 additional wind farm, we would need to get
 5 additional interconnection agreements, and then the
 6 size of those farms needs to be in compliance with
 7 that interconnection agreement.
 8 Q. Has the -- and this is kind of a little bit outside
 9 the scope here of the hearing, but if someone was to
 10 put a natural gas plant in this area so when the
 11 wind is not blowing that you could fire up this gas
 12 plant, could you share that interconnection or would
 13 those have to be separate interconnection
 14 agreements?
 15 A. The -- I'm not an interconnection agreement expert.
 16 Q. Nor am I.
 17 A. So I'm not sure I can answer your question.
 18 Q. Okay. I'm just trying to get a feel for one of the
 19 things that, as you put it, that wind is
 20 intermittent, trying to -- we've got all this
 21 natural gas in the state that some places are
 22 looking at a shared interconnection between natural
 23 gas and wind, when the wind is not blowing you fire
 24 the peaker up and you've got a good baseload, so
 25 that's where I was just going with that.

Page 26

1 And if these are, the same as
 2 Mr. Armstrong, if I need to go to a different
 3 witness, let me know.
 4 These are going to be 3.2 megawatts?
 5 A. That's correct.
 6 Q. And yet the largest we've done before is 3.0
 7 megawatts?
 8 A. Correct.
 9 Q. How do you -- what's the major difference that you
 10 can get the .2 increase in megawatts from these
 11 turbines?
 12 A. Larger generator, so a similar design but slightly
 13 larger.
 14 Q. A larger wing span of the turbine?
 15 A. And then in addition to that we have a larger rotor
 16 diameter so it catches more wind.
 17 Q. Okay.
 18 A. And these will have 92.5 meter hub height versus the
 19 existing 80 meter hub height. So it's a taller wind
 20 turbine, bigger rotor diameter so it catches more
 21 wind. The wind speeds increase as you go up from
 22 the ground so we're able to catch more wind and then
 23 with the larger size generator produce more
 24 electricity.
 25 Q. In previous wind hearings I've been in the wind has

Page 27

1 to be a certain miles per hour before they even
 2 start moving and there gets to be a certain point
 3 where you have to shut them down. Do these operate
 4 in those same kind of ranges where it gets to be 40,
 5 50 miles an hour, you've got to shut them down, or
 6 is there more tolerance because they're bigger?
 7 A. No, they're very much the same wind speed ranges as
 8 our existing turbines.
 9 Q. Okay. Thank you. What would be the life expectancy
 10 of these turbines?
 11 A. The --
 12 Q. Anticipated, of course.
 13 A. Minnesota Power anticipates the life of this project
 14 to be 35 years. That includes some capital
 15 investment in future years to reach that life.
 16 Q. Perfect. And then the last one I had was what's the
 17 capacity factor of these turbines?
 18 A. The capacity factor we predict is going to be in the
 19 mid 40s, mid 40 percents.
 20 Q. And then when do you true up what you think the
 21 capacity factor is to what's actually on the ground?
 22 Like you've got Bison 1, 2 and 3, they've been
 23 operating, is what you predicted for those what's
 24 actually being produced? Are they similar?
 25 A. I'm not sure I understand your question.

Page 28

1 Q. We had hearings for Bison 1, 2, 3 that I was part of
 2 and there was a capacity factor there of one of the
 3 wind farms was almost 50 percent, is what was
 4 testified in the hearing. And I'm just curious if
 5 you know what has actually been produced from those
 6 wind farms now that they're in operation?
 7 A. Sure. So I can say Bison 2 and 3, which went into
 8 service in December of last year, I've only seen
 9 seven, eight months of operation, so it's too early
 10 to tell because of the seasonal --
 11 Q. Okay.
 12 A. Seasonal and longer term variations in wind. So
 13 typically when we develop a prediction, we'll use
 14 like a 30-year dataset of wind experience for
 15 predicting what the long-term averages will be,
 16 long-term production for a wind farm. So for Bison
 17 2 and 3, it's really too early to tell. You can
 18 have -- this year, first few quarters have been low
 19 relative to average winds for the area compared to
 20 the long term.
 21 Q. So what's that load number, is the load 20 percent
 22 capacity or is the low like 5 percent capacity? Do
 23 you have --
 24 A. Oh, no. Above 20 percent.
 25 CHAIR KALK: Okay. Thank you.

Page 29

1 That was all I had, Your Honor.
 2 JUDGE WARD: Chairman Christmann -- or
 3 Commissioner Christmann, excuse me. I didn't mean
 4 to give you a promotion.
 5 COMMISSIONER CHRISTMANN: I thought Chair
 6 Kalk was going to jump out of his chair when you
 7 said that.
 8 CHAIR KALK: We all get paid the same.
 9 EXAMINATION
 10 BY COMMISSIONER CHRISTMANN:
 11 Q. Chair Kalk asked you the question and you answered
 12 it, but I didn't take it down quickly enough and now
 13 I forgot. What do you expect the life expectancy
 14 is?
 15 A. 35 years.
 16 Q. Is that what the life expectancy was for 1, 2 and 3
 17 as well?
 18 A. Yes.
 19 Q. Okay. When you talk about -- I believe you said
 20 that this would be about 7 percent of Minnesota
 21 Power's retail needs?
 22 A. Correct.
 23 Q. Is that on average throughout the year, is that when
 24 maximum production from this wind farm, or --
 25 A. No.

Page 30

1 Q. When is that?
 2 A. That would be on an annual basis. So annual wind --
 3 annual energy produced by the wind farm relative to
 4 our annual retail sales.
 5 Q. Okay. So in just doing very rough math, I'm
 6 figuring this is just over 200 megawatts, 1, 2 and 3
 7 combined are right at about 300, correct?
 8 A. I believe 292.
 9 Q. And then Oliver wind is about another 100?
 10 A. Correct.
 11 Q. So combined, Minnesota Power's wind resources coming
 12 from Oliver County will account for maybe a little
 13 over 20 percent of Minnesota Power's needs?
 14 A. I would caveat that by some of -- some of Bison 1, 2
 15 and 3 are in Morton County.
 16 Q. Well, okay.
 17 A. A large percentage of our renewable energy is coming
 18 from wind, North Dakota wind. We do have --
 19 probably the next largest chunk is our hydro
 20 operations in Minnesota.
 21 Q. Okay. But what I'm getting at, and you are right
 22 about the Morton County part, but within a not very
 23 large region, if 20 percent of the power is coming
 24 from there, does that get -- is that a large
 25 percentage for a company to deal with the loss when

Page 31

1 the wind isn't blowing in this area? I mean, it's
 2 very easy to imagine days when it's not blowing
 3 either east of Center or northwest of New Salem.
 4 A. Yes, absolutely that's a consideration we look at
 5 when we're planning a wind facility, is can we
 6 manage integration of that variable energy supply
 7 with our energy needs, what do we have available to
 8 us to ramp up and down to adjust for the variations
 9 in wind. So we do that through our existing
 10 facilities. We also purchase energy on the -- from
 11 the MISO system, larger MISO system.
 12 Q. And what are MISO's needs? As we continue to add
 13 these wind farms, what does MISO need to do to make
 14 sure that there's something available on those days
 15 when it's needed for you to purchase to back up it
 16 up?
 17 A. Right. So that's part of the interconnection
 18 agreement process, is when we apply for an
 19 interconnection agreement for a wind facility, there
 20 are studies that are performed to make sure that
 21 they can -- that it can be accommodated.
 22 Q. Is MISO working on adding backup power, or do the
 23 individual companies take that responsibility on
 24 themselves? It just seems hard for me to imagine
 25 that we can just continue to add these wind farms on

Page 32

1 and that MISO always has something available to
 2 purchase when the wind is not blowing.
 3 A. I don't believe I can -- I'm not enough of an expert
 4 on the MISO to be able to answer that question.
 5 Q. Okay. You mentioned sufficient amount of easement
 6 options. What is sufficient? The area we're
 7 dealing with, do you have -- does that mean all of
 8 them, or do you consider sufficient a certain
 9 percentage of them at this point in time, or what
 10 does that mean?
 11 A. For the Bison 4 project we have easement options for
 12 all of the land within the defined project boundary.
 13 Q. Okay. And, oh, the last question I have is
 14 regarding the 10-year plans that are required by the
 15 Public Service Commission. Minnesota Power did do a
 16 10-year plan I believe for Bison 1, 2 and 3, but not
 17 for 4, and that kind of concerns me. Does that
 18 imply that this wasn't even on the radar screen a
 19 year ago when the previous 10-year plan was done?
 20 'Cause I hate to think that we're doing something
 21 just because there was another year extension on the
 22 PTC. And if it was in the plans even last year, why
 23 is there nothing in the 10-year plan?
 24 A. No, I believe -- I can't speak to the 10-year plan
 25 that you're referring to because I'm not familiar

Page 33

1 with that. I do know that we did include up to 100
 2 to 200 megawatts of wind in our integrated resource
 3 plan that we filed at the beginning of this year
 4 with the Minnesota PSC -- PUC, sorry. And I know
 5 that in our -- prior to that, even, our Renewable
 6 Energy Standard projections for how we would reach
 7 the 25 percent by 2025 included additional wind
 8 facilities beyond Bison 1, 2 and 3.
 9 Q. Okay.
 10 MR. MOELLER: If you don't mind, if I
 11 address that as well, since I prepared that 10-year
 12 plan, or --
 13 COMMISSIONER CHRISTMANN: It's fine with
 14 me if -- or whatever order the Judge wants to take
 15 that.
 16 JUDGE WARD: You could do that either
 17 later, Mr. Moeller --
 18 MR. MOELLER: Okay.
 19 JUDGE WARD: -- or we could do that as
 20 part of redirect, if you feel comfortable doing it
 21 that way.
 22 MR. MOELLER: Either is fine.
 23 COMMISSIONER CHRISTMANN: However it
 24 works out.
 25 MR. MOELLER: I mean, just mainly just

Page 34

1 briefly, I could just address the Commissioner's
 2 question.
 3 JUDGE WARD: Go ahead.
 4 MR. MOELLER: In the 10-year plan, we
 5 filed one -- we file one every July, of course, and
 6 the one that we filed just recently in July of '13
 7 of course had Bison 4 in there. The one we filed
 8 previously to that, and I think even two before that
 9 had add -- we talked about Bison 1, 2 and 3 and then
 10 we talked about future wind projects, we hadn't
 11 identified a specific Bison 4, but we had talked
 12 about future wind projects and they were
 13 contemplating those. We did move up the timing on
 14 this, as Mr. Gartner testified, probably driving --
 15 the PTC was a driver behind that, but we had
 16 identified it generically, we just hadn't identified
 17 it as a specific site to say Bison 4 is going to be
 18 on the schedule.
 19 COMMISSIONER CHRISTMANN: Okay. I have
 20 no other questions, Your Honor.
 21 JUDGE WARD: Okay. Commissioner
 22 Fedorchak.
 23 EXAMINATION
 24 BY COMMISSIONER FEDORCHAK:
 25 Q. Good morning, Mr. Gartner. Thank you for your

Page 35

1 testimony.
 2 Tell me what the challenges of the larger
 3 turbines are, if there are any?
 4 A. Sure. You need a wind resource, appropriate wind
 5 resource. So a higher average wind speed for a
 6 site. So you won't see larger turbines at low wind
 7 sites like, say, northern Minnesota has. They work
 8 very well for places like here in Oliver County
 9 where we have a very high average wind speed.
 10 Q. Are there any additional maintenance or operational
 11 or site concerns or issues with the larger turbines?
 12 A. No, actually, they provide an advantage because you
 13 can produce the same amount of energy or provide the
 14 same capacity with fewer turbines so your impact on
 15 the environment is less.
 16 Q. Okay.
 17 A. You take up less area. They are a little taller, so
 18 if you're the person maintaining them it's a little
 19 extra climbing.
 20 Q. So you can't be afraid of heights?
 21 A. That's correct.
 22 Q. That leads to my next question, which was, then, did
 23 you use fewer turbines as a result of having the
 24 larger turbines or did you just get more energy
 25 produced from the same area, or both?

Page 36

1 A. Both. So for Bison 2 and 3, which is 210 megawatts,
 2 which is pretty close in size, is 70 turbines of the
 3 3.0 megawatt. Bison 4, which is 204.8 megawatts
 4 only requires 64 turbines. And Bison 4 is projected
 5 to produce more energy with those 64 turbines than
 6 the Bison 2 and 3 70 turbines.
 7 Q. Hmm. Good. And then you mentioned the 35-year
 8 lifespan. What is that based on?
 9 A. So we've had an independent engineering firm perform
 10 studies to look at expected life and what can be
 11 achieved. And their process included looking at
 12 comparable -- on a component level, looking at
 13 comparable components, you know, whether it's in the
 14 power industry generators and things like that, and
 15 structures like towers as to what life could be
 16 expected, what life are they seeing in other
 17 applications and what types of maintenance would be
 18 required to achieve that life.
 19 Q. Okay. Is there any historical experience with these
 20 towers or comparable use in other places that, you
 21 know, we have a history to look back on, a 35-year
 22 history? Or is this a pretty new application?
 23 A. Wind towers and energy goes back, at least of
 24 utility scale, goes back to the '70s.
 25 Q. Um-hum.

Page 37

1 A. So there's been -- there is information available on
 2 various parts of the turbines and how they age.
 3 Going back that far, obviously the designs have
 4 improved a lot over those years, so each year we --
 5 the manufacturers learn lessons over time that
 6 provide them with information.
 7 Q. Okay.
 8 A. In addition, again, we use, wherever possible,
 9 would -- comparisons to equipment that may not be --
 10 that is similar to what's in the turbine, but may be
 11 used by a different industry, and that also goes
 12 back, you know, a significant amount of time.
 13 Q. Um-hum. I've seen studies of some of the towers on
 14 farms in Europe that projected a longer lifespan,
 15 maybe 20, 25 years, and they're finding that they
 16 aren't living that long and needing more investments
 17 earlier. Have you seen similar studies, are you
 18 concerned about that, have you prepared for that in
 19 the long-term costs of this project or what are your
 20 thoughts on that?
 21 A. Yeah, we have prepared for the need to invest
 22 capital on an ongoing basis and then to make
 23 significant investments when we get to that 20-year
 24 time frame to make sure that we can extend the life
 25 beyond to our 35-year expectation.

Page 38

1 Q. Okay, great. Okay. So tell me, have you -- maybe
 2 there's a different witness that's going to talk
 3 about this. Have you had any opposition from
 4 neighbors? You mentioned you have all the easements
 5 in place, or options for them. Have you met much
 6 resistance to this project?
 7 A. No.
 8 Q. No. Okay. Let's see here. A couple other
 9 questions. And this is an opportunity -- all of our
 10 questions aren't necessarily directed relating to
 11 the siting of this project, but we are observing a
 12 major change in the electric industry and use these
 13 kind of hearings as an opportunity to get
 14 information from experts like you that help educate
 15 us on a better understanding of the switch from
 16 wind, from baseload, you know, coal, gas, to wind
 17 and how we're incorporating these renewables, and so
 18 I appreciate you sharing some of your knowledge with
 19 me on the next few questions.
 20 Can you tell me -- I realize you probably
 21 can't tell me, be real specific about the megawatt
 22 cost of this project, but can you give me a range of
 23 costs of what this energy is from this -- this
 24 facility per megawatt?
 25 A. Sure. So I think I testified that it was a \$345

Page 39

1 million expected construction fee.
 2 Q. Um-hum.
 3 A. Excuse me. So at 204.8 megawatts -- I don't have my
 4 calculator -- it's roughly around \$1,650 per
 5 kilowatt.
 6 Q. Okay. If you can go to megawatt-hour, I guess, is
 7 what I'm asking. So the costs that the customers
 8 are going to be paying for this. A range? And if
 9 you can't, I understand. I know some of that is
 10 protected, but...
 11 MR. MOELLER: As a clarification, I mean,
 12 we've done a public number for our Bison 2 and Bison
 13 3 projects, would that be a good proxy for what --
 14 COMMISSIONER FEDORCHAK: Sure.
 15 MR. MOELLER: I don't know, we haven't
 16 done our Minnesota filing yet for Bison 4, but we're
 17 in the process of doing that, which will have a
 18 public number in it, but we just haven't finalized
 19 that. But I think what we said publicly for Bison 2
 20 and Bison 3 is, of course, fine to say.
 21 THE WITNESS: Can I ask you a question?
 22 MR. MOELLER: Sure.
 23 JUDGE WARD: Well, that's up to me, but
 24 yes, you can.
 25 Why don't you guys take a little minute

Page 40

1 break and work this out and then come back.
 2 (Break taken.)
 3 JUDGE WARD: Okay. We'll go back on the
 4 record.
 5 And, Mr. Moeller, I'll let you do this in
 6 typical question and answer format, so if you'd like
 7 to address the question in the form of a redirect.
 8 MR. MOELLER: I think we're fine with
 9 answering Commissioner Fedorchak's question.
 10 JUDGE WARD: Okay.
 11 MR. MOELLER: I just wanted to make sure
 12 we're on the same page.
 13 JUDGE WARD: All right.
 14 THE WITNESS: \$25 to \$30 per
 15 megawatt-hour.
 16 BY COMMISSIONER FEDORCHAK:
 17 Q. Okay. All right. In that cost, do you factor in
 18 the costs of ramping up and down your backup power?
 19 Is that factored into the cost of the wind or is
 20 that factored into the cost of the other power?
 21 A. Our rate impact to customers takes that into
 22 account.
 23 Q. But when we're talking about the cost of wind
 24 generally and using it in public policy discussions,
 25 do you factor -- do you add that to this \$25 to \$30,

Page 41

1 is that included or not? This is just your straight
 2 cost of the wind.
 3 A. That is not included.
 4 Q. Okay. Any estimate what percent that might be if
 5 you were to factor that in?
 6 A. I wouldn't have that number.
 7 Q. No. Okay. And then a couple questions about --
 8 additional questions on costs. Why are the capital
 9 costs decreasing?
 10 A. Currently, with the sort of last-minute extension of
 11 the production tax credit on January 2nd of this
 12 year, so it was a late decision to extend it and
 13 it's extended only for projects that begin
 14 construction before the end of the year. That
 15 limits -- has been limiting for some developers in
 16 that they are not able to put together a project
 17 within that time frame. As a result, there's -- it
 18 provides an advantage to us, we're looking to buy
 19 turbines with fewer people -- with the market being
 20 down for turbine sales, slightly, that provides some
 21 advantageous pricing.
 22 Q. Okay. So there was a good supply of the products?
 23 A. That's correct.
 24 Q. Okay. And then the final question, the million
 25 dollar question, would you be building this without

Page 42

1 the PTC? Would it be affordable? Could you make it
 2 work?
 3 A. I don't know that I can answer that question.
 4 COMMISSIONER FEDORCHAK: Okay. That's
 5 all my questions, Judge. Thank you.
 6 JUDGE WARD: Commissioner Christmann had
 7 a couple of questions.
 8 CONTINUED EXAMINATION
 9 BY COMMISSIONER CHRISTMANN:
 10 Q. Explain to me the customer base of Minnesota Power?
 11 A. The customer base, we have a mix of residential and
 12 commercial and industrial. Our industrial customers
 13 make up a large portion of our total customer base,
 14 our large power generators, which include the
 15 taconite industry, also the paper products industry.
 16 Q. Primarily the rural areas of Minnesota, though?
 17 A. Yeah. So we serve northern Minnesota, a large
 18 portion of northern Minnesota, ranging from Duluth
 19 and International Falls down to Little Falls north
 20 of St. Cloud, serving the small towns and
 21 surrounding areas in that region.
 22 Q. Anything outside of Minnesota?
 23 A. No. Oh, I'm sorry. Minnesota Power does not.
 24 ALLETE has a company that is Superior Power & Light
 25 that serves Superior, Wisconsin.

Page 43

1 Q. Okay. And then a number of years ago the
 2 legislature tasked the Public Service Commission
 3 with dealing with decommissioning of wind farms.
 4 And the rules that the Commission at that time
 5 adopted and still exist call for a number of things.
 6 One of them is that the companies file a
 7 decommissioning plan, and another is that after ten
 8 years of operation that the Commission can require
 9 bonding or some other types of financial assurance
 10 to make sure that when the farm is no longer in
 11 production, and that's all laid out clearly what
 12 that exactly means, that there will be, in fact,
 13 money available to make sure that these things are
 14 dismantled and the land reclaimed.
 15 I'm going from memory here, but I know
 16 for sure that ALLETE, or Minnesota Power, whoever
 17 did the filing, I don't recall, but that your
 18 decommissioning plans have, in fact, been filed as
 19 they're supposed to be. I believe that you all are
 20 one of the companies that acknowledged the potential
 21 need for the financial assurances. But I guess my
 22 question here is on Bison 4, if the Commission at
 23 some point in the future does, in fact, decide to
 24 require financial assurances or bonding or some type
 25 of financial assurance, are you willing to do that?

Page 44

1 A. I believe so.
 2 COMMISSIONER CHRISTMANN: Okay. Thank
 3 you. I have no further questions.
 4 JUDGE WARD: Okay. Chair Kalk.
 5 CHAIR KALK: Thank you, Your Honor. Just
 6 a couple follows ups.
 7 CONTINUED EXAMINATION
 8 BY CHAIR KALK:
 9 Q. Thank you for your testimony again and your
 10 questions.
 11 You were talking to Commissioner
 12 Christmann about who the customer base is of who
 13 this wind farm will serve, but is it --
 14 (Random recording: "I don't get it.")
 15 UNIDENTIFIED: Nor do we.
 16 CHAIR KALK: That's why I'm asking
 17 questions, right?
 18 JUDGE WARD: I think we might have to ask
 19 you to shut your iPads off as well as your cell
 20 phones.
 21 UNIDENTIFIED: I thought I shut it off,
 22 Your Honor. That's funny.
 23 THE WITNESS: I don't get the question.
 24 BY CHAIR KALK:
 25 Q. All right. So when your wind farms are operating at

Page 45

1 capacity and your customer base needs them, you'll
 2 use all that energy in your own markets, correct?
 3 A. That's correct.
 4 Q. But if you have excess energy being created, you'll
 5 sell it into the MISO market?
 6 A. That's correct.
 7 Q. So anyone in the MISO market will potentially
 8 benefit from this wind farm?
 9 A. Correct. Potentially, yes.
 10 Q. So that would include North Dakota, South Dakota,
 11 Minnesota, Wisconsin, Iowa, just to name a few
 12 states?
 13 A. Correct.
 14 Q. Because I always like to put the face of the guy or
 15 gal in the Cenex station and I think there's a
 16 perception that this wind farm will only be
 17 benefiting Minnesota. And I would agree that the
 18 majority of this wind will benefit Minnesota
 19 customers, but at two and a half cents a kilowatt,
 20 that'll be a very competitive price to bid into the
 21 MISO market. Would you agree with that?
 22 A. Yes.
 23 CHAIR KALK: Okay. Thank you.
 24 JUDGE WARD: Okay. Mr. Moeller, any
 25 redirect for this witness?

Page 46

1 MR. MOELLER: Do I have to swear Siri in,
 2 too?
 3 REDIRECT EXAMINATION
 4 BY MR. MOELLER:
 5 Q. Just one brief question, Mr. Gartner. On the
 6 decommissioning, we have testimony on this as well,
 7 but on the decommissioning, is Minnesota Power a
 8 public utility?
 9 A. Yes.
 10 Q. And does Minnesota Power as a public utility file
 11 decommissioning -- have decommissioning obligations
 12 with the Minnesota Public Utilities Commission?
 13 A. Yes.
 14 Q. And would you -- would Minnesota Power assume those
 15 obligations through its, you know, as a rate
 16 regulated utility by the Minnesota Public Utilities
 17 Commission?
 18 A. Yes.
 19 Q. Okay. So in addition to the financial assurances,
 20 we may have other obligations in Minnesota that we'd
 21 be willing -- that we have to adhere to as well?
 22 A. That is correct.
 23 MR. MOELLER: Okay. No further
 24 questions.
 25 JUDGE WARD: Any recross, Mr. Armstrong?

Page 47

1 MR. ARMSTRONG: Just one.
 2 RECROSS-EXAMINATION
 3 BY MR. ARMSTRONG:
 4 Q. And those obligations that Mr. Moeller was asking
 5 about apply to sites in North Dakota, is that your
 6 understanding?
 7 A. Yes.
 8 MR. ARMSTRONG: That's all. Thank you.
 9 MR. LEIN: No questions, Your Honor.
 10 JUDGE WARD: Mr. Gartner, you may step
 11 down. Thank you. Remember, if you do come back,
 12 you'll still be under oath.
 13 Mr. Moeller, your next witness?
 14 MR. MOELLER: My next witness is Matt
 15 Freudenrich.
 16 JUDGE WARD: Matt, the first thing I'm
 17 going to have to ask you to do is spell your last
 18 name. I can handle Matt.
 19 THE WITNESS: All right. Last name is
 20 spelled F-R-E-U-D-E-N-R-I-C-H, Freudenrich.
 21 JUDGE WARD: Okay. Thank you.
 22 As I did with Mr. Gartner, I'm required
 23 by law to advise you of the penalties regarding
 24 perjury in this state before you testify. Perjury
 25 is a class C felony. A class C felony is subject to

Page 48

1 a maximum penalty of five years in prison, a fine of
 2 \$5,000 or both could be imposed. Having been
 3 advised of these penalties, do you promise to tell
 4 the truth, the whole truth, and nothing but the
 5 truth in this proceeding?
 6 THE WITNESS: I do.
 7 JUDGE WARD: Thank you.
 8 Mr. Moeller.
 9 MATT FREUDENRICH
 10 DIRECT EXAMINATION
 11 BY MR. MOELLER:
 12 Q. Mr. Freudenrich, please state your name, your
 13 employer, and your occupation.
 14 A. Yeah. My name is Matt Freudenrich, employed by
 15 Minnesota Power, 30 West Superior Street, Duluth,
 16 Minnesota 55802. I'm employed as a civil engineer.
 17 Q. Please provide your educational background.
 18 A. I have a bachelor of science degree from North
 19 Dakota State University in civil engineering.
 20 Q. Please provide a brief description of your
 21 professional background.
 22 A. So I'm a registered professional engineer in the
 23 states of Minnesota and North Dakota. I've been
 24 employed by Minnesota Power in the role of civil
 25 engineering for approximately two years. I've been

Page 49

1 involved in the design, construction and
 2 commissioning electrical generating facilities and
 3 high voltage electrical substations.
 4 Q. Have you previously provided testimony before the
 5 Public Service Commission?
 6 A. No, I have not.
 7 Q. What is your role in connection with the Bison 4
 8 wind project?
 9 A. I'm the project implementation manager. I'm
 10 responsible for coordination and oversight of
 11 regulatory approvals, acquisition of land rights,
 12 engineering, and construction for the project.
 13 Q. What is the purpose of your testimony at this
 14 proceeding?
 15 A. My purpose -- the purpose of my testimony is to
 16 provide a description of the proposed project,
 17 facilities, and construction schedule.
 18 Q. Has Minnesota Power obtained adequate land rights to
 19 support this project?
 20 A. Minnesota Power has obtained signed options to
 21 purchase easements on properties necessary for
 22 construction and the wind generation facilities.
 23 Q. What is the construction schedule for this project?
 24 A. With receipt of the Commission's order by
 25 September 25th, 2013, we anticipate starting

Page 50

1 construction immediately and work until site
 2 conditions are impracticable for construction. We
 3 will commence construction again in April 2014. We
 4 anticipate delivery of the Siemens turbines June
 5 2014, with erection of turbines starting June 2014.
 6 We anticipate commissioning to start August 2014 and
 7 complete the project by January 2015.
 8 Q. And why is it important to start construction in
 9 late September, assuming we have an order by
 10 September 25th? I don't mean to make an assumption
 11 there.
 12 A. So it's necessary to start construction in late
 13 September for two reasons. First, the start of
 14 construction is one of the ways to qualify for the
 15 production tax credit. And second, starting late
 16 September will help ensure the project schedule will
 17 be met and that the site will be ready for turbine
 18 deliveries in June 2014.
 19 Q. If Minnesota Power is not able to begin construction
 20 this fall, how would that impact the project
 21 schedule?
 22 A. Yeah. So if construction is not able to begin in
 23 the fall of 2013, there's a high potential that the
 24 site may not be ready in time to support turbine
 25 deliveries in June 2014. Due to weather

Page 51

1 uncertainties in the spring of 2014, it is best to
 2 achieve as much of the site work in 2013 as possible
 3 in order to take advantage of the time available.
 4 If the Commission's order is delayed into
 5 October 2013, the current work scheduled would need
 6 to be reevaluated to see if the work was still
 7 achievable in 2013 due to the fact that most of the
 8 activities are weather sensitive causing these
 9 activities to be pushed into 2014. And then moving
 10 activities into 2014 could have major costs and
 11 schedule impacts due to accelerated schedule
 12 activities and also weather unknowns.
 13 Q. What is the purpose of the collector system?
 14 A. The 34.5 kV collector system carries power generated
 15 by the wind turbines to the collector substation.
 16 Q. Please provide more detailed information about the
 17 collector system.
 18 A. So the collector system will be comprised of
 19 underground cable buried to a depth providing a
 20 minimum of 42 inches of cover to minimize the impact
 21 of agriculture operations and avian habitat.
 22 Q. Why is Minnesota Power requesting a modification to
 23 the standard 48 inch minimum cover burial depth?
 24 A. Okay. So a modification is consistent with the
 25 Commission's decision for Bison 1, 2 and 3. The

Page 52

1 National Electric Code requires a minimum of 36
 2 inches of cover over the 34.5 kV collector system
 3 conductors. Minnesota Power believes a minimum
 4 burial depth should be 42 inches. 42 inches avoids
 5 substantial use of box trenches or excavating
 6 material away from edges of the trench for the
 7 majority of the collector system cable runs, which
 8 comes at a significantly higher cost.
 9 Q. Will additional transmission lines be needed for the
 10 Bison 4 project?
 11 A. Yes. The existing 230 kV generator outlet
 12 transmission line placed in service in 2010 connects
 13 existing Bison substation to the point of
 14 interconnection with electrical power grid at the
 15 existing 230 kV Square Butte substation located near
 16 the Milton R. Young electrical generating station.
 17 In addition, Minnesota Power will need to construct
 18 11 miles of new 230 kV transmission line to connect
 19 the Bison substation to a new substation which is
 20 called the Tri County substation.
 21 Q. What is the estimated work force during
 22 construction?
 23 A. We anticipate the construction workforce will peak
 24 at approximately June 2014 to right around 300
 25 personnel.

Page 53

1 Q. Will Minnesota Power utilize local workforce?
 2 A. Yes, we expect our construction contractors will
 3 utilize a combination of their own skilled
 4 supervision and also local labor.
 5 Q. How many personnel are expected to operate and
 6 maintain the wind project?
 7 A. We expect approximately eight additional personnel
 8 will be required to operate and maintain the Bison 4
 9 wind turbines and associated facilities.
 10 Q. Please describe the foundations required for the
 11 wind turbines.
 12 A. The cast in place reinforced concrete turbine
 13 foundations are likely to be of the spread footing
 14 type, actually will be the spread footing type, and
 15 will likely be approximately 60 feet in diameter and
 16 approximately 11 feet thick depending on soil
 17 conditions.
 18 Q. Please describe the lighting for the wind turbines.
 19 A. The wind turbines will be visible from a distance
 20 and will have lighting and markings that comply with
 21 the Federal Aviation Administration requirements.
 22 We will also consult with the North Dakota
 23 Aeronautics Commission and will comply with their
 24 requests for lighting and marking wind turbines as
 25 well as a permitted meteorological tower associated

Page 54

1 with the Bison 4.
 2 Q. Please describe the design of the roads required for
 3 the project.
 4 A. So access roads are routed and designed to avoid or
 5 minimize disturbance to wetlands, avoid cultural
 6 resources, minimize the impact of farming
 7 operations, and to meet the grade and turn radius
 8 requirement for -- requirements for turbine
 9 deliveries, delivering turbine components. The
 10 project will require development of approximately 19
 11 miles of access roads. The roads are designed with
 12 a 20-foot wide driving surface consistent with
 13 Oliver County standards. The aggregate surface
 14 thickness will exceed the county standards.
 15 Q. What is Minnesota Power's commitment to
 16 decommissioning the wind generation facilities?
 17 A. Minnesota Power will comply with the requirements of
 18 the North Dakota Century Code, Section 49-02-27,
 19 including filing a decommissioning plan prior to
 20 Bison 4 being placed in service. At the end of the
 21 project's useful life, Minnesota Power will remove
 22 unused facilities to a depth of 36 inches below the
 23 surrounding ground surface and restore the area to
 24 substantially the same physical condition that
 25 existed immediately before the construction of the

Page 55

1 project.
 2 Also, as a Minnesota public utility,
 3 Minnesota Power will need to comply with all the
 4 financial decommissioning obligations of the
 5 Minnesota Public Utilities Commission.
 6 Q. Does this complete your direct testimony?
 7 A. Yes, it does.
 8 MR. MOELLER: No more questions, Your
 9 Honor.
 10 JUDGE WARD: Thank you.
 11 Mr. Armstrong.
 12 CROSS-EXAMINATION
 13 BY MR. ARMSTRONG:
 14 Q. Thank you, Mr. Freudenrich. A couple questions for
 15 you. Obviously, if they're more appropriate for the
 16 next witness or a different witness, please let me
 17 know.
 18 You talked some about the construction
 19 schedule and I guess the need for an order so that
 20 you can start construction this fall and you
 21 discussed the delays and the potential costs of
 22 that. Are there other construction schedule
 23 considerations as far as for mitigating any
 24 potential impacts to wildlife or birds, you know,
 25 things of that that are going to be in place during

Page 56

1 the nesting season, I guess?
 2 A. I guess I'd like to refer that question to Dan
 3 McCourtney.
 4 Q. Okay.
 5 A. He can better answer.
 6 Q. You testified that you're requesting a modification
 7 to bury the lines to 42 inches of depth and that
 8 that was the depth on the other Bison projects.
 9 Have you had any problems as a result of that depth
 10 being 42 rather than 48 on those other projects?
 11 A. We have not.
 12 Q. Would you tell us a little more? I mean, so is
 13 this -- you discussed that if it's 48 you need
 14 trenching and things of that nature, which I believe
 15 are OSHA requirements. Is there any other safety
 16 reason or any other reason why you could see that 48
 17 versus 42 would be more important for this type of
 18 project?
 19 A. I don't believe so. Like it was stated in my
 20 statement here, that any C code is 36 inches, and
 21 we're exceeding that, so we believe that it
 22 definitely meets or exceeds the requirements.
 23 Q. You testified about the lighting requirements for
 24 turbines from the FAA and that you would contact the
 25 Aeronautics Commission about any additional lighting

Page 57

1 requirements. Have they required some additional
 2 lighting for the other Bison projects?
 3 A. Previously we did do an FAA permitting for each of
 4 the turbines. The FAA actually tells us which
 5 turbines will be lit and which ones will be not.
 6 And we follow the same process for the Bison 4 right
 7 now.
 8 Q. I guess the question is based on your past
 9 experience with the other Bison projects, are you
 10 expecting additional requirements from the
 11 Aeronautics Commission?
 12 A. We are not.
 13 Q. I see from the first -- well, Exhibit 1, which is
 14 the original application to the second application,
 15 you've kind of, I guess, confined the area that
 16 you're requesting to be sited for this project.
 17 Would you agree with that general statement?
 18 A. Yes.
 19 Q. It looks to me like part of that was avoiding coal
 20 deposits. Was that part of the reason?
 21 A. I guess I'd like to defer that to Dan, he actually
 22 worked with our environmental consultant.
 23 Q. And then I guess my last question, then, and maybe
 24 this is for him also, but in the map, Exhibit 1-A of
 25 Exhibit 2, the final map, I believe, in the middle

Page 58

1 section, if you will, there's a square project line,
 2 which I assume excludes that property in the middle.
 3 I'm wondering if you could give us an idea why? Or
 4 if I'm reading that correctly first, and then if so,
 5 why?
 6 UNIDENTIFIED: (Inaudible).
 7 MR. ARMSTRONG: I'm on Exhibit 2, the
 8 amendment, it's the first page of the exhibit.
 9 JUDGE WARD: Is that the one marked
 10 exclusion and avoidance area?
 11 MR. ARMSTRONG: It is marked Exhibit 1-A,
 12 Project Location-2010 Imagery.
 13 JUDGE WARD: Okay.
 14 MR. ARMSTRONG: It's on both. It's on
 15 all the maps.
 16 THE WITNESS: Yeah, if I can defer that
 17 one to Dan McCourtney.
 18 MR. ARMSTRONG: Okay. That's all the
 19 questions I have.
 20 JUDGE WARD: Okay. Mr. Lein, any
 21 questions for this witness?
 22 MR. LEIN: Yeah.
 23 CROSS-EXAMINATION
 24 BY MR. LEIN:
 25 Q. Can you expand a little bit on what you meant by

Page 59

1 decommissioning obligations of the Minnesota Public
 2 Utilities Commission? What are their obligations,
 3 what does that involve?
 4 A. To be honest, that'll probably be a better question
 5 for Barry Gartner, he's more involved with the
 6 regulatory filing with the Public Utilities
 7 Commission.
 8 MR. LEIN: All right. Thanks. That's
 9 all I had.
 10 JUDGE WARD: Commissioners.
 11 Chairman Kalk.
 12 CHAIR KALK: Thank you, Your Honor.
 13 EXAMINATION
 14 BY CHAIR KALK:
 15 Q. Thank you, Matt, for your testimony.
 16 Just a couple quick questions. In order
 17 to qualify for the production tax credit, you have
 18 to start construction. What does that mean, start
 19 construction? Are you making a road, have you
 20 started construction, how do they define that?
 21 A. There's a couple different ways, but some of the
 22 main ways, it is starting construction on either the
 23 collector system, the roads, or the foundations.
 24 And to the best of our interpretation, and we also
 25 have third-party legal actually looking at this as

Page 60

1 well, but started roads does count, but definitely
 2 the -- it's hard to -- it's hard to -- basically the
 3 turbine foundation, there's no judgments on whether
 4 it was or was not for a wind generating facility.
 5 Q. So if you can get a foundation formed up this fall,
 6 that definitely starts construction?
 7 A. Absolutely.
 8 Q. Fair enough. You talked about a met tower, there's
 9 a permanent met tower being in the project area?
 10 A. Yes.
 11 Q. This Commission has had a lot of discussion with the
 12 Aeronautics Commission and other groups about
 13 concerns about met towers, just so they're located
 14 and the right maps. Do you know if these are
 15 going -- the met tower locations are filed somewhere
 16 with the FAA or with the Aeronautics Commission?
 17 A. The met tower location is. And the met tower
 18 location is actually shown on this exhibit.
 19 Q. But is that filed with the other turbines?
 20 A. Yes.
 21 Q. Okay. So it's included?
 22 A. It's filed at the same time as our turbine FAA
 23 permits.
 24 Q. Okay, great. Previous experience with wind farms
 25 I'd say for the most part has been very positive in

Page 61

1 North Dakota, but we've had a couple instances
 2 taking place, one was in the Rugby wind farm,
 3 basically the rotor had just fell off. And it went
 4 back to, they constructed it on a day that was too
 5 cold and the people out there working just weren't
 6 doing the best they could 'cause it was 25 below.
 7 During construction, who makes the decision if today
 8 is just not a good day to be out there working?
 9 A. It would be -- in this case it would be Siemens
 10 Energy. Siemens will have the contract for the
 11 turbine erection. But it would also be in part with
 12 Minnesota Power. And to that point, whichever,
 13 Siemens has quality control plans, so I guess an
 14 event where the rotor fell off it probably was
 15 someone that wasn't doing their job.
 16 Q. It just came down, it was just too cold and they
 17 just didn't do things right.
 18 A. Sure.
 19 Q. But is there a standard operating procedure where if
 20 it's below a certain temperature that they don't
 21 work that you're aware of?
 22 A. Correct. Siemens does.
 23 Q. Okay. So you're aware they have a plan, you're just
 24 not sure what that number is?
 25 A. I'm not sure exactly.

Page 62

1 Q. Okay. Fair enough. And another case we had was the
 2 wind farm south of Minot, the electrical ones, the
 3 blade itself just collapsed after being used for a
 4 couple of years. Have you had any concern about
 5 these particular turbines with blade failures?
 6 A. We have not. Not for the ones that we've selected.
 7 Q. All right. Well, thank you, Matt. And I noticed
 8 you're a Bison grad, too --
 9 A. I am.
 10 Q. -- so once again. What year did you finish?
 11 A. December 2003 is when I graduated.
 12 Q. Thank you.
 13 JUDGE WARD: We're working on a bingo,
 14 Commissioner.
 15 Commissioner Christmann.
 16 EXAMINATION
 17 BY COMMISSIONER CHRISTMANN:
 18 Q. One thing I noticed when I was reading the
 19 decommissioning reports, I didn't find anything in
 20 there about hazardous materials inventories. Is
 21 there a hazardous material inventory for the current
 22 wind farms that's available publicly? And would
 23 there be for this one?
 24 A. Yeah. I know that we keep track of all our MSDS, we
 25 do have material safety data sheets for everything,

Page 63

1 but I'd like to refer that to Dan McCourtney, he'd
 2 definitely know what we have on site.
 3 Q. Okay. Mr. Armstrong had a couple questions
 4 regarding the lighting for protecting aircraft.
 5 Where does the power come from for those? I mean,
 6 it seems obvious that it would be just produced by
 7 yourself, but what about when the wind isn't
 8 blowing, what powers the lights?
 9 A. The turbines do have backfeed to the substation.
 10 Q. And there's batteries, then, that store power for --
 11 A. No, this would actually be coming from the grid
 12 side. So it would be -- the turbines would actually
 13 be using power during that time if they're not
 14 generating.
 15 Q. Okay. And lastly and the main thing I wanted to
 16 visit with you about has to do with the burial of
 17 the connection lines. The concern I have wasn't put
 18 on the record or anything, it came from discussions
 19 during the legislative session when we were talking
 20 about the One Call program.
 21 A. Yeah.
 22 Q. And I don't have personal experience with this, but
 23 this was the number that was thrown out, is that
 24 some of the soil testers are going down three to
 25 four feet now. And so the concern, and this

Page 64

1 primarily came from people on the eastern part of
 2 the state, so I don't know if their heavier soil has
 3 something to do with that or not, I don't know
 4 whether our soil testers out here are going to that
 5 depth, but the concern was that as we increased the
 6 penalties for violating One Call, we were
 7 potentially putting the soil testers and the ag
 8 producers in a bind because, you know, that's
 9 something that's done oftentimes quickly based on
 10 the weather or something like that, and that they
 11 would have to call in One Calls on all these
 12 properties if those lines weren't four feet deep.
 13 Have you had any discussions with ag producers or
 14 soil testers in regards to the depth of your lines?
 15 A. Have not. No. I can say that all of our lines are
 16 entered into the One Call system almost immediately,
 17 if not just prior to installation, just so that no
 18 one would also dig through a line that was installed
 19 but not commissioned yet.
 20 Q. Well, one thing that I'm going to need to get my
 21 arms around before approving any of these is making
 22 sure of how a wind farm is going to work with
 23 production agriculture. And I think it's in your
 24 interest, too, because it's not going to be a
 25 pleasant thing for the company if every year you

Page 65

1 have to come out and mark all those 42-inch lines
 2 every time someone wants to work their fields. And
 3 so it's just something that's hanging out there and
 4 I certainly need more information about that.
 5 A. Yeah. I would just want to comment on that, though.
 6 So our minimum depth is 42 inches, and a lot of
 7 times it might be slightly deeper than that because
 8 we do strip the topsoil and then install the cable
 9 and then the topsoil does get placed back on, so
 10 it's a minimum of 42 inches.
 11 Q. Okay. And my last question is, when you do your
 12 road system or the turbine placements, do you save
 13 some topsoil somewhere and stockpile it for future
 14 decommissioning?
 15 A. No, we do not. So what happens is during the
 16 construction process we strip the topsoil to the
 17 limits, to the easement limits. And then during
 18 post construction and then also during the -- during
 19 the finishing phases and the construction phases, we
 20 respread the topsoil and we blend it back into
 21 the -- whatever is there, either the side of the
 22 road, side of the ditch, into the back of the
 23 foundation. But as far as -- but we don't remove
 24 any topsoil off-site, so in the future some of the
 25 topsoil might be slightly deeper than it once was.

Page 66

1 As far as commissioning, or decommissioning, I
 2 believe it would not be a problem respreading
 3 topsoil over the decommissioned area.
 4 Q. Well, if there's a stretch of road that eventually
 5 at decommissioning time the landowner wants removed,
 6 I assume you have some gravel or some aggregate
 7 spread there, and so you come and clean that up.
 8 Are you going to pick up a fair amount of the
 9 topsoil, I presume, doing that, if it hasn't been
 10 pulled out and saved. So where is the topsoil going
 11 to come from in order to get that grass or cropland
 12 back into healthy production?
 13 A. During the decommissioning process you would go to a
 14 similar situation as to -- as to when you're
 15 starting construction. So you'd push the topsoil to
 16 the limits, do your earthwork, 'cause that was the
 17 limits that we worked within, and then you'd spread
 18 it back over. So I believe the process would --
 19 would create a positive outcome.
 20 Q. Okay. Thank you.
 21 JUDGE WARD: Commissioner Fedorchak.
 22 EXAMINATION
 23 BY COMMISSIONER FEDORCHAK:
 24 Q. You started to get into this map, but if you could
 25 just kind of walk us through the construction

Page 67

1 process just kind of in stages and a summary.
 2 A. Okay. So the first initial stages would be we would
 3 start on the turbine access roads, so we would strip
 4 the ground, do the earthwork, and then install the
 5 gravel. 'Cause obviously in solid foundations you
 6 need to be able to get concrete trucks there. So
 7 you do the roads, you'd excavate the turbine
 8 foundations, you would pour the turbine foundations,
 9 do the backfilling.
 10 So currently this year we have planned
 11 doing the access roads. Most of the access roads,
 12 most of the foundation, or majority of foundations,
 13 and then starting on collection. Collection is kind
 14 of its own activity because it runs basically from
 15 the substation out to each turbine. So the sub --
 16 or the collection activity would be starting this
 17 year as well, and it's usually in the preliminary,
 18 in the early phases of the construction.
 19 So the roads are usually the first to be
 20 completed, foundations, we install the collector at
 21 the same time. Once the foundations are completed,
 22 they're backfilled and at that time you can actually
 23 install your transformer, you can install your crane
 24 pad. Then obviously, in this case, early to mid --
 25 or June 2014, the turbine components would start

Page 68

1 delivering. So the turbine components start
 2 delivering at a certain rate throughout next year.
 3 And then -- and then after that there's a couple
 4 different phases for erection. You have the offload
 5 and then you have a preassembly crane, which
 6 typically puts the bottom two sections of the tower
 7 on and then builds a rotor. And then you'd have a
 8 main erection crane that would stack the tower up.
 9 Post that, we would -- that's the time
 10 where we actually do all the restoration, so any
 11 crane paths that were installed. And then we do
 12 restoration, any kind of road work. Usually the
 13 turbine delivery radii that we do improvements on,
 14 we'll remove those as well during that time, or
 15 actually once we know that we got all the trucks in
 16 that we need. And then obviously the commissioning
 17 phase. Commissioning will start and, like I say, we
 18 anticipate the project to be commissioned on or by
 19 January 2015.
 20 Q. Okay. How many truckloads does each tower require?
 21 A. I'd have to do the math. I believe it's eight
 22 trucks.
 23 Q. Eight trucks. And where do you stage all that
 24 equipment while you're putting it up?
 25 A. We stage it at each tower site.

Page 69

1 Q. Okay.
 2 A. I should do the math quick.
 3 Q. Then --
 4 A. Sorry.
 5 Q. That's all right. He's calculating how many semis
 6 are required.
 7 UNIDENTIFIED: Doctor (inaudible) would
 8 be proud of you right now.
 9 THE WITNESS: Yeah. I believe in the
 10 range of nine to ten, there are probably some -- I
 11 mean, you can call them a power unit, which might
 12 increase it to another one, but roughly the ten
 13 range.
 14 BY COMMISSIONER FEDORCHAK:
 15 Q. Okay. Each blade is one truck?
 16 A. Correct.
 17 Q. The tower is three?
 18 A. There's four sections.
 19 Q. Four sections?
 20 A. To the tower, yep.
 21 Q. Okay. And then the components?
 22 A. Yeah. And the cell hub.
 23 Q. Okay. Interesting. In the decommissioning, I'm
 24 curious, there's 11 feet of concrete in the
 25 foundation?

Page 70

1 A. Yeah. So that's its maximum depth.
 2 Q. Maximum. How much of that is removed in
 3 decommissioning?
 4 A. We remove the top three feet.
 5 Q. Okay. All right. Okay. And then this is a kind of
 6 bizarre question, but I'm going to ask it 'cause I'm
 7 curious about the lights. So the lights need to be
 8 visible for aircraft, right, that's the reason for
 9 the night -- the red light?
 10 A. Correct.
 11 Q. Is there any work being done to make those so that
 12 they're more visible from above and less visible
 13 from the ground?
 14 A. I guess I'm not an expert in this, but I do know
 15 that there is some -- there is some work in the
 16 industry being done to, instead of radiating, to
 17 transmit light upwards.
 18 Q. Okay.
 19 A. I guess the ones we have specified, or Siemens has
 20 specified, I'm not sure exactly what model it is
 21 right now.
 22 Q. Um-hum. Would the company be open to updating those
 23 if a better warning light is developed or invented
 24 to decrease the amount of visibility of the night
 25 lights across the horizon and just make them so it's

Page 71

1 the pilots who see it?
 2 A. I believe if there is a large advancement in that
 3 technology, I believe Minnesota Power definitely
 4 would -- I believe, in my opinion, they would look
 5 into it, yes.
 6 Q. Okay. All right. And then the ultimate question,
 7 how much of Minnesota Power's business plan is
 8 predicated on hiring smart grads from North Dakota
 9 universities?
 10 UNIDENTIFIED: (Inaudible).
 11 JUDGE WARD: Sustained.
 12 COMMISSIONER FEDORCHAK: Thank you, Matt.
 13 THE WITNESS: Thanks.
 14 JUDGE WARD: Mr. Moeller, any redirect
 15 for this witness?
 16 MR. MOELLER: No, Your Honor.
 17 JUDGE WARD: Mr. Armstrong, anything
 18 else?
 19 MR. ARMSTRONG: Yeah, just a couple.
 20 RE-CROSS-EXAMINATION
 21 BY MR. ARMSTRONG:
 22 Q. Mr. Freudenrich, how is it determined where the
 23 collection lines go? Do they follow the roads? How
 24 does that work?
 25 A. To be honest, we choose the path of least

Page 72

1 resistance. So we choose the shortest path where
 2 there's not major obstructions.
 3 Q. Is it areas where there's been surveys conducted
 4 since there's trenching going on? Is that a
 5 requirement? Like the cultural resource surveys
 6 and --
 7 A. Yeah. So what happens is we do initial routing and
 8 then the cultural surveys and everything, once we do
 9 a design for it, they actually go back and verify
 10 all the collector routes. If there is some kind of
 11 impact area, we would have to redesign to avoid
 12 those areas.
 13 Q. Okay. Are they mapped out yet or is that something
 14 that happens during construction?
 15 A. No, they are mapped out right now.
 16 Q. I guess I can find them quick in the exhibits, I
 17 don't know. If they're in there, we'll see when we
 18 review the case, but --
 19 A. Is that the cultural area --
 20 Q. No, the collector line --
 21 A. Okay.
 22 Q. -- plan. Yeah, I --
 23 A. The design is completed.
 24 Q. Thank you.
 25 JUDGE WARD: Anything else,

Page 73

1 Mr. Armstrong?
 2 MR. ARMSTRONG: No, that's all.
 3 JUDGE WARD: Mr. Lein?
 4 MR. LEIN: No questions.
 5 JUDGE WARD: Okay. Mr. Freudenrich, you
 6 may step down.
 7 I think what we'll do at this point, I've
 8 got about 10:30, we'll take a ten-minute break, try
 9 to be back on time at 10:40.
 10 (Break taken.)
 11 JUDGE WARD: Okay. Mr. Moeller, call
 12 your next witness, please.
 13 MR. MOELLER: Our final witness is Dan
 14 McCourtney.
 15 JUDGE WARD: Dan, would you spell your
 16 last name for me, please?
 17 THE WITNESS: M-C-C-O-U-R-T-N-E-Y.
 18 JUDGE WARD: All right. Thank you.
 19 And like the others I have to advise you
 20 of the penalty of perjury in North Dakota and give
 21 you that admonition. Perjury is a class C felony
 22 subject to a maximum penalty of five years in
 23 prison, a fine of \$5,000, or both. Having been
 24 advised of this penalty, please raise your right
 25 hand so I can administer the oath.

Page 74

1 Do you promise to tell the truth, the
 2 whole truth, and nothing but the truth in this
 3 proceeding?
 4 THE WITNESS: I do.
 5 JUDGE WARD: You may proceed,
 6 Mr. Moeller.
 7 MR. MOELLER: Thank you, Your Honor.
 8 DAN MCCOURTNEY
 9 DIRECT EXAMINATION
 10 BY MR. MOELLER:
 11 Q. Mr. McCourtney, please state your name, your
 12 employer, and your occupation.
 13 A. My name is Dan McCourtney. I'm employed by ALLETE,
 14 Incorporated at 30 West Superior Street, Duluth,
 15 Minnesota 55802 as an environmental compliance
 16 specialist.
 17 Q. Have you previously provided testimony before the
 18 Public Service Commission?
 19 A. Yes. I was a witness for the Southwest Oliver
 20 230 kV Transmission Line Project hearing held on
 21 March 4th, 2012 and the ALLETE Clean Energy, Clean
 22 Energy Number One hearing held on May 4th, 2012.
 23 Q. Mr. McCourtney, please provide your professional
 24 background.
 25 A. My formal training and experience is in resource

Page 75

1 management, regional planning, geographic
 2 information systems, wetland delineation, and
 3 wastewater and stormwater management. I've worked
 4 for over 12 years in positions of land management,
 5 natural resource planning and facility siting.
 6 Q. What is your role in connection with the Bison 4
 7 project?
 8 A. I'm responsible for vetting environmental factors in
 9 the siting and design of Minnesota Power's wind
 10 facility. I'm also responsible for securing the
 11 necessary environmental and local government
 12 permits.
 13 Q. What is the purpose of your testimony at this
 14 proceeding?
 15 A. The purpose of my testimony is to answer questions
 16 regarding the environmental aspects of Minnesota
 17 Power's application for a certificate of site
 18 compatibility. I'm also here to provide information
 19 on Minnesota Power's consultation with applicable
 20 environmental agencies and the actions agreed upon
 21 to address any concerns.
 22 Q. Does this project impact any exclusion areas listed
 23 in Chapter 69-06-08 of the North Dakota
 24 Administrative Code?
 25 A. No significant impacts. There are very minor

Page 76

1 impacts through prime or unique farmland. Up to 133
 2 acres of agricultural land will be removed from
 3 production, though it constitutes less than one-half
 4 of one percent of the 22,629 acre project area.
 5 Q. Does any part of the proposed Bison 4 facility
 6 impact any avoidance areas?
 7 A. Yes. There will be negligible impacts on wetland
 8 resources. However, the impacts are anticipated to
 9 be minor and notification to the U.S. Army Corps of
 10 Engineers will not be required. Minnesota Power has
 11 carefully designed the project facilities to first
 12 avoid and then minimize impacts to wetlands.
 13 Q. In what other ways has Minnesota Power honored North
 14 Dakota standards in the design of Bison 4?
 15 A. Beyond addressing exclusion and avoidance areas,
 16 Minnesota Power considered all other criteria listed
 17 in Chapter 69-06-08-01 of the North Dakota
 18 Administrative Code. Using current GIS datasets for
 19 desktop analysis and field intensive biological,
 20 cultural and hydrological surveys, each applicable
 21 criterion was factored into the project layout.
 22 Q. Does the national Environmental Policy Act apply to
 23 this project?
 24 A. No. There's no major federal action associated with
 25 this project, therefore there is no federal nexus

Page 77

1 requiring formal interagency consultation, public
 2 scoping and federal environmental assessment.
 3 Nonetheless, the project must adhere to all federal
 4 laws aimed at protecting the environment. All
 5 projects, regardless of federal involvement are
 6 subject to resource specific federal laws such as
 7 the Clean Water Act, the Migratory Bird Treaty Act,
 8 the Bald and Golden Eagle Protection Act and the
 9 Endangered Species Act. Moreover, as required by
 10 North Dakota's Energy Conservation and Transmission
 11 Facility Siting Act, we consulted with the federal,
 12 state and local agencies, including the U.S. Fish
 13 and Wildlife Service.
 14 Q. Did Minnesota Power modify this project as a result
 15 of federal laws?
 16 A. Yes. After the Bison 3 Wind Project was placed in
 17 service, Minnesota Power discovered a bald eagle's
 18 nest that would have been near potential Bison 4
 19 wind turbine locations. Minnesota Power reported to
 20 the Commission the eagle's nest in the Bison 3
 21 docket after consultation with North Dakota Fish and
 22 Game and the U.S. Fish and Wildlife Service.
 23 Minnesota Power has modified the Bison 4 turbine
 24 layout to avoid this eagle nest location and give it
 25 a buffer of over two miles.

Page 79

1 A. Yes. All proposed turbine locations exceed the PSC
 2 setback requirement of 1.1 times the turbine height,
 3 which for the selected turbine type works out to be
 4 538 feet. The closest turbine to a publicly
 5 maintained road is over 610 feet away.
 6 Q. Do the turbines meet setback requirements from
 7 occupied residences?
 8 A. Yes. All proposed turbine locations exceed the PSC
 9 recommended setback of 1,400 feet. The closest
 10 participating residence is 1,402 feet away from the
 11 nearest turbine and the closest nonparticipating
 12 residence is 5,972 feet away from the nearest
 13 turbine.
 14 Q. Does Minnesota Power consider noise an issue given
 15 these setbacks?
 16 A. No. Minnesota Power does not consider noise an
 17 issue when it is below 50 decibels. Based on our
 18 calculations as provided in the August 2013
 19 supplemental filing, noise levels at all occupied
 20 residences are less than the 50 decibel standard.
 21 The loudest calculated noise level for a
 22 participating residence is approximately 46
 23 decibels. The loudest calculated noise level for a
 24 nonparticipating residence is approximately 37
 25 decibels.

Page 78

1 Q. Have any historic areas which are not specifically
 2 designated as exclusion or avoidance areas been
 3 identified?
 4 A. Not to date. Minnesota Power has performed a class
 5 one and class three resource inventory of the
 6 proposed project site. The results from these
 7 surveys have allowed us to develop a project that
 8 avoids impacting any identified archaeological
 9 locations. The results of both the class one and
 10 class three resource inventories can be found in the
 11 August 2013 supplemental filing. The SHPO
 12 concurrence letter has also been included with the
 13 August 2013 supplemental filing. If a historic area
 14 is discovered during construction activities, we
 15 will work with the North Dakota SHPO to
 16 appropriately mitigate any potential impacts.
 17 Q. This facility is now located in just Oliver County.
 18 Are there any specific wind ordinances that Oliver
 19 County has promulgated?
 20 A. Yes. Oliver County requires a conditional use
 21 permit to construct wind farms. Oliver County
 22 issued a conditional use permit on July 7, 2013 that
 23 can be found in the August 2013 supplemental filing.
 24 Q. Do the turbines meet setback requirements for
 25 maintained roads?

Page 80

1 Q. Has Minnesota Power considered the potential for
 2 shadow flicker?
 3 A. Yes. We've analyzed the potential cumulative shadow
 4 flicker impact of the Bison 4 wind turbines on
 5 occupied residences. The shadow flicker models that
 6 were provided to the Commission as part of our
 7 August 2013 supplemental filing show that the
 8 participating residents with the greatest potential
 9 exposure will experience about 29 hours annually,
 10 which is below the industry recognized standard of
 11 30 hours per year used as a rule of thumb by other
 12 states. Those same models predict that the highest
 13 level of exposure at a nonparticipating residence
 14 would be about five hours annually.
 15 Q. Has Minnesota Power notified landowners within and
 16 around the project boundary a proposed project and
 17 layout?
 18 A. Minnesota Power has notified all landowners within
 19 and around the Bison 4 project boundary of the
 20 proposed project, of this hearing today, as well as
 21 the project layout. In addition, Minnesota Power
 22 has mailed project information to all potentially
 23 affected landowners and has already started
 24 preliminary discussions on how the proposed project
 25 would affect their property. Additional discussions

Page 81

1 with landowners will continue as the project
 2 progresses.
 3 Q. Do you anticipate any significant impacts on areas
 4 of extractive or storage resources?
 5 A. This project will not impact any economic lignite
 6 reserves.
 7 Q. And going to Mr. Armstrong's earlier question, did
 8 the project boundary change because of potential
 9 impact to economic lignite reserves?
 10 A. No, it did not. We changed the -- well, the project
 11 boundary is what it is because of its relations to
 12 project facilities that happen to not impact
 13 economic lignite reserves. However, that is a
 14 factor that is considered in the development stage
 15 of these projects.
 16 Q. Does the proposed project have any effects on local
 17 airports?
 18 A. No. The nearest airport to the project is the Glenn
 19 Allen Regional Airport and the closest turbine is
 20 over 13 miles away.
 21 Q. Does the proposed project interfere with microwave
 22 beam paths?
 23 A. Minnesota Power has consulted with Comsearch in
 24 regards to any commercial microwave paths within the
 25 project boundary and the National Telecommunications

Page 82

1 and Information Administration in regards to federal
 2 microwave beam paths. The results of those studies
 3 conclude that no commercial microwave beam paths are
 4 included in the project boundary. One federal
 5 microwave path is located within the project
 6 boundary, but the nearest turbine is located 1,770
 7 feet away. The proposed project layout will have no
 8 effect on any microwave beam paths.
 9 Q. Does Minnesota Power have any proposed modifications
 10 to the tree and shrub mitigation requirements?
 11 A. Yes. Consistent with the Commission's decision for
 12 Minnesota Power's Bison projects, Minnesota Power
 13 believes at a minimum the inventory requirements in
 14 paragraphs two and three of the tree and shrub
 15 mitigation requirements should be modified.
 16 Q. Mr. McCourtney, the Commission notice of this
 17 hearing listed the following three issues to be
 18 considered. Based on your knowledge of the project,
 19 do you believe the location, construction and
 20 operation of the proposed facilities produce minimal
 21 adverse effects on the environment and upon the
 22 welfare of the citizens of North Dakota?
 23 A. Yes.
 24 Q. Are the proposed facilities compatible with
 25 environmental preservation and efficient use of

Page 83

1 resources?
 2 A. Yes.
 3 Q. Will the proposed facility locations minimize
 4 adverse human and environmental impact while
 5 ensuring continuing system reliability and integrity
 6 and ensuring that energy needs are met and fulfilled
 7 in an orderly and timely fashion?
 8 A. Yes.
 9 Q. Does this complete your direct testimony?
 10 A. Yes.
 11 MR. MOELLER: No more questions, Your
 12 Honor.
 13 JUDGE WARD: Mr. Armstrong.
 14 CROSS-EXAMINATION
 15 BY MR. ARMSTRONG:
 16 Q. Mr. McCourtney, let's start off with your testimony
 17 about, I believe you testified that clauses two and
 18 three of the tree and shrub mitigation should be
 19 modified, but you didn't indicate how you believe
 20 they should be modified and why.
 21 A. Okay. I believe that paragraph two should state --
 22 or I'm requesting that paragraph two would state,
 23 and wind break shelter belts and other planted
 24 areas, trees that are one inch in diameter or
 25 greater oppressed height or shrubs anticipated to be

Page 84

1 cleared must be inventoried from -- for replacement.
 2 So changing that from zero to one inch.
 3 And then in paragraph three, in native
 4 growth areas, trees anticipated to be cleared that
 5 are three inch diameter oppressed height or greater
 6 must be inventoried for replacement. Again, that
 7 was changed from -- we're requesting the change from
 8 a one inch to three inches.
 9 Q. Why?
 10 A. I'll back up to the first request there. With wind
 11 breaks, you know, you have such a narrow row of
 12 trees that are there and you have so many volunteer
 13 species underneath it that their survival rate ends
 14 up being relatively low as far as volunteer species
 15 come up. And as a result, if it's less than one
 16 inch you end up mitigating for species that would
 17 never actually survive.
 18 And as far as for native growth areas,
 19 you know, you could have a farm area that's been
 20 regularly planted and has been allowed to go fallow
 21 for a year or two, and just by the nature of
 22 succession you would have, you know, tree and shrub
 23 species come into that location. And they could get
 24 to be one inch, when the reality is that they're
 25 just going to be, you know, plowed under or used in

Page 85

1 some agricultural activity. And, you know, we found
 2 through Bison 1, 2 and 3 that three inches is really
 3 that -- kind of that cutoff level where, you know,
 4 once a tree is three inches, it's going to stay
 5 there. If it's less than that and it's within an
 6 agricultural area, there's a good chance that it
 7 could be removed.
 8 Q. What kind of impacts do you think that would have on
 9 this project? Do you have an idea of trees and
 10 shrubs that are being removed in this project?
 11 A. No. As far as Bison 4, there aren't, you know, a
 12 lot of tree and shrub impacts on this project.
 13 Again, that's one of the factors that we use, one of
 14 the criteria that we use when we site these
 15 projects.
 16 Q. I assume you do your best to try and avoid removing
 17 plant life in general?
 18 A. Absolutely.
 19 Q. I'm jumping around a little bit.
 20 A. Sure.
 21 Q. The collector lines, and you talked about the
 22 cultural resources surveys and those studies that
 23 are done. Do you do the class three survey on where
 24 the collector lines are expected to go?
 25 A. Absolutely.

Page 86

1 Q. And that is part of what is submitted to the State
 2 Historical Preservation Office --
 3 A. Correct.
 4 Q. -- along with their concurrence?
 5 A. Correct.
 6 Q. You had mentioned in your testimony that if a
 7 historic area is discovered during construction, you
 8 work with SHPO, State Historic Preservation Office,
 9 to appropriately mitigate any potential impacts.
 10 I'm wondering if on Bison 1, 2 or 3 that's happened,
 11 like you've discovered a historical, or to factor
 12 something during construction and you've had to work
 13 with SHPO in the field and, if so, how that was
 14 accomplished?
 15 A. We have not had to work with SHPO out in the field.
 16 We've have a real good archaeological contractor
 17 that we work with. We engage SHPO early and often
 18 in the process and we haven't had any issues where
 19 we've discovered a cultural site.
 20 Q. Do the -- does the project as designed in the
 21 application that's before us avoid any impacts to
 22 cultural sites?
 23 A. Yeah. We've had to shift turbine locations as well
 24 as collector line locations to avoid cultural sites.
 25 Q. So some were discovered, but you've moved them away

Page 87

1 from those areas to SHPO's satisfaction?
 2 A. Correct.
 3 Q. All right. Jumping to the noise and shadow flicker
 4 studies.
 5 A. Yeah.
 6 Q. Mr. Gartner testified about the turbine that's been
 7 selected. Were those -- was the noise study
 8 performed on a turbine that would either produce the
 9 same noise or greater noise?
 10 A. Yes.
 11 Q. Which one, do you know?
 12 A. I believe it was the same noise.
 13 Q. So the noise analysis we have in the record should
 14 be what you expect with the turbine that's now been
 15 selected?
 16 A. Correct.
 17 Q. How about the shadow flicker?
 18 A. Same.
 19 Q. What do you do as far as once the project is
 20 constructed if, say, there's, you know, you said 30
 21 hours per year for shadow flicker, if you, I guess,
 22 a landowner complains and says, look, I've got more,
 23 I think I've got more, and maybe it turns out to be
 24 32 or 33. Has that happened on any of the past
 25 projects and, you know, how do you, I guess, make

Page 88

1 sure your studies accurately predict what happens
 2 with the project?
 3 A. We haven't had a scenario like that happen with any
 4 of our Bison 1, 2 and 3 projects. They haven't been
 5 in operation very long, but we haven't had any
 6 complaints as regards -- in regards to excessive
 7 shadow flicker, you know, unexpected levels. I
 8 guess a scenario like that would be taken on a -- on
 9 a instance by instance basis. We'd work with the
 10 landowner.
 11 Q. Things you can do, such as planting trees --
 12 A. Yep.
 13 Q. -- and stuff like that?
 14 A. Yep.
 15 Q. How about with noise, have you had any complaints on
 16 the other projects for noise?
 17 A. No, we haven't. And the reason why, you know, and I
 18 don't have a statistic or anything for you, but, you
 19 know, the noise that comes off of these turbines, a
 20 lot of times the background noise, you know, these
 21 blades are spinning when the wind is blowing. And
 22 when you're standing outside and the wind is blowing
 23 you're hearing it in your ears. Usually it's the --
 24 unless you're standing right under the turbine, it's
 25 usual -- usually drowned out by background noise.

Page 89

1 Q. I guess kind of what I hear you saying is on a calm
2 day they're not spinning anyway so you don't hear
3 them?
4 A. Exactly.
5 Q. And when it's really windy you hear the wind and
6 maybe could hear some of the turbine?
7 A. Yeah. Yeah. So when we talked about the levels of
8 noise that's out there, just to kind of couch what
9 we're looking at here from a noise standpoint, you
10 know, 48 decibels, you're looking at something
11 between, you know, your bedroom and a library. And
12 that's for the nearest participating. For a
13 nonparticipating, you know, when you're looking in
14 the mid to upper 30s, you're looking for something
15 between, you know, secluded woods and a bedroom.
16 So, I mean, these aren't very loud noises, you
17 wouldn't -- they're not overly perceptible to human
18 hearing.
19 Q. Tell me if I was reading it correctly. The noise
20 study.
21 A. Yep.
22 Q. There's certain things that can affect noise, you
23 know, if there's trees between you and the turbines,
24 like you mentioned, the background noise; is that
25 correct?

Page 90

1 A. Correct.
2 Q. Does the noise study take into account those or is
3 it kind of a worst-case scenario noise study?
4 A. It's a worst-case scenario.
5 Q. Okay. So you would expect I think, then, in any
6 given location, there's probably some sound breaks
7 or potential, you know, even the wind blowing is
8 going to lessen the actual noise on the location; is
9 that correct?
10 A. I would say yes for the wind -- for the noise of the
11 wind. I can't really comment on individual
12 receptors and what they have blocking the noise.
13 Q. Okay. There was discussion earlier, you heard me
14 ask Mr. Freudenrich about the construction schedule.
15 Has there been any concerns raised as far as the
16 construction schedule as it affects the wildlife in
17 the area by any of the agencies you've consulted?
18 A. None by the agencies that we've consulted. However,
19 that is something that we've taken into
20 consideration internally within Minnesota Power.
21 That's why we like the fall construction start date.
22 To get in the access roads, the turbine pads as much
23 as we possibly can so that, you know, those major
24 ground breaking activities are not occurring during
25 nesting season.

Page 91

1 Q. And when is nesting season generally?
2 A. Spring.
3 Q. The other question I asked Mr. Freudenrich and he
4 deferred to you is the square in the middle of
5 the -- the square in the middle section that's being
6 proposed. Are you familiar with the circumstances
7 regarding that property?
8 A. I am. That is a landowner that has chose not to
9 participate in the project. I haven't heard any
10 complaints about it from that landowner and I don't
11 know that our land agents have either, they've just
12 chosen not to participate in the project.
13 Q. So is your testimony then being this landowner has
14 expressed to you some concern so that he or she or
15 whoever owns it just has been unwilling to sign an
16 easement?
17 A. Yes. Or let's back up. We haven't done easements
18 at this point, but --
19 Q. Options.
20 A. -- as an option, yes.
21 MR. ARMSTRONG: That's all the questions
22 I have.
23 JUDGE WARD: Mr. McCourtney, I have a
24 couple questions about the way I'm understanding
25 these concrete pads that are poured. They're 11

Page 92

1 feet thick and 60 feet in diameter, is that --
2 THE WITNESS: That is correct.
3 JUDGE WARD: Do you know, is that -- is
4 that a big hole that's dug, then, before that
5 concrete is poured?
6 THE WITNESS: It is. I'm treading on
7 area that isn't my expertise here, I would have to
8 defer that to Mr. Freudenrich.
9 JUDGE WARD: Well, my next question, I
10 think, may be. I'm just kind of wondering what
11 happens to the dirt that's displaced when the
12 concrete is poured in that hole. Do you know?
13 THE WITNESS: It is distributed on site,
14 and for specifics I would defer again to
15 Mr. Freudenrich.
16 JUDGE WARD: Okay. Thank you.
17 Mr. Lein, any questions for
18 Mr. McCourtney?
19 MR. LEIN: I did have one.
20 CROSS-EXAMINATION
21 BY MR. LEIN:
22 Q. Was there -- after the turbine locations were
23 finalized then, was there a consultation with DOD,
24 FAA, on radar impacts?
25 A. Yes. That's probably -- when you send in an

Page 93

1 announcement to the National -- hang on here, let
 2 me -- it's NITA is the acronym, I don't see the page
 3 that it's on. When you send out notification out to
 4 the National Telecommunications and Information
 5 Administration, they send it out to a bunch of
 6 different governmental agencies and that's one of
 7 them.
 8 Q. Okay. So there was a thing in the application about
 9 a preliminary screening tool would be completed?
 10 A. Yes.
 11 MR. LEIN: Okay. And that's all I had.
 12 Thanks.
 13 JUDGE WARD: Okay. Commissioners?
 14 Chairman Kalk.
 15 CHAIR KALK: Thank you, Your Honor.
 16 EXAMINATION
 17 BY CHAIR KALK:
 18 Q. Thank you, Dan, for your testimony today. And thank
 19 the company for anticipating almost all the
 20 questions we're going to ask, for every one you had
 21 more and I appreciate that. But just a couple
 22 clarifications.
 23 The 610 feet from the roadway, I want to
 24 clarify, that's the edge of the right-of-way, not
 25 the centerline of the road?

Page 94

1 A. That actually is the road centerline. So, I mean,
 2 if you --
 3 Q. You've heard that discussion before --
 4 A. Yeah.
 5 Q. -- where there will be, maybe not with this company,
 6 but the company will testify it meets appropriate
 7 distance from the center of the road and you'll have
 8 a four-lane road and actually you're closer to the
 9 right-of-way than the intent was. So I guess what I
 10 will ask is that the distance you need to be away is
 11 from the road right-of-way, not from the centerline?
 12 A. Correct.
 13 Q. So if you could use some pencil drills, and as long
 14 as you're far enough from the road right-of-way I
 15 think we'll be fine, if you're not, we could have
 16 some challenges.
 17 A. Yeah. And like I said, in this scenario that's as
 18 close as we're going to get and that's still, you
 19 know, a little over 70 feet away from the road
 20 centerline, so that should cover us from --
 21 Q. We'll just double check that as we get into a work
 22 session, but I don't think in this case, we're not
 23 dealing with a four-lane highway --
 24 A. No.
 25 Q. -- like we were at Highway 83 in other cases. So if

Page 95

1 you could just check that out before we get into the
 2 proposed orders, perhaps.
 3 A. Okay.
 4 Q. There were no grouse leks in this area?
 5 A. There were a bunch of grouse leks.
 6 Q. There were, okay.
 7 A. Yeah. I've never seen as many grouse leks in a
 8 project before.
 9 Q. But you didn't talk about that, so obviously you've
 10 avoided all of them?
 11 A. We have -- there was 29 grouse leks in this area.
 12 It was crazy. We've been able to give all but two
 13 of them a buffer of well over 850 feet. There is
 14 two of them that we weren't able to get that
 15 distance with. One of them, we were 300 feet away,
 16 and the other one we were 75 feet away.
 17 Q. But the appropriate agencies concur with your plan
 18 on that?
 19 A. Well, yeah. I mean, they're not -- they're not a
 20 protected bird.
 21 Q. That's right, okay. So it's the company just being
 22 good neighbors on this?
 23 A. Exactly. And that's the thing, is we don't know
 24 what the -- there isn't any good data as to what an
 25 appropriate distance is. You know, you've got a

Page 96

1 critter that's sits a foot and a half off the ground
 2 in a grassland, how far back do you setback from a
 3 lek, there isn't any hard and fast data on that.
 4 Q. Okay. Fair enough.
 5 Mr. Armstrong talked about the
 6 nonparticipating landowner in the middle of the
 7 grid, if you will. Other testimony we received is
 8 that the closest nonparticipating landowner is over
 9 a mile away. So in this case, this -- if there are
 10 any structures there, is that the closest area that
 11 a nonparticipating landowner is, or is there nothing
 12 in there?
 13 A. There isn't a home in there.
 14 Q. All right. Fair enough. And then let's see here.
 15 Golden eagles, you talked about a bald eagle nest
 16 you found, you've made the appropriate offsets for
 17 that. Are golden eagles protected?
 18 A. Well, they're protected under the Bald and Golden
 19 Treaty Act.
 20 Q. Does that mean they're endangered, or what does that
 21 mean exactly?
 22 A. I don't know that -- let me just say first, we
 23 haven't seen any in the Bison project area, none
 24 have been observed, and we know of none in the area.
 25 And as far as -- I believe they are listed within

Page 97

1 the state of North Dakota.
 2 Q. Okay. But in this project area you've not noticed
 3 any --
 4 A. No, there are none.
 5 Q. No concerns from the U.S. Fish and Wildlife Service
 6 about golden eagles in your project area?
 7 A. We haven't gotten any comments back from the U.S.
 8 Fish and Wildlife Service.
 9 Q. Did you ask them for comments?
 10 A. Several times. We sent -- I called them in the
 11 planning stages of it, I sat down and tried to get
 12 their comments with them in the planning stages of
 13 the project, and then we sent a formal letter to
 14 them as well and we haven't received any comments.
 15 Q. Okay. And the last line of questioning, when I was
 16 a young marine I was a radio man, so we had HF and
 17 UHF and all this other stuff we worked with, so I
 18 have some background in microwave. But similar to
 19 Mr. Lein's question, I'd never even heard of
 20 microwave being a consideration in siting of wind
 21 farms. I don't recall seeing this in your testimony
 22 before at different farms and maybe I missed it.
 23 But if you could expound upon that line of why you
 24 did that and how that could affect projects?
 25 A. Well, we have with -- in previous Bison projects, it

Page 98

1 is something that we've looked at, we've done the
 2 same approach, Comsearch --
 3 Q. Okay.
 4 A. -- and NITA to make sure that we aren't impacting
 5 any potential paths and having to move our
 6 facilities.
 7 Q. But if there was -- how do you measure that? I
 8 mean, is there like a grid map of microwave beams
 9 throughout the U.S. that you can --
 10 A. What we do is we get the preliminary turbine
 11 locations, which is what we have there, then we send
 12 them to these companies, both Comsearch and NITA,
 13 and then they do their analysis and then they bring
 14 that back to us. I don't know how they -- how they
 15 determine that.
 16 Q. Okay. Do you have insight of is it the rotating
 17 motion of the turbine that would affect the
 18 microwave, that this should be different than a
 19 stationary power pole, a big 345 line?
 20 A. I'm sorry, I don't know.
 21 Q. Okay. Nor do I.
 22 Okay. Now this Commission, we've seen
 23 data back from like the Aeronautics Commission and
 24 the FAA that they are concerned that turbine rotors
 25 can affect instrumentation going to the aircraft if

Page 99

1 they're directly above it, but that's limited. So I
 2 was just -- I was just trying -- for this farm, of
 3 course, it's fine, it appears things are in order,
 4 but if this Commission should be looking at this for
 5 other type of projects that we're approving is where
 6 I was going. So, all right, thank you.
 7 A. Yep.
 8 JUDGE WARD: Commissioner Christmann.
 9 EXAMINATION
 10 BY COMMISSIONER CHRISTMANN:
 11 Q. I was paying particular attention to your noise
 12 concerns, and -- 'cause you had some complaints on
 13 other types of projects. And it seems like that's a
 14 very low level for the nonparticipating people, the
 15 37 decibels. But I guess the one thing I'm throwing
 16 out, not as a question, but it seems that people who
 17 are near facilities, not necessarily wind
 18 facilities, but near other facilities seem to feel
 19 that there's sometimes a big difference in what is
 20 causing the noise, what the pitch is and stuff like
 21 that. That a level, like, when you say it's
 22 somewhere between a library and a bedroom or
 23 something, that it can have a big -- it can make a
 24 big difference what is causing that, the same
 25 decibel rating of noise . But 37 does seem pretty

Page 100

1 low. So, actually, right now I'm more concerned
 2 about the flicker. Five hours a year, I don't know,
 3 maybe that's not much, but do you just look at that
 4 as something that, well, that's not much and people
 5 should put up with it, or is something done to
 6 mitigate even five hours of projected annoyance for
 7 a nonparticipating landowner?
 8 A. We don't mitigate for nonparticipating flicker, like
 9 we said, if it's below 30 hours a year.
 10 Q. 30.
 11 A. That's kind of the -- okay. It's kind of the rule
 12 of thumb that we're using. We want to make sure
 13 both participating and nonparticipating, our goal is
 14 to get below that 30 number. I'm just looking back
 15 in my testimony here where I -- where I discuss
 16 that. Yeah. So that's other -- it's kind of an
 17 industry standard and it's kind of a rule of thumb
 18 that's used by other states as well as, you know, 30
 19 is, you know, what they like to see as a cutoff. So
 20 that's kind of why we've, you know, that's our first
 21 goal, is to minimize everything by 29 -- by 30
 22 hours. The nonparticipating at five, we haven't --
 23 we typically in the past have not mitigated for
 24 flickers.
 25 Q. Okay.

Page 101

1 A. Below that standard.
 2 Q. And I'm not sure if this is for you as an
 3 environmental compliance specialist, but I'll throw
 4 it out there and then you can answer it or someone
 5 else, but I'm giving it to you since you mentioned
 6 ensuring that energy needs are fulfilled in an
 7 orderly fashion.
 8 Has Minnesota -- in previous discussions,
 9 it seemed to me about, if this were added, about 20
 10 percent or more of Minnesota Power's power would be
 11 coming from these wind farms in Oliver and Morton
 12 County and they're less than a decade old. Has
 13 Minnesota Power's demand grown that much or has some
 14 other generation been retired or is some going to be
 15 retired? Or what's the status of why the need for
 16 this additional power?
 17 A. That is a question that I would defer to
 18 Mr. Gartner.
 19 Q. Okay. Thank you.
 20 COMMISSIONER CHRISTMANN: No further
 21 questions.
 22 JUDGE WARD: Commissioner Fedorchak.
 23 EXAMINATION
 24 BY COMMISSIONER FEDORCHAK:
 25 Q. Thank you, Dan.

Page 102

1 So we previously learned that the
 2 concrete will be removed from down to three feet
 3 during decommissioning. Is that enough from an
 4 environmental standpoint? You're the environmental
 5 expert, right?
 6 A. Yeah. That's what we found to be enough. We found
 7 that to be enough from an environmental standpoint
 8 as well as from an operation or a farming standpoint
 9 as well.
 10 Q. Okay. And what are you basing that information and
 11 experience on?
 12 A. Because, you know, pick your species, a burrowing
 13 species, you know, a fox, something like that, you
 14 know, they -- they will burrow, you know, if they're
 15 too underground, and that's kind of where their dens
 16 are. Typically there aren't mammals or otherwise in
 17 North Dakota that we've seen that burrow over three
 18 feet straight, you know, from a linear standpoint,
 19 burrow straight down.
 20 Q. Okay.
 21 A. Does that make sense?
 22 Q. Yep. What about from a farming standpoint, the root
 23 systems, drainage, is that an issue over -- these
 24 areas are 60 feet?
 25 A. Yeah, 60 feet wide, and they tend to taper down at

Page 103

1 the end. So we haven't noticed any issues with
 2 drainage around the turbines that we have right now.
 3 Q. I mean, after, after the fact, when you eliminate,
 4 you know, three feet of the concrete foundation and
 5 a farmer goes out there to, you know, raise corn or
 6 wheat, are there issues? Is that enough -- is that
 7 enough depth over that concrete to have productive
 8 farming?
 9 A. I'm trying to think of the best way to answer that.
 10 The root systems on, you know, corn or soybeans, you
 11 know, can -- will accommodate a three foot depth.
 12 Q. Um-hum.
 13 A. Am I answering?
 14 Q. Yep. Drainage is fine, too?
 15 A. We haven't had an issue with drainage.
 16 Q. It doesn't seem like that much. I mean, you've got
 17 11 feet, but I'm not a farmer, so I should defer
 18 these questions to Randy.
 19 UNIDENTIFIEDS: (Several talking at
 20 once.)
 21 THE WITNESS: That's what we've found,
 22 yeah.
 23 BY COMMISSIONER FEDORCHAK:
 24 Q. Okay.
 25 A. That the root system is going to accommodate it

Page 104

1 and --
 2 Q. And the farmers, they've realized the
 3 decommissioning and they realize what the plan is
 4 long term for removal of these structures?
 5 A. Our land agents communicate that with them.
 6 Q. Okay.
 7 A. Upon, you know -- and, again, right now we have
 8 options. When we start, you know, if we're
 9 fortunate enough to get approval for this project
 10 and we were to start with the easements, that would
 11 come up in that, in that discussion, that
 12 arrangement.
 13 Q. So you'd hope that farmers, if they have concerns,
 14 would negotiate a different removal?
 15 A. Correct.
 16 Q. Because they would have that ability?
 17 A. Correct.
 18 Q. Okay. You said in your testimony that you notified
 19 participants in and around the project area. How
 20 far around? So how many -- how far away did you go
 21 from active participants in the project, or the red
 22 lines, how far outside of that did you notify
 23 people? Just those adjacent, directly adjacent,
 24 or --
 25 A. Do you want to answer that or do you want me to?

Page 105

1 Okay. I'll defer that to Mr. Gartner.
 2 Q. Okay. And I did notice in the filing that you sent
 3 letters to all the believed participants in the
 4 project, notifying them of the hearing, and I want
 5 to applaud you of that. I don't know if that's
 6 standard. I don't believe that all the other wind
 7 producers do that and I think that's a really good
 8 idea and avoids a lot of problems.
 9 A. Thank you.
 10 Q. So I would encourage you to extend that to the
 11 people directly adjacent, even if they aren't in the
 12 project, should also get a letter from the company.
 13 A. We did do that as well.
 14 Q. Oh, you did. Excellent.
 15 All right. What are you doing -- there's
 16 a number of wetlands in this project area. How are
 17 you handling the wetlands in terms of the collector
 18 lines?
 19 A. Well, in the collector lines, we will -- the Army
 20 Corps of Engineers considers that a temporary impact
 21 when we go through there. So we minimize our
 22 impacts to that wetland. If we can't dig through
 23 it, then we'll bore them.
 24 Q. Okay. But you don't need any special permits for
 25 any of these wetlands?

Page 106

1 A. Not for the level of impacts that we've had, the
 2 Corps is not requiring any permits.
 3 Q. All right. Have you received any -- have you had
 4 any correspondence -- I couldn't find any in the
 5 application from the North Dakota Aeronautics
 6 Commission, or how are you assuring that there
 7 aren't any private airfields nearby that can be
 8 affected by this?
 9 A. We sent them a letter in the scoping portion of the
 10 projects. We did send the North Dakota
 11 Aeronautics -- was it Commission?
 12 Q. Yep.
 13 A. I can find the letter. In regards to that very
 14 issue, and we never heard back from them.
 15 Q. Okay. How do we handle this --
 16 A. I do have a copy of the letter --
 17 Q. Right.
 18 A. -- if you want.
 19 Q. We've had issues -- an issue in a different wind
 20 farm where it turned up after the hearing that there
 21 was a private airfield nearby that nobody knew about
 22 and so it's creating some issues.
 23 COMMISSIONER FEDORCHAK: How do we deal
 24 with that, in terms of this hearing? I'm turning to
 25 Mitch to see if we need to just assume that the

Page 107

1 Aeronautics Commission doesn't have any concerns
 2 because they didn't respond, or ask the company to
 3 go back to them and double check?
 4 MR. ARMSTRONG: Well, I'd start off, if I
 5 could, jump in and question the witness. If it's
 6 okay with you, Commissioner.
 7 COMMISSIONER FEDORCHAK: Okay, sure.
 8 CONTINUED CROSS-EXAMINATION
 9 BY MR. ARMSTRONG:
 10 Q. I guess, what do you know about -- or what has the
 11 company done to determine, other than, you know,
 12 letters to the FAA, have you done anything to
 13 determine whether there is private airstrips around
 14 the project area?
 15 A. Well, when we -- when we're doing our site surveys
 16 and stuff, obviously that's one of our
 17 considerations. That, you know, we sent letters to,
 18 you know, we've notified the FAA, we sent letters to
 19 the North Dakota Aeronautics Commission, and we have
 20 checked the site itself. I'm open to suggestions.
 21 Q. Do you -- in doing your checks or your -- I guess,
 22 in your experience, do you know how far away you
 23 would recommend a wind farm be from private
 24 airstrips?
 25 A. I think that would depend on the facility.

Page 108

1 MR. ARMSTRONG: Commissioner, you know,
 2 I'm not aware of any person or entity raising
 3 concerns with that. There are some -- there's
 4 statutes in place that state essentially that if the
 5 state agency doesn't respond to requests for
 6 information and we've published the notice and
 7 served them with the notice of the hearing today,
 8 that it's assumed that they have no objection. I
 9 don't know if the Commission wants further
 10 information from the company on private airstrips,
 11 we could, you know, request that information from
 12 them.
 13 COMMISSIONER FEDORCHAK: Well, in light
 14 of our experience, I think it would be helpful if
 15 the company would just reach out back to the state
 16 Aeronautics and confirm that there are no private
 17 airstrips.
 18 THE WITNESS: Okay.
 19 COMMISSIONER FEDORCHAK: And hopefully
 20 that will be a very simple request.
 21 CONTINUED EXAMINATION
 22 BY COMMISSIONER FEDORCHAK:
 23 Q. Okay. Then on your cultural inventory, I'm seeing
 24 that you've received a letter from the State
 25 Historical Preservation Office. Can you tell me

Page 109

1 about your cultural inventory? You did a literature
 2 search and a pedestrian search, or just a literature
 3 search?
 4 A. We did both. At the beginning stages of the design
 5 of the project, we'll go through and do a literature
 6 search just to get an idea of what we have and those
 7 are the sites that are known. Once that's done,
 8 then we go through and we call it our micrositing
 9 phase, and we have archeologists with us, we walk
 10 the roads, we walk the turbines, and we walk the
 11 collector lines. And if something is found, it's
 12 marked, we are given the shapefile, and then the
 13 project is designed around that location.
 14 Q. Okay.
 15 A. And -- I'm almost done talking. We give every site,
 16 you know, the site is giving, you know, say that
 17 this microphone is a location, that's given a
 18 30-foot buffer as the site, and then that site is
 19 given a 50-foot buffer.
 20 Q. Okay. Excellent.
 21 And my final question is about the eagle
 22 nest. You just found one nest, correct?
 23 A. Correct.
 24 Q. Is it common for there just to be one nest? I mean,
 25 don't these birds tend to have families and there's

Page 110

1 usually more than one in one location?
 2 A. This is kind of a unique scenario that we have here.
 3 According to the state, this is the farthest west
 4 that we have an eagle's nest. And it's recently
 5 been built.
 6 Q. West?
 7 A. West of the Missouri, I'm sorry, farthest west of
 8 the Missouri that we have an eagle's nest. And this
 9 one has recently been built. So it -- I guess in a
 10 scenario like this, you know, to find a nest,
 11 period, is uncommon in this area.
 12 Q. I think there's a lot of eagles nests out in the
 13 Badlands compared -- based on what we heard
 14 yesterday from an eagle expert. So did you mean the
 15 furthest east?
 16 A. No, we're this far from the Missouri.
 17 Q. I see. Away from the water.
 18 A. Correct.
 19 Q. I see. Now, there's a new water source out there
 20 that they're collecting around.
 21 A. Yes.
 22 Q. I get it.
 23 A. Yes.
 24 COMMISSIONER FEDORCHAK: All right. That
 25 concludes my questions. Thank you, Dan.

Page 111

1 JUDGE WARD: Okay. Anybody -- any of the
 2 other Commissioners have anything else for this
 3 witness?
 4 Chair Kalk.
 5 CHAIR KALK: I just want to clean up
 6 something a little bit for the record maybe.
 7 CONTINUED EXAMINATION
 8 BY CHAIR KALK:
 9 Q. Commissioner Fedorchak asked a lot of questions
 10 about the depth of removal. And in my first hearing
 11 I asked the same line of questions and went back to
 12 the legislature and tried to get actually the
 13 companies to move to a deeper depth. But right now
 14 I don't know if it's in code or rule, but the
 15 companies only have to go to the depth right now,
 16 but it has been a point of discussion in the state
 17 about trying to make the removal depth lower. So
 18 the way I see it now is you're complying with the
 19 current guidelines and rules. But did you say you'd
 20 be willing to do more if you were ever asked?
 21 A. Well, you know, during easement negotiations, you
 22 know, landowner concerns are taken into account. So
 23 I guess it would depend on how those easement
 24 discussions went.
 25 Q. And I'm not an attorney, but I know that this is

Page 112

1 something that will continue to be debated, and it
 2 won't come to a head until some point way down the
 3 road when there's a decommissioning that actually
 4 happens and you actually have to remove things. So
 5 just one of those things for the company and the
 6 people in attendance that some of the state has
 7 looked at, because I personally am not comfortable
 8 with three feet being deep enough, being a
 9 groundwater guru, that it needs to be deeper, it
 10 needs to be taken all out, but we can't quite get
 11 that. So I will just see how that plays out over
 12 the next few decades. Thank you.
 13 JUDGE WARD: Anybody else? Any more
 14 questions for Mr. McCourtney?
 15 Mr. Moeller, any follow-up?
 16 MR. MOELLER: None.
 17 JUDGE WARD: Okay. Mr. Armstrong?
 18 MR. ARMSTRONG: I just have a couple.
 19 CONTINUED CROSS-EXAMINATION
 20 BY MR. ARMSTRONG:
 21 Q. Could you just give us an idea in relation to Bison
 22 1, 2 and 3 where this site is located for the
 23 record?
 24 A. Yeah. I was hoping we'd get to use those. Do I
 25 have to move this out? Do I have to talk into this

Page 113

1 or --
 2 JUDGE WARD: Yes, if you could talk into
 3 the microphone, that would --
 4 THE WITNESS: Okay.
 5 JUDGE WARD: It helps make the record
 6 clear.
 7 THE WITNESS: Okay. So Bison 3 comes
 8 through here, comes up here and down, and then
 9 Bison 1 is in this area right here, and then there's
 10 a little bit of 2 and 3 over on this side of it as
 11 well. So it sits on top of Bison 1, 2 and 3.
 12 BY MR. ARMSTRONG:
 13 Q. And then just the record doesn't always pick up here
 14 and there --
 15 A. I'm sorry.
 16 Q. But if I can summarize. As you're looking at the
 17 west portion of the map, which is the same map we've
 18 discussed I guess all day long, Exhibit 1-A to
 19 Exhibit 2, Bison 1, 2 and 3 generally run along the
 20 south and up into the spaces, if you will?
 21 A. That is -- well, they usually -- they don't come up
 22 to the north.
 23 Q. They're not --
 24 A. -- portion of the spaces, but you're right, they
 25 typically run to the south and to the east and west

Page 114

1 of what we see here.
 2 Q. With Bison 1, 2 and 3, have you had any issues come
 3 up with private airstrips?
 4 A. We have not.
 5 MR. ARMSTRONG: Thank you. That's all
 6 the questions I have.
 7 JUDGE WARD: Okay. Any follow-up to
 8 that, Commissioners?
 9 Okay. Mr. McCourtney, you may step down.
 10 Now, there were some suggestions of
 11 calling back either Mr. Gartner or Mr. Freudenrich.
 12 Does anyone have any questions that they want to
 13 address to those witnesses that they were unable to
 14 get answered by Mr. McCourtney?
 15 Mr. Moeller.
 16 Yes, okay. Commissioner Christmann, who
 17 would you like to call back?
 18 COMMISSIONER CHRISTMANN: Mr. Gartner,
 19 please.
 20 JUDGE WARD: Okay. Mr. Gartner. And
 21 remember, sir, you're under oath.
 22 THE WITNESS: Yes.
 23 BARRY GARTNER
 24 FURTHER EXAMINATION
 25 BY COMMISSIONER CHRISTMANN:

Page 115

1 Q. Are you ready?
 2 A. I am.
 3 Q. Thank you, Your Honor.
 4 I'm wondering, with roughly some 20
 5 percent of Minnesota Power's power coming from wind
 6 if this is approved, is that to fill a need that was
 7 caused by growth in Minnesota Power's service area
 8 or was it caused by a retirement or a planned
 9 retirement of some type of other generation?
 10 A. A combination of. Minnesota Power is seeing growth
 11 in our retail sales, in our demand. In addition, we
 12 buy energy each year as well as produce energy.
 13 Bison 4 will displace some portion of thermally
 14 produced energy and some portion of purchased
 15 energy. And then as stated previously, helps with
 16 growing demand.
 17 COMMISSIONER CHRISTMANN: Okay. Thank
 18 you I have no other questions.
 19 JUDGE WARD: Anybody else? Anything else
 20 for Mr. --
 21 CHAIR KALK: If I could, Your Honor.
 22 JUDGE WARD: You may.
 23 FURTHER EXAMINATION
 24 BY CHAIR KALK:
 25 Q. I have to put on the record though, too, that if

Page 116

1 there was not a Minnesota renewable mandate, this
 2 project may not be going forward either? Let me
 3 rephrase. How much of the Minnesota renewable
 4 mandate tied into this project's need?
 5 A. It certainly is a consideration. However, I would
 6 add that we found that wind generated electricity
 7 from our existing Bison projects is -- provides a
 8 benefit to our ratepayers. So as a result of doing
 9 Bison 4, they are seeing cost savings. So it's a
 10 very economical source of energy.
 11 CHAIR KALK: Thank you.
 12 JUDGE WARD: Anyone else, questions for
 13 this witness? Last shot at him.
 14 COMMISSIONER FEDORCHAK: Just to add to
 15 that.
 16 JUDGE WARD: Commissioner Fedorchak.
 17 FURTHER EXAMINATION
 18 BY COMMISSIONER FEDORCHAK:
 19 Q. It's economical, but you previously testified that
 20 you wouldn't be able to say whether it would be
 21 economical without the federal tax credit, correct?
 22 A. Yes, I did.
 23 Q. Okay. That's still --
 24 A. Certainly the production tax credit is a big help to
 25 the economics.

Page 117

1 COMMISSIONER FEDORCHAK: Okay. Thank
2 you.
3 JUDGE WARD: Okay. Mr. Armstrong?
4 MR. ARMSTRONG: Nothing further.
5 JUDGE WARD: Mr. Moeller, anything you
6 need to do with this witness?
7 MR. MOELLER: No, Your Honor.
8 JUDGE WARD: Mr. Gartner, you may step
9 down.
10 Do we need Mr. Freudenrich back? Anyone?
11 I see a lot of head shaking of nos, so he
12 gets off easy today.
13 Mr. Moeller, anything else for the good
14 of the order?
15 MR. MOELLER: No, Your Honor. Thank you
16 for the questions and we'll address the -- Chair
17 Kalk's question on the road right-of-way.
18 JUDGE WARD: Okay.
19 MR. MOELLER: I think it is the one thing
20 that -- I don't think we necessarily have to do a
21 late-filed exhibit, but we'll address that either
22 during the working session that's scheduled for
23 Tuesday and to finalize those numbers for the
24 proposed order.
25 JUDGE WARD: I have one question for you.

Page 118

1 We understand now why you call this the
2 Bison wind project. In Minnesota do you call these
3 the Gopher wind projects?
4 MR. MOELLER: Not even close. But we
5 think Bison is a good name, I think we've always
6 thought it was a good name, and to apply a better
7 name in North Dakota than in Minnesota, but it's a
8 good name overall.
9 JUDGE WARD: Thank you.
10 So are you resting your case, then, for
11 today?
12 MR. MOELLER: I am, Your Honor.
13 JUDGE WARD: Okay. Mr. Armstrong,
14 anything from the Public Service Commission today?
15 MR. ARMSTRONG: No, Your Honor.
16 JUDGE WARD: Okay. Mr. Lein?
17 MR. LEIN: No, Your Honor.
18 JUDGE WARD: Okay. Anyone out there -- I
19 did mention at the beginning that if you had
20 something that you felt that the Commissioners
21 should hear today, this was your opportunity to do
22 it. Anyone have an urge to get up and be sworn in
23 and testify?
24 Okay. One gentleman back there. Please
25 step up, sir, to the microphone.

Page 119

1 MR. KEITH KESSLER: It's more of a
2 question, I guess.
3 JUDGE WARD: Well, you're really not here
4 to ask questions, you're here to make statements on
5 the record. But if you want to make a question,
6 they're not necessarily going to have to answer it.
7 But if you want to ask it, it's something that they
8 can consider when they deliberate on the matter.
9 Before you get to that, I have to get you
10 to tell me your name and spell your name for me.
11 MR. KEITH KESSLER: It's Keith,
12 K-E-I-T-H, K-E-S-S-L-E-R.
13 JUDGE WARD: Mr. Kessler, where do you
14 live?
15 MR. KEITH KESSLER: My address is 6001
16 26th Street Southwest, Glen Ullin, North Dakota
17 58631.
18 JUDGE WARD: And, Mr. Kessler, are you
19 here today representing yourself or some other
20 entity?
21 MR. KEITH KESSLER: Myself.
22 JUDGE WARD: And what is your interest in
23 this matter?
24 MR. KEITH KESSLER: A landowner.
25 JUDGE WARD: Okay. And are you a

Page 120

1 landowner that is within the range of one of
2 these -- or one or more of these wind turbines?
3 MR. KEITH KESSLER: Yes, sir.
4 JUDGE WARD: Okay. If you would, then,
5 please tell us -- and I'll swear you in first.
6 You did hear that perjury admonition
7 earlier today?
8 MR. KEITH KESSLER: Yes, sir.
9 JUDGE WARD: I'll give you that again and
10 just to remind you that perjury in North Dakota is a
11 class C felony. That a class C felony is subject to
12 a maximum penalty of five years imprisonment, a fine
13 of \$5,000, or both. Having been advised of the
14 penalty for perjury, please raise your right hand so
15 I can administer the oath. Do you promise to tell
16 the truth, the whole truth, and nothing but the
17 truth in this proceeding?
18 MR. KEITH KESSLER: I do.
19 JUDGE WARD: Okay. Thank you.
20 Please proceed and tell us what you'd
21 like us to hear.
22 MR. KEITH KESSLER: Well, in the
23 proceedings there was a few questions that come up
24 to me that I thought I should ask. And it was
25 something I thought that as a public meeting I could

Page 121

1 ask Minnesota Power and/or the Commission.
 2 JUDGE WARD: We can see what the
 3 questions are and if the Commissioners would like to
 4 have them answered, we can address that.
 5 MR. KEITH KESSLER: Okay. Do you want me
 6 to start with them?
 7 JUDGE WARD: Yes.
 8 MR. KEITH KESSLER: The first one was,
 9 and Randy brought it up, and thank you, Randy, for
 10 bringing that up, but the 811 call. My concern as a
 11 landowner, we ranch and we do a lot of fencing,
 12 corral work, that type of stuff as far as digging,
 13 digging holes, putting posts in, stuff like that.
 14 Understand, I've done many 811 calls for locate.
 15 My concern is is Minnesota Power going to
 16 have somebody out there to do the locate and are
 17 they going to pay for it? Because it seemed like
 18 with the last legislative session, yeah, there's
 19 more penalties for people that don't do it, which is
 20 great, but it seemed like what I had read and maybe
 21 I misunderstood, it seemed like more of this was
 22 going to be a cost burden on possibly the landowner
 23 other than the utility owner.
 24 JUDGE WARD: Okay.
 25 CHAIR KALK: Your Honor, I'm comfortable

Page 122

1 firing away with what I know just on general policy.
 2 JUDGE WARD: Okay. Chairman Kalk.
 3 CHAIR KALK: Thank you, Keith, for your
 4 testimony.
 5 I was heavily involved in the changing of
 6 the dig laws, if you will, with helping utility
 7 shareholders. And the way that the change that took
 8 place is defined now as a max of \$25,000 instead of
 9 \$5,000, the max fine for potential violation of not
 10 calling before you dig. The Commission has never
 11 issued a fine greater than \$5,000, and that was only
 12 because the one was a fatality, and that was the
 13 driver for raising the fine to \$25,000.
 14 There was a lot of discussion in the
 15 session about who should pay, but the way it is now,
 16 the person who owns the facilities pays for the
 17 locate. So if it's Midcontinent has to locate, they
 18 pay for it. If you have to do a locate above
 19 ALLETE's energy, they pay for it. The landowners,
 20 the only time it was ever envisioned if a landowner
 21 would pay for it was if it was perhaps the third or
 22 fourth or fifth locate. So the first two were
 23 definitely paid for by the companies, after that the
 24 companies become weary of getting multiple locates
 25 for the same thing in some of these pipeline

Page 123

1 projects. So the locates shouldn't be paid for by
 2 the cost of the landowners. That's the way it's set
 3 up. Now, there could be a lot of hearsay out there,
 4 but that's the way it's laid out now.
 5 JUDGE WARD: Okay. Mr. Kessler, you had
 6 an additional issue as well?
 7 MR. KEITH KESSLER: Well, this, kind of,
 8 I would call it a subpart of that. I have several
 9 miles of underground water line under my property
 10 for livestock purposes. And they're between six and
 11 seven feet deep, and I understand they're going 42
 12 inches with their underground. But I think Matt was
 13 saying they were going to probably strip off some of
 14 the topsoil and then do their trenching. If they
 15 end up taking 18 inches or two feet of topsoil off
 16 and then trenching that 42 inches, you're going to
 17 be getting real close to that six foot. What
 18 happens if they damage that water line? I mean, do
 19 they repair it? Do they pay for the costs? Or is
 20 that a burden on to us?
 21 CHAIR KALK: I could fire away again,
 22 Your Honor.
 23 JUDGE WARD: Chairman, go ahead.
 24 CHAIR KALK: In any case in North Dakota,
 25 if underground infrastructure is damaged, the

Page 124

1 individual who owns the infrastructure, can call --
 2 we urge them to call the Public Service Commission
 3 and basically file a report that says that on this
 4 date my infrastructure was damaged with what you
 5 know about the situation. And then that spawns into
 6 a staff investigation, that our staff will go out
 7 there and look at it, and the first thing we do
 8 historically is we will call the North Dakota One
 9 Call center to see if there's been a locate ticket
 10 put in on it. If there has been a locate ticket put
 11 on it, we'll go out and see that the locate was done
 12 properly and then go from there. If we get out
 13 there and a locate ticket hasn't been put into
 14 place, oftentimes then it's pretty easy to figure
 15 out what happened, someone didn't do a locate and
 16 they struck someone's infrastructure. And that's
 17 where the Commission can then levy the fine to the
 18 excavator of zero to \$25,000.
 19 But one of the things that we've been
 20 very consistent about is that if someone that
 21 damages the infrastructure has to pay for the
 22 infrastructure, in addition to any fine the
 23 Commission may have. We've seen a lot of this with
 24 the telephone companies, reservation telephone has
 25 had a lot of their infrastructure damaged, and just

Page 125

1 recently up in Parshall, a company had to pay
 2 \$16,000 of damages to Reservation Telephone's
 3 infrastructure, plus a fine levied by the
 4 Commission. So we don't want that to happen, but if
 5 your stuff was struck by anybody, we'd urge you to
 6 notify us immediately, and then we would start the
 7 investigation as to what happened.
 8 MR. KEITH KESSLER: Okay.
 9 JUDGE WARD: Mr. Kessler, I guess a
 10 question I would have for you, is your property on
 11 an easement where actual hours of digging are going
 12 to be done on this project?
 13 MR. KEITH KESSLER: Correct.
 14 JUDGE WARD: Okay. Go ahead. Did you
 15 have something else you wanted to bring up?
 16 MR. MOELLER: Your Honor, if we could
 17 address that as well?
 18 JUDGE WARD: Sure.
 19 MR. MOELLER: I'll have Mr. Freudenrich
 20 address that.
 21 JUDGE WARD: Okay.
 22 MR. FREUDENRICH: Yeah. I just want to
 23 say that in previous wind farms, and also during
 24 easement discussions, it typically has been brought
 25 up, any potential concerns from landowners with

Page 126

1 either water lines or some kind of underground cable
 2 that might not be in the public right-of-way or
 3 something of that nature that we need to be aware
 4 of. And like I say, we would, in that case, let
 5 say -- let me just back up.
 6 So typically what we've seen for topsoil
 7 in the area, six to 12 inches is pretty common.
 8 Once you get in some of the rockier areas, it's
 9 actually a little best. But probably 12 inches is
 10 the maximum depth that we've seen to date and that's
 11 on the Bison 1, 2 and 3. But in something of this
 12 nature, if, you know, if the landowner did make us
 13 aware, we would, two things, either in that location
 14 we could potentially -- we would hand dig down to
 15 the depth that we knew where the potential water
 16 line was to at least know. That's one way. Another
 17 way is to potentially bore underneath, but since
 18 it's deeper than I believe we would go, we would
 19 probably do some kind of hand digging and/or there
 20 are locators for water lines now as well, so we
 21 could actually locate that water line. So there's
 22 multiple things, but we would definitely work with
 23 the landowner. And if we did end up damaging,
 24 Minnesota Power would make it right with the
 25 landowner and correct the situation.

Page 127

1 CHAIR KALK: And one thing that sometimes
 2 this does come up at hearings, I do encourage
 3 landowners, the concerned people, to talk to the
 4 company representatives and get the contact
 5 information so that you can get ahold of the right
 6 people when you need to.
 7 MR. KEITH KESSLER: Thank you.
 8 And that's the biggest thing, I mean, the
 9 communication has been pretty good with Minnesota
 10 Power so far. But as long as that continues once
 11 you start the process.
 12 I guess the only other question I had
 13 was -- well, two of them, I guess. With the, I
 14 don't want to call it the right-of-way, when you put
 15 your roads in for access to your towers and stuff,
 16 and I read the option and all that, the spraying,
 17 the mowing of weeds and stuff. But I did notice on
 18 one of the projects last year that was completed and
 19 I know it was a wet spring and a pretty wet early
 20 summer, but there was places that was erected last
 21 year and roads that were put in that it wasn't
 22 maintained as far as the weeds and mowing in the
 23 spring and such. And I just want to make sure that
 24 that gets taken care of on, you know, all the
 25 projects, I guess, in the area.

Page 128

1 CHAIR KALK: Keith, if I could on that,
 2 too, I would just, as a recommendation, I don't give
 3 legal advice, of course, the two stop shop is always
 4 the county commission that deals closest to it, but
 5 in any project, Mr. Sheldon is sitting in the back
 6 of the room there, he's our consumer affairs. We
 7 always want to hear back from the public on any
 8 project that's ongoing if you have concerns. And
 9 usually what happens is someone will call Scott in
 10 consumer affairs and say I live in this area, this
 11 project is taking place, here's what my concerns
 12 are, and Scott will usually say, have you talked to
 13 the company. If they say yes and it's not resolved,
 14 then eventually it will come back to us. Because,
 15 you know, what we agreed to on a project, it still
 16 has to be followed through. But that's why we're
 17 out here today, is to have this discussion so that
 18 the follow through can take place. So we'd welcome
 19 that on any project.
 20 MR. KEITH KESSLER: Well, and that's why
 21 I wanted to say something, because -- and I know
 22 things have probably gotten -- it's fall and
 23 everybody wants to get started, but when we first --
 24 when they come around with these options, we were
 25 told that, you know, if and when it does happen,

Page 129

1 they're going to come out and sit down with us and,
 2 you know, they'll have a lay of the land, how the
 3 roads are going to go and so forth, where the towers
 4 are going to go, and then we'll have input on
 5 those -- those roads and things that are going to go
 6 on.
 7 Well, that really didn't take place. It
 8 was here are the roads, this is where towers are
 9 going to be. And I asked a question, if some of
 10 these roads can be maybe looked at, maybe from a
 11 little different view or something. And, of course,
 12 there's two views, their view and my view, and I'm
 13 not objecting to any roads I'm just saying that we
 14 were told this up front and then when I talked to
 15 the gentleman with the easement, he said, well,
 16 we're not going to have time to move any of these or
 17 say that we can change them. So in the future I
 18 would like to go back to the original thing where
 19 they said we're going to have time to work with you,
 20 you know.
 21 CHAIR KALK: Are these roads on your
 22 land?
 23 MR. KEITH KESSLER: Yep. One of them is.
 24 CHAIR KALK: That's where I'd consult
 25 outside legal authority on that, for your own land

Page 130

1 rights versus what the company says.
 2 MR. KEITH KESSLER: To me, it's just the
 3 thing, if you're going to say you're going to
 4 consult with the person and review it, let's do it,
 5 follow through, and then it just makes things a
 6 little simpler that way.
 7 JUDGE WARD: Well, I'm going to ask that
 8 you get the cards from Mr. Moeller and
 9 Mr. Freudenrich and then you have their -- you can
 10 get ahold of them directly with your concerns.
 11 MR. KEITH KESSLER: Okay.
 12 JUDGE WARD: In the future.
 13 MR. KEITH KESSLER: That pretty much
 14 takes care of it. Thank you.
 15 JUDGE WARD: Thank you.
 16 Okay. Now that he broke the ice, anybody
 17 else out there?
 18 Commissioner Christmann. Go ahead,
 19 Randy.
 20 COMMISSIONER CHRISTMANN: Since Keith
 21 took the time out of the schedule, and has a Bison
 22 shirt on, it doesn't make him an expert, so could I
 23 ask a question of him?
 24 JUDGE WARD: Sure.
 25 COMMISSIONER CHRISTMANN: Mr. Kessler, do

Page 131

1 you have your cropland soil tested by professional
 2 soil testers?
 3 MR. KEITH KESSLER: I haven't lately, no.
 4 COMMISSIONER CHRISTMANN: Have you
 5 ever -- do you know -- I don't know if you were here
 6 when I was asking my question before.
 7 MR. KEITH KESSLER: Yes, I was.
 8 COMMISSIONER CHRISTMANN: I've heard that
 9 they go 36 to 48 inches at least, that was an
 10 eastern North Dakota thing.
 11 How deep do our soil testers go here?
 12 I've never had that done.
 13 MR. KEITH KESSLER: I couldn't answer
 14 that. That I don't know. I know what my post hole
 15 digger goes and that's about four feet.
 16 COMMISSIONER CHRISTMANN: Okay. Thank
 17 you.
 18 MR. KEITH KESSLER: You're welcome.
 19 JUDGE WARD: Thank you, Mr. Kessler.
 20 Thanks for having the courage to be the first one to
 21 get up there, too.
 22 Anybody else? This is the last chance
 23 'cause we're going to close the hearing here in just
 24 a minute.
 25 Okay. I'm not seeing or hearing anybody.

Page 132

1 So, Commissioners, anything else? Would you like to
 2 make some closing remarks for the record?
 3 CHAIR KALK: Just briefly.
 4 JUDGE WARD: Okay. Chairman Kalk.
 5 CHAIR KALK: I thank everyone for the
 6 coming out today and listening through the
 7 testimony. Thank the company for presenting their
 8 case. And I would really urge you to work with
 9 Mr. Kessler as this unfolds because, as we're
 10 finding in the Commission, that North Dakota is
 11 going through a great opportunity right now, but if
 12 we don't have the support of the guy or gal in the
 13 Cenex station, these projects are not going to be
 14 going forward. We need to continue to diversify our
 15 coal, our wind, our natural gas, but if it isn't
 16 benefiting our local residents, these projects
 17 shouldn't be done. So I really urge you to keep the
 18 good faith with the local landowners because that's
 19 what this is all about.
 20 So thank you for your good -- coming out
 21 today and have a good weekend.
 22 JUDGE WARD: Commissioner Christmann,
 23 this being your home territory.
 24 COMMISSIONER CHRISTMANN: Yes. And it
 25 gives me a lot of experience with ALLETE and

Page 133

1 Minnesota Power and the 1, 2 and 3 projects. And,
 2 you know, I just will say this, that of all types of
 3 energy or industrial projects that have taken place
 4 and that I've fielded constituent calls for almost
 5 two decades, this company has been -- it seems like
 6 a player where I did not get very complaints. And
 7 so, you know, that's certainly a good thing.
 8 And I hope that if this gets approved and
 9 in the process of us even evaluating it, that that
 10 continues. And, you know, we heard some comments
 11 here now that are certainly something for the
 12 company to consider, I guess. But I do appreciate,
 13 too, everybody coming out today, hearing firsthand
 14 what the project consists of, rather than what you
 15 might hear at the coffee shop or something like
 16 that. Of course, what comes in the newspaper, you
 17 know, being right on.
 18 UNIDENTIFIED: In this case.
 19 COMMISSIONER CHRISTMANN: In this case.
 20 But, no, it is good when people come out, get the
 21 facts firsthand, help us with comments, this is, as
 22 I said at the very beginning, how we can best gather
 23 the information and make good and proper decisions.
 24 JUDGE WARD: Commissioner Fedorchak.
 25 COMMISSIONER FEDORCHAK: Thank you,

Page 134

1 everyone. There seems to be some strong support for
 2 this project in this community, that's the most
 3 important thing. I think people should have a say
 4 in what goes on in their backyards and you all have
 5 voiced your support for this project I think. And
 6 so that gives me comfort moving ahead. I think the
 7 company has done a good job going through all the
 8 requirements for siting and addressing all the
 9 important environmental and cultural issues and so
 10 things look pretty good.
 11 So thank you very much for coming. I
 12 would echo Commissioner Kalk's comments that we want
 13 to make sure that these things are working for the
 14 people in the Cenex station as well as the Tesoro
 15 station and any privately owned stations as well.
 16 UNIDENTIFIED: (Inaudible).
 17 COMMISSIONER FEDORCHAK: Thank you.
 18 JUDGE WARD: Mr. Moeller, anything
 19 further for the record?
 20 MR. MOELLER: Just thank you, Your Honor,
 21 and thank you, Commissioners, and Mr. Armstrong and
 22 Mr. Lein for a well run hearing.
 23 JUDGE WARD: Thank you.
 24 Mr. Armstrong, anything?
 25 MR. ARMSTRONG: Nothing further.

Page 135

1 JUDGE WARD: I'd just like to echo the
 2 remarks that you heard from the Commissioners. This
 3 is one of the great parts of a democracy and it's
 4 one of the reasons why these hearings are held out
 5 in the community, because we do want people to be
 6 here and we do want to hear people's input and we
 7 really appreciate stepping up and taking time to
 8 participate in something like this.
 9 And also taking the opportunity to see
 10 how careful the process really is. These things are
 11 not done lightly or without a good deal of
 12 consideration on your behalf by the people that
 13 represent you in Bismarck. So thanks again.
 14 And with that I'm going to close the
 15 hearing on the application of Minnesota Power for a
 16 Certificate of Site Compatibility for the Bison Wind
 17 Farm 4 Project. The time is approximately ten to
 18 noon, which also means I'll get back for my 1:00
 19 meeting in Bismarck, and I appreciate that as well.
 20 Case number PU-13-127 is closed, subject to the
 21 filing of -- and I guess we won't have any
 22 late-filed exhibits. So the hearing is closed.
 23 Thank you.
 24 (Matter concluded.)
 25

Draft Copy

	acknowledged (1) 43:20	46:21;77:3	108:5	35:13;37:12;66:8; 70:24
\$	acquisition (2) 18:14;49:11	adjacent (4) 19:16;104:23,23; 105:11	agents (2) 91:11;104:5	amounts (1) 17:7
\$1,650 (1) 39:4	acre (1) 76:4	adjust (1) 31:8	aggregate (2) 54:13;66:6	analysis (3) 76:19;87:13;98:13
\$16,000 (1) 125:2	acres (3) 17:5,6;76:2	administer (3) 14:8;73:25;120:15	ago (2) 32:19;43:1	analyst (1) 6:11
\$25 (2) 40:14,25	acronym (1) 93:2	administration (4) 15:8;53:21;82:1; 93:5	agree (3) 45:17,21;57:17	analyzed (1) 80:3
\$25,000 (3) 122:8,13;124:18	across (1) 70:25	Administrative (4) 4:3,5;75:24;76:18	agreed (2) 75:20;128:15	and/or (2) 121:1;126:19
\$30 (2) 40:14,25	Act (7) 76:22;77:7,8,9,11; 96:19	admonition (2) 73:21;120:6	agreement (7) 24:23,24;25:1,7,15; 31:18,19	announcement (1) 93:1
\$345 (2) 17:10;38:25	action (2) 10:12;76:24	adopted (1) 43:5	agreements (3) 25:2,5,14	annoyance (1) 100:6
\$5,000 (6) 14:5;48:2;73:23; 120:13;122:9,11	actions (2) 18:17;75:20	advancement (1) 71:2	agricultural (3) 76:2;85:1,6	annual (4) 30:2,2,3,4
A	active (1) 104:21	advantage (4) 17:16;35:12;41:18; 51:3	agriculture (2) 51:21;64:23	annually (2) 80:9,14
ability (2) 18:3;104:16	activities (7) 16:1;51:8,9,10,12; 78:14;90:24	advantageous (1) 41:21	ahead (6) 8:12;34:3;123:23; 125:14;130:18;134:6	answered (3) 29:11;114:14;121:4
able (12) 7:20;10:5;24:8; 26:22;32:4;41:16; 50:19,22;67:6;95:12, 14;116:20	activity (5) 9:11,12;67:14,16; 85:1	adverse (4) 5:11,17;82:21;83:4	ahold (2) 127:5;130:10	anticipate (6) 49:25;50:4,6;52:23; 68:18;81:3
above (5) 24:4;28:24;70:12; 99:1;122:18	actual (2) 90:8;125:11	advice (1) 128:3	aimed (1) 77:4	anticipated (5) 17:5;27:12;76:8; 83:25;84:4
absence (1) 19:25	actually (25) 8:4;27:21,24;28:5; 35:12;53:14;57:4,21; 59:25;60:18;63:11,12; 67:22;68:10,15;72:9; 84:17;94:1,8;100:1; 111:12;112:3,4;126:9, 21	advise (3) 13:23;47:23;73:19	aircraft (3) 63:4;70:8;98:25	anticipates (2) 19:10;27:13
absolutely (4) 31:4;60:7;85:18,25	add (7) 24:25;31:12,25;34:9; 40:25;116:6,14	advised (4) 14:6;48:3;73:24; 120:13	airfield (1) 106:21	anticipating (1) 93:19
AC (4) 20:16;24:5,9,13	added (2) 23:15;101:9	Aeronautics (11) 53:23;56:25;57:11; 60:12,16;98:23;106:5, 11;107:1,19;108:16	airfields (1) 106:7	appearance (3) 5:22;6:6,6
accelerated (1) 51:11	adding (2) 24:6;31:22	affairs (2) 128:6,10	airport (2) 81:18,19	appears (1) 99:3
access (8) 18:18;54:4,11;67:3, 11,11;90:22;127:15	addition (8) 19:9;26:15;37:8; 46:19;52:17;80:21; 115:11;124:22	affect (6) 17:6;80:25;89:22; 97:24;98:17,25	airports (1) 81:17	applaud (1) 105:5
accommodate (2) 103:11,25	additional (15) 22:21;24:6;25:4,5; 33:7;35:10;41:8;52:9; 53:7;56:25;57:1,10; 80:25;101:16;123:6	affected (2) 80:23;106:8	airstrips (5) 107:13,24;108:10, 17;114:3	applicable (2) 75:19;76:20
accommodated (1) 31:21	address (11) 33:11;34:1;40:7; 75:21;114:13;117:16, 21;119:15;121:4; 125:17,20	affects (1) 90:16	Allen (1) 81:19	application (15) 4:8,24,25;13:7; 21:17,25;22:1;36:22; 57:14,14;75:17;86:21; 93:8;106:5;135:15
accomplished (1) 86:14	addressing (2) 76:15;134:8	affordable (2) 9:20;42:1	ALLETE (6) 4:9;42:24;43:16; 74:13,21;132:25	applications (1) 36:17
accordance (1) 5:4	adequate (1) 49:18	afraid (1) 35:20	ALLETE's (1) 122:19	apply (4) 31:18;47:5;76:22; 118:6
According (1) 110:3	adhere (2)	ag (2) 64:7,13	allow (1) 6:25	approval (1) 4:4
account (5) 19:12;30:12;40:22; 90:2;111:22		again (11) 37:8;44:9;50:3; 62:10;84:6;85:13; 92:14;104:7;120:9; 123:21;135:13	allowed (3) 6:12;78:7;84:20	appropriate (7) 12:3;35:4;55:15; 49:6;95:17,25;96:16
accurately (1) 88:1		age (1) 37:2	almost (6) 10:1;28:3;64:16; 93:19;109:15;133:4	approach (1) 98:2
achievable (1) 51:7		ages (6) 75:20;77:12;90:17, 18;93:6;95:17	along (2) 86:4;113:19	appropriately (2) 78:16;86:9
achieve (2) 36:18;51:2		agency (1)	always (6) 32:1;45:14;113:13; 118:5;128:3,7	approval (1)
achieved (1) 36:11			amendment (1) 58:8	
			amount (8) 20:3,24;24:9;32:5;	

<p>104:9 approvals (1) 49:11 approved (3) 19:21;115:6;133:8 approving (2) 64:21;99:5 approximately (17) 17:3,4,6,10;19:2,4; 20:9,10;48:25;52:24; 53:7,15,16;54:10; 79:22,24;135:17 April (1) 50:3 archaeological (2) 78:8;86:16 archeologists (1) 109:9 area (42) 9:6,16;17:2,4,8; 19:23;25:10;28:19; 31:1;32:6;35:17,25; 54:23;57:15;58:10; 60:9;66:3;72:11,19; 76:4;78:13;84:19;85:6; 86:7;90:17;92:7;95:4, 11;96:10,23,24;97:2,6; 104:19;105:16;107:14; 110:11;113:9;115:7; 126:7;127:25;128:10 areas (17) 9:24;42:16,21;72:3, 12;75:22;76:6,15;78:1, 2;81:3;83:24;84:4,18; 87:1;102:24;126:8 arms (1) 64:21 Armstrong (44) 6:5,8;13:12,13;21:6, 8,10;22:5;26:2;46:25; 47:1,3,8;55:11,13;58:7, 11,14,18;63:3;71:17, 19,21;73:1,2;83:13,15; 91:21;96:5;107:4,9; 108:1;112:17,18,20; 113:12;114:5;117:3,4, 118:13,15;134:21,24, 25 Armstrong's (1) 81:7 Army (2) 76:9;105:19 around (14) 25:3;39:4;52:24; 64:21;80:16,19;85:19; 103:2;104:19,20; 107:13;109:13;110:20; 128:24 arrangement (1) 104:12 arrangements (1) 16:4 Arrowhead (1)</p>	<p>20:7 aspects (1) 75:16 assessment (1) 77:2 Assistant (1) 6:9 associated (5) 16:13;17:11;53:9,25; 76:24 assume (5) 46:14;58:2;66:6; 85:16;106:25 assumed (1) 108:8 assuming (1) 50:9 assumption (1) 50:10 assurance (2) 43:9,25 assurances (3) 43:21,24;46:19 assuring (1) 106:6 attendance (1) 112:6 attention (1) 99:11 Attorney (2) 6:9;111:25 August (8) 13:7,9;50:6;78:11, 13,23;79:18;80:7 authority (1) 129:25 authorize (1) 4:10 available (10) 17:23;19:24;21:17; 31:7,14;32:1;37:1; 43:13;51:3;62:22 average (4) 28:19;29:23;35:5,9 averages (1) 28:15 avian (1) 51:21 Aviation (1) 53:21 avoid (8) 54:4,5;72:11;76:12; 77:24;85:16;86:21,24 avoidance (4) 58:10;76:6,15;78:2 avoided (1) 95:10 avoiding (1) 57:19 avoids (3) 52:4;78:8;105:8 aware (5) 61:21,23;108:2;</p>	<p>126:3,13 away (17) 52:6;79:5,10,12; 81:20;82:7;86:25; 94:10,19;95:15,16; 96:9;104:20;107:22; 110:17;122:1;123:21 B bachelor (2) 15:5;48:18 back (40) 11:15;21:19;31:15; 36:21,23,24;37:3,12; 40:1,3;47:11;61:4; 65:9,20,22;66:12,18; 72:9;73:9;84:10;91:17; 96:2;97:7;98:14,23; 100:14;106:14;107:3; 108:15;111:11;114:11, 17;117:10;118:24; 126:5;128:5,7,14; 129:18;135:18 backfeed (1) 63:9 backfilled (1) 67:22 backfilling (1) 67:9 background (9) 15:4,11;48:17,21; 74:24;88:20,25;89:24; 97:18 backup (2) 31:22;40:18 backyards (1) 134:4 bad (1) 8:3 Badlands (1) 110:13 Bald (4) 77:8,17;96:15,18 Barry (8) 6:3;13:21;14:16,19, 24;23:5;59:5;114:23 B-A-R-R-Y (1) 14:16 base (5) 42:10,11,13;44:12; 45:1 based (7) 19:17;36:8;57:8; 64:9;79:17;82:18; 110:13 baseload (2) 25:24;38:16 basically (4) 60:2;61:3;67:14; 124:3 basing (1) 102:10</p>	<p>basis (3) 30:2;37:22;88:9 batteries (1) 63:10 beam (4) 81:22;82:2,3,8 beams (1) 98:8 become (1) 122:24 bedroom (3) 89:11,15;99:22 began (1) 18:14 begin (8) 7:14;13:23;17:24; 20:18,21;41:13;50:19, 22 beginning (4) 33:3;109:4;118:19; 133:22 behalf (3) 6:1,9;135:12 behind (1) 34:15 believes (2) 52:3;82:13 below (8) 54:22;61:6,20;79:17; 80:10;100:9,14;101:1 belts (1) 83:23 bemoaning (1) 11:19 benefit (4) 18:23;45:8,18;116:8 benefiting (2) 45:17;132:16 best (13) 7:19;8:10;9:23;10:1, 5,18;51:1;59:24;61:6; 85:16;103:9;126:9; 133:22 better (6) 11:12;38:15;56:5; 59:4;70:23;118:6 beyond (4) 17:25;33:8;37:25; 76:15 bid (1) 45:20 big (6) 92:4;98:19;99:19,23, 24;116:24 bigger (2) 26:20;27:6 biggest (1) 127:8 bind (1) 64:8 bingo (1) 62:13 biological (1)</p>	<p>76:19 biomass (2) 18:11;19:11 Bird (2) 77:7;95:20 birds (2) 55:24;109:25 Bismarck (3) 11:8;135:13,19 Bison (96) 4:11;15:23,24;16:11, 19,21,24,24;17:5,15; 18:1,7,12,17,25,25; 19:10,15,16,19;20:1, 14;21:2,3;22:3;23:14, 16,17,18;24:2;25:1; 27:22;28:1,7,16;30:14; 32:11,16;33:8;34:7,9, 11,17;36:1,3,4,6;39:12, 12,16,19,20;43:22; 49:7;51:25;52:10,13, 19;53:8;54:1,20;56:8; 57:2,6,9;62:8;75:6; 76:5,14;77:16,18,20, 23;80:4,19;82:12;85:2, 11;86:10;88:4;96:23; 97:25;112:21;113:7,9, 11,19;114:2;115:13; 116:7,9;118:2,5; 126:11;130:21;135:16 bit (6) 11:22;25:8;58:25; 85:19;111:6;113:10 bizarre (1) 70:6 blade (3) 62:3,5;69:15 blades (1) 88:21 blend (1) 65:20 blocking (1) 90:12 blowing (11) 23:23,25;25:11,23; 31:1,2;32:2;63:8; 88:21,22;90:7 bonding (2) 43:9,24 bore (2) 105:23;126:17 both (11) 14:5;35:25;36:1; 48:2;58:14;73:23;78:9; 98:12;100:13;109:4; 120:13 bottom (1) 68:6 bought (1) 11:10 boundary (8) 32:12;80:16,19;81:8, 11,25;82:4,6</p>
--	---	--	---	--

<p>box (1) 52:5</p> <p>break (7) 7:7,11;40:1,2;73:8, 10;83:23</p> <p>breaking (1) 90:24</p> <p>breaks (2) 84:11;90:6</p> <p>Brian (1) 11:1</p> <p>brief (3) 15:10;46:5;48:20</p> <p>briefly (3) 17:13;34:1;132:3</p> <p>bring (2) 98:13;125:15</p> <p>bringing (1) 121:10</p> <p>broke (1) 130:16</p> <p>brought (2) 121:9;125:24</p> <p>buffer (4) 77:25;95:13;109:18, 19</p> <p>build (1) 17:15</p> <p>building (2) 17:20;41:25</p> <p>builds (1) 68:7</p> <p>built (3) 7:23;110:5,9</p> <p>bunch (2) 93:5;95:5</p> <p>burden (2) 121:22;123:20</p> <p>burial (3) 51:23;52:4;63:16</p> <p>buried (1) 51:19</p> <p>burrow (3) 102:14,17,19</p> <p>burrowing (1) 102:12</p> <p>bury (1) 56:7</p> <p>business (2) 15:8;71:7</p> <p>Butte (1) 52:15</p> <p>buy (2) 41:18;115:12</p>	<p>69:5</p> <p>calculations (1) 79:18</p> <p>calculator (1) 39:4</p> <p>call (21) 10:10;13:18;43:5; 63:20;64:6,11,16; 69:11;73:11;109:8; 114:17;118:1,2; 121:10;123:8;124:1,2, 8,9;127:14;128:9</p> <p>called (2) 52:20;97:10</p> <p>calling (3) 10:15;114:11;122:10</p> <p>Calls (3) 64:11;121:14;133:4</p> <p>calm (1) 89:1</p> <p>came (3) 61:16;63:18;64:1</p> <p>can (66) 6:23;7:11;11:9;14:7; 23:14,15;24:3,25; 25:17;26:10;28:7,17; 31:5,21,21,25;32:3; 35:13;36:10;37:24; 38:20,22;39:6,21,24; 42:3;43:8;47:18;55:20; 56:5;58:16,25;60:5; 64:15;67:22,23;69:11; 72:16;73:25;78:10,23; 88:11;89:22;90:23; 98:9,25;99:23,23; 101:4;103:11;106:7, 13;108:25;113:16; 119:8;120:15;121:2,4; 124:1,17;127:5; 128:18;129:10,17; 130:9;133:22</p> <p>capacity (16) 16:18;20:6,8,24; 21:1;24:5,15,25;27:17, 18,21;28:2,22,22; 35:14;45:1</p> <p>capital (4) 17:18;27:14;37:22; 41:8</p> <p>capitol (1) 10:3</p> <p>cards (1) 130:8</p> <p>care (2) 127:24;130:14</p> <p>careful (1) 135:10</p> <p>carefully (1) 76:11</p> <p>carries (1) 51:14</p> <p>case (18) 4:11,12;7:24;8:1,11;</p>	<p>61:9;62:1;67:24;72:18; 94:22;96:9;118:10; 123:24;126:4;132:8; 133:18,19;135:20</p> <p>cases (1) 94:25</p> <p>cast (1) 53:12</p> <p>catch (1) 26:22</p> <p>catches (2) 26:16,20</p> <p>Cause (7) 32:20;61:6;66:16; 67:5;70:6;99:12; 131:23</p> <p>caused (2) 115:7,8</p> <p>causing (3) 51:8;99:20,24</p> <p>caveat (1) 30:14</p> <p>cell (2) 44:19;69:22</p> <p>Cenex (3) 45:15;132:13;134:14</p> <p>Center (10) 4:19;11:3;18:15; 20:7,16;22:11,15;31:3; 94:7;124:9</p> <p>centerline (4) 93:25;94:1,11,20</p> <p>central (1) 18:19</p> <p>cents (1) 45:19</p> <p>Century (1) 54:18</p> <p>certain (6) 27:1,2;32:8;61:20; 68:2;89:22</p> <p>certainly (6) 24:14;65:4;116:5,24; 133:7,11</p> <p>certificate (4) 4:10,24;75:17; 135:16</p> <p>certification (1) 13:10</p> <p>CHAIR (36) 7:17;23:1,2,4;28:25; 29:5,6,8,11;44:4,5,8, 16,24;45:23;59:12,14; 93:15,17;111:4,5,8; 115:21,24;116:11; 117:16;121:25;122:3; 123:21,24;127:1; 128:1;129:21,24; 132:3,5</p> <p>Chairman (7) 7:16;29:2;59:11; 93:14;122:2;123:23; 132:4</p>	<p>challenge (2) 12:1;23:21</p> <p>challenges (5) 11:17,18,25;35:2; 94:16</p> <p>chance (3) 8:14;85:6;131:22</p> <p>change (5) 38:12;81:8;84:7; 122:7;129:17</p> <p>changed (3) 16:21;81:10;84:7</p> <p>changing (2) 84:2;122:5</p> <p>Chapter (2) 75:23;76:17</p> <p>check (3) 94:21;95:1;107:3</p> <p>checked (1) 107:20</p> <p>checks (1) 107:21</p> <p>choices (1) 12:9</p> <p>choose (2) 71:25;72:1</p> <p>chose (1) 91:8</p> <p>chosen (1) 91:12</p> <p>Christmann (31) 8:24,25;29:2,3,5,10; 33:13,23;34:19;42:6,9; 44:2,12;62:15,17;99:8, 10;101:20;114:16,18, 25;115:17;130:18,20, 25;131:4,8,16;132:22, 24;133:19</p> <p>chunk (1) 30:19</p> <p>circumstances (1) 91:6</p> <p>citizens (2) 5:13;82:22</p> <p>civil (3) 48:16,19,24</p> <p>clarification (1) 39:11</p> <p>clarifications (1) 93:22</p> <p>clarify (1) 93:24</p> <p>class (12) 14:3,3;47:25,25; 73:21;78:4,5,9,10; 85:23;120:11,11</p> <p>clauses (1) 83:17</p> <p>clean (5) 66:7;74:21,21;77:7; 111:5</p> <p>clear (1) 113:6</p>	<p>cleared (2) 84:1,4</p> <p>clearly (1) 43:11</p> <p>climbing (1) 35:19</p> <p>close (7) 19:18;36:2;94:18; 118:4;123:17;131:23; 135:14</p> <p>closed (2) 135:20,22</p> <p>closer (1) 94:8</p> <p>closest (7) 79:4,9,11;81:19; 96:8,10;128:4</p> <p>closing (1) 132:2</p> <p>Cloud (1) 42:20</p> <p>coal (3) 38:16;57:19;132:15</p> <p>Code (6) 52:1;54:18;56:20; 75:24;76:18;111:14</p> <p>coffee (2) 10:15;133:15</p> <p>cold (2) 61:5,16</p> <p>collapsed (1) 62:3</p> <p>collecting (1) 110:20</p> <p>Collection (4) 67:13,13,16;71:23</p> <p>collective (1) 21:2</p> <p>collector (17) 51:13,14,15,17,18; 52:2,7;59:23;67:20; 72:10,20;85:21,24; 86:24;105:17,19; 109:11</p> <p>civil combination (2) 53:3;115:10</p> <p>combined (2) 30:7,11</p> <p>combining (1) 18:2</p> <p>comfort (1) 134:6</p> <p>comfortable (3) 33:20;112:7;121:25</p> <p>coming (16) 6:22;7:18;8:16;9:1; 10:4,7;30:11,17,23; 63:11;101:11;115:5; 132:6,20;133:13; 134:11</p> <p>comment (1) 50:3</p> <p>comment (3)</p>
C				
<p>cable (4) 51:19;52:7;65:8; 126:1</p> <p>calculated (2) 79:21,23</p> <p>calculating (1)</p>				

<p>6:20;65:5;90:11 comments (8) 11:1;97:7,9,12,14; 133:10,21;134:12 commercial (3) 42:12;81:24;82:3 Commission (53) 4:6,12,22;6:10,11,11, 20;7:4,19;13:9;15:20; 19:21;21:22;23:7,9; 32:15;43:2,4,8,22; 46:12,17;49:5;53:23; 55:5;56:25;57:11;59:2, 7;60:11,12,16;74:18; 77:20;80:6;82:16; 98:22,23;99:4;106:6, 11;107:1,19;108:9; 118:14;121:1;122:10; 124:2,17,23;125:4; 128:4;132:10 commissioned (2) 64:19;68:18 Commissioner (64) 8:24,25;10:20,21,22; 29:3,5,10;33:13,23; 34:19,21,24;39:14; 40:9,16;42:4,6,9;44:2, 11;62:14,15,17;66:21, 23;69:14;71:12;99:8, 10;101:20,22,24; 103:23;106:23;107:6, 7;108:1,13,19,22; 110:24;111:9;114:16, 18,25;115:17;116:14, 16,18;117:1;130:18,20, 25;131:4,8,16;132:22, 24;133:19,24,25; 134:12,17 Commissioners (14) 5:9;7:3,15;12:21; 22:24;59:10;93:13; 111:2;114:8;118:20; 121:3;132:1;134:21; 135:2 Commissioner's (1) 34:1 commissioning (5) 49:2;50:6;66:1; 68:16,17 Commission's (6) 5:5;7:6;49:24;51:4, 25;82:11 commitment (1) 54:15 common (2) 109:24;126:7 communicate (1) 104:5 communication (1) 127:9 community (4) 11:7;12:4;134:2; 135:5</p>	<p>companies (9) 31:23;43:6,20;98:12; 111:13,15;122:23,24; 124:24 Company (26) 4:9;7:9;8:11;23:9; 30:25;42:24;64:25; 70:22;93:19;94:5,6; 95:21;105:12;107:2, 11;108:10,15;112:5; 125:1;127:4;128:13; 130:1;132:7;133:5,12; 134:7 company's (2) 8:1;12:3 comparable (3) 36:12,13,20 compared (2) 28:19;110:13 comparisons (1) 37:9 compatibility (5) 4:10,24;19:17;75:18; 135:16 compatible (2) 5:14;82:24 competitive (1) 45:20 competitively (1) 17:19 complains (1) 87:22 complaints (5) 88:6,15;91:10;99:12; 133:6 complete (4) 21:4;50:7;55:6;83:9 completed (5) 67:20,21;72:23;93:9; 127:18 completion (1) 7:1 compliance (4) 15:15;25:6;74:15; 101:3 comply (4) 53:20,23;54:17;55:3 complying (1) 111:18 component (2) 18:12;36:12 components (5) 36:13;54:9;67:25; 68:1;69:21 comprised (1) 51:18 Comsearch (3) 81:23;98:2,12 concern (7) 62:4;63:17,25;64:5; 91:14;121:10,15 concerned (4) 37:18;98:24;100:1;</p>	<p>127:3 concerning (1) 6:21 concerns (16) 24:21;32:17;35:11; 60:13;75:21;90:15; 97:5;99:12;104:13; 107:1;108:3;111:22; 125:25;128:8,11; 130:10 conclude (1) 82:3 concluded (1) 135:24 concludes (1) 110:25 concrete (9) 53:12;67:6;69:24; 91:25;92:5,12;102:2; 103:4,7 concur (1) 95:17 concurrence (2) 78:12;86:4 condition (2) 24:16;54:24 conditional (2) 78:20,22 conditions (2) 50:2;53:17 conducted (1) 72:3 conductors (1) 52:3 confined (1) 57:15 confirm (1) 108:16 connect (1) 52:18 connection (4) 15:22;49:7;63:17; 75:6 connects (1) 52:12 consequently (1) 17:19 Conservation (1) 77:10 consider (5) 32:8;79:14,16;119:8; 133:12 consideration (6) 10:11;31:4;90:20; 97:20;116:5;135:12 considerations (2) 55:23;107:17 considered (6) 5:8;10:13;76:16; 80:1;81:14;82:18 considers (1) 105:20 consistent (4)</p>	<p>51:24;54:12;82:11; 124:20 consists (1) 133:14 constituent (1) 133:4 constitutes (1) 76:3 construct (2) 52:17;78:21 constructed (2) 61:4;87:20 construction (46) 5:10;17:24;18:20,24; 39:1;41:14;49:1,12,17, 22,23;50:1,2,3,8,12,14, 19,22;52:22,23;53:2; 54:25;55:18,20,22; 59:18,19,20,22;60:6; 61:7;65:16,18,19; 66:15,25;67:18;72:14; 78:14;82:19;86:7,12; 90:14,16,21 consult (3) 53:22;129:24;130:4 consultant (1) 57:22 consultation (4) 75:19;77:1,21;92:23 consulted (4) 77:11;81:23;90:17, 18 consumer (2) 128:6,10 contact (2) 56:24;127:4 contemplating (1) 34:13 continue (6) 17:19;31:12,25;81:1; 112:1;132:14 CONTINUED (6) 42:8;44:7;107:8; 108:21;111:7;112:19 continues (2) 127:10;133:10 continuing (2) 5:18;83:5 contract (1) 61:10 contractor (1) 86:16 contractors (1) 53:2 control (1) 61:13 cooperative (1) 20:4 Cooperative's (1) 20:15 coordinate (1) 7:11 coordination (2)</p>	<p>15:25;49:10 copy (1) 106:16 corn (2) 103:5,10 Corps (3) 76:9;105:20;106:2 corral (1) 121:12 correctly (2) 58:4;89:19 correspondence (1) 106:4 cost (14) 16:3;17:9,10,20; 38:22;40:17,19,20,23; 41:2;52:8;116:9; 121:22;123:2 costs (10) 17:18;37:19;38:23; 39:7;40:18;41:8,9; 51:10;55:21;123:19 couch (1) 89:8 count (1) 60:1 counties (1) 7:20 countries (1) 12:8 country (1) 11:24 County (23) 4:18;7:22,25;11:5,6; 17:2;19:20;20:13;21:1, 24;30:12,15,22;35:8; 52:20;54:13,14;78:17, 19,20,21;101:12;128:4 couple (16) 10:25;38:8;41:7; 42:7;44:6;55:14;59:16, 21;61:1;62:4;63:3; 68:3;71:19;91:24; 93:21;112:18 courage (1) 131:20 course (8) 27:12;34:5,7;39:20; 99:3;128:3;129:11; 133:16 court (1) 10:12 Courthouse (2) 4:18;7:25 cover (4) 51:20,23;52:2;94:20 crane (4) 67:23;68:5,8,11 crazy (1) 95:12 create (1) 66:19 created (1)</p>
--	---	---	--	---

<p>45:4 creating (1) 106:22 credit (6) 17:23;41:11;50:15; 59:17;116:21,24 criteria (2) 76:16;85:14 criterion (1) 76:21 critter (1) 96:1 cropland (2) 66:11;131:1 CROSS-EXAMINATION (8) 21:9;22:9;55:12; 58:23;83:14;92:20; 107:8;112:19 cultural (12) 54:5;72:5,8,19; 76:20;85:22;86:19,22, 24;108:23;109:1;134:9 cumulative (1) 80:3 curious (4) 22:22;28:4;69:24; 70:7 current (7) 18:22;21:21;22:14; 51:5;62:21;76:18; 111:19 Currently (4) 20:11,17;41:10; 67:10 curtailment (1) 24:13 customer (5) 42:10,11,13;44:12; 45:1 customers (4) 39:7;40:21;42:12; 45:19 cutoff (2) 85:3;100:19</p>	<p>123:18 damaged (3) 123:25;124:4,25 damages (2) 124:21;125:2 damaging (1) 126:23 Dan (12) 6:2;56:2;57:21; 58:17;63:1;73:13,15; 74:8,13;93:18;101:25; 110:25 data (5) 19:18;62:25;95:24; 96:3;98:23 dataset (1) 28:14 datasets (1) 76:18 date (6) 4:20;17:25;78:4; 90:21;124:4;126:10 David (1) 6:1 day (7) 9:19;11:3;12:7;61:4, 8;89:2;113:18 days (2) 31:2,14 DC (11) 18:15;20:7,8,11,25; 22:14;23:15;24:4,5,8, 15 deal (3) 30:25;106:23;135:11 dealing (3) 32:7;43:3;94:23 deals (1) 128:4 debated (1) 112:1 decade (1) 101:12 decades (2) 112:12;133:5 December (2) 28:8;62:11 decibel (2) 79:20;99:25 decibels (5) 79:17,23,25;89:10; 99:15 decide (1) 43:23 decision (5) 7:6;41:12;51:25; 61:7;82:11 decisions (4) 10:2,6,19;133:23 decline (1) 11:19 decommissioned (1) 66:3</p>	<p>decommissioning (21) 43:3,7,18;46:6,7,11, 11;54:16,19;55:4;59:1; 62:19;65:14;66:1,5,13; 69:23;70:3;102:3; 104:3;112:3 decrease (1) 70:24 decreasing (1) 41:9 deep (4) 64:12;112:8;123:11; 131:11 deeper (5) 65:7,25;111:13; 112:9;126:18 defer (7) 57:21;58:16;92:8,14; 101:17;103:17;105:1 deferred (1) 91:4 define (1) 59:20 defined (3) 24:24;32:12;122:8 definitely (7) 56:22;60:1,6;63:2; 71:3;122:23;126:22 degree (2) 15:5;48:18 delayed (1) 51:4 delays (1) 55:21 deliberate (1) 119:8 delineation (1) 75:2 deliveries (3) 50:18,25;54:9 delivering (3) 54:9;68:1,2 delivery (3) 18:5;50:4;68:13 demand (3) 101:13;115:11,16 democracy (1) 135:3 dens (1) 102:15 Department (1) 15:2 depend (2) 107:25;111:23 dependable (1) 9:20 depending (2) 24:16;53:16 deposits (1) 57:20 depth (19) 51:19,23;52:4;54:22; 56:7,8,9;64:5,14;65:6;</p>	<p>70:1;103:7,11;111:10, 13,15,17;126:10,15 describe (5) 16:11;17:13;53:10, 18;54:2 description (3) 15:10;48:20;49:16 design (8) 26:12;49:1;54:2; 72:9,23;75:9;76:14; 109:4 designated (2) 4:4;78:2 designed (5) 54:4,11;76:11;86:20; 109:13 designs (1) 37:3 desktop (1) 76:19 detailed (1) 51:16 determination (1) 16:2 determine (3) 98:15;107:11,13 determined (2) 5:8;71:22 develop (2) 28:13;78:7 developed (1) 70:23 developers (1) 41:15 development (10) 9:12;15:1,14,24; 16:1;18:8;19:23;20:2; 54:10;81:14 diameter (7) 16:16;26:16,20; 53:15;83:24;84:5;92:1 difference (3) 26:9;99:19,24 different (15) 8:3,8;11:17;26:2; 37:11;38:2;55:16; 59:21;68:4;93:6;97:22; 98:18;104:14;106:19; 129:11 dig (5) 64:18;105:22;122:6, 10;126:14 digger (1) 131:15 digging (4) 121:12,13;125:11; 126:19 DIRECT (8) 14:20;16:17;21:4; 22:14;48:10;55:6;74:9; 83:9 directed (1) 38:10</p>	<p>directly (6) 9:24;10:4;99:1; 104:23;105:11;130:10 dirt (1) 92:11 discovered (6) 77:17;78:14;86:7,11, 19,25 discuss (2) 18:21;100:15 discussed (3) 55:21;56:13;113:18 discussion (7) 60:11;90:13;94:3; 104:11;111:16;122:14; 128:17 discussions (8) 40:24;63:18;64:13; 80:24,25;101:8; 111:24;125:24 dismantled (1) 43:14 displace (1) 115:13 displaced (1) 92:11 distance (5) 53:19;94:7,10;95:15, 25 distributed (1) 92:13 district (1) 9:4 disturbance (1) 54:5 ditch (1) 65:22 diverse (1) 18:10 diversify (1) 132:14 docket (1) 77:21 Doctor (1) 69:7 DOD (1) 92:23 dollar (1) 41:25 done (24) 7:12;9:9;26:6;32:19; 39:12,16;64:9;70:11, 16;85:23;91:17;98:1; 100:5;107:11,12; 109:7,15;121:14; 124:11;125:12;131:12; 132:17;134:7;135:11 double (2) 94:21;107:3 down (22) 23:20;27:3,5;29:12; 31:8;40:18;41:20; 42:19;47:11;61:16;</p>
D				
<p>Dakota (42) 4:12,19;5:5,13; 11:14;15:6,7;17:4; 18:3,14,15,19;19:22; 30:18;45:10,10;47:5; 48:19,23;53:22;54:18; 61:1;71:8;73:20;75:23; 76:14,17;77:21;78:15; 82:22;97:1;102:17; 106:5,10;107:19; 118:7;119:16;120:10; 123:24;124:8;131:10; 132:10 Dakota's (1) 77:10 damage (1)</p>				

<p>63:24;73:6;97:11; 102:2,19,25;112:2; 113:8;114:9;117:9; 126:14;129:1 drainage (4) 102:23;103:2,14,15 drills (1) 94:13 drive (1) 16:17 driven (1) 18:22 driver (2) 34:15;122:13 driving (3) 17:13;34:14;54:12 drove (1) 8:21 drowned (1) 88:25 Due (3) 50:25;51:7,11 dug (1) 92:4 Duluth (6) 14:25;18:16;22:15; 42:18;48:15;74:14 duly (1) 5:3 during (21) 7:11;52:21;55:25; 61:7;63:13,19;65:15, 17,18,18;66:13;68:14; 72:14;78:14;86:7,12; 90:24;102:3;111:21; 117:22;125:23</p>	<p>104:10 east (3) 31:3;110:15;113:25 eastern (2) 64:1;131:10 easy (4) 12:18;31:2;117:12; 124:14 echo (2) 134:12;135:1 economic (5) 9:11,12;81:5,9,13 economical (3) 116:10,19,21 economics (1) 116:25 edge (1) 93:24 edges (1) 52:6 educate (1) 38:14 educational (2) 15:3;48:17 effect (1) 82:8 effects (3) 5:12;81:16;82:21 efficient (2) 5:15;82:25 eight (5) 15:13;28:9;53:7; 68:21,23 either (13) 22:20;31:3;33:16,22; 59:22;65:21;87:8; 91:11;114:11;116:2; 117:21;126:1,13 electric (4) 19:13;20:15;38:12; 52:1 electrical (5) 49:2,3;52:14,16;62:2 electricity (4) 4:15;9:21;26:24; 116:6 eliminate (1) 103:3 else (14) 6:18;71:18;72:25; 101:5;111:2;112:13; 115:19,19;116:12; 117:13;125:15;130:17; 131:22;132:1 employed (7) 14:24;15:12,16; 48:14,16,24;74:13 employer (3) 14:22;48:13;74:12 encompasses (1) 17:4 encourage (3) 7:2;105:10;127:2</p>	<p>end (9) 9:19;17:24;22:20; 41:14;54:20;84:16; 103:1;123:15;126:23 Endangered (2) 77:9;96:20 ends (2) 20:20;84:13 energy (41) 5:19;15:17;16:22; 18:5;19:3,3,6,7,9,11; 23:23;24:2,3,7,9;30:3, 17;31:6,7,10;33:6; 35:13,24;36:5,23; 38:23;45:2,4;61:10; 74:21,22;77:10;83:6; 101:6;115:12,12,14,15; 116:10;122:19;133:3 engage (1) 86:17 engineer (2) 48:16,22 engineering (6) 15:6,17;36:9;48:19, 25;49:12 Engineers (2) 76:10;105:20 enough (15) 9:15;29:12;32:3; 60:8;62:1,94:14;96:4, 14;102:3,6,7;103:6,7; 104:9;112:8 ensure (1) 50:16 ensuring (5) 5:18,19;83:5,6;101:6 entail (1) 22:13 entered (1) 64:16 entity (2) 108:2;119:20 environment (4) 5:12;35:15;77:4; 82:21 environmental (17) 5:14,17;57:22;74:15; 75:8,11,16,20;76:22; 77:2;82:25;83:4;101:3; 102:4,4,7;134:9 envisioned (1) 122:20 equipment (3) 8:22;37:9;68:24 equivalent (1) 16:16 erected (1) 127:20 erection (4) 50:5;61:11;68:4,8 essentially (1) 108:4 estimate (1)</p>	<p>41:4 estimated (3) 17:9,10;52:21 Europe (1) 37:14 evaluating (1) 133:9 even (12) 8:5;27:1;32:18,22; 33:5;34:8;90:7;97:19; 100:6;105:11;118:4; 133:9 event (1) 61:14 eventually (2) 66:4;128:14 everybody (3) 9:1;128:23;133:13 everyone (6) 4:2;7:18;10:23; 11:19;132:5;134:1 evidence (1) 7:10 exactly (6) 43:12;61:25;70:20; 89:4;95:23;96:21 EXAMINATION (20) 14:20;23:3;29:9; 34:23;42:8;44:7;46:3; 48:10;59:13;62:16; 66:22;74:9;93:16;99:9; 101:23;108:21;111:7; 114:24;115:23;116:17 excavate (1) 67:7 excavating (1) 52:5 excavator (1) 124:18 exceed (3) 54:14;79:1,8 exceeding (1) 56:21 exceeds (1) 56:22 excellent (3) 19:18;105:14;109:20 Except (1) 21:24 excess (1) 45:4 excessive (1) 88:6 exciting (1) 11:13 excludes (1) 58:2 exclusion (4) 58:10;75:22;76:15; 78:2 excuse (2) 29:3;39:3 exhibit (17)</p>	<p>7:10;13:3,6,7,9; 21:16,19;57:13,24,25; 58:7,8,11;60:18; 113:18,19;117:21 exhibits (7) 12:25;13:2,14,16; 21:18;72:16;135:22 exist (1) 43:5 exists (1) 54:25 existing (8) 18:4;26:19;27:8; 31:9;52:11,13,15; 116:7 expand (1) 58:25 expanded (1) 20:10 expect (5) 29:13;53:2,7;87:14; 90:5 expectancy (3) 27:9;29:13,16 expectation (1) 37:25 expected (5) 36:10,16;39:1;53:5; 85:24 expecting (1) 57:10 experience (11) 28:14;36:19;57:9; 60:24;63:22;74:25; 80:9;102:11;107:22; 108:14;132:25 expert (6) 25:15;32:3;70:14; 102:5;110:14;130:22 expertise (1) 92:7 experts (1) 38:14 expiration (1) 18:22 explain (2) 18:6;42:10 exposure (2) 80:9,13 expound (1) 97:23 express (1) 12:10 expressed (1) 91:14 expressing (1) 12:16 extend (3) 37:24;41:12;105:10 extended (1) 41:13 extension (3) 17:25;32:21;41:10</p>
E				
<p>Eagle (5) 77:8,24;96:15; 109:21;110:14 eagles (4) 96:15,17;97:6; 110:12 eagle's (4) 77:17,20;110:4,8 earlier (4) 37:17;81:7;90:13; 120:7 early (6) 28:9,17;67:18,24; 86:17;127:19 ears (1) 88:23 earthwork (2) 66:16;67:4 easement (10) 20:4;32:5,11;65:17; 91:16;111:21,23; 125:11,24;129:15 easements (4) 38:4;49:21;91:17;</p>				

<p>extra (1) 35:19</p> <p>extractive (1) 81:4</p> <hr/> <p style="text-align: center;">F</p> <hr/> <p>FAA (9) 56:24;57:3,4;60:16, 22;92:24;98:24; 107:12,18</p> <p>face (1) 45:14</p> <p>faced (1) 11:17</p> <p>facilities (23) 5:11,14;15:14;16:13; 17:12,23;31:10;33:8; 49:2,17,22;53:9;54:16, 22;76:11;81:12;82:20, 24;98:6;99:17,18,18; 122:16</p> <p>facility (12) 5:16;31:5,19;38:24; 60:4;75:5,10;76:5; 77:11;78:17;83:3; 107:25</p> <p>facing (1) 11:18</p> <p>fact (7) 11:19;13:25;43:12, 18,23;51:7;103:3</p> <p>factor (10) 9:13;27:17,18,21; 28:2;40:17,25;41:5; 81:14;86:11</p> <p>factored (4) 9:18;40:19,20;76:21</p> <p>factors (3) 9:22;75:8;85:13</p> <p>facts (1) 133:21</p> <p>failures (1) 62:5</p> <p>Fair (5) 60:8;62:1;66:8;96:4, 14</p> <p>faith (1) 132:18</p> <p>fall (7) 18:25;50:20,23; 55:20;60:5;90:21; 128:22</p> <p>fallow (1) 84:20</p> <p>Falls (2) 42:19,19</p> <p>false (1) 13:24</p> <p>familiar (3) 22:21;32:25;91:6</p> <p>families (1) 109:25</p>	<p>far (20) 37:3;55:23;65:23; 66:1;84:14,18;85:11; 87:19;90:15;94:14; 96:2,25;104:20,20,22; 107:22;110:16;121:12; 127:10,22</p> <p>Fargo (1) 15:7</p> <p>farm (18) 9:10;12:2;25:4; 28:16;29:24;30:3; 43:10;44:13;45:8,16; 61:2;62:2;64:22;84:19; 99:2;106:20;107:23; 135:17</p> <p>farmer (2) 103:5,17</p> <p>farmers (2) 104:2,13</p> <p>farming (4) 54:6;102:8,22;103:8</p> <p>farmland (1) 76:1</p> <p>farms (18) 24:1,6,7;25:6;28:3,6; 31:13,25;37:14;43:3; 44:25;60:24;62:22; 78:21;97:21,22; 101:11;125:23</p> <p>farthest (2) 110:3,7</p> <p>fashion (3) 5:20;83:7;101:7</p> <p>fast (1) 96:3</p> <p>fatality (1) 122:12</p> <p>features (1) 19:23</p> <p>February (1) 20:17</p> <p>federal (14) 17:22;18:22;53:21; 76:24,25;77:2,3,5,6,11, 15;82:1,4;116:21</p> <p>Fedorchak (28) 10:21,22;34:22,24; 39:14;40:16;42:4; 66:21,23;69:14;71:12; 101:22,24;103:23; 106:23;107:7;108:13, 19,22;110:24;111:9; 116:14,16,18;117:1; 133:24,25;134:17</p> <p>Fedorchak's (1) 40:9</p> <p>fee (1) 39:1</p> <p>feedback (3) 9:11;10:17,18</p> <p>feel (4) 12:5;25:18;33:20;</p>	<p>99:18</p> <p>feet (31) 16:15,17;53:15,16; 63:25;64:12;69:24; 70:4;79:4,5,9,10,12; 82:7;92:1,1,93:23; 94:19;95:13,15,16; 102:2,18,24,25;103:4, 17;112:8;123:11,15; 131:15</p> <p>fell (2) 61:3,14</p> <p>felony (7) 14:3,3;47:25,25; 73:21;120:11,11</p> <p>felt (1) 118:20</p> <p>fencing (1) 121:11</p> <p>few (5) 28:18;38:19;45:11; 112:12;120:23</p> <p>fewer (3) 35:14,23;41:19</p> <p>field (23) 76:19;86:13,15</p> <p>fielded (1) 133:4</p> <p>fields (1) 65:2</p> <p>fifth (1) 122:22</p> <p>figure (1) 124:14</p> <p>figuring (1) 30:6</p> <p>file (4) 34:5;43:6;46:10; 124:3</p> <p>filed (10) 4:23;13:8;33:3;34:5, 6,7;43:18;60:15,19,22</p> <p>Filing (14) 4:20;5:1,6;39:16; 43:17;54:19;59:6; 78:11,13,23;79:19; 80:7;105:2;135:21</p> <p>fill (1) 115:6</p> <p>final (5) 12:5;41:24;57:25; 73:13;109:21</p> <p>finalize (1) 117:23</p> <p>finalized (2) 39:18;92:23</p> <p>Finally (1) 18:1</p> <p>financial (6) 43:9,21,24,25;46:19; 55:4</p> <p>find (6) 11:9;62:19;72:16;</p>	<p>106:4,13;110:10</p> <p>finding (2) 37:15;132:10</p> <p>fine (17) 14:4;33:13,22;39:20; 40:8;48:1;73:23;94:15; 99:3;103:14;120:12; 122:9,11,13;124:17,22; 125:3</p> <p>finish (1) 62:10</p> <p>finishing (1) 65:19</p> <p>fire (3) 25:11,23;123:21</p> <p>firing (1) 122:1</p> <p>firm (1) 36:9</p> <p>first (23) 11:11;13:19,21; 17:18;28:18;47:16; 50:13;57:13;58:4,8; 67:2,19;76:11;84:10; 120:5;121:8;122:22; 124:7;128:23;131:20</p> <p>firsthand (2) 133:13,21</p> <p>Fish (5) 77:12,21,22;97:5,8</p> <p>five (8) 14:4;48:1;73:22; 80:14;100:2,6,22; 120:12</p> <p>flicker (9) 80:2,4,5;87:3,17,21; 88:7;100:2,8</p> <p>flickers (1) 100:24</p> <p>flowing (1) 20:21</p> <p>follow (5) 23:12;57:6;71:23; 128:18;130:5</p> <p>followed (1) 128:16</p> <p>following (3) 5:7;8:19;82:17</p> <p>follows (1) 44:6</p> <p>follow-up (2) 112:15;114:7</p> <p>foot (3) 96:1;103:11;123:17</p> <p>footing (2) 53:13,14</p> <p>force (1) 52:21</p> <p>forces (1) 17:13</p> <p>forgot (1) 29:13</p>	<p>Forks (1) 20:16</p> <p>form (1) 40:7</p> <p>formal (3) 74:25;77:1;97:13</p> <p>format (1) 40:6</p> <p>formed (1) 60:5</p> <p>forth (2) 4:25;129:3</p> <p>fortunate (1) 104:9</p> <p>forward (8) 8:1,2,16;11:11; 12:19,19;116:2;132:14</p> <p>found (10) 78:10,23;85:1;96:16; 102:6,6;103:21; 109:11,22;116:6</p> <p>foundation (6) 60:3,5;65:23;67:12; 69:25;103:4</p> <p>foundations (9) 53:10,13;59:23;67:5, 8,8,12,20,21</p> <p>four (5) 63:25;64:12;69:18, 19;131:15</p> <p>four-lane (2) 94:8,23</p> <p>fourth (1) 122:22</p> <p>fox (1) 102:13</p> <p>frame (2) 37:24;41:17</p> <p>frees (1) 20:23</p> <p>Freudenrich (20) 6:3;18:21,21;47:15, 20;48:9,12,14;55:14; 71:22;73:5;90:14;91:3; 92:8,15;114:11; 117:10;125:19,22; 130:9</p> <p>F-R-E-U-D-E-N-R-I-C-H (1) 47:20</p> <p>Friday (1) 4:17</p> <p>front (1) 129:14</p> <p>fulfill (1) 12:18</p> <p>fulfilled (3) 5:20;83:6;101:6</p> <p>full (2) 10:24;11:7</p> <p>fully (1) 19:1</p> <p>fun (1) 11:3</p>
---	--	--	---	--

<p>funny (1) 44:22 further (11) 18:13;44:3;46:23; 101:20;108:9;114:24; 115:23;116:17;117:4; 134:19,25 furthest (1) 110:15 future (8) 27:15;34:10,12; 43:23;65:13,24; 129:17;130:12</p>	<p>27:2,4;117:12; 127:24;133:8 GIS (1) 76:18 given (5) 79:14;90:6;109:12, 17,19 gives (2) 132:25;134:6 giving (2) 101:5;109:16 glad (3) 10:23;11:10;12:6 Glen (1) 119:16 Glenn (1) 81:18 goal (2) 100:13,21 goes (6) 36:23,24;37:11; 103:5;131:15;134:4 Golden (5) 77:8;96:15,17,18; 97:6 Good (33) 4:2;8:3,17;9:20;10:6, 22;12:20;19:17;25:24; 34:25;36:7;39:13; 41:22;61:8;85:6;86:16; 95:22,24;105:7; 117:13;118:5,6,8; 127:9;132:18,20,21; 133:7,20,23;134:7,10; 135:11 Gopher (1) 118:3 government (2) 11:14;75:11 governmental (1) 93:6 governor (1) 11:16 grad (2) 23:8;62:8 grade (1) 54:7 grads (2) 23:10;71:8 graduated (1) 62:11 Grand (1) 20:16 granted (2) 12:13,15 grass (1) 66:11 grassland (1) 96:2 gravel (2) 66:6;67:5 great (7) 10:24;11:24;38:1;</p>	<p>60:24;121:20;132:11; 135:3 greater (4) 83:25;84:5;87:9; 122:11 greatest (1) 80:8 grid (4) 52:14;63:11;96:7; 98:8 ground (7) 26:22;27:21;54:23; 67:4;70:13;90:24;96:1 groundwater (1) 112:9 group (1) 8:7 groups (1) 60:12 grouse (4) 95:4,5,7,11 growing (1) 115:16 grown (1) 101:13 growth (4) 84:4,18;115:7,10 guess (31) 39:6;43:21;55:19; 56:1,2;57:8,15,21,23; 61:13;70:14,19;72:16; 87:21,25;88:8;89:1; 94:9;99:15;107:10,21; 110:9;111:23;113:18; 119:2;125:9;127:12, 13,25;133:12;135:21 guided (1) 18:9 guidelines (1) 111:19 guru (1) 112:9 guy (3) 8:19;45:14;132:12 guys (1) 39:25</p>	<p>65:3 Hanover (1) 11:10 happen (5) 22:17;81:12;88:3; 125:4;128:25 happened (4) 86:10;87:24;124:15; 125:7 happens (8) 65:15;72:7,14;88:1; 92:11;112:4;123:18; 128:9 hard (4) 31:24;60:2,2;96:3 hate (1) 32:20 hazardous (2) 62:20,21 head (2) 112:2;117:11 healthy (1) 66:12 hear (11) 12:8;89:1,2,5,6; 118:21;120:6,21; 128:7;133:15;135:6 heard (9) 90:13;91:9;94:3; 97:19;106:14;110:13; 131:8;133:10;135:2 hearing (37) 4:7,7,8,21;5:1,7,7,9; 6:23;8:1,6,7,17;9:10; 10:4;11:13,13;12:20; 25:9;28:4;74:20,22; 80:20;82:17;88:23; 89:18;105:4;106:20, 24;108:7;111:10; 131:23,25;133:13; 134:22;135:15,22 Hearings (10) 4:5;7:21,23;8:8; 9:24;26:25;28:1;38:13; 127:2;135:4 hearsay (1) 123:3 heavier (1) 64:2 heavily (1) 122:5 height (6) 16:14;26:18,19;79:2; 83:25;84:5 heights (1) 35:20 held (3) 74:20,22;135:4 help (4) 38:14;50:16;116:24; 133:21 helpful (1) 108:14</p>	<p>helping (1) 122:6 helps (2) 113:5;115:15 here's (1) 128:11 HF (1) 97:16 high (4) 24:1;35:9;49:3; 50:23 higher (2) 35:5;52:8 highest (1) 80:12 highway (2) 94:23,25 hiring (1) 71:8 historic (4) 78:1,13;86:7,8 historical (4) 36:19;86:2,11; 108:25 historically (1) 124:8 history (2) 36:21,22 Hmm (1) 36:7 hold (1) 7:23 hole (3) 92:4,12;131:14 holes (1) 121:13 home (4) 9:3;11:4;96:13; 132:23 hometown (1) 11:2 honest (2) 59:4;71:25 Honor (31) 5:25;7:17;8:23;9:7; 12:23;13:2,20;21:8; 23:2;29:1;34:20;44:5, 22;47:9;55:9;59:12; 71:16;74:7;83:12; 93:15;115:3,21;117:7, 15;118:12,15,17; 121:25;123:22;125:16; 134:20 honored (1) 76:13 hope (2) 104:13;133:8 hopefully (2) 23:16;108:19 hoping (1) 112:24 horizon (1) 70:25</p>
G		H		
<p>gal (2) 45:15;132:12 Game (1) 77:22 Gartner (27) 6:3;13:21,22;14:16, 19,22,24;15:3;18:6; 21:7,11;22:8,25;34:14, 25;46:5;47:10,22;59:5; 87:6;101:18;105:1; 114:11,18,20,23;117:8 G-A-R-T-N-E-R (1) 14:17 gas (6) 25:10,11,21,23; 38:16;132:15 gather (1) 133:22 gear (1) 22:19 General (5) 6:9;16:4;57:17; 85:17;122:1 generally (3) 40:24;91:1;113:19 generate (2) 4:14;19:8 generated (2) 51:14;116:6 generating (4) 49:2;52:16;60:4; 63:14 generation (6) 15:14;16:22;49:22; 54:16;101:14;115:9 generator (4) 16:18;26:12,23; 52:11 generators (3) 4:14;36:14;42:14 generically (1) 34:16 gentleman (2) 118:24;129:15 geographic (1) 75:1 gets (5)</p>	<p>27:2,4;117:12; 127:24;133:8 GIS (1) 76:18 given (5) 79:14;90:6;109:12, 17,19 gives (2) 132:25;134:6 giving (2) 101:5;109:16 glad (3) 10:23;11:10;12:6 Glen (1) 119:16 Glenn (1) 81:18 goal (2) 100:13,21 goes (6) 36:23,24;37:11; 103:5;131:15;134:4 Golden (5) 77:8;96:15,17,18; 97:6 Good (33) 4:2;8:3,17;9:20;10:6, 22;12:20;19:17;25:24; 34:25;36:7;39:13; 41:22;61:8;85:6;86:16; 95:22,24;105:7; 117:13;118:5,6,8; 127:9;132:18,20,21; 133:7,20,23;134:7,10; 135:11 Gopher (1) 118:3 government (2) 11:14;75:11 governmental (1) 93:6 governor (1) 11:16 grad (2) 23:8;62:8 grade (1) 54:7 grads (2) 23:10;71:8 graduated (1) 62:11 Grand (1) 20:16 granted (2) 12:13,15 grass (1) 66:11 grassland (1) 96:2 gravel (2) 66:6;67:5 great (7) 10:24;11:24;38:1;</p>	<p>60:24;121:20;132:11; 135:3 greater (4) 83:25;84:5;87:9; 122:11 greatest (1) 80:8 grid (4) 52:14;63:11;96:7; 98:8 ground (7) 26:22;27:21;54:23; 67:4;70:13;90:24;96:1 groundwater (1) 112:9 group (1) 8:7 groups (1) 60:12 grouse (4) 95:4,5,7,11 growing (1) 115:16 grown (1) 101:13 growth (4) 84:4,18;115:7,10 guess (31) 39:6;43:21;55:19; 56:1,2;57:8,15,21,23; 61:13;70:14,19;72:16; 87:21,25;88:8;89:1; 94:9;99:15;107:10,21; 110:9;111:23;113:18; 119:2;125:9;127:12, 13,25;133:12;135:21 guided (1) 18:9 guidelines (1) 111:19 guru (1) 112:9 guy (3) 8:19;45:14;132:12 guys (1) 39:25</p>	<p>65:3 Hanover (1) 11:10 happen (5) 22:17;81:12;88:3; 125:4;128:25 happened (4) 86:10;87:24;124:15; 125:7 happens (8) 65:15;72:7,14;88:1; 92:11;112:4;123:18; 128:9 hard (4) 31:24;60:2,2;96:3 hate (1) 32:20 hazardous (2) 62:20,21 head (2) 112:2;117:11 healthy (1) 66:12 hear (11) 12:8;89:1,2,5,6; 118:21;120:6,21; 128:7;133:15;135:6 heard (9) 90:13;91:9;94:3; 97:19;106:14;110:13; 131:8;133:10;135:2 hearing (37) 4:7,7,8,21;5:1,7,7,9; 6:23;8:1,6,7,17;9:10; 10:4;11:13,13;12:20; 25:9;28:4;74:20,22; 80:20;82:17;88:23; 89:18;105:4;106:20, 24;108:7;111:10; 131:23,25;133:13; 134:22;135:15,22 Hearings (10) 4:5;7:21,23;8:8; 9:24;26:25;28:1;38:13; 127:2;135:4 hearsay (1) 123:3 heavier (1) 64:2 heavily (1) 122:5 height (6) 16:14;26:18,19;79:2; 83:25;84:5 heights (1) 35:20 held (3) 74:20,22;135:4 help (4) 38:14;50:16;116:24; 133:21 helpful (1) 108:14</p>	<p>helping (1) 122:6 helps (2) 113:5;115:15 here's (1) 128:11 HF (1) 97:16 high (4) 24:1;35:9;49:3; 50:23 higher (2) 35:5;52:8 highest (1) 80:12 highway (2) 94:23,25 hiring (1) 71:8 historic (4) 78:1,13;86:7,8 historical (4) 36:19;86:2,11; 108:25 historically (1) 124:8 history (2) 36:21,22 Hmm (1) 36:7 hold (1) 7:23 hole (3) 92:4,12;131:14 holes (1) 121:13 home (4) 9:3;11:4;96:13; 132:23 hometown (1) 11:2 honest (2) 59:4;71:25 Honor (31) 5:25;7:17;8:23;9:7; 12:23;13:2,20;21:8; 23:2;29:1;34:20;44:5, 22;47:9;55:9;59:12; 71:16;74:7;83:12; 93:15;115:3,21;117:7, 15;118:12,15,17; 121:25;123:22;125:16; 134:20 honored (1) 76:13 hope (2) 104:13;133:8 hopefully (2) 23:16;108:19 hoping (1) 112:24 horizon (1) 70:25</p>

<p>hour (2) 27:1,5 hours (10) 19:4;80:9,11,14; 87:21;100:2,6,9,22; 125:11 hub (4) 16:14;26:18,19; 69:22 human (3) 5:17;83:4;89:17 hundreds (1) 20:1 husband (1) 11:4 hydro (2) 19:11;30:19 hydroelectric (1) 18:11 hydrological (1) 76:20</p>	<p>imposed (2) 14:5;48:2 impracticable (1) 50:2 imprisonment (2) 14:4;120:12 improved (1) 37:4 improvements (1) 68:13 Inaudible (4) 58:6;69:7;71:10; 134:16 Inc (1) 4:9 inch (7) 51:23;83:24;84:2,5, 8,16,24 inches (18) 51:20;52:2,4,4; 54:22;56:7,20;65:6,10; 84:8;85:2,4;123:12,15, 16;126:7,9;131:9</p>	<p>38:14;51:16;65:4;75:2, 18;80:22;82:1;93:4; 102:10;108:6,10,11; 127:5;133:23 infrastructure (8) 123:25;124:1,4,16, 21,22,25;125:3 initial (2) 67:2;72:7 initiative (1) 18:14 input (4) 8:9,9;129:4;135:6 insight (1) 98:16 install (5) 65:8;67:4,20,23,23 installation (1) 64:17 installed (4) 16:18;17:20;64:18; 68:11 instance (2) 88:9,9 instances (1) 61:1 instead (2) 70:16;122:8 instrumentation (1) 98:25 integrated (2) 18:9;33:2 integration (1) 31:6 integrity (2) 5:19;83:5 intend (1) 7:6 intensive (1) 76:19 intent (1) 94:9 intention (1) 6:22 interagency (1) 77:1 interconnection (16) 19:19;24:19,20,21, 23,24;25:2,5,7,12,13, 15,22;31:17,19;52:14 interest (2) 64:24;119:22 Interesting (1) 69:23 interfere (1) 81:21 intermittent (1) 25:20 internally (1) 90:20 International (1) 42:19 interpretation (1)</p>	<p>59:24 into (34) 7:10,20;9:15;10:11; 24:18,20;28:7,40;19, 20,21;45:5,20;51:4,9, 10;64:16;65:20,22; 66:12,24;71:5;76:21; 84:23;90:2,19;94:21; 95:1;111:22;112:25; 113:2,20;116:4;124:5, 13 invented (1) 70:23 inventoried (2) 84:1,6 inventories (2) 62:20;78:10 inventory (5) 62:21;78:5;82:13; 108:23;109:1 invest (1) 37:21 investigation (2) 124:6;125:7 investment (1) 27:15 investments (2) 37:16,23 involve (1) 59:3 involved (6) 11:14;12:16;15:13; 49:1;59:5;122:5 involvement (1) 77:5 involves (1) 4:13 Iowa (1) 45:11 iPads (1) 44:19 issue (7) 79:14,17;102:23; 103:15;106:14,19; 123:6 issued (3) 4:21;78:22;122:11 issues (10) 5:8;35:11;82:17; 86:18;103:1,6;106:19, 22;114:2;134:9</p>	<p>12:17 joining (1) 15:16 JUDGE (114) 4:1,3;6:4,14,17;8:24; 9:17;10:20;12:21,24; 13:5,11,14,18,22; 14:13,18;21:6;22:7,24; 29:2;33:14,16,19;34:3, 21;39:23;40:3,10,13; 42:5,6;44:4,18;45:24; 46:25;47:10,16,21; 48:7;55:10;58:9,13,20; 59:10;62:13;66:21; 71:11,14,17;72:25; 73:3,5,11,15,18;74:5; 83:13;91:23;92:3,9,16; 93:13;99:8;101:22; 111:1;112:13,17; 113:2,5;114:7,20; 115:19,22;116:12,16; 117:3,5,8,18,25;118:9, 13,16,18;119:3,13,18, 22,25;120:4,9,19; 121:2,7,24;122:2; 123:5,23;125:9,14,18, 21;130:7,12,15,24; 131:19;132:4,22; 133:24;134:18,23; 135:1 judgments (1) 60:3 July (4) 4:22;34:5,6;78:22 jump (2) 29:6;107:5 jumping (2) 85:19;87:3 June (6) 50:4,5,18,25;52:24; 67:25</p>
I				
<p>ice (1) 130:16 idea (5) 58:3;85:9;105:8; 109:6;112:21 ideal (1) 18:2 identified (5) 34:11,16,16;78:3,8 Imagery (1) 58:12 imagine (2) 31:2,24 immediately (4) 50:1;54:25;64:16; 125:6 impact (15) 5:18;35:14;40:21; 50:20;51:20;54:6; 72:11;75:22;76:6;80:4; 81:5,9,12;83:4;105:20 impacted (2) 9:24;10:5 impacting (2) 78:8;98:4 impacts (16) 51:11;55:24;75:25; 76:1,7,8,12;78:16; 81:3;85:8,12;86:9,21; 92:24;105:22;106:1 implementation (2) 18:16;49:9 implications (1) 24:12 imply (1) 32:18 important (5) 20:23;50:8;56:17; 134:3,9</p>	<p>inclined (1) 7:9 include (4) 21:1;33:1;42:14; 45:10 included (7) 33:7;36:11;41:1,3; 60:21;78:12;82:4 includes (2) 16:12;27:14 including (5) 16:2;17:11;18:10; 54:19;77:12 Incorporated (1) 74:14 incorporates (1) 18:10 incorporating (1) 38:17 increase (4) 16:22;26:10,21; 69:12 increased (1) 64:5 increasing (2) 19:3;24:8 independent (1) 36:9 indicate (1) 83:19 individual (3) 31:23;90:11;124:1 industrial (3) 42:12,12;133:3 industry (8) 36:14;37:11;38:12; 42:15,15;70:16;80:10; 100:17 information (18) 7:5;13:8;37:1,6;</p>	<p>instance (2) 88:9,9 instances (1) 61:1 instead (2) 70:16;122:8 instrumentation (1) 98:25 integrated (2) 18:9;33:2 integration (1) 31:6 integrity (2) 5:19;83:5 intend (1) 7:6 intensive (1) 76:19 intent (1) 94:9 intention (1) 6:22 interagency (1) 77:1 interconnection (16) 19:19;24:19,20,21, 23,24;25:2,5,7,12,13, 15,22;31:17,19;52:14 interest (2) 64:24;119:22 Interesting (1) 69:23 interfere (1) 81:21 intermittent (1) 25:20 internally (1) 90:20 International (1) 42:19 interpretation (1)</p>	<p>J January (3) 41:11;50:7;68:19 Jay (4) 8:18,19,22,23 Jerry (1) 6:10 job (2) 61:15;134:7 jobs (1)</p>	<p>K Kalk (39) 7:16,17;23:1,2,4; 28:25;29:6,8,11;44:4,5, 8,16,24;45:23;59:11, 12,14;93:14,15,17; 111:4,5,8;115:21,24; 116:11;121:25;122:2, 3;123:21,24;127:1; 128:1;129:21,24; 132:3,4,5 Kalk's (2) 117:17;134:12 keep (2) 62:24;132:17 KEITH (28) 119:1,11,11,15,21, 24;120:3,8,18,22; 121:5,8;122:3;123:7; 125:8,13;127:7;128:1,</p>

<p>20;129:23;130:2,11,13, 20;131:3,7,13,18 K-E-I-T-H (1) 119:12 KESSLER (31) 119:1,11,13,15,18, 21,24;120:3,8,18,22; 121:5,8;123:5,7;125:8, 9,13;127:7;128:20; 129:23;130:2,11,13,25; 131:3,7,13,18,19;132:9 K-E-S-S-L-E-R (1) 119:12 key (1) 18:12 kilowatt (2) 39:5;45:19 kind (32) 7:24;9:3;10:17;11:2; 24:18;25:8;27:4;32:17; 38:13;57:15;66:25; 67:1,13;68:12;70:5; 72:10;85:3,8;89:1,8; 90:3;92:10;100:11,11, 16,17,20;102:15; 110:2;123:7;126:1,19 knew (3) 23:9;106:21;126:15 knowledge (2) 38:18;82:18 known (1) 109:7 knows (1) 14:1 kV (9) 20:7,8,16;51:14; 52:2,11,15,18;74:20</p>	<p>26:12,13,14,15,23; 31:11;35:2,6,11,24 largest (2) 26:6;30:19 last (18) 8:5,20;11:4;27:16; 28:8;32:13,22;47:17, 19;57:23;65:11;73:16; 97:15;116:13;121:18; 127:18,20;131:22 lastly (2) 10:8;63:15 last-minute (1) 41:10 late (4) 41:12;50:9,12,15 late-filed (2) 117:21;135:22 lately (1) 131:3 later (3) 21:12,13;33:17 Law (5) 4:3;7:21;13:23,23; 47:23 laws (4) 77:4,6,15;122:6 lay (1) 129:2 layout (6) 16:4;76:21;77:24; 80:17,21;82:7 leader (2) 15:1,24 leads (1) 35:22 learn (1) 37:5 learned (2) 9:25;102:1 least (4) 36:23;71:25;126:16; 131:9 leaving (1) 11:21 led (1) 24:18 left (1) 8:20 legal (3) 59:25;128:3;129:25 legislative (3) 9:4;63:19;121:18 legislature (2) 43:2;111:12 Lein (19) 6:10,12;22:7,10,23; 47:9;58:20,22,24;59:8; 73:3,4;92:17,19,21; 93:11;118:16,17; 134:22 Lein's (2) 23:12;97:19</p>	<p>lek (1) 96:3 leks (4) 95:4,5,7,11 less (9) 17:7;35:15,17;70:12; 76:3;79:20;84:15;85:5; 101:12 lessen (1) 90:8 lessons (1) 37:5 letter (7) 78:12;97:13;105:12; 106:9,13,16;108:24 letters (4) 105:3;107:12,17,18 level (8) 36:12;79:21,23; 80:13;85:3;99:14,21; 106:1 levels (3) 79:19;88:7;89:7 leverage (1) 18:4 levied (1) 125:3 levy (1) 124:17 library (2) 89:11;99:22 life (13) 11:23;27:9,13,15; 29:13,16;36:10,15,16, 18;37:24;54:21;85:17 lifespan (2) 36:8;37:14 Light (5) 42:24;70:9,17,23; 108:13 lighting (7) 53:18,20,24;56:23, 25;57:2;63:4 lightly (1) 135:11 lights (4) 63:8;70:7,7,25 lignite (3) 81:5,9,13 likely (2) 53:13,15 limit (1) 24:24 limitations (1) 24:14 limited (1) 99:1 limiting (1) 41:15 limits (6) 24:20;41:15;65:17, 17;66:16,17 line (35)</p>	<p>8:6,8;18:15;20:7,8, 11,16,22,25;22:11,14, 18,20;23:15,20,24; 24:4,5,8,15;52:12,18; 58:1;64:18;72:20; 74:20;86:24;97:15,23; 98:19;111:11;123:9, 18;126:16,21 linear (1) 102:18 lines (17) 18:4;52:9;56:7; 63:17;64:12,14,15; 65:1;71:23;85:21,24; 104:22;105:18,19; 109:11;126:1,20 listed (4) 75:22;76:16;82:17; 96:25 listening (1) 132:6 lit (1) 57:5 literature (3) 109:1,2,5 little (17) 4:16;7:7;25:8;30:12; 35:17,18;39:25;42:19; 56:12;58:25;85:19; 94:19;111:6;113:10; 126:9;129:11;130:6 live (4) 11:7,8;119:14; 128:10 livestock (1) 123:10 living (1) 37:16 load (2) 28:21,21 local (8) 9:12;53:1,4;75:11; 77:12;81:16;132:16,18 locate (12) 121:14,16;122:17, 17,18,22;124:9,10,11, 13,15;126:21 located (8) 17:1,2;52:15;60:13; 78:17;82:5,6;112:22 locates (2) 122:24;123:1 location (17) 5:2,10;16:2;18:1; 19:14,15;60:17,18; 77:24;82:19;84:23; 90:6,8;109:13,17; 110:1;126:13 Location-2010 (1) 58:12 locations (11) 5:17;60:15;77:19; 78:9;79:1,8;83:3;</p>	<p>86:23,24;92:22;98:11 locators (1) 126:20 long (7) 28:20;37:16;88:5; 94:13;104:4;113:18; 127:10 longer (3) 28:12;37:14;43:10 long-term (3) 28:15,16;37:19 look (16) 7:25;8:1,16;9:14; 11:11;12:8,18,19;31:4; 36:10,21;71:4;87:22; 100:3;124:7;134:10 looked (3) 98:1;112:7;129:10 looking (14) 21:16,19;25:22; 36:11,12;41:18;59:25; 89:9,10,13,14;99:4; 100:14;113:16 looks (2) 12:2;57:19 loss (1) 30:25 lot (21) 8:9;9:10,17,22; 11:22;24:2;37:4;60:11; 65:6;85:12;88:20; 105:8;110:12;111:9; 117:11;121:11;122:14; 123:3;124:23,25; 132:25 loud (1) 89:16 loudest (2) 79:21,23 low (6) 28:18,22;35:6;84:14; 99:14;100:1 lower (2) 17:20;111:17</p>
L				
<p>labor (1) 53:4 laid (2) 43:11;123:4 land (16) 11:5,9;17:6;19:17, 23;32:12;43:14;49:11, 18;75:4;76:2;91:11; 104:5;129:2,22,25 landowner (19) 66:5;87:22;88:10; 91:8,10,13;96:6,8,11; 100:7;111:22;119:24; 120:1;121:11,22; 122:20;126:12,23,25 landowners (10) 20:4;80:15,18,23; 81:1;122:19;123:2; 125:25;127:3;132:18 large (8) 19:24;30:17,23,24; 42:13,14,17;71:2 Larger (10)</p>	<p>learned (2) 9:25;102:1 least (4) 36:23;71:25;126:16; 131:9 leaving (1) 11:21 led (1) 24:18 left (1) 8:20 legal (3) 59:25;128:3;129:25 legislative (3) 9:4;63:19;121:18 legislature (2) 43:2;111:12 Lein (19) 6:10,12;22:7,10,23; 47:9;58:20,22,24;59:8; 73:3,4;92:17,19,21; 93:11;118:16,17; 134:22 Lein's (2) 23:12;97:19</p>	<p>lek (1) 96:3 leks (4) 95:4,5,7,11 less (9) 17:7;35:15,17;70:12; 76:3;79:20;84:15;85:5; 101:12 lessen (1) 90:8 lessons (1) 37:5 letter (7) 78:12;97:13;105:12; 106:9,13,16;108:24 letters (4) 105:3;107:12,17,18 level (8) 36:12;79:21,23; 80:13;85:3;99:14,21; 106:1 levels (3) 79:19;88:7;89:7 leverage (1) 18:4 levied (1) 125:3 levy (1) 124:17 library (2) 89:11;99:22 life (13) 11:23;27:9,13,15; 29:13,16;36:10,15,16, 18;37:24;54:21;85:17 lifespan (2) 36:8;37:14 Light (5) 42:24;70:9,17,23; 108:13 lighting (7) 53:18,20,24;56:23, 25;57:2;63:4 lightly (1) 135:11 lights (4) 63:8;70:7,7,25 lignite (3) 81:5,9,13 likely (2) 53:13,15 limit (1) 24:24 limitations (1) 24:14 limited (1) 99:1 limiting (1) 41:15 limits (6) 24:20;41:15;65:17, 17;66:16,17 line (35)</p>	<p>86:23,24;92:22;98:11 locators (1) 126:20 long (7) 28:20;37:16;88:5; 94:13;104:4;113:18; 127:10 longer (3) 28:12;37:14;43:10 long-term (3) 28:15,16;37:19 look (16) 7:25;8:1,16;9:14; 11:11;12:8,18,19;31:4; 36:10,21;71:4;87:22; 100:3;124:7;134:10 looked (3) 98:1;112:7;129:10 looking (14) 21:16,19;25:22; 36:11,12;41:18;59:25; 89:9,10,13,14;99:4; 100:14;113:16 looks (2) 12:2;57:19 loss (1) 30:25 lot (21) 8:9;9:10,17,22; 11:22;24:2;37:4;60:11; 65:6;85:12;88:20; 105:8;110:12;111:9; 117:11;121:11;122:14; 123:3;124:23,25; 132:25 loud (1) 89:16 loudest (2) 79:21,23 low (6) 28:18,22;35:6;84:14; 99:14;100:1 lower (2) 17:20;111:17</p>	
M				
<p>labor (1) 53:4 laid (2) 43:11;123:4 land (16) 11:5,9;17:6;19:17, 23;32:12;43:14;49:11, 18;75:4;76:2;91:11; 104:5;129:2,22,25 landowner (19) 66:5;87:22;88:10; 91:8,10,13;96:6,8,11; 100:7;111:22;119:24; 120:1;121:11,22; 122:20;126:12,23,25 landowners (10) 20:4;80:15,18,23; 81:1;122:19;123:2; 125:25;127:3;132:18 large (8) 19:24;30:17,23,24; 42:13,14,17;71:2 Larger (10)</p>	<p>learned (2) 9:25;102:1 least (4) 36:23;71:25;126:16; 131:9 leaving (1) 11:21 led (1) 24:18 left (1) 8:20 legal (3) 59:25;128:3;129:25 legislative (3) 9:4;63:19;121:18 legislature (2) 43:2;111:12 Lein (19) 6:10,12;22:7,10,23; 47:9;58:20,22,24;59:8; 73:3,4;92:17,19,21; 93:11;118:16,17; 134:22 Lein's (2) 23:12;97:19</p>	<p>lek (1) 96:3 leks (4) 95:4,5,7,11 less (9) 17:7;35:15,17;70:12; 76:3;79:20;84:15;85:5; 101:12 lessen (1) 90:8 lessons (1) 37:5 letter (7) 78:12;97:13;105:12; 106:9,13,16;108:24 letters (4) 105:3;107:12,17,18 level (8) 36:12;79:21,23; 80:13;85:3;99:14,21; 106:1 levels (3) 79:19;88:7;89:7 leverage (1) 18:4 levied (1) 125:3 levy (1) 124:17 library (2) 89:11;99:22 life (13) 11:23;27:9,13,15; 29:13,16;36:10,15,16, 18;37:24;54:21;85:17 lifespan (2) 36:8;37:14 Light (5) 42:24;70:9,17,23; 108:13 lighting (7) 53:18,20,24;56:23, 25;57:2;63:4 lightly (1) 135:11 lights (4) 63:8;70:7,7,25 lignite (3) 81:5,9,13 likely (2) 53:13,15 limit (1) 24:24 limitations (1) 24:14 limited (1) 99:1 limiting (1) 41:15 limits (6) 24:20;41:15;65:17, 17;66:16,17 line (35)</p>	<p>86:23,24;92:22;98:11 locators (1) 126:20 long (7) 28:20;37:16;88:5; 94:13;104:4;113:18; 127:10 longer (3) 28:12;37:14;43:10 long-term (3) 28:15,16;37:19 look (16) 7:25;8:1,16;9:14; 11:11;12:8,18,19;31:4; 36:10,21;71:4;87:22; 100:3;124:7;134:10 looked (3) 98:1;112:7;129:10 looking (14) 21:16,19;25:22; 36:11,12;41:18;59:25; 89:9,10,13,14;99:4; 100:14;113:16 looks (2) 12:2;57:19 loss (1) 30:25 lot (21) 8:9;9:10,17,22; 11:22;24:2;37:4;60:11; 65:6;85:12;88:20; 105:8;110:12;111:9; 117:11;121:11;122:14; 123:3;124:23,25; 132:25 loud (1) 89:16 loudest (2) 79:21,23 low (6) 28:18,22;35:6;84:14; 99:14;100:1 lower (2) 17:20;111:17</p>	

<p>26:9;38:12;51:10; 72:2;76:24;90:23 majority (4) 23:9;45:18;52:7; 67:12 makes (4) 12:17;24:18;61:7; 130:5 making (2) 59:19;64:21 mammals (1) 102:16 man (1) 97:16 manage (1) 31:6 management (4) 15:15;75:1,3,4 manager (1) 49:9 mandate (2) 116:1,4 manufacturer (1) 16:20 manufacturers (1) 37:5 many (13) 11:8,11,20;23:14,19; 24:25;53:5;68:20;69:5; 84:12;95:7;104:20; 121:14 map (10) 5:2;7:25;21:20,21; 57:24,25;66:24;98:8; 113:17,17 mapped (2) 72:13,15 maps (3) 21:19;58:15;60:14 March (1) 74:21 marine (1) 97:16 mark (1) 65:1 marked (4) 13:2;58:9,11;109:12 market (5) 17:13;41:19;45:5,7, 21 markets (1) 45:2 marking (1) 53:24 markings (1) 53:20 master (1) 15:8 material (4) 13:25;52:6;62:21,25 materials (1) 62:20 math (3)</p>	<p>30:5;68:21;69:2 Matt (11) 6:3;18:20;47:14,16, 18;48:9,14;59:15;62:7; 71:12;123:12 matter (5) 6:21;7:5;119:8,23; 135:24 max (2) 122:8,9 maxed (1) 24:17 maximum (8) 14:4;29:24;48:1; 70:1,2;73:22;120:12; 126:10 May (21) 4:23;6:20;7:5;13:6, 18;14:5;22:20;37:9,10; 46:20;47:10;50:24; 73:6;74:5,22;92:10; 114:9;115:22;116:2; 117:8;124:23 maybe (13) 30:12;37:15;38:1; 57:23;87:23;89:6;94:5; 97:22;100:3;111:6; 121:20;129:10,10 McCourtney (16) 6:3;56:3;58:17;63:1; 73:14;74:8,11,13,23; 82:16;83:16;91:23; 92:18;112:14;114:9,14 M-C-C-O-U-R-T-N-E-Y (1) 73:17 mean (26) 22:17;23:17,18;29:3; 31:1;32:7,10;33:25; 39:11;50:10;56:12; 59:18;63:5;69:11; 89:16;94:1;95:19; 96:20,21;98:8;103:3, 16;109:24;110:14; 123:18;127:8 means (2) 43:12;135:18 meant (1) 58:25 measure (1) 98:7 mechanical (1) 15:6 meet (5) 11:10;19:1;54:7; 78:24;79:6 meeting (3) 12:10;120:25;135:19 meets (2) 56:22;94:6 megawatt (8) 16:17;19:4;20:12; 21:1;25:2;36:3;38:21, 24</p>	<p>megawatt-hour (2) 39:6;40:15 megawatts (22) 4:14;16:19;20:9,10, 13;21:2;22:16,16; 23:13,18,18,19;24:25; 25:3;26:4,7,10;30:6; 33:2;36:1,3;39:3 members (2) 6:6;11:7 memory (1) 43:15 mention (1) 118:19 mentioned (7) 11:1;32:5;36:7;38:4; 86:6;89:24;101:5 met (10) 5:19;38:5;50:17; 60:8,9,13,15,17,17; 83:6 meteorological (1) 53:25 meter (2) 26:18,19 meters (2) 16:15,16 microphone (3) 109:17;113:3;118:25 micrositing (1) 109:8 microwave (10) 81:21,24;82:2,3,5,8; 97:18,20;98:8,18 mid (4) 27:19,19;67:24; 89:14 Midcontinent (1) 122:17 middle (5) 57:25;58:2;91:4,5; 96:6 might (7) 41:4;44:18;65:7,25; 69:11;126:2;133:15 Migratory (1) 77:7 mile (1) 96:9 miles (11) 8:7;17:3;19:25;20:2; 27:1,5;52:18;54:11; 77:25;81:20;123:9 milestone (1) 20:23 million (3) 17:11;39:1;41:24 Milton (2) 20:12;52:16 mind (1) 33:10 minimal (1) 82:20</p>	<p>minimally (1) 5:11 minimize (8) 5:17;51:20;54:5,6; 76:12;83:3;100:21; 105:21 minimum (7) 51:20,23;52:1,3; 65:6,10;82:13 Minnesota (112) 4:9;6:1,19;7:1,8; 14:25;15:1,9,12,16,18; 17:15;18:6,8,13,16,18, 24;19:2,5,6,10;20:3,14, 18;21:21;22:15;27:13; 29:20;30:11,13,20; 32:15;33:4;35:7;39:16; 42:10,16,17,18,22,23; 43:16;45:11,17,18; 46:7,10,12,14,16,20; 48:15,16,23,24;49:18, 20;50:19;51:22;52:3, 17;53:1;54:15,17,21; 55:2,3,5;59:1;61:12; 71:3,7;74:15;75:9,16, 19;76:10,13,16;77:14, 17,19,23;78:4;79:14, 16;80:1,15,18,21; 81:23;82:9,12,12; 90:20;101:8,10,13; 115:5,7,10;116:1,3; 118:2,7;121:1,15; 126:24;127:9;133:1; 135:15 Minnesota's (1) 19:7 Minnkota (2) 20:15,20 minor (2) 75:25;76:9 Minot (1) 62:2 minute (2) 39:25;131:24 MISO (10) 24:23;31:11,11,13, 22;32:1,4;45:5,7,21 MISO's (1) 31:12 missed (1) 97:22 Missouri (3) 110:7,8,16 misunderstood (1) 121:21 Mitch (2) 6:8;106:25 MITCHELL (1) 6:8 mitigate (4) 78:16;86:9;100:6,8 mitigated (1) 100:23</p>	<p>mitigating (2) 55:23;84:16 mitigation (3) 82:10,15;83:18 mix (1) 42:11 model (3) 16:12,21;70:20 models (2) 80:5,12 modification (3) 51:22,24;56:6 modifications (1) 82:9 modified (4) 77:23;82:15;83:19, 20 modify (1) 77:14 Moeller (55) 5:21,24;6:1,16; 12:22,23;13:1,6,20; 14:21;33:10,17,18,22, 25;34:4;39:11,15,22; 40:5,8,11;45:24;46:1,4, 23;47:4,13,14;48:8,11; 55:8;71:14,16;73:11, 13;74:6,7,10;83:11; 112:15,16;114:15; 117:5,7,13,15,19; 118:4,12;125:16,19; 130:8;134:18,20 moments (1) 11:9 money (2) 9:15;43:13 months (2) 15:13;28:9 more (35) 12:17;21:12;23:14, 19;24:3,14;26:16,20, 22,23;27:6;35:24;36:5; 37:16;51:16;55:8,15; 56:12,17;59:5;65:4; 70:12;83:11;87:22,23; 93:21;100:1;101:10; 110:1;111:20;112:13; 119:1;120:2;121:19,21 Moreover (1) 77:9 morning (4) 4:2;10:22,24;34:25 Morton (3) 30:15,22;101:11 most (5) 51:7;60:25;67:11,12; 134:2 motion (1) 98:17 move (7) 24:5,8;34:13;98:5; 111:13;112:25;129:16 moved (2)</p>
---	---	---	--	---

<p>24:4;86:25 moving (3) 27:2;51:9;134:6 mowing (2) 127:17,22 MPC (1) 4:23 MSDS (1) 62:24 much (15) 8:16;14:18;27:7; 38:5;51:2;70:2;71:7; 90:22;100:3,4;101:13; 103:16;116:3;130:13; 134:11 multiple (2) 122:24;126:22 must (3) 77:3;84:1,6 Myself (1) 119:21</p>	<p>43:21;51:5;52:17;55:3, 19;56:13;64:20;65:4; 67:6;68:16;70:7;94:10; 101:15;105:24;106:25; 115:6;116:4;117:6,10; 126:3;127:6;132:14 needed (3) 22:19;31:15;52:9 needing (1) 37:16 needs (13) 5:19;19:3;24:22; 25:6;29:21;30:13;31:7, 12;45:1;83:6;101:6; 112:9,10 negligible (1) 76:7 negotiate (1) 104:14 negotiations (1) 111:21 neighbors (2) 38:4;95:22 nest (10) 77:18,20,24;96:15; 109:22,22,24;110:4,8, 10 nesting (3) 56:1;90:25;91:1 nests (1) 110:12 new (12) 11:4,6;17:3;19:20; 20:15,22;24:7;31:3; 36:22;52:18,19;110:19 news (1) 12:8 newspaper (1) 133:16 next (12) 12:6;24:19;30:19; 35:22;38:19;47:13,14; 55:16;68:2;73:12;92:9; 112:12 nexus (1) 76:25 night (4) 8:5,20;70:9,24 nine (1) 69:10 NITA (3) 93:2;98:4,12 nobody (1) 106:21 noise (29) 79:14,16,19,21,23; 87:3,7,9,9,12,13;88:15, 16,19,20,25;89:8,9,19, 22,24;90:2,3,8,10,12; 99:11,20,25 noises (1) 89:16 nominal (1)</p>	<p>25:1 None (5) 90:18;96:23,24;97:4; 112:16 Nonetheless (1) 77:3 nonparticipating (12) 79:11,24;80:13; 89:13;96:6,8,11;99:14; 100:7,8,13,22 noon (1) 135:18 Nor (3) 25:16;44:15;98:21 North (44) 4:11,19;5:5,13; 11:14;15:6,7;17:3; 18:3,13,15,19;19:22; 30:18;42:19;45:10; 47:5;48:18,23;53:22; 54:18;61:1;71:8;73:20; 75:23;76:13,17;77:10, 21;78:15;82:22;97:1; 102:17;106:5,10; 107:19;113:22;118:7; 119:16;120:10;123:24; 124:8;131:10;132:10 northern (3) 35:7;42:17,18 northwest (2) 17:3;31:3 nos (1) 117:11 Notice (12) 4:20,21,25;5:1,3,6,6; 82:16;105:2;108:6,7; 127:17 noticed (7) 5:3;23:6,7;62:7,18; 97:2;103:1 notification (2) 76:9;93:3 notified (4) 80:15,18;104:18; 107:18 notify (2) 104:22;125:6 notifying (1) 105:4 number (17) 4:11,12;5:9,13,16; 28:21;39:12,18;41:6; 43:1,5;61:24;63:23; 74:22;100:14;105:16; 135:20 numbers (1) 117:23</p>	<p>objecting (1) 129:13 objection (5) 6:15,16;13:12,13; 108:8 obligations (8) 15:15;46:11,15,20; 47:4;55:4;59:1,2 observed (1) 96:24 observing (1) 38:11 obstructions (1) 72:2 obtained (2) 49:18,20 obvious (1) 63:6 obviously (7) 37:3;55:15;67:5,24; 68:16;95:9;107:16 occupation (3) 14:23;48:13;74:12 occupied (3) 79:7,19;80:5 occurring (1) 90:24 October (1) 51:5 off (11) 44:19,21;61:3,14; 83:16;88:19;96:1; 107:4;117:12;123:13, 15 offer (1) 7:5 offered (1) 13:16 offering (1) 12:25 Office (4) 4:4;86:2,8;108:25 officer (1) 4:7 official (1) 8:15 offload (1) 68:4 offsets (1) 96:16 off-site (1) 65:24 often (1) 86:17 oftentimes (2) 64:9;124:14 old (2) 9:3;101:12 Oliver (15) 4:18;7:25;11:5;17:2; 21:1;30:9,12;35:8; 54:13;74:19;78:17,18, 20,21;101:11</p>	<p>once (12) 24:11;62:10;65:25; 67:21;68:15;72:8;85:4; 87:19;103:20;109:7; 126:8;127:10 one (70) 5:10;9:9,25;25:18; 27:16;28:2;34:5,5,6,7; 43:6,20;46:5;47:1; 50:14;58:9,17;61:2; 62:18,23;63:20;64:6, 11,16,18,20;69:12,15; 74:22;76:4;78:5,9; 82:4;83:24;84:2,8,15, 24;85:13,13;87:11; 92:19;93:6,20;95:15, 16;99:15;107:16; 109:22,24;110:1,1,9; 112:5;117:19,25; 118:24;120:1,2;121:8; 122:12;124:8,19; 126:16;127:1,18; 129:23;131:20;135:3,4 one-half (1) 76:3 ones (4) 57:5;62:2,6;70:19 ongoing (2) 37:22;128:8 only (9) 9:13;28:8;36:4; 41:13;45:16;111:15; 122:11,20;127:12 open (3) 19:24;70:22;107:20 opening (1) 7:14 operate (3) 27:3;53:5,8 operating (3) 27:23;44:25;61:19 operation (7) 5:10;28:6,9;43:8; 82:20;88:5;102:8 operational (2) 19:1;35:10 operations (3) 30:20;51:21;54:7 opinion (2) 12:11;71:4 opinions (1) 10:14 opportunities (4) 10:3;11:20,22;17:17 opportunity (11) 7:3;9:2,5,7;10:17; 11:25;38:9,13;118:21; 132:11;135:9 opposition (1) 38:3 oppressed (2) 83:25;84:5 option (2)</p>
N		O		
<p>name (18) 4:2;14:14,22,24; 45:11;47:18,19;48:12, 14;73:16;74:11,13; 118:5,6,7,8;119:10,10 narrow (1) 84:11 National (5) 52:1;76:22;81:25; 93:1,4 native (2) 84:3,18 natural (5) 25:10,21,22;75:5; 132:15 nature (4) 56:14;84:21;126:3, 12 NDSU (2) 23:8,9 near (4) 52:15;77:18;99:17, 18 nearby (2) 106:7,21 nearest (5) 79:11,12;81:18;82:6; 89:12 nearly (2) 10:23;19:12 necessarily (4) 38:10;99:17;117:20; 119:6 necessary (3) 49:21;50:12;75:11 need (34) 9:18,19,22;10:13,18; 16:9;24:22;25:4;26:2; 31:13;35:4;37:21;</p>	<p>oath (6) 13:25;14:8;47:12; 73:25;114:21;120:15</p>	<p>objecting (1) 129:13 objection (5) 6:15,16;13:12,13; 108:8 obligations (8) 15:15;46:11,15,20; 47:4;55:4;59:1,2 observed (1) 96:24 observing (1) 38:11 obstructions (1) 72:2 obtained (2) 49:18,20 obvious (1) 63:6 obviously (7) 37:3;55:15;67:5,24; 68:16;95:9;107:16 occupation (3) 14:23;48:13;74:12 occupied (3) 79:7,19;80:5 occurring (1) 90:24 October (1) 51:5 off (11) 44:19,21;61:3,14; 83:16;88:19;96:1; 107:4;117:12;123:13, 15 offer (1) 7:5 offered (1) 13:16 offering (1) 12:25 Office (4) 4:4;86:2,8;108:25 officer (1) 4:7 official (1) 8:15 offload (1) 68:4 offsets (1) 96:16 off-site (1) 65:24 often (1) 86:17 oftentimes (2) 64:9;124:14 old (2) 9:3;101:12 Oliver (15) 4:18;7:25;11:5;17:2; 21:1;30:9,12;35:8; 54:13;74:19;78:17,18, 20,21;101:11</p>	<p>once (12) 24:11;62:10;65:25; 67:21;68:15;72:8;85:4; 87:19;103:20;109:7; 126:8;127:10 one (70) 5:10;9:9,25;25:18; 27:16;28:2;34:5,5,6,7; 43:6,20;46:5;47:1; 50:14;58:9,17;61:2; 62:18,23;63:20;64:6, 11,16,18,20;69:12,15; 74:22;76:4;78:5,9; 82:4;83:24;84:2,8,15, 24;85:13,13;87:11; 92:19;93:6,20;95:15, 16;99:15;107:16; 109:22,24;110:1,1,9; 112:5;117:19,25; 118:24;120:1,2;121:8; 122:12;124:8,19; 126:16;127:1,18; 129:23;131:20;135:3,4 one-half (1) 76:3 ones (4) 57:5;62:2,6;70:19 ongoing (2) 37:22;128:8 only (9) 9:13;28:8;36:4; 41:13;45:16;111:15; 122:11,20;127:12 open (3) 19:24;70:22;107:20 opening (1) 7:14 operate (3) 27:3;53:5,8 operating (3) 27:23;44:25;61:19 operation (7) 5:10;28:6,9;43:8; 82:20;88:5;102:8 operational (2) 19:1;35:10 operations (3) 30:20;51:21;54:7 opinion (2) 12:11;71:4 opinions (1) 10:14 opportunities (4) 10:3;11:20,22;17:17 opportunity (11) 7:3;9:2,5,7;10:17; 11:25;38:9,13;118:21; 132:11;135:9 opposition (1) 38:3 oppressed (2) 83:25;84:5 option (2)</p>	

<p>91:20;127:16 options (8) 20:4;32:6,11;38:5; 49:20;91:19;104:8; 128:24 order (14) 10:18;17:16;18:23; 33:14;49:24;50:9;51:3, 4;55:19;59:16;66:11; 99:3;117:14,24 orderly (3) 5:20;83:7;101:7 orders (1) 95:2 ordinances (1) 78:18 original (2) 57:14;129:18 OSHA (1) 56:15 others (1) 73:19 otherwise (1) 102:16 ours (1) 11:4 out (61) 7:18,20;8:16;9:1,13, 17,23;10:4,7;11:7,9; 24:17;29:6;33:24;40:1; 43:11;61:5,8;63:23; 64:4;65:1,3;66:10; 67:15;72:13,15;79:3; 86:15;87:23;88:25; 89:8;93:3,3,5;95:1; 99:16;101:4;103:5; 108:15;110:12,19; 112:10,11,25;118:18; 121:16;123:3,4;124:6, 11,12,15;128:17; 129:1;130:17,21; 132:6,20;133:13,20; 135:4 outcome (1) 66:19 outlet (1) 52:11 outside (5) 25:8;42:22;88:22; 104:22;129:25 over (24) 8:20;10:15;11:24; 20:21;25:3;30:6,13; 37:4,5;52:2;66:3,18; 75:4;77:25;79:5;81:20; 94:19;95:13;96:8; 102:17,23;103:7; 112:11;113:10 overall (2) 10:6;118:8 overly (1) 89:17 oversight (2)</p>	<p>16:1;49:10 overview (1) 16:9 own (4) 45:2;53:3;67:14; 129:25 owned (1) 134:15 owner (1) 121:23 owns (3) 91:15;122:16;124:1</p> <p style="text-align: center;">P</p> <p>pad (1) 67:24 pads (2) 90:22;91:25 page (3) 40:12;58:8;93:2 paid (3) 29:8;122:23;123:1 paper (1) 42:15 paragraph (3) 83:21,22;84:3 paragraphs (1) 82:14 Parshall (1) 125:1 part (16) 5:2;8:10;21:24,25; 28:1;30:22;31:17; 33:20;57:19,20;60:25; 61:11;64:1;76:5;80:6; 86:1 participants (3) 104:19,21;105:3 participate (3) 91:9,12;135:8 participating (5) 79:10,22;80:8;89:12; 100:13 particular (3) 8:6;62:5;99:11 parts (2) 37:2;135:3 past (5) 4:16;15:12;57:8; 87:24;100:23 Pat (1) 4:2 path (3) 71:25;72:1;82:5 paths (7) 68:11;81:22,24;82:2, 3,8;98:5 pay (8) 121:17;122:15,18, 19,21;123:19;124:21; 125:1 paying (2)</p>	<p>39:8;99:11 pays (1) 122:16 peak (1) 52:23 peaker (1) 25:24 pedestrian (1) 109:2 penalties (4) 47:23;48:3;64:6; 121:19 penalty (8) 14:4,6;48:1;73:20, 22,24;120:12,14 pencil (1) 94:13 people (23) 9:14;10:4;11:21,23, 23;12:9;41:19;61:5; 64:1;99:14,16;100:4; 104:23;105:11;112:6; 121:19;127:3,6; 133:20;134:3,14; 135:5,12 people's (1) 135:6 per (7) 19:4;27:1;38:24; 39:4;40:14;80:11; 87:21 percent (16) 17:7;19:2,8,12;28:3, 21,22,24;29:20;30:13, 23;33:7;41:4;76:4; 101:10;115:5 percentage (3) 30:17,25;32:9 percents (1) 27:19 perceptible (1) 89:17 perception (1) 45:16 Perfect (1) 27:16 perform (1) 36:9 performed (3) 31:20;78:4;87:8 perhaps (2) 95:2;122:21 period (1) 110:11 Perjury (11) 13:24,24;14:2,7; 47:24,24;73:20,21; 120:6,10,14 permanent (1) 60:9 permanently (1) 17:6 permit (2)</p>	<p>78:21,22 permits (4) 60:23;75:12;105:24; 106:2 permitted (2) 6:17;53:25 permitting (1) 57:3 person (5) 14:1;35:18;108:2; 122:16;130:4 personal (2) 10:25;63:22 personally (1) 112:7 personnel (3) 52:25;53:5,7 phase (3) 12:6;68:17;109:9 phases (4) 65:19,19;67:18;68:4 phones (1) 44:20 physical (1) 54:24 physically (1) 22:18 pick (3) 66:8;102:12;113:13 pilots (1) 71:1 pipeline (1) 122:25 pitch (1) 99:20 place (13) 4:20;8:20;38:5; 53:12;55:25;61:2; 108:4;122:8;124:14; 128:11,18;129:7;133:3 placed (5) 20:17;52:12;54:20; 65:9;77:16 placements (1) 65:12 places (4) 25:21;35:8;36:20; 127:20 plan (15) 18:9;32:16,19,23,24; 33:3,12;34:4;43:7; 54:19;61:23;71:7; 72:22;95:17;104:3 planned (4) 20:5,6;67:10;115:8 Planning (7) 15:2;18:24;31:5; 75:1,5;97:11,12 plans (5) 20:25;32:14,22; 43:18;61:13 plant (4) 20:12;25:10,12;</p>	<p>85:17 planted (2) 83:23;84:20 planting (1) 88:11 player (1) 133:6 plays (1) 112:11 pleasant (1) 64:25 please (31) 5:21;6:5,21;7:10; 13:5;14:7,15,22;15:3, 10;16:11;17:13;18:6; 48:12,17,20;51:16; 53:10,18;54:2;55:16; 73:12,16,24;74:11,23; 114:19;118:24;120:5, 14,20 plowed (1) 84:25 plus (1) 125:3 point (13) 7:24;9:13;19:19; 24:2;27:2;32:9;43:23; 52:13;61:12;73:7; 91:18;111:16;112:2 pointed (1) 9:17 pole (1) 98:19 policy (3) 40:24;76:22;122:1 popular (1) 9:16 portion (11) 16:24;20:21;24:4,7; 42:13,18;106:9; 113:17,24;115:13,14 positions (1) 75:4 positive (2) 60:25;66:19 possible (2) 37:8;51:2 possibly (3) 11:9;90:23;121:22 post (3) 65:18;68:9;131:14 posts (1) 121:13 potential (16) 43:20;50:23;55:21, 24;77:18;78:16;80:1,3, 8;81:8;86:9;90:7;98:5; 122:9;125:25;126:15 potentially (6) 45:7,9;64:7;80:22; 126:14,17 pour (1) 67:8</p>
--	--	--	---	--

<p>poured (4) 9:15;91:25;92:5,12</p> <p>Power (86) 4:9;6:2,19;7:1,8;8:6, 7:14;25;15:12,16; 17:15;18:18;19:5,8,10; 20:3,12,18,19,20; 21:21;23:24;27:13; 30:23;31:22;32:15; 36:14;40:18,20;42:10, 14,23,24;43:16;46:7, 10,14;48:15,24;49:18, 20;50:19;51:14,22; 52:3,14,17;53:1;54:17, 21;55:3;61:12;63:5,10, 13;69:11;71:3;76:10, 13,16;77:14,17,19,23; 78:4;79:14,16;80:1,15, 18,21;81:23;82:9,12; 90:20;98:19;101:10, 16;115:5,10;121:1,15; 126:24;127:10;133:1; 135:15</p> <p>powers (1) 63:8</p> <p>Power's (19) 18:6,8,13,24;19:2; 20:14;29:21;30:11,13; 54:15;71:7;75:9,17,19; 82:12;101:10,13; 115:5,7</p> <p>preassembly (1) 68:5</p> <p>predicated (1) 71:8</p> <p>predict (3) 27:18;80:12;88:1</p> <p>predicted (1) 27:23</p> <p>predicting (1) 28:15</p> <p>prediction (1) 28:13</p> <p>preliminary (4) 67:17;80:24;93:9; 98:10</p> <p>prepared (3) 33:11;37:18,21</p> <p>prepped (1) 7:12</p> <p>presence (1) 12:14</p> <p>present (2) 6:18;11:25</p> <p>presentation (2) 7:2,8</p> <p>presenting (1) 132:7</p> <p>preservation (5) 5:15;82:25;86:2,8; 108:25</p> <p>presume (1) 66:9</p>	<p>pretty (9) 36:2,22;99:25; 124:14;126:7;127:9, 19;130:13;134:10</p> <p>previous (8) 9:10;21:25;26:25; 32:19;60:24;97:25; 101:8;125:23</p> <p>previously (10) 13:2;15:19;19:20; 34:8;49:4;57:3;74:17; 102:1;115:15;116:19</p> <p>price (1) 45:20</p> <p>priced (1) 17:19</p> <p>pricing (1) 41:21</p> <p>Primarily (2) 42:16;64:1</p> <p>prime (1) 76:1</p> <p>Prior (5) 15:16;17:24;33:5; 54:19;64:17</p> <p>prison (2) 48:1;73:23</p> <p>private (7) 106:7,21;107:13,23; 108:10,16;114:3</p> <p>privately (1) 134:15</p> <p>probably (13) 21:12;30:19;34:14; 38:20;59:4;61:14; 69:10;90:6;92:25; 123:13;126:9,19; 128:22</p> <p>problem (1) 66:2</p> <p>problems (2) 56:9;105:8</p> <p>procedural (1) 4:6</p> <p>procedure (1) 61:19</p> <p>proceed (4) 12:22;13:18;74:5; 120:20</p> <p>proceeding (8) 14:11;16:7;18:7; 48:5;49:14;74:3;75:14; 120:17</p> <p>proceedings (1) 120:23</p> <p>process (13) 12:17;31:18;36:11; 39:17;57:6;65:16; 66:13,18;67:1;86:18; 127:11;133:9;135:10</p> <p>processes (1) 12:3</p> <p>produce (7)</p>	<p>5:11;26:23;35:13; 36:5;82:20;87:8; 115:12</p> <p>produced (6) 27:24;28:5;30:3; 35:25;63:6;115:14</p> <p>producers (3) 64:8,13;105:7</p> <p>producing (3) 23:23;24:1,3</p> <p>product (1) 15:14</p> <p>production (11) 17:22;28:16;29:24; 41:11;43:11;50:15; 59:17;64:23;66:12; 76:3;116:24</p> <p>productive (1) 103:7</p> <p>products (2) 41:22;42:15</p> <p>professional (5) 15:11;48:21,22; 74:23;131:1</p> <p>program (1) 63:20</p> <p>progresses (2) 18:13;81:2</p> <p>Project (133) 4:11,13;7:22;9:16; 10:9;12:6,11;15:1,23, 24,25;16:1,3,9,9,11,12, 20,25;17:2,5,8,9,10,14, 16,21;18:2,12,25;19:1, 10,14,15;21:3;24:3,11, 22;27:13;32:11,12; 37:19;38:6,11,22; 41:16;49:8,9,12,16,19, 23;50:7,16,20;52:10; 53:6;54:3,10;55:1; 56:18;57:16;58:1,12; 60:9;68:18;74:20;75:7, 22;76:4,11,21,23,25; 77:3,14,16;78:6,7; 80:16,16,19,20,21,22, 24;81:1,5,8,10,12,16, 18,21,25;82:4,5,7,18; 85:9,10,12;86:20; 87:19;88:2;91:9,12; 95:8;96:23;97:2,6,13; 104:9,19,21;105:4,12, 16;107:14;109:5,13; 116:2;118:2;125:12; 128:5,8,11,15,19; 133:14;134:2,5;135:17</p> <p>projected (5) 16:3;19:12;36:4; 37:14;100:6</p> <p>projections (1) 33:6</p> <p>projects (39) 8:4;16:21,24;18:17; 19:16;20:5,13,14;21:2;</p>	<p>23:15;34:10,12;39:13; 41:13;56:8,10;57:2,9; 77:5;81:15;82:12; 85:15;87:25;88:4,16; 97:24,25;99:5,13; 106:10;116:7;118:3; 123:1;127:18,25; 132:13,16;133:1,3</p> <p>project's (2) 54:21;116:4</p> <p>promise (4) 14:9;48:3;74:1; 120:15</p> <p>promotion (1) 29:4</p> <p>promulgated (1) 78:19</p> <p>proper (1) 133:23</p> <p>properly (1) 124:12</p> <p>properties (2) 49:21;64:12</p> <p>property (5) 58:2;80:25;91:7; 123:9;125:10</p> <p>proposed (24) 5:1,11,14,16;16:12; 19:15;49:16;76:5;78:6; 79:1,8;80:16,20,24; 81:16,21;82:7,9,20,24; 83:3;91:6;95:2;117:24</p> <p>protected (4) 39:10;95:20;96:17, 18</p> <p>protecting (2) 63:4;77:4</p> <p>Protection (1) 77:8</p> <p>proud (1) 69:8</p> <p>provide (13) 15:3,10;16:8;18:23; 35:12,13;37:6;48:17, 20;49:16;51:16;74:23; 75:18</p> <p>provided (5) 15:19;49:4;74:17; 79:18;80:6</p> <p>provides (3) 41:18,20;116:7</p> <p>providing (1) 51:19</p> <p>proximity (1) 19:18</p> <p>proxy (1) 39:13</p> <p>PSC (4) 7:8;33:4;79:1,8</p> <p>PSC's (1) 7:1</p> <p>PTC (5) 17:23;18:22;32:22;</p>	<p>34:15;42:1</p> <p>PU-13-127 (2) 4:13;135:20</p> <p>Public (35) 4:6,12,21;5:9;6:9,10; 7:18;8:2,9,9;9:10;10:1; 12:10;15:20;32:15; 39:12,18;40:24;43:2; 46:8,10,12,16;49:5; 55:2,5;59:1,6;74:18; 77:1;118:14;120:25; 124:2;126:2;128:7</p> <p>publicly (3) 39:19;62:22;79:4</p> <p>published (2) 5:4;108:6</p> <p>PUC (1) 33:4</p> <p>pulled (1) 66:10</p> <p>purchase (4) 31:10,15;32:2;49:21</p> <p>purchased (3) 11:5;20:19;115:14</p> <p>purpose (8) 16:6,8;49:13,15,15; 51:13;75:13,15</p> <p>purposes (1) 123:10</p> <p>push (1) 66:15</p> <p>pushed (1) 51:9</p> <p>put (15) 7:9;8:15;23:20; 25:10,19;41:16;45:14; 63:17;100:5;115:25; 124:10,10,13;127:14, 21</p> <p>puts (1) 68:6</p> <p>putting (3) 64:7;68:24;121:13</p>
Q				
<p>qualify (2) 50:14;59:17</p> <p>quality (2) 19:18;61:13</p> <p>quantify (1) 23:14</p> <p>quarters (1) 28:18</p> <p>quick (3) 59:16;69:2;72:16</p> <p>quickly (2) 29:12;64:9</p> <p>quite (1) 112:10</p>				
R				

<p>radar (2) 32:18;92:24</p> <p>radiating (1) 70:16</p> <p>radii (1) 68:13</p> <p>radio (1) 97:16</p> <p>radius (1) 54:7</p> <p>raise (5) 6:21;14:7;73:24; 103:5;120:14</p> <p>raised (1) 90:15</p> <p>raising (2) 108:2;122:13</p> <p>ramp (1) 31:8</p> <p>ramping (1) 40:18</p> <p>ranch (1) 121:11</p> <p>Random (1) 44:14</p> <p>Randy (4) 103:18;121:9,9; 130:19</p> <p>range (5) 38:22;39:8;69:10,13; 120:1</p> <p>ranges (2) 27:4,7</p> <p>ranging (1) 42:18</p> <p>rate (4) 40:21;46:15;68:2; 84:13</p> <p>rated (1) 20:8</p> <p>ratepayers (2) 18:23;116:8</p> <p>rather (3) 10:14;56:10;133:14</p> <p>rating (1) 99:25</p> <p>reach (3) 27:15;33:6;108:15</p> <p>read (3) 8:11;121:20;127:16</p> <p>reading (3) 58:4;62:18;89:19</p> <p>ready (4) 12:22;50:17,24; 115:1</p> <p>real (3) 38:21;86:16;123:17</p> <p>reality (1) 84:24</p> <p>realize (2) 38:20;104:3</p> <p>realized (1) 104:2</p>	<p>really (16) 8:9,10;10:11,18; 12:12;28:17;85:2;89:5; 90:11;105:7;119:3; 129:7;132:8,17;135:7, 10</p> <p>reason (5) 56:16,16;57:20;70:8; 88:17</p> <p>reasons (2) 50:13;135:4</p> <p>recall (2) 43:17;97:21</p> <p>receipt (1) 49:24</p> <p>received (7) 13:15,17;15:5;96:7; 97:14;106:3;108:24</p> <p>recently (5) 11:4;34:6;110:4,9; 125:1</p> <p>receptors (1) 90:12</p> <p>reclaimed (1) 43:14</p> <p>recognized (1) 80:10</p> <p>recommend (1) 107:23</p> <p>recommendation (1) 128:2</p> <p>recommended (1) 79:9</p> <p>record (18) 4:1,16;5:22;8:15; 10:10,14;14:15;40:4; 63:18;87:13;111:6; 112:23;113:5,13; 115:25;119:5;132:2; 134:19</p> <p>recording (1) 44:14</p> <p>recross (1) 46:25</p> <p>REXCROSS-EXAMINATION (2) 47:2;71:20</p> <p>Red (3) 15:18;70:9;104:21</p> <p>redesign (1) 72:11</p> <p>redirect (5) 33:20;40:7;45:25; 46:3;71:14</p> <p>reduction (1) 20:19</p> <p>reevaluated (1) 51:6</p> <p>refer (2) 56:2;63:1</p> <p>referring (1) 32:25</p> <p>regarding (6) 13:24;32:14;47:23;</p>	<p>63:4;75:16;91:7</p> <p>regardless (1) 77:5</p> <p>regards (6) 64:14;81:24;82:1; 88:6,6;106:13</p> <p>region (3) 9:21;30:23;42:21</p> <p>regional (2) 75:1;81:19</p> <p>registered (1) 48:22</p> <p>regularly (1) 84:20</p> <p>regulated (1) 46:16</p> <p>regulatory (2) 49:11;59:6</p> <p>reinforced (1) 53:12</p> <p>relating (1) 38:10</p> <p>relation (1) 112:21</p> <p>relations (1) 81:11</p> <p>relative (2) 28:19;30:3</p> <p>relatively (1) 84:14</p> <p>reliability (2) 5:18;83:5</p> <p>reliable (1) 18:4</p> <p>remarks (3) 7:14;132:2;135:2</p> <p>Remember (2) 47:11;114:21</p> <p>remind (1) 120:10</p> <p>removal (4) 104:4,14;111:10,17</p> <p>remove (5) 54:21;65:23;68:14; 70:4;112:4</p> <p>removed (6) 66:5;70:2;76:2;85:7, 10;102:2</p> <p>removing (1) 85:16</p> <p>renewable (12) 15:15;18:8,10;19:3, 6,7,9,11;30:17;33:5; 116:1,3</p> <p>renewables (1) 38:17</p> <p>repair (1) 123:19</p> <p>rephrase (1) 116:3</p> <p>replacement (2) 84:1,6</p> <p>report (1)</p>	<p>124:3</p> <p>reported (1) 77:19</p> <p>reports (1) 62:19</p> <p>represent (1) 135:13</p> <p>representatives (1) 127:4</p> <p>representing (1) 119:19</p> <p>request (5) 4:5;6:12;84:10; 108:11,20</p> <p>requesting (5) 51:22;56:6;57:16; 83:22;84:7</p> <p>requests (3) 4:25;53:24;108:5</p> <p>require (4) 43:8,24;54:10;68:20</p> <p>required (11) 13:23;32:14;36:18; 47:22;53:8,10;54:2; 57:1;69:6;76:10;77:9</p> <p>requirement (3) 54:8;72:5;79:2</p> <p>requirements (15) 5:4;53:21;54:8,17; 56:15,22,23;57:1,10; 78:24;79:6;82:10,13, 15;134:8</p> <p>requires (4) 19:7;36:4;52:1; 78:20</p> <p>requiring (2) 77:1;106:2</p> <p>reservation (2) 124:24;125:2</p> <p>reserves (3) 81:6,9,13</p> <p>residence (5) 79:10,12,22,24; 80:13</p> <p>residences (3) 79:7,20;80:5</p> <p>residential (1) 42:11</p> <p>residents (2) 80:8;132:16</p> <p>resistance (2) 38:6;72:1</p> <p>resolved (1) 128:13</p> <p>resource (13) 18:3,8,9;23:22;33:2; 35:4,5;72:5;74:25; 75:5;77:6;78:5,10</p> <p>resources (9) 5:15;18:11,19;30:11; 54:6;76:8;81:4;83:1; 85:22</p> <p>respond (2)</p>	<p>107:2;108:5</p> <p>responsibility (1) 31:23</p> <p>responsible (4) 15:25;49:10;75:8,10</p> <p>respread (1) 65:20</p> <p>respreading (1) 66:2</p> <p>resting (1) 118:10</p> <p>restoration (2) 68:10,12</p> <p>restore (1) 54:23</p> <p>result (6) 35:23;41:17;56:9; 77:14;84:15;116:8</p> <p>results (3) 78:6,9;82:2</p> <p>retail (4) 19:2;29:21;30:4; 115:11</p> <p>retired (2) 101:14,15</p> <p>retirement (2) 115:8,9</p> <p>review (2) 72:18;130:4</p> <p>right (49) 6:22,24,24;14:7; 30:7,21;31:17;40:13, 17;44:17,25;47:19; 52:24;57:6;59:8;60:14; 61:17;62:7;69:5,8; 70:5,8,21;71:6;72:15; 73:18,24;87:3;88:24; 95:21;96:14;99:6; 100:1;102:5;103:2; 104:7;105:15;106:3, 17;110:24;111:13,15; 113:9,24;120:14; 126:24;127:5;132:11; 133:17</p> <p>right-of-way (7) 93:24;94:9,11,14; 117:17;126:2;127:14</p> <p>rights (3) 49:11,18;130:1</p> <p>road (15) 59:19;65:12,22;66:4; 68:12;79:5;93:25;94:1, 7,8,11,14,19;112:3; 117:17</p> <p>roads (23) 54:2,4,11,11;59:23; 60:1;67:3,7,11,11,19; 71:23;78:25;90:22; 109:10;127:15,21; 129:3,5,8,10,13,21</p> <p>roadway (1) 93:23</p> <p>rockier (1)</p>
---	---	--	--	--

<p>126:8 role (4) 15:22;48:24;49:7; 75:6 room (4) 6:19;10:24;23:17; 128:6 root (3) 102:22;103:10,25 rotating (1) 98:16 rotor (6) 16:15;26:15,20;61:3, 14;68:7 rotors (1) 98:24 rough (1) 30:5 roughly (3) 39:4;69:12;115:4 routed (1) 54:4 routes (1) 72:10 routing (1) 72:7 row (1) 84:11 Rugby (1) 61:2 rule (4) 80:11;100:11,17; 111:14 rules (3) 5:5;43:4;111:19 run (3) 113:19,25;134:22 runs (3) 22:15;52:7;67:14 rural (1) 42:16</p>	<p>save (1) 65:12 saved (1) 66:10 savings (1) 116:9 saying (3) 89:1;123:13;129:13 scale (1) 36:24 scenario (7) 88:3,8;90:3,4;94:17; 110:2,10 Schafer (1) 11:15 schedule (13) 18:20;34:18;49:17, 23;50:16,21;51:11,11; 55:19,22;90:14,16; 130:21 scheduled (4) 20:17,18;51:5; 117:22 science (2) 15:5;48:18 scope (1) 25:9 scoping (2) 77:2;106:9 Scott (2) 128:9,12 screen (1) 32:18 screening (1) 93:9 search (4) 109:2,2,3,6 season (3) 56:1;90:25;91:1 seasonal (2) 28:10,12 secluded (1) 89:15 second (2) 50:15;57:14 Secondly (1) 17:22 Section (3) 54:18;58:1;91:5 sections (3) 68:6;69:18,19 secured (1) 20:3 securing (1) 75:10 seeing (6) 36:16;97:21;108:23; 115:10;116:9;131:25 seeking (1) 17:15 seem (3) 99:18,25;103:16 seemed (4)</p>	<p>101:9;121:17,20,21 seems (6) 31:24;63:6;99:13,16; 133:5;134:1 selected (7) 16:19;19:14,17;62:6; 79:3;87:7,15 sell (1) 45:5 semis (1) 69:5 senate (1) 9:6 send (5) 92:25;93:3,5;98:11; 106:10 sense (2) 24:18;102:21 sensitive (2) 17:17;51:8 sent (6) 97:10,13;105:2; 106:9;107:17,18 separate (1) 25:13 September (6) 4:17;49:25;50:9,10, 13,16 serve (4) 4:6;9:5;42:17;44:13 served (1) 108:7 serves (1) 42:25 Service (24) 4:6,12,21;5:9;6:10; 7:19;10:1;15:20;20:17; 28:8;32:15;43:2;49:5; 52:12;54:20;74:18; 77:13,17,22;97:5,8; 115:7;118:14;124:2 serving (1) 42:20 session (5) 63:19;94:22;117:22; 121:18;122:15 set (4) 4:20,25;7:21;123:2 setback (5) 78:24;79:2,6,9;96:2 setbacks (1) 79:15 seven (3) 15:13;28:9;123:11 Several (3) 97:10;103:19;123:8 shadow (7) 80:2,3,5;87:3,17,21; 88:7 shaking (1) 117:11 shapefile (1) 109:12</p>	<p>share (1) 25:12 shared (1) 25:22 shareholders (1) 122:7 sharing (1) 38:18 sheets (1) 62:25 Sheldon (1) 128:5 shelter (1) 83:23 shift (1) 86:23 shirt (1) 130:22 shop (2) 128:3;133:15 shortest (1) 72:1 shot (1) 116:13 show (3) 4:16;12:9;80:7 shown (2) 5:2;60:18 shows (1) 12:15 SHPO (6) 78:11,15;86:8,13,15, 17 SHPO's (1) 87:1 shrub (5) 82:10,14;83:18; 84:22;85:12 shrubs (2) 83:25;85:10 shut (4) 27:3,5;44:19,21 side (4) 63:12;65:21,22; 113:10 Siemens (8) 16:12,14;50:4;61:9, 10,13,22;70:19 sign (1) 91:15 signed (1) 49:20 significant (5) 20:24;37:12,23; 75:25;81:3 significantly (2) 17:20;52:8 similar (7) 10:12;26:12;27:24; 37:10,17;66:14;97:18 simple (1) 108:20 simpler (1)</p>	<p>130:6 Siri (1) 46:1 sit (1) 129:1 site (27) 4:10,24;16:5;19:16; 21:22;34:17;35:6,11; 50:1,17,24;51:2;63:2; 68:25;75:17;78:6; 85:14;86:19;92:13; 107:15,20;109:15,16, 18,18;112:22;135:16 sited (1) 57:16 sites (5) 35:7;47:5;86:22,24; 109:7 siting (8) 12:1;19:24;38:11; 75:5,9;77:11;97:20; 134:8 sits (2) 96:1;113:11 sitting (4) 5:22;6:6;10:2;128:5 situation (4) 9:3;66:14;124:5; 126:25 six (3) 123:10,17;126:7 size (3) 25:6;26:23;36:2 skilled (1) 53:3 slightly (5) 25:3;26:12;41:20; 65:7,25 small (1) 42:20 smart (1) 71:8 soil (9) 53:16;63:24;64:2,4, 7,14;131:1,2,11 solid (1) 67:5 somebody (1) 121:16 someone (7) 25:9;61:15;65:2; 101:4;124:15,20;128:9 someone's (1) 124:16 sometimes (2) 99:19;127:1 somewhere (3) 60:15;65:13;99:22 sorry (6) 33:4;42:23;69:4; 98:20;110:7;113:15 sort (2) 9:2;41:10</p>
S				
<p>safety (2) 56:15;62:25 Salem (2) 17:3;31:3 sales (4) 19:13;30:4;41:20; 115:11 same (24) 8:21;16:20;22:3; 26:1;27:4,7;29:8; 35:13,14,25;40:12; 54:24;57:6;60:22; 67:21;80:12;87:9,12, 18;98:2;99:24;111:11; 113:17;122:25 sat (1) 97:11 satisfaction (1) 87:1</p>				

<p>sound (2) 8:19;90:6</p> <p>source (2) 110:19;116:10</p> <p>South (4) 45:10;62:2;113:20, 25</p> <p>Southwest (2) 74:19;119:16</p> <p>soybeans (1) 103:10</p> <p>spaces (2) 113:20,24</p> <p>span (1) 26:14</p> <p>spawns (1) 124:5</p> <p>speak (1) 32:24</p> <p>Special (2) 6:8;105:24</p> <p>specialist (2) 74:16;101:3</p> <p>Species (7) 77:9;84:13,14,16,23; 102:12,13</p> <p>specific (5) 34:11,17;38:21;77:6; 78:18</p> <p>specifically (1) 78:1</p> <p>specifics (2) 16:10;92:14</p> <p>specified (3) 5:7;70:19,20</p> <p>speed (4) 24:1;27:7;35:5,9</p> <p>speeds (1) 26:21</p> <p>spell (4) 14:14;47:17;73:15; 119:10</p> <p>spelled (1) 47:20</p> <p>spend (1) 11:8</p> <p>spinning (2) 88:21;89:2</p> <p>spraying (1) 127:16</p> <p>spread (4) 53:13,14;66:7,17</p> <p>spring (4) 51:1;91:2;127:19,23</p> <p>square (5) 20:1;52:15;58:1; 91:4,5</p> <p>St (1) 42:20</p> <p>stack (1) 68:8</p> <p>staff (4) 6:12;11:16;124:6,6</p>	<p>stage (3) 68:23,25;81:14</p> <p>stages (5) 67:1,2;97:11,12; 109:4</p> <p>Standard (10) 19:6,7;33:6;51:23; 61:19;79:20;80:10; 100:17;101:1;105:6</p> <p>standards (3) 54:13,14;76:14</p> <p>standing (2) 88:22,24</p> <p>standpoint (6) 89:9;102:4,7,8,18,22</p> <p>start (21) 12:24;27:2;50:6,8, 12,13;55:20;59:18,18; 67:3,25;68:1,17;83:16; 90:21;104:8,10;107:4; 121:6;125:6;127:11</p> <p>started (5) 59:20;60:1;66:24; 80:23;128:23</p> <p>starting (9) 11:15;18:24;49:25; 50:5,15;59:22;66:15; 67:13,16</p> <p>starts (1) 60:6</p> <p>state (27) 5:21;6:5;9:21;10:14; 11:20;13:24;14:22; 15:6;25:21;47:24; 48:12,19;64:2;74:11; 77:12;83:21,22;86:1,8; 97:1;108:4,5,15,24; 110:3;111:16;112:6</p> <p>stated (2) 56:19;115:15</p> <p>statement (4) 13:25;14:1;56:20; 57:17</p> <p>statements (1) 119:4</p> <p>states (4) 45:12;48:23;80:12; 100:18</p> <p>station (5) 45:15;52:16;132:13; 134:14,15</p> <p>stationary (1) 98:19</p> <p>stations (1) 134:15</p> <p>statistic (1) 88:18</p> <p>status (1) 101:15</p> <p>statute (1) 5:5</p> <p>statutes (1) 108:4</p>	<p>stay (1) 85:4</p> <p>step (6) 12:5;47:10;73:6; 114:9;117:8;118:25</p> <p>stepping (1) 135:7</p> <p>still (6) 43:5;47:12;51:6; 94:18;116:23;128:15</p> <p>stockpile (1) 65:13</p> <p>stop (1) 128:3</p> <p>storage (1) 81:4</p> <p>store (1) 63:10</p> <p>stormwater (1) 75:3</p> <p>straight (3) 41:1;102:18,19</p> <p>Strategy (3) 15:2;18:10,12</p> <p>Street (5) 4:19;14:25;48:15; 74:14;119:16</p> <p>strength (1) 18:2</p> <p>stretch (1) 66:4</p> <p>strip (4) 65:8,16;67:3;123:13</p> <p>strong (1) 134:1</p> <p>struck (2) 124:16;125:5</p> <p>structures (3) 36:15;96:10;104:4</p> <p>studies (8) 31:20;36:10;37:13, 17;82:2;85:22;87:4; 88:1</p> <p>study (4) 87:7;89:20;90:2,3</p> <p>studying (2) 24:10,11</p> <p>stuff (9) 88:13;97:17;99:20; 107:16;121:12,13; 125:5;127:15,17</p> <p>sub (1) 67:15</p> <p>subject (6) 14:3;47:25;73:22; 77:6;120:11;135:20</p> <p>submitted (1) 86:1</p> <p>subpart (1) 123:8</p> <p>substantial (1) 52:5</p> <p>substantially (1)</p>	<p>54:24</p> <p>substation (14) 17:11;19:19,20;20:1; 21:24;22:3;51:15; 52:13,15,19,19,20; 63:9;67:15</p> <p>substations (1) 49:3</p> <p>succession (1) 84:22</p> <p>sufficient (4) 20:3;32:5,6,8</p> <p>suggestions (2) 107:20;114:10</p> <p>suitable (1) 20:2</p> <p>suited (1) 19:22</p> <p>summarize (1) 113:16</p> <p>summary (1) 67:1</p> <p>summer (1) 127:20</p> <p>Superior (5) 14:25;42:24,25; 48:15;74:14</p> <p>supervision (1) 53:4</p> <p>supervisor (1) 15:17</p> <p>supplement (1) 21:16</p> <p>supplemental (6) 13:8;78:11,13,23; 79:19;80:7</p> <p>supply (4) 16:3;19:3;31:6; 41:22</p> <p>support (6) 20:5;49:19;50:24; 132:12;134:1,5</p> <p>supposed (1) 43:19</p> <p>Sure (32) 5:24;9:19;24:18; 25:17;27:25;28:7; 31:14,20;35:4;37:24; 38:25;39:14,22;40:11; 43:10,13,16;61:18,24, 25;64:22;70:20;85:20; 88:1;98:4;100:12; 101:2;107:7;125:18; 127:23;130:24;134:13</p> <p>surface (3) 54:12,13,23</p> <p>surrounding (2) 42:21;54:23</p> <p>survey (1) 85:23</p> <p>surveys (7) 72:3,5,8;76:20;78:7; 85:22;107:15</p>	<p>survival (1) 84:13</p> <p>survive (1) 84:17</p> <p>Sustained (1) 71:11</p> <p>swear (2) 46:1;120:5</p> <p>switch (2) 22:19;38:15</p> <p>sworn (1) 118:22</p> <p>SWT (3) 16:12,22,23</p> <p>system (19) 9:20;10:6,16;24:6, 10,13;31:11,11;51:13, 14,17,18;52:2,7;59:23; 64:16;65:12;83:5; 103:25</p> <p>systems (4) 15:17;75:2;102:23; 103:10</p>
T				
			<p>tab (1) 21:18</p> <p>table (2) 5:23;6:7</p> <p>tables (1) 11:22</p> <p>taconite (1) 42:15</p> <p>talk (6) 29:19;38:2;95:9; 112:25;113:2;127:3</p> <p>talked (11) 34:9,10,11;55:18; 60:8;85:21;89:7;96:5, 15;128:12;129:14</p> <p>talking (5) 40:23;44:11;63:19; 103:19;109:15</p> <p>taller (2) 26:19;35:17</p> <p>taper (1) 102:25</p> <p>tasked (1) 43:2</p> <p>tax (6) 17:22;41:11;50:15; 59:17;116:21,24</p> <p>technology (2) 16:10;71:3</p> <p>Telecommunications (2) 81:25;93:4</p> <p>telephone (2) 124:24,24</p> <p>Telephone's (1) 125:2</p> <p>tells (1) 57:4</p>	

<p>temperature (1) 61:20</p> <p>temporary (2) 4:3;105:20</p> <p>ten (4) 43:7;69:10,12; 135:17</p> <p>tend (2) 102:25;109:25</p> <p>ten-minute (1) 73:8</p> <p>term (3) 28:12,20;104:4</p> <p>terms (3) 19:5;105:17;106:24</p> <p>terrain (1) 19:25</p> <p>territory (1) 132:23</p> <p>Tesoro (1) 134:14</p> <p>tested (1) 131:1</p> <p>testers (6) 63:24;64:4,7,14; 131:2,11</p> <p>testified (9) 23:6;28:4;34:14; 38:25;56:6,23;83:17; 87:6;116:19</p> <p>testify (6) 6:20;7:9;23:10; 47:24;94:6;118:23</p> <p>testifying (1) 6:23</p> <p>testimony (27) 15:19;16:6,8;21:4; 23:5;35:1;44:9;46:6; 49:4,13,15;55:6;59:15; 74:17;75:13,15;83:9; 16;86:6;91:13;93:18; 96:7;97:21;100:15; 104:18;122:4;132:7</p> <p>thanks (7) 10:7;22:23;59:8; 71:13;93:12;131:20; 135:13</p> <p>That'll (3) 6:17;45:20;59:4</p> <p>therefore (1) 76:25</p> <p>thermally (1) 115:13</p> <p>thick (2) 53:16;92:1</p> <p>thickness (1) 54:14</p> <p>third (2) 9:2;122:21</p> <p>third-party (1) 59:25</p> <p>though (4) 42:16;65:5;76:3;</p>	<p>115:25</p> <p>thought (5) 29:5;44:21;118:6; 120:24,25</p> <p>thoughts (4) 10:9,12;12:5;37:20</p> <p>three (24) 5:16;6:2;8:8;13:1; 17:16;63:24;69:17; 70:4;78:5,10;82:14,17; 83:18;84:3,5,8;85:2,4, 23;102:2,17;103:4,11; 112:8</p> <p>throughout (3) 29:23;68:2;98:9</p> <p>throw (1) 101:3</p> <p>throwing (1) 99:15</p> <p>thrown (1) 63:23</p> <p>thumb (3) 80:11;100:12,17</p> <p>ticket (3) 124:9,10,13</p> <p>tie (1) 24:20</p> <p>tied (1) 116:4</p> <p>till (1) 23:7</p> <p>timely (2) 5:20;83:7</p> <p>times (8) 23:22,25;24:15,17; 65:7;79:2;88:20;97:10</p> <p>timing (2) 16:2;34:13</p> <p>today (23) 6:13;7:18;8:13,16; 11:3,18,21;12:14; 23:16;61:7;80:20; 93:18;108:7;117:12; 118:11,14,21;119:19; 120:7;128:17;132:6, 21;133:13</p> <p>together (2) 8:15;41:16</p> <p>told (2) 128:25;129:14</p> <p>tolerance (1) 27:6</p> <p>tonight (1) 10:10</p> <p>took (2) 122:7;130:21</p> <p>tool (1) 93:9</p> <p>top (2) 70:4;113:11</p> <p>topsoil (14) 65:8,9,13,16,20,24, 25;66:3,9,10,15;</p>	<p>123:14,15;126:6</p> <p>total (3) 16:18;17:7;42:13</p> <p>tours (1) 60:13</p> <p>tower (12) 53:25;60:8,9,15,17, 17;68:6,8,20,25;69:17, 20</p> <p>towers (7) 36:15,20,23;37:13; 127:15;129:3,8</p> <p>town (1) 9:6</p> <p>towns (1) 42:20</p> <p>track (1) 62:24</p> <p>training (1) 74:25</p> <p>transformer (1) 67:23</p> <p>transmission (12) 17:12;18:4;20:8,16, 22,24,25;52:9,12,18; 74:20;77:10</p> <p>transmit (1) 70:17</p> <p>transmitting (1) 23:24</p> <p>treading (1) 92:6</p> <p>treasure (1) 12:12</p> <p>Treaty (2) 77:7;96:19</p> <p>tree (6) 82:10,14;83:18; 84:22;85:4,12</p> <p>trees (7) 19:25;83:24;84:4,12; 85:9;88:11;89:23</p> <p>trench (1) 52:6</p> <p>trenches (1) 52:5</p> <p>trenching (4) 56:14;72:4;123:14, 16</p> <p>Tri (3) 19:20;21:24;52:20</p> <p>tried (2) 97:11;111:12</p> <p>truck (1) 69:15</p> <p>truckloads (1) 68:20</p> <p>trucks (4) 67:6;68:15,22,23</p> <p>true (2) 14:2;27:20</p> <p>truth (12) 14:9,10,10;48:4,4,5;</p>	<p>74:1,2,2;120:16,16,17</p> <p>try (2) 73:8;85:16</p> <p>trying (5) 25:18,20;99:2;103:9; 111:17</p> <p>Tuesday (1) 117:23</p> <p>turbine (49) 4:14;16:3,10,19,23; 17:18;19:24;26:14,20; 37:10;41:20;50:17,24; 53:12;54:8,9;60:3,22; 61:11;65:12;67:3,7,8, 15,25;68:1,13;77:19, 23;79:1,2,3,4,8,11,13; 81:19;82:6;86:23;87:6, 8,14;88:24;89:6;90:22; 92:22;98:10,17,24</p> <p>turbines (43) 16:4,13,14,17:1; 26:11;27:8,10,17;35:3, 6,11,14,23,24;36:2,4,5, 6;37:2;41:19;50:4,5; 51:15;53:9,11,18,19, 24;56:24;57:4,5;60:19; 62:5;63:9,12;78:24; 79:6;80:4;88:19;89:23; 103:2;109:10;120:2</p> <p>turn (2) 21:18;54:7</p> <p>turned (2) 11:21;106:20</p> <p>turning (1) 106:24</p> <p>turns (1) 87:23</p> <p>two (22) 5:13;25:1;34:8; 45:19;48:25;50:13; 68:6;77:25;82:14; 83:17,21,22;84:21; 95:12,14;122:22; 123:15;126:13;127:13; 128:3;129:12;133:5</p> <p>type (8) 43:24;53:14,14; 56:17;79:3;99:5;115:9; 121:12</p> <p>types (4) 36:17;43:9;99:13; 133:2</p> <p>typical (1) 40:6</p> <p>typically (8) 9:16;28:13;68:6; 100:23;102:16;113:25; 125:24;126:6</p>	<p>U</p> <p>UHF (1) 97:17</p>	<p>Ullin (1) 119:16</p> <p>ultimate (1) 71:6</p> <p>ultimately (1) 20:20</p> <p>Um-hum (5) 36:25;37:13;39:2; 70:22;103:12</p> <p>unable (1) 114:13</p> <p>uncertain (1) 17:25</p> <p>uncertainties (1) 51:1</p> <p>uncommon (1) 110:11</p> <p>under (8) 13:25;24:25;47:12; 84:25;88:24;96:18; 114:21;123:9</p> <p>underground (6) 51:19;102:15;123:9, 12,25;126:1</p> <p>underneath (2) 84:13;126:17</p> <p>unexpected (1) 88:7</p> <p>unfolds (1) 132:9</p> <p>UNIDENTIFIED (7) 44:15,21;58:6;69:7; 71:10;133:18;134:16</p> <p>UNIDENTIFIEDS (1) 103:19</p> <p>unique (4) 17:17;18:18;76:1; 110:2</p> <p>unit (1) 69:11</p> <p>universities (1) 71:9</p> <p>University (3) 15:7,9;48:19</p> <p>unknowns (1) 51:12</p> <p>unless (1) 88:24</p> <p>unused (1) 54:22</p> <p>unwilling (1) 91:15</p> <p>up (56) 4:13,14;6:23;7:21; 12:10;20:23;23:12; 25:11,24;26:21;27:20; 31:8,15,16;33:1;34:13; 35:17;39:23;40:18; 42:13;60:5;66:7,8; 68:8,24;76:1;84:10,14, 15,16;91:17;100:5; 104:11;106:20;111:5; 113:8,13,20,21;114:3;</p>
--	--	--	---	---	--

<p>118:22,25;120:23; 121:9,10;123:3,15; 125:1,15,25;126:5,23; 127:2;129:14;131:21; 135:7 updating (1) 70:22 upgrades (2) 22:19,21 upgrading (3) 22:11,12,14 upon (7) 4:5;5:8,12;75:20; 82:21;97:23;104:7 upper (1) 89:14 ups (1) 44:6 upwards (1) 70:17 urge (5) 118:22;124:2;125:5; 132:8,17 use (15) 5:15;28:13;35:23; 36:20;37:8;38:12;45:2; 52:5;78:20,22;82:25; 85:13,14;94:13;112:24 used (7) 16:20,23;37:11;62:3; 80:11;84:25;100:18 useful (1) 54:21 uses (1) 25:1 using (5) 4:13;40:24;63:13; 76:18;100:12 usual (1) 88:25 usually (9) 67:17,19;68:12; 88:23,25;110:1; 113:21;128:9,12 utilities (7) 6:11;19:8;46:12,16; 55:5;59:2,6 utility (7) 36:24;46:8,10,16; 55:2;121:23;122:6 utilization (1) 20:6 utilize (2) 53:1,3 utilized (1) 20:11 utilizing (1) 20:25</p>	<p>variant (1) 16:23 variations (2) 28:12;31:8 various (1) 37:2 vast (2) 18:18;19:23 verify (1) 72:9 versus (3) 26:18;56:17;130:1 vetting (1) 75:8 view (3) 129:11,12,12 views (1) 129:12 violating (1) 64:6 violation (1) 122:9 visibility (1) 70:24 visible (4) 53:19;70:8,12,12 visit (1) 63:16 visiting (1) 10:15 voiced (1) 134:5 voltage (1) 49:3 volunteer (2) 84:12,14</p>	<p>113:2,5;114:7,20; 115:19,22;116:12,16; 117:3,5,8,18,25;118:9, 13,16,18;119:3,13,18, 22,25;120:4,9,19; 121:2,7,24;122:2; 123:5,23;125:9,14,18, 21;130:7,12,15,24; 131:19;132:4,22; 133:24;134:18,23; 135:1 warning (1) 70:23 wastewater (1) 75:3 Water (9) 77:7;110:17,19; 123:9,18;126:1,15,20, 21 way (16) 7:21;10:5,16;23:13; 33:21;91:24;103:9; 111:18;112:2;122:7, 15;123:2,4;126:16,17; 130:6 ways (4) 50:14;59:21,22; 76:13 weary (1) 122:24 weather (4) 50:25;51:8,12;64:10 weeds (2) 127:17,22 weekend (1) 132:21 weighed (1) 9:22 welcome (4) 9:1;10:23;128:18; 131:18 welfare (2) 5:12;82:22 weren't (3) 61:5;64:12;95:14 West (11) 4:18;11:10;14:25; 48:15;74:14;110:3,6,7, 7;113:17,25 wet (2) 127:19,19 wetland (3) 75:2;76:7;105:22 wetlands (5) 54:5;76:12;105:16, 17,25 what's (7) 26:9;27:16,21,23; 28:21;37:10;101:15 wheat (1) 103:6 wherever (1) 37:8</p>	<p>whichever (1) 61:12 whole (5) 10:6;14:10;48:4; 74:2;120:16 wide (2) 54:12;102:25 wildlife (6) 55:24;77:13,22; 90:16;97:5,8 willing (3) 43:25;46:21;111:20 Williston (3) 8:4,20;11:2 Wind (137) 4:11,13;9:10;12:2,2; 15:14,23,25;16:10,11, 13;17:1,18,21;18:2,5, 11,14,17,18;19:11,18, 22,24;20:2,4,5,13,14; 21:1,3;23:14,21,22,25; 24:1,6,7,16;25:4,11,19, 23,23;26:16,19,21,21, 22,25,25;27:7,28:3,6, 12,14,16;29:24;30:2,3, 9,11,18,18;31:1,5,9,13, 19,25;32:2;33:2,7; 34:10,12;35:4,4,5,6,9; 36:23;38:16,16;40:19, 23;41:2;43:3;44:13,25; 45:8,16,18;49:8,22; 51:15;53:6,9,11,18,19, 24;54:16;60:4,24;61:2; 62:2,22;63:7;64:22; 75:9;77:16,19;78:18, 21;80:4;83:23;84:10; 88:21,22;89:5;90:7,10, 11;97:20;99:17; 101:11;105:6;106:19; 107:23;115:5;116:6; 118:2,3;120:2;125:23; 132:15;135:16 winds (1) 28:19 windy (1) 89:5 Wing (2) 15:18;26:14 Wisconsin (2) 42:25;45:11 Within (13) 19:25;30:22;32:12; 41:17;66:17;80:15,18; 81:24;82:5;85:5;90:20; 96:25;120:1 without (3) 41:25;116:21;135:11 witness (41) 13:19,21;14:12,16; 21:12,13;22:6;26:3; 38:2;39:21;40:14; 44:23;45:25;47:13,14, 19;48:6;55:16,16;</p>	<p>58:16,21;69:9;71:13, 15;73:12,13,17;74:4, 19;92:2,6,13;103:21; 107:5;108:18;111:3; 113:4,7;114:22; 116:13;117:6 witnesses (3) 6:2,19;114:13 wonder (1) 23:8 wondering (4) 58:3;86:10;92:10; 115:4 woods (1) 89:15 work (28) 12:4;23:16;35:7; 40:1;42:2;50:1;51:2,5, 6;52:21;61:21;64:22; 65:2;68:12;70:11,15; 71:24;78:15;86:8,12, 15,17;88:9;94:21; 121:12;126:22;129:19; 132:8 worked (5) 11:16;57:22;66:17; 75:3;97:17 workforce (2) 52:23;53:1 working (7) 12:19;31:22;61:5,8; 62:13;117:22;134:13 works (3) 10:16;33:24;79:3 worst-case (2) 90:3,4</p>	
	W		X		
	<p>walk (5) 13:3;66:25;109:9,10, 10 walks (1) 11:23 wants (6) 8:2;33:14;65:2;66:5; 108:9;128:23 WARD (111) 4:1,3;6:4,14,17;8:24; 10:20;12:21,24;13:5, 11,14,18,22;14:13,18; 21:6;22:7,24;29:2; 33:16,19;34:3,21; 39:23;40:3,10,13;42:6; 44:4,18;45:24;46:25; 47:10,16,21;48:7; 55:10;58:9,13,20; 59:10;62:13;66:21; 71:11,14,17;72:25; 73:3,5,11,15,18;74:5; 83:13;91:23;92:3,9,16; 93:13;99:8;101:22; 111:1;112:13,17;</p>	<p>welcomed (1) 9:22 welcome (4) 9:1;10:23;128:18; 131:18 welfare (2) 5:12;82:22 weren't (3) 61:5;64:12;95:14 West (11) 4:18;11:10;14:25; 48:15;74:14;110:3,6,7, 7;113:17,25 wet (2) 127:19,19 wetland (3) 75:2;76:7;105:22 wetlands (5) 54:5;76:12;105:16, 17,25 what's (7) 26:9;27:16,21,23; 28:21;37:10;101:15 wheat (1) 103:6 wherever (1) 37:8</p>	<p>walk (5) 13:3;66:25;109:9,10, 10 walks (1) 11:23 wants (6) 8:2;33:14;65:2;66:5; 108:9;128:23 WARD (111) 4:1,3;6:4,14,17;8:24; 10:20;12:21,24;13:5, 11,14,18,22;14:13,18; 21:6;22:7,24;29:2; 33:16,19;34:3,21; 39:23;40:3,10,13;42:6; 44:4,18;45:24;46:25; 47:10,16,21;48:7; 55:10;58:9,13,20; 59:10;62:13;66:21; 71:11,14,17;72:25; 73:3,5,11,15,18;74:5; 83:13;91:23;92:3,9,16; 93:13;99:8;101:22; 111:1;112:13,17;</p>	<p>welcomed (1) 9:22 welcome (4) 9:1;10:23;128:18; 131:18 welfare (2) 5:12;82:22 weren't (3) 61:5;64:12;95:14 West (11) 4:18;11:10;14:25; 48:15;74:14;110:3,6,7, 7;113:17,25 wet (2) 127:19,19 wetland (3) 75:2;76:7;105:22 wetlands (5) 54:5;76:12;105:16, 17,25 what's (7) 26:9;27:16,21,23; 28:21;37:10;101:15 wheat (1) 103:6 wherever (1) 37:8</p>	<p>walk (5) 13:3;66:25;109:9,10, 10 walks (1) 11:23 wants (6) 8:2;33:14;65:2;66:5; 108:9;128:23 WARD (111) 4:1,3;6:4,14,17;8:24; 10:20;12:21,24;13:5, 11,14,18,22;14:13,18; 21:6;22:7,24;29:2; 33:16,19;34:3,21; 39:23;40:3,10,13;42:6; 44:4,18;45:24;46:25; 47:10,16,21;48:7; 55:10;58:9,13,20; 59:10;62:13;66:21; 71:11,14,17;72:25; 73:3,5,11,15,18;74:5; 83:13;91:23;92:3,9,16; 93:13;99:8;101:22; 111:1;112:13,17;</p>
V			Y		
<p>variable (2) 23:21;31:6</p>			<p>year (26) 11:5;19:4;24:15; 28:8,18;29:23;32:19, 21,22;33:3;37:4;41:12, 14;62:10;64:25;67:10, 17;68:2;80:11;84:21; 87:21;100:2,9;115:12; 127:18,21 years (17) 9:6;10:1;11:15;14:4; 27:14,15;29:15;37:4, 15;43:1,8;48:1,25; 62:4;73:22;75:4; 120:12 yep (9) 69:20;88:12,14; 89:21;99:7;102:22; 103:14;106:12;129:23 Yesterday (2)</p>		

11:1;110:14 young (7) 11:20,23;20:12,19, 21;52:16;97:16	15:9 1-A (4) 21:19;57:24;58:11; 113:18	20:7,8 25th (2) 49:25;50:10 26th (1) 119:16 29 (3) 80:9;95:11;100:21 292 (2) 21:2;30:8 2nd (1) 41:11	370.7 (1) 16:17 4 4 (44) 4:11;15:23,24;16:11, 19;17:5,15;18:1,7,12, 25,25;19:10,15;21:3; 23:16;24:2;25:1;32:11, 17;34:7,11,17;36:3,4; 39:16;43:22;49:7; 52:10;53:8;54:1,20; 57:6;75:6;76:5,14; 77:18,23;80:4,19; 85:11;115:13;116:9; 135:17 40 (2) 27:4,19 40s (1) 27:19 42 (10) 51:20;52:4,4;56:7, 10,17;65:6,10;123:11, 16 42-inch (1) 65:1 455 (1) 20:11 46 (1) 79:22 48 (6) 51:23;56:10,13,16; 89:10;131:9 49-02-27 (1) 54:18 4th (2) 74:21,22 5 5 (3) 17:7;23:17;28:22 5,972 (1) 79:12 50 (4) 27:5;28:3;79:17,20 500 (3) 20:9;22:15;23:13 50-foot (1) 109:19 538 (1) 79:4 550 (3) 20:10;22:16;23:13 55802 (3) 15:1;48:16;74:15 58631 (1) 119:17 6 6 (1)	23:18 6:00 (1) 8:5 60 (4) 53:15;92:1;102:24, 25 6001 (1) 119:15 610 (2) 79:5;93:23 64 (3) 16:12;36:4,5 69-06-08 (1) 75:23 69-06-08-01 (1) 76:17 6th (1) 4:23 7 7 (3) 19:2;29:20;78:22 7:00 (1) 8:5 70 (4) 4:13;36:2,6;94:19 70s (1) 36:24 75 (1) 95:16 8 80 (1) 26:19 811 (2) 121:10,14 83 (1) 94:25 835,000 (1) 19:4 850 (1) 95:13 9 9:00 (1) 4:17 90s (1) 11:15 92.5 (2) 16:14;26:18 99 (2) 20:12;21:1	
Z	2	3			
zero (2) 84:2;124:18	2 (40) 13:7,16;16:21,24; 18:17;19:16;20:12,19, 21;21:3,16;26:10; 27:22;28:1,7,17;29:16; 30:6,14;32:16;33:8; 34:9;36:1,6;39:12,19; 51:25;57:25;58:7;85:2; 86:10;88:4;112:22; 113:10,11,19,19;114:2; 126:11;133:1 20 (10) 9:25;10:1;19:25; 28:21,24;30:13,23; 37:15;101:9;115:4 200 (5) 8:7;23:18;25:3;30:6; 33:2 2003 (1) 62:11 2010 (1) 52:12 2012 (2) 74:21,22 2013 (20) 4:17,22,23;13:7,7, 10;17:24;18:9;20:10; 49:25;50:23;51:2,5,7; 78:11,13,22,23;79:18; 80:7 2014 (12) 20:18;50:3,5,5,6,18, 25;51:1,9,10;52:24; 67:25 2015 (3) 19:1;50:7;68:19 2025 (3) 19:9,12;33:7 2026 (1) 20:20 204.8 (3) 16:18;36:3;39:3 20-foot (1) 54:12 20-year (1) 37:23 210 (2) 4:14;36:1 22,629 (2) 17:5;76:4 230 (4) 52:11,15,18;74:20 25 (6) 11:15;19:8,12;33:7; 37:15;61:6 250 (2)	3 (35) 13:9,16;16:21,24; 18:17;19:16;21:3; 27:22;28:1,7,17;29:16; 30:6,15;32:16;33:8; 34:9;36:1,6;39:13,20; 51:25;77:16,20;85:2; 86:10;88:4;112:22; 113:7,10,11,19;114:2; 126:11;133:1 3.0 (2) 26:6;36:3 3.0-101 (1) 16:23 3.2 (2) 16:17;26:4 3.2-113 (2) 16:13,22 30 (10) 14:25;48:15;74:14; 80:11;87:20;100:9,10, 14,18,21 300 (3) 30:7;52:24;95:15 303 (1) 16:15 30-foot (1) 109:18 30s (1) 89:14 30-year (1) 28:14 32 (1) 87:24 33 (1) 87:24 34.5 (2) 51:14;52:2 345 (2) 20:16;98:19 35 (2) 27:14;29:15 35-year (3) 36:7,21;37:25 36 (4) 52:1;54:22;56:20; 131:9 37 (3) 79:24;99:15,25	40 (2) 27:4,19 40s (1) 27:19 42 (10) 51:20;52:4,4;56:7, 10,17;65:6,10;123:11, 16 42-inch (1) 65:1 455 (1) 20:11 46 (1) 79:22 48 (6) 51:23;56:10,13,16; 89:10;131:9 49-02-27 (1) 54:18 4th (2) 74:21,22 5 5 (3) 17:7;23:17;28:22 5,972 (1) 79:12 50 (4) 27:5;28:3;79:17,20 500 (3) 20:9;22:15;23:13 50-foot (1) 109:19 538 (1) 79:4 550 (3) 20:10;22:16;23:13 55802 (3) 15:1;48:16;74:15 58631 (1) 119:17 6 6 (1)		
1 (27) 13:6,16;16:21,24; 18:17;19:16;21:2; 27:22;28:1;29:16;30:6, 14;32:16;33:8;34:9; 51:25;57:13;85:2; 86:10;88:4;112:22; 113:9,11,19;114:2; 126:11;133:1 1,400 (1) 79:9 1,402 (1) 79:10 1,770 (1) 82:6 1.1 (1) 79:2 1:00 (1) 135:18 10:30 (1) 73:8 10:40 (1) 73:9 100 (4) 23:17;25:1;30:9; 33:1 10th (1) 4:22 10-year (7) 32:14,16,19,23,24; 33:11;34:4 11 (6) 4:18;52:18;53:16; 69:24;91:25;103:17 113 (1) 16:16 12 (4) 17:3;75:4;126:7,9 13 (2) 34:6;81:20 133 (2) 17:6;76:1 13th (1) 4:17 18 (2) 9:6;123:15 19 (1) 54:10 1986 (1) 15:7 1999 (1)					