



MTEP24 Expedited Projects Review

Virilia 230 kV Substation Project
Cosmos 230 kV Substation Project
Andes 500/230 kV Substation Project
“Mississippi Load Addition EPRs”

South Technical Study Task Force (STSTF)

October 3, 2023

Mississippi Load Additions Expedited Project Review Process Timeline

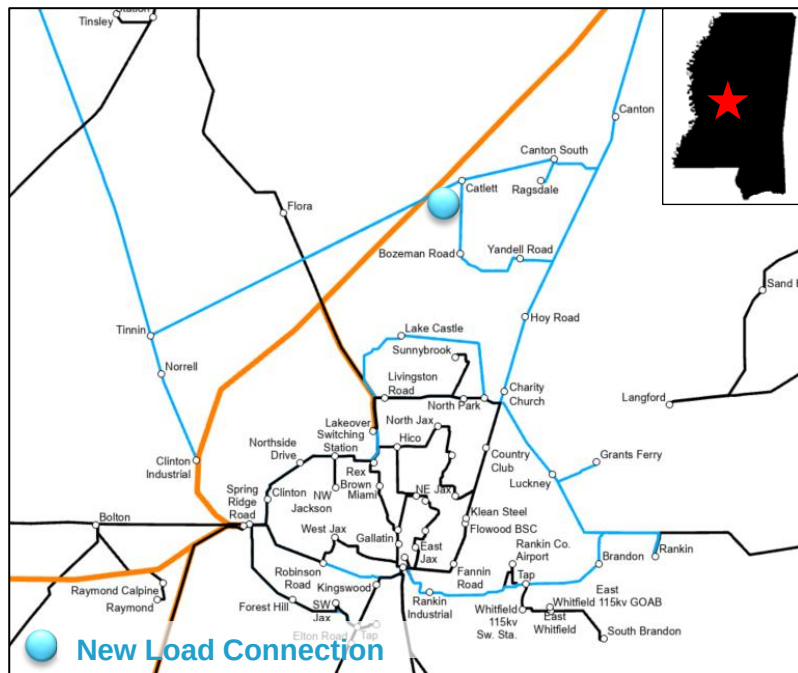


Customer request drives need for load addition

Load addition drives need for reliability projects

- Entergy is proposing to construct 3 new substations in phases at a total of 1,034 MW in Madison county, Mississippi.
- A new 230 kV substation (Virililia) will serve a customer's 267 MW of new load near the existing Catlett Road 230 kV substation,
- A new 230 kV substation (Cosmos 230 kV Substation) will serve a customer's 267 MW of new load near the existing Lake Castle – North Park 230 kV transmission line,
- A new 500/230 kV substation (Andes) will serve a customer's 537 MW of new load near the existing Lakeover - McAdams 500 kV transmission line.
- Regular MTEP24 cycle review cannot facilitate the requested in-service date with the project lead time

Virililia 230 kV Customer Load Addition Overview



Project description: The Virililia 230 kV breaker and a half substation will be fed out of the existing Catlett 230 kV substation. The existing Catlett substation will be reconfigured into a breaker and a half substation with two additional bays to connect to (2) 230 kV lines to the Virililia 230 kV substation. A 108 MVAR capacitor bank will also be added to the new Virililia 230 kV substation. Customer load will be fed out of (3) 150 MVA 230/34.5 kV transformers.

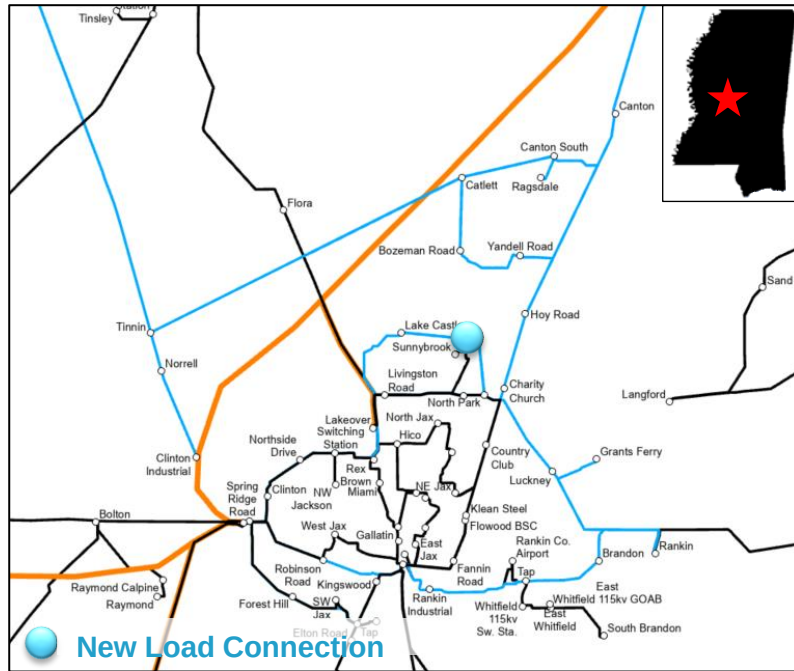
Estimated Cost: \$ 79.5M

Expected ISD: January 2025

Project Type: Other: Load Growth

Target Appendix: A in MTEP24

Cosmos 230 kV Customer Load Addition Overview



Project description: The Cosmos 230 kV breaker and a half substation will cut into the existing Lake Castle – North Park 230 kV transmission line. A 108 MVAR capacitor bank will also be added to the new Cosmos 230 kV substation. Customer load will be fed out of (3) 150 MVA 230/34.5 kV transformers.

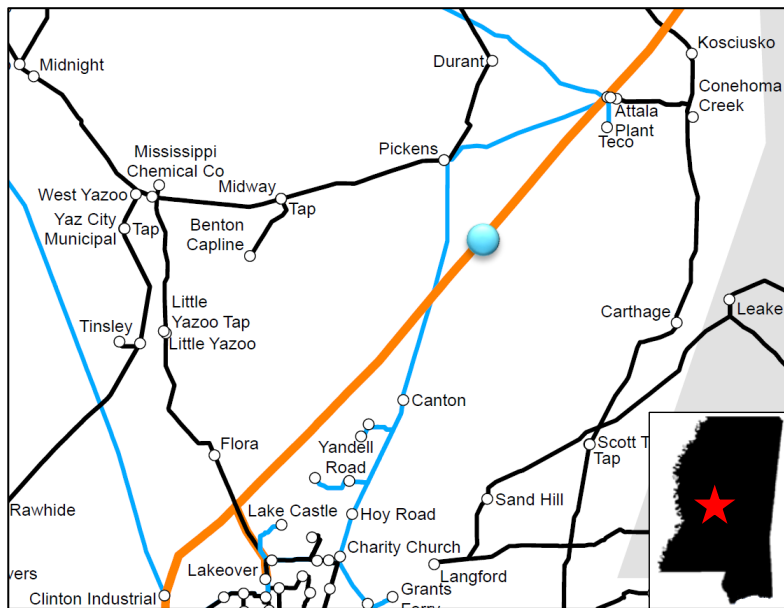
Estimated Cost: \$44.5M

Expected ISD: January 2026

Project Type: Other: Load Growth

Target Appendix: A in MTEP24

Andes 500/230 kV Customer Load Addition Overview



 **New Load Connection**

Project description: The Andes 500 kV four breaker ring bus station will cut into the existing Lakeover – McAdams 500 kV transmission line. Two 720 MVA autotransformers (2 x 3 single phase 240 MVA autotransformers + 2 single phase spares) will connect the 500 kV ring bus to the 230 kV breaker and a half station. A 108 MVAR capacitor bank will also be added to the new 230 kV substation. Customer load will be fed out of (6) 150 MVA 230/34.5 kV transformers.

Estimated Cost: \$ 158M

Expected ISD: June 2027

Project Type: Other: Load Growth

Target Appendix: A in MTEP24

MISO Reliability Analysis Scope and Assumption

Study Overview

Description

- Perform Steady State analysis on MTEP models with and without project candidate
- Monitor MISO South for voltage and thermal criteria violations
- Project passes the no harm test if there are no criteria violations that occur in the project case only

MTEP23 Models with dispatch solutions simulated with and without project candidates

- 2025 Summer Peak
- 2028 Light Load
- 2028 Shoulder Average & High Wind
- 2028 Summer Peak
- 2028 Winter Peak
- 2033 Summer Peak

Contingencies in MISO South

- P1 (Single Element)
- P2 (Single event that may cause multiple element outage)
- P3 (Generator outage + Single element)
- P4 (Stuck breaker)
- P5 (Relay failure)
- P6 (Single Element + Single Element)
- P7 (Common structure)



No negative impact on system reliability due to the project candidate

MISO recommends the Mississippi Load Addition EPRs for inclusion of MTEP24 Appendix A

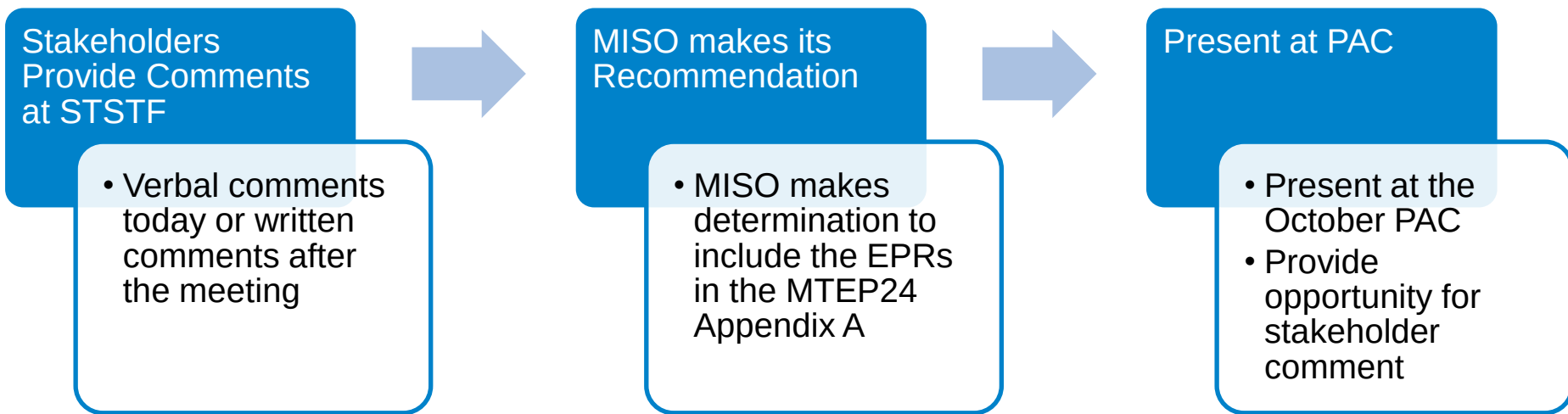
Reliability analysis results

- No adverse system impact caused by the project

MISO recommendation

- MISO recommends Mississippi Load Addition EPRs be included in MTEP24 Appendix A, and that Entergy proceed with construction as needed to meet the ISD

Next Steps





Questions?

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