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# Exhibit No. 702

MEC – Exhibit 702  
John Grotzinger  
Rebuttal Testimony  
File No. EA-2023-0017

Exhibit No.: \_\_\_\_\_  
Issues: The Need for the Amended Grain Belt Express Project  
which further Promotes the Public Interest  
Witness: John Grotzinger  
Type of Exhibit: Rebuttal Testimony  
Sponsoring Party: MEC  
File No.: EA-2023-0017

**BEFORE THE PUBLIC SERVICE COMMISSION**

**OF THE STATE OF MISSOURI**

**FILE NO. EA-2023-0017**

**REBUTTAL TESTIMONY**

**OF**

**JOHN GROTZINGER**

**ON BEHALF OF**

**THE MISSOURI JOINT MUNICIPAL ELECTRIC  
UTILITY COMMISSION d/b/a  
MISSOURI ELECTRIC COMMISSION**

**APRIL 19, 2023**

**NP**

1                   **I.       INTRODUCTION OF WITNESS AND TESTIMONY**

2   **Q.     Please state your name, title, and business address.**

3   A.     My name is John Grotzinger. I am the Chief Electric Operations Officer of the Missouri  
4           Public Utility Alliance (“MPUA”), which includes the Missouri Joint Municipal Electric  
5           Utility Commission d/b/a Missouri Electric Commission (“MEC”). MEC’s business address  
6           is 2200 Maguire Boulevard, Columbia, MO 652031

7   **Q.     Please describe your professional background.**

8   A.     I joined MEC in 1994 as the Planning Engineer. I served in increasingly responsible roles as  
9           the Director of Engineering for Engineering and Operations, and Chief Operating Officer-  
10          MJMEUC, before being named to my current position as Chief Electric Operations  
11          Officer. Prior to MEC, I worked over 14 years at City Utilities in Springfield, Missouri,  
12          with my last position being a System Planning Engineer. Prior to working at City  
13          Utilities, I was a planning engineer at Kansas City Power & Light from 1979-1980. I hold  
14          a Bachelor of Science in Electrical Engineering from the University of Missouri-  
15          Columbia and am a licensed electrical engineer in the state of Missouri. I have nearly 45  
16          years of utility experience in planning electrical distribution and transmission systems and  
17          in planning for and meeting the generation needs of customers. My curriculum vitae is  
18          attached as Schedule JG-1.

19 **Q.     Do you have any experience in developing power supplies for wholesale customers?**

20 A.     Yes. I have developed a number of resources to meet the needs of MEC’s members,  
21          whether as full requirements needs or for unit power purchase agreements (“PPAs”).  
22          Those resources have included coal, diesel, landfill gas, natural gas, solar and wind. I

1 have extensive experience in resource planning and developing requests for proposals, as  
2 well as engaging in project development.

3 **Q. On whose behalf are you testifying?**

4 A. I am testifying on behalf of MEC, an intervenor in this proceeding.

5 **Q. Have you previously testified before the Missouri Public Service Commission?**

6 A. Yes. Most recently, I provided surrebuttal testimony in EA-2022-0099. But, perhaps most  
7 relevant to this case, I provided rebuttal, surrebuttal and hearing testimony in the related  
8 case in which Grain Belt Express, LLC (“Grain Belt”) received its Certificate of  
9 Convenience and Necessity (“CCN”), EA-2016-0358.

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

11 A. My testimony provides further explanation and information additional to the testimony of  
12 Grain Belt witness Shashank Sane regarding the transmission services agreement  
13 (“TSA”) that MEC has with Grain Belt, the corresponding PPA that MEC has with Santa  
14 Fe Wind Project, LLC (“Santa Fe,” the assignee of the Iron Star Wind Project, LLC “Iron  
15 Star”), and the corresponding PPAs executed by MEC for the benefit of the Missouri  
16 Public Energy Pool (“MoPEP”), Centralia, Columbia, Hannibal and Kirkwood. This  
17 Amended Project will allow more low-cost renewable energy to flow sooner across Grain  
18 Belt and into the Midcontinent Independent System Operator (“MISO”) and the  
19 Associated Electric Cooperative Incorporated (“AECI”), where it will be delivered to the  
20 MEC members who have already executed contracts, and other members I expect will yet  
21 choose to participate in this opportunity to buy renewable energy for their customers at a  
22 competitive price delivered to Missouri.

1 **Q. Please summarize your testimony.**

2 A. Grain Belt’s Amended Project will provide MEC’s members with needed affordable  
3 renewable energy. Although the amendments Grain Belt seeks to its CCN may have  
4 changed MEC’s analysis and some of the earlier numbers, Grain Belt remains the best option  
5 for low cost renewable energy delivered into MISO. Across the MISO footprint, in the year  
6 2028, Grain Belt is projected to reduce the marginal energy component of the locational  
7 marginal price (“LMP”) on average by \$1.77/MWh, which savings applied to the MISO  
8 load will amount to over \$1.1 billion. The LMPs at the nodes of particular interest to  
9 MEC had an annual average drop ranging from \$1.10/MWh to \$37.56/MWh after the  
10 injection of Grain Belt renewable energy into AECI and MISO. MEC and I expect the  
11 benefits of Grain Belt to continue throughout the life of our twenty-plus year contract.

12 **II. BACKGROUND ON MEC’S RESOURCE PLANNING**

13 **RELEVANT TO GRAIN BELT**

14 **Q. Please describe MEC’s current view of the June 2, 2016 Long Term TSA between**  
15 **Grain Belt and MEC?**

16 A. MEC believed that TSA was competitive when MEC signed it in 2016, and it remains  
17 active and attractive to MEC, as shown by the fact that Grain Belt and MEC have between  
18 2018 and 2020 executed four subsequent documents to update the parties’ agreement for  
19 this transmission service, and all five of those documents are attached as Schedules JG-2,  
20 JG-3, JG-4, JG-5 and JG-6.

21 **Q. \*\***  **..**

22  **\*\***

1 A. \*\* [REDACTED]  
2 [REDACTED]  
3 [REDACTED]  
4 [REDACTED]  
5 [REDACTED]  
6 [REDACTED]  
7 [REDACTED] \*\*

8 Q. \*\* [REDACTED]  
9 [REDACTED] \*\*

10 A. \*\* [REDACTED] \*\*

11 Q. **Please describe MEC’s current view of the January 24, 2017 PPA between Iron Star**  
12 **and MEC?**

13 A. MEC believed that PPA to be competitive when MEC signed it in 2017, and it remains  
14 active and attractive with these amendments: (1) Iron Star Wind Project, LLC assigned this  
15 PPA to Santa Fe Wind Project, LLC; (2) the anticipated delivery date is December 31, 2026  
16 and we are currently working to update that date; and (3) MEC has the option to purchase  
17 up to an additional 64 megawatts (“MW”) in addition to the original 136 MW, for a total of  
18 200 MW. The 2017 PPA and the two subsequent amendments are attached as Schedules  
19 JG-7, JG-8 and JG-9.

20 Q. **How much of the 200 MW of the Santa Fe renewable energy and Grain Belt**  
21 **transmission has been subscribed by firm contracts?**

22 A. MEC’s contracts with Grain Belt and Santa Fe are firm. To this day, 136 of the 200 MW is  
23 under firm contracts. There are thirty-five municipal members of MoPEP and a Missouri

1 map showing the names and locations of those cities is attached as Schedule JG-10. MoPEP  
2 has contracted for 60 MW, and that contract is attached as Schedule JG-11. The city of  
3 Kirkwood has contracted for 25 MW and the city of Hannibal has contracted for 15 MW, and  
4 those contracts are attached as Schedule JG-12. The city of Centralia has contracted for 1  
5 MW and the city of Columbia has contracted for 35 MW, and those contracts are attached as  
6 JG-13. I fully expect the demand of other MEC members will exceed the 64 MW that  
7 remains for subscription under the Grain Belt TSA and the Santa Fe PPA.

8 **Q. Do you expect either of MEC's other full requirements pools to also choose to**  
9 **participate in Grain Belt's delivery of renewable energy to Missouri?**

10 A. MEC's Mid-Missouri Municipal Power Energy Pool ("MMMPEP") may consider the  
11 opportunity to participate because of its proximity to AECI from which it could take  
12 some of the renewable energy that I understand Grain Belt will now inject into that node.  
13 MoPEP, MMMPEP, and other of MEC's member who are physically located within the  
14 AECI region, will be able to take advantage of the Kansas wind without needing a costly  
15 separate transmission path through MISO or the Southwest Power Pool ("SPP").

16 **Q. In the past, as MEC has participated in other projects, has the interest of its pools or**  
17 **individual members grown over time?**

18 A. Yes. As municipalities become aware of additional options for their resource planning,  
19 they often include those resources in their planning to meet future needs. The agreements  
20 between MEC and Grain Belt and Santa Fe allow for other municipalities to join in the  
21 benefits of these contracts before Grain Belt becomes operational. Given that we know  
22 the current need for Grain Belt by Missouri municipalities is 136 MW, MEC would not be  
23 surprised if that need reaches or exceeds the TSA limit of 200 MW in response to changes

1 in the market and resources available to municipalities.

2 **Q. What did MEC do to replace MoPEP’s Illinois Power Marketing (“IPM”) contract**  
3 **that, according to your testimony in the previous case, was to expire in 2021?**

4 A. The coal-generated energy from IPM has been replaced by SPP combined-cycle natural  
5 gas generation, SPP wind generation capacity, and the assigned Iron Star/Santa Fe PPA.  
6 The MISO Grain Belt portion of that replacement has been temporarily filled with  
7 higher-cost short-term energy purchases pending the full commercial operation of Grain  
8 Belt.

9 **Q. Given that more expensive resources have been acquired to temporarily fill MoPEP’s**  
10 **needs until Grain Belt is fully operational, who must pay the difference in cost?**

11 A. The customers of the thirty-five MoPEP cities will pay the additional cost.

12 **Q. When Grain Belt is fully operational, how will the expected cost savings be reflected**  
13 **to the MoPEP member cities?**

14 A. Wholesale energy costs will be lowered. While transmission charges to deliver energy to  
15 individual cities are different depending on the location of the member city, energy costs  
16 are socialized across the pool, including the cost of transmission to deliver that energy  
17 into MISO, SPP or AECI. This means that the lower energy costs will be shared equally  
18 by all thirty-five city members of MoPEP.

### 19 **III. DEMAND WITHIN MEC FOR RENEWABLE ENERGY**

20 **Q. Have Missouri cities demonstrated a desire for renewable energy?**

21 A. Yes. Columbia has a renewable portfolio standard that exceeds the Missouri statutory  
22 standard applicable to investor-owned utilities. Additionally, the MoPEP has consistently



1           been a leader in the state in developing wind and solar projects, and their customers  
2           continue to express a desire for more renewable energy.

3   **Q.    When did the MoPEP begin to offer a renewable product for its wholesale members?**

4   A.    The opportunity was approved in the fall of 2016, and deliveries started in January of  
5           2017.

6   **Q.    What is that product?**

7   A.    It is now a 20 MW option offered at a small premium over other resources to reflect the  
8           additional cost currently associated with those renewable resources in the MoPEP  
9           portfolio. It allows our wholesale customers to market a renewable product to their retail  
10          customers.

11 **Q.    Did the MoPEP members have difficulty in providing that product in a retail form to**  
12 **the members' retail customers?**

13 A.    No. It was fully subscribed, with additional demand unmet.

14 **Q.    Do the MoPEP members have a desire for additional renewable resources that are**  
15 **more affordable than current options?**

16 A.    Yes. Given that the renewable product described above was quickly subscribed, and that  
17          members continue to demand additional renewable products, I believe that the demand for  
18          renewables is still unmet. Currently, MoPEP's portfolio is 15% renewable, and with Grain  
19          Belt operational, that portfolio will be over 25% renewable.

20 **Q.    Do you expect industrial retail customers will want additional renewable energy in**  
21 **the future?**

22 A.    Yes. We have observed that industrial retail customers of our wholesale customers are

1 placing renewable energy goals in their corporate procurement policies. The Grain Belt  
2 project gives our cities the opportunity to meet those policies and remain or become  
3 attractive locations for those industries.

#### 4 **IV. MEC’S SUPPORT FOR GRAIN BELT’S REQUEST TO AMEND ITS CCN**

5 **Q. Does Grain Belt’s request to amend its CCN promote the public interest?**

6 **A.** Yes, the Grain Belt Project that has already been granted a CCN by this Commission  
7 promoted the public interest and, although the amendments Grain Belt seeks to its CCN may  
8 have changed some of the earlier numbers, Grain Belt remains the best option for low cost  
9 renewable energy delivered into MISO. There are many more besides me that hold that  
10 opinion. From my experience, the thirty-five MoPEP cities, Centralia, Columbia, Hannibal  
11 and Kirkwood would not have already committed to purchasing power through the Grain  
12 Belt TSA unless they also concluded that it was in their best interest to do so. The  
13 amendments Grain Belt now seeks to its CCN are designed to deliver more renewable  
14 energy sooner to Missouri injection points in both MISO and AECI, and that is in the  
15 public interest because energy costs will be lowered at the Missouri nodes relevant to  
16 MEC and across the MISO footprint.

17 **Q. What are the facts or data upon which you reasonably relied to form your opinion**  
18 **that the Grain Belt Amended Project will promote the public interest of Missourians by**  
19 **lowering the cost of energy?**

20 **A.** I relied, of course, on my many years of experience in planning electrical distribution and  
21 transmission systems and in planning for and meeting the generation needs of customers.  
22 Additionally, MEC, through its Chief Markets Officer Rebecca Atkins and me, consulted  
23 with The Energy Authority (“TEA”) for its independent strategic perspective, advice,

1 analysis and projected effect of the Amended Grain Belt project on LMPs at certain  
2 Missouri nodes identified by MEC as significant to its members. The TEA study, which  
3 is attached as Schedule JG-14, substantiates my conclusion that the Amended Grain Belt  
4 project will cause an overall decrease in energy costs in MISO.

5 **Q. What Missouri nodes did MEC designate for the TEA study and what is the significance**  
6 **of each?**

7 A. Slide 3 of Schedule JG-14 shows the nodes MEC designated for TEA's study.

8 AMMO.MOBCTG1 is a high voltage connector, and thus an existing price node, near the  
9 city of Centralia and the new location of the Grain Belt converter station.

10 AMMO.PENOCTG1 is the Peno Creek node, near the city of Bowling Green.

11 EAI.PLUM1\_MEUC is MEC's Plum Point generator. AMIL.PSG1.MEUC is the Prairie  
12 State Energy Center generator in which MEC has an ownership interest.

13 ALTW.CRLK3CWLD is the Crystal Lake Iowa wind farm on the west side of MISO.

14 MEC.FARMER is an Iowa wind farm that provides competitive wind pricing and from  
15 which the city of Columbia takes some energy. Injection to AECI was selected because  
16 the Grain Belt amendments will permit injection into that node. The AECI interface node  
17 was chosen to look at Grain Belt's cost impacts on transactions across the seam. The  
18 injection to MISO will be the new node created by Grain Belt's Tiger Connector.

19 AMMO.HANN\_1.AZ is the city of Hannibal. SWPP is SPP's currently existing  
20 interface node. CWLD.CWLD is the city of Columbia. AMMO.KIRK is the city of  
21 Kirkwood, and WR.MOWR is the node for MoPEP.

22 **Q. What is the time period covered by the TEA study and why?**

23 A. MEC directed TEA to study the effect of the Grain Belt Amended Project on LMPs at the

1 designated nodes for the year 2028, the anticipated first full year of Grain Belt's  
2 operation, as compared to a "business as usual" scenario that did not include Grain Belt.

3 **Q. You've already told us that LMP is an acronym for "locational marginal price" –**  
4 **would you explain what the locational marginal price is?**

5 A. In everyday terms, the LMP is the price that reflects the cost of supplying electricity at a  
6 particular time at a particular point on the power grid, taking into account the cost of  
7 generation, transmission losses and congestion.

8 **Q. What did you conclude about the effect of the Amended Grain Belt Project on the**  
9 **LMPs relevant to MEC?**

10 A. I expected that Grain Belt's entrance into this market would lower costs for MEC  
11 members, and the TEA study bore that out. The summary found at Slide 9 of Schedule  
12 JG-14 shows that the LMPs at the relevant nodes had an annual average drop ranging  
13 from \$1.10/MWh to \$37.56/MWh after the injection of Grain Belt renewable energy into  
14 AECI and MISO. Slide 10 is a helpful bar graph showing the lower annual average LMP  
15 that occurred at each of the relevant nodes with Grain Belt, as compared to the higher  
16 LMPs that occurred in a "business as usual" scenario.

17 **Q. In the CCN case five years ago, you testified that MEC's members would benefit**  
18 **because Grain Belt's injection point into MISO would consistently have the highest**  
19 **LMP for wind energy among the pricing nodes used by MEC's members – please**  
20 **explain why Grain Belt's effect now of lowering LMPs across the MISO footprint**  
21 **remains beneficial to MEC?**

22 A. In both cases, lower LMPs at member load nodes are beneficial. In the prior case five  
23 years ago, MEC's focus was on the significant difference between projected market

1 prices and the below-market price provided by the MEC contract with Grain Belt (and  
2 Iron Star, which is now Santa Fe). Now, however, the sheer difference in size of the  
3 Amended Grain Belt project compared to five years ago – 2500 MW instead of 500 MW  
4 – caused MEC to evaluate the impact on the larger market. This injection of 2500 MW  
5 (plus, conservative assumptions about generator retirements) could, for periods of time,  
6 drive the LMPs at the injection points below the delivered price of the Grain Belt and  
7 Santa Fe energy, certainly if MISO fails to integrate Grain Belt before its commercial  
8 operation date. And, by the 2028 study year, more coal generation could be retired, some  
9 of which will be replaced by potentially higher priced natural gas generation. Regardless,  
10 Grain Belt’s injection of 2500 MW of renewable energy will cause a broader flattening of  
11 LMPs across the market so that the Grain Belt price at the injection points for MEC’s  
12 members will result in cost savings, and others also will receive the benefit of lower  
13 LMPs across the MISO footprint.

14 **Q. What did MEC direct TEA to do to account for the planned retirement of some**  
15 **thermal generators during the study period?**

16 A. We decided that it is not reasonable for us to assume that all thermal generation will retire  
17 just as soon as some have announced without expansion and/or improvement of  
18 necessary transmission. And, we decided that it is not reasonable for us to assume that no  
19 thermal generation will be retired by our study year. So, TEA’s model retired the thermal  
20 generators that will be more than 60 years old in 2028. (Schedule JG-14, Slide 7). The  
21 retirement of thermal generation will have to be reasonably implemented and additional  
22 transmission like Grain Belt is needed to ensure a reliable and cost-effective transmission  
23 grid and energy portfolio.

1 **Q. After taking into account the retirement of some thermal generation, what did you**  
2 **conclude about the effect of the Amended Grain Belt Project on the LMPs relevant**  
3 **to MEC?**

4 A. I expected that the LMPs would drop even after the appropriate retirement of some  
5 thermal generation, and the TEA study bore that out. Slide 9 of Schedule JG-14 shows  
6 that, after the insertion of Grain Belt, the LMPs had an annual average drop ranging from  
7 \$1.04/MWh to \$30.79/MWh.

8 **Q. Did MEC direct TEA to study the effect on LMPs at the relevant nodes of higher**  
9 **than normal and lower than normal natural gas costs?**

10 A. Yes. Given our experience in the past couple of years with volatile and high natural gas  
11 costs, MEC asked TEA to include high and low natural gas costs in the scenario. Slide  
12 11 of Schedule JG-14 shows that, with Grain Belt operational during a period of low  
13 natural gas costs, annual average LMPs dropped at every node. And, with Grain Belt  
14 operational during a period of high natural gas costs, annual average LMPs increased but  
15 only by an average of \$4.86, which is not nearly as intimidating as what many of us  
16 experienced only a couple of years back.

17 **Q. What is the overall effect of the Amended Grain Belt Project on the cost of energy?**

18 A. Across the MISO footprint, in the year 2028, Grain Belt is projected to reduce the  
19 marginal energy cost of the LMP on average by \$1.77/MWh, which savings applied to  
20 the MISO load will amount to over \$1.1 billion (Slide 15 of Schedule JG-14).

21 **Q. That projected \$1.1 billion in reduced marginal energy costs across MISO and the**  
22 **projected lowering of LMPs at the nodes relevant to MEC is for the year 2028, and**  
23 **MEC has a twenty-plus year contract with Grain Belt – do you expect those savings**

1           **to continue beyond 2028?**

2    A.    Yes. Although it is tremendously difficult to forecast many years into the future, I do  
3           expect the benefit of Grain Belt to continue throughout the life of MEC's contract.

4    **Q.    Does MEC need Grain Belt's requested amendments to its CCN?**

5    A.    Absolutely. MEC's members need affordable renewable energy, and Grain Belt will  
6           provide that along with reduced LMPs at the nodes relevant to MEC's members and  
7           reduced marginal energy costs across MISO.

8    **Q.    Do you hold the opinions you've expressed in this testimony to a reasonable degree  
9           of engineering certainty?**

10   A.    Yes.

11   **Q.    Does this conclude your pre-filed rebuttal testimony in this case?**

12   A.    Yes. However, I wish to preserve the right to provide additional testimony in the form of  
13           sur-rebuttal or at the hearing to rebut the testimony of any other party.

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI

STATE OF MISSOURI                    )  
  )    SS  
COUNTY OF BOONE                    )

AFFIDAVIT OF JOHN GROTZINGER

John Grotzinger, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying rebuttal testimony and schedules; that said testimony was prepared by him or under his direction and supervision; that if inquiries were made as to the facts in said testimony and schedules, he would respond as therein set forth; and that the aforesaid testimony and schedules are true and correct to the best of his knowledge, information, and belief.

  
John Grotzinger

Subscribed and sworn to before me this 7th day of April, 2023.

**KONDA D. BENTLEY**  
Notary Public, Notary Seal  
State of Missouri  
Boone County  
Commission # 12693265  
My Commission Expires 07/24/2024

  
Notary Public

My commission expires: 07/24/2024