



DPA-2025-OCTOBER-2218

Delivery Point Network Study

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By SPP Engineering, Transmission Services

REVISION HISTORY

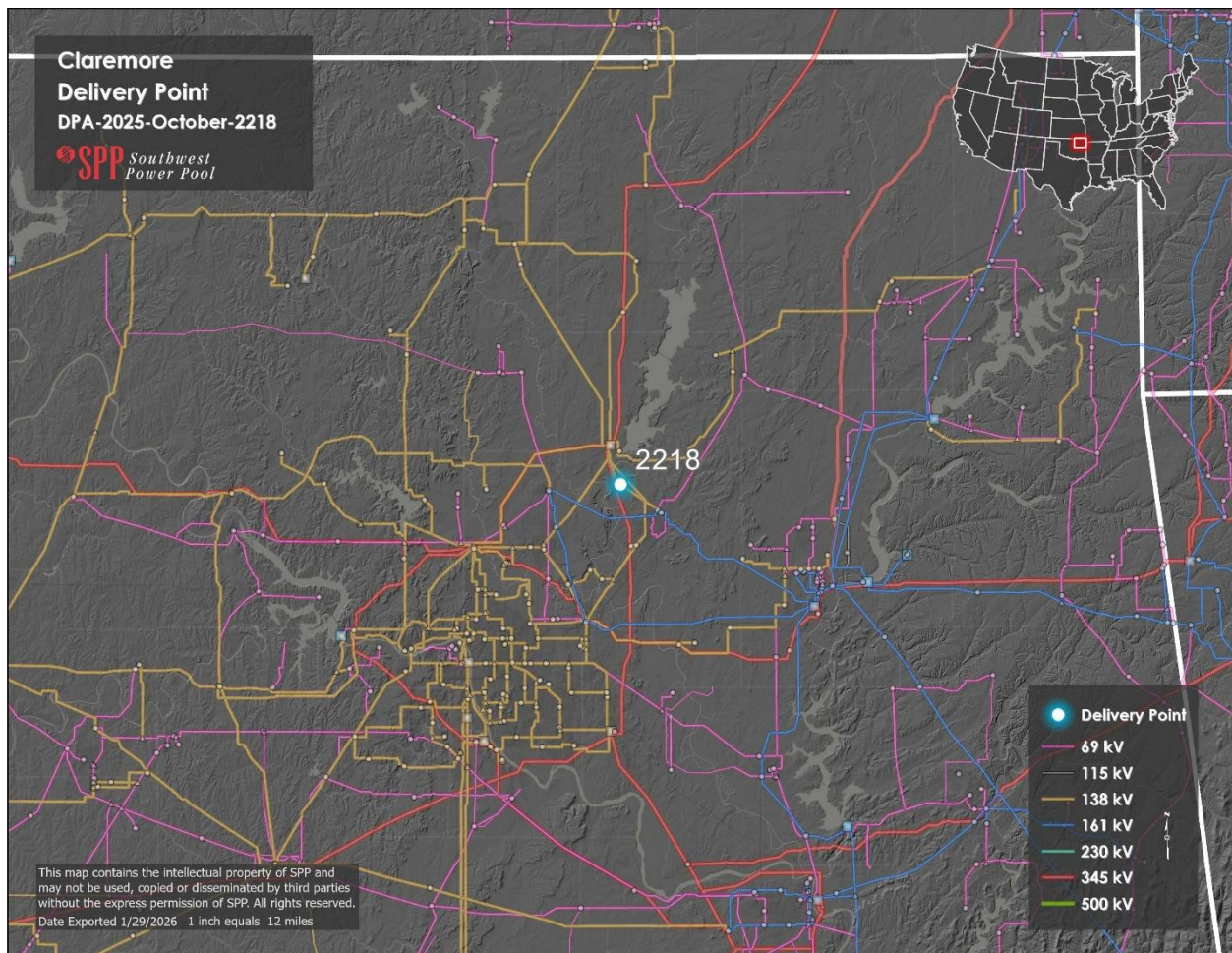
DATE OR VERSION NUMBER	AUTHOR	CHANGE DESCRIPTION	COMMENTS
2/6/2026	SPP	Original	
4/23/2026	SPP	First Revision	Updating mileage and costs based on corrected new delivery point location.

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SECTION 1: INTRODUCTION

This report outlines the results of an evaluation of regional transmission impacts from delivery point request DPA-2025-October-2218. The requesting entity plans to add new load to the existing delivery point called Claremore with an in-service date of 1/1/2028. The Claremore delivery point is in the Grand River Dam Authority (GRDA) Transmission System.



The load flow models used for the evaluation were 2025 Integrated Transmission Planning (ITP) base reliability models. Southwest Power Pool (SPP) performed an Alternating Current (AC) contingency analysis on these models using PSS@E.

SECTION 2: STUDY METHODOLOGY

OBJECTIVE

The purpose of this study was to determine the regional Transmission System impacts within the SPP footprint due to the new load served by GRDA. SPP performed a Delivery Point Network Study (DPNS) with the configurations shown in Table 2-1 below.

STUDY PROCESS

- Model Assumptions
 - 2025 ITP Base Reliability Model Series
 - Model years 2029 and 2034
 - Summer Peak (2029S and 2034S), Winter Peak (2029W and 2034W), and Light Load (2029L and 2034L)
 - DPA-2024-March-1924
 - 2025 ITP Short Circuit Model Series
 - 2029 Summer Max Fault
 - 2025 Transmission System Planning (TPL) Dynamic Model Series
 - 2034 Summer Peak Base and Change Cases

Table 2-1: Study Cases

Case Name	Study Year	Season	Scenario	Load (MW/MVAR)
2025ITPFinal-29L.sav	2029	Light Load	Base Reliability	Base Case
2025ITPFinal-29S.sav	2029	Summer Peak	Base Reliability	Base Case
2025ITPFinal-29W.sav	2029	Winter Peak	Base Reliability	Base Case
2025ITPFinal-34L.sav	2034	Light Load	Base Reliability	Base Case
2025ITPFinal-34S.sav	2034	Summer Peak	Base Reliability	Base Case
2025ITPFinal-34W.sav	2034	Winter Peak	Base Reliability	Base Case
2025ITPFinal-29L_2218.sav	2029	Light Load	Base Reliability	Claremore = 250.0/35.6
2025ITPFinal-29S_2218.sav	2029	Summer Peak	Base Reliability	Claremore = 250.0/35.6
2025ITPFinal-29W_2218.sav	2029	Winter Peak	Base Reliability	Claremore = 250.0/35.6
2025ITPFinal-34L_2218.sav	2034	Light Load	Base Reliability	Claremore = 250.0/35.6
2025ITPFinal-34S_2218.sav	2034	Summer Peak	Base Reliability	Claremore = 250.0/35.6
2025ITPFinal-34W_2218.sav	2034	Winter Peak	Base Reliability	Claremore = 250.0/35.6

- Steady State Analysis
 - Assumptions (consistent with the ITP analysis)
 - AC contingency analysis on all load flow models using PSS®E
 - Monitored Elements
 - SPP facilities 69 kV and above
 - First-tier companies 100 kV and above
 - Contingencies (consistent with the ITP analysis)
 - Provided for the ITP by SPP members and first-tier companies
 - Apply SPP Criteria and National American Electric Reliability Corporation (NERC) reliability standards
 - Compare thermal and voltage violations that occur with and without the Claremore delivery point change to determine thermal and voltage violations resulting from the load addition to the Transmission System.
- Dynamics Analysis
 - Assumptions
 - 2025 TPL Dynamics Model Series
 - 2034 Summer Peak Base and Change Cases
 - Analyses
 - Fast Fault Screening using Physical and Operational Margins Studio
- Short Circuit Analysis
 - Assumptions
 - Used 2025 Final ITP Short Circuit models (Max Fault)
 - Placed all available facilities in service
 - Generation
 - Transmission lines
 - Transformers
 - Buses
 - Short Circuit Output
 - Physical
 - Short Circuit Coordinates
 - Polar
 - Short Circuit Parameters
 - 3 Phase
 - FLAT – classical fault analysis conditions
 - Analyses
 - Three-phase fault

SECTION 3: RESULTS OF ANALYSIS

POTENTIAL THERMAL AND VOLTAGE VIOLATIONS

The analysis identified potential thermal and voltage violations resulting from the new load at the Claremore delivery point. Table 3-1 details the potential thermal violations and Table 3-2 details the potential voltage violations resulting from the load addition.

Table 3-1: Potential Thermal Violations

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
29L	138	CLARMORE 4- 4OOLOGAHKAMO-1	CLARMR 4 - CLARMORE 4 - 1	325/350	512.05	146.3
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	BASE CASE	325/350	341.9	105.2
29L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	BASE CASE	325/350	337.675	103.9
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	GRDA1 7 - GREC TAP7 - 1	325/350	355.95	101.7
29L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	GRDA1 7 - GREC TAP7 - 1	325/350	351.75	100.5
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 5 - CHOUTEAU CRK5 - 1	325/350	389.2	111.2
29L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	CLARMR 5 - CHOUTEAU CRK5 - 1	325/350	382.9	109.4
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	GRDA1 5 - CHOUTEAU CRK5 - 1	325/350	389.2	111.2
29L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	GRDA1 5 - CHOUTEAU CRK5 - 1	325/350	382.9	109.4
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 4 - CLARMORE 4 - 1	325/350	527.8	150.8
29L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	CLARMR 4 - CLARMORE 4 - 1	325/350	513.8	146.8
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	COLINS 5 - 5ELMCRK - 1	325/350	352.1	100.6
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	COLINS 5 - 5KETONVL - 1	325/350	393.05	112.3
29L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	COLINS 5 - 5KETONVL - 1	325/350	387.45	110.7
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	COLINS 5 - COLLINS4 - 1	325/350	351.75	100.5
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	CATSAGR5 - 5ELMCRK - 1	325/350	353.5	101
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	MAID 5 - 5CHOTEAU1 - 1	325/350	350.7	100.2
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 5 - 5KETONVL - 1	325/350	390.95	111.7
29L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	CLARMR 5 - 5KETONVL - 1	325/350	385.35	110.1
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 5 - CLARMR 4 - 1	325/350	365.75	104.5
29L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	CLARMR 5 - CLARMR 4 - 1	325/350	360.85	103.1
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 5 - CLARMR 4 - 2	325/350	365.75	104.5

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
29L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	CLARMR 5 - CLARMR 4 - 2	325/350	360.85	103.1
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	COLLINS4 - 4SKIAETP - 1	325/350	352.1	100.6
29L	161	CLARMR 5 - CHOUTEAUCRK5 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	238/286	320.892	112.2
29L	161	GRDA1 5 - CHOUTEAUCRK5 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	238/286	330.33	115.5
29L	138	CLARMR 4 - CLARMORE 4 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	325/350	538.65	153.9
29L	161/138	CLARMR 5 - CLRAUTO4 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	205/256	282.368	110.3
29L	161/138	CLARMR 5 - CLRAUTO42 - 2	CLARMORE 4- 4OOLOGAHKAMO-1	205/256	282.368	110.3
29L	161/138	CLARMR 4 - CLRAUTO4 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	205/256	269.312	105.2
29L	161/138	CLARMR 4 - CLRAUTO42 - 2	CLARMORE 4- 4OOLOGAHKAMO-1	205/256	269.312	105.2
29L	161	CLARMR 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4- 4OOLOGAHKAMO-Z1	238/286	322.894	112.9
29L	161	GRDA1 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4- 4OOLOGAHKAMO-Z1	238/286	332.618	116.3
29L	138	CLARMR 4 - CLARMORE 4 - 1	OOLOGAH 4- 4OOLOGAHKAMO-Z1	325/350	540.75	154.5
29L	161/138	CLARMR 5 - CLRAUTO4 - 1	OOLOGAH 4- 4OOLOGAHKAMO-Z1	205/256	283.648	110.8
29L	161/138	CLARMR 5 - CLRAUTO42 - 2	OOLOGAH 4- 4OOLOGAHKAMO-Z1	205/256	283.648	110.8
29L	161/138	CLARMR 4 - CLRAUTO4 - 1	OOLOGAH 4- 4OOLOGAHKAMO-Z1	205/256	270.336	105.6
29L	161/138	CLARMR 4 - CLRAUTO42 - 2	OOLOGAH 4- 4OOLOGAHKAMO-Z1	205/256	270.336	105.6
29L	161	CLARMR 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4 - N.E.S.-4 - 1	238/286	322.894	112.9
29L	161	GRDA1 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4 - N.E.S.-4 - 1	238/286	332.618	116.3
29L	138	CLARMR 4 - CLARMORE 4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	325/350	540.75	154.5
29L	161/138	CLARMR 5 - CLRAUTO4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	205/256	283.648	110.8
29L	161/138	CLARMR 5 - CLRAUTO42 - 2	OOLOGAH 4 - N.E.S.-4 - 1	205/256	283.648	110.8
29L	161/138	CLARMR 4 - CLRAUTO4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	205/256	270.336	105.6
29L	161/138	CLARMR 4 - CLRAUTO42 - 2	OOLOGAH 4 - N.E.S.-4 - 1	205/256	270.336	105.6
29L	161	CLARMR 5 - CHOUTEAUCRK5 - 1	N.E.S.-4 - OOLOGAH 4 - 1	238/286	322.894	112.9

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
29L	161	GRDA1 5 - CHOUTEAUCRK5 - 1	N.E.S.-4 - OOLOGAH 4 - 1	238/286	332.618	116.3
29L	138	CLARMR 4 - CLARMORE 4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	325/350	540.75	154.5
29L	161/138	CLARMR 5 - CLRAUTO4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	205/256	283.648	110.8
29L	161/138	CLARMR 5 - CLRAUTO42 - 2	N.E.S.-4 - OOLOGAH 4 - 1	205/256	283.648	110.8
29L	161/138	CLARMR 4 - CLRAUTO4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	205/256	270.336	105.6
29L	161/138	CLARMR 4 - CLRAUTO42 - 2	N.E.S.-4 - OOLOGAH 4 - 1	205/256	270.336	105.6
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	4CLEVLND - 4HOMNYTP - 1	325/350	355.25	101.5
29L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	4CLEVLND - 4HOMNYTP - 1	325/350	350.7	100.2
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	4SKIAETP - 4SFORKKTP - 1	325/350	352.1	100.6
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	4JAVINE - 4SFORKKTP - 1	325/350	354.9	101.4
29L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	4JAVINE - 4SFORKKTP - 1	325/350	350.35	100.1
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	4JAVINE - 4HOMNYTP - 1	325/350	355.25	101.5
29L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	4JAVINE - 4HOMNYTP - 1	325/350	350.7	100.2
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	5CHOTEAU1 - MAID 5 - 1	325/350	350.7	100.2
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	4SKIAETP - COLLINS4 - 1	325/350	352.1	100.6
29L	161	CLARMR 5 - CHOUTEAUCRK5 - 1	4OOLOGAHKAMO-CLARMORE 4-1	238/286	320.892	112.2
29L	161	GRDA1 5 - CHOUTEAUCRK5 - 1	4OOLOGAHKAMO-CLARMORE 4-1	238/286	330.33	115.5
29L	138	CLARMR 4 - CLARMORE 4 - 1	4OOLOGAHKAMO-CLARMORE 4-1	325/350	538.65	153.9
29L	161/138	CLARMR 5 - CLRAUTO4 - 1	4OOLOGAHKAMO-CLARMORE 4-1	205/256	282.368	110.3
29L	161/138	CLARMR 5 - CLRAUTO42 - 2	4OOLOGAHKAMO-CLARMORE 4-1	205/256	282.368	110.3
29L	161/138	CLARMR 4 - CLRAUTO4 - 1	4OOLOGAHKAMO-CLARMORE 4-1	205/256	269.312	105.2
29L	161/138	CLARMR 4 - CLRAUTO42 - 2	4OOLOGAHKAMO-CLARMORE 4-1	205/256	269.312	105.2
29L	161	CLARMR 5 - CHOUTEAUCRK5 - 1	4OOLOGAHKAMO-OOLOGAH 4-Z1	238/286	322.894	112.9
29L	161	GRDA1 5 - CHOUTEAUCRK5 - 1	4OOLOGAHKAMO-OOLOGAH 4-Z1	238/286	332.618	116.3
29L	138	CLARMR 4 - CLARMORE 4 - 1	4OOLOGAHKAMO-OOLOGAH 4-Z1	325/350	540.75	154.5
29L	161/138	CLARMR 5 - CLRAUTO4 - 1	4OOLOGAHKAMO-OOLOGAH 4-Z1	205/256	283.648	110.8

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
29L	161/138	CLARMR 5 - CLRAUTO42 - 2	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	283.648	110.8
29L	161/138	CLARMR 4 - CLRAUTO4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	270.336	105.6
29L	161/138	CLARMR 4 - CLRAUTO42 - 2	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	270.336	105.6
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	5ELMCRK - COLINS 5 - 1	325/350	352.1	100.6
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	5ELMCRK - CATSAGR5 - 1	325/350	353.5	101
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	5KETONVL - COLINS 5 - 1	325/350	393.05	112.3
29L	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	5KETONVL - COLINS 5 - 1	325/350	387.45	110.7
29L	138	N.E.S.-4 - OOLOGAH 4 - 1	5KETONVL - CLARMR 5 - 1	325/350	390.95	111.7
29L	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	5KETONVL - CLARMR 5 - 1	325/350	385.35	110.1
29L	138	CLARMORE 4- 40OLOGAHKAMO-1	COLINS 5 - 5KETONVL - 1	325/350	385.7	110.2
29L	138	CLARMORE 4- 40OLOGAHKAMO-1	5KETONVL - COLINS 5 - 1	325/350	385.7	110.2
29L	138	CLARMORE 4- 40OLOGAHKAMO-1	CLARMR 5 - 5KETONVL - 1	325/350	383.6	109.6
29L	138	CLARMORE 4- 40OLOGAHKAMO-1	5KETONVL - CLARMR 5 - 1	325/350	383.6	109.6
29L	138	CLARMORE 4- 40OLOGAHKAMO-1	CLARMR 5 - CHOUTEAU CRK5 - 1	325/350	381.15	108.9
29L	138	CLARMORE 4- 40OLOGAHKAMO-1	GRDA1 5 - CHOUTEAU CRK5 - 1	325/350	381.15	108.9
29L	138	CLARMORE 4- 40OLOGAHKAMO-1	CLARMR 5 - CLARMR 4 - 1	325/350	359.1	102.6
29L	138	CLARMORE 4- 40OLOGAHKAMO-1	CLARMR 5 - CLARMR 4 - 2	325/350	359.1	102.6
29L	138	CLARMORE 4- 40OLOGAHKAMO-1	BASE CASE	325/350	336.05	103.4
29S	138	CLARMORE 4- 40OLOGAHKAMO-1	CATSAGR5 - 5ELMCRK - 1	325/350	511.7	146.2
29S	138	CLARMORE 4- 40OLOGAHKAMO-1	5ELMCRK - CATSAGR5 - 1	325/350	511.7	146.2
29S	138	CLARMORE 4- 40OLOGAHKAMO-1	CLARMR 4 - CLARMORE 4 - 1	325/350	510.65	145.9
29S	138	CLARMORE 4- 40OLOGAHKAMO-1	COLINS 5 - 5ELMCRK - 1	325/350	506.1	144.6
29S	138	CLARMORE 4- 40OLOGAHKAMO-1	5ELMCRK - COLINS 5 - 1	325/350	506.1	144.6

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
29S	138	CLARMORE 4- 40OLOGAHKAMO-1	COLINS 5 - 5KETONVL - 1	325/350	496.3	141.8
29S	138	CLARMORE 4- 40OLOGAHKAMO-1	5KETONVL - COLINS 5 - 1	325/350	496.3	141.8
29S	138	CLARMORE 4- 40OLOGAHKAMO-1	VERDIGS4 - N.E.S.-4 - 1	325/350	495.25	141.5
29S	138	CLARMORE 4- 40OLOGAHKAMO-1	OWASO2_4 - N.E.S.-4 - 1	325/350	494.2	141.2
29S	138	CLARMORE 4- 40OLOGAHKAMO-1	BASE CASE	325/350	482.3	148.4
29S	138	N.E.S.-4 - 0OLOGAH 4 - 1	CATSAGR5 - 5ELMCRK - 1	325/350	529.9	151.4
29S	138	0OLOGAH 4- 40OLOGAHKAMO-Z1	CATSAGR5 - 5ELMCRK - 1	325/350	517.65	147.9
29S	138	N.E.S.-4 - 0OLOGAH 4 - 1	5ELMCRK - CATSAGR5 - 1	325/350	529.9	151.4
29S	138	0OLOGAH 4- 40OLOGAHKAMO-Z1	5ELMCRK - CATSAGR5 - 1	325/350	517.65	147.9
29S	138	N.E.S.-4 - 0OLOGAH 4 - 1	CLARMR 4 - CLARMORE 4 - 1	325/350	528.5	151
29S	138	0OLOGAH 4- 40OLOGAHKAMO-Z1	CLARMR 4 - CLARMORE 4 - 1	325/350	516.95	147.7
29S	138	N.E.S.-4 - 0OLOGAH 4 - 1	COLINS 5 - 5ELMCRK - 1	325/350	524.3	149.8
29S	138	0OLOGAH 4- 40OLOGAHKAMO-Z1	COLINS 5 - 5ELMCRK - 1	325/350	512.4	146.4
29S	138	N.E.S.-4 - 0OLOGAH 4 - 1	5ELMCRK - COLINS 5 - 1	325/350	524.3	149.8
29S	138	0OLOGAH 4- 40OLOGAHKAMO-Z1	5ELMCRK - COLINS 5 - 1	325/350	512.4	146.4
29S	138	N.E.S.-4 - 0OLOGAH 4 - 1	COLINS 5 - 5KETONVL - 1	325/350	513.8	146.8
29S	138	N.E.S.-4 - 0OLOGAH 4 - 1	5KETONVL - COLINS 5 - 1	325/350	513.8	146.8
29S	138	0OLOGAH 4- 40OLOGAHKAMO-Z1	COLINS 5 - 5KETONVL - 1	325/350	502.6	143.6
29S	138	N.E.S.-4 - 0OLOGAH 4 - 1	VERDIGS4 - N.E.S.-4 - 1	325/350	512.4	146.4
29S	138	0OLOGAH 4- 40OLOGAHKAMO-Z1	5KETONVL - COLINS 5 - 1	325/350	502.6	143.6
29S	138	N.E.S.-4 - 0OLOGAH 4 - 1	OWASO2_4 - N.E.S.-4 - 1	325/350	511.35	146.1
29S	138	0OLOGAH 4- 40OLOGAHKAMO-Z1	VERDIGS4 - N.E.S.-4 - 1	325/350	501.55	143.3
29S	138	0OLOGAH 4- 40OLOGAHKAMO-Z1	OWASO2_4 - N.E.S.-4 - 1	325/350	500.5	143
29S	138	TERNITP4 - CLARTOK4 - 1	CLARMORE 4- 40OLOGAHKAMO-1	136/136	137.768	101.3
29S	161	CLARMR 5 - CHOUTEAU CRK5 - 1	CLARMORE 4- 40OLOGAHKAMO-1	238/286	445.588	155.8
29S	161	GRDA1 5 - CHOUTEAU CRK5 - 1	CLARMORE 4- 40OLOGAHKAMO-1	238/286	465.894	162.9

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
29S	138	CLARMR 4 - CLARMORE 4 - 1	CLARMORE 4- 40OLOGAHKAMO-1	325/350	546.7	156.2
29S	161/138	CLARMR 5 - CLRAUTO4 - 1	CLARMORE 4- 40OLOGAHKAMO-1	205/256	292.608	114.3
29S	161/138	CLARMR 5 - CLRAUTO42 - 2	CLARMORE 4- 40OLOGAHKAMO-1	205/256	292.608	114.3
29S	161/138	CLARMR 4 - CLRAUTO4 - 1	CLARMORE 4- 40OLOGAHKAMO-1	205/256	273.408	106.8
29S	161/138	CLARMR 4 - CLRAUTO42 - 2	CLARMORE 4- 40OLOGAHKAMO-1	205/256	273.408	106.8
29S	138	TERNITP4 - CLARTOK4 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	136/136	138.992	102.2
29S	161	CLARMR 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	238/286	454.454	158.9
29S	161	GRDA1 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	238/286	476.19	166.5
29S	138	CLARMR 4 - CLARMORE 4 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	325/350	552.3	157.8
29S	161/138	CLARMR 5 - CLRAUTO4 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	296.96	116
29S	161/138	CLARMR 5 - CLRAUTO42 - 2	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	296.96	116
29S	161/138	CLARMR 4 - CLRAUTO4 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	276.224	107.9
29S	161/138	CLARMR 4 - CLRAUTO42 - 2	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	276.224	107.9
29S	138	TERNITP4 - CLARTOK4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	136/136	138.992	102.2
29S	161	CLARMR 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4 - N.E.S.-4 - 1	238/286	454.454	158.9
29S	161	GRDA1 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4 - N.E.S.-4 - 1	238/286	476.19	166.5
29S	138	CLARMR 4 - CLARMORE 4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	325/350	552.3	157.8
29S	161/138	CLARMR 5 - CLRAUTO4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	205/256	296.96	116
29S	161/138	CLARMR 5 - CLRAUTO42 - 2	OOLOGAH 4 - N.E.S.-4 - 1	205/256	296.96	116
29S	161/138	CLARMR 4 - CLRAUTO4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	205/256	276.224	107.9
29S	161/138	CLARMR 4 - CLRAUTO42 - 2	OOLOGAH 4 - N.E.S.-4 - 1	205/256	276.224	107.9
29S	138	TERNITP4 - CLARTOK4 - 1	40OLOGAHKAMO-CLARMORE 4-1	136/136	137.768	101.3
29S	161	CLARMR 5 - CHOUTEAUCRK5 - 1	40OLOGAHKAMO-CLARMORE 4-1	238/286	445.588	155.8
29S	161	GRDA1 5 - CHOUTEAUCRK5 - 1	40OLOGAHKAMO-CLARMORE 4-1	238/286	465.894	162.9

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
29S	138	CLARMR 4 - CLARMORE 4 - 1	40OLOGAHKAMO-CLARMORE 4-1	325/350	546.7	156.2
29S	161/138	CLARMR 5 - CLRAUTO4 - 1	40OLOGAHKAMO-CLARMORE 4-1	205/256	292.608	114.3
29S	161/138	CLARMR 5 - CLRAUTO42 - 2	40OLOGAHKAMO-CLARMORE 4-1	205/256	292.608	114.3
29S	161/138	CLARMR 4 - CLRAUTO4 - 1	40OLOGAHKAMO-CLARMORE 4-1	205/256	273.408	106.8
29S	161/138	CLARMR 4 - CLRAUTO42 - 2	40OLOGAHKAMO-CLARMORE 4-1	205/256	273.408	106.8
29S	138	TERNITP4 - CLARTOK4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	136/136	138.992	102.2
29S	161	CLARMR 5 - CHOUTEAUCRK5 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	238/286	454.454	158.9
29S	161	GRDA1 5 - CHOUTEAUCRK5 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	238/286	476.19	166.5
29S	138	CLARMR 4 - CLARMORE 4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	325/350	552.3	157.8
29S	161/138	CLARMR 5 - CLRAUTO4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	296.96	116
29S	161/138	CLARMR 5 - CLRAUTO42 - 2	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	296.96	116
29S	161/138	CLARMR 4 - CLRAUTO4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	276.224	107.9
29S	161/138	CLARMR 4 - CLRAUTO42 - 2	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	276.224	107.9
29S	138	TERNITP4 - CLARTOK4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	136/136	138.992	102.2
29S	161	CLARMR 5 - CHOUTEAUCRK5 - 1	N.E.S.-4 - OOLOGAH 4 - 1	238/286	454.454	158.9
29S	161	GRDA1 5 - CHOUTEAUCRK5 - 1	N.E.S.-4 - OOLOGAH 4 - 1	238/286	476.19	166.5
29S	138	CLARMR 4 - CLARMORE 4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	325/350	552.3	157.8
29S	161/138	CLARMR 5 - CLRAUTO4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	205/256	296.96	116
29S	161/138	CLARMR 5 - CLRAUTO42 - 2	N.E.S.-4 - OOLOGAH 4 - 1	205/256	296.96	116
29S	161/138	CLARMR 4 - CLRAUTO4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	205/256	276.224	107.9
29S	161/138	CLARMR 4 - CLRAUTO42 - 2	N.E.S.-4 - OOLOGAH 4 - 1	205/256	276.224	107.9
29S	138	N.E.S.-4 - OOLOGAH 4 - 1	BASE CASE	325/350	498.875	153.5
29S	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	BASE CASE	325/350	488.475	150.3
29W	138	CLARMORE 4- 40OLOGAHKAMO-1	CLARMR 4 - CLARMORE 4 - 1	325/350	511	146
29W	138	CLARMORE 4- 40OLOGAHKAMO-1	CLARMR 5 - CHOUTEAUCRK5 - 1	325/350	473.55	135.3

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
29W	138	CLARMORE 4- 40OLOGAHKAMO-1	GRDA1 5 - CHOUTEAUCRK5 - 1	325/350	473.2	135.2
29W	138	CLARMORE 4- 40OLOGAHKAMO-1	COLINS 5 - 5KETONVL - 1	325/350	442.05	126.3
29W	138	CLARMORE 4- 40OLOGAHKAMO-1	5KETONVL - COLINS 5 - 1	325/350	442.05	126.3
29W	138	CLARMORE 4- 40OLOGAHKAMO-1	CATSAGR5 - 5ELMCRK - 1	325/350	439.95	125.7
29W	138	CLARMORE 4- 40OLOGAHKAMO-1	5ELMCRK - CATSAGR5 - 1	325/350	439.95	125.7
29W	138	CLARMORE 4- 40OLOGAHKAMO-1	COLINS 5 - 5ELMCRK - 1	325/350	437.15	124.9
29W	138	CLARMORE 4- 40OLOGAHKAMO-1	CLARMR 5 - 5KETONVL - 1	325/350	437.15	124.9
29W	138	CLARMORE 4- 40OLOGAHKAMO-1	BASE CASE	325/350	415.025	127.7
29W	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 4 - CLARMORE 4 - 1	325/350	529.55	151.3
29W	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	CLARMR 4 - CLARMORE 4 - 1	325/350	517.65	147.9
29W	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 5 - CHOUTEAUCRK5 - 1	325/350	490	140
29W	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	CLARMR 5 - CHOUTEAUCRK5 - 1	325/350	479.85	137.1
29W	138	N.E.S.-4 - OOLOGAH 4 - 1	GRDA1 5 - CHOUTEAUCRK5 - 1	325/350	489.65	139.9
29W	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	GRDA1 5 - CHOUTEAUCRK5 - 1	325/350	479.85	137.1
29W	138	N.E.S.-4 - OOLOGAH 4 - 1	COLINS 5 - 5KETONVL - 1	325/350	457.45	130.7
29W	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	COLINS 5 - 5KETONVL - 1	325/350	448.7	128.2
29W	138	N.E.S.-4 - OOLOGAH 4 - 1	5KETONVL - COLINS 5 - 1	325/350	457.45	130.7
29W	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	5KETONVL - COLINS 5 - 1	325/350	448.7	128.2
29W	138	N.E.S.-4 - OOLOGAH 4 - 1	CATSAGR5 - 5ELMCRK - 1	325/350	455	130
29W	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	CATSAGR5 - 5ELMCRK - 1	325/350	446.6	127.6
29W	138	N.E.S.-4 - OOLOGAH 4 - 1	5ELMCRK - CATSAGR5 - 1	325/350	455	130
29W	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	5ELMCRK - CATSAGR5 - 1	325/350	446.6	127.6
29W	138	N.E.S.-4 - OOLOGAH 4 - 1	COLINS 5 - 5ELMCRK - 1	325/350	452.2	129.2
29W	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 5 - 5KETONVL - 1	325/350	452.2	129.2
29W	161	CLARMR 5 - CHOUTEAUCRK5 - 1	CLARMORE 4- 40OLOGAHKAMO-1	285/324	389.124	120.1

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
29W	161	GRDA1 5 - CHOUTEAUCRK5 - 1	CLARMORE 4- 40OLOGAHKAMO-1	285/324	403.056	124.4
29W	138	CLARMR 4 - CLARMORE 4 - 1	CLARMORE 4- 40OLOGAHKAMO-1	325/350	542.5	155
29W	161/138	CLARMR 5 - CLRAUTO4 - 1	CLARMORE 4- 40OLOGAHKAMO-1	205/256	286.208	111.8
29W	161/138	CLARMR 5 - CLRAUTO42 - 2	CLARMORE 4- 40OLOGAHKAMO-1	205/256	286.208	111.8
29W	161/138	CLARMR 4 - CLRAUTO4 - 1	CLARMORE 4- 40OLOGAHKAMO-1	205/256	271.36	106
29W	161/138	CLARMR 4 - CLRAUTO42 - 2	CLARMORE 4- 40OLOGAHKAMO-1	205/256	271.36	106
29W	161	CLARMR 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	285/324	398.844	123.1
29W	161	GRDA1 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	285/324	413.748	127.7
29W	138	CLARMR 4 - CLARMORE 4 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	325/350	551.95	157.7
29W	161/138	CLARMR 5 - CLRAUTO4 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	292.352	114.2
29W	161/138	CLARMR 5 - CLRAUTO42 - 2	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	292.352	114.2
29W	161/138	CLARMR 4 - CLRAUTO4 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	275.968	107.8
29W	161/138	CLARMR 4 - CLRAUTO42 - 2	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	275.968	107.8
29W	161	CLARMR 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4 - N.E.S.-4 - 1	285/324	398.844	123.1
29W	161	GRDA1 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4 - N.E.S.-4 - 1	285/324	413.748	127.7
29W	138	CLARMR 4 - CLARMORE 4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	325/350	551.95	157.7
29W	161/138	CLARMR 5 - CLRAUTO4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	205/256	292.352	114.2
29W	161/138	CLARMR 5 - CLRAUTO42 - 2	OOLOGAH 4 - N.E.S.-4 - 1	205/256	292.352	114.2
29W	161/138	CLARMR 4 - CLRAUTO4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	205/256	275.968	107.8
29W	161/138	CLARMR 4 - CLRAUTO42 - 2	OOLOGAH 4 - N.E.S.-4 - 1	205/256	275.968	107.8
29W	161	CLARMR 5 - CHOUTEAUCRK5 - 1	40OLOGAHKAMO-CLARMORE 4-1	285/324	389.124	120.1
29W	161	GRDA1 5 - CHOUTEAUCRK5 - 1	40OLOGAHKAMO-CLARMORE 4-1	285/324	403.056	124.4
29W	138	CLARMR 4 - CLARMORE 4 - 1	40OLOGAHKAMO-CLARMORE 4-1	325/350	542.5	155
29W	161/138	CLARMR 5 - CLRAUTO4 - 1	40OLOGAHKAMO-CLARMORE 4-1	205/256	286.208	111.8

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
29W	161/138	CLARMR 5 - CLRAUTO42 - 2	40OLOGAHKAMO-CLARMORE 4-1	205/256	286.208	111.8
29W	161/138	CLARMR 4 - CLRAUTO4 - 1	40OLOGAHKAMO-CLARMORE 4-1	205/256	271.36	106
29W	161/138	CLARMR 4 - CLRAUTO42 - 2	40OLOGAHKAMO-CLARMORE 4-1	205/256	271.36	106
29W	161	CLARMR 5 - CHOUTEAUCRK5 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	285/324	398.844	123.1
29W	161	GRDA1 5 - CHOUTEAUCRK5 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	285/324	413.748	127.7
29W	138	CLARMR 4 - CLARMORE 4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	325/350	551.95	157.7
29W	161/138	CLARMR 5 - CLRAUTO4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	292.352	114.2
29W	161/138	CLARMR 5 - CLRAUTO42 - 2	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	292.352	114.2
29W	161/138	CLARMR 4 - CLRAUTO4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	275.968	107.8
29W	161/138	CLARMR 4 - CLRAUTO42 - 2	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	275.968	107.8
29W	161	CLARMR 5 - CHOUTEAUCRK5 - 1	N.E.S.-4 - OOLOGAH 4 - 1	285/324	398.844	123.1
29W	161	GRDA1 5 - CHOUTEAUCRK5 - 1	N.E.S.-4 - OOLOGAH 4 - 1	285/324	413.748	127.7
29W	138	CLARMR 4 - CLARMORE 4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	325/350	551.95	157.7
29W	161/138	CLARMR 5 - CLRAUTO4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	205/256	292.352	114.2
29W	161/138	CLARMR 5 - CLRAUTO42 - 2	N.E.S.-4 - OOLOGAH 4 - 1	205/256	292.352	114.2
29W	161/138	CLARMR 4 - CLRAUTO4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	205/256	275.968	107.8
29W	161/138	CLARMR 4 - CLRAUTO42 - 2	N.E.S.-4 - OOLOGAH 4 - 1	205/256	275.968	107.8
29W	138	N.E.S.-4 - OOLOGAH 4 - 1	BASE CASE	325/350	429.325	132.1
29W	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	BASE CASE	325/350	421.525	129.7
34L	138	CLARMORE 4- 40OLOGAHKAMO-1	CLARMR 4 - CLARMORE 4 - 1	325/350	512.05	146.3
34L	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 4 - CLARMORE 4 - 1	325/350	527.8	150.8
34L	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	CLARMR 4 - CLARMORE 4 - 1	325/350	513.8	146.8
34L	138	N.E.S.-4 - OOLOGAH 4 - 1	5KETONVL - COLINS 5 - 1	325/350	403.9	115.4
34L	138	N.E.S.-4 - OOLOGAH 4 - 1	COLINS 5 - 5KETONVL - 1	325/350	403.9	115.4
34L	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	5KETONVL - COLINS 5 - 1	325/350	398.3	113.8
34L	138	N.E.S.-4 - OOLOGAH 4 - 1	CONTINGENCY '270938' /'P12:161:GRDA:COLINS 5-	325/350	402.15	114.9

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
			CLARMR 5:::HV:' OPEN BRANCH FROM BUS 300997 TO BUS 512627 CKT 1 OPEN BRANCH FROM BUS 300997 TO BUS 512651 CKT 1			
34L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	COLINS 5 - 5KETONVL - 1	325/350	398.3	113.8
34L	138	N.E.S.-4 - OOLOGAH 4 - 1	5KETONVL - CLARMR 5 - 1	325/350	401.8	114.8
34L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	CONTINGENCY '270938' /'P12:161:GRDA:COLINS 5- CLARMR 5:::HV:' OPEN BRANCH FROM BUS 300997 TO BUS 512627 CKT 1 OPEN BRANCH FROM BUS 300997 TO BUS 512651 CKT 1	325/350	396.2	113.2
34L	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 5 - 5KETONVL - 1	325/350	401.8	114.8
34L	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 5 - CHOUTEAUCRK5 - 1	325/350	393.05	112.3
34L	138	N.E.S.-4 - OOLOGAH 4 - 1	GRDA1 5 - CHOUTEAUCRK5 - 1	325/350	392.7	112.2
34L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	5KETONVL - CLARMR 5 - 1	325/350	395.85	113.1
34L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	CLARMR 5 - 5KETONVL - 1	325/350	395.85	113.1
34L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	CLARMR 5 - CHOUTEAUCRK5 - 1	325/350	386.75	110.5
34L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	GRDA1 5 - CHOUTEAUCRK5 - 1	325/350	386.4	110.4
34L	161	CLARMR 5 - CHOUTEAUCRK5 - 1	4OOLOGAHKAMO-CLARMORE 4-1	238/286	315.744	110.4
34L	161	GRDA1 5 - CHOUTEAUCRK5 - 1	4OOLOGAHKAMO-CLARMORE 4-1	238/286	325.182	113.7
34L	138	CLARMR 4 - CLARMORE 4 - 1	4OOLOGAHKAMO-CLARMORE 4-1	325/350	540.05	154.3
34L	161/138	CLARMR 5 - CLRAUTO4 - 1	4OOLOGAHKAMO-CLARMORE 4-1	205/256	283.904	110.9
34L	161/138	CLARMR 5 - CLRAUTO42 - 2	4OOLOGAHKAMO-CLARMORE 4-1	205/256	283.904	110.9
34L	161/138	CLARMR 4 - CLRAUTO4 - 1	4OOLOGAHKAMO-CLARMORE 4-1	205/256	270.08	105.5
34L	161/138	CLARMR 4 - CLRAUTO42 - 2	4OOLOGAHKAMO-CLARMORE 4-1	205/256	270.08	105.5
34L	161	CLARMR 5 - CHOUTEAUCRK5 - 1	4OOLOGAHKAMO-OOLOGAH 4-Z1	238/286	318.032	111.2

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
34L	161	GRDA1 5 - CHOUTEAUCRK5 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	238/286	327.756	114.6
34L	138	CLARMR 4 - CLARMORE 4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	325/350	542.5	155
34L	161/138	CLARMR 5 - CLRAUTO4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	285.44	111.5
34L	161/138	CLARMR 5 - CLRAUTO42 - 2	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	285.44	111.5
34L	161/138	CLARMR 4 - CLRAUTO4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	271.104	105.9
34L	161/138	CLARMR 4 - CLRAUTO42 - 2	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	271.104	105.9
34L	161	CLARMR 5 - CHOUTEAUCRK5 - 1	CLARMORE 4- 40OLOGAHKAMO-1	238/286	315.744	110.4
34L	161	GRDA1 5 - CHOUTEAUCRK5 - 1	CLARMORE 4- 40OLOGAHKAMO-1	238/286	325.182	113.7
34L	138	CLARMR 4 - CLARMORE 4 - 1	CLARMORE 4- 40OLOGAHKAMO-1	325/350	540.05	154.3
34L	161/138	CLARMR 5 - CLRAUTO4 - 1	CLARMORE 4- 40OLOGAHKAMO-1	205/256	283.904	110.9
34L	161/138	CLARMR 5 - CLRAUTO42 - 2	CLARMORE 4- 40OLOGAHKAMO-1	205/256	283.904	110.9
34L	161/138	CLARMR 4 - CLRAUTO4 - 1	CLARMORE 4- 40OLOGAHKAMO-1	205/256	270.08	105.5
34L	161/138	CLARMR 4 - CLRAUTO42 - 2	CLARMORE 4- 40OLOGAHKAMO-1	205/256	270.08	105.5
34L	161	CLARMR 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	238/286	318.032	111.2
34L	161	GRDA1 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	238/286	327.756	114.6
34L	138	CLARMR 4 - CLARMORE 4 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	325/350	542.5	155
34L	161/138	CLARMR 5 - CLRAUTO4 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	285.44	111.5
34L	161/138	CLARMR 5 - CLRAUTO42 - 2	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	285.44	111.5
34L	161/138	CLARMR 4 - CLRAUTO4 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	271.104	105.9
34L	161/138	CLARMR 4 - CLRAUTO42 - 2	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	271.104	105.9
34L	161	CLARMR 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4 - N.E.S.-4 - 1	238/286	318.032	111.2

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
34L	161	GRDA1 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4 - N.E.S.-4 - 1	238/286	327.756	114.6
34L	138	CLARMR 4 - CLARMORE 4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	325/350	542.5	155
34L	161/138	CLARMR 5 - CLRAUTO4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	205/256	285.44	111.5
34L	161/138	CLARMR 5 - CLRAUTO42 - 2	OOLOGAH 4 - N.E.S.-4 - 1	205/256	285.44	111.5
34L	161/138	CLARMR 4 - CLRAUTO4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	205/256	271.104	105.9
34L	161/138	CLARMR 4 - CLRAUTO42 - 2	OOLOGAH 4 - N.E.S.-4 - 1	205/256	271.104	105.9
34L	161	CLARMR 5 - CHOUTEAUCRK5 - 1	N.E.S.-4 - OOLOGAH 4 - 1	238/286	318.032	111.2
34L	161	GRDA1 5 - CHOUTEAUCRK5 - 1	N.E.S.-4 - OOLOGAH 4 - 1	238/286	327.756	114.6
34L	138	CLARMR 4 - CLARMORE 4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	325/350	542.5	155
34L	161/138	CLARMR 5 - CLRAUTO4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	205/256	285.44	111.5
34L	161/138	CLARMR 5 - CLRAUTO42 - 2	N.E.S.-4 - OOLOGAH 4 - 1	205/256	285.44	111.5
34L	161/138	CLARMR 4 - CLRAUTO4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	205/256	271.104	105.9
34L	161/138	CLARMR 4 - CLRAUTO42 - 2	N.E.S.-4 - OOLOGAH 4 - 1	205/256	271.104	105.9
34L	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	BASE CASE	325/350	347.1	106.8
34L	138	N.E.S.-4 - OOLOGAH 4 - 1	BASE CASE	325/350	351.65	108.2
34L	138	CLARMORE 4- 4OOLOGAHKAMO-1	5KETONVL - COLINS 5 - 1	325/350	396.55	113.3
34L	138	CLARMORE 4- 4OOLOGAHKAMO-1	COLINS 5 - 5KETONVL - 1	325/350	396.55	113.3
34L	138	CLARMORE 4- 4OOLOGAHKAMO-1	CONTINGENCY '270938' /'P12:161:GRDA:COLINS 5- CLARMR 5:::HV:' OPEN BRANCH FROM BUS 300997 TO BUS 512627 CKT 1 OPEN BRANCH FROM BUS 300997 TO BUS 512651 CKT 1	325/350	394.45	112.7
34L	138	CLARMORE 4- 4OOLOGAHKAMO-1	5KETONVL - CLARMR 5 - 1	325/350	394.1	112.6
34L	138	CLARMORE 4- 4OOLOGAHKAMO-1	CLARMR 5 - 5KETONVL - 1	325/350	394.1	112.6
34L	138	CLARMORE 4- 4OOLOGAHKAMO-1	CLARMR 5 - CHOUTEAUCRK5 - 1	325/350	385	110
34L	138	CLARMORE 4- 4OOLOGAHKAMO-1	GRDA1 5 - CHOUTEAUCRK5 - 1	325/350	384.65	109.9
34L	138	CLARMORE 4- 4OOLOGAHKAMO-1	BASE CASE	325/350	345.475	106.3
34S	138	CLARMORE 4- 4OOLOGAHKAMO-1	CLARMR 4 - CLARMORE 4 - 1	325/350	511.35	146.1

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
34S	138	CLARMORE 4- 40OLOGAHKAMO-1	CLARMR 5 - CHOUTEAUCRK5 - 1	325/350	482.65	137.9
34S	138	CLARMORE 4- 40OLOGAHKAMO-1	GRDA1 5 - CHOUTEAUCRK5 - 1	325/350	482.3	137.8
34S	138	CLARMORE 4- 40OLOGAHKAMO-1	CATSAGR5 - 5ELMCRK - 1	325/350	443.1	126.6
34S	138	CLARMORE 4- 40OLOGAHKAMO-1	5ELMCRK - CATSAGR5 - 1	325/350	443.1	126.6
34S	138	CLARMORE 4- 40OLOGAHKAMO-1	COLINS 5 - 5KETONVL - 1	325/350	442.4	126.4
34S	138	CLARMORE 4- 40OLOGAHKAMO-1	5KETONVL - COLINS 5 - 1	325/350	442.4	126.4
34S	138	CLARMORE 4- 40OLOGAHKAMO-1	COLINS 5 - 5ELMCRK - 1	325/350	437.85	125.1
34S	138	CLARMORE 4- 40OLOGAHKAMO-1	5ELMCRK - COLINS 5 - 1	325/350	437.85	125.1
34S	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 4 - CLARMORE 4 - 1	325/350	530.25	151.5
34S	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	CLARMR 4 - CLARMORE 4 - 1	325/350	517.65	147.9
34S	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 5 - CHOUTEAUCRK5 - 1	325/350	500.5	143
34S	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	CLARMR 5 - CHOUTEAUCRK5 - 1	325/350	488.95	139.7
34S	138	N.E.S.-4 - OOLOGAH 4 - 1	GRDA1 5 - CHOUTEAUCRK5 - 1	325/350	500.15	142.9
34S	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	GRDA1 5 - CHOUTEAUCRK5 - 1	325/350	488.95	139.7
34S	138	N.E.S.-4 - OOLOGAH 4 - 1	CATSAGR5 - 5ELMCRK - 1	325/350	459.55	131.3
34S	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	CATSAGR5 - 5ELMCRK - 1	325/350	449.75	128.5
34S	138	N.E.S.-4 - OOLOGAH 4 - 1	5ELMCRK - CATSAGR5 - 1	325/350	459.55	131.3
34S	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	5ELMCRK - CATSAGR5 - 1	325/350	449.75	128.5
34S	138	N.E.S.-4 - OOLOGAH 4 - 1	COLINS 5 - 5KETONVL - 1	325/350	458.15	130.9
34S	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	COLINS 5 - 5KETONVL - 1	325/350	448.7	128.2
34S	138	N.E.S.-4 - OOLOGAH 4 - 1	5KETONVL - COLINS 5 - 1	325/350	458.15	130.9
34S	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	5KETONVL - COLINS 5 - 1	325/350	448.7	128.2
34S	138	N.E.S.-4 - OOLOGAH 4 - 1	COLINS 5 - 5ELMCRK - 1	325/350	453.6	129.6
34S	138	OOLOGAH 4- 40OLOGAHKAMO-Z1	COLINS 5 - 5ELMCRK - 1	325/350	444.15	126.9
34S	138	N.E.S.-4 - OOLOGAH 4 - 1	5ELMCRK - COLINS 5 - 1	325/350	453.6	129.6

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
34S	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	5ELMCRK - COLINS 5 - 1	325/350	444.15	126.9
34S	138	81YALTP4 - SHILETP4 - 1	R.S.S.-4 - ORU ETP4 - 1	316/316	317.264	100.4
34S	138	MINGO-N4 - MAYO--N4 - 1	BA.N-ST4 - E 11TH ST 4 - 1	221/221	230.503	104.3
34S	138	MINGO-N4 - 21STTAP4 - 1	BA.N-ST4 - E 11TH ST 4 - 1	221/221	247.52	112
34S	138	MINGO-N4 - MAYO--N4 - 1	BA.N-ST4 - ONETA--4 - 1	221/221	238.68	108
34S	138	MINGO-N4 - 21STTAP4 - 1	BA.N-ST4 - ONETA--4 - 1	221/221	255.918	115.8
34S	138	MINGO-N4 - MAYO--N4 - 1	ONETA--7 - ANTHEM7 - 1	221/221	234.702	106.2
34S	138	MINGO-N4 - 21STTAP4 - 1	ONETA--7 - ANTHEM7 - 1	221/221	252.161	114.1
34S	138	CATOOSA4 - E 11TH ST 4 - 1	ONETA--7 - ANTHEM7 - 1	235/235	240.875	102.5
34S	161	CLARMR 5 - CHOUTEAU CRK5 - 1	N.E.S.-4 - OOLOGAH 4 - 1	238/286	454.454	158.9
34S	161	GRDA1 5 - CHOUTEAU CRK5 - 1	N.E.S.-4 - OOLOGAH 4 - 1	238/286	477.334	166.9
34S	138	CLARMR 4 - CLARMORE 4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	325/350	547.4	156.4
34S	161/138	CLARMR 5 - CLRAUTO4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	205/256	296.192	115.7
34S	161/138	CLARMR 5 - CLRAUTO42 - 2	N.E.S.-4 - OOLOGAH 4 - 1	205/256	296.192	115.7
34S	161/138	CLARMR 4 - CLRAUTO4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	205/256	273.664	106.9
34S	161/138	CLARMR 4 - CLRAUTO42 - 2	N.E.S.-4 - OOLOGAH 4 - 1	205/256	273.664	106.9
34S	138	MINGO-N4 - MAYO--N4 - 1	CONTINGENCY '266760' /'P12:138:AEPW:E 11TH ST 4:ONETA--4::' OPEN BRANCH FROM BUS 509786 TO BUS 509804 CKT 1 OPEN BRANCH FROM BUS 509786 TO BUS 509806 CKT 1	221/221	232.05	105
34S	138	MINGO-N4 - 21STTAP4 - 1	CONTINGENCY '266760' /'P12:138:AEPW:E 11TH ST 4:ONETA--4::' OPEN BRANCH FROM BUS 509786 TO BUS 509804 CKT 1 OPEN BRANCH FROM BUS 509786 TO BUS 509806 CKT 1	221/221	249.067	112.7
34S	138	SUNNYS4 - 524:SUNNYS3 - 3	SUNNYS4 - SUNNYS7 - 2	330/330	331.32	100.4
34S	161	CLARMR 5 - CHOUTEAU CRK5 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	238/286	446.446	156.1
34S	161	GRDA1 5 - CHOUTEAU CRK5 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	238/286	467.61	163.5
34S	138	CLARMR 4 - CLARMORE 4 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	325/350	543.9	155.4
34S	161/138	CLARMR 5 - CLRAUTO4 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	205/256	292.608	114.3

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
34S	161/138	CLARMR 5 - CLRAUTO42 - 2	CLARMORE 4- 40OLOGAHKAMO-1	205/256	292.608	114.3
34S	161/138	CLARMR 4 - CLRAUTO4 - 1	CLARMORE 4- 40OLOGAHKAMO-1	205/256	271.872	106.2
34S	161/138	CLARMR 4 - CLRAUTO42 - 2	CLARMORE 4- 40OLOGAHKAMO-1	205/256	271.872	106.2
34S	161	CLARMR 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	238/286	454.454	158.9
34S	161	GRDA1 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	238/286	477.334	166.9
34S	138	CLARMR 4 - CLARMORE 4 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	325/350	547.4	156.4
34S	161/138	CLARMR 5 - CLRAUTO4 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	296.192	115.7
34S	161/138	CLARMR 5 - CLRAUTO42 - 2	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	296.192	115.7
34S	161/138	CLARMR 4 - CLRAUTO4 - 1	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	273.664	106.9
34S	161/138	CLARMR 4 - CLRAUTO42 - 2	OOLOGAH 4- 40OLOGAHKAMO-Z1	205/256	273.664	106.9
34S	161	CLARMR 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4 - N.E.S.-4 - 1	238/286	454.454	158.9
34S	161	GRDA1 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4 - N.E.S.-4 - 1	238/286	477.334	166.9
34S	138	CLARMR 4 - CLARMORE 4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	325/350	547.4	156.4
34S	161/138	CLARMR 5 - CLRAUTO4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	205/256	296.192	115.7
34S	161/138	CLARMR 5 - CLRAUTO42 - 2	OOLOGAH 4 - N.E.S.-4 - 1	205/256	296.192	115.7
34S	161/138	CLARMR 4 - CLRAUTO4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	205/256	273.664	106.9
34S	161/138	CLARMR 4 - CLRAUTO42 - 2	OOLOGAH 4 - N.E.S.-4 - 1	205/256	273.664	106.9
34S	161	CLARMR 5 - CHOUTEAUCRK5 - 1	40OLOGAHKAMO-CLARMORE 4-1	238/286	446.446	156.1
34S	161	GRDA1 5 - CHOUTEAUCRK5 - 1	40OLOGAHKAMO-CLARMORE 4-1	238/286	467.61	163.5
34S	138	CLARMR 4 - CLARMORE 4 - 1	40OLOGAHKAMO-CLARMORE 4-1	325/350	543.9	155.4
34S	161/138	CLARMR 5 - CLRAUTO4 - 1	40OLOGAHKAMO-CLARMORE 4-1	205/256	292.608	114.3
34S	161/138	CLARMR 5 - CLRAUTO42 - 2	40OLOGAHKAMO-CLARMORE 4-1	205/256	292.608	114.3
34S	161/138	CLARMR 4 - CLRAUTO4 - 1	40OLOGAHKAMO-CLARMORE 4-1	205/256	271.872	106.2
34S	161/138	CLARMR 4 - CLRAUTO42 - 2	40OLOGAHKAMO-CLARMORE 4-1	205/256	271.872	106.2

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
34S	161	CLARMR 5 - CHOUTEAUCRK5 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	238/286	454.454	158.9
34S	161	GRDA1 5 - CHOUTEAUCRK5 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	238/286	477.334	166.9
34S	138	CLARMR 4 - CLARMORE 4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	325/350	547.4	156.4
34S	161/138	CLARMR 5 - CLRAUTO4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	296.192	115.7
34S	161/138	CLARMR 5 - CLRAUTO42 - 2	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	296.192	115.7
34S	161/138	CLARMR 4 - CLRAUTO4 - 1	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	273.664	106.9
34S	161/138	CLARMR 4 - CLRAUTO42 - 2	40OLOGAHKAMO-OOLOGAH 4-Z1	205/256	273.664	106.9
34S	138	MINGO-N4 - 21STTAP4 - 1	CONTINGENCY '268937' /'P42:345:AEPW:TULSA NORTH CB 3405A NBTB+FAULT::::' TRIP BRANCH FROM BUS 509755 TO BUS 509852 CIRCUIT 1 TRIP BRANCH FROM BUS 509852 TO BUS 509894 TO BUS 509895 CIRCUIT 1	221/221	223.431	101.1
34S	138	MINGO-N4 - 21STTAP4 - 1	CONTINGENCY '268939' /'P42:345:AEPW:TULSA NORTH CB 3413A NBTB+FAULT::::' TRIP BRANCH FROM BUS 509755 TO BUS 509852 CIRCUIT 1 TRIP BRANCH FROM BUS 509852 TO BUS 512694 CIRCUIT 1	221/221	234.481	106.1
34S	138	T.NO.--4 - P&P WTP4 - 1	CONTINGENCY '268939' /'P42:345:AEPW:TULSA NORTH CB 3413A NBTB+FAULT::::' TRIP BRANCH FROM BUS 509755 TO BUS 509852 CIRCUIT 1 TRIP BRANCH FROM BUS 509852 TO BUS 512694 CIRCUIT 1	156/173	176.979	102.3

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
34S	138	MINGO-N4 - 21STTAP4 - 1	CONTINGENCY '267490' /'P23:345:AEPW:TULSA NORTH CB 3405A NBTB::::' TRIP BRANCH FROM BUS 509755 TO BUS 509852 CIRCUIT 1 TRIP BRANCH FROM BUS 509852 TO BUS 509894 TO BUS 509895 CIRCUIT 1	221/221	223.431	101.1
34S	138	MINGO-N4 - 21STTAP4 - 1	CONTINGENCY '267492' /'P23:345:AEPW:TULSA NORTH CB 3413A NBTB::::' TRIP BRANCH FROM BUS 509755 TO BUS 509852 CIRCUIT 1 TRIP BRANCH FROM BUS 509852 TO BUS 512694 CIRCUIT 1	221/221	234.481	106.1
34S	138	T.NO.--4 - P&P WTP4 - 1	CONTINGENCY '267492' /'P23:345:AEPW:TULSA NORTH CB 3413A NBTB::::' TRIP BRANCH FROM BUS 509755 TO BUS 509852 CIRCUIT 1 TRIP BRANCH FROM BUS 509852 TO BUS 512694 CIRCUIT 1	156/173	176.979	102.3
34S	138	CLARMORE 4- 4OOLOGAHKAMO-1	BASE CASE	325/350	408.525	125.7
34S	138	N.E.S.-4 - OOLOGAH 4 - 1	BASE CASE	325/350	423.15	130.2
34S	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	BASE CASE	325/350	415.025	127.7
34W	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 4 - CLARMORE 4 - 1	325/350	529.9	151.4
34W	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	CLARMR 4 - CLARMORE 4 - 1	325/350	517.65	147.9
34W	138	CLARMORE 4- 4OOLOGAHKAMO-1	CLARMR 4 - CLARMORE 4 - 1	325/350	511	146
34W	138	N.E.S.-4 - OOLOGAH 4 - 1	CLARMR 5 - CHOUTEAUCRK5 - 1	325/350	492.45	140.7
34W	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	CLARMR 5 - CHOUTEAUCRK5 - 1	325/350	482.3	137.8
34W	138	N.E.S.-4 - OOLOGAH 4 - 1	GRDA1 5 - CHOUTEAUCRK5 - 1	325/350	492.1	140.6
34W	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	GRDA1 5 - CHOUTEAUCRK5 - 1	325/350	482.3	137.8

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
34W	138	N.E.S.-4 - OOLOGAH 4 - 1	COLINS 5 - 5KETONVL - 1	325/350	466.55	133.3
34W	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	COLINS 5 - 5KETONVL - 1	325/350	457.45	130.7
34W	138	N.E.S.-4 - OOLOGAH 4 - 1	5KETONVL - COLINS 5 - 1	325/350	466.55	133.3
34W	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	5KETONVL - COLINS 5 - 1	325/350	457.45	130.7
34W	138	N.E.S.-4 - OOLOGAH 4 - 1	CATSAGR5 - 5ELMCRK - 1	325/350	464.1	132.6
34W	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	CATSAGR5 - 5ELMCRK - 1	325/350	455.35	130.1
34W	138	N.E.S.-4 - OOLOGAH 4 - 1	5ELMCRK - CATSAGR5 - 1	325/350	464.1	132.6
34W	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	5ELMCRK - CATSAGR5 - 1	325/350	455.35	130.1
34W	161	CLARMR 5 - CHOUTEAUCRK5 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	285/324	384.264	118.6
34W	161	GRDA1 5 - CHOUTEAUCRK5 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	285/324	397.872	122.8
34W	138	CLARMR 4 - CLARMORE 4 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	325/350	542.85	155.1
34W	161/138	CLARMR 5 - CLRAUTO4 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	205/256	286.464	111.9
34W	161/138	CLARMR 5 - CLRAUTO42 - 2	CLARMORE 4- 4OOLOGAHKAMO-1	205/256	286.464	111.9
34W	161/138	CLARMR 4 - CLRAUTO4 - 1	CLARMORE 4- 4OOLOGAHKAMO-1	205/256	271.36	106
34W	161/138	CLARMR 4 - CLRAUTO42 - 2	CLARMORE 4- 4OOLOGAHKAMO-1	205/256	271.36	106
34W	161	CLARMR 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4- 4OOLOGAHKAMO-Z1	285/324	393.984	121.6
34W	161	GRDA1 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4- 4OOLOGAHKAMO-Z1	285/324	408.888	126.2
34W	138	CLARMR 4 - CLARMORE 4 - 1	OOLOGAH 4- 4OOLOGAHKAMO-Z1	325/350	551.95	157.7
34W	161/138	CLARMR 5 - CLRAUTO4 - 1	OOLOGAH 4- 4OOLOGAHKAMO-Z1	205/256	292.352	114.2
34W	161/138	CLARMR 5 - CLRAUTO42 - 2	OOLOGAH 4- 4OOLOGAHKAMO-Z1	205/256	292.352	114.2
34W	161/138	CLARMR 4 - CLRAUTO4 - 1	OOLOGAH 4- 4OOLOGAHKAMO-Z1	205/256	275.968	107.8
34W	161/138	CLARMR 4 - CLRAUTO42 - 2	OOLOGAH 4- 4OOLOGAHKAMO-Z1	205/256	275.968	107.8
34W	161	CLARMR 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4 - N.E.S.-4 - 1	285/324	394.308	121.7

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
34W	161	GRDA1 5 - CHOUTEAUCRK5 - 1	OOLOGAH 4 - N.E.S.-4 - 1	285/324	409.212	126.3
34W	138	CLARMR 4 - CLARMORE 4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	325/350	552.3	157.8
34W	161/138	CLARMR 5 - CLRAUTO4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	205/256	292.608	114.3
34W	161/138	CLARMR 5 - CLRAUTO42 - 2	OOLOGAH 4 - N.E.S.-4 - 1	205/256	292.608	114.3
34W	161/138	CLARMR 4 - CLRAUTO4 - 1	OOLOGAH 4 - N.E.S.-4 - 1	205/256	275.968	107.8
34W	161/138	CLARMR 4 - CLRAUTO42 - 2	OOLOGAH 4 - N.E.S.-4 - 1	205/256	275.968	107.8
34W	161	CLARMR 5 - CHOUTEAUCRK5 - 1	4OOLOGAHKAMO-CLARMORE 4-1	285/324	384.264	118.6
34W	161	GRDA1 5 - CHOUTEAUCRK5 - 1	4OOLOGAHKAMO-CLARMORE 4-1	285/324	397.872	122.8
34W	138	CLARMR 4 - CLARMORE 4 - 1	4OOLOGAHKAMO-CLARMORE 4-1	325/350	542.85	155.1
34W	161/138	CLARMR 5 - CLRAUTO4 - 1	4OOLOGAHKAMO-CLARMORE 4-1	205/256	286.464	111.9
34W	161/138	CLARMR 5 - CLRAUTO42 - 2	4OOLOGAHKAMO-CLARMORE 4-1	205/256	286.464	111.9
34W	161/138	CLARMR 4 - CLRAUTO4 - 1	4OOLOGAHKAMO-CLARMORE 4-1	205/256	271.36	106
34W	161/138	CLARMR 4 - CLRAUTO42 - 2	4OOLOGAHKAMO-CLARMORE 4-1	205/256	271.36	106
34W	161	CLARMR 5 - CHOUTEAUCRK5 - 1	4OOLOGAHKAMO-OOLOGAH 4-Z1	285/324	393.984	121.6
34W	161	GRDA1 5 - CHOUTEAUCRK5 - 1	4OOLOGAHKAMO-OOLOGAH 4-Z1	285/324	408.888	126.2
34W	138	CLARMR 4 - CLARMORE 4 - 1	4OOLOGAHKAMO-OOLOGAH 4-Z1	325/350	551.95	157.7
34W	161/138	CLARMR 5 - CLRAUTO4 - 1	4OOLOGAHKAMO-OOLOGAH 4-Z1	205/256	292.352	114.2
34W	161/138	CLARMR 5 - CLRAUTO42 - 2	4OOLOGAHKAMO-OOLOGAH 4-Z1	205/256	292.352	114.2
34W	161/138	CLARMR 4 - CLRAUTO4 - 1	4OOLOGAHKAMO-OOLOGAH 4-Z1	205/256	275.968	107.8
34W	161/138	CLARMR 4 - CLRAUTO42 - 2	4OOLOGAHKAMO-OOLOGAH 4-Z1	205/256	275.968	107.8
34W	161	CLARMR 5 - CHOUTEAUCRK5 - 1	N.E.S.-4 - OOLOGAH 4 - 1	285/324	394.308	121.7
34W	161	GRDA1 5 - CHOUTEAUCRK5 - 1	N.E.S.-4 - OOLOGAH 4 - 1	285/324	409.212	126.3
34W	138	CLARMR 4 - CLARMORE 4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	325/350	552.3	157.8
34W	161/138	CLARMR 5 - CLRAUTO4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	205/256	292.608	114.3
34W	161/138	CLARMR 5 - CLRAUTO42 - 2	N.E.S.-4 - OOLOGAH 4 - 1	205/256	292.608	114.3
34W	161/138	CLARMR 4 - CLRAUTO4 - 1	N.E.S.-4 - OOLOGAH 4 - 1	205/256	275.968	107.8

Year	Season	Facility Name	Contingency Name	Rate A, Rate B (MVA)	Max Flow (MVA)	Change Case Max Loading (%)
34W	161/138	CLARMR 4 - CLRAUTO42 - 2	N.E.S.-4 - OOLOGAH 4 - 1	205/256	275.968	107.8
34W	138	OOLOGAH 4- 4OOLOGAHKAMO-Z1	BASE CASE	325/350	429	132
34W	138	N.E.S.-4 - OOLOGAH 4 - 1	BASE CASE	325/350	436.8	134.4
34W	138	CLARMORE 4- 4OOLOGAHKAMO-1	CLARMR 5 - CHOUTEAUCRK5 - 1	325/350	475.65	135.9
34W	138	CLARMORE 4- 4OOLOGAHKAMO-1	GRDA1 5 - CHOUTEAUCRK5 - 1	325/350	475.3	135.8
34W	138	CLARMORE 4- 4OOLOGAHKAMO-1	COLINS 5 - 5KETONVL - 1	325/350	450.8	128.8
34W	138	CLARMORE 4- 4OOLOGAHKAMO-1	5KETONVL - COLINS 5 - 1	325/350	450.8	128.8
34W	138	CLARMORE 4- 4OOLOGAHKAMO-1	CATSAGR5 - 5ELMCRK - 1	325/350	448.7	128.2
34W	138	CLARMORE 4- 4OOLOGAHKAMO-1	5ELMCRK - CATSAGR5 - 1	325/350	448.7	128.2
34W	138	CLARMORE 4- 4OOLOGAHKAMO-1	COLINS 5 - 5ELMCRK - 1	325/350	445.55	127.3
34W	138	CLARMORE 4- 4OOLOGAHKAMO-1	CLARMR 5 - 5KETONVL - 1	325/350	445.55	127.3
34W	138	CLARMORE 4- 4OOLOGAHKAMO-1	5ELMCRK - COLINS 5 - 1	325/350	445.55	127.3
34W	138	CLARMORE 4- 4OOLOGAHKAMO-1	5KETONVL - CLARMR 5 - 1	325/350	445.55	127.3
34W	138	CLARMORE 4- 4OOLOGAHKAMO-1	BASE CASE	325/350	422.175	129.9

Table 3-2: Potential Voltage Violations

Year	Season	Facility Name	Facility Voltage (kV)	Contingency Name	Voltage Maximum (pu)	Voltage Minimum (pu)	Bus Voltage (pu)
2029	Light	CLARMORE 4	138	BASE CASE	1.05	0.95	0.93827
2029	Light	OOLOGAH 4	138	BASE CASE	1.05	0.95	0.9442
2029	Light	CLARMORE 4	138	CLARMR 4 - CLARMORE 4 - 1	1.05	0.9	0.8882
2029	Light	CENTLFT2	69	CLARMORE 4-4OOLOGAHKAMO-1	1.05	0.9	0.85508
2029	Light	CLARMR 5	161	CLARMORE 4-4OOLOGAHKAMO-1	1.05	0.9	0.84772
2029	Light	CLARMR 2	69	CLARMORE 4-4OOLOGAHKAMO-1	1.05	0.9	0.85514
2029	Light	CLARMR 4	138	CLARMORE 4-4OOLOGAHKAMO-1	1.05	0.9	0.80851
2029	Light	CLARMORE 4	138	CLARMORE 4-4OOLOGAHKAMO-1	1.05	0.9	0.75814
2029	Light	CLARMTP 2	69	CLARMORE 4-4OOLOGAHKAMO-1	1.05	0.9	0.85508

Year	Season	Facility Name	Facility Voltage (kV)	Contingency Name	Voltage Maximum (pu)	Voltage Minimum (pu)	Bus Voltage (pu)
2029	Light	CLARCTY1 2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.85421
2029	Light	CLARCTY2 2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.85501
2029	Light	CLARCTY4 2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.85431
2029	Light	SEQUOYA 2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.86991
2029	Light	CENTLFT2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.8533
2029	Light	CLARMR 5	161	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.84586
2029	Light	CLARMR 2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.85336
2029	Light	CLARMR 4	138	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.80613
2029	Light	CLARMORE 4	138	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.75528
2029	Light	CLARMTP 2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.8533
2029	Light	CLARCTY1 2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.85243
2029	Light	CLARCTY2 2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.85323
2029	Light	CLARCTY4 2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.85252
2029	Light	SEQUOYA 2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.86829
2029	Light	CENTLFT2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.85327
2029	Light	CLARMR 5	161	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.84584
2029	Light	CLARMR 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.85334
2029	Light	CLARMR 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.80611
2029	Light	CLARMORE 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.75525
2029	Light	CLARMTP 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.85328
2029	Light	CLARCTY1 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.85241
2029	Light	CLARCTY2 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.85321
2029	Light	CLARCTY4 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.8525
2029	Light	OOLOGAH 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.7552
2029	Light	SEQUOYA 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.86827
2029	Light	CENTLFT2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.85327
2029	Light	CLARMR 5	161	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.84584
2029	Light	CLARMR 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.85334
2029	Light	CLARMR 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.80611
2029	Light	CLARMORE 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.75525
2029	Light	CLARMTP 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.85328
2029	Light	CLARCTY1 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.85241
2029	Light	CLARCTY2 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.85321
2029	Light	CLARCTY4 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.8525
2029	Light	OOLOGAH 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.7552
2029	Light	SEQUOYA 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.86827
2029	Light	CENTLFT2	69	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.85508
2029	Light	CLARMR 5	161	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.84772
2029	Light	CLARMR 2	69	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.85514
2029	Light	CLARMR 4	138	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.80851
2029	Light	CLARMORE 4	138	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.75814
2029	Light	CLARMTP 2	69	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.85508
2029	Light	CLARCTY1 2	69	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.85421

Year	Season	Facility Name	Facility Voltage (kV)	Contingency Name	Voltage Maximum (pu)	Voltage Minimum (pu)	Bus Voltage (pu)
2029	Light	CLARCTY2 2	69	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.85501
2029	Light	CLARCTY4 2	69	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.85431
2029	Light	SEQUOYA 2	69	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.86991
2029	Light	CENTLFT2	69	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.8533
2029	Light	CLARMR 5	161	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.84586
2029	Light	CLARMR 2	69	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.85336
2029	Light	CLARMR 4	138	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.80613
2029	Light	CLARMORE 4	138	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.75528
2029	Light	CLARMTP 2	69	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.8533
2029	Light	CLARCTY1 2	69	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.85243
2029	Light	CLARCTY2 2	69	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.85323
2029	Light	CLARCTY4 2	69	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.85252
2029	Light	SEQUOYA 2	69	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.86829
2029	Summer	CENTLFT2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.76224
2029	Summer	COLINS 5	161	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.85665
2029	Summer	SKIAEAS4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.88821
2029	Summer	CLARMR 5	161	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.76582
2029	Summer	CLARMR 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.76235
2029	Summer	ADARNEO2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.8966
2029	Summer	PARKER 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.86248
2029	Summer	PARKMEDTP	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.89975
2029	Summer	COLLINS4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.87077
2029	Summer	CLARMR 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.71182
2029	Summer	CHILDRS2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.80588
2029	Summer	CHELSGR2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.84811
2029	Summer	PYRCRN RTP2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.81756
2029	Summer	CLARMORE 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.6493
2029	Summer	COLNSGR2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.89178
2029	Summer	CLARMTP 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.76108
2029	Summer	CLARCTY1 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.7428
2029	Summer	CLARCTY2 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.75985
2029	Summer	CLARCTY4 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.74464
2029	Summer	OOLOGAH 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.64906
2029	Summer	SEQUOYA 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.78076
2029	Summer	SALICY22	69	SALISAW5 - SALINT5 - Z1	1.05	0.9	0.89943
2029	Summer	SALICY22	69	OPEN BRANCH FROM BUS 505528 TO BUS 505550 CKT 1 OPEN BRANCH FROM BUS 505550 TO BUS 505552 CKT 1	1.05	0.9	0.89956
2029	Summer	SALICY22	69	SALINT5 - SALISAW5 - Z1	1.05	0.9	0.89943
2029	Summer	CENTLFT2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.77274
2029	Summer	COLINS 5	161	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.86272
2029	Summer	SKIAEAS4	138	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.89233

Year	Season	Facility Name	Facility Voltage (kV)	Contingency Name	Voltage Maximum (pu)	Voltage Minimum (pu)	Bus Voltage (pu)
2029	Summer	CLARMR 5	161	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.77651
2029	Summer	CLARMR 2	69	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.77285
2029	Summer	PARKER 2	69	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.86905
2029	Summer	COLLINS4	138	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.87585
2029	Summer	CLARMR 4	138	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.72571
2029	Summer	CHILDRS2	69	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.81362
2029	Summer	CHELSEGR2	69	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.85537
2029	Summer	PYRCRN RTP2	69	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.82519
2029	Summer	CLARMORE 4	138	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.66584
2029	Summer	COLNSGR2	69	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.89636
2029	Summer	CLARMTP 2	69	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.7716
2029	Summer	CLARCTY1 2	69	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.75361
2029	Summer	CLARCTY2 2	69	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.77038
2029	Summer	CLARCTY4 2	69	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.75543
2029	Summer	SEQUOYA 2	69	CLARMORE 4-400LOGAHKAMO-1	1.05	0.9	0.79041
2029	Summer	CENTLFT2	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.76224
2029	Summer	COLINS 5	161	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.85664
2029	Summer	SKIAEAS4	138	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.88821
2029	Summer	CLARMR 5	161	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.76582
2029	Summer	CLARMR 2	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.76235
2029	Summer	ADARNEO2	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.8966
2029	Summer	PARKER 2	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.86248
2029	Summer	PARKMEDTP	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.89975
2029	Summer	COLLINS4	138	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.87077
2029	Summer	CLARMR 4	138	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.71182
2029	Summer	CHILDRS2	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.80588
2029	Summer	CHELSEGR2	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.84811
2029	Summer	PYRCRN RTP2	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.81756
2029	Summer	CLARMORE 4	138	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.6493
2029	Summer	COLNSGR2	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.89178
2029	Summer	CLARMTP 2	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.76108
2029	Summer	CLARCTY1 2	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.74279
2029	Summer	CLARCTY2 2	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.75985
2029	Summer	CLARCTY4 2	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.74464
2029	Summer	SEQUOYA 2	69	OOLOGAH 4-400LOGAHKAMO-Z1	1.05	0.9	0.78076
2029	Summer	CENTLFT2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.76224
2029	Summer	COLINS 5	161	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.85665
2029	Summer	SKIAEAS4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.88821
2029	Summer	CLARMR 5	161	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.76582
2029	Summer	CLARMR 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.76235
2029	Summer	ADARNEO2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.8966
2029	Summer	PARKER 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.86248
2029	Summer	PARKMEDTP	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.89975

Year	Season	Facility Name	Facility Voltage (kV)	Contingency Name	Voltage Maximum (pu)	Voltage Minimum (pu)	Bus Voltage (pu)
2029	Summer	COLLINS4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.87077
2029	Summer	CLARMR 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.71182
2029	Summer	CHILDRS2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.80588
2029	Summer	CHELSEGR2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.84811
2029	Summer	PYRCRN RTP2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.81756
2029	Summer	CLARMORE 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.6493
2029	Summer	COLNSGR2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.89178
2029	Summer	CLARMTP 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.76108
2029	Summer	CLARCTY1 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.7428
2029	Summer	CLARCTY2 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.75985
2029	Summer	CLARCTY4 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.74464
2029	Summer	OOLOGAH 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.64906
2029	Summer	SEQUOYA 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.78076
2029	Summer	CENTLFT2	69	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.77274
2029	Summer	COLINS 5	161	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.86272
2029	Summer	SKIAEAS4	138	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.89233
2029	Summer	CLARMR 5	161	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.77651
2029	Summer	CLARMR 2	69	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.77285
2029	Summer	PARKER 2	69	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.86905
2029	Summer	COLLINS4	138	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.87585
2029	Summer	CLARMR 4	138	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.72571
2029	Summer	CHILDRS2	69	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.81362
2029	Summer	CHELSEGR2	69	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.85537
2029	Summer	PYRCRN RTP2	69	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.82519
2029	Summer	CLARMORE 4	138	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.66584
2029	Summer	COLNSGR2	69	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.89636
2029	Summer	CLARMTP 2	69	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.7716
2029	Summer	CLARCTY1 2	69	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.75361
2029	Summer	CLARCTY2 2	69	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.77038
2029	Summer	CLARCTY4 2	69	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.75543
2029	Summer	SEQUOYA 2	69	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.79041
2029	Summer	CENTLFT2	69	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.76224
2029	Summer	COLINS 5	161	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.85664
2029	Summer	SKIAEAS4	138	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.88821
2029	Summer	CLARMR 5	161	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.76582
2029	Summer	CLARMR 2	69	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.76235
2029	Summer	ADARNEO2	69	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.8966
2029	Summer	PARKER 2	69	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.86248
2029	Summer	PARKMEDTP	69	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.89975
2029	Summer	COLLINS4	138	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.87077
2029	Summer	CLARMR 4	138	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.71182
2029	Summer	CHILDRS2	69	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.80588
2029	Summer	CHELSEGR2	69	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.84811

Year	Season	Facility Name	Facility Voltage (kV)	Contingency Name	Voltage Maximum (pu)	Voltage Minimum (pu)	Bus Voltage (pu)
2029	Summer	PYRCRN RTP2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.81756
2029	Summer	CLARMORE 4	138	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.6493
2029	Summer	COLNSGR2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.89178
2029	Summer	CLARMTP 2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.76108
2029	Summer	CLARCTY1 2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.74279
2029	Summer	CLARCTY2 2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.75985
2029	Summer	CLARCTY4 2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.74464
2029	Summer	SEQUOYA 2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.78076
2029	Winter	CENTLFT2	69	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.82403
2029	Winter	COLINS 5	161	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.89352
2029	Winter	CLARMR 5	161	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.8219
2029	Winter	CLARMR 2	69	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.8241
2029	Winter	CLARMR 4	138	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.77893
2029	Winter	CHILDRS2	69	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.8553
2029	Winter	CHELGR2	69	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.8944
2029	Winter	PYRCRN RTP2	69	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.86607
2029	Winter	CLARMORE 4	138	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.72539
2029	Winter	CLARMTP 2	69	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.82345
2029	Winter	CLARCTY1 2	69	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.81429
2029	Winter	CLARCTY2 2	69	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.8228
2029	Winter	CLARCTY4 2	69	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.81524
2029	Winter	SEQUOYA 2	69	400LOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.83876
2029	Winter	CENTLFT2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.81454
2029	Winter	COLINS 5	161	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.88779
2029	Winter	CLARMR 5	161	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.81209
2029	Winter	CLARMR 2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.81462
2029	Winter	PARKER 2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.89888
2029	Winter	COLLINS4	138	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.89863
2029	Winter	CLARMR 4	138	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.76637
2029	Winter	CHILDRS2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.84839
2029	Winter	CHELGR2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.88789
2029	Winter	PYRCRN RTP2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.85925
2029	Winter	CLARMORE 4	138	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.71045
2029	Winter	CLARMTP 2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.81395
2029	Winter	CLARCTY1 2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.80468
2029	Winter	CLARCTY2 2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.8133
2029	Winter	CLARCTY4 2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.80564
2029	Winter	SEQUOYA 2	69	400LOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.83008
2029	Winter	CENTLFT2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.81454
2029	Winter	COLINS 5	161	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.88779
2029	Winter	CLARMR 5	161	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.81209
2029	Winter	CLARMR 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.81462
2029	Winter	PARKER 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.89888

Year	Season	Facility Name	Facility Voltage (kV)	Contingency Name	Voltage Maximum (pu)	Voltage Minimum (pu)	Bus Voltage (pu)
2029	Winter	COLLINS4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.89863
2029	Winter	CLARMR 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.76637
2029	Winter	CHILDRS2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.84839
2029	Winter	CHELSEGR2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.88789
2029	Winter	PYRCRN RTP2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.85925
2029	Winter	CLARMORE 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.71045
2029	Winter	CLARMTP 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.81395
2029	Winter	CLARCTY1 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.80468
2029	Winter	CLARCTY2 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.8133
2029	Winter	CLARCTY4 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.80564
2029	Winter	OOLOGAH 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.71027
2029	Winter	SEQUOYA 2	69	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.83008
2029	Winter	CENTLFT2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.82403
2029	Winter	COLINS 5	161	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.89352
2029	Winter	CLARMR 5	161	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.8219
2029	Winter	CLARMR 2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.8241
2029	Winter	CLARMR 4	138	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.77893
2029	Winter	CHILDRS2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.8553
2029	Winter	CHELSEGR2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.8944
2029	Winter	PYRCRN RTP2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.86607
2029	Winter	CLARMORE 4	138	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.72539
2029	Winter	CLARMTP 2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.82345
2029	Winter	CLARCTY1 2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.81429
2029	Winter	CLARCTY2 2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.8228
2029	Winter	CLARCTY4 2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.81524
2029	Winter	SEQUOYA 2	69	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.83876
2029	Winter	CENTLFT2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.81454
2029	Winter	COLINS 5	161	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.88779
2029	Winter	CLARMR 5	161	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.81209
2029	Winter	CLARMR 2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.81462
2029	Winter	PARKER 2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.89888
2029	Winter	COLLINS4	138	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.89863
2029	Winter	CLARMR 4	138	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.76637
2029	Winter	CHILDRS2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.84839
2029	Winter	CHELSEGR2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.88789
2029	Winter	PYRCRN RTP2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.85925
2029	Winter	CLARMORE 4	138	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.71045
2029	Winter	CLARMTP 2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.81395
2029	Winter	CLARCTY1 2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.80468
2029	Winter	CLARCTY2 2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.8133
2029	Winter	CLARCTY4 2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.80564
2029	Winter	SEQUOYA 2	69	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.83008
2029	Winter	CENTLFT2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.81454

Year	Season	Facility Name	Facility Voltage (kV)	Contingency Name	Voltage Maximum (pu)	Voltage Minimum (pu)	Bus Voltage (pu)
2029	Winter	COLINS 5	161	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.88779
2029	Winter	CLARMR 5	161	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.81209
2029	Winter	CLARMR 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.81462
2029	Winter	PARKER 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.89888
2029	Winter	COLLINS4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.89863
2029	Winter	CLARMR 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.76637
2029	Winter	CHILDRS2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.84839
2029	Winter	CHELGR2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.88789
2029	Winter	PYRCRNTP2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.85925
2029	Winter	CLARMORE 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.71045
2029	Winter	CLARMTP 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.81395
2029	Winter	CLARCTY1 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.80468
2029	Winter	CLARCTY2 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.8133
2029	Winter	CLARCTY4 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.80564
2029	Winter	OOLOGAH 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.71027
2029	Winter	SEQUOYA 2	69	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.83008
2034	Light	COLINS 5	161	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.89702
2034	Light	CLARMR 5	161	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.83631
2034	Light	CLARMR 4	138	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.79553
2034	Light	CLARMORE 4	138	4OOLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.74383
2034	Light	COLINS 5	161	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.89579
2034	Light	CLARMR 5	161	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.83422
2034	Light	CLARMR 4	138	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.79285
2034	Light	CLARMORE 4	138	4OOLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.74061
2034	Light	GUAVA 4	138	BASE CASE	1.05	0.95	0.94992
2034	Light	CLARMORE 4	138	BASE CASE	1.05	0.95	0.93725
2034	Light	OOLOGAH 4	138	BASE CASE	1.05	0.95	0.94324
2034	Light	CLARMORE 4	138	CLARMR 4 - CLARMORE 4 - 1	1.05	0.9	0.88996
2034	Light	COLINS 5	161	CLARMORE 4-4OOLOGAHKAMO-1	1.05	0.9	0.89702
2034	Light	CLARMR 5	161	CLARMORE 4-4OOLOGAHKAMO-1	1.05	0.9	0.83631
2034	Light	CLARMR 4	138	CLARMORE 4-4OOLOGAHKAMO-1	1.05	0.9	0.79553
2034	Light	CLARMORE 4	138	CLARMORE 4-4OOLOGAHKAMO-1	1.05	0.9	0.74383
2034	Light	COLINS 5	161	OOLOGAH 4-4OOLOGAHKAMO-Z1	1.05	0.9	0.89579
2034	Light	CLARMR 5	161	OOLOGAH 4-4OOLOGAHKAMO-Z1	1.05	0.9	0.83422
2034	Light	CLARMR 4	138	OOLOGAH 4-4OOLOGAHKAMO-Z1	1.05	0.9	0.79285
2034	Light	CLARMORE 4	138	OOLOGAH 4-4OOLOGAHKAMO-Z1	1.05	0.9	0.74061
2034	Light	COLINS 5	161	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.89577
2034	Light	CLARMR 5	161	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.8342
2034	Light	CLARMR 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.79282
2034	Light	CLARMORE 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.74058
2034	Light	OOLOGAH 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.74053
2034	Light	COLINS 5	161	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.89577
2034	Light	CLARMR 5	161	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.8342

Year	Season	Facility Name	Facility Voltage (kV)	Contingency Name	Voltage Maximum (pu)	Voltage Minimum (pu)	Bus Voltage (pu)
2034	Light	CLARMR 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.79282
2034	Light	CLARMORE 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.74058
2034	Light	OOLOGAH 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.74053
2034	Summer	KIOWA 7	345	MULTIGEN515045	1.05	0.9	0.89976
2034	Summer	BLUEBRD4	138	MULTIGEN515045	1.05	0.9	0.89444
2034	Summer	KEYSTNT4	138	MULTIGEN515045	1.05	0.9	0.89457
2034	Summer	COLINS 5	161	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.85022
2034	Summer	SKIAEAS4	138	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.88021
2034	Summer	CLARMR 5	161	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.75945
2034	Summer	COLLINS4	138	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.86308
2034	Summer	CLARMR 4	138	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.70592
2034	Summer	CLARMORE 4	138	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.64397
2034	Summer	COLINS 5	161	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.84396
2034	Summer	SKIAEAS4	138	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.87585
2034	Summer	CLARMR 5	161	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.74862
2034	Summer	COLLINS4	138	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.8578
2034	Summer	CLARMR 4	138	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.69188
2034	Summer	COLINS 5	161	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.84394
2034	Summer	SKIAEAS4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.87583
2034	Summer	CLARMR 5	161	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.7486
2034	Summer	COLLINS4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.85778
2034	Summer	CLARMR 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.69185
2034	Summer	COLINS 5	161	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.85022
2034	Summer	SKIAEAS4	138	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.88021
2034	Summer	CLARMR 5	161	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.75945
2034	Summer	COLLINS4	138	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.86308
2034	Summer	CLARMR 4	138	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.70592
2034	Summer	CLARMORE 4	138	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.64397
2034	Summer	COLINS 5	161	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.84396
2034	Summer	SKIAEAS4	138	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.87585
2034	Summer	CLARMR 5	161	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.74862
2034	Summer	COLLINS4	138	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.8578
2034	Summer	CLARMR 4	138	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.69188
2034	Summer	COLINS 5	161	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.84394
2034	Summer	SKIAEAS4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.87583
2034	Summer	CLARMR 5	161	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.7486
2034	Summer	COLLINS4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.85778
2034	Summer	CLARMR 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.69185
2034	Winter	COLINS 5	161	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.89271
2034	Winter	CLARMR 5	161	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.82149
2034	Winter	CLARMR 4	138	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.77842
2034	Winter	CLARMORE 4	138	CLARMORE 4-40OLOGAHKAMO-1	1.05	0.9	0.7248
2034	Winter	COLINS 5	161	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.88724

Year	Season	Facility Name	Facility Voltage (kV)	Contingency Name	Voltage Maximum (pu)	Voltage Minimum (pu)	Bus Voltage (pu)
2034	Winter	CLARMR 5	161	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.81199
2034	Winter	COLLINS4	138	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.89773
2034	Winter	CLARMR 4	138	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.76625
2034	Winter	CLARMORE 4	138	OOLOGAH 4-40OLOGAHKAMO-Z1	1.05	0.9	0.71033
2034	Winter	COLINS 5	161	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.88685
2034	Winter	CLARMR 5	161	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.81147
2034	Winter	COLLINS4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.89732
2034	Winter	CLARMR 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.7656
2034	Winter	CLARMORE 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.70956
2034	Winter	OOLOGAH 4	138	OOLOGAH 4 - N.E.S.-4 - 1	1.05	0.9	0.70938
2034	Winter	COLINS 5	161	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.88685
2034	Winter	CLARMR 5	161	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.81147
2034	Winter	COLLINS4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.89732
2034	Winter	CLARMR 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.7656
2034	Winter	CLARMORE 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.70956
2034	Winter	OOLOGAH 4	138	N.E.S.-4 - OOLOGAH 4 - 1	1.05	0.9	0.70938
2034	Winter	COLINS 5	161	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.89271
2034	Winter	CLARMR 5	161	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.82149
2034	Winter	CLARMR 4	138	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.77842
2034	Winter	CLARMORE 4	138	40OLOGAHKAMO-CLARMORE 4-1	1.05	0.9	0.7248
2034	Winter	COLINS 5	161	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.88724
2034	Winter	CLARMR 5	161	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.81199
2034	Winter	COLLINS4	138	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.89773
2034	Winter	CLARMR 4	138	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.76625
2034	Winter	CLARMORE 4	138	40OLOGAHKAMO-OOLOGAH 4-Z1	1.05	0.9	0.71033

SHORT CIRCUIT

SPP performed short circuit analysis for the 2029 Summer Peak with the new load addition. The analysis identified the currents as listed in Table 3-3.

Table 3-3: Short Circuit Results

Season	Model	Fault	Bus	Current (Amps)
29S	Max Fault	Three Phase	40OLOGAHKAMO138.00	26,435
29S	Max Fault	Three Phase	5ELMCRK 161.00	13,765
29S	Max Fault	Three Phase	5KETONVL 161.00	11,959
29S	Max Fault	Three Phase	KEYSTON4 138.00	22,449
29S	Max Fault	Three Phase	CIP 4 138.00	24,194
29S	Max Fault	Three Phase	CDC 4 138.00	24,165
29S	Max Fault	Three Phase	SPNKY CK4 138.00	28,253
29S	Max Fault	Three Phase	TER-NIT4 138.00	18,634
29S	Max Fault	Three Phase	PCATOSA4 138.00	17,979
29S	Max Fault	Three Phase	OWASO1_4 138.00	14,202

Season	Model	Fault	Bus	Current (Amps)
29S	Max Fault	Three Phase	DENVR-E4 138.00	8,292
29S	Max Fault	Three Phase	DENVTAP4 138.00	9,806
29S	Max Fault	Three Phase	INOLATP4 138.00	9,430
29S	Max Fault	Three Phase	WEKIWA-7 345.00	21,508
29S	Max Fault	Three Phase	WEKIWA-4 138.00	32,382
29S	Max Fault	Three Phase	LLAN ET4 138.00	24,679
29S	Max Fault	Three Phase	A.A.---4 138.00	22,267
29S	Max Fault	Three Phase	CATOOSA4 138.00	37,173
29S	Max Fault	Three Phase	CATOOSA2 69.000	10,846
29S	Max Fault	Three Phase	MOHAWK 4 138.00	18,014
29S	Max Fault	Three Phase	MINGORD4 138.00	22,034
29S	Max Fault	Three Phase	E 11TH ST 4 138.00	29,536
29S	Max Fault	Three Phase	PP----W4 138.00	8,382
29S	Max Fault	Three Phase	SHEFFD-4 138.00	25,615
29S	Max Fault	Three Phase	T.NO.--4 138.00	42,753
29S	Max Fault	Three Phase	W.ED.-E4 138.00	8,204
29S	Max Fault	Three Phase	WED-TAP4 138.00	18,986
29S	Max Fault	Three Phase	TERNITP4 138.00	20,321
29S	Max Fault	Three Phase	46ST--E4 138.00	3,411
29S	Max Fault	Three Phase	CDC-ET 4 138.00	24,818
29S	Max Fault	Three Phase	WHIRLPO4 138.00	25,477
29S	Max Fault	Three Phase	PCATSAT4 138.00	21,337
29S	Max Fault	Three Phase	CDC-WT 4 138.00	26,219
29S	Max Fault	Three Phase	OWASO2_4 138.00	15,209
29S	Max Fault	Three Phase	OWASOTP4 138.00	15,230
29S	Max Fault	Three Phase	P&P WTP4 138.00	15,364
29S	Max Fault	Three Phase	T.NO.--7 345.00	24,352
29S	Max Fault	Three Phase	VERDIGS4 138.00	15,410
29S	Max Fault	Three Phase	OWAS1094 138.00	14,684
29S	Max Fault	Three Phase	YARCHT 4 138.00	14,137
29S	Max Fault	Three Phase	PPTAP 4 138.00	18,842
29S	Max Fault	Three Phase	CLARTOK4 138.00	15,444
29S	Max Fault	Three Phase	CATOO1-1 13.800	17,799
29S	Max Fault	Three Phase	WEKIW1-1 34.500	15,746
29S	Max Fault	Three Phase	SKIATOK4 138.00	11,764
29S	Max Fault	Three Phase	OWAS88_4 138.00	17,747
29S	Max Fault	Three Phase	TNO2-1 34.500	14,163
29S	Max Fault	Three Phase	T.NO.2-4 138.00	42,192
29S	Max Fault	Three Phase	BIRDCREE-4 138.00	20,932
29S	Max Fault	Three Phase	46ST-TP-4 138.00	19,343
29S	Max Fault	Three Phase	SKIATKTP4 138.00	11,801
29S	Max Fault	Three Phase	ANTHEM7 345.00	26,257
29S	Max Fault	Three Phase	BVCOM3-1 34.500	2,056
29S	Max Fault	Three Phase	WATOVA 4 138.00	9,158
29S	Max Fault	Three Phase	RICE CK4 138.00	11,745
29S	Max Fault	Three Phase	NBVILLE4 138.00	9,686
29S	Max Fault	Three Phase	BARNSAL4 138.00	8,426

Season	Model	Fault	Bus	Current (Amps)
29S	Max Fault	Three Phase	BV-COM-2 69.000	4,162
29S	Max Fault	Three Phase	BV-COM-4 138.00	11,008
29S	Max Fault	Three Phase	BV-SE--4 138.00	12,755
29S	Max Fault	Three Phase	BLUESTM4 138.00	8,815
29S	Max Fault	Three Phase	MOUNDRD4 138.00	10,326
29S	Max Fault	Three Phase	N.E.S.-4 138.00	36,967
29S	Max Fault	Three Phase	NOWATA-4 138.00	8,540
29S	Max Fault	Three Phase	CHELSA4 138.00	6,032
29S	Max Fault	Three Phase	HAWTHRN4 138.00	20,672
29S	Max Fault	Three Phase	VINTAJC4 138.00	5,052
29S	Max Fault	Three Phase	COFFEYT4 138.00	10,471
29S	Max Fault	Three Phase	ALWUETP4 138.00	5,773
29S	Max Fault	Three Phase	ALLUWE 4 138.00	5,188
29S	Max Fault	Three Phase	BARNPMP4 138.00	8,991
29S	Max Fault	Three Phase	NES1-1 14.400	87,752
29S	Max Fault	Three Phase	NES1-1A 18.000	86,284
29S	Max Fault	Three Phase	NES1-1B 18.000	85,471
29S	Max Fault	Three Phase	NES2-1 22.000	60,444
29S	Max Fault	Three Phase	CATSAGD4 138.00	37,173
29S	Max Fault	Three Phase	CENTLFT2 69.000	11,528
29S	Max Fault	Three Phase	COLINS 5 161.00	12,775
29S	Max Fault	Three Phase	CATSAGR4 138.00	37,173
29S	Max Fault	Three Phase	MAID 5 161.00	44,754
29S	Max Fault	Three Phase	GRDA1 7 345.00	28,195
29S	Max Fault	Three Phase	CLARMR 5 161.00	14,179
29S	Max Fault	Three Phase	GRDA1 5 161.00	44,349
29S	Max Fault	Three Phase	CLARMR 2 69.000	12,925
29S	Max Fault	Three Phase	GRDA15-1 22.800	18,452
29S	Max Fault	Three Phase	CLEVLND7 345.00	14,902
29S	Max Fault	Three Phase	WAGNOR 5 161.00	9,523
29S	Max Fault	Three Phase	COLLINS4 138.00	7,935
29S	Max Fault	Three Phase	CLARMR 4 138.00	17,463
29S	Max Fault	Three Phase	CHELSGR2 69.000	4,462
29S	Max Fault	Three Phase	SILVCTYGR4 138.00	15,639
29S	Max Fault	Three Phase	GRDA1 2 69.000	12,254
29S	Max Fault	Three Phase	WMAIN ST5 161.00	27,678
29S	Max Fault	Three Phase	GEN-2017-061161.00	20,517
29S	Max Fault	Three Phase	G17-061XFMR134.500	11,997
29S	Max Fault	Three Phase	CLARMR4 13.800	4,796
29S	Max Fault	Three Phase	CLARMR1 13.800	17,789
29S	Max Fault	Three Phase	CLARMR2 13.800	17,063
29S	Max Fault	Three Phase	GRDA1 1 13.800	14,226
29S	Max Fault	Three Phase	GRDA1 13.800	15,932
29S	Max Fault	Three Phase	GRDA2 1 13.800	16,788
29S	Max Fault	Three Phase	COLLIN1 1 13.800	990
29S	Max Fault	Three Phase	COLLIN2 1 13.800	13,928
29S	Max Fault	Three Phase	COLLIN3 1 13.800	9,582

Season	Model	Fault	Bus	Current (Amps)
29S	Max Fault	Three Phase	CLARMORE 4 138.00	26,263
29S	Max Fault	Three Phase	COLNSGR2 69.000	10,238
29S	Max Fault	Three Phase	CLARMTP 2 69.000	10,835
29S	Max Fault	Three Phase	CLARCTY1 2 69.000	10,001
29S	Max Fault	Three Phase	CLARCTY2 2 69.000	9,166
29S	Max Fault	Three Phase	CLARCTY4 2 69.000	9,138
29S	Max Fault	Three Phase	Oologah 4 138.00	26,446
29S	Max Fault	Three Phase	SEQUOYA 2 69.000	6,899
29S	Max Fault	Three Phase	CHOUTEAUCRK5161.00	20,520
29S	Max Fault	Three Phase	IPI 345.00	19,903
29S	Max Fault	Three Phase	TNOXF2 138.00	42,192

STABILITY

SPP performed a Fast Fault Screening (FFS) using the 2034 Summer Peak for the base case and change case models. The change case models include the Claremore delivery point changes. SPP determined no significant differences in the critical clearing times between the base and change cases. Therefore, a transient stability analysis is not required.

TRANSMISSION SOLUTIONS

The addition of the load at the existing Claremore delivery point caused potential thermal overloads and low voltages on the 161, 138, and 69 kV systems around Claremore. SPP's solutions consisted of addressing these violations by adding transmission sources to the delivery point. The solutions are listed below.

Solution #1: 138 kV Solution (Total cost \$31.06)

- Rebuild NES-Oologah 138 kV circuit 1
- Rebuild Oologah4 to Claremore 138 kV circuit 1
- New NES to Claremore 138 kV circuit 1
- Rebuild Claremore to Claremore4 138 kV circuit 1

Solution #2: Project 2 (Total cost \$77.12)

- 345 kV Claremore Substation tapping NES to Anthem 345 kV circuit 1
- 2 345/138 kV transformers at Claremore 345 kV
- 345 kV new line (from existing NES to Anthem to Claremore) circuit 1
- New NES to Claremore 138 kV line circuit 1
- Rebuild Knox Lee to Cherokee Connection 138 kV circuit 1

SPP chose to move forward with Solution #1. This solution solves all issues identified in Table 3-1 and Table 3-2 in the most cost-effective manner.

Table 3-4: Recommended Upgrade Solution 1

New Upgrade Description*	Mileage	MVA (Rate B)	Date Needed**	Host Transmission Owner	Estimated Cost***
Rebuild NES-Oologah 138 kV circuit 1	2.98	547	1/1/2028	GRDA	\$3,576,000
Rebuild Oologah4 to Claremore 138 kV circuit 1	6.5	547	1/1/2028	GRDA	\$7,800,000
New NES to Claremore 138 kV circuit 1	11.38	547	1/1/2028	TBD	\$19,346,000
Rebuild Claremore to Claremore4 138 kV circuit 1	0.28	423	1/1/2028	GRDA	\$336,000
TOTAL NEW UPGRADE COST					\$31,058,000

*All requests with a Network Upgrade(s) identified in the DPNS will be subject to further evaluation in the soonest available Integrated Transmission Planning Assessment that is able to include the load changes, if it is determined that the Network Upgrade(s) will be able to meet the study timeframe requirements pursuant to the standardized project timelines in SPP Business Practices, based on the SPP determined Network Upgrade(s) need date. If it is determined that a Network Upgrade(s) identified from a DPNS is unable to be further evaluated pursuant to the Integrated Transmission Planning Assessment, the DPNS report will be posted on the SPP website once SPP is notified by the Transmission Customer to update the applicable Network Integration Transmission Service Agreement to reflect the changes in delivery points and the Network Upgrade(s).

Pursuant to Attachment AQ of the Tariff, the Transmission provider is responsible for assessing the impacts on the Transmission System caused by modifying an existing delivery point or establishing the new delivery point through the Delivery Point Network Study ("DPNS"). The DPNS may determine the need for a Network Upgrade(s) necessary for the modification of an existing delivery point or the establishment of a new delivery point. A Network Upgrade(s) that the Transmission Customer or Host Transmission Owner desires that exceeds the needed Network Upgrade(s) identified in the DPNS will need to be studied through the Transmission Provider's Sponsored Upgrade study process to evaluate the impacts of the desired changes on the Transmission System.

**If the project need date specified in this study cannot be met, the Transmission Owner will be required to submit mitigations pursuant to the SPP Project Tracking process. All upgrades or mitigations must be in place prior to the dates shown in Table 3-4.

***Note that the estimated new upgrade cost provided in this report is an SPP Conceptual Cost Estimate only; this is preliminary, and a more refined Study Cost Estimate will be developed after issuance of this report through a Standardized Cost Estimate Reporting Template (SCERT).

SECTION 4: CONCLUSION

The AC analysis revealed potential thermal and voltage violations associated with the Claremore load addition. The study shows that the following upgrades are required to reliably serve the load addition:

- Rebuild NES-Oologah 138 kV circuit 1
- Rebuild Oologah4 to Claremore 138 kV circuit 1
- New NES to Claremore 138 kV circuit 1
- Rebuild Claremore to Claremore4 138 kV circuit 1

The transmission upgrades in Table 3-4 are recommended to mitigate the potential voltage and thermal violations.