

Solar Sensitivity Strategic Recommendations

01/25/2024 Joint Committee Update



Purpose

- As solar generation continues to spread throughout Southern Balancing Authority Area (SBAA), the transmission system will continue to experience thermal constraints as certain levels of solar penetration are achieved.
- The purpose of this study is to analyze and develop potential strategic projects that support expansion of solar resources in south/central Georgia and Alabama.
- Several strategic projects are proposed which target areas in need of additional high voltage transmission capacity to facilitate load and generation growth and to mitigate impacts of unforeseen loop flows. The proposed projects aim to leverage existing ROW or low-capacity corridors to expedite construction.

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Potential Strategic Projects

- The following projects were studied individually:
 - Hatch – Wadley Primary 500 kV Line
 - Douglas – Pine Grove Primary 230 kV Line
 - East Berlin – Thomasville 230 kV Line
 - Raccoon Creek – South Bainbridge 230 kV Line
- The following projects were studied in groups collectively:

Group 1:

1. McGrau Ford – Middle Fork 500 kV
2. Douglas – Pine Grove Primary 230 kV
3. Raccoon Creek – South Bainbridge 230 kV Line
4. Thomasville – East Moultrie 230 kV

Group 2:

1. Bonaire – North Tifton 500 kV
2. Raccoon Creek – Tazewell 230 kV
3. Talbot County – Scherer 500 kV
4. Scherer – Wadley 500 kV

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Methodology and Assumptions PUBLIC DISCLOSURE

2023 versions 1&2 Southern Balancing Authority Area (SBAA) Power Flow Models were used for the studies

Case Years	2028 – 2033
Case Types	REDACTED REDACTED REDACTED REDACTED
Contingency	N-1
Monitored Facilities	115 kV and above Georgia including tie lines

Recommendations & Next Steps PUBLIC DISCLOSURE

- Assign sponsorship and initiate project approval documentation:
 - Hatch – Wadley Primary 500 kV (~65 miles)
- Benefit:
 - Widespread transmission capacity improvements.
 - Alleviates identified thermal limitations due to 500 kV contingencies.
 - Provides at least **REDACTED** capacity for a generator to interconnect on the Hatch – Wadley 500 kV line
- Timeline: First quarter 2024

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Recommendations & Next Steps

PUBLIC

- Conduct study for project development:
 - McGrau Ford – Middle Fork 500 kV (~64 miles)
- Benefit:
 - North Georgia capacity benefits identified for the McGrau Ford – Middle Fork 500 kV line
 - Right-of-way acquired.
- Note: Additional analysis needed to identify required supplemental infrastructure improvements.
- Timeline: Complete by Q2 2024

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Recommendations & Next Steps

PUBLIC

- Conduct study for project development
 1. East Berlin – Thomasville 230 kV line (~30 miles)
 2. Raccoon Creek – South Bainbridge 230 kV line (~48 miles)
- Benefit:
 - Capacity benefit identified for the Raccoon Creek – South Bainbridge and the East Berlin – Thomasville 230 kV lines.
 - Existing transmission/sub-transmission corridors available to accommodate part of the route.
- Note: Analysis pending.
- Timeline: Complete by Q3 2024

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Recommendations & Next Steps PUBLIC DISCLOSURE

- The team will test strategic projects to address the corridors that are mostly impacted by solar expansion.
 1. Address **REDACTED REDACTED** constraints
 2. Improve South to North flow in Central zone
 3. Alleviate **REDACTED REDACTED REDACTED REDACTED** constraints in Southwest Georgia
- Other area solution options may be included to enhance reliability and improve capacities.
- Note: Analysis pending.
- Timeline: Complete by Q4 2024

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Recommendation Summary

- Immediate Action:
 - Hatch – Wadley Primary 500 kV
 - ***Goal: Complete project sponsorship & project documentation by Q1 2024***
- Analysis to support project development of following projects:
 - McGrau Ford – Middle Fork 500 kV
 - ***Goal: Complete study & documentation by Q2 2024***
 - East Berlin – Thomasville 230 kV line
 - ***Goal: Complete study & documentation by Q3 2024***
 - Raccoon Creek – South Bainbridge 230 kV line
 - ***Goal: Complete study & documentation by Q3 2024***
- Additional strategic items to address:
 - Improve central and south Georgia flow patterns
 - Address Southwest Georgia Transmission constraints
 - ***Goal: Complete study & documentation by Q4 2024***

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