

# Contents

<b>1. Mitigated Negative Declaration</b>	1-1
1.1 Project Objectives	1-1
1.2 Introduction	1-2
1.3 Project Description	1-3
1.4 Initial Study	1-4
1.5 Applicant Proposed Measures and Mitigation Measures	1-4
<b>2. Environmental Determination</b>	2-1
2.1 Environmental Factors Potentially Affected	2-1
2.2 Environmental Determination	2-1
<b>3. Introduction to the Initial Study</b>	3-1
3.1 Proposed Project Overview	3-1
3.2 Environmental Analysis	3-2
3.2.1 CEQA Process	3-2
3.2.2 CEQA Lead Agency/Scope of CEQA Review	3-3
3.2.3 Initial Study	3-4
<b>4. Project Description</b>	4-1
4.1 Project Information	4-1
4.1.1 Project Title	4-1
4.1.2 Lead Agency Name and Address	4-1
4.1.3 Lead Agency Contact Person and Phone Number	4-1
4.1.4 Project Location	4-1
4.1.5 Project Sponsor’s Name and Address	4-1
4.1.6 General Plan Designation	4-1
4.1.7 Zoning	4-2
4.1.8 Description of Project	4-2
4.1.9 Surrounding Land Uses and Setting	4-3
4.1.10 Permits and Approvals Required	4-3
4.1.11 California Native American Tribal Consultation	4-6
4.2 Project Capacity and Objectives	4-7
4.2.1 Project Capacity	4-7
4.2.2 Project Objectives	4-7
4.3 Project Location	4-8
4.4 Project Components – Overview	4-10
4.5 Project Components by System	4-12
4.5.1 Line-Related Work	4-13
4.5.2 Poles/Towers	4-15
4.5.3 Conductor/Cable	4-18
4.5.4 Mid-Line Series Capacitors	4-20
4.5.5 Modification to Existing Substations	4-23
4.5.6 Cathodic Protection of Natural Gas Transmission Pipelines	4-27
4.6 Right-of-Way Requirements	4-27
4.7 Construction	4-29
4.7.1 For All Project Components	4-29
4.7.2 Transmission Line Construction (Above Ground)	4-35
4.7.3 Below Ground Construction Related to Transmission Line ROW	4-43

4.7.4	Mid-Line Series Capacitor Construction.....	4-45
4.7.5	Fiber Optic Repeater Construction.....	4-46
4.7.6	Modifications at Other Facilities.....	4-47
4.7.7	Land Disturbance Summary.....	4-47
4.7.8	Construction Equipment and Workforce.....	4-48
4.7.9	Construction Schedule.....	4-52
4.8	Operation and Maintenance.....	4-53
4.8.1	Proposed Mid-Line Series Capacitors.....	4-53
4.8.2	Existing Substations.....	4-53
4.8.3	Transmission, Subtransmission, and Distribution Lines.....	4-54
4.8.4	Telecommunications Facilities.....	4-55
4.9	Applicant-Proposed Measures and Standard Practices.....	4-56
	Environmental Surveys.....	4-56
	Worker Environmental Awareness Training.....	4-61
	Traffic Control.....	4-62
4.10	Electric and Magnetic Fields.....	4-62
4.11	References.....	4-65
	Attachment 4.A – Discrepancy Work Areas	
	Attachment 4.B – Tower Modifications Associated with Optical Ground Wire Installation	
	Attachment 4.C – Construction Equipment and Workforce Estimates	
<b>5.</b>	<b>Environmental Analysis.....</b>	<b>5-1</b>
	Introduction.....	5-1
	Format of Environmental Resource Sections.....	5-1
5.1	Aesthetics.....	5-3
5.1.1	Environmental Setting.....	5-3
5.1.2	Regulatory Background.....	5-9
5.1.3	Applicant Proposed Measures.....	5-13
5.1.4	CEQA Significance Criteria.....	5-13
5.1.5	Methodology.....	5-13
5.1.6	Project Impacts and Mitigation Measures.....	5-22
5.1.7	References.....	5-30
	Attachment 5.1A – Characterization Photographs	
	Attachment 5.1B – BLM Visual Contrast Rating Worksheets	
	Attachment 5.1C – Visual Simulations	
5.2	Agriculture and Forestry Resources.....	5-31
5.2.1	Environmental Setting.....	5-31
5.2.2	Regulatory Background.....	5-33
5.2.3	Applicant Proposed Measures.....	5-34
5.2.4	CEQA Significance Criteria.....	5-34
5.2.5	Methodology.....	5-35
5.2.6	Project Impacts and Mitigation Measures.....	5-35
5.2.7	References.....	5-38
5.3	Air Quality.....	5-39
5.3.1	Environmental Setting.....	5-39
5.3.2	Regulatory Background.....	5-42
5.3.3	Applicant Proposed Measures.....	5-44
5.3.4	CEQA Significance Criteria.....	5-45
5.3.5	Methodology.....	5-46

5.3.6	Project Impacts and Mitigation Measures .....	5-47
5.3.7	References .....	5-53
5.4	Biological Resources .....	5-55
5.4.1	Environmental Setting .....	5-55
5.4.2	Regulatory Background .....	5-64
5.4.3	Applicant Proposed Measures .....	5-69
5.4.4	CEQA Significance Criteria .....	5-72
5.4.5	Methodology .....	5-73
5.4.6	Project Impacts and Mitigation Measures .....	5-75
5.4.7	References .....	5-114
5.5	Cultural Resources .....	5-117
5.5.1	Environmental Setting .....	5-117
5.5.2	Regulatory Background .....	5-120
5.5.3	Applicant Proposed Measures .....	5-125
5.5.4	CEQA Significance Criteria .....	5-126
5.5.5	Methodology .....	5-126
5.5.6	Project Impacts and Mitigation Measures .....	5-134
5.5.7	References .....	5-141
5.6	Energy .....	5-143
5.6.1	Environmental Setting .....	5-143
5.6.2	Regulatory Background .....	5-144
5.6.3	Applicant Proposed Measures .....	5-146
5.6.4	CEQA Significance Criteria .....	5-146
5.6.5	Methodology .....	5-146
5.6.6	Project Impacts and Mitigation Measures .....	5-147
5.6.7	References .....	5-149
5.7	Geology and Soils .....	5-151
5.7.1	Environmental Setting .....	5-151
5.7.2	Regulatory Background .....	5-167
5.7.3	Applicant Proposed Measures .....	5-172
5.7.4	CEQA Significance Criteria .....	5-173
5.7.5	Methodology .....	5-173
5.7.6	Project Impacts and Mitigation Measures .....	5-175
5.7.7	References .....	5-184
5.8	Greenhouse Gas Emissions .....	5-187
5.8.1	Environmental Setting .....	5-187
5.8.2	Regulatory Background .....	5-188
5.8.3	Applicant Proposed Measures .....	5-190
5.8.4	CEQA Significance Criteria .....	5-190
5.8.5	Methodology .....	5-190
5.8.6	Project Impacts and Mitigation Measures .....	5-191
5.8.7	References .....	5-193
5.9	Hazards and Hazardous Materials .....	5-195
5.9.1	Environmental Setting .....	5-195
5.9.2	Regulatory Background .....	5-202
5.9.3	Applicant Proposed Measures .....	5-207
5.9.4	CEQA Significance Criteria .....	5-207
5.9.5	Methodology .....	5-208

5.9.6	Project Impacts and Mitigation Measures .....	5-208
5.9.7	References .....	5-215
5.10	Hydrology and Water Quality .....	5-217
5.10.1	Environmental Setting .....	5-217
5.10.2	Regulatory Background .....	5-220
5.10.3	Applicant Proposed Measures .....	5-224
5.10.4	CEQA Significance Criteria .....	5-224
5.10.5	Methodology .....	5-224
5.10.6	Project Impacts and Mitigation Measures .....	5-225
5.10.7	References .....	5-231
5.11	Land Use and Planning .....	5-233
5.11.1	Environmental Setting .....	5-233
5.11.2	Regulatory Background .....	5-238
5.11.3	Applicant Proposed Measures .....	5-241
5.11.4	CEQA Significance Criteria .....	5-241
5.11.5	Methodology .....	5-241
5.11.6	Project Impacts and Mitigation Measures .....	5-241
5.11.7	References .....	5-245
5.12	Mineral Resources .....	5-247
5.12.1	Environmental Setting .....	5-247
5.12.2	Regulatory Background .....	5-252
5.12.3	Applicant Proposed Measures .....	5-253
5.12.4	CEQA Significance Criteria .....	5-253
5.12.5	Methodology .....	5-254
5.12.6	Project Impacts and Mitigation Measures .....	5-254
5.12.7	References .....	5-255
5.13	Noise .....	5-257
5.13.1	Environmental Setting .....	5-257
5.13.2	Regulatory Background .....	5-260
5.13.3	Applicant Proposed Measures .....	5-262
5.13.4	CEQA Significance Criteria .....	5-262
5.13.5	Methodology .....	5-263
5.13.6	Project Impacts and Mitigation Measures .....	5-264
5.13.7	References .....	5-270
5.14	Population and Housing .....	5-273
5.14.1	Environmental Setting .....	5-273
5.14.2	Regulatory Background .....	5-275
5.14.3	Applicant Proposed Measures .....	5-275
5.14.4	CEQA Significance Criteria .....	5-276
5.14.5	Methodology .....	5-276
5.14.6	Project Impacts and Mitigation Measures .....	5-276
5.14.7	References .....	5-278
5.15	Public Services .....	5-281
5.15.1	Environmental Setting .....	5-281
5.15.2	Regulatory Background .....	5-286
5.15.3	Applicant Proposed Measures .....	5-288
5.15.4	CEQA Significance Criteria .....	5-288
5.15.5	Methodology .....	5-289

5.15.6	Project Impacts and Mitigation Measures .....	5-289
5.15.7	References .....	5-292
5.16	Recreation.....	5-297
5.16.1	Environmental Setting .....	5-297
5.16.2	Regulatory Background.....	5-302
5.16.3	Applicant Proposed Measures .....	5-304
5.16.4	CEQA Significance Criteria .....	5-304
5.16.5	Methodology.....	5-305
5.16.6	Project Impacts and Mitigation Measures .....	5-305
5.16.7	References.....	5-306
5.17	Transportation .....	5-307
5.17.1	Environmental Setting .....	5-307
5.17.2	Regulatory Background.....	5-314
5.17.3	Applicant Proposed Measures .....	5-317
5.17.4	CEQA Significance Criteria .....	5-317
5.17.5	Methodology.....	5-317
5.17.6	Project Impacts and Mitigation Measures .....	5-318
5.17.7	References.....	5-325
5.18	Tribal Cultural Resources.....	5-327
5.18.1	Environmental Setting .....	5-327
5.18.2	Regulatory Background.....	5-334
5.18.3	Applicant Proposed Measures .....	5-335
5.18.4	CEQA Significance Criteria .....	5-336
5.18.5	Methodology.....	5-336
5.18.6	Project Impacts and Mitigation Measures .....	5-336
5.18.3	References.....	5-344
5.19	Utilities and Service Systems.....	5-345
5.19.1	Environmental Setting .....	5-345
5.19.2	Regulatory Background.....	5-347
5.19.3	Applicant Proposed Measures .....	5-348
5.19.4	CEQA Significance Criteria .....	5-348
5.19.5	Methodology.....	5-349
5.19.6	Project Impacts and Mitigation Measures .....	5-349
5.19.7	References.....	5-356
5.20	Wildfire.....	5-357
5.20.1	Environmental Setting .....	5-357
5.20.2	Regulatory Background.....	5-358
5.20.3	Applicant Proposed Measures .....	5-359
5.20.4	CEQA Significance Criteria .....	5-359
5.20.5	Methodology.....	5-360
5.20.6	Project Impacts and Mitigation Measures .....	5-360
5.20.7	References.....	5-363
5.21	Mandatory Findings of Significance.....	5-365
	Approach to Cumulative Impact Analysis .....	5-366
<b>6.</b>	<b>Mitigation Monitoring Plan .....</b>	<b>6-1</b>
6.1	Minor Project Refinements .....	6-1
6.2	Dispute Resolution.....	6-2
<b>7.</b>	<b>Response to Comments (reserved for Final MND/IS)</b>	

## Tables

Table 4-1	Permits and Approvals that May Be Required for the Project.....	4-4
Table 4-2	Typical Transmission Structure Dimensions.....	4-16
Table 4-3	Typical Subtransmission Structure Dimensions.....	4-18
Table 4-4	Typical Distribution Structure Dimensions.....	4-18
Table 4-5	Underground Structure Dimensions.....	4-20
Table 4-6	Mid-Line Series Capacitor Cut and Fill Grading Summary.....	4-22
Table 4-7	Mohave Substation Cut and Fill Grading Summary.....	4-25
Table 4-8	Potential Staging Yard Locations.....	4-29
Table 4-9	Typical Laydown/Work Area Dimensions.....	4-31
Table 4-10	Transmission, Subtransmission, and Distribution Approximate Land Disturbance.....	4-40
Table 4-11	Mid-Line Series Capacitor Ground Surface Improvement Materials.....	4-45
Table 4-12	Mid-Line Series Capacitor Estimated Land Disturbance.....	4-45
Table 4-13	Fiber Optic Repeater Ground Surface Improvement Materials.....	4-46
Table 4-14	Fiber Optic Repeater Estimated Land Disturbance.....	4-47
Table 4-15	Proposed Project Estimated Land Disturbance.....	4-49
Table 4-16	Construction Equipment Description.....	4-51
Table 4-17	Proposed Construction Schedule.....	4-52
Table 4-18	Applicant-Proposed Measures.....	4-56
Table 5.1-1	Jurisdictions Crossed by the ELM Project.....	5-14
Table 5.1-2	Visual Resource Management (VRM) Scenic Quality Rating.....	5-15
Table 5.1-3	Amount of Use Classifications.....	5-16
Table 5.1-4	Distance Zones.....	5-16
Table 5.1-5	Visual Resource Management (VRM) Classification Matrix.....	5-17
Table 5.3-1	National and California Ambient Air Quality Standards.....	5-40
Table 5.3-2	Attainment Status for Mojave Desert Air Basin, San Bernardino County.....	5-40
Table 5.3-3	Ambient Air Quality Data for the Project Area.....	5-41
Table 5.3-4	MDAQMD Significant Emissions Thresholds.....	5-46
Table 5.3-5	Federal General Conformity Rule De Minimis Emissions Thresholds.....	5-46
Table 5.3-6	Overall Proposed Project Construction Emissions, without APMs or Mitigation.....	5-48
Table 5.3-7	Overall Proposed Project Construction Emissions, with APMs and Mitigation.....	5-48
Table 5.3-8	Annual Construction Emissions by State, with APMs and Mitigation.....	5-49
Table 5.3-9	Operation Emissions, Standby Generators.....	5-50
Table 5.4-1	Sensitive Natural Communities.....	5-57
Table 5.4-2	Estimated Acres of Ground Disturbance.....	5-76
Table 5.4-3	Jurisdictional Hydrologic Features to Be Impacted by the Proposed Project.....	5-111
Table 5.5-1	Eligible Resources in California Potentially Subject to Direct Impacts from the Proposed Project.....	5-130
Table 5.5-2	Eligible Resources in Nevada Potentially Subject to Direct Impacts from the Proposed Project.....	5-133
Table 5.6-1	Energy Sources of Electricity Supplied to Customers (Power Content).....	5-143
Table 5.6-2	Electricity Consumption for Load Served by SCE and LADWP.....	5-144
Table 5.7-1	Geologic Units Underlying Proposed Project Components and Work Areas.....	5-152
Table 5.7-2	Soils in the Proposed Project Area.....	5-154
Table 5.7-3	Significant Active and Potentially Active Faults in the Vicinity of the Proposed Project.....	5-160
Table 5.7-4	High or Undetermined Paleontological Sensitivity for Mapped Units within the Project Area.....	5-165

Table 5.8-1	Proposed Project GHG Emissions .....	5-192
Table 5.9-1	Typical Hazardous Materials Used for Construction.....	5-196
Table 5.9-2	Hazardous Material Sites Within 1 Mile of the Proposed Project.....	5-197
Table 5.9-3	FUDS Sites in the Vicinity of the Proposed Project.....	5-199
Table 5.10-1	Groundwater Basins Crossed by the ELM Project.....	5-219
Table 5.10-2	Groundwater Quality.....	5-220
Table 5.11-1	Land Use Designations Crossed by the Proposed Project.....	5-233
Table 5.11-2	Zoning Designations Crossed by the Proposed Project.....	5-234
Table 5.12-1	Mineral Resource Producers, Past Producers, and Prospects within 1 Mile of the Proposed Project .....	5-248
Table 5.13-1	Typical Sound Levels Measured in the Environment and Industry .....	5-259
Table 5.13-2	Existing Ambient Noise Levels.....	5-259
Table 5.13-3	Typical Noise Levels for Individual Construction Equipment.....	5-265
Table 5.14-1	Population, Housing, and Employment 2017 .....	5-273
Table 5.14-2	Population Estimates, Projections, and Average Annual Growth Rates .....	5-274
Table 5.16-1	Recreational Areas within 1 Mile of the Proposed Project.....	5-297
Table 5.17-1	Intersection Level of Service Definitions .....	5-308
Table 5.17-2	Roadway Network in the Vicinity of the Proposed Project .....	5-308
Table 5.17-3	Level of Service at Traffic Study Intersections during Proposed Project Construction.....	5-311
Table 5.21-1	Cumulative Projects within 5 Miles of the Proposed Project .....	5-367
Table 6-1	Mitigation Monitoring Program.....	6-2

## Figures

Figure 4-1	Proposed Project Regional Overview Map .....	4-67
Figure 4-2	Project Overview Map Series – Sheet 1 of 12.....	4-69
Figure 4-2	Project Overview Map Series – Sheet 2 of 12.....	4-71
Figure 4-2	Project Overview Map Series – Sheet 3 of 12.....	4-73
Figure 4-2	Project Overview Map Series – Sheet 4 of 12.....	4-75
Figure 4-2	Project Overview Map Series – Sheet 5 of 12.....	4-77
Figure 4-2	Project Overview Map Series – Sheet 6 of 12.....	4-79
Figure 4-2	Project Overview Map Series – Sheet 7 of 12.....	4-81
Figure 4-2	Project Overview Map Series – Sheet 8 of 12.....	4-83
Figure 4-2	Project Overview Map Series – Sheet 9 of 12.....	4-85
Figure 4-2	Project Overview Map Series – Sheet 10 of 12 .....	4-87
Figure 4-2	Project Overview Map Series – Sheet 11 of 12 .....	4-89
Figure 4-2	Project Overview Map Series – Sheet 12 of 12 .....	4-91
Figure 4-3	Ludlow Mid-line Series Capacitor Detail.....	4-93
Figure 4-4	Newberry Springs Series Capacitor Detail.....	4-95
Figure 4-5	Ludlow-Newberry Springs Distribution/Telecom Detail .....	4-97
Figure 4-6	Barstow Repeater Detail.....	4-99
Figure 4-7	Kelbaker Repeater Detail.....	4-101
Figure 4-8	Lanfair Repeater Detail .....	4-103
Figure 4-9	Underground Telecom Line Detail.....	4-105
Figure 4-10	Lugo Substation Detail.....	4-107
Figure 4-11	Mohave Substation Detail .....	4-109
Figure 4-12	Eldorado Substation Detail .....	4-111
Figure 4-13	Typical Site Plan for the Fiber Optic Repeater Sites .....	4-113

Figure 4-14	Typical Elevation for the Fiber Optic Repeater Sites.....	4-114
Figure 4-15	Typical Single-circuit 500 kV Dead-End Tower.....	4-115
Figure 4-16	Typical Single-circuit 500 kV Suspension Tower.....	4-116
Figure 4-17	Typical Tubular Steel Pole.....	4-117
Figure 4-18	Use of a Body Extension to Raise a Tower.....	4-118
Figure 4-19	Use of Ground Wire Peak and Body Modifications to Support OPGW Installation.....	4-119
Figure 4-20	Typical Subtransmission Structures.....	4-120
Figure 4-21	Typical Telecommunications Duct Bank.....	4-121
Figure 4-22	Typical Manhole.....	4-122
Figure 4-23	Typical Mid-Line Series Capacitor Layout.....	4-123
Figure 4-24	Typical Mid-Line Series Capacitor Profile.....	4-124
Figure 5.7-1	Geological Formations in the Proposed Project Area.....	5-186
Figure 5.15-1	Public Services within the Vicinity of the Proposed Project.....	5-295
Figure 5.21-1	Cumulative Projects within 5 Miles of the Proposed Project – Map 1 of 8.....	5-389
Figure 5.21-1	Cumulative Projects within 5 Miles of the Proposed Project – Map 2 of 8.....	5-391
Figure 5.21-1	Cumulative Projects within 5 Miles of the Proposed Project – Map 3 of 8.....	5-393
Figure 5.21-1	Cumulative Projects within 5 Miles of the Proposed Project – Map 4 of 8.....	5-395
Figure 5.21-1	Cumulative Projects within 5 Miles of the Proposed Project – Map 5 of 8.....	5-397
Figure 5.21-1	Cumulative Projects within 5 Miles of the Proposed Project – Map 6 of 8.....	5-399
Figure 5.21-1	Cumulative Projects within 5 Miles of the Proposed Project – Map 7 of 8.....	5-401
Figure 5.21-1	Cumulative Projects within 5 Miles of the Proposed Project – Map 8 of 8.....	5-403

## Appendices

Appendix A	List of Preparers
Appendix B	Native American Consultation
Appendix C	Air Quality-Greenhouse Gas Emissions Data
Appendix D	California Local Regulations