

**REVISED NEED TESTIMONY**

**DIRECT TESTIMONY**

**OF**

**GREG ROCKROHR**

**SAFETY AND RELIABILITY DIVISION  
ILLINOIS COMMERCE COMMISSION**

MidAmerican Energy Company  
d/b/a MidAmerican

DOCKET NO. 14-0494

Application of MidAmerican Energy Company for (i) a Certificate of Public Convenience and Necessity, pursuant to Section 8-406 of the Public Utilities Act, to construct, operate and maintain a 345,000 volt electric transmission line in Rock Island, Mercer, Henry and Knox Counties, Illinois; (ii) an order pursuant to Section 8-503 of the Public Utilities Act approving construction of the 345,000 volt electric transmission line; (iii) an order pursuant to Section 8-509 of the Public Utilities Act authorizing use of eminent domain; and (iv) such other relief as may be necessary.

May 7, 2015

## Table of Contents

Introduction .....	1
Criteria Used for Evaluating Need .....	3
MEC's Demonstration of Need .....	3
(1) Component of MISO's MVP-16 .....	5
(2) Cost Beneficial .....	9
(3) Offers Local Reliability Benefits .....	11
Conclusion .....	14
Attachments:	
A.    MEC's Response to Staff DR ENG 1.3.	
B.    MEC's Response to Staff DR ENG 3.1.	
C.    MEC's Responses to Staff DRs ENG 3.5 and 3.6.	

1 **Introduction**

2 Q. **What is your name and business address?**

3 A. My name is Greg Rockrohr. My business address is 527 East Capitol Avenue,  
4 Springfield, Illinois 62701.

5 Q. **By whom are you employed and in what capacity?**

6 A. I am employed by the Illinois Commerce Commission (“Commission”) as a Senior  
7 Electrical Engineer in the Safety and Reliability Division. I review various planning  
8 and operating practices of electric utilities that operate in Illinois and provide  
9 opinions or guidance to the Commission through staff reports and testimony.

10 Q. **What is your previous work experience?**

11 A. Prior to joining the Commission Staff (“Staff”) in 2001, I was an electrical engineer  
12 at Pacific Gas and Electric Company in California for approximately 18 years. Prior  
13 to that, I was an electrical engineer at Northern Indiana Public Service Company  
14 for approximately 3 years. I am a registered professional engineer in the state of  
15 California.

16 Q. **What is your educational background?**

17 A. I hold a Bachelor of Science degree in Electrical Engineering from Valparaiso  
18 University. While employed in the utility industry and at the Commission, I have  
19 attended numerous classes and conferences relevant to electric utility operations.

20 Q. **What is the purpose of your testimony?**

21 A. On August 4, 2014, MidAmerican Energy Company, d/b/a MidAmerican (“MEC”)  
22 filed a petition requesting that the Commission: (i) grant it a Certificate of Public  
23 Convenience and Necessity (“CPCN”) pursuant to Section 8-406 of the Illinois  
24 Public Utilities Act (“Act”) (220 ILCS 5/8-406) to construct, operate, and maintain a

25 new 345 kilo-volt (“kV”) electric transmission line in Rock Island, Mercer, Henry  
26 and Knox Counties, Illinois; (ii) issue an order pursuant to Section 8-503 of the Act  
27 (220 ILCS 5/8-503) approving construction of the transmission line; and (iii) issue  
28 an order pursuant to Section 8-509 of the Act (220 ILCS 5/8-509) authorizing its  
29 use of eminent domain. My testimony provides and explains my recommendations  
30 regarding MEC’s requests.

31 As the Second Revised Case Management Plan requires<sup>1</sup>, my direct testimony is  
32 segregated into two documents: the first, Staff Exhibit 1.0N, discusses the need  
33 for MEC’s proposed 345 kV transmission line, and the second, Staff Exhibit 1.0,  
34 discusses issues other than need.

35 Q. **Does a need exist for the new 345 kV transmission line that MEC proposes**  
36 **to construct?**

37 A. I do not yet know. The need for MEC’s proposed 345 kV transmission line depends  
38 upon completion of several other projects that are not the subject of MEC’s petition  
39 or this docket, including a proposed transmission project that the Commission  
40 recently approved in Docket No. 12-0560. I conclude that MEC provided adequate  
41 evidence to demonstrate that a larger project (identified as MVP-16), of which  
42 MEC’s proposed 345 kV transmission line is a part, would be needed without  
43 completion of the transmission project that Rock Island Clean Line LLC proposed  
44 in Docket No. 12-0560. However, since the Commission recently approved Rock  
45 Island Clean Line LLC’s project, it appears to me that MEC must also demonstrate  
46 that its project is needed even if Rock Island Clean Line LLC’s project is completed.

---

<sup>1</sup> *Second Revised Case Management Plan*, 3, Oct. 20, 2014.

47 **Criteria Used for Evaluating Need**

48 Q. **What criteria did you use when attempting to determine whether MEC's**  
49 **proposed 345 kV transmission line is needed and should be constructed?**

50 A. I used criteria in Section 8-406(b) of the Act, which states, in relevant part:

51 "The Commission shall determine that proposed construction will promote  
52 the public convenience and necessity only if the utility demonstrates: (1)  
53 that the proposed construction is necessary to provide adequate, reliable,  
54 and efficient service to its customers and is the least-cost means of  
55 satisfying the service needs of its customers or that the proposed  
56 construction will promote the development of an effectively competitive  
57 electricity market that operates efficiently, is equitable to all customers, and  
58 is the least cost means of satisfying those objectives..."

59 220 ILCS 5/8-406(b). Though I am not an attorney, I understand this section of  
60 the Act to require that the utility use the least cost means available to satisfy the  
61 service needs of its customers or to promote the development of an effectively  
62 competitive electricity market that operates efficiently and is equitable to all  
63 customers.

64 **MEC's Demonstration of Need**

65 Q. **How did MEC attempt to demonstrate that its proposed 345 kV transmission**  
66 **line is necessary to provide adequate, reliable, and efficient service to its**  
67 **customers or to promote the development of an effectively competitive**  
68 **electricity market?**

69 A. Three MEC witnesses filed "Need" testimony: Mr. Thomas Mielnik (MidAmerican  
70 Ex. 3.0 N); Mr. James Swanson (MidAmerican Ex. 4.0 N); and Dr. Todd Schatzki  
71 (MidAmerican Ex. 8.0 N). These witnesses reference results from various  
72 computer models developed to show the conditions on the transmission system  
73 that would exist in the future with and without the proposed project. Generally, the  
74 model results indicate that in order for Illinois (and other states) to comply with

75 legislated requirements for renewable power (“renewable power standards” or  
76 “RPS”), especially renewable power from wind, additional electric transmission  
77 facilities will be necessary to transport the electricity from source to load. MEC’s  
78 analyses results show that, if the project that MEC proposes is not constructed,  
79 either (a) using lowest cost generation will cause certain transmission system  
80 components to be overloaded under specific conditions, or (b) customers will pay  
81 higher energy procurement costs than if the 345 kV line were constructed due to  
82 transmission system constraints that bar access to lower-cost generation sources.

83 **Q. Why should the Commission be concerned about use of lowest-cost**  
84 **renewable power generation causing an overload on the transmission**  
85 **system?**

86 **A.** Generally, overloaded electrical equipment, including transmission facilities, will  
87 fail sooner and require replacement more quickly, sometimes immediately. An  
88 overload on a transmission line exists when it carries more electrical current than  
89 it is capable of carrying without sustaining damage. Overloading causes the  
90 conductor to get hot (“thermal overload”), and repetitive and excessive heating and  
91 cooling can affect the integrity of components used to splice and terminate the  
92 conductor. Extreme overloads can result in enough heating to permanently  
93 change the conductor’s physical characteristics, and can cause the conductor to  
94 grow weak, stretch, physically sag and even fail (break). Excessive sagging of  
95 transmission conductors due to overloading can cause National Electrical Safety  
96 Code violations and unsafe conditions beneath and near the transmission line. In  
97 addition to transmission conductors, other transmission equipment is also affected  
98 by overloading. Substation transformers used on the transmission system are

99 large (perhaps a big as a small residential garage) and are prone to failure/damage  
100 when excessive internal heating occurs due to overloading. These transformers  
101 are costly to replace, and their replacement can take a long time depending on the  
102 availability and storage location of a spare transformer. Generally, any  
103 transmission system component failures and/or damage due to overloading will  
104 result in additional costs due to premature failure/repair/replacement. A potentially  
105 lengthy service interruption to a large number of customers due to the  
106 failure/repair/replacement of overloaded transmission equipment is also a valid  
107 cause for concern for public safety.

108 Adequate maintenance and operation within its load capacity can allow a  
109 transmission system to serve customers with minimal interruption over very long  
110 periods. For that reason, utilities and transmission system operators plan carefully  
111 to keep transmission system loads within the limits of the equipment and to add  
112 new or higher-capacity equipment when future loads threaten to exceed capacity.

113 (1) Component of MISO's MVP-16

114 Q. **How would MEC's proposed 345 kV transmission line mitigate overloads and**  
115 **allow access to lower-cost generation?**

116 A. MEC explains that its proposed 345 kV transmission line is part of a larger project  
117 that will allow customers in Illinois access to lower-cost electricity from wind  
118 resources in states west of Illinois.<sup>2</sup> In MidAmerican Ex. 3.0 N, MEC witness Mr.  
119 Thomas Mielnik references studies that the regional transmission operator ("RTO")  
120 performed that take into account development of wind resources to the west of

---

<sup>2</sup> MidAmerican Ex. 3.0 N, 3-13.

121 Illinois, including Iowa. The RTO that operates MEC's and Ameren's<sup>3</sup> transmission  
122 facilities, Midcontinent Independent Transmission System Operator, Inc. ("MISO"),  
123 created computer models that simulate future generation, loads, and power flows  
124 on the transmission systems it operates. MISO's role is to dispatch the lowest-  
125 cost available generation to supply load in a manner that avoids overloads and/or  
126 unacceptable voltage levels. Put another way, if the lowest-cost generation would  
127 result in an overload of a transmission facility, MISO would instead dispatch an  
128 alternative generation source that would not result in an overload, even if the  
129 procurement cost associated with that alternative generation is higher. MISO's  
130 studies show that MEC's proposed 345 kV transmission line, as one component  
131 of a larger project, will provide MISO access to lower-cost generation to supply  
132 loads in Illinois and other jurisdictions in MISO's operating area.

133 **Q. If MEC constructs its proposed 345 kV transmission line, will that line by**  
134 **itself allow MISO to simultaneously utilize the lowest-cost generation and**  
135 **avoid overloads on the transmission system?**

136 **A.** No. MEC's proposed project is not a stand-alone project. Mr. Mielnik explains that  
137 MEC's proposed 345 kV transmission line is only one part of one project that is  
138 included in MISO's portfolio of 17 projects that, if constructed, will provide local  
139 and regional benefits in excess of cost.<sup>4</sup> Together these 17 projects are MISO's  
140 2011 Multi-Value Project (MVP) Portfolio. Six of MISO's 2011 MVPs are located  
141 in Illinois.<sup>5</sup> In other proceedings, the Commission previously issued orders

---

<sup>3</sup> Ameren's transmission system includes transmission lines owned by Ameren Illinois Company (AIC) and Ameren Transmission Company of Illinois (ATXI).

<sup>4</sup> MidAmerican Ex. 3.0 N, 7-8.

<sup>5</sup> MidAmerican Ex. 3.0 N, 18-19.

142 granting CPCNs related to MISO's five other MVP projects in Illinois.<sup>6</sup> MEC's  
143 project in this docket includes only a part of the sixteenth MVP that MISO identified  
144 ("MVP-16"). MVP-16 is the only remaining 2011 MVP located in Illinois that the  
145 Commission has not yet certified. MEC's petition in this docket includes only part  
146 of its responsibilities associated with MISO MVP-16. In addition to its construction  
147 of a new 345 kV transmission line, MEC's responsibilities with regard to MVP-16  
148 include (1) expansion of its Oak Grove Substation; (2) upgrade of its existing 161  
149 kV line in Illinois between Oak Grove and the Galesburg area; and (3) upgrade of  
150 its existing 161 kV line in Iowa between its Substation 56 and Substation 85.<sup>7</sup> MEC  
151 does not seek approval from the Commission to complete its other MVP-16  
152 responsibilities. Ameren Transmission Company of Illinois also has responsibility  
153 to construct several additional components of MVP-16, including a 345 kV  
154 transmission line from the Galesburg area to the Peoria area, which is the primary  
155 subject of ATXI's petition in Docket No. 14-0514.

156 **Q. With the understanding that MEC's proposed 345 kV transmission line is not**  
157 **a stand-alone project, but instead part of the larger MISO project identified**  
158 **as MVP-16, how did MEC attempt to demonstrate that MVP-16 is necessary**  
159 **to provide adequate, reliable, and efficient service to its customers or**  
160 **promotes the development of an effectively competitive electricity market?**

161 **A.** Mr. Mielnik explains that, when completed, MVP-16 will relieve congestion to allow  
162 more wind resources access to Illinois from the areas west of Illinois, and increase

---

<sup>6</sup> In Docket No. 12-0598, the Commission granted ATXI a CPCN for transmission lines comprising four MVPs: MVP-9, MVP-10, MVP-11, and MVP-17. In Docket No. 11-0661, the Commission granted American Transmission Company ("ATC") a CPCN for the Illinois portion of MVP-15.

<sup>7</sup> MidAmerican Ex. 3.0 N, 6.

163 transfer capability from western Illinois to central and eastern Illinois.<sup>8</sup> Mr. Mielnik  
164 describes and references MISO's studies from 2011 that demonstrate MVP-16,  
165 together with the other MVPs, will eliminate transmission constraints, which, in  
166 turn, will allow MISO to utilize lower-cost generation. The results from the MISO  
167 studies include consideration of several possible future policy/economic outcomes  
168 (futures) and show cost benefits for customers regardless of the future.<sup>9</sup> Actual  
169 conditions ten years in the future remain unknown, and while it is likely that actual  
170 future conditions will not exactly match the future conditions that MISO modeled in  
171 its studies, MISO's studies included several different futures as possibilities. Since  
172 MISO considered several different economic and policy futures when analyzing  
173 the transmission system with and without MVP-16 in-service, and MVP-16 was  
174 consistently beneficial, MEC concludes it to be probable that completion of MVP-  
175 16 would provide cost benefits for customers and promote the development of an  
176 effectively competitive electricity market regardless of the economic and policy  
177 future that actually unfolds. Furthermore, Mr. Mielnik testifies that MVP-16 is the  
178 lowest cost alternative identified that will eliminate specifically identified  
179 transmission system constraints. Since MISO found that MVP-16 benefits  
180 customers in its entire footprint, if constructed, MVP-16 costs, including MEC's cost  
181 for its proposed 345 kV transmission line, will be allocated to loads across the  
182 entire MISO footprint so that the project is equitable to MEC's customers.<sup>10</sup>

183 **Q. Referencing Section 8-406(b) of the Act, did MEC adequately demonstrate**  
184 **that completion of MISO's MVP-16 is necessary to "promote the**

---

<sup>8</sup> MidAmerican Ex. 3.0 N, 7-13.

<sup>9</sup> MidAmerican Ex. 3.0 N, 21-22.

<sup>10</sup> MidAmerican Ex. 3.0 N, 15-27.

185           **development of an effectively competitive electricity market that operates**  
186           **efficiently, is equitable to all customers, and is the least cost means of**  
187           **satisfying those objectives”?**

188    A.    A recent Commission decision causes me to say “no”. On November 25, 2014,  
189           the Commission certified another proposed transmission line in Illinois, identified  
190           as the Rock Island Clean Line Project. The petitioner in that docket, Rock Island  
191           Clean Line LLC, asserts that its project will provide 3,500 MW of transmission  
192           capacity and is projected to deliver over 15 million MWh of electricity annually from  
193           wind resources located west of Illinois to northeast Illinois and the PJM grid.<sup>11</sup> It is  
194           my understanding that MISO’s and MEC’s computer models and studies do not  
195           take into account this new high voltage direct current transmission line that Rock  
196           Island Clean Line LLC plans to construct and that the Commission has already  
197           approved. Specifically, I found that MEC adequately demonstrated MVP-16  
198           promotes the development of an effectively competitive electricity market without  
199           the Rock Island Clean Line project, but MEC did not demonstrate that its proposed  
200           345 kV line, as part of MVP-16, promotes the development of an effectively  
201           competitive electricity market with the addition of the Rock Island Clean Line  
202           project. Therefore, MEC should, in rebuttal testimony, provide and explain the  
203           results of power flow studies that reflect the existence of the Rock Island Clean  
204           Line project.

205           (2) Cost Beneficial

206    Q.    **Did MEC attempt to quantify the cost benefit MVP-16 would provide for**  
207           **Illinois customers?**

---

<sup>11</sup> Rock Island Clean Line LLC, ICC Order Docket No. 12-0560, 11 (November 25, 2014).

208 A. Yes. In MidAmerican Ex. 8.0 N, MEC witness Dr. Schatzki's testimony describes  
209 and provides the results of his analysis, which concludes that MVP-16, if  
210 completed, would (a) lower locational marginal prices in Illinois, and (b) allow  
211 additional supply to enter Illinois.<sup>12</sup> Similar to the results from MISO's analyses  
212 that Mr. Mielnik presents, results from Dr. Schatzki's analysis illustrate several  
213 possible policy/economic outcomes (futures) and show cost benefits for customers  
214 for each.<sup>13</sup> The cost benefits alleged by Dr. Schatzki rely upon MISO's planned  
215 allocation of project costs across its entire footprint. If constructed, MEC's MVP-  
216 16 costs, including the approximate \$69 million cost for MEC's Oak Grove to  
217 Galesburg 345 kV line that is the subject of this docket, would be allocated across  
218 the MISO footprint.<sup>14</sup> MEC estimates that the allocation to customers in Illinois will  
219 be about 9%.<sup>15</sup>

220 Q. **Do you have any additional comments regarding MEC's cost/benefit**  
221 **analysis?**

222 A. Yes. I wish to emphasize to the Commission that the models that Dr. Schatzki  
223 used when determining that MVP-16 is cost beneficial are simply that: models.  
224 The results from these models are possible outcomes and based upon specific  
225 inputs (assumptions) that Dr. Schatzki used. Dr. Schatzki explains that MISO's  
226 analysis upon which he relies assumes 8,765 MW of new wind resources will be  
227 added by 2021, and an additional 2,272 MW of new wind resources by 2026.<sup>16</sup>  
228 There is no guarantee that the wind resources that MISO assumed in its analysis

---

<sup>12</sup> MidAmerican Ex. 8.0 N, 8-16; MidAmerican 8.2 N.

<sup>13</sup> MidAmerican Ex. 8.3 N; MidAmerican Ex. 8.4 N; and MidAmerican Ex. 8.5 N

<sup>14</sup> MidAmerican Ex. 8.0 N, 6-8.

<sup>15</sup> MEC's response to Staff DR ENG 1.3, included as Attachment A.

<sup>16</sup> MidAmerican Ex. 8.2 N, 3.

229 will actually be developed. However, based upon wind resource development  
230 since MISO's 2011 analysis<sup>17</sup>, the assumptions regarding wind resources that Dr.  
231 Schatzki used in his models appear to me to be reasonable.

232 Q. **Did MEC's cost benefit analyses of its proposed 345 kV project consider**  
233 **effects from the construction of the Rock Island Clean Line project that the**  
234 **Commission certified in Docket No. 12-0560?**

235 A. No. The Commission issued its order in Docket No. 12-0560 after Dr. Schatzki  
236 filed his direct testimony, so it is perhaps understandable that no mention of the  
237 Rock Island Clean Line project appears in Dr. Schatzki's testimony. Nonetheless,  
238 MEC should, in rebuttal testimony, provide results from a cost/benefit analysis that  
239 includes this consideration.

240 (3) Offers Local Reliability Benefits

241 Q. **Does MEC present any other reasons that construction of MEC's portion of**  
242 **MVP-16 is necessary?**

243 A. Yes. In MidAmerican Ex. 4.0 N, MEC witness Mr. James Swanson explains that,  
244 based upon MEC's own load flow analyses, MVP-16, or an alternative thereto, is  
245 needed to relieve overloads on the Oak Grove to Galesburg 161 kV line during  
246 certain contingencies.<sup>18</sup> The term "contingencies" refers to scenarios where  
247 specific elements of the transmission system (for example, conductors or  
248 transformers) are temporarily removed from service or experience an unplanned  
249 outage. Typically, but not always, contingency studies are performed assuming  
250 summer peak loading because that is when loads tend to be highest and

---

<sup>17</sup> MEC's response to Staff DR ENG 3.1, included as Attachment B.

<sup>18</sup> MidAmerican Ex. 4.0 N, 4-8, MidAmerican Ex. 4.1 N.

251 equipment capacity ratings are lowest. Mr. Swanson explains that the double-  
252 outage contingency conditions that MEC simulated included all combinations of  
253 100 kV and higher branches located in the Ameren Illinois, Commonwealth Edison,  
254 Springfield Illinois, Ameren Missouri, MidAmerican and Columbia, Missouri  
255 areas.<sup>19</sup> The study results that Mr. Swanson presents indicate that overloads  
256 would occur during several contingencies unless MEC upgrades its existing 161  
257 kV line between Oak Grove and the Galesburg area.<sup>20</sup> These overloads under  
258 contingency conditions would be in violation of North American Electric Reliability  
259 Corporation (“NERC”) Transmission Planning Standards, so MEC would need to  
260 take steps to eliminate their potential occurrence even if MVP-16 were not  
261 constructed.

262 **Q. Is the upgrade of MEC’s existing 161 kV line between Oak Grove and the**  
263 **Galesburg area included as part of MEC’s request for a CPCN in this docket?**

264 **A.** No. MEC’s planned upgrade of its existing 161 kV line is included as part of MVP-  
265 16, but is not included as part of MEC’s request for a CPCN or orders pursuant to  
266 Sections 8-503 and 8-509 of the Act in this docket. I understand MEC’s request in  
267 its petition to include only the proposed 345 kV line between Oak Grove and the  
268 Galesburg area. Though I am not an attorney, it is my understanding that MEC  
269 did not request a CPCN for its planned replacement of the existing 161 kV line,  
270 which is to be placed on the same poles as its proposed 345 kV line, because it  
271 already possesses a CPCN for the existing 161 kV line between Oak Grove and  
272 the Galesburg area.

---

<sup>19</sup> MidAmerican Ex. 4.0 N, 4-6.

<sup>20</sup> MidAmerican Ex. 4.0 N, 6-9; MidAmerican Ex. 4.1 N.

273 Q. **Are MEC's proposed 345 kV line and the upgrades to MEC's existing 161 kV**  
274 **line both necessary to eliminate the overloads that Mr. Swanson discusses?**

275 A. No. MEC's studies discussed by Mr. Swanson appear to me to indicate that MEC  
276 could eliminate the identified contingency overloads on its 161 kV Oak Grove to  
277 Galesburg transmission line by only upgrading the existing 161 kV line without also  
278 constructing its proposed 345 kV line. MEC's existing 161 kV transmission line  
279 between Oak Grove and Galesburg has been loaded to near 100% of capacity  
280 during each of the past three years<sup>21</sup>, and Mr. Swanson points out that if the 345  
281 kV line were not also constructed, the upgraded 161 kV line would have less than  
282 3% unused capacity under specific contingency conditions.<sup>22</sup> Since 3% capacity  
283 would remain, I cannot conclude that, for reliability reasons alone, MEC's 345 kV  
284 transmission line is necessary. Though I do not conclude that both MEC's  
285 proposed 345 kV line and MEC's proposed 161 kV line are needed to eliminate  
286 the overloads that Mr. Swanson identifies, both transmission lines are components  
287 of MISO's MVP-16, and though not required to provide reliable service to MEC's  
288 customers, the 345 kV line may "promote the development of an effectively  
289 competitive electricity market that operates efficiently, is equitable to all customers,  
290 and is the least cost means of satisfying those objectives." I note that in this  
291 docket, MEC seeks a CPCN for only its proposed 345 kV line, not the upgraded  
292 161 kV line that MEC plans to simultaneously construct. If the Commission grants  
293 MEC's request regarding the 345 kV line, it would be illogical and imprudent for

---

<sup>21</sup> MEC's responses to Staff DR ENG 3.5 and 3.6, included as Attachment C. Note that the peak load of 205 MW shown in MEC's response to Staff DR ENG 3.6 equates to a minimum of 735 amps at 161 kV.

<sup>22</sup> MidAmerican Ex. 4.0 N, 8.

294 the new 345 kV line and the upgraded 161 kV line to occupy separate route  
295 corridors.

296 Q. **Did MEC's load flow analyses that Mr. Swanson discussed include**  
297 **consideration of any effects from the construction of the Rock Island Clean**  
298 **Line project that the Commission certified in Docket No. 12-0560?**

299 A. No. Again, this is not surprising, since the Commission's certification of the Rock  
300 Island Clean Line project occurred after MEC filed its direct testimony in this  
301 docket.

302 Q. **In your opinion, is it likely that the Rock Island Clean Line project would**  
303 **affect the need for MEC's planned 161 kV upgrades?**

304 A. I do not think it likely. Though I have not conducted any independent studies in  
305 this regard, it is my understanding that MEC's proposed upgrade to its 161 kV  
306 transmission line between Oak Grove and the Galesburg area is needed to  
307 eliminate contingency overloads on its 161 kV transmission facilities in western  
308 Illinois. I do not believe it likely that the Rock Island Clean Line project, which  
309 terminates in PJM's service area in northeast Illinois, will have much effect on  
310 these projected contingency overloads. However, I recommend that MEC, in  
311 rebuttal testimony, provide the results of its own power flow analysis, similar to  
312 MidAmerican Ex. 4.1 N-4.4 N, only with the Rock Island Clean Line project also in-  
313 service.

314 **Conclusion**

315 Q. **Does the new 345 kV line that MEC proposes promote the development of an**  
316 **effectively competitive electricity market?**

317 A. I am not yet sure. As I previously indicated, Section 8-406 of the Act provides,  
318 generally, two criteria paths for the Commission to determine that a transmission  
319 line such as MEC proposes should be constructed: (1) it is necessary to provide  
320 reliable, and efficient service to its customers and is the least-cost means of doing  
321 so, or (2) it is the least-cost method to promote the development of an effectively  
322 competitive electricity market that operates efficiently and is equitable to all  
323 customers. While MVP-16 may provide some reliability/service benefits, I  
324 conclude that MEC's proposed 345 kV line, which is a component of MVP-16, does  
325 not satisfy the reliability/service criteria of the statute. MEC seeks to demonstrate  
326 that its proposed project satisfies the second criteria (promote development of an  
327 effectively competitive market) by providing access to lower cost generation to  
328 satisfy RPS requirements. If not for the undemonstrated effects of the Rock Island  
329 Clean Line project on future transmission power flows, MISO's MVP-16 would,  
330 including MEC's proposed 345 kV transmission line, satisfy this second criteria by  
331 allowing wind power to flow across Illinois from west to east more efficiently. When  
332 combined with all the other elements included in MISO's MVP-16, and without  
333 consideration of the Rock Island Clean Line project, the 345 kV transmission line  
334 that MEC proposes would promote the development of an effectively competitive  
335 electricity market that operates efficiently, is equitable to all customers, and is the  
336 least cost means of satisfying those objectives. MEC adequately demonstrates  
337 that MISO's MVP-16 would enable bulk power movement from new wind  
338 generation sources located west of Illinois to loads throughout MISO without  
339 overloads or low voltage on transmission system components. This enablement  
340 may still exist even with the Rock Island Clean Line project in service, but MEC

341 has not demonstrated that to be the case. It is possible that the Rock Island Clean  
342 Line project provides the market efficiency that MISO intended some or all  
343 components of MVP-16 to provide. I simply do not know what effects the Rock  
344 Island Clean Line project, which is the subject of Docket No. 12-0560, will have on  
345 power flows outside and within MISO. MEC should provide this important  
346 information in its rebuttal testimony so that the Commission can make an informed  
347 decision about project need.

348 Q. **Does this conclude your prepared direct testimony regarding project need?**

349 A. Yes.

ENG 1.3

ILLINOIS COMMERCE COMMISSION

Utility Company: MidAmerican Energy Company

Regarding: **Docket No. 14-0494 – Application of MidAmerican Energy Company for (i) a Certificate of Public Convenience and Necessity, pursuant to Section 8-406 of the Public Utilities Act, to construct, operate and maintain a 345,000 volt electric transmission line in Rock Island, Mercer, Henry and Knox Counties, Illinois; (ii) an order pursuant to Section 8-503 of the Public Utilities Act approving construction of the 345,000 volt electric transmission line; (iii) an order pursuant to Section 8-509 of the Public Utilities Act authorizing use of eminent domain; and (iv) such other relief as may be necessary (filed August 4, 2014).**

Date Submitted:

STAFF DATA REQUEST ENG 1.3

Responder Name: Thomas C. Mielnik  
Job Title: Manager Electric System Planning  
Address: 106 East Second Street, Davenport, IA 52808  
Phone: 563-333-8129

ENG 1.3 At lines 249-254 of MidAmerican Ex. 3.0, Mr. Mielnik explains that, through the MISO Tariff, MVP-16 costs are allocated across the full (MISO) footprint. What percentage of the project cost of MVP-16 does MEC believe Illinois ratepayers will bear?

Response: The MISO Local Balancing Authorities (LBAs) in Illinois subject to MVP costs are MidAmerican, Ameren Illinois (AMIL), and the City of Springfield (CWLP). The energy of the MISO LBAs in Illinois as a percentage of the energy in the MISO footprint can be used to estimate the percentage of the project cost of MVP-16 borne by Illinois ratepayers. For 2019, when MVP-16 will be in-service, the energy subject to MVP-16 costs is estimated to be approximately as follows:

- MidAmerican's energy in Illinois is estimated at approximately 2.6 Million MWh (out of MidAmerican's total energy of approximately 26 Million MWh).
- AMIL's energy is estimated at approximately 50.5 Million MWh.
- CWLP's energy is estimated at approximately 2 Million MWh.
- Therefore, the total energy of the LBAs in MISO is estimated at approximately 55 Million MWh.
- MISO footprint total energy (including indicative energy for Duke Energy Ohio, Duke Energy Kentucky, and FirstEnergy) is estimated at approximately 632 Million MWh.

The ratio in percent based upon 55 Million MWh for Illinois and 632 Million MWh for the MISO footprint is estimated at approximately 8.7%. Thus, Illinois ratepayers are estimated to bear approximately 9% of the project cost for MVP-16.

**ILLINOIS COMMERCE COMMISSION**

Utility Company: **MidAmerican Energy Company**

Regarding: **Docket No. 14-0494 – Application of MidAmerican Energy Company for (i) a Certificate of Public Convenience and Necessity, pursuant to Section 8-406 of the Public Utilities Act, to construct, operate and maintain a 345,000 volt electric transmission line in Rock Island, Mercer, Henry and Knox Counties, Illinois; (ii) an order pursuant to Section 8-503 of the Public Utilities Act approving construction of the 345,000 volt electric transmission line; (iii) an order pursuant to Section 8-509 of the Public Utilities Act authorizing use of eminent domain; and (iv) such other relief as may be necessary (filed August 4, 2014).**

Date Submitted: **October 31, 2014**

**STAFF DATA REQUEST ENG 3.1**

Responder Name: Thomas C. Mielnik  
Job Title: Manager Electric System Planning  
Address: 106 East 2<sup>nd</sup> Street, Davenport, IA 52801  
Phone: 563-333-8129

ENG 3.1 Referring to the MISO MVP analysis referenced on page 3 of MidAmerican Ex. 8.2:

- a. Are the additional 8,765 MW of new wind resources that are discussed assumed to be located within (i) the MISO footprint, (ii) the entire Eastern Interconnection, or (iii) a different geographic area? If a different geographic area, please identify the geographic area where this additional wind capacity is anticipated to be located.
- b. Since the time of MISO's report, which Staff understands is dated January of 2012, roughly how many MW of the assumed 8765 MW of new wind resources were added?
- c. Does MidAmerican expect the pace of wind capacity additions will increase, decrease, or remain constant between now and 2021? Within the response, please include MidAmerican's rationale for its stated expectation.

Response:

- a. As analyzed in the MVP Report, the additional 8,765 MW of new wind resources that are discussed are assumed to be located within the MISO footprint with one

exception. There is 120 MW of new wind resources in portions of Ohio outside the MISO footprint

- b. According to the current draft MISO MTEP14 report as of October 23, 2014, MISO had 10,369 MW of registered wind capacity on December 1, 2011 and 13,404 MW of registered wind capacity on June 1, 2014, an increase of 3,035 MW in two years and 6 months.
- c. MidAmerican has not undertaken a formal forecast of future growth in MISO wind generation capacity, but MidAmerican does expect the pace of wind capacity additions to remain roughly constant between now and 2021. The historic growth trend of MISO wind capacity will likely continue for the next several years due to the abundant wind resources in the western areas of MISO, the existence of several state renewable portfolio mandates and various economic subsidies and tax incentives.

As of October 23, 2014, a total of 10,516 MW of wind generator interconnection projects were active in the MISO large generator interconnection queue. This includes 5,285 MW of projects currently either currently being studied or which have a draft or complete generator interconnection agreement and 5,231 MW of projects currently "parked" in the system impact study process, but which may re-enter the system impact study process in the future. This indicates continuing wind generation development interest and activity. MidAmerican recognizes that the existence of wind generation projects in an interconnection queue does not guarantee that the wind generation will be developed, but notes that there is continued interest and activity in the area of MISO wind generation development.

The historical increase in MISO wind generating capacity from December, 2011 to June, 2014 reflects an average of 101 MW of new capacity per month, or 1,214 MW per year. If additions of MISO wind capacity continue at this same pace, the 8,765 MW of new MISO wind that was assumed by year 2021 in MidAmerican's analysis will be developed by March 2019, 7 years and 3 months after December 2011. MidAmerican believes the 8,765 MW of new MISO wind by 2021 assumed in its analysis is a realistic and relatively conservative assumption.

**ILLINOIS COMMERCE COMMISSION**

Utility Company: **MidAmerican Energy Company**

Regarding: **Docket No. 14-0494 – Application of MidAmerican Energy Company for (i) a Certificate of Public Convenience and Necessity, pursuant to Section 8-406 of the Public Utilities Act, to construct, operate and maintain a 345,000 volt electric transmission line in Rock Island, Mercer, Henry and Knox Counties, Illinois; (ii) an order pursuant to Section 8-503 of the Public Utilities Act approving construction of the 345,000 volt electric transmission line; (iii) an order pursuant to Section 8-509 of the Public Utilities Act authorizing use of eminent domain; and (iv) such other relief as may be necessary (filed August 4, 2014).**

Date Submitted: **October 31, 2014**

**STAFF DATA REQUEST ENG 3.5**

Responder Name: **James P. Swanson**  
Job Title: **Principal Engineer**  
Address: **106 East 2<sup>nd</sup> Street, Davenport, Iowa 52801**  
Phone: **563-333-8130**

- ENG 3.5 Please identify the conductor type and rated summer normal capacity (amps) of:
- a. The existing 161 kV line from Oak Grove to Galesburg?
  - b. The proposed 161 kV line from Oak Grove to Galesburg?
  - c. The proposed 345 kV line from Oak Grove to Galesburg?
- a. Response: The existing 161 kV line from Oak Grove to Galesburg has 477 MCM ACSR 26/7 stranded conductor with a summer normal capacity of 747 Amps.
- b. Response: The proposed 161 kV line from Oak Grove to Galesburg will have T-2 (twisted pair) 556.5 MCM ACSR 26/7 stranded conductor with a summer normal capacity of 1,471 Amps.
- c. Response: The proposed 345 kV line from Oak Grove to Galesburg will have bundled T-2 556.5 MCM ACSR 26/7 stranded conductor with a summer normal capacity of 2,912 Amps.

**ILLINOIS COMMERCE COMMISSION**

Utility Company: **MidAmerican Energy Company**

Regarding: **Docket No. 14-0494 – Application of MidAmerican Energy Company for (i) a Certificate of Public Convenience and Necessity, pursuant to Section 8-406 of the Public Utilities Act, to construct, operate and maintain a 345,000 volt electric transmission line in Rock Island, Mercer, Henry and Knox Counties, Illinois; (ii) an order pursuant to Section 8-503 of the Public Utilities Act approving construction of the 345,000 volt electric transmission line; (iii) an order pursuant to Section 8-509 of the Public Utilities Act authorizing use of eminent domain; and (iv) such other relief as may be necessary (filed August 4, 2014).**

Date Submitted: **October 31, 2014**

**STAFF DATA REQUEST ENG 3.6**

Responder Name: **James P. Swanson**  
Job Title: **Principal Engineer**  
Address: **106 East 2<sup>nd</sup> Street, Davenport, IA 52801**  
Phone: **563-333-8130**

ENG 3.6 Please provide a table showing the monthly peak load (in amps or MW) on the existing 161 kV Oak Grove to E. Galesburg line during each of the calendar years 2012-2014(YTD). Please also include the date that the peak load on this line occurred during each of these 3 years.

Response: Table 1 contains the peak MW flow recorded each month on the Oak Grove – E. Galesburg 161 kV beginning January 1, 2012 and ending October 20, 2014. Annual peaks on the Oak Grove – E. Galesburg 161 kV line occurred as follows:

- 2012 annual peak: 193 MW on October 10, 2012
- 2013 annual peak: 205 MW on July 7, 2012 and October 12, 2012
- 2014 YTD peak: 205 MW on July 18, 2014

Table 1: Monthly Peak MW flow on Oak Grove – E. Galesburg 161 kV  
line from 2012-2014 YTD

	2012	2013	2014
January	177	184	204
February	178	183	202
March	180	187	203
April	173	198	183
May	173	197	202
June	188	195	202
July	182	205	205
August	180	198	128
September	184	186	204
October	193	205	181
November	174	196	X
December	175	200	X