Selection Report

Denny - Zachary - Thomas Hill - Maywood 345 kV Competitive Transmission Project

April 2, 2024

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Executive Summary

MISO has chosen Ameren Transmission Company of Illinois (ATXI) to be the Selected Developer for the Denny–Zachary–Thomas Hill–Maywood 345 kV Competitive Transmission Project (DZTM).

ATXI was one of four developers to submit a proposal in response to the DZTM Request for Proposals (RFP). ATXI partnered with Missouri Joint Municipal Electric Utility Commission d/b/a Missouri Electric Commission (MEC) and will sell 49% of the project to MEC before the project is placed into service. ATXI submitted Proposal 705, which MISO selected, and Proposal 706.

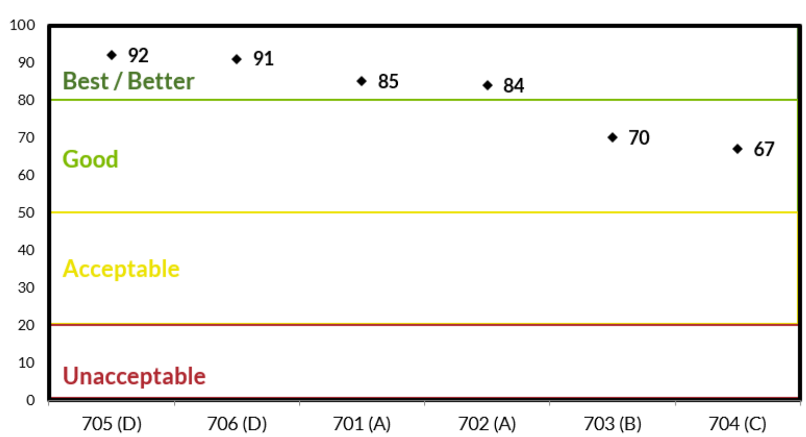
This report explains MISO's competitive developer selection process and the DZTM project, summarizes the six proposals MISO received from four transmission developers to construct, own, operate, and maintain DZTM, and explains why MISO selected ATXI to develop DZTM.

On July 25, 2022, MISO's Board of Directors approved the Long-Range Transmission Planning Tranche 1 portfolio for inclusion in the 2021 MISO Transmission Expansion Plan (MTEP21). Tranche 1 included Project 10, which consists of two new single-circuit 345 kV transmission lines, a replaced 161 kV transmission line, a new 345 kV conductor-only circuit that will share structures with the replaced 161 kV line, and several new 345 kV line positions at related substations. All Project 10 facilities will be in Missouri.

The two new 345 kV transmission lines and the new conductor-only 345 kV circuit are eligible for MISO's Competitive Developer Selection Process. These facilities consist of (1) a new single-circuit 345 kV transmission line that will run from ATXI's Denny substation to Ameren's Zachary substation, (2) a new single-circuit 345 kV transmission line that will run from Zachary to Ameren's Maywood substation, and (3) new 345 kV conductor, insulators, and hardware on replaced transmission line structures that will run from Zachary to AECI's Thomas Hill substation and share 161/345 kV structures replaced by Ameren.

In June 2023, MISO issued an RFP for DZTM. In November 2023, Ameren Transmission Company of Illinois, LS Power Midcontinent, NextEra Energy Transmission Midwest, and Transource Energy submitted a total of six valid proposals in response to the RFP. These four developers are referred to as Developers A, B, C, and D, although not necessarily in that order, and the proposals are numbered 701 – 706. Figure 1 identifies the total score MISO awarded to each DZTM proposal.

Figure 1. Evaluation Scores for DZTM Proposals



All proposals met the minimum requirements of the RFP. All developers explained how they would procure materials and what contractors they would use to build the project. All developers demonstrated they have the capital to build and maintain the project and substantial experience operating and maintaining 345 kV transmission facilities. The proposals included either Drake or Cardinal conductors, transmission structures made of galvanized or weathering steel, and routes independent of or alongside existing transmission lines.

Figure 2 shows the nominal PI cost of the proposals ranged from $265 million to $486 million. These estimates do not include AFUDC because some developers will request a return on construction work-in-progress (CWIP). ATXI was the only developer that offered to cap its PI costs.

Figure 2. Estimated PI cost of DZTM proposals ($M)

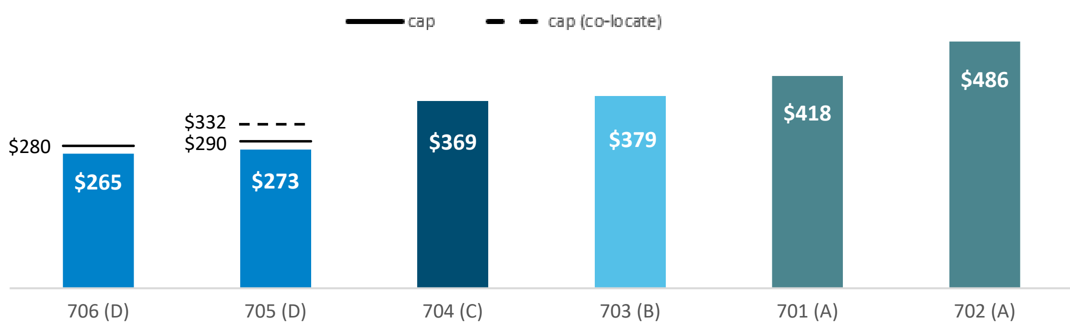
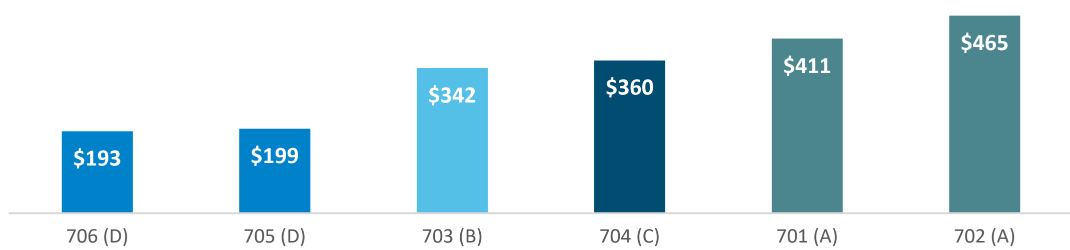


Figure 3 illustrates the present value of the revenue requirements (PVRR) of the proposals for forty years. The differences in PVRR were principally due to PI cost, income tax, and property tax. All developers offered to cap project revenues in some way.

Figure 3. Estimated PVRR of DZTM proposals ($M)



Developer A proposed to run Drake conductor on weathering steel transmission structures in its two proposals. It estimated the two highest PI costs for DZTM. Proposal 701 would use a delta configuration to support the 345 kV circuits on the new transmission paths. Proposal 702 would use a vertical configuration to support those circuits, therefore leaving open the other side of each structure to support a second 345 kV circuit in the future. Because MISO decided Proposal 702's increased capability did not warrant that proposal's additional cost, it valued Proposal 701 more than Proposal 702.

Developer B proposed to run Cardinal conductor on galvanized steel transmission structures. It estimated the fourth lowest PI cost, but its PVRR was the third lowest due to lower equity return.

Developer C proposed to run Drake conductor on galvanized steel transmission structures. It estimated the third lowest PI cost, but its PVRR was higher than that of Developer B.

Developer D proposed to run Cardinal conductor on weathering steel transmission structures. It estimated the two lowest PI costs for DZTM. Proposal 705 would route a segment of the new transmission paths parallel to another utility's 161 kV line and included an upward adjustment to its project cost cap if the Missouri Public Service Commission required it to co-locate that segment with the 161 kV line. Proposal 706 took a slightly more direct route that did not parallel the 161 kV line, and therefore did not include a conditional adjustment to its PI cost cap.

MISO determined Proposals 705 and 706, which were submitted by Developer D, and Proposal 701, which was submitted by Developer A, were the most competitive proposals, respectively.[1]

Developer D's combined Cost and Design for DZTM was significantly better than that of Developer A. This criterion accounted for 30% of MISO's decision in DZTM. MISO ranked Proposal 705 higher than Proposal 706 because it decided Proposal 705's pre-determined cost treatment for co-locating a portion of one of the new transmission lines with a nearby 161 kV line, if required, justified that proposal's slightly higher project cost.

Developer D's estimated PVRRs for DZTM for forty years for both Proposals 705 and 706 were substantially less than those of Developer A. This was principally due to Developer D's lower PI costs and O&M expenses and its arrangement to transfer 49% of DZTM via a joint operating agreement after the facilities are constructed to its project partner, a local municipal agency exempt from income and property taxes. Its PVRRs remained superior to those of Developer A under different cost and financing scenarios modeled by MISO. This was principally due to its cost caps and return on equity commitments.

Developer A's design for DZTM was slightly better than that of Developer D. Both developers showed the criteria their structural design incorporated, but Developer A included more robust weather scenarios. Developer A also took soil borings over the entire new routes to inform its design, while Developer D relied on historical soil borings, which only covered a portion of the new routes.

The design margin between Developers A and D narrowed due to Developer D's proposal to use concrete backfill, which is stronger and offers more protection from corrosion than the crushed rock Developer A proposed to use, and to place deadend structures every five miles on average, two miles less than that of Developer A.

Developer A's Project Implementation (PI) plan for DZTM was better than that of Developer D. Developer A conducted the most engineering and surveying of any developer, and its routes had the least environmental impact. It also more clearly detailed its construction activities and access plans, and showed how it could modify construction activities based on the in-service date of Denny Substation. PI accounted for 35% of MISO's decision in DZTM and is the highest weighted criterion in MISO's Competitive Transmission Process for projects that only consist of transmission lines.

[1] Unless stated otherwise, references to Developer A and Developer D in this report are also references to Proposals 701 and 705, respectively, because MISO valued those proposals higher than each developer's other proposal.

Developer D's Operations and Maintenance (O&M) plan for DZTM was slightly better than that of Developer A. Both developers demonstrated efficient strategies for O&M, but Developer D established a stronger operational presence in the project area. Developer A identified fewer existing personnel (internal and contractors) to utilize on this project and plans to hire additional staff for critical positions. The lack of known personnel and their abilities increases the risk and uncertainty in certain areas of Developer A's proposal. O&M accounted for 30% of MISO's decision in DZTM.

All developers earned the full 5% for Project Participation.

The project implementation process will begin immediately with execution of the Selected Developer Agreement. MISO will work with ATXI to successfully execute a project that will benefit MISO's stakeholders.

Denny–Zachary–Thomas Hill–Maywood 345 kV Competitive Transmission Project Selection Report

I. Competitive Project and Process

This report explains MISO's decision to select Ameren Transmission Company of Illinois (ATXI) to develop the DZTM Competitive Transmission Project and the process MISO used to reach its decision.

Competitive Project

On July 25, 2022, MISO's Board of Directors approved the Tranche 1 Long-Range Transmission Planning portfolio for inclusion in the 2021 MISO Transmission Expansion Plan (MTEP21). Tranche 1 included MTEP21 Project 10, which includes two new single-circuit 345 kV transmission lines, a new 345 kV conductor and necessary hardware to be run on a transmission line to be replaced by the incumbent utility, and necessary upgrades to three substations to accommodate the three new 345 kV paths.

The first 345 kV transmission line (Facility 27134) will run east from ATXI's future Denny substation in northwest Missouri to Ameren's existing Zachary substation in northcentral Missouri. The second 345 kV transmission line (Facility 27136) will run east from Zachary to Ameren's existing Maywood substation in northeast Missouri. The new 345 kV transmission conductor (Facility 27138) will run south from Zachary to Associated Electric Cooperative Incorporated's (AECI) existing Thomas Hill substation and be placed on transmission structures to be replaced by Ameren to accommodate the new 345 kV conductor.

The Denny to Zachary (D-Z) line, the Zachary to Maywood (Z-M) line, and the Zachary to Thomas Hill (Z-T) conductor are eligible for the competitive transmission process. MISO titled these facilities the "Denny–Zachary–Thomas Hill–Maywood 345 kV Competitive Project," and this project is referred to as DZTM in this report.

Request for Proposals

MISO issued a Request for Proposals (RFP) for DZTM on June 2, 2023. MISO held a public meeting on June 22, 2023 to provide information and answer questions about the project and the RFP. Full details about the RFP and a register of questions asked, along with the answers provided by MISO, are available on MISO's Competitive Transmission Administration webpage.[2]

[2] https://www.misoenergy.org/planning/competitive-transmission-administration/

MISO's goal is to select a proposal that provides the greatest overall value while meeting all project requirements and ensuring the highest likelihood of project success. Cost is an important component of value and a comparative advantage, but it is not the sole consideration. MISO listed five aspects and elements of the project it anticipates may be particularly important for the success of the project. MISO encouraged developers to consider the following in formulating their proposals:

1. **Denny Point of Interconnection Flexibility:** Although the planning analysis modeled the Denny Substation approximately two miles from the Fairport Substation, the final location of the Denny Substation will be determined by the Selected Developer of MISO's Fairport to Denny to IA/MO State Border (FDIM) Project, which will be selected by MISO on October 31, 2023.[3] Given that the final location of Denny will not be known at the time of the Proposal Submission Deadline for the DZTM Project, an important element of the proposal will be how a range of potential geographic locations for the Denny Substation will be accommodated in the cost and design of the Project.
2. **Coordination with Interconnecting Transmission Owners:** The Project will connect to facilities owned and operated by multiple Transmission Owners. Of particular importance to Project success will be the planned coordination with these Transmission Owners on various regulatory, permitting, design, construction, and operations and maintenance activities.
3. **In-Service Date Flexibility:** Placing this Project into service as planned will require time-sensitive coordination for regulatory, construction, commissioning, and outage coordination activities. An important element of the Project is to describe in the Proposal what flexibility exists, if any, to achieve varying In-Service Dates (ISD), not later than June 1, 2030, if such opportunities are identified in cooperation with other involved parties after selection.
4. **Zachary to Thomas Hill Transmission Line Facility:** The Project's Zachary to Thomas Hill 345 kV transmission circuit (the Selected Developer will install the 345 kV conductor, insulators, and hardware on replaced transmission line structures) will require close coordination with Ameren and AECI. An important aspect of the Project is how the coordination for this transmission line facility will be approached for the design, project implementation, and operations and maintenance of this facility.
5. **Project Scale and Scope:** The Project is relatively large, with a MISO-estimated cost exceeding $500 million. An important aspect of the Project will be to demonstrate the ability to manage the complexities of a large project from the standpoint of financing, overall project management, regulatory, permitting, design, construction, energization, and operations and maintenance activities.

[3] On October 27, 2023, MISO awarded FDIM to ATXI.

Submitted Proposals

On November 14, 2023, four developers submitted to MISO six total proposals for DZTM. This report identifies those developers as A, B, C, and D and those proposals as 701 through 706.

Developer A submitted two proposals. The only difference between those proposals was whether the two new transmission paths would have structures capable of supporting one circuit or two circuits, one of which would be initially unused.

Developers B and C each submitted a single proposal.

Developer D submitted two proposals. The only difference between those proposals was the routing and cost treatment of a segment of the Denny-Zachary line.

Proposal Clarification and Validation

MISO validated each developer was certified as a Qualified Transmission Developer on the dates the proposals were submitted and reviewed each proposal for completeness. It gave every developer the opportunity to clarify or cure unclear or incomplete submissions. All developers responded to MISO requests for clarification or cure, and no developer subsequently withdrew a proposal.

On January 10, 2024, MISO announced it had received six valid and complete proposals from four developers: Ameren Transmission Company of Illinois (ATXI), LS Power Midcontinent, NextEra Energy Transmission Midwest, and Transource Energy. Transource Midcontinent was a Proposal Participant in Transource's proposal, and Missouri Joint Municipal Electric Utility Commission d/b/a Missouri Electric Commission (MEC) was a Proposal Participant in ATXI's proposal.

Proposal Quality

MISO appreciates the amount and complexity of information competitive developers must organize, summarize, and submit in response to MISO's competitive RFPs.

The DZTM proposals presented information and contained attachments in compliance with the RFP. Most of the tables of contents closely followed multiple levels of the recommended report headings and had page numbers that matched the page number indicated by Adobe Acrobat when the proposal was viewed as a PDF. Some proposals listed relevant attachments, both required and optional, at the end of each section for easy reference. Some developers submitted redline versions of corrected documents to help MISO identify the changes they made. All these practices helped MISO to more quickly identify relevant information.

MISO did identify some areas of the proposals that complicated its review. One developer included cost totals in two tables in its proposal that were different than the amounts listed in its project workbook. Another developer included cost containment provisions in the body of its proposal that it did not include in its cost containment term sheet. MISO has in the past attached Selected Developers' cost containment term sheets to the Selected Developer Agreement, so it is helpful when that sheet contains all cost commitments mentioned in a competitive proposal.

Although these issues did not result in a change in any proposal's comparative ranking, MISO expects future competitive projects to have closer rankings, and a failure to scrutinize proposal submittals or follow the RFP could jeopardize a proposal's success.

MISO recognizes it also has a role to play in facilitating well-written, competitive proposals. It will continue to look for opportunities in future RFPs to ask more specific questions and provide clearer direction.

Confidentiality

MISO recognizes the importance of transparency in every step of its Competitive Transmission Process. However, MISO is obligated to treat the following information as confidential unless a developer consents to its disclosure:

- all detailed breakdowns of costs, including the itemized costs for labor and materials,
- all details of a developer's financing arrangements (as well as those for any project participants),
- all detailed design, routing, siting, or specialty construction techniques, and
- any other information or portions of documents that a developer has clearly designated as confidential (excluding items that are expressly categorized by the MISO Tariff as non-confidential or that MISO has an obligation to make publicly available).

Proposal information the tariff categorizes as not confidential includes:

- the identity of developers,
- the high-level design, estimated cost, and estimated 40-year annual transmission revenue requirement for the project,
- information relating to any cost-containment measures, cost-caps, and rate incentives,
- information about the proposed in-service dates of the project,
- the final evaluation score assigned to each proposal (with the names of the developers masked),
- all timetables and milestones agreed to between the Selected Developer and MISO in the Selected Developer Agreement,
- information that is publicly available, a developer has consented to release, or the tariff requires MISO to make publicly available.

To comply with these requirements, this report describes the developers as A, B, C, and D.

Communication Protocols

MISO adheres to the following self-imposed communication protocols throughout the competitive developer selection process:

- **Project Information Kept Confidential:** Information deemed confidential under the Tariff related to competitive projects will be treated as commercially and competitively sensitive.

- **Communications to Be Coordinated:** MISO aims to coordinate all communications with interested stakeholders regarding RFPs, the evaluation process, selection report, and variance analysis. Please refer all questions to MISO Client Relations at TDQS@misoenergy.org and not to individual MISO personnel.

- **Questions Will Be Answered Transparently:** MISO will publicly post questions it receives and vetted answers on the Competitive Transmission Administration webpage.

- **Project-Specific Questions to Be Directed to MISO:** Once an RFP is issued for a Competitive Project and until the Selection Report is issued, all questions regarding that project / RFP must be directed to MISO and not to interconnecting incumbent transmission owners. MISO will process these questions in accordance with MISO's Business Practices Manual No. 027.

These communication protocols are posted on MISO's public website, were incorporated in part within the RFP and BPM-027 and were made part of presentations delivered by MISO's evaluation team during public stakeholder meetings.

MISO conducted training for employees and consultants involved with the Competitive Developer Selection Process. MISO emphasized the need for confidentiality and announced the communication protocols at every meeting of MISO staff and the Competitive Transmission Executive Committee where information about the RFP, developers, or their proposals was discussed.

MISO instructed the evaluation team, which was required to protect the confidentiality of all proposals and associated work products, to refrain from discussing any proposal with entities or individuals that were not part of the MISO evaluation team.

All MISO employees and consultants followed the confidentiality and communication protocols established by MISO throughout the competitive developer selection process, and restricted access and discussions about proposals not only as to external parties, but also to other staff members within MISO who were not part of the MISO evaluation team. In addition, to protect the integrity of the evaluation process, MISO has kept the identities of its independent consultants confidential and required those consultants to attest they were free from conflicts of interests with the DZTM developers.

Document Control and Review

MISO restricted access to all electronic versions of proposal-related documents. Only members of the MISO evaluation team were allowed access to proposal materials. In addition, before MISO evaluated the proposals, MISO randomly assigned a number to each proposal (701 to 706) and a letter to each developer (A, B, C, and D) to enable team members to discuss proposals without referring to a developer by name.

To avoid bias during comparative analysis, MISO CTA staff and consultants reviewed proposals in different sequences, and each workstream's review sequence differed from that of other workstreams.

Comparative Analysis

MISO analyzed each proposal in compliance with Attachment FF of MISO's Tariff, Business Practices Manual No. 027 Competitive Transmission Process, and the DZTM RFP.

MISO studied each of the four evaluation criteria identified in the tariff, as well as the enumerated subcriteria. Within each criterion and sub criterion, it considered the cost, risk, certainty, and specificity of the information in each proposal.

Figure 4 identifies the four evaluation criteria and respective weights identified in the tariff, and MISO's categorizations. All proposals earned the full 5% in Planning Participation. The figure also identifies how each proposal ranked in each criterion.

Figure 4. Proposal Criteria Categorizations and Scores

Proposal (Developer)	Cost and Design 30%		Project Implementation 35%		Operations and Maintenance 30%		Planning Participation 5%	Evaluation Score
705 (D)	Best	1	Good	3	Best	1	✓	92
706 (D)	Better	2	Good	3	Best	1	✓	91
701 (A)	Good	4	Best	1	Better	3	✓	85
702 (A)	Good	5	Best	1	Better	3	✓	84
703 (B)	Good	3	Good	6	Good	6	✓	70
704 (C)	Acceptable	6	Good	5	Good	5	✓	67

Part III of this report, *Comparative Analysis of Proposals*, explains how MISO arrived at the designations identified in Figure 4. Each section begins with a summary of the requirements for that section. Each summary identifies the source of the requirements in a footnote.

Each section then discusses the areas in which all developers performed equally and the areas in which they performed differently. Similar performance by all developers is discussed summarily, while differences are explored in greater detail.

This report principally refers to the proposals by developer because most of the content provided by each of the two developers that submitted two proposals was the same. Where there were differences between those developers' proposals, such as in transmission pole design or route, the report identifies those differences by proposal number.

II. Summary of Proposals

The following three figures represent core components of the DZTM proposals by developer. Part III of this report discusses the information in greater detail.

Although Developer A and Developer D each submitted two proposals, this report will only refer to those proposals directly when they differ. Developer A's first proposal (701) would string the Denny–Zachary and Zachary–Maywood 345 kV circuits in a delta configuration on the new structures. Its second proposal (702) would string those same circuits in a vertical configuration on one side of the new structures, which would allow a second 345 kV circuit to be added on the other side in the future if necessary.

Developer D's first proposal (705) would run a segment of the new Denny-Zachary transmission line parallel to, with an option to co-locate with, a separate utility's 161 kV line segments. Its second proposal (706) would not parallel the 161 kV line and therefore did not include a co-locate option.

Figure 5. DZTM Design characteristics

	701/702 (A)	703 (B)	704 (C)	705/706 (D)
Conductor (ACSS)				
Trade name (winding)	Drake	Cardinal(TW)	Drake	Cardinal
Kcmil (Misch alloy core)	2-795 (MA2)	2-954 (MA3)	2-795 (MA2)	2-954 (MA3)
Summer emerg. rating > RFP (3000)	115%	115%	116%	129%[4]
Emergency amps (summer)	3456	3444	3478	3880
Max. operating temp. proposed (F°)	410°	392°	392°	482°
Transmission structures				
Structure type	Monopoles	Monopoles	Monopoles	Monopoles
Steel type	Weathering	Galvanized	Galvanized	Weathering
Total structures	805 / 892	919	845	1014 / 1013
Angled / deadends	61,28 / 61,31	50, 48	29, 95	75, 70 / 59, 89
Backfill around direct embed tangents	Crushed rock	Concrete	Crushed rock	Concrete
Angle/Deadend foundation	Direct embed, guy	Direct embed, guy	Drilled pier	Drilled pier
Circuit capability (D-Z and Z-M)	Single / double	Single	Single	Single
Tangent insulators	Braced post	Braced post	V-String	Braced post
Deadend to deadend (avg miles)	7 / 5	3.4	5	5 / 5
Typical shielding angle (degrees)	6-8	24	11	6-9

4 Amps and temperature data for Developer D applicable to D-Z and Z-M lines. Z-TH columnar data is 15%, 3440 amps, and 392 degrees.

Figure 6. DZTM Cost characteristics

	701/702 A	703 B	704 C	705/706 D
Characteristics				
PI Cost ($M, without AFUDC)	$418 / $486	$379	$369	$273 / $265
Revenue Requirement ($M, PV)	$411 / $465	$342	$360	$199 / $193
Finance costs during construction	return on CWIP	AFUDC	return on CWIP	AFUDC
Cost Commitments				
Project Implementation cap ($M)				$290 / $280
PI cap adjustment				$42 [5] / n/a
ROE on PI cost over estimate	0% (ISY + 40)			
POI Adj. Denny Sub. ($M, per mile)	$2.9 / $3.5			
Term of commitments (years)[6]	ISY + 15	40	ISY + 14	40
Annual revenue caps (years)		40 [7]	ISY + 14	
Max return on equity %	10%	9.8%	9.8%	~ 9.68% [8,9]
Equity/capital %	50%	45%	45%	
Min return on equity % [10]	8.75%		9.5%	
Annual O&M caps (years)				ISY + 10
Tax exemption (% of project)				49%
Forego return on working capital	✓			
Limit recovery of regulatory asset	✓			

Figure 7. DZTM Project Implementation characteristics

	701/702 A	703 B	704 C	705/706 D
Proposed in-service date	June 1, 2029	June 1, 2029	January 28, 2030	October 5, 2029
Guaranteed in-service date	June 1, 2029	June 1, 2029	June 1, 2030	June 1, 2030
Penalty for exceeding guarantee	ROE bp/mo	ROE bp/mo	$15,000 / day	ROE bp/mo
Route mileage (D-Z, Z-M)	93, 60	97, 60	95, 61	102/100, 60
Parcels, landowners	554, 405	583, 456	580, 418	605,502 / 581,469

5 The cost cap on Proposal 705 would increase by $42 million if the Missouri Public Service Commission requires the developer to co-locate a segment of the Denny-Zachary line with a non-MISO utility's 161 kV line.

6 ISY equals "in-service year," which is assumed to be June 1, 2030 – December 31, 2030. Developer B's revenue caps begin in the first full calendar year of the project and therefore would not apply to the in-service year, which will begin on June 1, 2030.

7 The caps for the first five years are each 7.5% higher than the revenue estimated by the developer in the same year.

8 Developer D committed to cap its *weighted* return on equity (ROE) at 5.55% and 4.87% for itself and its municipal partner, respectively. Assuming it maintains its current capital structure of 60% equity, this commitment would allow Developer D to earn an ROE up to 9.23%. Assuming its municipal partner maintains its current capital structure of 48% equity, this commitment would allow that partner to earn an ROE up to 10.15%. Since Developer D will own 51% of DZTM and its partner will own 49% of the project, the current maximum project ROE equates to 9.68% assuming no changes in capital structure.

9 Developer D (municipal partner) qualified its weighted ROE cap by stipulating the cap would be equal to the greater of 5.55% (4.87%) or its FERC-approved weighted amount less 1.5% (0.35%).

10 Developer A and Developer C each attached a minimum ROE requirement to their cost commitments.

III. Comparative Analysis of Proposals

This section explains the criteria MISO must evaluate in each proposal, the weights MISO must assign to each of the four principal sections identified in the tariff, the content of the submitted proposals that is responsive to the DZTM RFP, and the nonconfidential items in each proposal that strengthened or weakened each developer's submission.

The organization of this section closely parallels the organization of the DZTM RFP and Section 7. Required Content for Proposal Submissions in MISO's Business Practices Manual No. 027 Competitive Transmission Process.

1. Cost & Design

MISO must evaluate a competitive proposal's Cost and Design plans. Within those plans, it must specifically evaluate each proposal's electrical design, structural design, estimated project implementation cost, and estimated annual transmission revenue requirement.

If the project consists of only a transmission line or only a substation, as it does in DZTM, this review must constitute 30% of MISO's decision. If the project consists of both a transmission line and a substation, this review must constitute 35% of the decision.[11]

For Cost and Design, MISO categorized Proposal 705 as Best, Proposal 706 as Better, Proposals 701, 702 and 703 as Good, and Proposal 704 as Acceptable.

Developer A's first proposal (701) would design the Denny-Zachary and Zachary-Maywood structures to hold a single circuit. Its second proposal (702) would design the structures to hold the new 345 kV circuit in a vertical configuration on one side to allow a second 345 kV circuit to be placed on the structures in the future.

Although Proposal 702 would be more expensive than the single-circuit designs of the structures included in all other DZTM proposals, if MISO decided in the future to add a second 345 kV circuit between Denny and Zachary, the cost of the addition would be lower. However, given the speculative nature of the need for a second circuit, MISO determined the possibility of future cost savings did not justify the additional cost of Proposal 702, and therefore ranked Proposal 701 higher than Proposal 702.

Developer D's first proposal (705) would route a segment of the Denny-Zachary line parallel to a 161 kV line that is not part of the MISO transmission system. This proposal included a cost cap adjustment that would be triggered if the Missouri Public Service Commission required that this segment of the line be co-located with the 161 kV line. The developer's second proposal (706) would route this segment differently and did not contain an adjustment to its cap for the co-location possibility. MISO determined the pre-determined treatment of a co-location requirement justified the additional, conditional cost of Proposal 705 and therefore ranked Proposal 705 higher than Proposal 706.

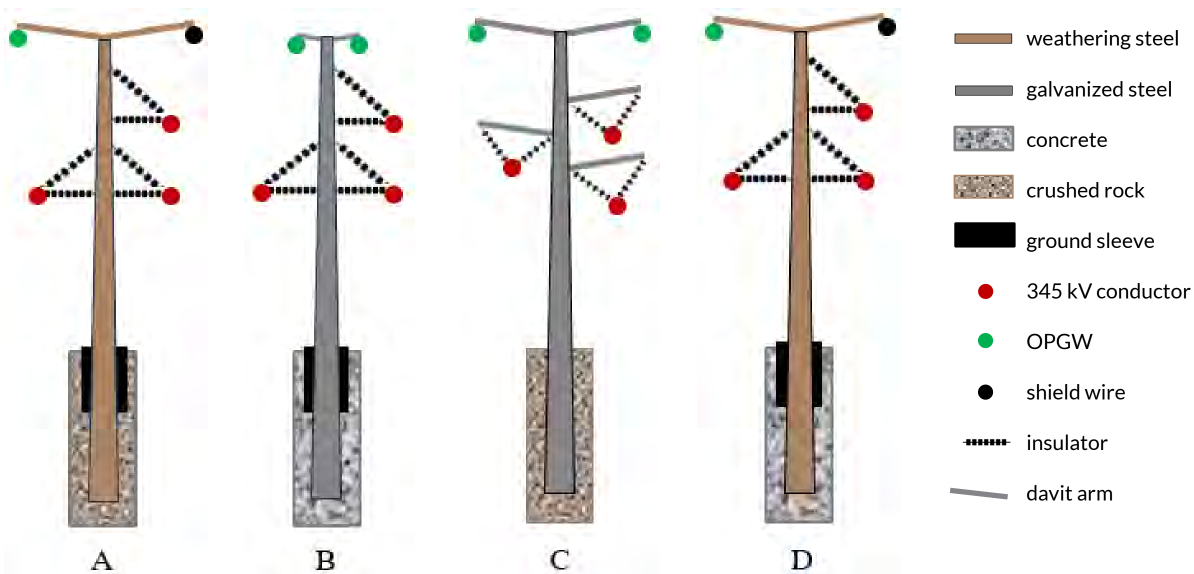
[11] Attachment FF. Section VIII.E.1. Proposal Evaluation Criteria

1A. Transmission Line Design

A competitive proposal must describe the electrical design of each competitive transmission facility specified in an RFP.[12] All proposals met the minimum requirements in the tariff for electrical design.

Figure 8 illustrates the typical electrical and structural transmission designs of the tangent structures proposed by the developers.

Figure 8. Proposed tangent transmission designs for new routes[13]



Electrical Design of Transmission Lines

A competitive proposal that includes a transmission line must describe and explain the estimated length of the line and the characteristics of all proposed conductors, ground wires, and communication wires.[14]

All developers proposed double-bundled, aluminum conductor steel supported (ACSS) conductors and explained to varying degrees of specificity the method by which they analyzed which conductor was best suited for the project. The submitted ratings were different for the conductors because a developer may use its own method for calculating these values.

Each developer used Option 2 as specified in BPM-029 to determine the normal and emergency ampacity ratings for its selected conductor. The proposals included either two optical ground wires (OPGW) shield wires or one OPGW shield wire and one galvanized steel shield wire.

12 MISO BPM-027 Section 7.2.4

13 Drawings not to scale. Developer A's 702 vertical configuration design not shown.

14 Attachment FF. Section VIII.D.5.7.1. Design for Competitive Transmission Line Facilities

Developer A proposed to use Drake ACSS MA2 conductor on all three transmission segments. It provided the most detail and analysis regarding how it built the anticipated future scenarios used to calculate the net present value of losses. It proposed one 48-fiber OPGW along with one galvanized steel shield wire and included provisions for a repeater station on the D-Z line.

Developer B proposed to use Cardinal ACSS/TW MA3 conductor on all three transmission segments. It evaluated capital costs along with the financial costs of losses under several future scenarios. It proposed two 48-fiber OPGW shield wires and included provisions for a repeater station on the D-Z line.

Developer C proposed to use Drake ACSS MA2 conductor, the same conductor chosen by Developer A, on all three transmission segments. Its conductor study was less detailed and contained less information than all other developers. It proposed two 48-fiber OPGW shield wires.

Developer D proposed to use Cardinal ACSS MA3 conductor on all three transmission segments. Its conductor evaluation included the calculation of the net present value of costs including structures, labor, and line losses. It evaluated several future scenarios to calculate the cost of line losses. It proposed one 72-fiber OPGW along with one galvanized steel shield wire.

Legal and Regulatory Compliance

A competitive proposal that includes a transmission line must describe how the developer will meet local legal and regulatory requirements. Each proposal must include a statement that the developer currently has or reasonably expects to obtain all necessary authority to develop and operate the competitive project as envisioned in the RFP.[15]

Each developer stated it has obtained or reasonably expects to obtain all necessary authority to develop and operate the DZTM project.

Structural Design of Transmission Lines

A competitive proposal that includes a transmission line must describe the design attributes of the tangent, running angle, and dead-end structures that will support the conductors. It must also explain all grounding, lightning, galloping, and vibration strategies as well as how the structural design will meet local legal and regulatory requirements.[16]

Transmission structures

Developer A proposed weathering steel monopoles, which will be directly embedded in the ground, backfilled with crushed rock, and treated with below-grade anti-corrosion sealant and a corrosion sleeve. It will support its angle and dead-end structures with guy wires. The conductor will be supported by polymer braced post insulators on the two new lines and with glass insulators on the new circuit to Thomas Hill.

[15] MISO BPM-027 Section 7.2.4.1

[16] Attachment FF. Section VIII.D.5.7.1. Design for Competitive Transmission Line Facilities

Developer B proposed galvanized steel monopoles, which will be directly embedded in the ground, fitted with a ground sleeve for corrosion protection, and backfilled with concrete. It will support its angle and dead-end structures with guy wires. The conductor will be supported with polymer braced post insulators on the two new lines and with glass insulator assemblies on the new circuit to Thomas Hill.

Developer C proposed galvanized steel monopoles, which will be directly embedded in the ground and backfilled with crushed rock. It will support its angle and dead-end structures with concrete drilled piers. The conductor will be supported by polymer V-string insulators assemblies and davit arms on the two new lines and with glass insulator assemblies on the new circuit to Thomas Hill.

Developer D proposed weathering steel monopoles, which will be directly embedded in the ground with concrete backfill, treated with a protective anti-corrosion coating, and protected with a ground sleeve. It will support its angle and dead-end structures with concrete drilled piers. The conductor will be supported with polymer braced post insulators on the two new lines and with glass insulator assemblies on the new circuit to Thomas Hill.

Grounding and lightning protection

All developers presented grounding strategies. To protect the Denny–Zachary and the Zachary–Maywood lines from lightning, all developers proposed to install two overhead shield wires on the structures. One wire will be an OPGW and the other will either be a standard shield wire or a second OPGW. The designs were substantially identical except for that of Developer B, which proposed a shielding angle significantly larger than the other designs. The risk to a transmission line from lightning increases as its shielding angle increases.

For the Zachary - Thomas Hill line, all the developers included a single OPGW per the RFP. All structures will have proper grounding systems that match the recommendations and requirements stated in the RFP.

Galloping and vibration design

All developers evaluated the galloping performance of their proposed lines and all studies included adequate buffers between the ellipses. All developers maintained these buffers except Developer B, whose study indicated its shield wire ellipses overlapped one another on a small subset of structure types, which could lead to physical contact in extreme weather.

Developer A was the only developer to directly incorporate into its design galloping mitigation devices at targeted locations. Developer C proposed the largest margins between the ellipses of both its conductors and its shield wire. Developer D stated that, if it identified a span with galloping issues after a line was in service, it would install interphase spacers or air-flow spoilers.

All developers' designs used the appropriate equipment to meet industry standards for addressing vibrations. In addition to the self-damping aspects of ACSS conductors, all developers included vibration dampers and conductor spacers on the phase conductors, OPGW, and static wires.

Regulatory compliance

Each developer stated it has obtained or reasonably expects to obtain all necessary authority to develop and operate the DZTM facilities.

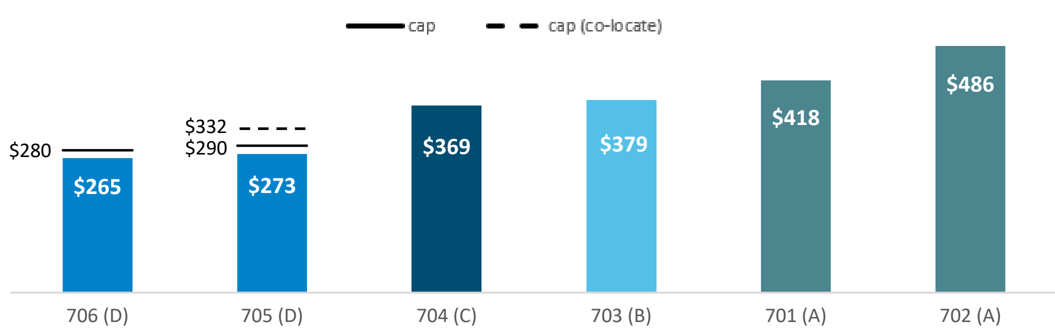
1B. Project Implementation Cost

Each proposal included a completed Project Template Workbook (PTW), which allowed MISO to understand the details of the estimated project implementation (PI) costs. Although MISO must evaluate the rigor of each cost estimate and any financial assumptions, it recognizes those estimates are not binding without cost containment measures.[17]

All developers included contingency in their proposals. The contingencies ranged from 3% to 9% of the estimated costs, and all developers provided risk registers that fully explained the contingencies they used. MISO views project contingency as an additional cost component that decreases a project's cost risk from an initial level to a subsequent level. It looks at each proposal's design and implementation plan to better understand those two levels and compare project cost estimates. It has higher confidence in estimates paired with project cost containment than estimates that are not.

Figure 9 illustrates the estimated PI costs of the DZTM proposals. MISO removes AFUDC from project cost when comparing estimates since all developers did not elect AFUDC. The cash flows related to a developer's chosen method for recovering financing costs incurred during construction are included in each proposal's present value of revenue requirement (PVRR), which is discussed in the next section.

Figure 9. **Estimated PI cost of DZTM proposals ($M)**



Developer A submitted two proposals. It estimated a PI cost of $418 million for Proposal 701, which was based on a Drake ACSS conductor, weathering steel structures with crushed rock backfill, and 153 miles of new single-circuit lines. It estimated a PI cost of $486 million for Proposal 702, which was based on the same components as Proposal 701 but would design the D-Z and Z-M structures to support a future second circuit.

Developer B estimated a PI cost of $379 million for Proposal 703, which was based on Cardinal ACSS conductor with a trapezoidal-shaped wire (TW), galvanized steel structures with concrete backfill, and 157 miles of new single-circuit lines.

[17] Attachment FF. Section VIII.E.1.1(a)

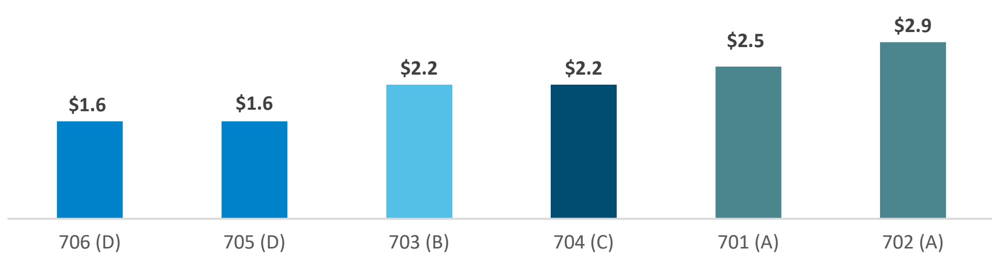
Developer C estimated a PI cost of $369 million for Proposal 704, which was based on Drake ACSS conductor, galvanized steel structures with crushed rock backfill, and 156 miles of new single-circuit lines.

Developer D estimated a PI cost of $273 million for Proposal 705, which was based on Cardinal ACSS conductor, weathering steel structures with concrete backfill, and 162 miles of new single-circuit lines. This proposal would parallel a significant portion of a 161 kV line owned by a non-MISO utility. The developer proposed to cap the project cost at $290 million. It also stipulated that the cap would increase by $42 million to $332 million if the Missouri Public Service Commission ordered it to co-locate a portion of the Denny-Zachary line with the 161 kV line.

It estimated a PI cost of $265 million for Proposal 706, which was identical to Proposal 705 except that it would decrease the Denny – Zachary route by two miles and not parallel the 161 kV line. In both proposals, Developer D excluded AFUDC from the cap but included under the cap costs incurred after the in-service date such as property restoration, damages, and close-out costs.

Figure 10 illustrates the estimated average costs per mile of the two new single-circuit lines in the DZTM proposals. Each amount reflects the sum of the direct costs of the D-Z and Z-M facilities and a pro rata allocation of the proposal's indirect costs, exclusive of any AFUDC.

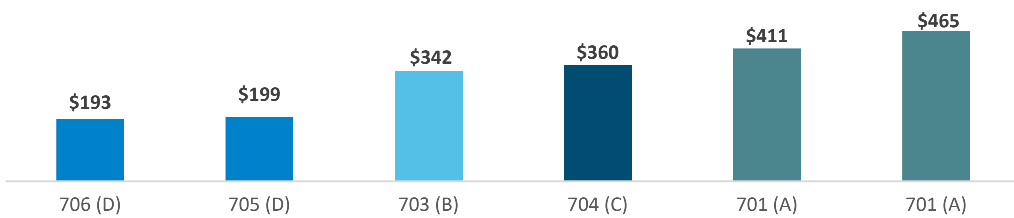
Figure 10. Estimated cost per mile of 345 kV transmission lines ($M, D-Z and Z-M)



1C. Annual Transmission Revenue Requirement

A competitive developer must estimate an annual transmission revenue requirement (ATRR) for each of the first forty years the competitive project will be in service. MISO calculated the present value of those revenue requirements (PVRR) by discounting each ATRR by a 6.9% discount rate. Figure 11 illustrates the PVRR of each proposal, and Figure 12 identifies relevant commitments related to those PVRRs.

Figure 11. Estimated PVRR of DZTM proposals ($M)



Components

MISO reviews the calculation and assumptions of a competitive developer's revenue requirement estimates. It values estimates based on superior support more highly than those based on less support.

Pre-in-service financing expense

Subject to FERC approval, a developer may expense or capitalize carrying costs it incurs prior to placing a competitive facility into service. If the developer expenses those costs, it will report them as a "return on construction work-in-progress (CWIP)" and recover them in its revenue requirement prior to placing the asset into service. If the developer capitalizes those costs, it will record them as "Allowance for Funds Used During Construction" and then add them to the facility's gross plant when it places the facility into service.

Developers A and C will request a return on their CWIP balances during construction. Developers B and D will capitalize those costs as AFUDC and then depreciate the balance over the project's lifetime.

Depreciation and amortization

Each developer proposed to depreciate DZTM facilities using blended depreciation rates. Developer A supported its depreciation estimate with a study performed by a third party for the project. The other developers stated they would use their currently approved depreciation rates.

Operations and maintenance

Each developer included in its PTW estimated annual O&M expense for the forty-year project period. Developer D was the only developer that proposed to specifically cap its O&M expenses. It proposed to limit annual recoverable O&M through the end of the tenth full project year to the lesser of actual project O&M

or stated annual "allowances" plus any cumulative allowance unused in previous years. It stipulated it would not recover in future periods any amounts unable to be recovered in a previous year.

Commitments

Figure 12 summarizes the financial commitments the developers proposed in DZTM.

Figure 12. Cost characteristics and commitments

	701/702 A	703 B	704 C	705/706 D
Characteristics				
PI Cost ($M, without AFUDC)	$418 / $486	$379	$369	$273 / $265
Revenue Requirement ($M, PV)	$411 / $465	$342	$360	$199 / $193
Finance costs during construction	return on CWIP	AFUDC	return on CWIP	AFUDC
Commitments				
Project Implementation cap ($M)				$290 / $280
PI cap adjustment				$42 [18] / n/a
ROE on PI cost over estimate	0% (ISY + 40)			
POI Adj. Denny Sub. ($M, per mile)	$2.9 / $3.5			
Term of commitments (years) [19]	ISY + 15	40	ISY + 14	40
Annual revenue caps (years)		40 [20]	ISY + 14	
Max return on equity %	10%	9.8%	9.8%	~ 9.68% [21,22]
Equity/capital %	50%	45%	45%	
Min return on equity % [23]	8.75%		9.5%	
Annual O&M caps (years)				ISY + 10
Tax exemption (% of project)				49%
Forego return on working capital	✓			
Limit recovery of regulatory asset	✓			

[18] The cost cap on Proposal 705 would increase by $42 million if the Missouri Public Service Commission requires the developer to co-locate a segment of the Denny-Zachary line with a non-MISO utility's 161 kV line.

[19] ISY equals "in-service year," which is assumed to be June 1, 2030 – December 31, 2030. Developer B's revenue caps begin in the first full calendar year of the project and therefore would not apply to the in-service year, which will begin on June 1, 2030.

[20] The caps for the first five years are each 7.5% higher than the revenue estimated by the developer in the same year.

[21] Developer D committed to cap its *weighted* return on equity (ROE) at 5.55% and 4.87% for itself and its municipal partner, respectively. Assuming it maintains its current capital structure of 60% equity, this commitment would allow Developer D to earn an ROE up to 9.23%. Assuming its municipal partner maintains its current capital structure of 48% equity, this commitment would allow that partner to earn an ROE up to 10.15%. Since Developer D will own 51% of DZTM and its partner will own 49% of the project, the current maximum project ROE equates to 9.68% assuming no changes in capital structure.

[22] Developer D (municipal partner) qualified its weighted ROE cap by stipulating the cap would be equal to the greater of 5.55% (4.87%) or its FERC-approved weighted amount less 1.5% (0.35%).

[23] Developer A and Developer C each attached a minimum ROE requirement to their cost commitments.

Developer A, in both of its proposals, committed to not recover in any year a return on equity greater than the product of its estimated project cost and its FERC-approved cost of equity. It also committed to limit through the fifteenth year after the facilities' in-service year its ROE percentage to the lesser of 10% or the sum of MISO's region-wide base ROE and the RTO ROE adder. Finally, it limited these two previous commitments by stipulating that its recoverable ROE percentage in any year could fall no lower than the lower of 8.75% and its annual FERC-determined ROE during the fifteen-year period.

Developer B committed to cap its return on equity at 9.8%, its equity at 45% of capital structure, and to cap its revenue requirement in each of the project's first 40 full calendar years. Unused cap amounts would roll forward to the next year, but revenue stranded in one year could not be recovered in the next year.

Although the individual caps for years 6-40 would be equal to estimated revenue, the caps in years 1-5 would be 7.5% higher than estimated revenue, which would provide Developer B a $19 million cushion over its estimated revenue that it could roll forward to subsequent years. The first year in which the cap applies will be the first full calendar year of operation.

Developer C committed to cap return on equity at 9.8% and equity at 45% of its capital structure until the end of the fourteenth full calendar year. It also committed to cap annual revenue through the fourteenth full project year at the higher of its identified annual caps or the revenue necessary to earn a return on equity percentage 0.3% less than its approved return that year. It stated unused cap amounts would roll forward to the next year.

It stipulated the rate base upon which the minimum ROE would be based included all typical execution costs after project award, but it did not specifically include capital expenditures after the in-service date in this definition. It specifically excluded from the annual caps "Interest Rate Relief" expense, which it defined as a long-term debt rate greater than 6.55%.

Developer D did not commit to cap annual project revenue for any term, but it did offer to cap its weighted ROE for forty years at the greater of 5.55% or its actual weighted ROE less 1.50%.[24] It also committed to cap its O&M expense at its estimated amounts for the first ten years. MISO determined these commitments, along with the developer's project cost caps, significantly limit the degree to which the developer's actual revenues could deviate from its two proposal estimates. Developer D's proposal to partner with a tax-exempt municipal agency significantly reduced the income and property tax in its PVRR.

It will accrue AFUDC and will only request a CWIP incentive after the planned in-service date if the DZTM facilities are ready to be energized but cannot be due to a delay caused by a third party.

Financial Modeling

MISO also calculated proposal PVRRs in different scenarios to understand how those scenarios might change the competitiveness of each proposal. The scenarios included increases in project cost, return on equity, cost of debt, O&M expense, and equity in capital structure, as well as property tax normalization. MISO applied all proposed cost caps in each scenario.

[24] This commitment included an identical commitment by Developer D's municipal partner to limit the latter's weighted ROE to the greater of 4.87% or its actual weighted ROE less 0.35%.

Although Proposal 703 includes annual revenue caps for forty years, Proposal 705 and 706 have a lower PVRR and remains superior under various financial scenarios due to its PI cost cap.

2. Project Implementation

MISO must evaluate a competitive proposal's Project Implementation plans. Within those plans, it must specifically evaluate the ability of each developer to manage the project, analyze possible routes and obtain necessary permits, acquire right-of-way and land, construct and finance the project, and ensure safety during the project.[25]

If the project only consists of transmission line facilities, as it does in DZTM, this evaluation must constitute 35% of MISO's decision. If the project includes a substation, this evaluation must constitute 30% of the decision.[26]

A proposal must identify, for each of the project implementation components, the identities, qualifications, and base of operations of the staff or contractors that will be used to successfully complete the project. Additional requirements are identified in the project implementation subcategories below.

Each of the four developers demonstrated within their proposals they have the ability and experience to complete the project. Because the project implementation content of developers that submitted more than one DZTM proposal was not materially different across those proposals, this report evaluates that content by developer instead of by individual proposal.

For Project Implementation, MISO categorized Developer A as Best and Developers B, C, and D as Good.

2A. Schedule and Management

Project Schedule

A competitive proposal must include a project schedule that highlights a project's critical path and major milestones. It may also include a brief discussion of the project's scheduling risks. A developer should discuss the weather days and float included in its schedule.[27]

The DZTM RFP stated in-service date flexibility is an aspect of DZTM MISO anticipates may be particularly important. The RFP also stated a developer must be able to place DZTM into service by June 1, 2030.

The developers stated they could complete the project four months to one year earlier than MISO's deadline. The developers will still have to coordinate with AECI and Ameren, the two current interconnecting transmission owners, and ATXI, who will be building the Denny Substation, to place the DZTM facilities into service.

Developer A guaranteed it would be able to energize DZTM as early as June 1, 2029. It offered to reduce its return on equity by 0.025%, up to a maximum of 0.3%, for every month it is not ready to energize the facilities beyond the in-service date agreed to by the interconnecting parties. It included 30 days of float in

[25] Attachment FF. Section VIII.D.5.8. Project Implementation

[26] Attachment FF. Section VIII.E.1. Proposal Evaluation Criteria

[27] DZTM RFP Part 2, Page 18

its critical path and reviewed historical weather patterns for the ten counties DZTM spans. The developer set aside the most time for ROW acquisitions.

Developer B guaranteed to energize DZTM as early as June 1, 2029, if the interconnecting parties and MISO agree by January 1, 2025 on an early energization date. Like Developer A, it offered to reduce its return on equity by 0.025%, up to a maximum of 0.3%, for every month it is not ready to energize the facilities beyond the in-service date agreed to by the interconnecting parties. It plans to complete ROW acquisition activities in six months, a period that is much shorter than those of all other developers. It identified weather days by facility.

Developer C stated it would be able to energize DZTM by January 28, 2030, but it did not offer any penalty for failure to meet this deadline. Instead, it offered to reduce the project's capital cost by $15,000 for each day it is not ready to energize the line past June 1, 2030. Unlike other developers that identified float by activity and stated whether those activities were on the project's critical path, Developer C explained its float more generally, and only specifically identified the float it set aside for its FERC regulatory filings. It added 97 weather days to the schedule based on local precipitation and wind data.

Developer D stated it would be able to energize DZTM by October 5, 2029, but it did not guarantee this deadline. It offered schedule delay penalties like Developer B, but different in two ways. First, the penalties will not begin until June 1, 2030. Second, the penalty is 0.0125% and applies to both the developer's and its municipal partner's weighted cost of equity. Because Developer D and its municipal partner will own 51% and 49% of DZTM, respectively, after the project is energized, the proposed delay penalty is substantially equal to the 0.025% ROE penalties offered by the two developers that did not define their proposed penalties in weighted terms. It included 28 months of float in its critical path and 50 weather days in its construction schedule. It also broke the weather days down by the three facilities.

Project Management Plan

A developer must describe how it will manage the project to meet the proposed schedule. It should describe the qualifications and locations of the management team and the organizational structure of the project's contractors and subcontractors. It must also attach a project management plan that identifies project risks and discusses how the developer will coordinate with all interconnecting transmission owners (ITO).[28] The RFP stated coordination with ITOs is an aspect of DZTM MISO anticipates may be particularly important.

Each developer established that its management team and contractors have the experience to successfully execute DZTM. Each developer submitted a project management plan that demonstrates its strategies and the risks it will have to manage. Each plan identified the contractors the developer will use and the operational locations of both internal and contractor personnel. Each plan also included a risk register, which identifies project risks and mitigation strategies. All developers cited relevant, significant transmission project experience that gave MISO confidence they could complete DZTM if selected.

MISO recognizes that the quality of a risk register is not absolutely related to the number of items identified. One developer may combine similar risks into a single category in its risk register while another may break down risks into more detail. MISO also recognizes that the number of risks identified relates to a developer's implementation strategies. A developer that chooses to comprehensively study a certain

[28] DZTM RFP Part 2, Page 18

project component may list less risks related to that component than a developer that does not choose to study that component in as much depth prior to submitting its proposal.

Developer A attached a risk register that identified 90 risks to the project. For each risk, the register identified a clear mitigation plan, the probability of occurrence, the estimated maximum and weighted cost of exposure, and the estimated maximum and weighted effect on the project schedule. MISO felt this was the best DZTM risk register submitted.

Developer B appended a risk register to its project management plan attachment that identified 72 risks to the project. For each risk, the register identified the relative likelihood and consequence, the resulting risk level to the developer (and a related risk level to customers), mitigation strategies, the internal position responsible, and the weighted financial impact. It did not discuss project risks as thoroughly as Developer A and it did not indicate to which facilities each risk item applied. It was the only developer to not identify how risks affected its schedule. The mitigation strategy for some risks included a statement about cost and schedule guarantees providing risk protection rather than specific risk responses.

Developer C attached a risk register that described 23 risks to the project. For each risk, the register identified whether the developer or its general contractor was responsible for mitigation, the relative financial exposure, the probability of occurrence, and mitigation strategies. It did not discuss environmental risk as much as some other developers.

Developer D attached a risk register that identified 58 risks to the project. Although some of the risks were duplicative, since the developer separately identified risks by each new transmission facility, its risk register was almost as comprehensive as that of Developer A.

All developers satisfactorily explained how they will coordinate with ITOs. Some developers established more experience with the ITOs than others, but this did not significantly factor into MISO's analysis.

2B. Route Evaluation and Permitting

Route Evaluation

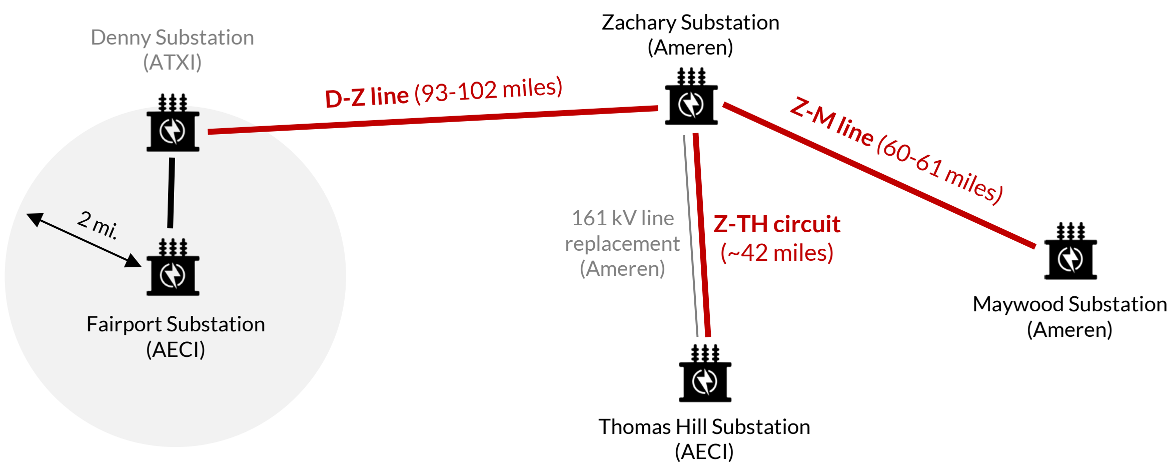
A competitive proposal must describe how the facilities will be routed or sited and the challenges and risks that exist in that plan. It must explain how the developer evaluated and selected all routes and sites and how it will conduct public outreach during the evaluation and selection process.[29]

Figure 13 illustrates the general relationship of the existing and proposed transmission assets relevant to DZTM. The RFP directed developers to explain how they would build the three new 345 kV transmission line facilities in the DZTM competitive transmission project.

The first facility will be a new single-circuit 345 kV transmission line between ATXI's future Denny Substation near Fairport, MO and Ameren's Zachary Substation near Kirksville, MO. In October 2023, MISO selected ATXI to construct Denny by June 1, 2030 at the latest. ATXI plans to build Denny within two miles of AECI's existing Fairport Substation.

The second facility will be a new single-circuit 345 kV transmission line between Zachary and Ameren's Maywood Substation near Maywood, MO. The third facility will be a new 345 kV circuit between Zachary and AECI's Thomas Hill Substation near Thomas Hill, MO. This circuit will be co-located with a replaced 161 kV circuit on new transmission structures. Ameren is replacing its existing single-circuit 161 kV structures with double-circuit structures. MISO expects this replaced line will be approximately 42 miles.

Figure 13. DZTM 345 kV facility map [30]



The RFP stated flexibility regarding the point at which the new line from Zachary will interconnect with the not-yet-built Denny Substation and coordination with Ameren regarding the co-location of the Zachary to Thomas Hill circuit will be particularly important.

[29] MISO BPM-27 Section 7.3.3

[30] Mileage reflects developer estimates. Map is not to scale.

Developer A visited the project site in 2023. It demonstrated better than any other developer why it analyzed certain routes and why its selected routes were superior to other solutions.

It was the only developer whose proposed routes would not impact any protected lands per the United States Geological Survey (USGS) Protected Area Database. It met with United States Fish and Wildlife Service (USFWS) Missouri Field Office and the Missouri Department of Conservation, and it stated its routes will require minimal environmental permitting. It sent a coordination letter to Tribal Nations with potential interest in lands within the project area, and it will have a tribal liaison on the project.

It was the only developer to commission a Federal Aviation Administration (FAA) study around two nearby airports and to receive correspondence from the FAA concluding that the proposed transmission structures will not pose a hazard to air navigation. It was also the only developer that did not propose a Zachary to Maywood route that would parallel the existing 345 kV line between those substations.

It incorporated the uncertainty of the location of Denny by identifying the cost adjustment it would make to its equity return cap for every mile between the location it assumed, which was two miles due east of Fairport, and Denny's actual location.

Developer B visited the project site in 2023. Its proposed routes would impact a few protected areas. It also consulted numerous state and federal agencies. Its construction contractor determined the proposed routes are constructable and do not present any atypical construction risks.

Its D-Z route appears to cross restrictive United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) easements, but it did not discuss permitting for these easements, which increases the plan's risk. It was the only developer that did not discuss how its structures, more than 10% of which are guyed, will avoid center pivot irrigation on the route.

It incorporated the uncertainty of the location of the Denny substation into its proposal by researching public records and identifying a potential location of ATXI's Denny Substation. Although Developer B did not discuss how it would change the route if ATXI decided to build Denny somewhere else in the two-mile radius around Fairport Substation, this did not materially impact Developer B's proposal.

Developer C visited the site in 2023. Its D-Z route would not impact any protected areas, but its Z-M route, like those of Developers B and D, would impact a few protected areas. It stated the Salt River is the only Federal Emergency Management Agency (FEMA)-mapped floodplain crossed by the routes is associated with the Salt River, but its routes appear to also impact other floodplains near the Fabius, South Fabius, and Little Fabius Rivers. It did not include route variances to avoid constraints as well as the other developers.

It stated its proposed routes are not within two miles of any public airports, but one of its routes comes 9,500 feet from an airport in the project area and both new routes come within the FAA-defined 20,000-foot notification area of nearby airports. While it did mention this FAA regulation, it did not proactively mitigate this risk as well as other developers. It also stated there are no known archaeological sites within the right-of-way (ROW) of its alternate D-Z routes, but it included a table that identified Alternate Route A has one archaeological site and Alternate Route B has two sites. These discrepancies increase the risk and uncertainty of Developer C's proposal.

It incorporated the uncertainty of the location of the Denny substation into its proposal by identifying "conceptual substation sites" within the two-mile radius as well as the routes it would use inside the radius to reach those sites.

Developer D visited the project area in 2023. Its D-Z route would impact a few small, protected areas. Its engineering team has completed the FAA Notice Criteria for structures close to identified airports, and it will submit certain structures after project award for FAA review approval. The Z-M route would parallel a section of an existing 345 kV line. The developer already has knowledge of the area.

It incorporated the uncertainty of the location of the Denny substation into its proposal by using the location it proposed in FDIM, which was northwest of Fairport.

Regulatory permitting process

A competitive proposal must describe how the developer will obtain regulatory permits necessary for the project. This must include activities such as preliminary engineering, preparation of any applications and written testimony, and participation in regulatory hearings. [31] A developer must also discuss recent projects that demonstrate its capabilities to obtain the necessary permits.[32]

MISO identified coordination with interconnecting transmission owners as an aspect of DZTM it anticipates may be particularly important.

The developers described in varying degrees four specific or general regulatory bodies from which the Selected Developer will or may need to receive permits or approvals to execute DZTM.

1. **MPSC CCN.** A developer will have to receive a Certificate of Convenience and Necessity (CCN) and a declaration that it is a public utility from the Missouri Public Service Commission (MPSC). This will allow it to build DZTM and exercise eminent domain if necessary.
2. **County Assents.** A developer will have to receive assents from each county in Missouri in which the developer will need to use or alter public roads.
3. **FERC.** The developer will have to receive approval from the Federal Energy Regulatory Commission to enter into separate Interconnection Agreements with AECI and Ameren. These agreements will dictate how the developer will work with the interconnecting parties to successfully build, operate, and maintain DZTM.
4. **Other Permits.** The developer may need to notify or receive approval from various federal and Missouri state agencies for issues related to the environment, airspace, and infrastructure.

   The most notable site constraints in the DZTM project area are the Locust Creek, Sugar Creek, and Big Creek conservation areas, Thousand Hills State Park, the Trenton Municipal and Kirksville Regional airports, and several rivers including the Grand River, South Fabius River, and North River.

   Other common permitting agencies relevant to this project include the U.S. Army Corps of Engineers (USACE), Missouri Department of Natural Resources (MDNR), U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency (USEPA), Missouri State Historic Preservation Office (MSHPO), and Missouri Department of Transportation (MODOT).

Each developer established the knowledge and the experience to acquire the necessary permits for DZTM.

[31] MISO BPM-27 Section 7.3.4

[32] DZTM RFP Part 2, page 21

Developer A submitted the most thorough permitting plan of all developers. It provided tables by facility of planned highway crossings and explained how it will incorporate the Missouri Department of Transportation's (MoDOT) permitting requirements to minimize risk in this area. MISO found a clear nexus between the developer's communications with permitting agencies and the information in its proposal.

Developer B's permitting plan was less certain and specific than that of Developer A. While it did identify potentially relevant permits and approvals, it did not identify NRCS Wetland Reserve Program easements crossed by its proposed routes. It also did not discuss the Compatible Use Authorization documentation the NRCS would require. Its routes also cross U.S. Fish and Wildlife Service (USFWS) easements, but it did not include or discuss permitting for those easements.

Developer C's permitting plan was less certain and specific than all other proposals. Although it demonstrated experience in the project area, it did not explain why certain permits were necessary and how it would achieve estimated agency review times. While it did show the letters it sent to various agencies during route evaluations, it only included one response from those agencies in its proposal. Other developers provided more agency correspondence.

Developer D's permitting plan was similar in thoroughness to Developer B. It demonstrated experience in the project area, but like Developer B, it did not discuss the permitting process for crossing either USFWS or NRCS easements, which its proposed routes would require. It discussed bat and wetland mitigation but not as extensively as other developers. Although it did provide a permit and approval matrix, the information was less detailed than other developers and did not clearly incorporate comments from agency coordination.

2C. Right-of-Way and Land Acquisition

A competitive proposal must describe a developer's abilities to acquire right-of-way and land for the project and the processes it will use to negotiate with landowners, prepare and execute contracts, complete land transactions, and when necessary, use eminent domain to condemn right-of-way.[33]

Each developer established it has the experience and resources to acquire ROW and land for the project. Each adequately summarized the strategies it will use to inform and negotiate with landowners, and each demonstrated an adequate understanding of Missouri's eminent domain laws.

Developer A proposed a 150-foot ROW for the new transmission paths. It has secured a small share of land options for ROW and laydown yards. It stated reduced design and construction risk, and increased engineering, surveying, and cost certainty, are benefits of acquiring land options before project award. It articulated well many characteristics of the project area, including certain historic neighborhoods and Amish settlements, and identified many groups it will coordinate with.

Developer B also proposed a 150-foot ROW for the new paths. It will contact owners after project award.

Developer C proposed a 130-foot ROW for the new paths. It demonstrated a thorough land acquisition plan and established it is skilled at avoiding the use of eminent domain.

[33] MISO BPM-27 Section 7.3.5

Developer D proposed a 150-foot ROW for the new paths. It stated it did not contact landowners prior to project award because early contact can lead to customer confusion and dissatisfaction. It established significant experience with land acquisition in the project area.

2D. Construction

A competitive developer must describe its plans for engineering and surveying, material procurement, construction, and commissioning of the project. It must include a construction plan. Each developer sufficiently explained how it would construct the DZTM facilities.

Engineering and Surveying

A competitive proposal must discuss a developer's engineering and surveying plans prior to project construction and the labor it will use.[34]

These plans typically include field wetland delineation, utility mapping, and geotechnical and light detection and ranging (LiDAR) surveys on all easements and acquired land. They also should include identification of all line crossings and coordination with line owners on necessary outages or clearances.

Developer A will competitively bid the construction scope once engineering is at 60%. It has completed desktop wetland delineation, utility mapping, aerial LiDAR, desktop geotechnical investigation, and a ground survey to ensure and quantify accuracy of aerial data. It also drilled 58 bores along its proposed routes.

Additional surveys will be completed after award as necessary based on route adjustments, but re-flight for LiDAR will not be required due to the amount of initial coverage. Pipelines and other crossings (distribution, railroad, etc.) adjacent to and crossed by the route have been identified, mapped, and associated to their corresponding utility, with crossing requirements. It has performed more development work than any other developer.

Developer B's remaining engineering activities will be focused on supporting routing, siting, land acquisition, and permitting activities; updating drawings and details; and preparing bid packages to support material procurement and construction activities. Although the project route has not been finalized, it has developed the transmission line design criteria and completed detailed design for the proposed route including computer models, detailed drawings, and foundation details.

Developer C has completed 60% of its design work. Remaining survey activities include LiDAR survey, ROW boundary survey, utility location survey, environmental and ecological surveys, construction staking, and as-built verification survey.

Developer D stated it has largely completed engineering and design, including fully designed structures for planned structure loading and locations. Following award, it will have LiDAR performed for the D-Z and Z-M routes and soil borings collected at proposed structure locations for D-Z. Its engineering and design packages undergo its quality control process and are then reviewed by the supervising engineers before being approved.

Material Procurement

A competitive proposal must describe a developer's plans for purchasing, transporting, storing, and staging all materials for the project. The developer should discuss its strategies for procuring long-lead time

[34] MISO BPM-27 Section 7.3.6

materials, managing staggered deliveries, dealing with material defects, and minimizing project-specific risks.[35] It must describe the competitive project's key materials and equipment and state the lead time for them.[36]

Developer A provided a laydown yard map showing seven targeted laydown yard sites along the transmission routes. It will deliver material to laydown yards along its proposed routes, which will be 12 acres each and located at 20-mile intervals. It will directly procure long lead time items such as transmission line structures, conductors, insulators, shield wires, and repeater station equipment, and the remaining material and equipment will be procured and managed by the transmission line contractor. It has already acquired a commitment from a structure supplier to deliver the structures in early 2027.

Developer B provided a map of approximate material yard locations, which will be established and managed by its general contractor. It will establish seven laydown yards: a main yard at Zachary, one yard each at the Denny, Maywood, and Thomas Hill substations, and three yards along the D-Z and Z-M routes. It identified at least three qualified suppliers for owner-supplied materials such as structures, conductor, OPGW, insulators, and hardware.

Developer C's general contractor requested materials pricing on 17 packages and sent requests for proposals to 66 bidders for DZTM, with 17 bidders submitting proposals. The developer anticipates using ten laydown yards: one at Zachary, four yards along the D-Z route, two yards along the Z-M route, and three yards along the Z-TH route. It provided a table of the numbers of approved factories for key materials, ranging from two (OPGW and hardware) to 13 (steel structures).

Developer D was the only developer that intends to use one centralized laydown yard with smaller staging areas located along each route. The locations of its staging areas are more preliminary than those of other developers. It has reserved production capacity to construct the project to mitigate known production capacity limitations and recent accelerating inflation for ACSS conductor. It developed its steel forecast plan with a manufacturer.

Construction

A competitive proposal must describe a developer's construction abilities and plan for the project. The developer must discuss approved contractor lists in the relevant state, if they exist, its requirements and standards for contractors, the anticipated staff and contractors it will use for the project, their base of operations during construction, their experience and expertise, and the safety programs to be used.[37]

Developer A explained it is planning to construct the D-Z line beginning at Denny, but early procurement will allow it to begin at Zachary if there are issues finalizing Denny's location. It will document daily and weekly inspections using approved forms. Each Z-TH structure will be accessed during early design reviews with Ameren with the intention of replicating access paths and pull pads used by Ameren.

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35 MISO BPM-27 Section 7.3.7

36 DZTM RFP Part 2, page 23

37 MISO BPM-27 Section 7.3.8

Developer B provided access plans for each facility that showed access roads, construction entrances, utility and environmental constraints, and pull sites. It detailed construction activities such as foundation installation, anchor installation, structure assembly and construction, structure grounding and testing, conductor and OPGW stringing, final inspection, and ROW restoration, with typical crew makeup, equipment needs, and construction process/best practices.

Developer C estimated two crews will install ten direct embed foundations per day and approximately three drilled shafts per week. It will finalize its estimates after the geotechnical study is complete. D-Z construction will begin at Zachary and move west for 27 wire pulls. It described the steps and project-specific considerations (such as matted access, wire pulls over roadways, starting and ending structure numbers with leapfrog sequencing) for each construction activity. A helicopter will be used to place a sock line in the pulling blocks on each structure to accelerate the schedule. It had the most laydown yards, and it was careful to avoid irrigation pivots.

Developer D discussed major construction activities including excavation, foundation installation, structure building and setting, conductor stringing, OPGW stringing, and site restoration. It will use a helicopter to pull conductor and OPGW ropes. It will also contract a road monitoring consultant to capture road needs and provide video monitoring, as well as a road authorities liaison with relevant experience. However, its access and matting plans, and its construction descriptions, were less detailed than those of Developer A.

Commissioning

A developer must describe how it will commission and energize a competitive facility.[38] It must identify and explain the qualifications of the internal personnel or contractors that will perform the work. It must discuss equipment testing, coordination with ITOs, and final inspection procedures.[39] The RFP stated all activities concerning the Zachary – Thomas Hill conductor-only facility is an aspect of DZTM MISO anticipates may be particularly important.

Developer A's Zachary–Thomas Hill commissioning will include on-site coordination with Ameren to avoid interferences during the construction and commissioning phases of the 161 kV circuit. Developer B discussed the Ameren and AECI responsibilities and coordination that will be required when commissioning Zachary–Thomas Hill, including equipment testing, communication path testing, systems testing, and initial energization. Developer C will coordinate a schedule around interconnection agreement executions, physical construction coordination and access, and testing and commissioning procedures and support. Developer D demonstrated its extensive experience coordinating with transmission owners in the project area.

[38] MISO BPM-27 Section 7.3.9

[39] DZTM RFP, Part 2, page 24

2E. Financing and Capital Resource Plan

A competitive developer must describe the capital it will use to fund the project. It must discuss expected cash flows, significant expenditures, sources of emergency capital, and credit ratings, and it must provide financial statements.[40]

All developers submitted financing and capital resource plans that demonstrated their individual ability to fund the construction of the DZTM project. All developers proposed corporate financing through construction by funding the project from cash on hand and the existing credit facilities. MISO identified the ability to manage and finance a large project as an aspect of DZTM it anticipates may be particularly important. DZTM is the largest competitive project in LRTP Tranche 1.

All developers will fund the project operations and maintenance by maintaining cash reserves sufficient to fund immediate needs. If additional major financing needs arise, credit facilities will be available.

2F. Safety

A competitive proposal must describe the general and specific aspects of the project safety plan and include the OSHA/DART reports of the entities that will be constructing the project.[41]

All developers submitted the table of contents of their site-specific safety plans and at least five years of safety data of their primary construction contractors. MISO determined all proposals contained satisfactory safety information.

Developer A provided site-specific considerations such as emergency contacts and local safety concerns. During its June 2023 site visit, it noted low visibility roadways, potentially congested operations during Z–TH construction, high deer population, and variable weather conditions that affected roads and soils as safety concerns. Developer B listed potential hazards that will be identified during its pre-construction safety review. Developer C included less project-specific safety considerations than other developers. Developer D included safety plans for each facility and included project-specific information such as nearest medical facilities, responsible parties, and safe practices around anticipated activities.

[40] MISO BPM-27 Section 7.3.10 through Section 7.3.16

[41] MISO BPM-27 Section 7.3.17

3. Operations and Maintenance

MISO must evaluate a competitive proposal's Operation and Maintenance plan. Within each plan, it must specifically evaluate each proposal's plan for normal operations, non-normal operations, maintenance, and safety after the competitive project is in-service. This evaluation must constitute 30% of MISO's decision if the project contains a transmission line, as it does in DZTM. If the project only consists of a substation, this evaluation must constitute 35% of its decision.[42]

All four developers that submitted proposals for DZTM demonstrated they have significant experience operating and maintaining high-voltage transmission in many areas of the country. Although MISO is confident all developers could adequately operate and maintain the DZTM facilities, it reviewed each developer's O&M plans and capabilities to determine measurable differences. The DZTM RFP stated operations and maintenance coordination related to the Zachary–Thomas Hill transmission circuit facility is an aspect of DZTM MISO anticipates may be particularly important.

Although the degree to which the developers will rely on contractors, will use established field offices, and explained certain procedures varied by proposal, MISO concluded the differences were not enough to be a significant factor in selecting the DZTM developer.

For Operations and Maintenance, MISO categorized Developer D as Best, Developer A as Better, and Developers B and C as Good.

3A. Normal Operations

This O&M topic consists of a developer's plans for incorporating the competitive facilities into a Local Balancing Authority, monitoring and control of its real-time operations, switching activities on project transmission lines or substations, and coordinating planned outages.

Local Balancing Authority Area

A competitive proposal must describe how the project will be incorporated into a MISO Local Balancing Authority Area (LBAA).[43] The DZTM RFP stated Ameren, the interconnecting LBA in this project, was not willing at the time of the RFP to offer LBA services for the DZTM facilities.[44]

Once the RFP was issued, developers were asked to direct all questions related to DZTM and the RFP to MISO.[45] Unless there were existing arrangements among the developers or their affiliates and the Balancing Authority, any new LBAA agreements must be negotiated after the Selected Developer and Alternate Developer is selected.

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42 MISO Tariff, Attachment FF. Section VIII.E.1

43 MISO BPM-027 Section 7.4.1

44 DZTM RFP, page 45

45 MISO BPM-027 Section 5.7

One developer plans, within 60 days of ISD, to request Ameren include the DZTM competitive transmission facilities within the boundaries of Ameren's existing LBAs. Another developer plans to coordinate with MISO to form a new LBA and then self-perform LBA services. The two other developers already have affiliates registered as Local Balancing Authorities in MISO and will incorporate the new facilities into their existing LBA areas.

Real-Time Operations Monitoring and Control

A competitive developer must describe how it will monitor project transmission lines and monitor and control project substations in real-time.

It must identify the location and ownership of the control center that will be used as well as the staffing levels and training programs of the center. It must also state the control center complies with all applicable NERC standards, describe how the center will communicate with MISO, other entities, and project facilities, describe the Supervisory Control and Data Acquisition (SCADA) system that will be used, and describe how the developer will fulfill all the requirements of the NERC Transmission Operator (TOP) for DZTM.[46]

All developers identified the locations and owners of the primary (PCC) and backup control centers (BUCC) they will use for DZTM. Each BUCC was sufficiently close to the PCC to allow PCC staff to drive to the BUCC. NERC requires the transition time between a PCC and a BUCC to be no more than two-hours. The developers reported operating transfer times of 20 to 45 minutes. Two developers stated they will have at least one additional control center that could support DZTM if its PCC and BUCC were both unavailable.

The developers reported they will have between nine and nineteen NERC-certified system operators to monitor DZTM. Each developer identified the SCADA system it will use to monitor and control project facilities.

Switching

A competitive proposal, if the underlying project will require the developer to install a field-mounted switch on a project facility, must describe the switching activities as well as the labor and resources that will be necessary. The switching activities may include writing orders, issuing tags or clearances, and switch execution in the field.[47]

DZTM will not require the developer to install a field-mounted switch on a project facility. However, MISO concluded all developers likely already perform switching activities on some of their transmission assets and could successfully perform this activity if it were a part of DZTM.

Planned Outage Coordination

A competitive developer must identify and describe the labor, expertise, tools, and base of operations for coordinating planned outages for the competitive facilities. All developers provided sufficient information in this area that demonstrated their abilities to meet this requirement as required in the RFP.

[46] DZTM RFP, Part II, page 30

[47] MISO BPM-27 Section 7.4.3

3B. Non-Normal Operations

This O&M topic consists of a developer's plans for responding to forced outages, repairing equipment during emergencies, replacing or rebuilding major facility assets destroyed in a catastrophe, and financing expenses incurred because of a catastrophe.

A competitive proposal must include a non-normal operations plan that contains project-specific considerations, a table of contents of applicable non-normal operations procedures, and the qualifications, certifications, and relevant recent experience of the internal or external personnel who will execute the non-normal activities.

In each non-normal operational function below, a developer must describe the owned and contracted tools, internal and external personnel, operational locations, and response time contemplated by its plans.[48]

In compliance with the RFP, each developer submitted a non-normal operations plan. Each developer established it has the experience and resources to respond appropriately to non-normal operational events.

Forced Outage Response

A developer must describe how it will respond to a forced outage of each competitive facility.[49] If the competitive project contains a substation, a developer must discuss how long it will be able to monitor and control each substation if that substation loses its off-site AC station power source, and it must explain its plans to control the substation using only DC battery power.[50] DZTM does not contain a substation.

All developers are experienced transmission owners and operators and submitted sufficient information to establish they had the resources and experience to respond effectively to a forced outage of DZTM.

Developer A will use both internal resources and a contractor to respond to forced outages. A contractor will coordinate emergency response from two large cities in the region, which are both within three to six hours of the facilities. Two high-voltage technicians will be based at a new field office 30 minutes from the Denny substation and an additional 14 employees will be two hours from the project in an existing field office. The projected responsibilities for the two technicians at the new office appear to be more than a two-person staff could complete for a project of this scale. Both the developer and its contractor have standby agreements for helicopter support services.

Developer B will respond to forced outages with support from an identified contractor. Internal personnel will respond principally from an existing maintenance facility close to Zachary and will be able to respond within two hours to any part of DZTM. Its contractor will provide support within three to six hours. The developer uses a storm tracking and forecasting system to track weather that could impact the facilities.

Developer C will use internal personnel located one to three hours from the DZTM facilities to respond to forced outages. It will be able to use an affiliate's storm tracking and forecasting system to track weather that could impact the facilities.

48 DZTM RFP Part II, page 31

49 MISO BPM-027 Section 7.4.4

50 DZTM RFP Part II, page 32

Developer D will use internal personnel based out of four existing field offices to respond to forced outages. These offices will allow its first responders to arrive more quickly during emergency conditions.

Emergency Repair and Testing

A competitive proposal must describe how a developer will address emergency repairs and testing on each competitive facility. It must explain anticipated response times, methods of transporting spare equipment to an emergency location, the quantity and location of resources that will be maintained to conduct emergency repairs, and how it will determine when a facility may remain in service during emergency service.[51]

Developer A will rely on its own personnel to respond to and repair the project in an emergency. It will use a contractor for help if necessary. It identified the location and number of local and regional technical staff that would always be available to respond. It verified that its design safely accommodates live-line maintenance and that it is qualified to perform live-line maintenance.

Developer B will be responsible for all emergency repairs and testing. A contractor will perform live line maintenance if that is necessary. Both the developer and its contractor have standby agreements for helicopter support services.

Developer C will have access to its parent's external meteorological vendors, which provides daily updates about weather threats that can cause widespread power outages. Crews can respond in as little as 60 minutes. It has access to regional mutual assistance groups. During major events, it will utilize its parent's Emergency Response team. This team is based nearby and will incorporate the Denny-Zachary segment into its operations seamlessly.

Developer D will incorporate DZTM into its nearest linemen crew region, which consists of up to 12 linemen and a construction supervisor. An affiliate's internal linemen will perform emergency work and will fully support the project. The base of operations will be in western Illinois. These crews are well trained, equipped with tools, vehicles, and equipment, and can be on site within 45 minutes. Two additional affiliate line crews responsible for the nearby region are available to respond with up to 16 additional linemen and two construction supervisors within a few hours.

Major Replacement and Rebuilding

A competitive proposal must describe how the developer will complete any major asset replacement or rebuild because of catastrophic destruction or normal degradation.

This must include: (1) how the developer will secure the necessary internal and external labor and materials and equipment and (2) the design criteria and estimated timeline for using temporary construction to restore service until permanent construction is complete.[52] [53]

[51] MISO BPM-27 Section 7.4.5

[52] MISO BPM-27 Section 7.4.6

[53] DZTM RFP Part II, page 33

All developers are experienced transmission owners and operators and submitted sufficient information to establish they had the plans, resources, and experience to rebuild and replace major project assets due to a catastrophe or normal degradation.

Developer A has developed a schedule to return one mile of line and structures to service within seven days.

Developer B stated it will have enough inventory stored locally to rebuild more than one mile of transmission line. If a major event requires specialized equipment not available at one of the contractor's three regional locations, that equipment will come from the contractor's hub, which is six hours from Kirksville.

Developer C identified the number and location of compatible structures it could obtain and use in an emergency. It stated it can return two destroyed structures and two minimally damaged structures to service within 12 days.

Developer D stated it maintains enough inventory to temporarily rebuild five-line miles within thirty days using standard wood structures. It could rebuild one transmission mile in one week. It also identified the number of linemen within a 200-mile radius of its operations center it could use in a catastrophic situation.

Financial Strategy

A competitive proposal must describe a developer's financial strategy to timely replace facilities damaged due to catastrophic destruction.[54] All developers established their ability to raise capital to replace facilities lost due to catastrophic destruction.

3C. Maintenance

This O&M topic refers to a developer's strategy and ability to maintain necessary spare parts, conduct preventative or predictive maintenance, and perform and finance major replacements or rebuilds needed due to natural aging of equipment.

Spare Parts, Structures, and Equipment

A competitive developer must describe how it will ensure replacement equipment for project assets is timely available if necessary. It must state what spare parts are necessary, how many it has or will store in inventory or have available from vendors, the agreements it has with any vendors, where all spare parts will be located, and how quickly the spare parts will be available if needed.[55] A developer must also describe any spare parts with a lead time of at least one year that would need to be studied as part of TPL-001-4.[56]

Developer A will hold spares dedicated to the transmission line design for the project. For a significant portion of the proposed design of structures, access to its affiliate line spares holding locations, specifically

[54] MISO BPM-27 Section 7.4.9

[55] MISO BPM-27 Section 7.4.7

[56] DZTM RFP, Part II, page 34

the existing available universal 345 kV pole spares, raises the proposed coverage of equipment spares to 98% for the project. The developer will separate the proposed storage location of spares from the project location. This reduces the risk of both locations being impacted by the same severe event.

The spares will be stored at secured locations and monitored 24/7 by an affiliate's corporate security group. Several line structures, hardware, wire, and fiber communication will be stored 30-minutes from the project at the affiliate's nearby location. Most line structures, wire, hardware, and communications spares will be available at a spare yard nine hours from the project.

In the event of hard-to-find-spares, the developer participates in the sharing of company-wide spares and this arrangement is formalized in the affiliate's agreement.

Developer B will be responsible for managing, owning, and maintaining all spare parts for DZTM. It will store enough parts locally to rebuild more than one mile of transmission line and replace any structure and five consecutive structures in any deadend-to-deadend section. This will include enough insulator and conductor hardware to replace two miles of those materials.

It will store materials in a central location that is less than two hours from all parts of the project. Additional spare parts will be 14 hours away. It will also have access to six Emergency Restoration System structures. The developer will assess spare inventory annually to determine the need for additional parts, structures, or equipment.

Developer C will be able to exchange parts, materials, and supplies at net book value with its parents' affiliates, subject to necessary regulatory approvals. It has negotiated special terms with major vendors for essential equipment that can be expedited in an emergency. It can obtain equipment from stock these vendors hold in reserve for it, or from special production runs the vendors will make, which will improve lead times.

Restoration equipment is largely available 60-180 minutes away from the project. Spare equipment is largely available three hours away. If needed, one of its parents can source the material in as little as six hours from a location in a nearby state.

Developer D's affiliate has many well-established material storerooms across its territory with material stocked for regular maintenance work as well as emergency restoration events. Five storerooms are set up to hold material for transmission lines. It maintains enough material stock on hand to allow it to temporarily rebuild up to 5 miles of transmission line within 30 days using standard wood structures. It did not provide lead time for major spare parts.

The developer will purchase and retain spare steel tangent structures, arms, and hardware that are the same as what will be utilized on the original construction of the lines. The quantity will be based on the final design layout of the lines such that a minimum of one mile of line material is available directly in the project area. The poles will be staged at local facilities.

Preventative and Predictive Maintenance and Testing

A competitive developer must describe how it will maintain and test project assets to minimize costs while the asset is in-service. The developer must discuss when, how, and how often it will execute preventative maintenance (such as tree-trimming) versus predictive maintenance (such as equipment testing) and what data will be recorded or used to make maintenance decisions.[57]

Developer A uses predictive maintenance technologies such as thermographic cameras, LiDAR, and other specific online tests. Inspection data collected by these predictive technologies is transferred to decision support tools to provide information regarding an asset's condition and health number, to rank the priority level of any future maintenance work order execution, and to determine the 'next steps' strategy.

For example, LiDAR data is weighted from infrared findings, visual inspection, ambient temperature, weather, and loading to risk rank components in terms of current condition, loading, and risk analysis. The results are fed into an asset management program and can trigger changes to scheduling, task frequency adjustment, or a new work order to address non-normal condition responses. A line equipment patrol will occur bi-annually.

A vegetation patrol will occur annually (discussed in the vegetation section below). The line equipment patrols occur each year in the spring and fall, ahead of severe storms and fire season. The proposed structure design and configurations allow for live line work. However, a transient overvoltage study must be performed before work can be done. Vegetation patrols will occur annually, and line patrols will occur twice a year.

Once the project is in service, an affiliate will manage the environmental obligations. The field maintenance team will be based at two locations in Missouri - a new office in the middle of the project area and an existing office located elsewhere.

Developer B will perform preventative/predictive maintenance activities through a combination of internal staff and outside contractors. Its general contractor will provide necessary tools, vehicles, and equipment. The project is designed such that live line maintenance can be performed. The developer will establish a new location near Denny substation and staff it with at least one technician.

It will use a storm tracking and forecasting service to forecast and track thunderstorms, lightning activity, tornados, ice storms, and high winds. The services provide a warning and risk level specific to its system (transmission lines, substations, and control centers) ahead of forecast events.

Developer C will use the same internal and affiliate personnel for maintenance as it will use for normal and non-normal operations. Most of the necessary equipment will be stored in a nearby city. An affiliate and its transmission maintenance contractors will have highly specialized tools and equipment available for use.

It will have a contractor that is live line-certified for the project lines. It will perform aerial inspection of the Denny-Zachary line segment once each year. Comprehensive walking, climbing, and aerial inspections will be scheduled every 12 years and focus on the details of the components of each individual transmission line.

Developer D will maintain DZTM with both internal and external personnel. It will use an affiliate's existing resources for the maintenance it will support internally. Those resources will be 40 to 150 minutes away from DZTM. It identified the contractors it will use for aerial services, ground inspection of structures and foundations, and vegetation maintenance. It will inspect the project lines aerially every year and from the ground every ten years. Regarding vegetation management, it will inspect the lines at least twice each year.

[57] MISO BPM-27 Section 7.4.8

Financial Strategy for Maintenance

A competitive proposal must describe how the developer will finance activities due to normal wear and tear of project assets.[58] All developers established their ability to raise capital to replace facilities lost due to catastrophic destruction.

3D. Safety

A developer must describe the general and specific aspects of the project safety plan and include the OSHA/DART reports of the entities that will be maintaining the DZTM facilities.[59] It must attach both a table of contents for detailed safety plans and programs and its safety record report.

All developers demonstrated they currently maintain high-voltage transmission lines in the United States. Regarding the developers' site-specific safety plans for DZTM, MISO determined the differences to be insignificant. Each developer described its project safety plan and attached a table of contents for the plan.

Regarding the developers' O&M safety records for internal and contractor teams, MISO determined the differences to be insignificant. Each developer provided evidence of Total Case Incident Rate (TCIR) rates below 2 and Days Away Restricted or Transferred (DART) rates below 1.

4. Planning Participation

All developers received their full planning participation credit.

[58] MISO BPM-27 Section 7.4.9

[59] MISO BPM-27 Section 7.4.10

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Appendix A. Glossary

Any capitalized terms used in this report for which definitions are not provided in this glossary are as defined in the MISO Tariff or the applicable MISO business practices manuals.

For some terms defined in the MISO Tariff, definitions provided in this glossary have been adapted to make them easier to understand when separated from the Tariff, but the formal Tariff definitions are controlling for all purposes.

For readability, many of the terms defined below are not capitalized when used in the body of this report.

Allowance for Funds Used During Construction (AFUDC)

AFUDC is an abbreviation for "allowance for funds used during construction." In the context of transmission rate regulation, it refers to a request by the owner of a transmission facility to be allowed to capitalize, and earn a permitted rate of return on, the net cost of borrowed funds used during construction, as well as equity funding. Recovery of AFUDC is not available until after the facility has been placed in service.

Annual Transmission Revenue Requirement (ATRR)

The annual revenue a transmission owner may recover from transmission customers through MISO's Attachment O, GG, and MM for providing transmission service.

Aspects and Elements

Characteristics MISO emphasized in the RFP as particularly important to the success of a project.

Business Practices Manual (BPM)

Document that contains instructions, rules, policies, procedures, and guidelines established by MISO for the operation, planning, accounting, and settlement requirements of the MISO region.

For purposes of the RFP, BPM-027 provides further background information, business rules, processes, and guidelines for the Competitive Transmission Process (including the roles and responsibilities of MISO, Transmission Owners, Members, and any other non-MISO Members and other interested parties).

CCN

Certificate of Convenience and Necessity

CEII

Critical Energy Infrastructure Information, as described in 18 C.F.R. § 388.113(c)(1).

Co-location

Occurs when a transmission line shares the same structures and right-of-way as another transmission line or shares a common right-of-way of another transmission line.

Competitive Developer Selection Process

The process utilized to solicit Proposals, evaluate Proposals, and designate a Selected Proposal and Selected Developer in accordance with the MISO Tariff.

Competitive Transmission Executive Committee (CTEC)

A team of three or more MISO executives, including at least one officer, charged with overseeing MISO staff and consultants involved in implementing the MISO Competitive Transmission Process. The MISO Tariff provides that the Executive Committee has exclusive and final authority to approve or reject Transmission Developer Applications and certify Transmission Developer Applicants as Qualified Transmission Developers.

Competitive Transmission Process

The process used to certify Qualified Transmission Developers, identify Competitive Transmission Projects, solicit proposals, evaluate proposals, and designate a Selected Developer and Selected Proposal, all in accordance with the MISO Tariff. The competitive transmission process includes the competitive developer qualification process and the competitive developer selection process.

CWIP (Construction Work-in-Progress)

In the context of transmission rate regulation, it refers to a request by the owner of a transmission facility to be allowed to include costs of facility construction in rate base before the corresponding transmission facility has been placed in service. Under FERC rules, CWIP funding is limited to amounts that would otherwise qualify for AFUDC.

DART

Days Away, Restricted, or Transferred is an OSHA safety metric.

EHV

Extra-High Voltage

Evaluation Criteria

The four FERC-approved criteria the Tariff requires MISO to use for the competitive developer selection process: (1) cost and design, (2) project implementation, (3) operations and maintenance, and (4) planning participation.

Evaluation Principles

The four evaluation principles specified in Section 8.1 of BPM-027, which MISO uses to guide and influence the collective application of the MISO evaluation criteria. The evaluation principles are: (1) certainty, (2) risk mitigation, (3) cost, and (4) specificity.

Evaluation Team

Designated members of MISO management and staff responsible, together with independent consultants retained by MISO to assist management and staff, responsible for administration of MISO's competitive developer selection process, subject to oversight by the Competitive Transmission Executive Committee.

FERC

Federal Energy Regulatory Commission.

KMZ

KMZ is a file extension for a file type used by Google Earth. KMZ stands for "Keyhole Markup language Zipped," which is a compressed version of a KML (Keyhole Markup Language) file. KML is notation related to geographic display and visualization within Internet-based, two-dimensional maps and three-dimensional Earth browsers.

LiDAR

LiDAR (Light Detection And Ranging) is a surveying method that measures distance to a target by illuminating the target with pulsed laser light and measuring the reflected pulses with a sensor.

Local Balancing Authority

An operational entity or a "Joint Registration Organization" (as defined by NERC) that is: (a) responsible to NERC for compliance with the subset of NERC Balancing Authority Reliability Standards defined in the Balancing Authority Agreement for its local area within the MISO Balancing Authority Area, (b) a Party (other than MISO) to the MISO Balancing Authority Agreement, and (c) shown in Appendix A to the Balancing Authority Agreement.

Long Range Transmission Planning (LRTP)

A key initiative of the Reliability Imperative. The focus of LRTP is to improve the ability to reliably move electricity across the MISO region from where it is generated to where it is needed, at the lowest possible cost.

MISO

Midcontinent Independent System Operator, Inc.

MISO Tariff

MISO's Open Access Transmission, Energy and Operating Reserve Markets Tariff (including all its schedules and attachments), as amended from time to time.

MTEP (MISO Transmission Expansion Plan)

A long-range plan used to identify expansions or enhancements to the MISO transmission system to (a) support efficiency in bulk power markets, (b) facilitate compliance with documented federal and state energy laws, regulatory mandates, and regulatory obligations, and (c) maintain reliability.

The MTEP is developed biennially or more frequently, and subject to review and approval by MISO's Board of Directors.

MTEP21

MISO's 2021 Transmission Expansion Plan, the transmission plan in which the project was approved.

NESC

National Electrical Safety Code, which sets the ground rules and guidelines for practical safeguarding of utility workers and the public during the installation, operation, and maintenance of electric supply and communication lines and associated equipment.

Nominal Dollars

Nominal dollars reflect the costs to construct / operate the project at the time the cost is incurred. For example, if an RFP Respondent expects an item will cost $1,000 in 2025, then the cost estimate in nominal dollars in 2025 will be $1,000.

NRCS

The Natural Resources Conservation Service.

OSHA

The U.S. Occupational Safety and Health Administration.

Parallel Transmission line

A transmission line that is constructed on its own right-of-way but is adjacent to another transmission line.

Present Value of Revenue Requirements (PVRR)

The present value in 2022, using a discount rate of 6.9%, of the Annual Transmission Revenue Requirements estimated by a developer and included in a competitive project's Project Template Workbook.

Project Implementation Cost

For purposes of this report, project implementation cost (or simply "PI cost") refers to the cost estimate (in nominal dollars) for fully implementing the proposal and placing the project into service. Project implementation cost is calculated in the Proposal Template Workbook based on required inputs for cost categories explained in Part 2 of the RFP package.

Project Template Workbook (PTW)

An Excel spreadsheet template, included as part of the RFP materials, for each RFP Respondent to use in submitting financial information for its proposal.

Proposal Participant

For purposes of this project, a Proposal Participant is an entity that is involved in a proposal and is not the RFP Respondent but will co-own the project and rely on the RFP Respondent to be responsible for constructing and implementing the project. A proposal may designate a Proposal Participant as responsible for one or more aspects of operations, maintenance, repair, or restoration, on terms comparable to those that would apply if the RFP Respondent intended to rely on a third-party contractor. Every proposal must specify whether the RFP Respondent plans to convey any interests in the project to one or more Proposal Participants.

Proposal Submission Deadline

The date and time by which proposals responding to an RFP must be delivered to MISO.

Qualified Transmission Developer

A MISO Transmission Owner, independent transmission company, or non-owner Member of MISO that submits a Transmission Developer Application and is subsequently determined by MISO to meet the minimum requirements for a Qualified Transmission Developer as outlined in Attachment FF of the Tariff.

RFP

A request for proposals issued by MISO, which constitutes an invitation (including associated requirements) for Qualified Transmission Developers to submit proposals to construct, implement, own, operate, maintain, repair, and restore a Competitive Transmission Project.

RFP Respondent

A Qualified Transmission Developer involved in a competitive proposal submitted to MISO.

SCADA

Supervisory Control And Data Acquisition.

Selected Developer

The RFP Respondent designated by the Executive Committee as having submitted the Selected Proposal, and therefore selected to implement the project according to the Selected Developer Agreement.

Selected Developer Agreement

The agreement, as set forth in Appendix 1 to Attachment FF of the Tariff, to be executed between the Selected Developer and MISO. This agreement establishes the terms and conditions under which the Selected Developer will construct and implement the project as specified in its Selected Proposal.

Selected Proposal

The proposal selected by the Executive Committee (in accordance with the Competitive Developer Selection Process) as the highest-scoring proposal submitted in response to the RFP.

Switching Order

A switching order is a written set of instructions, using three-way communications during implementation, to ensure that an electrical facility is de-energized and put into an electrically safe condition before maintenance is performed. It would typically include (1) switching activities step by step, (2) estimated times, (3) responsibility assignments, (4) applicable safety measures, and (5) necessary personal protective equipment for each step.

Appendix B. Design-Related Terminology

ACSR

Aluminum conductor, steel reinforced. With ACSR conductor, both the primary conducting material (aluminum) and steel strands contribute to overall conductor strength. Because the aluminum is important as a supporting material, system operators must be careful not to allow the conductor to become so hot that the aluminum starts to soften (referred to as annealing). Extended operation at higher temperatures could cause ACSR to start losing its strength, increasing risk of low clearance or conductor failure.

ACSS

Aluminum conductor, steel supported. ACSS conductors use fully annealed aluminum supported on high-strength steel. Because the steel is the primary source of conductor strength, ACSS conductor usually can be operated at higher temperatures than ACSR.

Cardinal

Cardinal is a trade name for a conductor variety of a specific gauge (as measured in kcmil), with a particular combination of steel and aluminum strands—in this case, 954 kcmil 54/7, denoting 54 aluminum strands surrounding seven steel strands in each conductor bundle as used in Proposals 705 and 706, and 20 aluminum strands surrounding seven steel strands in each conductor bundle for the trapezoidal shaped conductor used in Proposal 702.

Dead-end structures (also failure containment, containment, or storm structures)

Dead-end or failure containment transmission structures are designed to withstand more mechanical stress than standard "tangent" or "running angle" structures (explained below). They are used at heavy-angle turns along transmission routes (where the forces created by the high degree of the angle in conjunction with the conductor weight and tension make it harder for support structures to remain upright). They are also placed at specified intervals along a transmission line so that, if something seriously damages or destroys some of the supporting structures, the structure failure will not cascade through many miles of transmission line. Instead, the dead-end structures on either side of the damaged area will arrest the structure failures.

Direct embedded

Transmission structures that are direct embedded are generally anchored by extending the structure shaft below grade, relying on the surrounding earth and backfill material for support. To place direct-embedded structures, construction workers excavate a hole of sufficient depth, place the structure in it, and then refill the space around the structure. The fill material may be gravel, engineered material or replacement of the excavated backfill. A bearing plate may be engineered into the design of the foundation as needed.

Drake

Trade name for a conductor variety of a specific gauge (as measured in kcmil), and a particular combination of steel and aluminum strands—in this case, 795 kcmil 26/7, denoting 26 aluminum strands surrounding seven steel strands in each conductor bundle.

Drilled pier

A concrete pier foundation with steel reinforcement and anchor bolts. Depending on soil conditions installation may be with or without casing. Either permanent or temporary casing may be used. Installation may require specialized techniques and drilling fluids.

Galloping

Galloping is a term for how overhead power lines will oscillate (generally, but not exclusively, in a vertical direction) in a low-frequency, high-amplitude motion due to wind and the formation of a thin layer of ice on the wire. Sustained or severe galloping can damage or cause failure of transmission line components and supporting structures.

Galvanized steel structure

Transmission structure made of steel coated in zinc to prevent corrosion. This gives it a shiny appearance.

Guying (or guyed)

Practice of attaching tensioned cables (typically steel) to transmission structures to increase their stability.

Kcmil

Abbreviation for thousands of circular mils, a measurement of wire gauge (a mil is 1/1000 inch).

MA2

Core standard-strength steel strands available in ACSS.

MA3

Core high-strength steel strands available in ACSS.

Monopole

A single primary structure (typically wood or steel) that supports an overhead transmission line—as distinguished, for example, from H-frame, three-pole, or lattice tower structures. Tangent monopole structures typically have davit arms to position conductor assemblies a minimum distance away from the structure.

Optical ground wire (OPGW)

A wire composed of optical fiber surrounded by conductive material (steel and aluminum) used in conjunction with overhead transmission lines to combine the functions of grounding (see the explanation of shield angle below) and communications.

Running angle structure

Structures used for portions of a transmission line route that have light- or medium-angle turns. Typically, the suspension assemblies for attaching the conductor to the structures will permit the insulators to swing away from the support structure.

Shield (or shielding) angle

Position of optical ground wire secured on a transmission structure in relation to the position of the conductor below for which it provides shielding.

Because the optical ground wire is positioned above the conductor, it will attract lightning strikes that might otherwise strike the conductor, and safely conduct the resulting electrical charge along grounding material on the structure to grounding rods or other devices below.

Specifically, shield angle describes the angle between (a) an imaginary vertical line drawn from the attachment point of the optical ground wire and (b) an imaginary line drawn between the attachment point for the optical ground wire and the attachment point (on the same structure) for the shielded conductor. A smaller shield angle more effectively protects the conductor beneath.

Tangent structure

Structures used for portions of a transmission line route that are mostly straight or have very minor turns.

TW (Trapezoidal Wire)

Trapezoidal Shaped Aluminum Strands in conductor construction.

Weathering steel

Weathering steel forms an adherent protective rust that limits further oxidation of the metal. Hot-dipped galvanized steel is produced by dipping bare steel in a bath of molten zinc metal. The resulting metallurgical reaction between iron and zinc provides both a barrier and cathodic protection that protects steel from corrosion.