



2014 ELECTRIC SYSTEM MASTER PLAN

Prepared For:

**Truckee Donner Public Utility District
11570 Donner Pass Road
Truckee, California 96160**

Prepared By:

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ENGINEER'S CERTIFICATION
2014 Electric System Master Plan
Truckee Donner Public Utility District
11570 Donner Pass Road
Truckee, California 96160

Upon completion of construction of the facilities proposed herein, the system will provide adequate and dependable service to approximately 13,200 customers and 47 MW of non-coincidental load, as projected in the analysis.

The recommended system improvements included in this report are in general agreement with the Truckee Donner Public Utility District Planning Criteria.

I certify that this report was prepared by me or under my direct supervision and that I am a duly registered Professional Engineer.


Name Richard L. McComish, P.E.

November 2014
Date

18850
Reg. No.



1.0	OVERVIEW & PURPOSE.....	1-1
1.1	Overview.....	1-1
1.2	Purpose.....	1-1
2.0	EXECUTIVE SUMMARY	2-1
2.1	Existing System Performance	2-1
2.2	Recommended System.....	2-4
2.3	Contingency Analysis	2-5
2.4	Cost Summary.....	2-5
2.5	Project Prioritization	2-6
3.0	SYSTEM PLANNING CRITERIA	3-1
3.1	Electrical System Performance Criteria.....	3-1
a.	Distribution System Voltage Level.....	3-1
3.2	Voltage Regulation	3-2
3.3	Phase Balancing	3-3
3.4	Capacity and Loading	3-5
a.	Load Periods	3-5
b.	Equipment Loading.....	3-5
c.	Conductor.....	3-6
3.5	Power Factor & Losses	3-8
3.6	Contingency System Conditions.....	3-8
3.7	Mechanical Condition and Reliability Criteria	3-8
4.0	PROTECTION PHILOSOPHY	4-1
4.1	Basic Principles of System Coordination	4-1
4.2	Sectionalizers	4-1
4.3	Fuses	4-2
4.4	Electronic Recloser Applications.....	4-3
4.5	Safety Considerations	4-3
4.6	Guide to Performed Calculations.....	4-4
5.0	HISTORICAL DATA & LOAD FORECAST	5-1
5.1	Description of Service Area.....	5-1
5.2	Power Supply.....	5-1
a.	Energy Efficiency and Conservation	5-1
5.3	Transmission.....	5-1
5.4	Connection Statistics & Growth Patterns	5-1
a.	Residential.....	5-2
b.	Commercial (< 50 kW).....	5-2
c.	Commercial (> 50 kW and < 200 kW).....	5-2
d.	Commercial (> 200 kW).....	5-2
e.	Public Authority.....	5-3
f.	Water Pump	5-3
g.	The District Use	5-3
5.5	Line Statistics.....	5-12
5.6	Historical Demand and Growth Patterns	5-13
5.7	System Load Factor	5-14

5.8	System kWh Line Losses	5-14
5.9	Reliability of Electric Service	5-15
5.10	Annual System Demand	5-15
5.11	Status of Previous Master Plan Items	5-16
6.0	CONSTRUCTION RECOMMENDATIONS	6-1
a.	Loading and Capacity	6-1
b.	Mechanical Condition of Plant	6-1
c.	System Analysis	6-1
d.	Contingency System Planning	6-1
e.	Sectionalizing Recommendations	6-1
	Tables 6-2	
6.1	DONNER LAKE SERVICE AREA	6-4
6.2	GLENSHIRE SERVICE AREA	6-9
6.3	MARTIS VALLEY SERVICE AREA	6-11
6.4	TAHOE DONNER SERVICE AREA	6-15
6.5	TRUCKEE SERVICE AREA	6-20
6.6	SYSTEM WIDE IMPROVEMENTS	6-26

APPENDICES

Costs

Maps

1.0 OVERVIEW & PURPOSE

1.1 Overview

This report contains an analysis of the present system and the 2014 Electric System Master Plan for Truckee Donner Public Utility District ("the District"). The Executive Summary, Section 2, contains the required information for the District's management to include in long-range financial forecasts and a summary of the recommended plan. The Planning and Sectionalizing Criteria is described in Sections 3 and 4 respectively, while Section 5 provides a review of historical trends and load forecasts. Section 4 includes the philosophy used by the Engineer to provide proper coordination between the protective devices in the District's system. Section 5 of this report examines performance of the existing distribution system for voltage drop, voltage and current imbalance, line loading, equipment capacity, power factor and losses with present peak, projected 5 and 15 year peak conditions.

1.2 Purpose

The most obvious purpose of this report is to provide Truckee Donner Public Utility District with an orderly plan for carrying out construction, protective coordination and other needed improvements. Complementary to this purpose is the study's goal of planning and completing improvements in the most economic manner possible.

A second major purpose of this report is to provide the most up-to-date forecast possible of financial requirements for the next 15 years. These cost estimates provide the utility with the data necessary for completion of their annual business work plans and budgets and serve as a basis for long-term financial forecasts.

Service reliability and quality of service are the very essence of operational goals in any electric utility. The function of system planning is to evaluate the existing and projected system configuration, voltage levels and load balance in a manner that endeavors to increase the quality of service. In a continuing effort and in order to serve its intended purpose, planning must change dynamically as governing conditions change. This plan provides the Owners' and Engineers' current philosophy on those specific improvements which will best meet the present needs of the system.

In addition to the Master Plan construction recommendations, a detailed sectionalizing study was completed to provide the best possible protection for the utility and consumers. This evaluation of the system takes into consideration the following items:

- Increased fault levels due to system improvements
- Loading of equipment
- Reliability

Taking into account each of the above items, the system was evaluated to ensure that all devices met maximum interrupt rating, while not exceeding their continuous current ratings, and that devices would pick up minimum fault currents based on a 40 ohm ground resistance. Proper coordination between devices was also evaluated in an attempt

to eliminate simultaneous operation. As a result of this evaluation, the sectionalizing study provides recommendations which will enable the District to provide a high level of reliability to its customers.