

**BEFORE THE MINNESOTA OFFICE OF ADMINISTRATIVE HEARINGS  
600 North Robert Street  
Saint Paul, Minnesota 55101**

**FOR THE MINNESOTA PUBLIC UTILITIES COMMISSION  
121 Seventh Place East, Suite 350  
Saint Paul, Minnesota 55101-2147**

**In the Matter of the Application of Minnesota Power for a Certificate of Need and a  
High Voltage Transmission Line (HVTL) Route Permit for the HVDC  
Modernization Project in Hermantown, St. Louis County**

**OAH Docket No. 5-2500-39600  
MPUC Docket Nos. E-015/CN-22-607 and E-015/TL-22-611**

**REPLY BRIEF OF  
AMERICAN TRANSMISSION COMPANY LLC**

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## INTRODUCTION

The parties to this proceeding have developed an extensive record that, at times, includes technical discussion. However, the question before the Commission is simple: which of two interconnection alternatives should be utilized as part of the HVDC Modernization Project (Project), which is intended to upgrade and modernize assets associated with the Square Butte HVDC transmission line? The two alternatives, which have been thoroughly discussed in the record, are the MP Proposal, which requires an entirely new 345/230 kV substation and new transmission lines to and from that substation, and the Arrowhead Substation Alternative, which uses ATC's existing 345/230 kV Arrowhead Substation, less than one mile away from the site of MP's proposed new substation.<sup>1</sup>

The record of this proceeding demonstrates that the ALJ should recommend, and the Commission should select, the Arrowhead Substation Alternative because it:

- Makes the most efficient use of existing resources;
- Meets the purpose and need for the Project now, while providing the capability to accommodate future transmission expansion, should future needs arise;
- Provides more reliable and efficient electric transmission service to meet MP's and regional energy needs;
- Provides the lower cost means of interconnection to the AC transmission system; and
- Minimizes impacts to the natural and human environment.

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<sup>1</sup> Unless otherwise indicated, capitalized defined terms have the same meaning in this Reply Brief as they do in ATC's Initial Brief.

Perhaps in recognition of these demonstrated benefits, MP's Initial Brief devotes much of its discussion and argument not to extolling any virtues of the MP Proposal, but to attacking the Arrowhead Substation Alternative. However, in criticizing this alternative, MP presents an outdated and inaccurate discussion of the transmission system and a fundamentally flawed analysis of the potential impacts of the Arrowhead Substation Alternative on this system (and, in turn, on customers). MP also mischaracterizes and misstates the record, providing a distorted picture of the Arrowhead Substation Alternative. Finally, MP creates artificial hurdles and timing concerns related to the Arrowhead Substation Alternative, in an apparent attempt to convince the Commission that it has no choice but to approve the MP Proposal.<sup>2</sup>

The Commission *does* have a choice. The record of this proceeding demonstrates that the Arrowhead Substation Alternative offers a more efficient and reliable means of interconnection that meets the purpose and need of the Project while imposing less cost and fewer or lower intensity human and environmental impacts. Given these benefits, ATC respectfully requests that the Commission approve the HVDC Modernization Project and issue a Certificate of Need and Route Permit for the Project, incorporating the Arrowhead Substation Alternative.

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<sup>2</sup> ATC does not attempt to address every error or inaccuracy in MP's Initial Brief in this Reply. Rather, ATC focuses on MP's more egregious errors and misstatements. Silence on any MP claim or argument does not indicate agreement, and ATC continues to rely on its Initial Brief and Proposed Findings for such matters.

**I. MP'S OPPOSITION TO THE ARROWHEAD SUBSTATION ALTERNATIVE IS BASED ON AN ARCHAIC UNDERSTANDING OF TRANSMISSION SYSTEM OPERATIONS AND IS UNDERMINED BY ITS OWN JUSTIFICATION FOR THE PROJECT.**

MP's opposition to the Arrowhead Substation Alternative is rooted in a fundamentally flawed view of how the modern-day transmission system operates. It also directly contradicts MP's own stated justifications for the MP Proposal. MP repeatedly raises the specter of the Arrowhead Substation Alternative creating a stronger regional transmission tie between Minnesota and Wisconsin that will allegedly divert the benefits of its HVDC System from Minnesota to Wisconsin. At the same time, MP attempts to justify its proposal as consistent with regional transmission planning and beneficial to the region generally. The Commission should lend no credibility to these arguments, which are both substantively wrong and internally inconsistent.

**A. MP's View of the Transmission System Is Stuck in the 1900s and Its Power Flow Analysis Is Simply Wrong.**

MP repeatedly and mistakenly claims that the Arrowhead Substation Alternative will divert power away from, and impose additional costs on, its customers.<sup>3</sup> This argument is rooted in an outdated view of how the transmission system operates. In the early 1900s, there were few interconnections between utilities, which operated as separate and largely isolated local monopolies.<sup>4</sup> However, unlike the balkanized power grid of the past, the modern-day transmission system consists of thousands of miles of interconnected

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<sup>3</sup> See, e.g., MP Initial Brief (Br.) at 10, 58–63.

<sup>4</sup> *New York v. FERC*, 535 U.S. 1, 5 (2001).

transmission lines that are owned by different utilities,<sup>5</sup> and “any electricity that enters the grid immediately becomes part of a vast pool of energy that is constantly moving in interstate commerce.”<sup>6</sup> It is therefore common—in fact, entirely expected—for electricity generated on one utility’s system to flow to and through another utility’s system.<sup>7</sup> This does not somehow “transfer benefits” to that other utility’s system. MP itself utilizes transmission assets owned by other utilities—including ATC’s Arrowhead-Weston 345 kV transmission line connected to the ATC Arrowhead Substation—to transmit power onto its own system and for its own customers.<sup>8</sup>

Moreover, MP’s portrayal of the Arrowhead Substation Alternative’s impact on power flows has no basis in reality. MP claims that the Arrowhead Substation Alternative would result in MP customers losing “seven to ten percent of the benefit from delivery of their North Dakota wind generation resources on the HVDC System.”<sup>9</sup> This is not accurate. MP takes an inappropriately narrow view here — rather than focusing solely on a single line, the focus should be on the transmission system as a whole. While the Arrowhead Substation Alternative may result in increased power flows into Wisconsin on the Arrowhead-Weston 345 kV transmission line already used by MP, any increased flows on *this* line will be offset by lower power flows along other less efficient, lower voltage lines between Minnesota and Wisconsin—a critical point that MP does not (and cannot)

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<sup>5</sup> Exhibit (Ex.) ATC-243 at 6, 9–10 (Dagenais Rebuttal).

<sup>6</sup> *New York v. FERC*, 535 U.S. at 7–8.

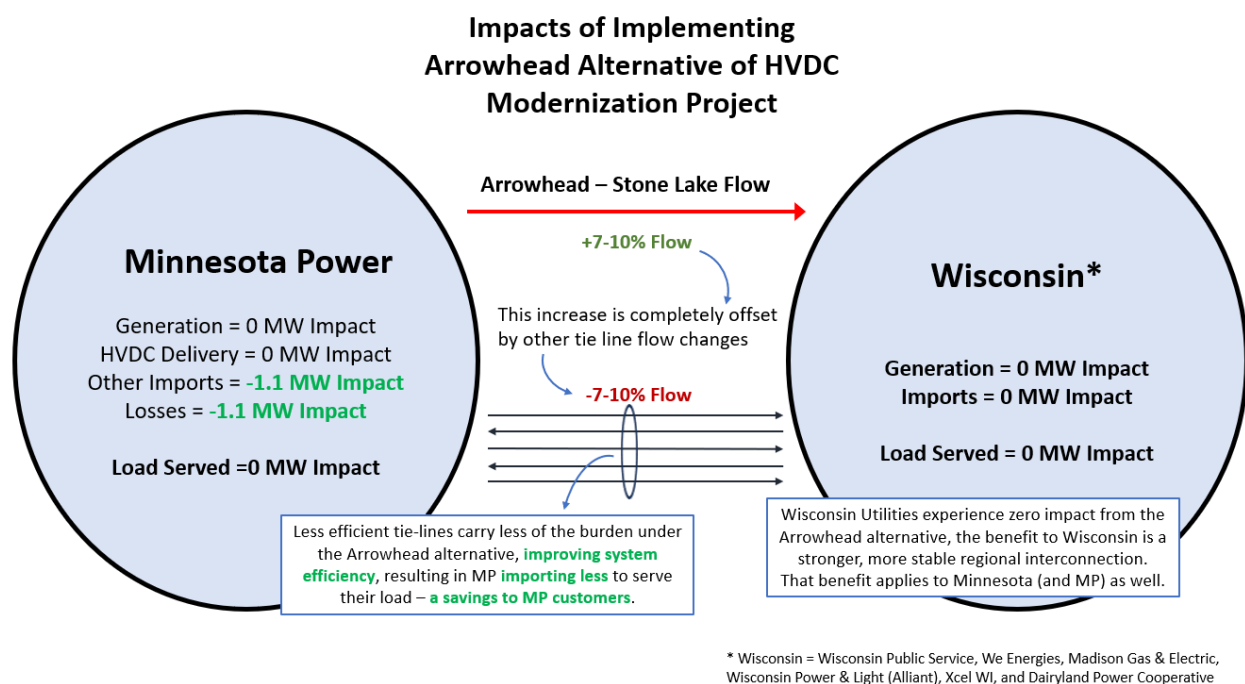
<sup>7</sup> Ex. ATC-243 at 6 (Dagenais Rebuttal).

<sup>8</sup> See ATC Initial Br. at 47–49.

<sup>9</sup> MP Initial Br. at 59.

dispute.<sup>10</sup> As shown in the illustrative diagram below, any increased power flows on the Arrowhead-Weston line after implementation of the Arrowhead Substation Alternative will be balanced by reduced power flows on other transmission lines; in combination with the fact that the Arrowhead Substation Alternative reduces overall system electrical losses, this results in an overall *benefit* to MP’s customers from the Arrowhead Substation Alternative, not some “lost benefit” being diverted to Wisconsin.<sup>11</sup>

**Figure 1: Impact of Arrowhead Substation Alternative on Power Flows<sup>12</sup>**



<sup>10</sup> Transcript (Tr.) at 84–85 (Dagenais); Ex. MP-131 at 73 & Schedule 33 (Winter Rebuttal).

<sup>11</sup> See Tr. at 110 (Dagenais).

<sup>12</sup> See generally Ex. ATC-227 at 11–13 (Dagenais Direct); Ex. ATC-243 at 16, 37–40 (Dagenais Rebuttal); Ex. MP-131, Schedule 33 (Winter Rebuttal); Tr. at 85–86 (Dagenais).



MP responds by stating that it “is not clear . . . why ATC believes it is acceptable for the power flows on other tie lines to be offset by the additional siphoning of power flows off the HVDC System at a real cost to Minnesota Power customers.”<sup>13</sup> This argument is as illogical as it is misleading. It is illogical because if higher power flows on the Arrowhead-Weston transmission line are offset by *lower* power flows on other transmission lines, there is necessarily no “lost” power that needs to be “made up;” regardless of where the electrons are coming from or which alternative is implemented, there will be an adequate supply of power on the transmission system to meet MP’s customer demand—another critical point that MP concedes.<sup>14</sup> MP’s argument is also misleading because there will be no replacement power costs to MP’s customers associated with implementation of the Arrowhead Substation Alternative—if anything, this alternative will have a *negative* cost impact (i.e., will result in cost savings) because it will result in lower overall electrical losses on the system, meaning MP will need to generate and/or procure less power to serve its customers.<sup>15</sup>

Minnesota Department of Commerce, Division of Energy Resources (DOC-DER) states that “ATC points to a study that it contends shows that network flows from Minnesota Power’s system to ATC’s system would be similar under either alternative,” but that “ATC has not explained the study upon which it relies” or “provide[d] any detailed

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<sup>13</sup> MP Initial Br. at 61.

<sup>14</sup> Ex. MP-130 at 73 (Winter Rebuttal) (“Minnesota Power’s concerns are not about energy adequacy . . .”).

<sup>15</sup> Tr. at 85 (Dagenais).

analysis that clearly demonstrates the ‘net’ effect of eliminating the 800 MVA limit.”<sup>16</sup> Both points are incorrect. With respect to the first, DOC-DER misapprehends the record. During cross examination, ATC Director of System Planning Thomas Dagenais noted that the Arrowhead Substation Alternative produces lower overall electrical losses on MP’s system and pointed to his analysis of these lower losses in his direct testimony.<sup>17</sup> DOC-DER appears to be confusing this analysis of electrical losses with a study concerning network flows between the MP and ATC systems. Which brings us to the second point: ATC’s steady state reliability analysis demonstrates that network flows between MP’s system and ATC’s system will be similar under both alternatives, as both alternatives result in similar loadings on certain Wisconsin transmission facilities.<sup>18</sup> This reinforces ATC’s point that, while the Arrowhead Substation Alternative may result in increased flows on certain transmission lines between Minnesota and Wisconsin, flows will be reduced on other lines. As a result, selection of the Arrowhead Substation Alternative will have no practical or meaningful impact on MP’s ability to serve customer load.

Ultimately, MP’s argument concerning the Arrowhead Substation Alternative’s impact on power flows has no merit. While implementation of this alternative may change power flows across the transmission system, it will not adversely impact MP or its customers. To the contrary, the Arrowhead Substation Alternative will result in cost savings to MP’s customers, as discussed above and in ATC’s Initial Brief.<sup>19</sup>

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<sup>16</sup> DOC-DER Initial Br. at 14.

<sup>17</sup> Tr. at 110 (Dagenais).

<sup>18</sup> Ex. ATC-227 at 39–40 (Dagenais Direct); Ex. ATC-236, Schedule 5 (Dagenais Direct).

<sup>19</sup> ATC Initial Br. at 34, 63-65.

**B. MP's Arguments Concerning the Regional Impacts of the Arrowhead Substation Alternative Are Inconsistent With Its Own Justification for the Project.**

MP's opposition to the Arrowhead Substation Alternative is also contradicted and undermined by its own justifications for the Project. MP argues that its proposal will result in regional benefits while simultaneously taking the position that the Arrowhead Substation Alternative should *not* be selected — because it will provide regional benefits. MP cannot have it both ways.

MP has repeatedly touted the regional benefits of the Project, noting that it will provide voltage support to the surrounding AC transmission system, enable bidirectional dispatch capability that adds “flexibility and optionality for the regional transmission system,” assist in supporting future development of renewable resources, and enable the HVDC Line to serve as an “essential building block for reliably moving energy across the Upper Midwest.”<sup>20</sup> Indeed, MP's primary rationale for interconnecting the Project at 345 kV through its proposed new St. Louis County Substation is to “accommodate regional transmission development in conjunction with increasing capacity and utilization of the HVDC line.”<sup>21</sup> MP claims interconnecting the Project to the 345 kV system is important because the HVDC Line “has long-term significance for the regional transmission system,

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<sup>20</sup> MP Initial Br. at 23–26; Ex. MP-104 at 27–31 (MP Application); Ex. LPI-300 at 15 (Maini Direct); Ex. ATC-263, Schedule 15 (Dagenais Rebuttal); *see also* Ex. MP-104 at 32 (MP Application) (“[The Project] is designed to accommodate future expansion of the HVDC system and the interconnected AC transmission system, to support the future regional transmission development that is necessary to successfully navigate the clean energy transition.”).

<sup>21</sup> Ex. MP-104 at 11 (MP Application).

enabling efficient and flexible long-distance transfer of high-value and zero fuel cost renewable resources in North Dakota to customers throughout MISO.”<sup>22</sup>

At the same time, MP paradoxically urges the Commission to reject the Arrowhead Substation Alternative specifically because it would result in *greater regional benefits* compared to the MP Proposal. For instance, MP claims that the Arrowhead Substation Alternative would reduce impedance and increase power flow transfer capability between Minnesota and Wisconsin and “create conditions in which [the] HVDC System may be utilized more frequently to manage regional power flows between Minnesota and Wisconsin.”<sup>23</sup> MP also asserts that the Arrowhead Substation Alternative “results in higher MWEX transient stability limits” than the MP Proposal and unloads “stressed regional 345 kV transmission paths that parallel the MWEX interface lines in southwest Wisconsin and eastern Iowa.”<sup>24</sup> But these purported “flaws” that MP attributes to the Arrowhead Substation Alternative—increased voltage support and regional power flows—are the *very same factors* that MP cites in support of its own proposal, as described above. As ATC has explained, these factors actually demonstrate the *increased* regional benefits provided by the Arrowhead Substation Alternative, which creates a stronger regional transmission tie that positively impacts Minnesota, Wisconsin, and the broader region.<sup>25</sup>

MP claims that the Project’s “core purpose isn’t for the regional transmission system” and that regional benefits “should not overshadow anything or take away anything

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<sup>22</sup> Ex. MP-104 at 39–40 (MP Application).

<sup>23</sup> Ex. MP-121 at 63–64 (Winter Direct).

<sup>24</sup> Ex. MP-130 at 66 (Winter Rebuttal).

<sup>25</sup> See, e.g., Ex. ATC-243 at 37–40 (Dagenais Rebuttal); Tr. at 80, 116–117 (Dagenais).

from that purpose of the project for Minnesota Power's customers."<sup>26</sup> This directly contradicts MP's primary justification for connecting the Project at 345 kV to a new St. Louis County Substation, which is to accommodate potential future regional transmission development and enable use of the HVDC Line to facilitate regional power transfers.<sup>27</sup> MP fails to explain how or why these regional benefits are an asset for the MP Proposal but a liability for the Arrowhead Substation Alternative. In any event, given that MISO currently has no plans to implement additional regional 345 kV transmission projects in northeastern Minnesota, there is simply no need to construct MP's proposed new St. Louis County Substation.<sup>28</sup>

In short, MP attempts to prop up the MP Proposal based on its purported regional benefits, while simultaneously castigating the Arrowhead Substation Alternative for more effectively and efficiently delivering those same benefits. The reality is that the Arrowhead Substation Alternative represents a more efficient and cost-effective means of interconnecting the Project to the AC transmission system, for both MP's customers and the broader region. The Commission should not be swayed by MP's substantively flawed and internally inconsistent arguments to the contrary.

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<sup>26</sup> MP Initial Br. at 27, n.69; Tr. at 159 (Winter).

<sup>27</sup> Ex. MP-104 at 11, 39 (MP Application).

<sup>28</sup> Ex. ATC-243 at 30 (Dagenais Rebuttal).

## **II. MP MISREPRESENTS THE IMPACTS AND COST OF THE ARROWHEAD SUBSTATION ALTERNATIVE.**

### **A. The Arrowhead Substation Alternative Meets the Purpose and Need of the Project.**

Throughout its Initial Brief, MP erroneously claims the Arrowhead Substation Alternative is a “system alternative” that fails to meet the purpose and need of the Project.<sup>29</sup> Both claims are incorrect. Properly understood, a system alternative is one that is fundamentally different from, and cannot meet the purpose and need of, the project that has been proposed.

From this vantage point, the Arrowhead Substation Alternative is not a “system alternative.” ATC is not proposing that MP modify the entire Project or implement an entirely different alternative that would undermine or otherwise fail to address MP’s basic need to upgrade and modernize the converter stations on either end of the HVDC Line.<sup>30</sup> It has simply proposed that MP modify one component of the overall Project—the point at which it interconnects to the AC high-voltage transmission system. Rather than achieving this interconnection through the entirely new 345 kV St. Louis County Substation—which, as noted earlier, is not even needed as part of MISO’s regional transmission planning efforts—ATC is proposing that MP interconnect the Project through ATC’s existing Arrowhead Substation. This modified point of interconnection still enables MP to interconnect the Project to the AC transmission system, modernize the aging assets

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<sup>29</sup> See, e.g., MP Initial Br. at 3–7, 38, 41–43, 52.

<sup>30</sup> Ex. ATC-227 at 41–42 (Dagenais Direct).

associated with its HVDC Line, and continue to reliably and cost effectively serve its customers with carbon free energy from that line.<sup>31</sup>

MP suggests that the Arrowhead Substation Alternative fails to meet the purpose and need for the Project because it would move the Project's point of interconnection from one voltage (230 kV) to another (345 kV).<sup>32</sup> But as ATC explained, this does not distinguish the Arrowhead Substation Alternative from the MP Proposal.<sup>33</sup> MP is not maintaining the HVDC Line's existing point-of-interconnection to the AC transmission system at 230 kV. It is affirmatively *moving* that point-of-interconnection from the MP 230 kV Arrowhead Substation to a new 345 kV St. Louis County Substation.<sup>34</sup> While MP claims that this new substation will not transmit electricity "anywhere but *from* the new HVDC converter station *to* the present HVDC System point of interconnection . . . at the [MP Arrowhead Substation],"<sup>35</sup> it is important to remember that MP's primary justification for building the new substation is to accommodate potential new 345 kV transmission lines that *may* be needed in the future.<sup>36</sup> While no such lines are currently planned as part of MISO's regional planning process, the potential addition of such lines to the new substation

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<sup>31</sup> Ex. ATC-227 at 41–42 (Dagenais Direct).

<sup>32</sup> MP Initial Br. at 51–52.

<sup>33</sup> ATC Initial Br. at 40–41.

<sup>34</sup> Ex. ATC-243 at 11–13 (Dagenais Rebuttal).

<sup>35</sup> MP Initial Br. at 57.

<sup>36</sup> Ex. MP-104 at 11, 39–40 (MP Application).

would result in power from the HVDC Line being injected onto the 345 kV transmission system *before* entering the MP 230/115 kV Arrowhead Substation.<sup>37</sup>

This illustrates ATC's basic point: MP is not maintaining the HVDC Line's existing point-of-interconnection to the 230 kV transmission network, but moving that point-of-interconnection to the 345 kV transmission network by constructing a new 345 kV St. Louis County Substation. There is no need for MP to construct that new substation because ATC's existing Arrowhead Substation provides a more than adequate and reliable means for interconnecting the Project to the 345 kV system—indeed, when the substation was initially built, it was designed to be expanded when a future system need (such as this one) arose.<sup>38</sup> In this sense, the Arrowhead Substation Alternative effectively mimics MP's proposed method of interconnecting the Project.<sup>39</sup>

#### **B. MP Creates a False Cost Comparison Between the Alternatives.**

As ATC discussed in its Initial Brief, the record demonstrates the ATC Arrowhead Alternative imposes less direct costs than the MP Proposal.<sup>40</sup> ATC estimates the direct cost of the Arrowhead Substation Alternative at approximately \$42.0 million in 2022 dollars.<sup>41</sup>

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<sup>37</sup> Indeed, MISO was considering new 345 kV lines out of a conceptual 345 kV St. Louis County Substation as part of its LRTP Tranche 2 planning process. *See* Ex. ATC-260, Schedule 12 (Dagenais Rebuttal); Ex. ATC-262, Schedule 13 (Dagenais Rebuttal).

<sup>38</sup> Ex. ATC-218 at 5–6 (Larsen Direct); Ex. ATC-243 at 11–13 (Dagenais Rebuttal).

<sup>39</sup> Ex. ATC-243 at 12–13 (Dagenais Rebuttal). MP claims that ATC “confirmed that the Minnesota Power 230 kv/115 kV Substation is the point of interconnection for [the MP Proposal]” during cross examination at the evidentiary hearing, but this misrepresents the record. ATC witness Dagenais was simply describing a conceptual diagram of the Project included in MP's direct testimony. Tr. at 105–106 (Dagenais).

<sup>40</sup> ATC Initial Br. at 54–57.

<sup>41</sup> *See* Tr. at 122 (Johanek).



In contrast, MP estimates the direct cost of the MP Proposal to be as much as \$70 million in 2022 dollars, with a “mid-range estimate of \$55 million,”<sup>42</sup> indicating increased direct costs of over 20 percent for the MP Proposal, as compared to the Arrowhead Substation Alternative. The fact that the Arrowhead Substation Alternative can be expected to cost less than the MP Proposal is unsurprising, as the MP Proposal includes an entirely new 345/230 kV substation and associated new transmission lines, while the Arrowhead Substation Alternative leverages existing transmission assets.

In its Initial Brief, MP attempts to eliminate this cost differential and claims that “at the evidentiary hearing, ATC admitted that the [two alternatives] were equal in cost.”<sup>43</sup> This grossly distorts the record. At the hearing, MP counsel asked ATC witness Mr. Johanek to assume *all* land acquisition costs are removed from *both* alternatives “for the sake of humoring us.”<sup>44</sup> Counsel then asked Mr. Johanek to agree with some math based on that assumption that purported to show equal costs between the two.<sup>45</sup> Of course, land acquisition costs cannot be wished away and it cannot be disputed that the MP Proposal requires land acquisition that the Arrowhead Substation Alternative does not. In fact, MP determined that it would acquire in fee simple all of the land required for the Project construction and operation,<sup>46</sup> including the land requirements for its proposed new

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<sup>42</sup> See Ex. MP-104 at § 2.2.1 (MP Application).

<sup>43</sup> MP Initial Br. at 45.

<sup>44</sup> Tr. at 137–140 (Johanek).

<sup>45</sup> Tr. at 137–140 (Johanek).

<sup>46</sup> Ex. MP-120 at 6 (McCourtney Direct).

substation and the transmission lines to and from that new substation—which, of course, reflects land acquisition not required for the Arrowhead Substation Alternative.

**C. MP Misstates the Record on the Timing of the Arrowhead System Alternative.**

MP again distorts the record in discussing the timing capability of the Arrowhead Substation Alternative, claiming that “ATC has only provided evidence in this record that it could achieve the April 2030 in-service date,” not an earlier date, and further claiming that this alternative “would not be able to achieve the necessary timing milestones to even deliver an April 2030 in-service date.”<sup>47</sup> Neither claim is correct. As ATC has explained, and as discussed further below, not only is the Arrowhead Substation Alternative more than capable of meeting MP’s April 2030 guaranteed in-service date, to the extent an earlier in-service date is required, ATC can reliably serve the Project from day one by using its existing 345/230 kV transformer in the Arrowhead Substation until the second transformer can be delivered and installed.<sup>48</sup>

In addition, MP wrings its hands over alleged delay that would be introduced by the Arrowhead Substation Alternative, due to the claimed need for MISO to re-start the transmission service request (TSR) process, should the Commission incorporate the Arrowhead Substation Alternative into the Project.<sup>49</sup> MP makes this claim based on a mischaracterization of rebuttal testimony from Department witness Mr. Zajicek. According to MP, Mr. Zajicek:

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<sup>47</sup> MP Initial Br. at 49.

<sup>48</sup> ATC Initial Br. at 51–53.

<sup>49</sup> MP Initial Br. at 49–50.

...inquired with MISO for its estimates for what additional time MISO would need to vacate the System Impact Studies completed for the Minnesota Power Proposed Configuration and complete the requisite study work before the [Arrowhead Substation Alternative] could be implemented. In response, MISO confirmed that with a change in the point of interconnection (from the Minnesota Power Arrowhead 230 kV/115 kV Substation to the ATC Arrowhead 345 kV/230 kV Substation), MISO's transmission service request process would need to "start again." MISO estimated that the process could take 300 days.<sup>50</sup>

Here is what Mr. Zajicek *actually* said in his testimony cited by MP:

As I am not an engineer, I am unable to speak to the necessity of updating certain studies for the HVDC converter stations. However, I consulted with MISO regarding the potential need to re-do or update MISO studies and the associated timeline and I have reviewed MISO's business practices manual regarding this process. Some TSRs have taken up to 300 days to process.<sup>51</sup>

There is nothing in this testimony indicating that MISO believes the TSR process for the Project needs to "start again" or that "MISO estimated that the process could take 300 days."<sup>52</sup> MP's statements should be flatly rejected, as should its overall concerns regarding the timing capabilities of implementing the Arrowhead Substation Alternative.

### **III. THE ARROWHEAD SUBSTATION ALTERNATIVE PROVIDES BENEFITS TO MP CUSTOMERS, THE STATE AND THE REGION.**

The Arrowhead Substation provides a superior means of interconnecting the Project to the high-voltage transmission system compared to the MP Proposal.<sup>53</sup> It results in lower overall electrical system losses, provides a highly reliable means of interconnecting the Project while maintaining reliability on the broader system, and simplifies and strengthens

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<sup>50</sup> MP Initial Br. at 49–50, citing Ex. DOC-DER-602 at 28 and Rebuttal Schedule MZ-R-11 at 1 (Zajicek Rebuttal).

<sup>51</sup> Ex. DOC-DER-602 at 28 (Zajicek Rebuttal).

<sup>52</sup> ATC provides further discussion of the MISO process in Section V., A., below.

<sup>53</sup> ATC Initial Br. at Section IV(A), IV(C).

transmission system operations while efficiently leveraging the use of existing infrastructure. MP identifies “concerns” regarding this alternative that it claims, either individually or collectively, show that it “does not meet the basic needs of the Project to urgently modernize the HVDC System for the benefit of Minnesota Power’s customers.”<sup>54</sup> But upon closer examination, none of these purported concerns has any merit. The Commission should dismiss them and approve the Project, conditioned upon implementation of the Arrowhead Substation Alternative.

**A. The Arrowhead Substation Alternative Will Consistently Produce Lower Overall Electrical Losses Than the MP Proposal at All Times of the Year.**

Compared to the MP Proposal, the Arrowhead Substation Alternative will result in lower overall electrical losses across the transmission system (approximately 1 MW during summer peak), primarily because it reduces impedance between the 230 kV and 345 kV transmission networks in Minnesota and Wisconsin.<sup>55</sup> Both MP and DOC-DER attempt to minimize this significant benefit by noting that the reduced electrical losses are “a tiny fraction of the total energy requirements in northeastern Minnesota” and “negligible.”<sup>56</sup>

Both parties’ contentions are inaccurate and based on a misunderstanding of how ATC analyzed each alternative’s electrical losses. ATC calculated the system-wide losses associated with each alternative using MISO’s MTEP 2028 summer peak models, which reflects a distinct point in time (i.e., one hour during the year) at which consumer demand

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<sup>54</sup> MP Initial Br. at 41.

<sup>55</sup> ATC Initial Br. at 34.

<sup>56</sup> MP Initial Br. at 60–61; DOC-DER Initial Br. at 14.

is at its highest.<sup>57</sup> As such, the Arrowhead Substation Alternative provides one megawatt system-wide electrical savings, compared to the MP Proposal, during that point in time in any given year when consumer demand is at its highest, and those savings will continue to accrue year-after-year. During the remaining non-peak hours of the year, electrical losses for the Arrowhead Substation Alternative will *always* be lower than the losses associated with the MP Proposal because the former operates at a higher voltage than the latter.<sup>58</sup>

Therefore, when considered cumulatively, the reduced electrical losses associated with the Arrowhead Substation Alternative over the Project's expected 40-year life provide a significant benefit, as they defer the need for MP to generate or procure additional power from existing generation resources, or to construct new generating resources, to meet customer demand.<sup>59</sup>

**B. The Arrowhead Substation Alternative Provides Greater Reliability Benefits in the Form of Voltage Support to the Surrounding Transmission System, Relative to the MP Proposal.**

The Arrowhead Substation Alternative will also provide greater voltage support to the surrounding transmission system compared to the MP Proposal. This is a significant benefit, given that improving regional voltage stability was a primary driver for the Arrowhead-Weston 345 kV Transmission Project that was approved in Minnesota and Wisconsin more than 20 years ago.<sup>60</sup> MP, however, claims that this alternative would essentially remove the grid-supporting benefits of its VSC HVDC converter stations from

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<sup>57</sup> Ex. ATC-227 at 12–13, 20, n.18 (Dagenais Direct).

<sup>58</sup> Ex. ATC-227 at 12, n.10 (Dagenais Direct).

<sup>59</sup> Tr. at 85 (Dagenais).

<sup>60</sup> ATC Initial Br. at 37–38.

the MP 230 kV network to ATC's 345 kV network.<sup>61</sup> It also asserts that the Arrowhead Substation Alternative would reduce impedance between the 230 kV and 345 kV systems, increasing power imports from Minnesota into Wisconsin.<sup>62</sup> Both arguments provide additional examples of MP's outdated and technically baseless view of how the modern day transmission system operates.

First, MP's claim that the Arrowhead Substation Alternative essentially transfers the grid-supporting benefits of its new converter station to ATC's 345 kV system is not accurate. To understand why, it is helpful to understand how the transmission system is presently configured at the 345/230 kV Arrowhead Substation. Currently, there are 345 kV capacitor banks in the ATC Arrowhead Substation that provide voltage support to the nearby 345 kV and 230 kV systems, notwithstanding the fact that they are located on the 345 kV side of the system (i.e., within the ATC Arrowhead Substation). Once those are removed and the Arrowhead Substation Alternative is implemented, MP's upgraded converter stations will continue to provide voltage support to MP's 230 kV system and other area voltages.<sup>63</sup> Indeed, both ATC and MP's planning analyses submitted in this proceeding demonstrate that the Arrowhead Substation Alternative will provide greater voltage support to the surrounding transmission system compared to the MP Proposal.<sup>64</sup>

Second, MP's claim that the Arrowhead Substation Alternative would reduce impedance and draw more power from Minnesota and into Wisconsin lacks critical context.

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<sup>61</sup> MP Initial Br. at 61–62.

<sup>62</sup> MP Initial Br. at 61–62.

<sup>63</sup> Ex. ATC-243 at 17 (Dagenais Rebuttal).

<sup>64</sup> Ex. ATC-243 at 17 (Dagenais Rebuttal); Tr. at 79–80 (Dagenais).

Notably, this reduced impedance leads to lower overall electric losses, as discussed above — a clear benefit to MP and its customers. And, as discussed above, even with the reduced impedance associated with the Arrowhead Substation Alternative, there will be ample electricity available to serve MP’s customers without the need to procure replacement power.<sup>65</sup> Moreover, the ability to transmit more power between Minnesota and Wisconsin is actually a *benefit* to the Arrowhead Substation Alternative, as this indicates a stronger regional transmission tie that produces a better functioning bulk electric market to cost effectively meet demand and maintain reliability.<sup>66</sup> Since power can flow in either direction between the two states, this stronger tie enables MP to import or export power depending on demand and other system conditions, which is a clear and obvious benefit to both MP and its customers.<sup>67</sup>

**C. The Arrowhead Substation Alternative Will Simplify the Reliable Operation of the Local and Regional Transmission System.**

The Arrowhead Substation Alternative will facilitate the removal of the existing 230 kV Arrowhead PST and 345 kV capacitor banks from the ATC Arrowhead Substation, which will simplify and streamline the operation of the local and regional transmission system.<sup>68</sup> MP claims that it is unclear whether these facilities can actually be removed and retired.<sup>69</sup> While it is true that MISO will need to conduct further study on the removal of the existing Arrowhead PST and 345 kV capacitor banks, ATC’s planning studies clearly

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<sup>65</sup> See *supra* Section I(A).

<sup>66</sup> Ex. ATC-243 at 38–39 (Dagenais Rebuttal); Tr. at 90 (Dagenais).

<sup>67</sup> Ex. ATC-243 at 38–39 (Dagenais Rebuttal); Tr. at 90 (Dagenais).

<sup>68</sup> ATC Initial Br. at 38–39.

<sup>69</sup> MP Initial Br. at 54–55.

demonstrate that this can be accomplished with no adverse reliability impacts to the transmission system;<sup>70</sup> indeed, MISO itself was considering removing the Arrowhead PST as part of its LRTP Tranche 2 planning process.<sup>71</sup> While MP conducted planning studies suggesting that there was “some value” to retaining this equipment, ATC witness Thomas Dagenais, ATC’s Director of System Planning, conducted a detailed critique demonstrating that those studies simply do not support MP’s position on this issue.<sup>72</sup>

Along these lines, MP devotes considerable attention to the potential need for a second Arrowhead PST and the impact that could have on the engineering feasibility and cost of the Arrowhead Substation Alternative.<sup>73</sup> But as ATC has repeatedly explained, the *existing* Arrowhead PST has never been operated to limit or otherwise control power flows from Minnesota into Wisconsin, and retirement of that equipment will have no impact on MISO’s ability to reliably operate the transmission system.<sup>74</sup> In essence, the manner in which MISO operates the transmission system and dispatches generation respects the control point, system operating limit, and interconnection reliability operating limit on the Arrowhead-Weston 345 kV transmission line and MWEX interface, which addresses the voltage stability issues that the Arrowhead PST was originally intended to prevent.<sup>75</sup> MP effectively concedes this point.<sup>76</sup> Given that the *existing* Arrowhead PST has effectively

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<sup>70</sup> Ex. ATC-227 at 10, 33–34 (Dagenais Direct); Ex. ATC-243 at 36–37, 50 (Dagenais Rebuttal).

<sup>71</sup> Ex. ATC-260, Schedule 13 (Dagenais Rebuttal).

<sup>72</sup> See generally Ex. ATC-243 at 41–45 (Dagenais Rebuttal); Tr. at 75–84 (Dagenais).

<sup>73</sup> MP Initial Br. at 47, 54–55, 64, 68.

<sup>74</sup> Ex. ATC-243 at 18, 33–36 (Dagenais Rebuttal).

<sup>75</sup> Ex. ATC-243 at 18, 33–36 (Dagenais Rebuttal).

<sup>76</sup> Ex. MP-131 at 71 & n.98 (Winter Rebuttal).



gone unused since its commissioning and MISO is actively considering retiring that equipment, it necessarily follows that a second new PST will not be needed if the Arrowhead Substation Alternative is implemented.

**D. The Arrowhead Substation Alternative Allows for Future Transmission Expansion, Should the Need Arise.**

When it was initially built, ATC’s 345/230 kV Arrowhead Substation was designed to accommodate the interconnection of additional transmission lines, should the need arise. It is therefore capable of interconnecting the Project without expanding the existing substation footprint.<sup>77</sup> However, MP claims that the Arrowhead Substation Alternative “will not provide [] flexibility for future expansion.”<sup>78</sup> This argument is wrong, for at least two reasons.

First, it is not clear that there will be a need to accommodate future transmission expansion in northeastern Minnesota around ATC and MP’s Arrowhead Substations. MP goes to great lengths to justify constructing a new 345 kV St. Louis County Substation as part of the Project—at additional cost to its customers and impact to the environment and landowners—because it could theoretically be used to accommodate future transmission expansion as part of MISO’s LRTP Tranche 2 planning process.<sup>79</sup> This “if you build it, they will come” mentality may have worked for Ray Kinsella in *Field of Dreams*, but it does not reflect sound and prudent transmission planning practice. In fact, when MISO released its draft LRTP Tranche 2 transmission portfolio in March of this year, there were

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<sup>77</sup> ATC Initial Br. at 18.

<sup>78</sup> MP Initial Br. at 44–45.

<sup>79</sup> See generally Ex. MP-122 at 43–51 (Winter Direct).

no new transmission projects depicted in northeastern Minnesota and, consequently, no proposal for a new 345 kV substation in that area.<sup>80</sup> It is therefore unlikely that there will even be a regional need for MP's proposed new 345 kV St. Louis County Substation, let alone an expansion of that substation to accommodate additional transmission development; indeed, the Large Power Intervenors expressed "concerns with [MP's] incorporation of expandability components in the Proposed Project when that expandability is completely conjectural."<sup>81</sup>

Second, there is room within the existing footprint of ATC's 345/230 kV Arrowhead Substation to accommodate future transmission expansion, should the need arise. If the Commission were to select the Arrowhead Substation Alternative, ATC would re-configure its existing substation to add two additional bays to interconnect the Project. After that, there would still be one bay open to accommodate an additional 345 kV transmission line that may be needed in the future, which could be interconnected without expanding the existing substation footprint.<sup>82</sup> As MISO's LRTP Tranche 1 portfolio shows, new 345 kV transmission lines are often large, regional projects of significant scope.<sup>83</sup> Thus, even one new 345 kV transmission line in the Arrowhead area could be a substantial project that can be interconnected to ATC's existing substation.<sup>84</sup>

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<sup>80</sup> Ex. ATC-243 at 30 (Dagenais Rebuttal); Ex. ATC-262, Schedule 14 (Dagenais Rebuttal).

<sup>81</sup> LPI Initial Br. at 10.

<sup>82</sup> Ex. ATC-Larsen 218 at 6 (Larsen Direct).

<sup>83</sup> *See, e.g.*, Ex. ATC-256, Schedule 10 (Dagenais Rebuttal).

<sup>84</sup> Ex. ATC-243 at 32 (Dagenais Rebuttal).

In sum, based on MISO’s most recent draft transmission portfolio for LRTP Tranche 2, it does not appear that a new 345 kV St. Louis County Substation will even be required to meet regional transmission needs. By contrast, ATC’s existing Arrowhead Substation has sufficient space to accommodate both the Project and one additional regional 345 kV project, should the need arise in the future. The MP Proposal reflects a clear and unnecessary overbuild of transmission infrastructure, whereas the Arrowhead Substation Alternative makes efficient use of existing transmission assets to meet the purpose-and-need of the Project.

**E. The Arrowhead Substation Alternative Imposes Lower Costs Than the MP Proposal.**

As set forth in ATC’s Initial Brief, the record demonstrates the ATC Arrowhead Alternative imposes less direct costs than the MP Proposal and provides additional benefits related to power costs.<sup>85</sup> Regarding direct costs, the best estimate of the cost of the Arrowhead Substation Alternative is approximately \$42.0 million in 2022 dollars.<sup>86</sup> ATC developed its estimate after directly consulting with its suppliers and contractors, to develop the most representative and accurate picture of cost.<sup>87</sup> In contrast, MP estimates the direct cost of the MP Proposal to be as much as \$70 million in 2022 dollars, with a “mid-range estimate of \$55 million,”<sup>88</sup> indicating increased direct costs of over 20 percent

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<sup>85</sup> ATC Initial Br. at 54–64.

<sup>86</sup> See Tr. at 122 (Johanek).

<sup>87</sup> Ex. ATC-205 at 6 (Johanek Direct).

<sup>88</sup> See Ex. MP-104 at § 2.2.1 (MP Application). MP’s estimate “is generally based on the 2022 MISO Transmission Expansion Planning Cost Estimating Guide,” not on any specific discussions with suppliers and contractors. *Id.*

for the MP Proposal, as compared to the Arrowhead Substation Alternative. This cost advantage of the Arrowhead Substation Alternative makes intuitive sense, as the MP Proposal includes an unnecessary new 345/230 kV substation and unnecessary land acquisition costs associated with this substation and the new transmission lines to and from the new substation. As discussed above and in ATC's Initial Brief, MP's efforts to overcome the inherent cost disadvantage of its proposal by tacking unnecessary costs on to the Arrowhead Substation Alternative are meritless.

**F. The Arrowhead Substation Alternative Minimizes Impacts on the Natural and Human Environment When Compared to the MP Proposal.**

The Arrowhead Substation Alternative will have fewer environmental impacts than the MP Proposal. Although Minnesota Department of Commerce, Energy Environmental Review and Analysis (DOC-EERA) concluded in the Environmental Assessment (EA) that the impacts of the Arrowhead Substation Alternative and the MP Proposal are similar,<sup>89</sup> this does not mean that the impacts are the same. In fact, DOC-EERA's determination that the Arrowhead Substation Alternative avoids or mitigates potential impacts due to a new substation not being required supports the conclusion that the Arrowhead Substation Alternative is in most ways environmentally preferable to the MP Proposal.<sup>90</sup>

The environmental benefits of the Arrowhead Substation Alternative as compared to the MP Proposal are evidenced by numerous conclusions in the EA and are highlighted by public comments during the EA scoping process. During public meetings, local

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<sup>89</sup> Ex. DOC-EERA-515 at 9 (EA).

<sup>90</sup> Ex. DOC-EERA-515 at 9 (EA).

residents raised concerns about impacts to the rural sense of place, impacts to humans and property bordering the project area, impacts to fauna and waterbodies, and impacts generally related to aesthetics, noise, and light pollution.<sup>91</sup> The EA shows that the Arrowhead Substation Alternative results in fewer impacts to these areas of concern to the local residents near the project area. DOC-EERA determined that the Arrowhead Substation Alternative will result in:

- *minimal* impacts to cultural values, as compared to *moderate* impacts from the MP Proposal, as a result of not requiring a new substation near Morris Thomas Road that may affect the rural character of the surrounding area;<sup>92</sup>
- less noise during construction than the MP Proposal because an entirely new substation would not be built within 500 feet of the nearest residence;<sup>93</sup>
- less aesthetic impact because a new substation would not be built near the most frequently used road and nearest cluster of residences;<sup>94</sup>
- less new ROW required;<sup>95</sup>
- fewer residents nearby the proposed route alignment;<sup>96</sup>
- fewer impacts to recreation, because more of the infrastructure will be hidden from public view;<sup>97</sup>
- lower construction-related greenhouse gas emissions, primarily because a new substation is not required;<sup>98</sup>

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<sup>91</sup> DOC-EERA-510 at 3 (DOC-EERA Scoping Recommendations); *see also* Ex. DOC-EERA-503 (Oral Public Comments 8.29.23 Public Meeting).

<sup>92</sup> Ex. DOC-EERA-515 at 37–39 (EA).

<sup>93</sup> Ex. DOC-EERA-515 at 9, 44–45 (EA).

<sup>94</sup> Ex. DOC-EERA-515 at 113 (EA).

<sup>95</sup> Ex. DOC-EERA-515 at 42, 76 (EA).

<sup>96</sup> Ex. DOC-EERA-515 at 113 (EA).

<sup>97</sup> Ex. DOC-EERA-515 at 52 (EA).

<sup>98</sup> Ex. DOC-EERA-515 at 77 (EA).

- less impact to groundwater due to less grading and changes to drainage patterns, and a smaller increase in impervious surfaces;<sup>99</sup> and
- fewer acres of wetland impacted, both on a temporary and permanent basis.<sup>100</sup>

MP's assertion that Minnesota Rule 7849.1400, subp. 6 requires a proposed alternative be likely to have "significant environmental benefits" for it to be reasonable and prudent misstates the rule.<sup>101</sup> Although Minnesota Rule 7849.1400, subp. 6 provides that the Commissioner of the Department of Commerce "*may* exclude from [environmental] analysis any alternative that is not likely to have any significant environmental benefits compared to the project as proposed," nowhere does that Rule require that an alternative must have significant environmental benefits compared to the proposal to be reasonable and prudent. Further, the Rule also provides that the Commissioner "*shall* include in the environmental report any alternative or impact identified by the [Commission] for inclusion."<sup>102</sup> In this matter, the Commission required that the Arrowhead Substation Alternative be studied in the EA to assist the Commission in its ultimate decision.<sup>103</sup>

MP downplays DOC-EERA's assessment of the environmental impacts in the EA, relying on broad generalizations that the potential impacts to the natural and socioeconomic environments from both proposals are anticipated to be minimal (with some exceptions) to

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<sup>99</sup> Ex. DOC-EERA-515 at 82 (EA).

<sup>100</sup> Ex. DOC-EERA-515 at 117 (Table 22) (EA).

<sup>101</sup> See MP Initial Br. at 41.

<sup>102</sup> Minn. R. 7849.1400, subp. 6.

<sup>103</sup> ORDER IDENTIFYING ALTERNATIVE PROPOSAL FOR ENVIRONMENTAL ASSESSMENT SCOPE, GRANTING VARIANCE, AND NOTICE OF AND ORDER FOR HEARING at 8, E-015/CN-22-607, E-015/TL-22-611 (Nov. 29, 2023).

argue that there is no difference between MP's Proposal and the Arrowhead Substation Alternative from an environmental standpoint.<sup>104</sup> However, this focus on broad conclusions ignores the results of DOC-EERA's assessment of the individualized environmental impact criteria in the EA. Although DOC-EERA concluded that there were "trade-offs" between the two proposals, as noted above, DOC-EERA's assessment of the individual criteria shows that the Arrowhead Substation Alternative results in fewer impacts to the natural and socioeconomic environments, predominantly due to the lack of a need for a new substation, ATC's proposal to use existing right-of-way (ROW) currently cleared for the HVDC Line, and ATC's selection of a route alignment further to the south and thus further away from residences. In aggregate, the environmental benefits provided by the Arrowhead Substation Alternative are meaningful, especially to the individuals living in the area.<sup>105</sup>

ATC has also incorporated mitigation measures into its routing and siting efforts, proposed additional mitigation measures, and has responded to agency concerns, such as those from the Minnesota Department of Natural Resources (MnDNR), to minimize or avoid environmental impacts. For example, in response to MnDNR's concerns regarding the impact of two stream crossings of the West Rocky Run Creek, ATC re-routed the Arrowhead Substation Alternative during the scoping process to reduce the number of

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<sup>104</sup> MP Initial Br. at 42.

<sup>105</sup> MP attempts to minimize the DOC-EERA's findings with respect to the comparative impacts of the two proposals on cultural values by suggesting they apply to only a small group. MP Br. at 42. Contrary to MP's suggestion, impacts on those nearest to the proposed development are to be considered in making the decision. *See* Minn. R. 7850.3700, subp. 4C (requiring consideration of effects on the natural *and human* environment).

stream crossings.<sup>106</sup> ATC also committed to maintaining a buffer of low-growing vegetation adjacent to the waterway to provide shade and mitigate the warming impacts to the stream.<sup>107</sup> MP misrepresented ATC's efforts to avoid or mitigate the impacts to the trout stream by erroneously stating that "ATC proposed no additional mitigation measures related to the [Arrowhead Substation Alternative] crossing of the West Rocky Run Creek."<sup>108</sup> As the record shows, this is not accurate.

Additionally, ATC built in mitigation measures through intentional route selection. ATC's proposed route limits environmental impacts by sharing the existing HVDC Line ROW for the east-west segment of the transmission line, and by selecting a north-south segment location that curtails impacts to forested wetlands and avoided a known archaeological site.<sup>109</sup> Finally, because MP would construct the Project, construction-related impacts that are already lesser for the Arrowhead Substation Alternative, such as air quality impacts, could be further reduced if MP implements the same mitigation measures it has committed to the MP Proposal.<sup>110</sup>

MP's speculation regarding the ability to further expand ATC's Arrowhead Substation is premature and irrelevant to the matter before the Commission, and should be disregarded. As discussed in Section III(D) above, the Arrowhead Substation Alternative does not require any expansion of the existing Arrowhead Substation to accommodate the

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<sup>106</sup> Ex. DOC-EERA-514 at 1 (Revised Scoping Decision).

<sup>107</sup> Ex. ATC-225 at 9 (Lee Direct).

<sup>108</sup> MP Initial Br. at 5.

<sup>109</sup> Ex. ATC-214 at 9–10 (Bradley Direct).

<sup>110</sup> Ex. DOC-EERA-515 at 75 (EA); Ex. ATC-226 at 4 (Lee Rebuttal).



Project.<sup>111</sup> ATC witness Mr. Tobin Larsen explained that expansion of the ATC Arrowhead Substation would *not* be necessary to connect even a significant new project, such as an additional 345 kV transmission line that might be needed in the future.<sup>112</sup> As there are no firm plans to construct any additional transmission in the area, this additional capacity at the ATC Arrowhead Substation should be more than sufficient to accommodate the MP Project as well as potential near-term transmission development.<sup>113</sup>

In short, the EA demonstrates that the Arrowhead Substation Alternative is likely to provide significant environmental benefits as compared to the MP Proposal due to ATC's thoughtful approach to route selection and siting, as well as relying on existing infrastructure that negates the need for a new substation. These benefits may be further increased by mitigation measures MP could implement during construction, which it has already agreed to perform for the MP Proposal. The Arrowhead Substation Alternative also provides for future transmission projects without the need to expand the footprint of the ATC Arrowhead Substation. These factors all support the inclusion of the Arrowhead Substation Alternative in the MP Project.

#### **IV. ATC HAS PROVIDED SUFFICIENT INFORMATION FOR THE COMMISSION TO CONSIDER—AND ULTIMATELY SELECT—THE ARROWHEAD SUBSTATION ALTERNATIVE.**

MP raises two process-based arguments in opposition to the Arrowhead Substation Alternative. First, MP asserts that the Commission should consider ATC a co-permittee for

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<sup>111</sup> Ex. ATC-226 at 5 (Lee Rebuttal); Ex. ATC-224 at 3–4 (Larsen Rebuttal).

<sup>112</sup> Ex. ATC-224 at 3 (Larsen Rebuttal).

<sup>113</sup> Ex. ATC-224 at 3–4 (Larsen Rebuttal).

the Project and find that ATC failed to provide sufficient information for the Commission to approve the Arrowhead Substation Alternative.<sup>114</sup> Second, MP claims that ATC has not properly initiated proceedings to remove the 800 MVA limit from the ATC Arrowhead Substation and 345 kV Arrowhead-Weston Transmission Line.<sup>115</sup> These hyper-technical arguments have no legal basis and should be rejected outright.

**A. ATC Has Provided the Commission With More Than Enough Information to Approve the Arrowhead Substation Alternative in This Proceeding.**

MP asserts for the first time in this proceeding that ATC is in fact a “co-permittee” for the Project and, as such, has not provided the Commission with all required information under the Minnesota Rules.<sup>116</sup> Specifically, MP claims that ATC failed to provide information concerning its peak demand and annual consumption (under Minn. R. 7849.0270), its system capacity (under Minn. R. 7849.0280), and its conservation programs (under Minn. 7849.0290).<sup>117</sup> This argument fails for multiple reasons.

First, ATC does not seek to be a “co-permittee,” as MP contends, nor would selection of the Arrowhead Substation Alternative require ATC to become a co-permittee. While co-permittees are required to provide certain information in connection with an application for a certificate of need,<sup>118</sup> ATC is not the Project sponsor and obviously did not jointly file the certificate of need application with MP in this proceeding. Rather, ATC

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<sup>114</sup> MP Initial Br. at 8–11.

<sup>115</sup> MP Initial Br. at 63–66.

<sup>116</sup> MP Initial Br. at 8–11.

<sup>117</sup> MP Initial Br. at 10.

<sup>118</sup> See Minn. R. 7849.0220.

intervened in this proceeding after MP filed its Application and proposed an alternative that would modify the Project's point-of-interconnection to the AC transmission system.<sup>119</sup> The Commission subsequently converted this proceeding into a formal contested case so a formal evidentiary record could be assembled on the merits of ATC's proposal.<sup>120</sup> If the Commission wanted ATC to be considered a co-permittee and to provide the information required under Minn. R. 7849.0220, it could have required (or MP could have asked that the Commission require) this as part of its order converting this proceeding to a formal contested case. It did not do so. As such, MP cannot now claim that ATC needed to present information that the Commission never required in the first place; indeed, it would make little sense for the Commission to require intervenors like ATC to supply information concerning a Project that they are not even sponsoring.

Second, much of the information that MP is claiming ATC should have provided is simply not applicable to ATC, which is a transmission-only utility that does not (and cannot) own any electric generation resources or serve any retail end-use customers.<sup>121</sup> Instead, ATC's sole purpose is to plan, construct, operate, maintain, and expand the high-voltage transmission system in the states in which it operates.<sup>122</sup> As such, the following requirements would not be applicable to ATC, even if it was applying as a co-permittee:

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<sup>119</sup> See ATC Motion to Intervene (Aug. 9, 2023) (eDocket No. [20238-198112-01](#)); ATC Scoping Comments on Environmental Assessment (Sept. 15, 2023) (eDocket No. [20239-198974-02](#)).

<sup>120</sup> See ORDER IDENTIFYING ALTERNATIVE PROPOSAL FOR ENVIRONMENTAL ASSESSMENT SCOPE, GRANTING VARIANCE, AND NOTICE OF AND ORDER FOR HEARING at 8, E-015/CN-22-607, E-015/TL-22-611 (Nov. 29, 2023).

<sup>121</sup> Ex. ATC-201 at 4 (McKee Direct); Ex. ATC-243 at 15–16 (Dagenais Rebuttal).

<sup>122</sup> Ex. ATC-201 at 4 (McKee Direct); Ex. ATC-243 at 15–16 (Dagenais Rebuttal).

- Minn. R. 7849.0270 requires *an applicant* (not an intervenor) to provide data regarding peak demand and annual electric consumption within its service area, including (among other things) customers' annual electric consumption by customer category, annual and monthly system peak demand, and estimated average system weekday load factor. As a transmission-only utility, ATC does not serve any end-use customers, and therefore, would be incapable of providing much of the data required.
- Minn. R. 7849.0280 requires an applicant to provide (among other things) its power planning programs, seasonal firm purchases and sales, and load and generation capacity. ATC is statutorily prohibited from owning any generating resources or serving any retail load and would not be able to provide any meaningful information under this regulation.<sup>123</sup>
- Minn. R. 7849.0290 requires an applicant to provide information on its energy conservation and energy efficiency programs, which are generally designed to reduce retail load and conserve energy. Again, ATC is statutorily prohibited from serving retail load and does not implement the types of programs described in the rule.

MP does not even attempt to explain how or why ATC's inability to provide this information prejudiced any party or is otherwise relevant to the Commission's determination in this case. Ultimately, ATC has provided the Commission with more than sufficient information to approve the Project, conditioned upon implementation of the Arrowhead Substation Alternative.

Finally, MP's "co-permittee" argument is simply a variant of its mischaracterization of the Arrowhead Substation Alternative as a "system alternative" that fails to meet the purpose and need for the Project. As discussed in Section I(A) above, this argument hinges on MP's fiction that the Arrowhead Substation Alternative would result in increased power flows to Wisconsin of up to seven to ten percent. To be clear, MP's underlying analysis is

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<sup>123</sup> See Wis. Stat. §§ 196.485(3m)(a)2.b.–c.

wrong and ATC does not seek “co-applicant” status. Rather, ATC has offered a more efficient and reliable means of interconnection that meets the purpose and need of the Project while imposing less cost and less human and environmental impact, requiring an alternate transmission line route from those proposed by MP, since it does not require construction of an entirely new substation. MP’s attempt to convince the ALJ and Commission to reject the Arrowhead Substation Alternative based on hyper-technical and illogical readings of the Commission’s rules and fundamentally flawed analysis should be rejected.

**B. The 800 MVA Limit Previously Imposed by the Minnesota Environmental Quality Board (EQB) Can and Should be Removed as Part of This Proceeding.**

MP and ATC agree that, if the Arrowhead Substation Alternative is implemented, it *could* result in electrical flows exceeding 800 MVA through both the ATC Arrowhead Substation and over the Arrowhead-Weston 345 kV Transmission Line.<sup>124</sup> ATC has therefore requested that the Commission remove the 800 MVA limit that the EQB initially imposed when it authorized construction of the Arrowhead-Weston Project over 20 years ago.<sup>125</sup> MP essentially asserts that ATC was required to initiate a separate proceeding to remove this limit and that the Commission cannot do so as part of this proceeding.<sup>126</sup>

MP’s argument has no legal basis or practical foundation. In 2005, the Minnesota Legislature transferred all authority over transmission siting issues from the EQB to the

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<sup>124</sup> Ex. ATC-227 at 38–39 (Dagenais Direct).

<sup>125</sup> Ex. ATC-243 at 45–48 (Dagenais Rebuttal).

<sup>126</sup> MP Initial Br. at 65–66.

Commission, meaning the Commission now has authority to remove the 800 MVA limit.<sup>127</sup> Indeed, the Commission has broad authority to “rescind, alter, or amend any order fixing rates, tolls, charges, or schedules, or any other order made by the commission.”<sup>128</sup> Tellingly, MP cites no legal authority in support of its position that ATC was required to initiate a separate proceeding before the Commission to remove this limit. This is unsurprising, given the Commission’s statutory authority to amend or alter prior orders.<sup>129</sup> The Commission can—and, for reasons ATC has already explained, should—remove the 800 MVA limit that the EQB previously imposed upon the Arrowhead-Weston 345 kV transmission project.<sup>130</sup> Given the serious issues this limit raises under the Dormant Commerce Clause of the U.S. Constitution, it is likely legally unenforceable anyway.

MP’s argument also makes little practical sense and would lead to needless administrative churn with no clear benefit. The record in this proceeding has been fully developed regarding the history, purpose, and continuing utility of the 800 MVA limit. What ends could be served by requiring ATC to open an entirely separate administrative proceeding to consider issues related to the 800 MVA limit that have been clearly and adequately addressed in the existing evidentiary record? None. If MP was legitimately concerned about how additional process concerning the removal of this limit could impact the Project schedule, it would be advocating for the Commission to address this issue now—not as part of a separate administrative proceeding. The fact that MP is not taking

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<sup>127</sup> ATC Initial Br. at 71.

<sup>128</sup> Minn. Stat. § 216B.25.

<sup>129</sup> See Minn. Stat. § 216B.25.

<sup>130</sup> ATC Initial Br. at 71–75.

this position—and has made no effort to defend the substantive merits of the 800 MVA limit—demonstrates that it is more interested in using this issue to obstruct implementation of the Arrowhead Substation Alternative, rather than to remove a potential source of delay for its “urgently needed” Project.

**V. MP’S PURPOSEFUL FAILURE TO CONDUCT APPROPRIATE DILIGENCE ON THE ARROWHEAD SUBSTATION ALTERNATIVE SHOULD NOT PREVENT THE COMMISSION FROM APPROVING THE ARROWHEAD SUBSTATION ALTERNATIVE.**

As ATC has explained, the Arrowhead Substation Alternative meets the timing requirements for the Project. MP, with ATC’s cooperation, is more than capable of modifying the Project to interconnect to ATC’s 345/230 kV Arrowhead Substation in time to meet MP’s April 2030 guaranteed in-service date. To the extent an earlier in-service date is required, ATC can reliably serve the Project using its existing 345/230 kV transformer in the Arrowhead Substation until the second transformer can be delivered and installed.<sup>131</sup>

MP nonetheless claims that the Arrowhead Substation Alternative cannot be implemented prior to 2030.<sup>132</sup> Broadly speaking, its scheduling concerns can be broken down into two categories: the need to conduct additional technical and planning studies, including as part of the MISO planning process, and the impact that the Arrowhead Substation Alternative could have on its eligibility for DOE funding. As explained below, both issues are problems that are entirely of MP’s own making. The ALJ and Commission should reject this attempt to box them into approving the MP Proposal simply because MP

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<sup>131</sup> ATC Initial Br. at 51–53.

<sup>132</sup> MP Initial Br. at 49.

failed to conduct the necessary diligence on the Arrowhead Substation Alternative before filing its application.

**A. MISO Can Review and Approve the Arrowhead Substation Alternative in the Current MTEP Study Cycle.**

MP claims that implementation of the Arrowhead Substation Alternative will delay the overall Project because MISO has yet to conduct a detailed analysis of this alternative and because additional technical studies would need to be completed in conjunction with MP's HVDC supplier to accommodate the new point-of-interconnection. Both arguments are rooted in MP's failure to timely vet the Project through MISO's open and collaborative regional transmission planning process and conduct the necessary technical diligence on the Arrowhead Substation Alternative with its HVDC supplier.

As ATC has described, each year, MISO undergoes a process to develop its regional transmission expansion plan (MTEP). After MISO develops planning models in consultation with its members and stakeholders, transmission owners (such as ATC and MP) submit new transmission projects for evaluation through an approximately yearlong open and collaborative review process. Other transmission owners or stakeholders can submit feedback and input on those projects, including with respect to potential transmission or non-transmission alternatives. MISO will then review and evaluate this feedback and, based on that evaluation, recommend a final list of projects for the MISO Board of Directors to approve as part of the MTEP for that planning year.<sup>133</sup> Approved transmission projects are ultimately listed in Appendix A of the MTEP, whereas Appendix

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<sup>133</sup> See generally ATC Initial Br. at 10–11; Ex. ATC-243 at 19–20 (Dagenais Rebuttal).



B includes projects that have not been formally approved, but have been submitted as a possible solution to address an identified transmission system need.<sup>134</sup> Importantly, when the Federal Energy Regulatory Commission (FERC) approved an agency agreement between MP and MISO related to the HVDC Line in 2009, it made clear that this facility is subject to MISO's open and collaborative MTEP planning process, even though the line is not under MISO's full functional control.<sup>135</sup>

To date, MP has failed to fully vet the Project through MISO's open and collaborative MTEP process.<sup>136</sup> Instead, the Project has been listed in MISO Appendix B for over a decade.<sup>137</sup> This is a critical point. As described above, the MTEP process provides stakeholders—including other transmission owners like ATC—with the opportunity to review and provide feedback on transmission proposals, including with respect to potential alternatives.<sup>138</sup> While MP goes to great lengths to criticize ATC for not having MISO review the Arrowhead Substation Alternative through its planning process,<sup>139</sup> the reality is that this was not ATC's responsibility. Fundamentally, the HVDC Modernization Project is MP's project—not ATC's. As the project sponsor, the obligation was on MP—not ATC—to ensure the Project was properly vetted through MISO's regional transmission planning efforts. Had MP done so, it would have triggered a formal

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<sup>134</sup> Ex. ATC-227 at 34 (Dagenais Direct).

<sup>135</sup> Ex. ATC-243 at 20 (Dagenais Rebuttal).

<sup>136</sup> Ex. ATC-243 at 20–21 (Dagenais Rebuttal); Ex. ATC-250, Schedule 5 (Dagenais Rebuttal); Ex. ATC-251, Schedule 6 (Dagenais Rebuttal).

<sup>137</sup> *Id.*; Ex. MP-121 at 42 (Winter Direct).

<sup>138</sup> Ex. ATC-243 at 21–22 (Dagenais Rebuttal).

<sup>139</sup> MP Initial Br. at 66–67.

stakeholder review process through which ATC could provide feedback and input, including presenting the Arrowhead Substation Alternative it is presented here. Whether intentionally or unintentionally, MP has circumvented this process, leaving ATC with no choice but to intervene in these proceedings.<sup>140</sup>

Rather than present the Project for review and approval through the MTEP process, MP elected to have MISO conduct a limited review of the Project through its transmission service request (TSR) process.<sup>141</sup> Between 2019 and 2020, MP submitted to MISO two TSRs to reserve 350 MW of additional firm transmission service on the HVDC Line (bringing the line's total capacity to 900 MW). MISO conducted two system impact studies (SISs) to evaluate what impacts these requests would have on the reliable operation of the transmission system. Several years later, in April 2023, MP prepared a Facilities Study to document the scope, estimated cost, and timing of upgrades that would be needed for the HVDC Line to accommodate the new TSRs. The Facilities Study noted that these upgrades would include (among other things) the Project being reviewed in this proceeding, including replacement of the converter stations at either end of the HVDC Line and construction of the new 345 kV St. Louis County Substation. MP and MISO have now executed a Facilities Construction Agreement (FCA) for the construction of network upgrades needed to increase the capacity of the HVDC Line to 900 MW—including the Project—and filed that agreement with FERC for approval.<sup>142</sup> MP claims that, if the

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<sup>140</sup> Ex. ATC-243 at 21–22.

<sup>141</sup> *See generally* Ex. ATC-243 at 22–24 (Dagenais Rebuttal).

<sup>142</sup> Ex. ATC-243 at 22–24 (Dagenais Rebuttal).

Commission approves the Arrowhead Substation Alternative, it would trigger a cancellation of the existing FCA and SISs,<sup>143</sup> requiring a re-start of the TSR process, new SISs, and execution of a new FCA, which could take up to 300 days.<sup>144</sup>

MP's argument misrepresents the record. First, MISO certainly did not "confirm[]" that [] a change in the point of interconnection (from the Minnesota Power 230 kV/115 kV Substation to the ATC Arrowhead 345/230 kV Substation)" would require a restart of its TSR process that could take 300 days.<sup>145</sup> In fact, MISO did not provide *any* specific guidance regarding how the Arrowhead Substation Alternative would impact the timeline for MISO's review of the Project. Rather, MISO generically indicated that its tariff and business practice manuals "do not list specific project changes" that would necessitate restarting the TSR process and that "MISO applies its engineering judgment to determine if there is a need for a new system impact study."<sup>146</sup> MISO further stated that "if the source and sink of the TSR changed, or if there were major topological changes to consider, the TSR process would need to start again."<sup>147</sup> Nowhere did MISO specifically state that changing the Project's point-of-interconnection to the AC transmission system would cause these "re-study triggers" to kick in. And given that ATC's planning analysis demonstrates that the Arrowhead Substation Alternative performs as well or better than the

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<sup>143</sup> MP Initial Br. at 49–50.

<sup>144</sup> MP Initial Br. at 49–50.

<sup>145</sup> MP Initial Br. at 50.

<sup>146</sup> Ex. DOC-DER-602, Rebuttal Schedule MZ-R-11 at 1 (Zajicek Rebuttal).

<sup>147</sup> Ex. DOC-DER-602, Rebuttal Schedule MZ-R-11 at 1 (Zajicek Rebuttal).

MP Proposal from a reliability perspective, it is reasonable to infer that this re-study process can be avoided entirely.<sup>148</sup>

More importantly, MP's narrow focus on the potential need to re-study the Project as part of the TSR process is a red herring. As ATC has repeatedly explained, there is more than sufficient time for MISO to study and evaluate both the MP Proposal and the Arrowhead Substation Alternative as part of the current MTEP planning cycle.<sup>149</sup> Assuming MP actually initiates this process, ATC can submit the Arrowhead Substation Alternative to MISO for consideration, which MISO and other stakeholders can review and evaluate, including during subregional planning meetings running through August.<sup>150</sup> MISO can then analyze and evaluate the feedback it receives and recommend the best solution for inclusion in the current MTEP and approval by the MISO Board.<sup>151</sup> MP can even seek MISO's expedited consideration of the MP Proposal and the Arrowhead Substation Alternative, which could take as little as 30 days.<sup>152</sup> In light of this, MP's scheduling concerns tied to MISO review of the Arrowhead Substation Alternative are simply unfounded.

Finally, MP claims that additional technical studies regarding the Arrowhead Substation Alternative would need to be conducted with its HVDC supplier, which could

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<sup>148</sup> See generally Ex. ATC-227 at 29–33 (Dagenais Direct).

<sup>149</sup> Ex. ATC-243 at 25–28 (Dagenais Rebuttal); Ex. ATC-249, Schedule 4 (Dagenais Rebuttal); ATC Initial Br. at 45–46.

<sup>150</sup> Ex. ATC-243 at 25–28 (Dagenais Rebuttal).

<sup>151</sup> Ex. ATC-243 at 25–28 (Dagenais Rebuttal).

<sup>152</sup> Ex. ATC-227 at 35 (Dagenais Direct); Ex. ATC-255, Schedule 9 at 65–67 (Dagenais Rebuttal).

delay the overall Project schedule.<sup>153</sup> Simply put, this is not ATC's fault. Before filing its application in this case, the onus was on MP to evaluate reasonable alternatives to its proposed configuration of the Project, including the proposed point-of-interconnection in Minnesota. While MP did consider interconnecting the Project to ATC's Arrowhead Substation, it acknowledges that it "dismiss[ed] what has become the ATC Arrowhead Alternative without the need to complete detailed studies or analytical modeling."<sup>154</sup> Had MP conducted more detailed analysis of the Arrowhead Substation Alternative before filing its application, it would have realized—as ATC has demonstrated in this proceeding—that the Arrowhead Substation, for multiple reasons, is a superior solution for interconnecting the Project to the AC transmission system in Minnesota, relative to the MP Proposal. The fact that MP may need to conduct additional technical analysis if the Commission were to order implementation of the Arrowhead Substation Alternative is no justification for allowing MP to proceed with its proposed method of interconnection, which is inferior to the Arrowhead Substation Alternative.<sup>155</sup>

**B. DOE Funding Need Not Be at Risk With the Arrowhead Substation Alternative.**

MP continues to assert that potential state and federal funding for portions of the Project could be put at risk if the Commission chooses the Arrowhead Substation

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<sup>153</sup> MP Initial Br. at 49–50, 56–57. MP claims that "ATC would need to complete these studies," but it is unclear why. No one at ATC has been involved with the studies that MP or its HVDC supplier have conducted in connection with the Project. Ex. ATC-243 at 49 (Dagenais Rebuttal). MP is the Project sponsor and is responsible for designing, procuring, and constructing the Project consistent with its specifications and requirements.

<sup>154</sup> Ex. MP-121 at 57 (Winter Direct).

<sup>155</sup> See generally Ex. ATC-243 at 49–50.

Alternative.<sup>156</sup> However, implementation of the Arrowhead Substation Alternative should not threaten any of these potential sources of funding for the Project. In fact, regarding state funding, MP has acknowledged that it “does not believe that any funding dollars for the state grants . . . would be withheld in total in the event the Commission orders the company to proceed with the ATC Arrowhead [Substation] Alternative.”<sup>157</sup> Further, with respect to the \$50 million in potential DOE GRIP round one funding, MP admits that this funding also “has a low probability of being impacted” by the Arrowhead Substation Alternative, unless ATC fails to “deliver on all aspects” of the Arrowhead Substation Alternative within 60 months from the date of any such award,<sup>158</sup> a concern without merit given the ability of the Arrowhead Substation Alternative to meet any such timeline.<sup>159</sup> Finally, MP’s assertion that “the opportunity for GRIP Program Round Two funding would likely be lost if the [Arrowhead Substation Alternative] is chosen” is wholly without merit. MP would have the Commission believe that, because *MP* has thus far chosen to ignore the possibility of the Arrowhead Substation Alternative being selected, and has therefore not discussed that alternative in materials submitted to DOE, the Commission should rubber stamp the MP Proposal, so as not to jeopardize this potential funding. But as ATC has explained, the GRIP funding process can accommodate modifications to the technical details of projects even after a full application is submitted, so long as the potential for this

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<sup>156</sup> See MP Initial Br. at 68-73.

<sup>157</sup> Ex. MP-119 at 20 (Gunderson Direct).

<sup>158</sup> Ex. MP-119 at 19–20 (Gunderson Direct).

<sup>159</sup> See Ex. ATC-209 at 13–14 (Johanek Rebuttal).

modification is addressed in the technical volume accompanying the full application.<sup>160</sup>

Thus, MP's concerns regarding state and federal funding lack any merit.

### CONCLUSION

For the foregoing reasons and those stated in ATC's Initial Brief, ATC respectfully requests that the Commission grant MP a Certificate of Need and Route Permit for the Project that incorporates the Arrowhead Substation Alternative.

Dated: May 22, 2024

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<sup>160</sup> See ATC Initial Br. at 60-62; ATC Comments to Environmental Analysis at 2, n.2 and Attachment 1 (Questions and Answers Posted to Exchange: Nos. 241 and 243) (Mar. 28, 2024) (eDocket Nos. [20243-204747-01](#) and [20243-204747-03](#)).