Designation Study Report
McGrau Ford, Phase II BESS – Cherokee County, GA
Designation (133 MW – Charging, 265 MW - Discharging)
August 2, 2024

Notice to the Requesters of Transmission Planning Study Information

The following studies have been conducted starting with load flow base cases developed for use as one possible scenario of the future that could occur. These base cases incorporate the most recent information available concerning loads, transmission enhancements, committed generation, firm transactions, and other information pertinent to building load flow cases. For later years, they also incorporate assumptions on transmission and generation additions that may not be budgeted and for which commitments may not have been made by the entities represented in the models. Information from other transmission owners within the Southern Balancing Authority Area (SBAA) was obtained and incorporated in these models. The systems external to the SBAA were either obtained from the given Balancing Authority or from the most recent NERC MMWG cases. Southern Companies take no responsibility for the information provided by others in the performance of the studies. The cases represent the best effort of Southern Companies to develop load flow base cases for use as a starting point for budgeting and other types of studies at the point in time the analysis is performed. Modifications to the load flow cases may be required as part of any such studies. Southern Companies make no claim that the models represent a commitment to build any of the facilities in the models and maintain the right to change the models as additional information becomes available or additional possible scenarios are needed. The decision to use the studies or underlying assumptions for any purpose is the sole responsibility of the user. This document reports the results from the analysis of the requested service and does not represent an offer of transmission service.

Requested Designation & OASIS Reservation Detail

Customer	Facility Name	County, State	Designation Amount	Plant Type
SOCO	McGrau Ford BESS	Cherokee County, GA	133 MW – Charging 265 MW - Discharging	4-hour Battery

AREF	Source	Sink	MW	Dates	Designation Voltage
103076811	MCGRAUBAT.SOCO	SOCOLOAD.NTWK	265	11/1/2026-11/1/2046	230 kV
103076838	SOCOGEN.SOCO	MCGRLOAD.SOCO	133	11/1/2026-11/1/2046	230 kV

Executive Summary

1. "Designation Request" shall hereafter refer to the designation of 133 MW of grid-charging service and 265 MW of discharging service at McGrau Ford.
2. Local area analysis identified constraints resulting from the Designation Request. See the "Local Area System Impacts" section of this report for additional information.
3. Stability analysis did not identify any constraints resulting from the Designation Request. See the "Stability Impacts" section of this report for additional information.
4. A review of Nuclear Plant Offsite Power requirements did not identify any constraints resulting from the Designation Request. See the "Nuclear Plant Offsite Power Impacts" section of this report for additional information.
5. An assessment of the impact to transfer capability indicates that the Designation Request does not limit the ability of Southern Companies to serve current firm obligations on Southern Balancing Authority Area interfaces during the timeframe requested. See the "Interface Transfer Capability Impacts" section of this report for additional information.
6. Based on the analysis included in this report, the designation can be provided pursuant to Table 1.

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Table 1. Designations That Can Be Accommodated

			Amount that can be accommodated without upgrade(s)		Amount that can be accommodated with upgrade(s)	
Source	Sink	Requested Amount	Summer	Winter	Summer	Winter
MCGRAUBAT.SOCO	SOCOLOAD.NTWK	265 MW	135 MW	265 MW	265 MW	265 MW
SOCOGEN.SOCO	MCGRLOAD.SOCO	133 MW	36 MW	133 MW	133 MW	133 MW

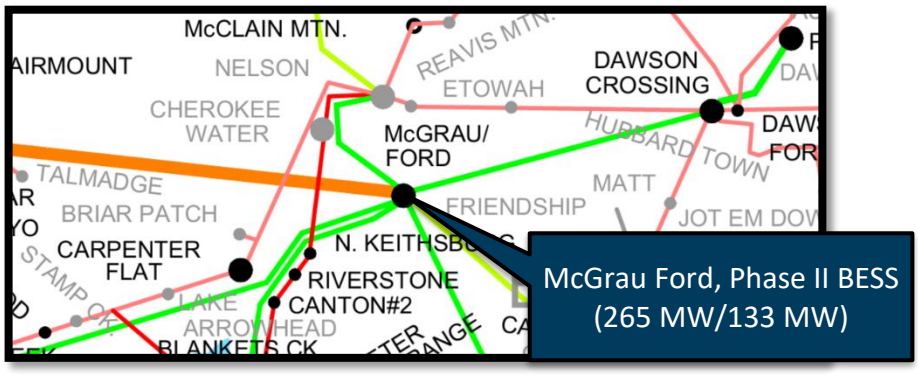


Figure 1. Designation Location

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Study Structure & Assumptions

The load flow study was conducted on the latest version of base cases available at the time of the study. The load assumptions and generation expansion plan are the latest available and are considered the most appropriate for the evaluation of this request. It should be noted that changes to the load forecast, and/or changes in the expansion plan could occur and would impact the results of the study. In addition, the currently projected system improvements were modeled in the cases. Changes to the conditions on the transmission system and in transmission system expansion plans could also impact the results of this study.

Includes	Local Area System Impacts, Stability Impacts, Nuclear Plant Offsite Power Impacts, and Interface Transfer Capability Impacts
Base Case Models	2024 Series Version 1C: Summer Peak, Dusk Shoulder, Daylight Shoulder, Off-Peak
Software	Siemens PTI PSS/e 35, PTI MUST 12
Queue	See Appendix A

This evaluation was conducted using the criteria and guidelines applicable for planning purposes by Southern Companies.

The tables in Appendix A are provided for informational purposes only. Table A.1 reflects the interconnection requests considered in the evaluation. Table A.2 reflects prior-queued transmission service requests considered in the designation request evaluation. These queued requests may or may not result in Transmission Service Agreements[1].

[1] Refer to cases for specific requests modeled.

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Local Area System Impacts

Two scenarios were developed as follows:

- **Study "Off" Case:** Base case with prior queued requests, potential rollover, and other queuing sensitivities considered.
- **Study "On" Case:** Study "Off" case with the McGrau Ford Designation Request modeled in effect.

A steady state analysis identified the following transmission constraints related to the Designation Request that require transmission projects.

Table 2. Local Area System Impacts

Constraint	Contingency	Rating (MVA)	Variation	Thermal Loading (%)								Scenario	Project
				2027	*2028*	*2029*	*2030*	*2031*	*2032*	*2033*	*2034*		
954 NELSON 115.00 1164 MCCLAIN MTN 115.00 1	335 DAWSON CROS 230.00 1117 MCGRAU F B2 230.00 1	124	Off	92.8%	89.6%	95.6%	94.1%	93.9%	93.9%	89.6%	97.2%	1	PP1
			On	94.4%	93.3%	98.7%	97.8%	100.4%	100.4%	95.3%	100.7%		
1381 GAINES FRY 115.00 2013 LKSD WTP A 115.00 1	2068 CHESTNUT MT 230.00 2766 S HALL B1 230.00 1	114	Off	60.0%	62.6%	64.3%	76.2%	78.0%	79.6%	91.8%	98.4%	2	PP2
			On	61.0%	63.8%	64.3%	77.5%	79.2%	80.9%	93.3%	100.2%		

Scenarios:

1. Summer Peak, SNWE, East Alabama Area Max, BESS Discharging
2. Daylight Shoulder, NSEW, McDonough 4 Unit Offline, BESS Charging

Stability Impacts

A stability analysis did not identify any stability-related transmission constraints attributable to the Designation Request beyond those identified for the interconnection.

Nuclear Plant Offsite Power Impacts

A review of Nuclear Plant Offsite Power requirements did not identify any transmission projects attributable to the Designation Request to ensure bus voltages remain within the acceptable ranges.

Interface Transfer Capability Impacts

A review of the Interface requirements did not identify any transmission projects attributable to the Designation Request.

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Short-Circuit Impacts

Not Applicable

Potential Transmission Solutions

Table 3. Southern Companies Potential Transmission Solutions

Project No.	Description of Project	Facility Owner	Estimated Project Lead Time	Project Need Date	Attributable Cost ($2024)
PP1	**Dawson Crossing – Nelson (Black) 115 kV TL** • Reconductor approximately 4.5 miles of 115 kV Transmission Line from Nelson to McClain Mountain.	GTC	12 Months	2031	$6.75M
PP2	**McEver Road – Shoal Creek 115 kV TL** • Reconductor approximately 5.06 miles of 115 kV Transmission Line from Gaines Fry to Lakeside West Tap.	GPC	12 Months	2034	$7.60M
				Total Cost	**$14.35M**

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Appendix A

The tables in Appendix A are provided for informational purposes only. Table A.1 reflects interconnection requests considered in the designation request evaluation. Table A.2 reflects confirmed prior-queued transmission service requests considered in the designation request evaluation.

Table A.1. Interconnection Requests Considered in the Designation Request Evaluation

IC #	County	State	Capacity	Start Date	Service Type
N/A	-	-	-	-	-

Table A.2. Confirmed Prior-Queued Transmission Service Requests Considered in the Designation Request Evaluation

Req ID	POR	Source/Sink	MW	POD	Begin Service	End Service	Type
102117785	SOCO	REBECCSOL.SOCO-SOCOLOAD.SOCO	80	SOCO	6/1/2027	12/1/2047	Designation
102117857	SOCO	SANDVLSOL.SOCO-SOCOLOAD.SOCO	50	SOCO	10/1/2027	12/1/2047	Designation
102334509	SOCO	DRWHRNSOL.SOCO-SOCOLOAD.SOCO	80	SOCO	11/1/2027	11/1/2047	Designation
102698630	SOCO	OAKMANSOL.SOCO-SOCOLOAD.SOCO	80	SOCO	5/1/2029	12/1/2046	Designation
102698647	SOCO	OAKMANSOL.SOCO-SOCOLOAD.SOCO	80	SOCO	12/1/2046	5/1/2049	Designation
102698655	SOCO	OAKMANSOL.SOCO-SOCOLOAD.SOCO	80	SOCO	5/1/2029	12/1/2046	Designation
102698663	SOCO	OAKMANSOL.SOCO-SOCOLOAD.SOCO	80	SOCO	12/1/2046	5/1/2049	Designation
102687756	SOCO	CLRVWRSOL.SOCO-SOCOLOAD.SOCO	200	SOCO	1/1/2029	4/1/2063	Designation
102687723	SOCO	CLRVWRSOL.SOCO-SOCOLOAD.SOCO	200	SOCO	4/1/2048	1/1/2029	Designation
102613009	SOCO	GDSPRGBAT.SOCO-SOCOLOAD.SOCO	150	SOCO	1/1/2027	1/1/2047	Designation
102136278	SOCO	GDSPRGBAT.SOCO-SOCOLOAD.SOCO	150	SOCO	1/1/2047	1/1/2048	Designation
102136288	SOCO	SOCOGEN.SOCO-GDSPRGBLD.SOCO	150	SOCO	1/1/2027	1/1/2048	Designation

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For a complete list of active Interconnection Requests please refer to the Southern Companies' OASIS at https://www.oasis.oati.com/woa/docs/SOCO/SOCOdocs/Active-Gen-IC-Requests.pdf

For a complete list of transmission service requests please refer to the Southern Companies' OASIS at https://www.oasis.oati.com/SOCO/

For a complete list of current designations please refer to the Southern Companies' OASIS at https://www.oasis.oati.com/woa/docs/SOCO/SOCOdocs/Designated_Network_Resources_2024_(1).pdf