

TABLE OF CONTENTS

CHAPTER 1 – PEA SUMMARY.....	1-1
1.0 INTRODUCTION.....	1-1
1.1 PROJECT COMPONENTS	1-1
1.2 PROJECT LOCATION	1-1
1.3 PROJECT NEED AND ALTERNATIVES.....	1-1
1.4 AGENCY COORDINATION.....	1-2
1.4.0 United States Forest Service	1-2
1.4.1 Tahoe Regional Planning Agency	1-2
1.4.2 United States Fish and Wildlife Service	1-3
1.4.3 Native American Heritage Commission	1-3
1.4.4 United States Army Corps of Engineers.....	1-3
1.4.5 Lahontan Regional Water Quality Control Board	1-3
1.4.6 California Department of Fish and Game	1-3
1.5 PROPONENT'S ENVIRONMENTAL ASSESSMENT CONTENTS.....	1-4
1.6 PROPONENT'S ENVIRONMENTAL ASSESSMENT CONCLUSIONS.....	1-5
1.7 PUBLIC OUTREACH EFFORTS.....	1-6
CHAPTER 2 – PROJECT PURPOSE AND NEED.....	2-1
2.0 OVERVIEW.....	2-1
2.1 PROJECT OBJECTIVES.....	2-1
2.1.0 Provide Reliable Capacity During Single-Contingency Outages	2-2
2.1.1 Provide Additional Normal Capacity for Projected Future Loads.....	2-2
2.1.2 Reduce Dependence on the Kings Beach Diesel Generation Station	2-3
2.1.3 Reduce Fire Hazards and Outage Durations	2-3
2.1.4 Provide Reliable Access to the 625 Line	2-4
2.2 REFERENCES.....	2-4
CHAPTER 3 – PROJECT DESCRIPTION	3-1
3.1 PROJECT LOCATION	3-1
3.1.0 Existing 625 Line	3-1
3.1.1 New 625 Line.....	3-2
3.1.2 650 Line	3-2
3.1.3 132 Line	3-6
3.1.4 Northstar Tap/Fold.....	3-6
3.1.5 629 Line	3-6
3.1.6 Substations and Switching Stations	3-7
3.2 EXISTING SYSTEM.....	3-8
3.3 PROJECT OBJECTIVES.....	3-8
3.4 PROPOSED PROJECT	3-15
3.5 PROJECT COMPONENTS	3-16
3.5.0 Transmission Lines	3-16
3.5.1 Substations	3-20
3.5.2 Electrical Need Area	3-28

3.6	RIGHT-OF-WAY REQUIREMENTS	3-28
3.6.0	Temporary.....	3-28
3.6.1	Permanent	3-29
3.7	CONSTRUCTION.....	3-29
3.7.0	Staging Areas	3-29
3.7.1	Work Areas	3-32
3.7.2	Access and Spur Roads	3-35
3.7.3	Helicopter Access	3-36
3.7.4	Vegetation Clearing	3-38
3.7.5	Erosion and Sediment Control and Pollution Prevention	3-39
3.7.6	Transmission Line Construction Methods	3-39
3.7.7	Cleanup and Post-Construction Restoration	3-46
3.7.8	Substation Construction Methods	3-46
3.7.9	Construction Workforce and Equipment	3-47
3.7.10	Construction Schedule	3-47
3.8	OPERATION AND MAINTENANCE	3-55
3.8.0	Transmission Lines	3-55
3.8.1	Substations and Switching Stations	3-57
3.8.2	Electric and Magnetic Fields	3-57
3.9	REQUIRED PERMITS AND AUTHORIZATIONS	3-57
3.10	APPLICANT-PROPOSED MEASURES	3-57

CHAPTER 4 – ENVIRONMENTAL IMPACT ASSESSMENT	4-1	
4.0	ENVIRONMENTAL IMPACT ASSESSMENT SUMMARY	4-1
4.1	AESTHETICS	4.1-1
4.1.0	Introduction.....	4.1-1
4.1.1	Methodology	4.1-1
4.1.2	Existing Conditions.....	4.1-3
4.1.3	Impacts	4.1-49
4.1.4	Applicant-Proposed Measures	4.1-103
4.1.5	References.....	4.1-104
4.2	AGRICULTURAL RESOURCES	4.2-1
4.2.0	Introduction.....	4.2-1
4.2.1	Methodology	4.2-1
4.2.2	Existing Conditions.....	4.2-2
4.2.3	Impacts	4.2-4
4.2.4	Applicant-Proposed Measures	4.2-5
4.2.5	References.....	4.2-5
4.3	AIR QUALITY.....	4.3-1
4.3.0	Introduction.....	4.3-1
4.3.1	Methodology	4.3-1
4.3.2	Existing Conditions.....	4.3-2
4.3.3	Impacts	4.3-15
4.3.4	Applicant-Proposed Measures	4.3-29
4.3.5	References.....	4.3-31

4.4	BIOLOGICAL RESOURCES.....	4.4-1
4.4.0	Introduction.....	4.4-2
4.4.1	Methodology	4.4-2
4.4.2	Existing Conditions.....	4.4-4
4.4.3	Impacts	4.4-34
4.4.4	Applicant-Proposed Measures	4.4-54
4.4.5	References.....	4.4-60
4.5	CULTURAL RESOURCES.....	4.5-1
4.5.0	Introduction.....	4.5-1
4.5.1	Methodology	4.5-1
4.5.2	Existing Conditions.....	4.5-8
4.5.3	Impacts	4.5-18
4.5.4	Applicant-Proposed Measures	4.5-21
4.5.5	References.....	4.5-23
4.6	GEOLOGY, SOILS, AND SEISMICITY	4.6-1
4.6.0	Introduction.....	4.6-2
4.6.1	Methodology	4.6-2
4.6.2	Existing Conditions.....	4.6-2
4.6.3	Impacts	4.6-10
4.6.4	Applicant-Proposed Measures	4.6-21
4.6.5	References.....	4.6-22
4.7	HAZARDS AND HAZARDOUS MATERIALS	4.7-1
4.7.0	Introduction.....	4.7-2
4.7.1	Methodology	4.7-2
4.7.2	Existing Conditions.....	4.7-3
4.7.3	Impacts	4.7-18
4.7.4	Applicant-Proposed Measures	4.7-24
4.7.5	References.....	4.7-24
4.8	HYDROLOGY AND WATER QUALITY	4.8-1
4.8.0	Introduction.....	4.8-2
4.8.1	Methodology	4.8-2
4.8.2	Existing Conditions.....	4.8-3
4.8.3	Impacts	4.8-18
4.8.4	Applicant-Proposed Measures	4.8-26
4.8.5	References.....	4.8-27
4.9	LAND USE AND PLANNING	4.9-1
4.9.0	Introduction.....	4.9-1
4.9.1	Methodology	4.9-1
4.9.2	Existing Conditions.....	4.9-2
4.9.3	Impacts	4.9-29
4.9.4	Applicant-Proposed Measures	4.9-32
4.9.5	References.....	4.9-32

4.10	MINERAL RESOURCES.....	4.10-1
4.10.0	Introduction.....	4.10-1
4.10.1	Methodology	4.10-1
4.10.2	Existing Conditions.....	4.10-1
4.10.3	Impacts	4.10-3
4.10.4	Applicant-Proposed Measures	4.10-4
4.10.5	References.....	4.10-4
4.11	NOISE	4.11-1
4.11.0	Introduction.....	4.11-1
4.11.1	Methodology	4.11-2
4.11.2	Existing Conditions.....	4.11-2
4.11.3	Impacts	4.11-14
4.11.4	Applicant-Proposed Measures	4.11-22
4.11.5	References.....	4.11-23
4.12	POPULATION AND HOUSING	4.12-1
4.12.0	Introduction.....	4.12-1
4.12.1	Methodology	4.12-1
4.12.2	Existing Conditions.....	4.12-2
4.12.3	Impacts	4.12-4
4.12.4	Applicant-Proposed Measures	4.12-5
4.12.5	References.....	4.12-5
4.13	PUBLIC SERVICES	4.13-1
4.13.0	Introduction.....	4.13-1
4.13.1	Methodology	4.13-1
4.13.2	Existing Conditions.....	4.13-2
4.13.3	Impacts	4.13-5
4.13.4	Applicant-Proposed Measures	4.13-8
4.13.5	References.....	4.13-8
4.14	RECREATION	4.14-1
4.14.0	Introduction.....	4.14-1
4.14.1	Methodology	4.14-1
4.14.2	Existing Conditions.....	4.14-2
4.14.3	Impacts	4.14-11
4.14.4	Applicant-Proposed Measures	4.14-15
4.14.5	References.....	4.14-16
4.15	TRANSPORTATION AND TRAFFIC	4.15-1
4.15.0	Introduction.....	4.15-1
4.15.1	Methodology	4.15-2
4.15.2	Existing Conditions.....	4.15-2
4.15.3	Impacts	4.15-7
4.15.4	Applicant-Proposed Measures	4.15-13
4.15.5	References.....	4.15-14

4.16 UTILITIES AND SERVICES SYSTEMS.....	4.16-1
4.16.0 Introduction.....	4.16-2
4.16.1 Methodology	4.16-2
4.16.2 Existing Conditions.....	4.16-2
4.16.3 Impacts	4.16-4
4.16.4 Applicant-Proposed Measures	4.16-8
4.16.5 References.....	4.16-8
4.17 CUMULATIVE ANALYSIS.....	4.17-1
4.17.0 Introduction.....	4.17-1
4.17.1 Significance Criteria	4.17-1
4.17.2 Timeframe of Analysis	4.17-1
4.17.3 Methodology	4.17-2
4.17.4 Existing/Operating Projects	4.17-2
4.17.5 Foreseeable Projects Inventory.....	4.17-7
4.17.6 Potential Cumulative Impacts	4.17-7
4.17.7 Conclusion	4.17-19
4.17.8 References.....	4.17-20
CHAPTER 5 – DETAILED DISCUSSION OF SIGNIFICANT IMPACTS	5-1
5.0 INTRODUCTION.....	5-1
5.1 POTENTIALLY SIGNIFICANT IMPACTS AND APPLICANT-PROPOSED MEASURES	5-1
5.2 DESCRIPTION OF PROJECT ALTERNATIVES AND IMPACT ANALYSIS... 5-1	
5.2.0 Introduction.....	5-1
5.2.1 Methodology	5-2
5.2.2 Project Objectives	5-2
5.2.3 No Project Alternative	5-4
5.2.4 System Alternatives	5-13
5.2.5 Substation Alternatives	5-17
5.2.6 Transmission Line Alternatives	5-17
5.2.7 Conclusion	5-25
5.3 GROWTH-INDUCING IMPACTS	5-25
5.3.0 Growth-Inducing Impacts	5-25
5.3.1 Growth Caused by Direct and Indirect Employment.....	5-26
5.3.2 Growth Related to the Provision of Additional Electric Power.....	5-26
5.4 REFERENCES.....	5-28

LIST OF FIGURES

Figure 3–1: Project Location Map	3-3
Figure 3–2: North Lake Tahoe Transmission System Schematic.....	3-9
Figure 3–3: Existing North Lake Tahoe Transmission System Map.....	3-11
Figure 3–4: Proposed North Lake Tahoe Transmission System Map	3-13
Figure 3–5: Proposed Typical Underground Distribution Duct Bank	3-25
Figure 3–6: Proposed 14.4-kV Typical Riser	3-26
Figure 3–7: Proposed Typical Underground Splice Vault.....	3-27
Figure 3–8: Conductor Installation	3-43
Figure 4.1-1: Photograph Viewpoints – Overview	4.1-5
Figure 4.1-2: Photograph Viewpoints – Details	4.1-7
Figure 4.1-3: Visual Quality Objectives within USFS Land	4.1-11
Figure 4.1-4: Regional Landscape Context	4.1-17
Figure 4.1-5: Visual Simulation – State Route 89 at William B. Layton Park (VP 2)	4.1-55
Figure 4.1-6: Visual Simulation – Pedestrian Bridge over Truckee River (VP 6)	4.1-59
Figure 4.1-7: Visual Simulation – State Route 89 west of Fairway Drive (VP 8)	4.1-61
Figure 4.1-8: Visual Simulation – Tahoe Rim Trail (VP 9)	4.1-63
Figure 4.1-9: Visual Simulation – Mount Watson Road west of Mount Watson (VP 11)....	4.1-65
Figure 4.1-10: Visual Simulation – Mount Watson Road north of Mount Watson (VP 14)..	4.1-67
Figure 4.1-11: Visual Simulation – Mount Watson Road West of State Route 267 (VP 16) 4.1-71	
Figure 4.1-12: Visual Simulation 8 to 10 Years after Construction – Mount Watson Road West of State Route 267 (VP 16)	4.1-73
Figure 4.1-13: Visual Simulation – Cambridge Drive (VP 19)	4.1-77
Figure 4.1-14: Visual Simulation – State Route 267 near Tahoe Rim Trail (VP 23).....	4.1-79
Figure 4.1-15: Visual Simulation – Tahoe Rim Trailhead (VP 24).....	4.1-81
Figure 4.1-16: Visual Simulation – State Route 267 near Brockway Summit (VP 25)	4.1-83
Figure 4.1-17: Visual Simulation – State Route 267 in Martis Valley (VP 30)	4.1-85
Figure 4.1-18: Visual Simulation – Martis Creek Trail (VP 36)	4.1-89
Figure 4.4-1: Species Occurrence Map.....	4.4-13
Figure 4.4-2: Sensitive Species Designated Areas	4.4-31
Figure 4.6-1: Soils of North Lake Tahoe	4.6-11
Figure 4.7-1: Existing Hazardous Materials Sites	4.7-9
Figure 4.7-2: Potential Fire Threat Map	4.7-15
Figure 4.8-1: Hydrologic Features Map.....	4.8-9
Figure 4.9-1: TRPA Community Plan Areas Map.....	4.9-3
Figure 4.9-2: Land Use Jurisdiction Overview Map	4.9-11
Figure 4.9-3: TRPA Land Use Designations Map.....	4.9-13
Figure 4.9-4: Placer County Land Use Designations Map	4.9-15
Figure 4.9-5: Truckee Land Use Designations Map.....	4.9-17
Figure 4.11-1: Noise Monitoring Locations	4.11-11
Figure 4.11-2: Construction Vibration Amplitudes	4.11-15
Figure 4.14-1: Recreational Facilities Map	4.14-3
Figure 4.17-1: Planned and Proposed Projects Map.....	4.17-9
Figure 5-1: Transmission Line Alternatives Overview Map	5-5
Figure 5-2: Transmission Line Alternatives Detail Map	5-7

LIST OF PHOTOGRAPHS

Photograph 1: Lakeside Trail at the Truckee River outlet looking south	4.1-21
Photograph 2: State Route 89 at William B. Layton Park looking south	4.1-21
Photograph 3: State Route 89 (West Lake Boulevard) looking north	4.1-21
Photograph 4: State Route 89 (West Lake Boulevard) looking west	4.1-21
Photograph 5: Truckee River Bike Trail looking west	4.1-25
Photograph 6: Pedestrian bridge over the Truckee River looking southwest.....	4.1-25
Photograph 7: Recreation trail at the pedestrian bridge looking southwest.....	4.1-25
Photograph 8: State Route 89 west of Fairway Drive looking southwest	4.1-25
Photograph 9: View from the Tahoe Rim Trail looking south	4.1-27
Photograph 10: View from the Tahoe Rim Trail looking southwest.....	4.1-27
Photograph 11: Mount Watson Road west of Mount Watson looking west.....	4.1-27
Photograph 12: Mount Watson Road looking south.....	4.1-27
Photograph 13: Mount Watson Road looking west	4.1-29
Photograph 14: Mount Watson Road north of Mount Watson looking west	4.1-29
Photograph 15: Mount Watson Road looking south.....	4.1-29
Photograph 16: Mount Watson Road west of State Route 267 looking west	4.1-29
Photograph 17: Brockway Substation entry on Cut Throat Avenue looking northeast.....	4.1-31
Photograph 18: Deer Street near Cut Throat Avenue looking north	4.1-31
Photograph 19: Cambridge Drive looking east.....	4.1-31
Photograph 20: Trail behind Cambridge Drive looking south.....	4.1-31
Photograph 21: Bristol Circle at Commonwealth Drive looking southwest.....	4.1-33
Photograph 22: State Route 267 near Kings Beach looking northwest	4.1-33
Photograph 23: State Route 267 near the Tahoe Rim Trail looking east.....	4.1-33
Photograph 24: Tahoe Rim Trail near State Route 267 looking east	4.1-33
Photograph 25: State Route 267 near Brockway Summit looking southeast	4.1-35
Photograph 26: State Route 267 looking south towards the 625 Line crossing	4.1-35
Photograph 27: State Route 267 looking northwest	4.1-35
Photograph 28: State Route 267 south of Northstar Drive looking north.....	4.1-35
Photograph 29: State Route 267 near Northstar Drive looking north.....	4.1-37
Photograph 30: State Route 267 in Martis Valley looking northwest	4.1-37
Photograph 31: State Route 267 looking east	4.1-37
Photograph 32: State Route 267 looking south.....	4.1-37
Photograph 33: Northstar-at-Tahoe Golf Course looking north	4.1-39
Photograph 34: Basque Drive looking north	4.1-39
Photograph 35: Martis Creek Trailhead looking south.....	4.1-39
Photograph 36: Martis Creek Trail looking south	4.1-39
Photograph 37: Star Pine Road looking west	4.1-43
Photograph 38: Brockway Road looking northwest	4.1-43
Photograph 39: Brockway Road looking east.....	4.1-43
Photograph 40: Estates Drive at Riverview Drive looking north	4.1-43
Photograph 41: Truckee River Legacy Trail looking northeast.....	4.1-45
Photograph 42: Glenshire Drive looking east.....	4.1-45
Photograph 43: Interstate 80 westbound near Donner Pass Road looking west.....	4.1-45
Photograph 44: Pioneer Trail Road looking west towards North Truckee Substation	4.1-45

Table of Contents – Volume II

Photograph 45: Northstar Substation looking north	4.1-47
Photograph 46: Squaw Valley Substation from Squaw Valley Road at State Route 89	4.1-47
Photograph 47: Donner Pass Road looking southwest towards the Truckee Substation.....	4.1-47
Photograph 48: North Truckee Switchyard from Pioneer Trail Road looking west.....	4.1-47

LIST OF TABLES

Table 1-1: PEA Checklist Key.....	1-7
Table 3-1: Transmission Line Summary.....	3-17
Table 3-2: Substation and Switching Station Summary	3-17
Table 3-3: Substation Equipment Details	3-21
Table 3-4: Temporary ROW Requirements.....	3-28
Table 3-5: Staging Area Summary	3-30
Table 3-6: Temporary Workspace Requirements	3-33
Table 3-7: New Spur Road Summary	3-35
Table 3-8: Access Road Construction Equipment.....	3-36
Table 3-9: Project Access Roads	3-37
Table 3-10: Truck Trip Requirements	3-37
Table 3-11: Peak Construction Personnel.....	3-48
Table 3-12: Typical Major Construction Equipment.....	3-49
Table 3-13: Proposed Construction Schedule.....	3-56
Table 3-14: Required Permits and Authorizations.....	3-58
Table 3-15: Compliance Levels	3-60
Table 3-16: Environmental Compliance Team.....	3-60
Table 3-17: Applicant-Proposed Measures.....	3-61
Table 4.1-1: Summary of Simulation Views	4.1-4
Table 4.1-2: USFS Scenery Management System Terminology Changes	4.1-10
Table 4.1-3: Project Component Areas.....	4.1-20
Table 4.1-4: Summary of Visual Effects at Key Viewpoints	4.1-51
Table 4.1-5: Summary of Scenic Vista Effects at Key Viewpoints.....	4.1-91
Table 4.3-1: State and Federal Ambient Air Quality Standards	4.3-9
Table 4.3-2: Project Area Attainment Status	4.3-11
Table 4.3-3: Thresholds of Significance for Criteria Air Pollutants.....	4.3-16
Table 4.3-4: NSAQMD Mitigation Measures for Construction Activities.....	4.3-16
Table 4.3-5: Construction Equipment Categorization	4.3-19
Table 4.3-6: CAP Emissions from Construction	4.3-22
Table 4.3-7: GHG Emissions from Construction	4.3-24
Table 4.3-8: Forested Habitat Summary	4.3-25
Table 4.3-9: Carbon Pools by Habitat Type	4.3-25
Table 4.3-10: GHG Emissions from Operation and Maintenance.....	4.3-27
Table 4.4-1: Sensitive Plant and Fungi Species.....	4.4-19
Table 4.4-2: Sensitive Wildlife Species.....	4.4-25
Table 4.4-3: Total Vegetation Impacts	4.4-35
Table 4.5-1: Cultural Resources in the Project Area	4.5-5
Table 4.6-1: Geology of North Lake Tahoe.....	4.6-3
Table 4.6-2: Mercalli Earthquake Intensity Scale.....	4.6-7
Table 4.6-3: Richter Scale Magnitude and Effects	4.6-9
Table 4.6-4: Soil Units of North Lake Tahoe	4.6-13
Table 4.7-1: Hazardous Materials Sites Records Review.....	4.7-11
Table 4.7-2: Hazardous Materials Typically Used for Construction.....	4.7-19
Table 4.8-1: Hydrologic Resources	4.8-11

Table of Contents – Volume II

Table 4.8-2: Estimated Permanent Fill in Waters of the U.S.....	4.8-19
Table 4.9-1: Existing and Designated Land Uses	4.9-6
Table 4.9-2: Residences within 1,000 Feet.....	4.9-19
Table 4.10-1: CDMG Mineral Land Classification System for Placer County	4.10-2
Table 4.11-1: Community Noise Level Equivalents for the Plan Area Statements.....	4.11-5
Table 4.11-2: Vibration Damage Threshold Guidance.....	4.11-7
Table 4.11-3: Hourly L _{eq} and Maximum Noise Levels for Placer County	4.11-8
Table 4.11-4: Town of Truckee Noise Level Standard by Receiving Land Use	4.11-8
Table 4.11-5: Noise Monitoring Results.....	4.11-10
Table 4.11-6: Operational Noise Significance Thresholds	4.11-15
Table 4.11-7: Vibration Thresholds of Significance.....	4.11-16
Table 4.11-8: Noise Levels Generated by Typical Construction Equipment	4.11-17
Table 4.12-1: Project Area Population Totals and Trends.....	4.12-2
Table 4.12-2: Project Area Total Housing Units and Vacancy Rate	4.12-3
Table 4.12-3: Project Area Employment Figures and Unemployment Range	4.12-4
Table 4.13-1: Placer County Fire Departments	4.13-3
Table 4.13-2: Nevada County Fire Departments	4.13-4
Table 4.14-1: Recreational Areas in the Vicinity	4.14-6
Table 4.15-1: Freeways Spanned.....	4.15-4
Table 4.15-2: Roadways Spanned.....	4.15-5
Table 4.17-1: Planned and Proposed Projects Within 5 Miles	4.17-3
Table 5-1: Alternatives Considered	5-3
Table 5-2: Transmission Corridor Alternative Constraints Comparison.....	5-20

LIST OF ATTACHMENTS

- Attachment 3-A: Detailed Route Maps
- Attachment 3-B: Transmission Pole Summary
- Attachment 3-C: Transmission Pole Typical Drawings
- Attachment 3-D: Substation Plot Plans and Elevation Drawings
- Attachment 3-E: Electric and Magnetic Fields
- Attachment 4.1-A: Photographs of the Project Area in Winter Conditions
- Attachment 4.1-B: Briefing Memo – Visual Simulation Viewpoints
- Attachment 4.1-C: Visual Simulation in Winter Conditions – Mount Watson Road (VP 14)
- Attachment 4.3-A: Air Quality Calculations
- Attachment 4.3-B: Carbon On Line Estimator Report
- Attachment 4.4-A: Biological Resources Technical Report
- Attachment 4.4-B: Interim Protocol-Level Survey Reports
- Attachment 4.5-A: Cultural Resources Technical Report—CONFIDENTIAL
- Attachment 4.9-A: Policies Consistency Analysis