TSR LGE-2017-004
System Impact Study Report

(TSR #83984392)

PROPRIETARY

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TranServ International, Inc.
3660 Technology Drive NE
Minneapolis, MN 55418
Phone: 763.205.7080

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1. Study Summary

TranServ has evaluated the Long-Term Firm Network Transmission Service Request (TSR) listed in Table 1-1. A System Impact Study (SIS) was performed to determine the impact of this TSR on the transmission network, to determine if any transmission constraints prohibit granting the requested service and to identify any limiting constraints. This report documents that SIS.

Table 1-1 Request Details

Assign Ref	POR	POD	MW	TS Increment	TS Type	Request Type	Start Time	Stop Time	Q-Time
83984392	LGEE	LGEE	4	Yearly	Network	Original	2017-02-28 23:00:00 CS	2023-11-30 23:00:00 CS	2016-12-27 09:18:07 CS

For reliability purposes, a second distribution transformer will be added by the customer at an existing substation. The new transformer will normally supply part of the existing substation load with the remaining continuing to be served from the existing transformer. The maximum net change in load served from the existing 69 kV bus due to this request is less than 2 MVA.

Due to the size of this request, it was studied under the fast track study process. Thus no Ad Hoc Study Group was formed to review this SIS and no flowgate analysis was required to be performed.

Since the increase in the total substation load is less than 2 MVA and no flowgate analysis was required, no powerflow analysis was performed as part of the SIS by the Independent Transmission Operator (ITO). However, an Available Transfer Capability (ATC)/Available Flowgate Capability (AFC)/Available Share of Total Flowgate Capability (ASTFC) check was required and a study was required by the Transmission Owner (TO) to determine the direct assignment facilities that are necessary for this TSR.

1.1 OASIS Posted Flowgate Analysis Results

As defined in the LG&E and KU TSR Study Criteria document posted on the LG&E and KU Open Access Same-Time Information System (OASIS), this TSR is subject to an ATC, AFC, and ASTFC analysis. No ATC or ASTFC constraints were identified. AFC constraints due to the subject request were found.

1.1.1. ASTFC Analysis

The OASIS request evaluation was used to perform the OASIS ASTFC check on January 27, 2017 of the OASIS ASTFC posted horizon, January 01, 2017 to February 01, 2018. The OASIS

ASTFC check indicated that the subject request passed for the period of the OASIS ASFTC posted horizon. Beyond February 01, 2018, the ASTFC check was not performed. No ASTFC constraints were identified.

1.1.2. ATC Analysis

The OASIS request evaluation was used to perform the OASIS ATC check on January 27, 2017 of the OASIS ATC posted horizon, January 01, 2017 to July 01, 2018. The OASIS ATC check indicated that the subject request passed for the period of the OASIS ATC posted horizon. No ATC constraints were identified.

1.1.3. AFC Analysis

The OASIS request evaluation was used to perform the OASIS AFC check on January 27, 2017 of the OASIS AFC posted horizon, January 01, 2017 to July 01, 2018. Table 1-2 summarizes the AFC constraint to providing the requested service.

Table 1-2
AFC Constraint Summary

Start Date	Stop Date	Flowgate Number	Flowgate Name	Flowgate Type	Flowgate Owner	CAP	Dir Coeff	PTDF/ OTDF	Impact	Final AFC
08/01/2017	09/01/2017	2201	BRNFWK__PTDF	PTDF	LGEE	4	1	0.0548	0.22	-3.511

As can be seen in Table 1-2, the OASIS AFC check indicated that there is insufficient AFC on flowgate 2201 BRNFWK__PTDF for the month of August 2018. The request passed the AFC check for all other months.

The NITS application indicates that a net load increase at the existing substation is expected during both 2018 summer peak conditions and 2018 summer shoulder conditions. Due to the Table 1-2 AFC impacts, the portion of the subject request which results in a net load increase at the existing substation cannot be granted service for the month of August 2018.

1.2 Costs

The granting of this request is not contingent upon any system upgrades or advancements. There are however direct assignment facilities required. The direct assignment facilities include the following:

- Line work to accommodate the installation of the new delivery point

These facilities are already in-service. The cost of the direct assignment facilities was **$40,000 USD**. A detailed breakout of the cost is given below.

Description	Cost (k$)
Contract Labor	$22
Company Labor	$5
Materials	$7
Burdens	$6
Total	$40

1.3 Conclusion

No powerflow analysis was performed as part of the SIS by the ITO. Thus the granting of this request is not contingent upon any system upgrades or advancements. However AFC constraints and direct assignment facilities were identified. The total cost of the direct assignment facilities is **$40,000 USD**. Because this study was performed under the SIS fast track procedure and no network constraints were identified, no Facility Study will be required. It is important to note that the portion of the subject request which results in a net load increase at the existing substation cannot be granted service for the month of August of 2018. However, the AFC check will be reevaluated just prior to accepting the request and if the request passes the BRNFKW_PTDF flowgate, service will not be limited.