



FILED

07/25/18
04:59 PM

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Development of Distribution Resources Plans Pursuant to Public Utilities Code Section 769.	Rulemaking 14-08-013 (Filed August 14, 2014)
And Related Matters.	Application 15-07-002 Application 15-07-003 Application 15-07-006
(NOT CONSOLIDATED)	
In the Matter of the Application of PacifiCorp (U 901-E) Setting Forth its Distribution Resource Plan Pursuant to Public Utilities Code Section 769.	Application 15-07-005 (Filed July 1, 2015)
And Related Matters.	Application 15-07-007 Application 15-07-008

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E)
AMENDED 2018 GRID NEEDS ASSESSMENT REPORT

MATTHEW W. DWYER
Attorney for
SOUTHERN CALIFORNIA EDISON COMPANY
2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-6521
Facsimile: (626) 302-1910
E-mail: Matthew.Dwyer@sce.com

Dated: July 25, 2018

Pursuant to Ordering Paragraph 2.j of Decision (D.)18-02-004, Southern California Edison Company ("SCE") respectfully files this Amended 2018 Grids Needs Assessment. The Amended 2018 Grid Needs Assessment is attached.

MATTHEW W. DWYER

/s/ Matthew W. Dwyer
By: Matthew W. Dwyer
Senior Attorney for
SOUTHERN CALIFORNIA EDISON
COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-6521
Facsimile: (626) 302-1910
E-mail: Matthew.Dwyer@sce.com

Dated: July 25, 2018

APPENDIX A

AMENDED 2018 GRID NEEDS ASSESSMENT REPORT



GRID NEEDS ASSESSMENT

Southern California Edison's Amended 2018 Grid Needs Assessment

Executive Summary of the Amended 2018 Grid Needs Assessment (GNA) Report in compliance
with Ordering Paragraph (OP) 2d of Decision (D.)18-02-004 (Decision).

Southern California Edison
July 17, 2018

Table of Contents

1. Purpose and Executive Summary.....	2
2. Issues Affecting Grid Needs	2
2.1. Historical Peak Demand Review	2
2.2. Software Logic to Remove Planned Transfers	2
2.3. False Positive Duct Bank Needs	3
2.4. Infrastructure Replacement Driven 4 kV Elimination	3
3. Issues Affecting Circuit-level Planning Assumptions	3
3.1. Circuit Name/Voltage.....	3
3.2. Incremental Load Growth	3
4. Changes to Data Redaction.....	4
5. Overall Changes to the Amended GNA.....	4

1. Purpose and Executive Summary

Consistent with Ordering Paragraphs No. 2d and 2j, Southern California Edison Company (SCE) hereby submits its Amended 2018 Grid Needs Assessment Report (“Amended GNA”) and Amended 2018 Circuit-level Planning Assumptions. This cover letter provides a summary of the changes reflected in the Amended GNA and Amended 2018 Circuit-level Planning Assumptions.

On June 1, 2018, SCE filed its initial 2018 GNA Report in compliance with Ordering Paragraph (OP) 2d of Decision (D.)18-02-004 (Decision). Subsequent to the June 1, 2018 GNA filing, SCE identified a software error in its distribution planning tool that impacted the accuracy of a portion of SCE’s 2018 GNA. On June 19, 2018, SCE sent an email to the official service lists for Rulemaking (R.)14-08-013 and Application (A.)15-07-005 to notify the Commission and parties of this issue and of SCE’s intent to file an amended GNA once SCE had corrected the error. Subsequent to that email, SCE identified an additional three errors that impacted grid needs and two errors that impacted circuit-level planning assumptions. SCE expeditiously worked to fix these issues and re-run its GNA with updated, corrected data and now files its Amended GNA.

In addition, as stated in the *Motion of Southern California Edison Company (U 338-E) for Confidential Treatment and Redaction of Distribution System Planning Data Ordered by Decisions D.17-09-026 and D.18-02-004* (“SCE’s Confidential Treatment Motion”), filed June 15, 2018, SCE is no longer proposing to redact the following categories of information in its 2018 GNA: “Existing facility/equipment rating;” and “Forecasted percentage deficiency above the existing facility/equipment rating over five years.” Accordingly, this Amended 2018 GNA has removed the redactions.

2. Issues Affecting Grid Needs

This section provides an overview of four distinct issues that SCE identified that impacted the accuracy of the grid needs identified in the 2018 GNA. All of the identified issues are related to correcting errors in the implementation of methodology in software, as opposed to errors in the methodology itself. SCE has successfully implemented fixes to address these issues, and the revised needs are reflected in the amended 2018 GNA.

2.1. Historical Peak Demand Review

When an Engineer evaluates historical recorded demand during the summer season and selects the peak demand used as a starting point for the load forecast, SCE’s distribution planning tool is designed to automatically reference the peak demand that the engineer selected for use in all distribution planning studies.

Due to a software error, SCE’s planning tool inadvertently defaulted a subset of the system to the prior year’s forecast as a starting point for distribution planning studies rather than the peak demand selected by the engineer. SCE has corrected this error.

2.2. Software Logic to Remove Planned Transfers

SCE’s GNA is intended to display the needs of the distribution system that require a planned investment. Typical planned investments consist of a combination of infrastructure (re-conductor, new line, etc.) and planned transfers. In SCE’s planning tool, engineers document planned transfers along with the details of the planned investment, linking the two together in the software. In order to quantify the needs of the system prior to any planned investments being in service, SCE must remove the impact of the modeled

projects and their associated planned transfers. To do so, SCE created and implemented updates to software logic within its distribution planning tool to remove all planned transfers associated with or enabled by a planned project.

SCE identified an error in the implementation of the logic created to remove planned transfers modeled in its planning tool. This error resulted in the initial GNA reporting grid needs that have already been addressed by completed projects. The identified error caused the software logic to remove transfers associated with projects that have already been completed and in service. As a result, the software logic was corrected to retain planned transfers if associated with a completed project.

2.3. False Positive Duct Bank Needs

In compiling its initial GNA, SCE implemented software logic to query planning databases to retrieve underground duct bank models (number of conduits, size of conduits, circuits present in conduit) and model the thermal conditions under forecasted load. SCE identified that the logic implemented was querying duct bank models from previous planning cycles in an attempt to report the worst case scenario. As a result, the initial GNA included duct bank needs that have been addressed by a project in previous planning cycles. This has been corrected.

2.4. Infrastructure Replacement Driven 4 kV Elimination

SCE's June 1, 2018 GNA inadvertently included needs associated with 4 kV substation and circuit elimination that do not fall within the grid need categories established by D.18-02-004.¹ 4 kV elimination projects are driven by infrastructure that is approaching the end of its expected lifespan, which is not one of the four distribution services adopted by D.16-12-036: Distribution Capacity, Voltage Support, Reliability (Back-Tie), Resiliency (Microgrid). As a result, SCE has excluded grid needs related to 4 kV circuits and substations being eliminated due to aging infrastructure from the Amended 2018 GNA.

3. Issues Affecting Circuit-level Planning Assumptions

This section provides an overview of two distinct issues that SCE identified that impact the circuit-level planning assumptions reflected in SCE's June 1, 2018 GNA. SCE has addressed these issues and provides the revised incremental demand and DER growth in its amended 2018 circuit-level planning assumptions. The amended circuit-level planning assumptions reflect changes to two circuits, as compared to the initial 2018 GNA, due to changes to the incremental base demand forecast: Hines, and Keeline. The amended circuit-level planning assumptions also corrected identification of the circuit name and voltage for 2,440 circuits.

3.1. Circuit Name/Voltage

The circuit voltage reflected in the June 1, 2018 circuit-level planning assumptions was incorrectly linked with the circuit name. As an example, some 12 kV circuits were indicated as 4 kV. SCE has corrected the logic to assign the correct voltage to each circuit.

3.2. Incremental Load Growth

Known load growth projects (e.g., customer requests to serve new load) are classified as either "included" in, or "incremental" to the system-level California Energy Commission (CEC) Integrated Energy Policy

¹ See D.18-02-004, at p. 35.

Report (IEPR) forecast. Upon further investigation into a substation located in the Orange County area, SCE recognized that a selection of known load growth projects were incorrectly documented as being included in IEPR in its planning tool. As a result, the capacity requested by these projects was not treated as incremental to the disaggregated IEPR forecast. SCE re-classified these known load growth projects in its planning tool to correct the growth values for two affected circuits.

4. Changes to Data Redaction

As stated in SCE's Confidential Treatment Motion, SCE is no longer proposing to redact the following categories of information in its 2018 GNA: "Existing facility/equipment rating;" and "Forecasted percentage deficiency above the existing facility/equipment rating over five years." Accordingly, this amended 2018 GNA has removed the redactions.

5. Overall Changes to the Amended GNA

SCE has successfully addressed all identified issues affecting the accuracy and completeness of its initial GNA and circuit-level planning assumptions. Table 1 provides a summary of changes.

Table 1: Overall GNA Changes

	Distribution Circuit Capacity	Duct Bank	Substation	Sub-transmission Line	Total
Count of Needs Added	53	103	2	0	158
Count of Needs Unchanged	37	67	16	42	162
Count of Needs Changed	58	164	35	1	258
Count of Needs Removed	17	60	6	0	83

In addition to the changes to the GNA summarized above, the following changes are reflected in the amended circuit-level planning assumptions. Two circuits were impacted by changes to the incremental base demand forecast: Hines, and Keeline. 2,440 circuits were documented with the incorrect voltage. All of these have been corrected in the amended circuit-level planning assumptions.

Substation / Subtransmission Line	Circuit	Element Identifier	Distribution Service Required	Primary Driver of Grid Need	Operating Date	Equipment			Deficiency (%)						Deficiency (MW, °C, V _{min})				
						Element	Rating	Units	2018	2019	2020	2021	2022		2018'	2019'	2020'	2021'	2022'
Alder 66/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	147.1 MW		1.7%	1.9%	1.6%	1.4%	1.4%		2.5	2.8	2.4	2.0	2.0
Athens 16/4.16		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	7.5 MW		1.4%	1.5%	1.8%	2.1%	2.9%		0.1	0.1	0.1	0.2	0.2
Baker 115/12		B-Bank	Capacity	Demand Growth	6/1/2019	Substation	6.2 MW		0.0%	51.2%	51.0%	50.8%	50.7%		0.0	3.2	3.2	3.1	3.1
Barstow 33/12		B-Bank	Capacity	Demand Growth	6/1/2022	Substation	12.2 MW		0.0%	0.0%	0.0%	0.0%	8.6%		0.0	0.0	0.0	0.0	1.1
Bartolo 12/4.16		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	7.7 MW		2.7%	2.5%	2.5%	2.5%	2.5%		0.2	0.2	0.2	0.2	0.2
Bassett 66/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	92.4 MW		3.5%	3.3%	3.4%	3.4%	4.2%		3.2	3.0	3.1	3.2	3.9
Casper P.T. 16/4.16		B-Bank	Capacity	Demand Growth	12/31/2018	Substation	0.1 MW		2.1%	2.6%	2.8%	2.2%	2.9%		0.0	0.0	0.0	0.0	0.0
Colton 66/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	37.2 MW		4.8%	4.3%	4.0%	3.5%	3.1%		1.8	1.6	1.5	1.3	1.2
Crater 66/16		B-Bank	Capacity	Demand Growth	6/1/2021	Substation	36.2 MW		0.0%	0.0%	0.0%	5.4%	5.8%		0.0	0.0	0.0	1.9	2.1
Crestwind U.G.S. 16/4.16		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	1.5 MW		15.1%	15.5%	16.3%	0.0%	0.0%		0.2	0.2	0.2	0.0	0.0
Cummings 66/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	25.0 MW		3.9%	3.6%	3.3%	2.9%	2.6%		1.0	0.9	0.8	0.7	0.6
Davidson City 12/4.16		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	7.7 MW		8.0%	0.0%	0.0%	0.0%	0.0%		0.6	0.0	0.0	0.0	0.0
Deep Springs 55/2.4		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	0.5 MW		29.9%	29.7%	29.4%	29.2%	29.0%		0.1	0.1	0.1	0.1	0.1
Eisenhower 115/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	58.5 MW		1.3%	1.9%	1.9%	1.8%	2.2%		0.8	1.1	1.1	1.1	1.3
Fruitland 66/16		B-Bank	Capacity	Demand Growth	6/1/2021	Substation	43.7 MW		0.0%	0.0%	0.0%	1.5%	2.8%		0.0	0.0	0.0	0.7	1.2
Ganesha 12/4.16		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	7.7 MW		1.5%	1.8%	2.7%	3.5%	5.7%		0.1	0.1	0.2	0.3	0.4
Garnet 115/33		B-Bank	Capacity	Demand Growth	6/1/2019	Substation	136.8 MW		0.0%	6.4%	38.4%	55.1%	61.4%		0.0	8.7	52.6	75.4	83.9
Goshen 66/12		B-Bank	Capacity	Demand Growth	6/1/2019	Substation	30.4 MW		0.0%	3.5%	7.2%	9.7%	14.5%		0.0	1.1	2.2	3.0	4.4
Great Lakes 66/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	10.1 MW		2.1%	2.3%	3.0%	3.6%	25.3%		0.2	0.2	0.3	0.4	2.6
Hathaway 66/12		B-Bank	Capacity	Demand Growth	6/1/2022	Substation	52.1 MW		0.0%	0.0%	0.0%	0.0%	0.8%		0.0	0.0	0.0	0.0	0.4
Imperial 66/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	48.5 MW		0.8%	0.4%	0.1%	0.0%	0.0%		0.4	0.2	0.0	0.0	0.0
Isabella 66/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	18.6 MW		24.9%	24.8%	24.8%	24.7%	0.0%		4.6	4.6	4.6	4.6	0.0
Job P.T. 12/2.4		B-Bank	Capacity	Demand Growth	12/31/2018	Substation	0.7 MW		15.9%	16.1%	16.3%	15.9%	16.3%		0.1	0.1	0.1	0.1	0.1
Kearney P.T. 16/2.4		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	0.4 MW		7.6%	4.8%	1.2%	0.0%	0.0%		0.0	0.0	0.0	0.0	0.0
Lancaster 66/12		B-Bank	Capacity	Demand Growth	6/1/2021	Substation	100.5 MW		0.0%	0.2%	0.0%	11.8%	11.4%		0.0	0.2	0.0	11.8	11.4
Lennox 66/16		B-Bank	Capacity	Demand Growth	6/1/2021	Substation	56.1 MW		0.0%	0.0%	0.0%	8.4%	15.6%		0.0	0.0	0.0	4.7	8.7
Maxwell 115/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	109.6 MW		2.4%	2.4%	2.8%	3.0%	3.8%		2.7	2.6	3.1	3.2	4.1
Merced 66/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	72.2 MW		4.8%	7.8%	8.5%	9.1%	11.0%		3.5	5.6	6.1	6.6	7.9
Narrows 66/12		B-Bank	Capacity	Demand Growth	6/1/2022	Substation	105.3 MW		0.0%	0.0%	0.0%	0.0%	0.6%		0.0	0.0	0.0	0.0	0.6
Ontario 12/4.16		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	11.1 MW		13.9%	13.8%	13.9%	13.8%	14.1%		1.5	1.5	1.5	1.5	1.6
Padua 66/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	145.4 MW		1.6%	1.6%	1.7%	1.7%	2.1%		2.3	2.3	2.5	2.4	3.1
Par P.T. 16/2.4		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	0.2 MW		3.0%	3.2%	3.3%	2.9%	3.1%		0.0	0.0	0.0	0.0	0.0
Pedley 66/12		B-Bank	Capacity	Demand Growth	6/1/2020	Substation	72.8 MW		0.0%	0.0%	0.1%	0.2%	0.9%		0.0	0.0	0.1	0.2	0.7
Perez 33/4.16		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	2.5 MW		8.5%	8.7%	0.0%	0.0%	0.0%		0.2	0.2	0.0	0.0	0.0
Randall 66/12		B-Bank	Capacity	Demand Growth	6/1/2019	Substation	129.9 MW		0.0%	0.9%	1.2%	1.2%	1.9%		0.0	1.2	1.5	1.6	2.5
Rivera 12/4.16		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	15.0 MW		3.3%	3.2%	3.2%	3.1%	3.1%		0.5	0.5	0.5	0.5	0.5
Roadway 115/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	61.1 MW		27.6%	41.5%	95.6%	100.6%	101.1%		16.8	25.4	58.4	61.5	61.8
San Antonio 66/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	124.9 MW		3.9%	3.8%	3.8%	3.7%	4.3%		4.9	4.7	4.7	4.7	5.4
San Dimas 66/12		B-Bank	Capacity	Demand Growth	6/1/2020	Substation	110.2 MW		0.0%	0.0%	0.3%	0.9%	2.9%		0.0	0.0	0.3	0.9	3.2
Santiago 66/12		B-Bank	Capacity	Demand Growth	6/1/2022	Substation	202.0 MW		0.0%	0.0%	0.0%	0.0%	0.2%		0.0	0.0	0.0	0.0	0.5
Sawtelle 66/16		B-Bank	Capacity	Demand Growth	6/1/2019	Substation	28.8 MW		0.0%	28.7%	28.2%	27.5%	0.0%		0.0	8.3	8.1	7.9	0.0
Signal Hill 66/12		B-Bank	Capacity	Demand Growth	6/1/2019	Substation	35.5 MW		0.0%	0.5%	0.1%	0.0%	0.0%		0.0	0.2	0.0	0.0	0.0
Soquel 66/12		B-Bank	Capacity	Demand Growth	6/1/2019	Substation	72.3 MW		0.0%	0.1%	0.2%	0.2%	1.4%		0.0	0.1	0.1	0.1	1.0
Stadium 66/12		B-Bank	Capacity	Demand Growth	6/1/2019	Substation	90.6 MW		0.0%	10.1%	10.2%	10.0%	10.6%		0.0	9.2	9.2	9.0	9.6
Sullivan 66/12		B-Bank	Capacity	Demand Growth	6/1/2019	Substation	71.6 MW		0.0%	2.9%	4.2%	3.7%	3.4%		0.0	2.1	3.0	2.6	2.4
Sun City 115/12		B-Bank	Capacity	Demand Growth	6/1/2022	Substation	72.7 MW		0.0%	0.0%	0.0%	0.0%	5.2%		0.0	0.0	0.0	0.0	3.8
Sunlight P.T. 12/4.16		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	1.0 MW		14.9%	15.0%	15.3%	15.3%	16.2%		0.1	0.1	0.1	0.1	0.2
Terra Bella 66/12		B-Bank	Capacity	Demand Growth	12/31/2018	Substation	20.3 MW		28.7%	40.3%	41.5%	42.9%	42.8%		5.8	8.2	8.4	8.7	8.7
Upland 66/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	88.6 MW		1.6%	3.0%	3.0%	3.0%	3.5%		1.4	2.7	2.7	2.7	3.1
Vera 66/12		B-Bank	Capacity	Demand Growth	6/1/2021	Substation	64.1 MW		0.0%	0.0%	0.0%	9.8%	13.3%		0.0	0.0	0.0	6.3	8.5
Victor 115/33		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	95.8 MW		9.2%	19.3%	19.7%	19.3%	18.8%		8.8	18.5	18.9	18.5	18.0
Walnut 66/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	109.8 MW		3.1%	3.0%	3.0%	2.5%	3.0%		3.4	3.3	3.3	2.7	3.3
Zack 55/12		B-Bank	Capacity	Demand Growth	6/1/2018	Substation	4.7 MW		15.3%	119.6%	123.9%	129.0%	139.6%		0.7	5.6	5.8	6.1	6.6
Aha P.T. 33/12	Aha	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	3.5 MW		0.0%	0.0%	0.8%	1.5%	3.4%		0.0	0.0	0.0	0.1	0.1
Alder 66/12	Augusta	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	12.0 MW		0.0%	3.4%	3.2%	3.0%	3.1%		0.0	0.4	0.4	0.4	0.4
Alessandro 115/33	Hammock	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	28.7 MW		6.2%	6.7%	7.6%	8.7%	11.3%		1.8	1.9	2.2	2.5	3.2
Alhambra 66/16	Tri City	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	16.2 MW		6.2%	6.2%	6.3%	6.2%	6.8%		1.0	1.0	1.0	1.0	1.1

Substation / Subtransmission Line	Circuit	Element Identifier	Distribution Service Required	Primary Driver of Grid Need	Operating Date	Equipment			Deficiency (%)						Deficiency (MW, °C, V _{min})					
						Element	Rating	Units	2018	2019	2020	2021	2022		2018'	2019'	2020'	2021'	2022'	
Archibald 66/12	Danish	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	12.0 MW		0.0%	0.0%	0.0%	3.7%	0.0%		0.0	0.0	0.0	0.4	0.0	
Arroyo 16/4.16	Berkshire	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	2.9 MW		0.0%	1.0%	1.8%	2.6%	4.8%		0.0	0.0	0.1	0.1	0.1	
Athens 16/4.16	Anzac	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.0 MW		21.1%	21.2%	21.6%	22.2%	23.1%		0.4	0.4	0.4	0.4	0.5	
Athens 16/4.16	Plum	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.0 MW		11.6%	11.6%	11.9%	12.1%	12.8%		0.2	0.2	0.2	0.2	0.3	
Auld 115/12	Beeler	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		16.4%	16.3%	16.4%	2.3%	2.5%		2.0	2.0	2.0	0.3	0.3	
Auld 115/12	Thoroughbred	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	12.0 MW		0.0%	0.0%	0.0%	0.0%	1.7%		0.0	0.0	0.0	0.0	0.2	
Auld 115/12	Appalouosa	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	12.0 MW		0.0%	0.0%	0.0%	4.2%	15.1%		0.0	0.0	0.0	0.5	1.8	
Baker 115/12	Inn	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	5.2 MW		0.0%	66.6%	66.5%	66.3%	66.2%		0.0	3.5	3.5	3.5	3.5	
Bartolo 12/4.16	Bexley	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.3 MW		19.5%	19.3%	19.2%	18.8%	18.6%		0.4	0.4	0.4	0.4	0.4	
Bartolo 12/4.16	Durfee	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.3 MW		18.9%	18.7%	18.5%	18.2%	18.0%		0.4	0.4	0.4	0.4	0.4	
Basta 12/4.16	Jaymac	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		3.7%	3.6%	3.9%	3.9%	3.9%		0.1	0.1	0.1	0.1	0.1	
Belvedere 16/4.16	Ditman	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.4 MW		17.7%	17.5%	17.4%	17.2%	17.0%		0.4	0.4	0.4	0.4	0.4	
Blythe City 33/33	Chanslor	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	28.7 MW		11.1%	11.0%	10.9%	10.7%	10.6%		3.2	3.2	3.1	3.1	3.1	
Brewster 16/4.16	Alberta	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.3 MW		8.7%	8.8%	8.9%	9.0%	9.1%		0.2	0.2	0.2	0.2	0.2	
Brewster 16/4.16	Platt	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	1.6 MW		2.5%	2.6%	2.7%	2.7%	2.8%		0.0	0.0	0.0	0.0	0.0	
Bullis 66/4.16	Rayborn	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		7.2%	7.1%	7.2%	7.2%	7.4%		0.2	0.2	0.2	0.2	0.2	
Bullis 66/4.16	Tucker	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.3 MW		23.9%	24.0%	24.2%	24.5%	25.1%		0.5	0.5	0.5	0.6	0.6	
Bunker 115/12	Helicopter	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		3.3%	3.5%	4.1%	4.8%	6.3%		0.4	0.4	0.5	0.6	0.8	
Chase 66/12	Bobbit	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	12.0 MW		0.0%	0.0%	0.0%	9.2%	12.9%		0.0	0.0	0.0	1.1	1.5	
Chase 66/12	California	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	12.0 MW		0.0%	0.0%	0.0%	23.6%	27.5%		0.0	0.0	0.0	2.8	3.3	
Chase 66/12	Wyle	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	12.0 MW		0.0%	0.0%	0.0%	0.3%	5.1%		0.0	0.0	0.0	0.0	0.6	
Clark 66/4.16	Faust	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.0 MW		8.8%	9.1%	9.4%	9.2%	9.9%		0.2	0.2	0.2	0.2	0.2	
Clark 66/4.16	Josie	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		15.7%	15.8%	16.0%	15.9%	16.4%		0.5	0.5	0.5	0.5	0.5	
Clark 66/4.16	Stevley	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		2.7%	2.6%	2.5%	2.3%	2.4%		0.1	0.1	0.1	0.1	0.1	
Coffee 33/12	Cafe	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		5.4%	5.3%	5.3%	5.2%	5.2%		0.6	0.6	0.6	0.6	0.6	
Coffee 33/12	Yuban	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		7.4%	7.1%	6.9%	6.7%	6.6%		0.9	0.8	0.8	0.8	0.8	
Colorado 66/4.16	Chelsea	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.4 MW		0.8%	1.3%	1.9%	2.1%	2.9%		0.0	0.0	0.0	0.0	0.1	
Compton 16/4.16	Crane	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.4 MW		7.0%	7.0%	7.0%	7.0%	7.3%		0.2	0.2	0.2	0.2	0.2	
Concho 115/12	Taberna	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		2.8%	0.0%	0.0%	0.0%	0.0%		0.3	0.0	0.0	0.0	0.0	
Costa Mesa 12/4.16	Cape	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	1.9 MW		1.6%	1.9%	2.3%	1.9%	2.2%		0.0	0.0	0.0	0.0	0.0	
Crestwind U.G.S. 16/4.16	Crestwind	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	1.6 MW		5.0%	5.4%	6.1%	0.0%	0.0%		0.1	0.1	0.1	0.0	0.0	
Cucamonga 66/12	Earnhardt	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		16.9%	16.8%	16.5%	16.0%	15.7%		2.0	2.0	2.0	1.9	1.9	
Cucamonga 66/12	Ruttman	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		13.5%	14.7%	15.4%	16.3%	18.9%		1.6	1.8	1.8	2.0	2.3	
Cummings 66/12	Caliente	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	10.4 MW		21.0%	20.7%	20.4%	20.1%	19.8%		2.2	2.2	2.1	2.1	2.1	
Deep Springs 55/2.4	Sylvania	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	0.5 MW		24.1%	23.9%	23.6%	23.4%	23.2%		0.1	0.1	0.1	0.1	0.1	
Del Sur 66/12	Lloyd	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	8.8 MW		7.4%	7.3%	7.3%	7.4%	7.6%		0.6	0.6	0.6	0.6	0.7	
Devers 115/12	Invader	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		6.8%	35.1%	35.2%	35.3%	35.7%		0.8	4.2	4.2	4.2	4.3	
Downey 12/4.16	Nash	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		18.5%	18.2%	18.0%	17.6%	17.3%		0.5	0.5	0.5	0.5	0.5	
Downey 12/4.16	Otto	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		20.7%	20.6%	20.5%	20.3%	20.2%		0.6	0.6	0.6	0.6	0.6	
Duarte 16/4.16	Sanitarium	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	2.9 MW		0.4%	1.0%	2.3%	3.5%	20.8%		0.0	0.0	0.1	0.1	0.6	
Edinger 12/4.16	Anahurst	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.4 MW		21.8%	21.8%	22.0%	0.0%	0.0%		0.5	0.5	0.5	0.0	0.0	
Edinger 12/4.16	Cubbon	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	1.6 MW		16.1%	16.1%	16.3%	0.0%	0.0%		0.3	0.3	0.3	0.0	0.0	
Edinger 12/4.16	Flower	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	1.6 MW		50.0%	49.9%	50.1%	0.0%	0.0%		0.8	0.8	0.8	0.0	0.0	
Edinger 12/4.16	Main St.	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	1.6 MW		32.9%	33.0%	0.0%	0.0%	0.0%		0.5	0.5	0.0	0.0	0.0	
Edwards 115/33	Castle Butte	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	18.9 MW		35.9%	36.4%	36.8%	37.3%	38.4%		6.8	6.9	6.9	7.0	7.2	
Eisenhower 115/33	Crossley	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	32.9 MW		0.0%	0.0%	94.4%	148.8%	149.3%		0.0	0.0	31.1	49.0	49.2	
Euclid 12/4.16	Galvin	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.8 MW		24.9%	25.1%	25.6%	26.4%	28.1%		0.7	0.7	0.7	0.7	0.8	
Fair Oaks 16/4.16	Crosby	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		6.2%	6.7%	7.5%	7.7%	9.3%		0.2	0.2	0.2	0.2	0.3	
Fairfax 66/16	Edinburg	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	11.9 MW		0.0%	0.0%	0.0%	0.0%	7.1%		0.0	0.0	0.0	0.0	0.8	
Floraday 12/4.16	Jessup	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		6.0%	5.7%	5.6%	5.3%	5.1%		0.2	0.2	0.2	0.2	0.1	
Floraday 12/4.16	Gotham	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		8.9%	8.9%	9.0%	8.8%	9.0%		0.3	0.3	0.3	0.3	0.3	
Ganesha 12/4.16	Tower	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.4 MW		6.1%	6.5%	7.3%	8.0%	10.1%		0.1	0.2	0.2	0.2	0.2	
Garfield 66/4.16	Grevelia	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.3 MW		2.2%	2.0%	1.9%	1.5%	1.3%		0.0	0.0	0.0	0.0	0.0	
Garnet 115/33	Coachella	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	32.9 MW		3.7%	6.1%	6.4%	7.0%	7.6%		1.2	2.0	2.1	2.3	2.5	
Garnet 115/33	Pierson	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	32.9 MW		0.0%	0.0%	57.6%	60.0%	83.9%		0.0	0.0	19.0	19.7	27.6	
Garnet 33/12	San Rafael	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	8.3 MW		0.0%	0.0%	17.4%	17.5%	18.0%		0.0	0.0	1.5	1.5	1.5	
Garvey 16/4.16	Rural	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		3.6%	3.7%	0.0%	0.0%	0.0%		0.1	0.1	0.0	0.0	0.0	

Substation / Subtransmission Line	Circuit	Element Identifier	Distribution Service Required	Primary Driver of Grid Need	Operating Date	Equipment			Deficiency (%)					Deficiency (MW, °C, V _{min})				
						Element	Rating	Units	2018	2019	2020	2021	2022	2018'	2019'	2020'	2021'	2022'
Genamic 66/12	Drone	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	12.0 MW		0.0%	21.5%	21.5%	21.5%	21.8%	0.0	2.6	2.6	2.6	2.6
Goshen 66/12	Curtis	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	10.4 MW		0.0%	0.0%	0.3%	1.4%	3.9%	0.0	0.0	0.0	0.1	0.4
Great Lakes 66/12	Huron	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	10.4 MW		0.0%	0.0%	0.0%	0.3%	21.3%	0.0	0.0	0.0	0.0	2.2
Green Bear P.T. 12/2.4	Green Bear	Distribution Feeder	Capacity	Demand Growth	12/31/2018	Distribution	0.7 MW		3.3%	3.2%	3.1%	2.8%	2.7%	0.0	0.0	0.0	0.0	0.0
Haveda 16/4.16	Manuel	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.0 MW		2.1%	2.7%	2.9%	2.1%	2.4%	0.0	0.1	0.1	0.0	0.0
Imperial 66/4.16	Rex	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		15.1%	15.0%	14.9%	14.6%	14.4%	0.4	0.4	0.4	0.4	0.4
Irvine 66/12	Hines	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	12.0 MW		0.0%	0.0%	17.6%	30.9%	44.3%	0.0	0.0	2.1	3.7	5.3
Irvine 66/12	Keeline	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	12.0 MW		0.0%	0.2%	6.7%	5.9%	5.0%	0.0	0.0	0.8	0.7	0.6
Ivyglen 115/12	Chuck Wagon	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	12.0 MW		0.0%	0.0%	8.7%	18.8%	29.4%	0.0	0.0	1.0	2.2	3.5
Job P.T. 12/2.4	Job	Distribution Feeder	Capacity	Demand Growth	12/31/2018	Distribution	0.6 MW		16.0%	16.3%	16.5%	16.1%	16.5%	0.1	0.1	0.1	0.1	0.1
Kimball 66/12	Blackwidow	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		20.8%	21.2%	21.7%	21.9%	23.1%	2.5	2.5	2.6	2.6	2.8
Kimball 66/12	Fortress	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		6.9%	7.0%	7.3%	7.4%	8.2%	0.8	0.8	0.9	0.9	1.0
Kimball 66/12	Hellcat	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	12.0 MW		0.0%	0.0%	0.0%	8.3%	20.0%	0.0	0.0	0.0	1.0	2.4
La Canada 16/4.16	Flintridge	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		10.9%	10.8%	10.7%	10.5%	10.5%	0.3	0.3	0.3	0.3	0.3
Lampson 66/12	Elephant	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	12.0 MW		0.0%	20.0%	31.7%	30.9%	30.3%	0.0	2.4	3.8	3.7	3.6
Layfair 66/12	Sam	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	9.5 MW		15.1%	14.6%	14.2%	13.8%	13.3%	1.4	1.4	1.4	1.3	1.3
Lennox 66/16	Ryan	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	9.2 MW		0.0%	0.0%	0.0%	23.9%	32.8%	0.0	0.0	0.0	2.2	3.0
Linden 12/4.16	Bernard	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	1.6 MW		6.6%	6.8%	7.4%	7.2%	7.1%	0.1	0.1	0.1	0.1	0.1
Lindsay 66/12	Burr	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	10.4 MW		0.0%	0.0%	0.0%	2.8%	4.2%	0.0	0.0	0.0	0.3	0.4
Lindsay 66/12	Cairns	Distribution Feeder	Capacity	Demand Growth	12/31/2022	Distribution	10.4 MW		0.0%	0.2%	0.8%	1.5%	3.0%	0.0	0.0	0.1	0.2	0.3
Lockheed 66/16	Starfighter	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	16.2 MW		0.0%	0.0%	0.0%	0.0%	2.5%	0.0	0.0	0.0	0.0	0.4
Maraschino 115/12	Napoleon	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	12.0 MW		0.0%	3.4%	8.8%	9.1%	10.1%	0.0	0.4	1.1	1.1	1.2
Maraschino 115/12	Ranier	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	10.6 MW		0.0%	10.9%	2.3%	2.9%	4.3%	0.0	1.2	0.2	0.3	0.5
Maraschino 115/12	Lapins	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	12.0 MW		0.0%	12.5%	18.0%	18.4%	19.6%	0.0	1.5	2.2	2.2	2.3
Maraschino 115/12	Morello	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	12.0 MW		0.0%	0.0%	46.3%	46.8%	48.0%	0.0	0.0	5.5	5.6	5.7
Mayberry 115/12	Dartmouth	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	12.0 MW		0.0%	1.5%	1.7%	1.9%	15.7%	0.0	0.2	0.2	0.2	1.9
Mentone 115/12	Hass	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	10.4 MW		0.0%	0.0%	0.4%	1.1%	3.2%	0.0	0.0	0.0	0.1	0.3
Mira Loma 66/12	Brewer	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		14.7%	19.9%	19.9%	26.8%	31.8%	1.8	2.4	2.4	3.2	3.8
Moorpark 66/16	Collins	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	16.2 MW		10.2%	9.8%	9.4%	8.9%	8.7%	1.7	1.6	1.5	1.4	1.4
Muscoy 33/4.16	Power	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		3.4%	3.4%	3.2%	2.8%	2.3%	0.1	0.1	0.1	0.1	0.1
Narrows 66/12	Julep	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	12.0 MW		0.0%	13.3%	13.8%	14.4%	15.6%	0.0	1.6	1.6	1.7	1.9
Newbury 66/16	Hooligan	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	16.2 MW		5.6%	6.0%	6.9%	7.3%	9.1%	0.9	1.0	1.1	1.2	1.5
Newcomb 115/12	Oakdale	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	12.0 MW		0.0%	4.6%	14.5%	14.3%	14.1%	0.0	0.6	1.7	1.7	1.7
Newhall 66/16	Calgrove	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	16.2 MW		0.0%	0.0%	3.6%	14.7%	23.7%	0.0	0.0	0.6	2.4	3.8
Newhall 66/16	Lyons	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	16.2 MW		0.0%	0.0%	0.0%	8.9%	17.8%	0.0	0.0	0.0	1.4	2.9
Niguel 66/12	Bassoon	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	12.0 MW		1.4%	3.1%	2.6%	2.2%	2.3%	0.2	0.4	0.3	0.3	0.3
Niguel 66/12	Trombone	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		3.7%	7.4%	7.5%	7.5%	8.0%	0.4	0.9	0.9	0.9	1.0
Oldfield 12/4.16	Market	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		10.2%	10.2%	10.2%	10.2%	10.2%	0.3	0.3	0.3	0.3	0.3
Ontario 12/4.16	Curran	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.4 MW		35.0%	34.9%	35.0%	35.0%	35.3%	0.8	0.8	0.8	0.8	0.8
Ontario 12/4.16	Ostran	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.8 MW		10.8%	10.7%	10.7%	10.6%	10.8%	0.3	0.3	0.3	0.3	0.3
Padua 66/12	Verdi	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	10.6 MW		6.2%	6.1%	6.2%	6.1%	6.5%	0.7	0.6	0.7	0.6	0.7
Pechanga 115/12	Lobo	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	12.0 MW		0.3%	0.5%	1.0%	1.5%	3.2%	0.0	0.1	0.1	0.2	0.4
Pechanga 115/12	Noche	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	12.0 MW		0.0%	0.0%	0.0%	0.5%	2.2%	0.0	0.0	0.0	0.1	0.3
Pedley 66/12	Quarry	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	9.1 MW		11.5%	11.6%	11.9%	12.1%	13.0%	1.0	1.1	1.1	1.1	1.2
Pedley 66/12	Snipes	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		1.9%	2.0%	2.2%	2.4%	3.2%	0.2	0.2	0.3	0.3	0.4
Phelan 115/12	Keno	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	10.4 MW		6.7%	6.7%	7.0%	7.2%	7.9%	0.7	0.7	0.7	0.8	0.8
Pomona 12/4.16	Garey	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.4 MW		8.3%	8.4%	8.8%	8.9%	10.0%	0.2	0.2	0.2	0.2	0.2
Pomona 12/4.16	Gibbs	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.4 MW		9.1%	9.2%	9.6%	9.9%	10.8%	0.2	0.2	0.2	0.2	0.3
Portuguese Bend P.T. 16/4.16	Portuguese Bend	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	0.3 MW		66.9%	67.0%	67.1%	66.7%	66.8%	0.2	0.2	0.2	0.2	0.2
Potrero 66/16	Vaquero	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	16.2 MW		0.0%	0.0%	8.4%	7.9%	7.7%	0.0	0.0	1.4	1.3	1.2
Proctor 66/12	Zeus	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		1.7%	2.1%	2.9%	3.9%	5.9%	0.2	0.3	0.4	0.5	0.7
Randall 66/12	Nicklin	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		1.2%	7.6%	7.8%	7.9%	8.6%	0.1	0.9	0.9	1.0	1.0
Rivera 12/4.16	Topeka	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		4.5%	4.5%	4.5%	4.4%	4.4%	0.1	0.1	0.1	0.1	0.1
Riverway 66/12	Gila	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	12.0 MW		0.0%	6.9%	6.8%	24.8%	24.8%	0.0	0.8	0.8	3.0	3.0
Riverway 66/12	Rio Grande	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		2.8%	3.3%	4.2%	5.0%	6.7%	0.3	0.4	0.5	0.6	0.8
Roadway 115/12	Caterpillar	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	12.0 MW		0.0%	0.0%	0.0%	14.0%	14.6%	0.0	0.0	0.0	1.7	1.7
Roadway 115/12	International	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		6.2%	0.0%	0.0%	0.0%	0.0%	0.7	0.0	0.0	0.0	0.0

Substation / Subtransmission Line	Circuit	Element Identifier	Distribution Service Required	Primary Driver of Grid Need	Operating Date	Equipment			Deficiency (%)						Deficiency (MW, °C, V _{min})				
						Element	Rating	Units	2018	2019	2020	2021	2022		2018'	2019'	2020'	2021'	2022'
Roadway 115/12	Peterbilt	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		5.8%	5.5%	5.4%	5.3%	5.6%		0.7	0.7	0.6	0.6	0.7
Rosemead 66/16	Gladys	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	14.3 MW		0.0%	0.0%	0.0%	12.2%	12.0%		0.0	0.0	0.0	1.7	1.7
San Antonio 66/12	Gaylord	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		11.4%	11.6%	11.5%	11.4%	11.7%		1.4	1.4	1.4	1.4	1.4
San Antonio 66/12	Lehigh	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		3.1%	3.0%	3.1%	3.2%	3.7%		0.4	0.4	0.4	0.4	0.4
San Antonio 66/12	Pitzer	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		8.0%	7.9%	8.0%	8.0%	8.6%		1.0	0.9	1.0	1.0	1.0
San Antonio 66/12	Satellite	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		10.1%	9.7%	9.5%	9.1%	9.2%		1.2	1.2	1.1	1.1	1.1
San Dimas 66/12	Cataract	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		3.7%	4.0%	4.8%	5.4%	7.2%		0.4	0.5	0.6	0.6	0.9
San Dimas 66/12	Bonita	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		1.2%	1.0%	1.3%	1.5%	2.9%		0.1	0.1	0.1	0.2	0.3
San Dimas 66/12	Kranzer	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	12.0 MW		0.0%	0.0%	0.4%	0.8%	2.4%		0.0	0.0	0.0	0.1	0.3
Santa Barbara 66/4.16	Gutierrez	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.2 MW		4.7%	4.6%	4.6%	4.6%	4.6%		0.1	0.1	0.1	0.1	0.1
Santa Fe Springs 66/12	Painter	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		3.4%	2.5%	2.5%	2.5%	2.5%		0.4	0.3	0.3	0.3	0.3
Santiago 66/12	Tolar	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	12.0 MW		0.0%	0.0%	13.4%	0.0%	0.0%		0.0	0.0	1.6	0.0	0.0
Sierra Madre 16/4.16	Mohawk	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.1 MW		22.6%	22.9%	23.6%	24.0%	25.8%		0.5	0.5	0.5	0.5	0.5
Signal Hill 12/4.16	Derrick	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.4 MW		5.3%	5.5%	5.8%	6.0%	7.0%		0.1	0.1	0.1	0.1	0.2
Somerset 66/12	Candle	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	12.0 MW		0.0%	0.0%	19.4%	18.8%	18.6%		0.0	0.0	2.3	2.3	2.2
Stewart 66/12	Jimmy	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	12.0 MW		0.0%	0.0%	0.0%	0.0%	3.5%		0.0	0.0	0.0	0.0	0.4
Sun City 115/12	Equinox	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	12.0 MW		0.0%	0.0%	0.0%	0.0%	9.8%		0.0	0.0	0.0	0.0	1.2
Sunlight P.T. 12/4.16	Sunlight	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	1.0 MW		14.9%	15.0%	15.3%	15.3%	16.2%		0.1	0.1	0.1	0.1	0.2
Sunnyside 66/4.16	Killdee	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		3.2%	3.2%	3.4%	3.3%	3.7%		0.1	0.1	0.1	0.1	0.1
Sunnyside 66/4.16	Sharp	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		3.8%	3.9%	4.2%	4.0%	4.5%		0.1	0.1	0.1	0.1	0.1
Tamarisk 115/12	Sumac	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	12.0 MW		6.0%	14.4%	14.1%	13.9%	13.8%		0.7	1.7	1.7	1.7	1.7
Upland 66/4.16	Colburn	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		3.3%	3.7%	4.7%	5.6%	7.9%		0.1	0.1	0.1	0.2	0.2
Upland 66/4.16	Klusman	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	2.7 MW		0.0%	0.0%	0.9%	2.0%	4.5%		0.0	0.0	0.0	0.1	0.1
Valley Of The Moon P.T. 12/2Valley Of The Moon		Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	0.9 MW		9.8%	9.8%	9.8%	9.5%	9.6%		0.1	0.1	0.1	0.1	0.1
Walteria 66/4.16	Narbonne	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.4 MW		1.3%	4.2%	4.2%	4.2%	8.4%		0.0	0.1	0.1	0.1	0.2
Wheatland 66/12	Beaver	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	8.8 MW		0.8%	1.5%	2.1%	2.7%	4.3%		0.1	0.1	0.2	0.2	0.4
Woodruff 12/4.16	Dunrobin	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.9 MW		7.4%	7.2%	7.1%	6.8%	6.9%		0.2	0.2	0.2	0.2	0.2
Woodruff 12/4.16	Ten Pin	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	2.1 MW		3.0%	2.9%	2.9%	2.7%	2.9%		0.1	0.1	0.1	0.1	0.1
Woodville 66/12	Monroe	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	5.2 MW		16.4%	16.4%	16.6%	16.9%	17.5%		0.9	0.9	0.9	0.9	0.9
Zack 55/12	Sagehen	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	4.3 MW		8.2%	10.6%	14.9%	19.8%	30.4%		0.4	0.5	0.6	0.9	1.3
Alder 66/12	Bolor	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		5.9%	4.9%	4.1%	3.5%	3.1%		5.3	4.4	3.7	3.1	2.8
Alder 66/12	Dorsey	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		15.8%	15.2%	14.9%	14.4%	14.5%		14.3	13.7	13.4	13.0	13.0
Alder 66/12	Huff	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		3.6%	3.1%	2.8%	2.4%	2.6%		3.3	2.8	2.5	2.2	2.4
Alder 66/12	Lytle	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		10.6%	9.8%	9.6%	9.2%	9.3%		9.5	8.9	8.7	8.3	8.4
Alessandro 115/12	Elsworth	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		2.1%	5.0%	5.7%	6.3%	8.3%		1.9	4.5	5.1	5.6	7.5
Alessandro 115/12	Kingsway	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0 °Celsius		0.0%	0.0%	0.0%	0.0%	0.4%		0.0	0.0	0.0	0.0	0.4
Alessandro 115/12	Rivard	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		1.1%	1.3%	1.8%	2.3%	4.2%		1.0	1.1	1.6	2.1	3.8
Alessandro 115/12	Snyder	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0 °Celsius		0.0%	0.0%	0.0%	0.0%	0.3%		0.0	0.0	0.0	0.0	0.3
Alhambra 66/16	Kay	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		5.6%	5.4%	5.6%	5.3%	6.1%		5.1	4.9	5.0	4.8	5.5
Alhambra 66/16	Test	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		16.6%	16.7%	17.1%	17.0%	18.1%		15.0	15.0	15.0	15.0	15.0
Alhambra 66/16	Tri City	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		20.0%	1.2%	1.4%	1.2%	1.9%		18.0	1.1	1.3	1.0	1.7
Amador 66/16	Bryce	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		2.6%	2.1%	0.0%	0.0%	0.0%		2.4	1.9	0.0	0.0	0.0
Anaverde 66/12	Acrobat	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		19.7%	19.7%	15.1%	15.4%	17.0%		17.7	17.7	13.6	13.9	15.3
Anaverde 66/12	Quinby	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		25.8%	25.6%	6.6%	6.8%	8.3%		23.3	23.1	6.0	6.1	7.5
Anaverde 66/12	Ritter	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		17.0%	17.0%	11.5%	11.9%	13.6%		15.3	15.3	10.4	10.7	12.2
Archibald 66/12	Hofer	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		7.1%	6.3%	5.5%	4.7%	4.1%		6.4	5.7	5.0	4.2	3.7
Archibald 66/12	Bravon	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		1.2%	1.7%	2.7%	5.4%	0.0%		1.1	1.5	2.5	4.8	0.0
Archibald 66/12	Danish	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0 °Celsius		0.0%	0.0%	2.3%	11.7%	0.0%		0.0	0.0	2.1	10.5	0.0
Auld 115/12	Clydesdale	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0 °Celsius		0.0%	0.0%	2.6%	8.3%	15.1%		0.0	0.0	2.3	7.5	13.6
Auld 115/12	Colt	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		5.4%	5.2%	6.8%	8.2%	10.3%		4.8	4.6	6.1	7.4	9.3
Auld 115/12	Keller	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		3.3%	3.2%	5.0%	6.8%	9.1%		2.9	2.9	4.5	6.1	8.2
Auld 115/12	Leon	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0 °Celsius		0.0%	0.0%	0.0%	0.3%	2.0%		0.0	0.0	0.0	0.3	1.8
Auld 115/12	Beeler	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		5.3%	5.3%	5.3%	0.0%	0.0%		4.8	4.8	4.8	0.0	0.0
Auld 115/12	Appalousa	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0 °Celsius		0.0%	0.0%	0.0%	6.8%	19.7%		0.0	0.0	0.0	6.1	17.7
Auld 115/12	Thoroughbred	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0 °Celsius		0.0%	0.0%	0.0%	1.6%	8.7%		0.0	0.0	0.0	1.4	7.8
Beverly 66/16	La Peer	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		6.7%	5.8%	5.0%	4.0%	5.9%		6.1	5.2	4.5	3.6	5.3
Beverly 66/16	Meander	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0 °Celsius		1.1%	0.6%	0.1%	0.0%	0.0%		1.0	0.5	0.1	0.0	0.0

Substation / Subtransmission Line	Circuit	Element Identifier	Distribution Service Required	Primary Driver of Grid Need	Operating Date	Equipment			Deficiency (%)						Deficiency (MW, °C, V _{un})				
						Element	Rating	Units	2018	2019	2020	2021	2022		2018'	2019'	2020'	2021'	2022'
Beverly 66/16	Playboy	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	7.0%	6.4%	5.8%	5.0%	5.5%		6.3	5.8	5.2	4.5	5.0
Beverly 66/16	Secretary	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	16.7%	15.9%	15.2%	14.4%	14.6%		15.0	14.3	13.7	13.0	13.1
Bloomington 66/12	Bobber	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	1.9%		0.0	0.0	0.0	0.0	1.7
Bunker 115/12	Ammo	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	0.7%		0.0	0.0	0.0	0.0	0.6
Bunker 115/12	Corporal	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.6%	7.6%	8.3%	9.1%	11.6%		5.9	6.8	7.5	8.2	10.4
Bunker 115/12	Helicopter	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	0.4%		0.0	0.0	0.0	0.0	0.4
Cabrillo 66/12	Xerox	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	2.0%	10.5%		0.0	0.0	0.0	1.8	9.5
Cajalco 115/12	Plummer	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	4.2%	6.9%	8.4%		0.0	0.0	3.8	6.2	7.6
Cajalco 115/12	Starglow	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	3.7%	4.9%	6.5%		0.0	0.0	3.3	4.5	5.9
Chase 66/12	Bobbit	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	14.0%	20.1%		0.0	0.0	0.0	12.6	18.1
Chase 66/12	California	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	31.6%	37.2%		0.0	0.0	0.0	28.4	33.4
Chase 66/12	Ramsgate	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	9.9%	12.7%		0.0	0.0	0.0	8.9	11.4
Chase 66/12	Tolton	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	0.1%		0.0	0.0	0.0	0.0	0.1
Chase 66/12	Wyle	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	9.3%	16.0%		0.0	0.0	0.0	8.3	14.4
Chino 66/12	Bandag	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.3%	2.4%	1.8%	1.4%	1.7%		2.9	2.2	1.6	1.2	1.5
Chino 66/12	Calmen	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.4%	1.8%	1.2%	1.0%	1.4%		2.2	1.6	1.1	0.9	1.3
Citrus 66/12	Kumquat	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	0.1%		0.0	0.0	0.0	0.0	0.1
Citrus 66/12	Mandarin	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.6%	2.5%	2.7%	2.8%	4.0%		2.3	2.2	2.5	2.6	3.6
Citrus 66/12	Pineapple	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	5.6%	5.3%	5.6%	5.5%	6.5%		5.0	4.8	5.1	4.9	5.9
Coffee 33/12	Blend	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	16.6%	19.8%	19.8%	19.6%	19.6%		14.9	17.8	17.8	17.6	17.6
Coffee 33/12	Cafe	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	32.1%	35.0%	35.0%	35.0%	35.0%		28.9	31.5	31.5	31.5	31.5
Coffee 33/12	Espresso	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	9.8%	9.8%	9.8%	9.8%		0.0	8.8	8.8	8.8	8.8
Concho 115/12	Bandana	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	9.2%	10.9%	10.4%	9.7%	9.4%		8.3	9.8	9.4	8.7	8.4
Concho 115/12	Pistola	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	9.5%	13.8%	13.3%	12.6%	12.4%		8.5	12.4	11.9	11.4	11.2
Concho 115/12	Sombrero	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.0%	2.8%	2.1%	1.1%	0.5%		1.8	2.5	1.9	1.0	0.5
Concho 115/12	Taberna	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	5.6%	0.0%	0.0%	0.0%	0.0%		5.1	0.0	0.0	0.0	0.0
Corona 66/12	Tesoro	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	0.2%	10.6%	11.2%	12.1%	10.8%		0.2	9.5	10.1	10.8	9.7
Corona 66/12	Michael	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	0.9%		0.0	0.0	0.0	0.0	0.8
Corona 66/12	Price	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	0.7%	0.4%	0.4%	0.7%	5.0%		0.6	0.4	0.4	0.6	4.5
Cucamonga 66/12	Boynton	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	7.2%	6.4%	5.6%	5.0%	4.4%		6.4	5.8	5.1	4.5	3.9
Cucamonga 66/12	Donohue	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.3%	1.7%	1.5%	0.9%	0.7%		2.0	1.6	1.3	0.8	0.6
Cucamonga 66/12	Earnhardt	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	25.9%	25.8%	25.1%	24.1%	23.5%		23.4	23.2	22.6	21.7	21.1
Cucamonga 66/12	Garlits	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	12.3%	11.2%	10.2%	9.3%	8.7%		11.1	10.0	9.2	8.4	7.9
Cucamonga 66/12	Gurney	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	15.4%	16.1%	17.1%	18.3%	22.3%		13.8	14.5	15.4	16.5	20.1
Cucamonga 66/12	Hanks	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	4.9%	3.9%	3.1%	2.5%	1.7%		4.4	3.5	2.7	2.2	1.6
Cucamonga 66/12	Mears	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	13.9%	13.0%	11.9%	11.2%	10.6%		12.5	11.7	10.8	10.0	9.5
Cucamonga 66/12	Rahal	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	14.9%	14.2%	13.4%	12.8%	12.4%		13.4	12.7	12.0	11.6	11.1
Cucamonga 66/12	Ruttman	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	49.2%	51.1%	52.4%	53.9%	58.9%		44.2	46.0	47.1	48.5	53.0
Cucamonga 66/12	Unser	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	8.2%	7.8%	7.5%	7.1%	6.8%		7.4	7.0	6.8	6.4	6.1
Cucamonga 66/12	Andretti	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	0.3%	0.0%	0.0%	0.0%	0.0%		0.3	0.0	0.0	0.0	0.0
Cucamonga 66/12	Yarborough	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	9.3%	9.2%	9.3%	9.3%	10.8%		8.4	8.3	8.4	8.3	9.7
Culver 66/16	M.G.M.	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	31.0%	33.0%	31.0%		0.0	0.0	28.0	30.0	28.0
Declerz 66/12	Big Rigg	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	13.2%	12.6%	12.0%	11.3%	10.9%		11.9	11.3	10.8	10.1	9.8
Declerz 66/12	Kaiser	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.1%	2.6%	2.3%	1.6%	1.4%		2.8	2.4	2.1	1.5	1.3
Devers 115/12	Invader	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	31.8%	32.1%	32.1%	32.7%		0.0	28.7	28.9	28.9	29.4
Edinger 12/4.16	Anahurst	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.7%	3.3%	2.3%	0.0%	0.0%		2.4	3.0	2.1	0.0	0.0
Edinger 12/4.16	Flower	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.2%	6.7%	2.4%	0.0%	0.0%		5.6	6.1	2.2	0.0	0.0
Eisenhower 115/12	Battalion	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.6%	11.4%	11.0%	10.6%	11.1%		6.0	10.2	9.9	9.6	10.0
Eisenhower 115/12	Combat	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	24.4%	57.4%	58.1%		0.0	0.0	22.0	51.7	52.3
Eisenhower 115/12	Ike	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	0.1%	31.8%	32.4%		0.0	0.0	0.1	28.6	29.2
Eisenhower 115/33	Crossley	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	91.0%	187.1%	188.2%		0.0	0.0	81.9	168.3	169.4
Elizabeth Lake 66/16	Trumpet	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	2.8%		0.0	0.0	0.0	0.0	2.5
Elizabeth Lake 66/16	Tuba	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	2.7%		0.0	0.0	0.0	0.0	2.5
Estrella 66/12	Aquarius	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	1.5%	0.7%		0.0	0.0	0.0	1.3	0.7
Estrella 66/12	Cancer	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	4.6%	9.0%	8.0%	7.0%	6.3%		4.2	8.1	7.2	6.3	5.6
Estrella 66/12	Horoscope	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	20.0%	20.8%	20.2%	19.5%	19.0%		18.0	18.8	18.2	17.5	17.1
Étiwanda 66/12	Benny	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	11.0%	10.1%	9.6%	9.1%	10.2%		9.9	9.1	8.6	8.2	9.2

Substation / Subtransmission Line	Circuit	Element Identifier	Distribution Service Required	Primary Driver of Grid Need	Operating Date	Equipment			Deficiency (%)						Deficiency (MW, °C, V _{min})				
						Element	Rating	Units	2018	2019	2020	2021	2022		2018'	2019'	2020'	2021'	2022'
Etiwanda 66/12	Magoo	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	0.9%	1.2%	2.1%	2.9%	5.4%		0.9	1.1	1.9	2.6	4.9
Etiwanda 66/12	Pryor	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.8%	3.3%	4.3%	5.2%	7.9%		2.5	3.0	3.9	4.7	7.1
Etiwanda 66/12	Sellers	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.0%	1.4%	2.4%	0.5%	2.1%		0.9	1.3	2.2	0.4	1.9
Etiwanda 66/12	Stooges	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	2.3%		0.0	0.0	0.0	0.0	2.1
Farrell 115/12	Alvera	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	18.0%	17.8%	18.1%	18.1%	19.4%		16.2	16.0	16.3	16.3	17.5
Farrell 115/12	Autry	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	3.1%	3.2%		0.0	0.0	0.0	2.8	2.9
Farrell 115/12	Fey	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	9.7%	9.8%	10.2%	10.4%	11.8%		8.7	8.8	9.2	9.4	10.6
Farrell 115/12	Garbo	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	31.5%	31.2%	31.3%	31.1%	32.4%		28.3	28.1	28.2	28.0	29.2
Farrell 115/12	Rana	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	7.2%	7.1%	7.4%	7.6%	8.8%		6.5	6.4	6.7	6.8	7.9
Farrell 115/12	Tortuga	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	31.7%	31.4%	31.5%	31.3%	32.6%		28.5	28.2	28.4	28.2	29.4
Farrell 115/12	Viminal	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	4.0%		0.0	0.0	0.0	0.0	3.6
Firehouse 66/12	Helmet	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	0.9%	0.0%	0.0%	0.0%		0.0	0.8	0.0	0.0	0.0
Fullerton 66/12	Brashears	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.7%	2.6%	1.6%	10.1%	9.3%		3.3	2.3	1.4	9.1	8.4
Fullerton 66/12	Complex	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	23.1%	22.7%		0.0	0.0	0.0	20.8	20.4
Fullerton 66/12	Hunt	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.0%	2.4%	1.8%	7.5%	7.1%		2.7	2.1	1.6	6.8	6.4
Fullerton 66/12	Lawrence	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	25.6%	25.1%		0.0	0.0	0.0	23.1	22.6
Fullerton 66/12	Matlock	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	24.9%	24.9%		0.0	0.0	0.0	22.4	22.4
Ganesha 66/12	Hambone	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	5.4%	5.7%	6.1%	6.6%	8.6%		4.9	5.1	5.5	6.0	7.7
Genamic 66/12	Drone	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	23.6%	23.6%	23.6%	24.2%		0.0	21.2	21.2	21.3	21.8
Hanford 66/12	Iona	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	0.4%	0.3%	0.5%	0.5%	1.5%		0.3	0.2	0.4	0.4	1.4
Hanford 66/12	Redington	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	8.0%	7.3%	7.0%	6.8%	7.4%		7.2	6.6	6.3	6.1	6.7
Haskell 66/16	Caesar	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	4.9%	5.0%	5.6%	5.8%	7.1%		4.4	4.5	5.0	5.2	6.4
Haskell 66/16	Romanus	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	1.1%		0.0	0.0	0.0	0.0	1.0
Industry 66/12	Gear	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.8%	6.3%	6.0%	0.0%	0.0%		6.2	5.7	5.4	0.0	0.0
Industry 66/12	Grinder	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	5.3%	4.8%	4.4%	4.0%	4.4%		4.8	4.3	4.0	3.6	4.0
Industry 66/12	Lathe	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	8.4%	7.3%	6.3%	0.7%	0.9%		7.6	6.6	5.7	0.6	0.8
Industry 66/12	Vise	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	5.4%	5.2%	5.1%	2.8%	3.2%		4.9	4.7	4.6	2.5	2.9
Irvine 66/12	Hines	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	19.4%	38.2%	58.0%		0.0	0.0	17.5	34.4	52.2
Irvine 66/12	Keeline	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	3.1%	11.9%	10.7%	9.8%		0.0	2.8	10.7	9.6	8.8
Ivyglen 115/12	Stageline	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	9.2%	15.7%		0.0	0.0	0.0	8.3	14.1
Ivyglen 115/12	Buckboard	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	2.9%	9.4%	14.6%		0.0	0.0	2.6	8.4	13.2
Ivyglen 115/12	Chuck Wagon	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	5.2%	17.0%	31.1%	45.4%		0.0	4.6	15.3	28.0	40.9
Ivyglen 115/12	Donner	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	4.6%	10.2%		0.0	0.0	0.0	4.1	9.2
Jefferson 66/12	Bohemia	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	1.2%		0.0	0.0	0.0	0.0	1.1
Jefferson 66/12	Border	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	0.9%	1.6%	4.0%		0.0	0.0	0.8	1.4	3.6
Jefferson 66/12	Guinness	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	5.8%		0.0	0.0	0.0	0.0	5.2
Kimball 66/12	Blackwidow	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	31.6%	32.5%	33.2%	39.7%	41.6%		28.4	29.2	29.9	35.7	37.4
Kimball 66/12	Fortress	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	24.0%	24.6%	25.1%	30.9%	32.4%		21.6	22.1	22.6	27.8	29.2
Kimball 66/12	Hellcat	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	11.0%		0.0	0.0	0.0	0.0	9.9
Kimball 66/12	Kingcobra	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	15.5%	17.0%		0.0	0.0	0.0	13.9	15.3
Kimball 66/12	Mosquito	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	15.0%	31.2%	32.4%	30.6%	31.1%		13.5	28.1	29.2	27.5	28.0
Kimball 66/12	Skytrain	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	1.5%	2.6%		0.0	0.0	0.0	1.4	2.3
Kimball 66/12	Tigercat	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	11.0%	17.2%	7.1%	22.3%		0.0	9.9	15.5	6.4	20.1
Kimball 66/12	Vengeance	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	6.8%		0.0	0.0	0.0	0.0	6.2
La Canada 66/16	Rosemont	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	31.3%	31.7%	32.5%	33.1%	30.0%		28.1	28.5	29.2	29.8	27.0
La Canada 66/16	Verdugo	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	10.6%	11.0%	11.8%	12.2%	12.0%		9.5	9.9	10.6	11.0	10.8
Lampson 66/12	Bison	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	0.2%	4.5%	3.7%	3.4%		0.0	0.1	4.1	3.4	3.0
Lampson 66/12	Elephant	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	19.1%	33.3%	31.9%	31.2%		0.0	17.2	29.9	28.7	28.1
Lancaster 66/12	Kingtree	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.9%	6.5%	6.2%	5.7%	5.3%		6.2	5.9	5.6	5.2	4.8
Lark Ellen 66/12	Barbara	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	12.2%	11.9%	11.8%	11.7%	12.3%		11.0	10.7	10.6	10.5	11.1
Lark Ellen 66/12	Christy	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	10.7%	10.3%	10.6%	10.6%	11.3%		9.7	9.3	9.5	9.5	10.2
Lark Ellen 66/12	Deanna	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	10.2%	9.9%	9.9%	9.9%	10.6%		9.2	8.9	8.9	8.9	9.5
Lark Ellen 66/12	Eleanor	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	14.1%	13.8%	13.9%	14.1%	14.8%		12.7	12.4	12.5	12.7	13.3
Lark Ellen 66/12	Lynne	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.2%	1.0%	0.0%	0.0%	0.0%		1.1	0.9	0.0	0.0	0.0
Las Lomas 66/12	Munich	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	2.0%		0.0	0.0	0.0	0.0	1.8
Liberty 66/12	Chinoweth	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	0.6%		0.0	0.0	0.0	0.0	0.6
Limestone 66/12	Chrome	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.9%	6.6%	6.1%	5.7%	5.2%		6.2	5.9	5.5	5.1	4.7

Substation / Subtransmission Line	Circuit	Element Identifier	Distribution Service Required	Primary Driver of Grid Need	Operating Date	Equipment			Deficiency (%)					Deficiency (MW, °C, V _{un})				
						Element	Rating	Units	2018	2019	2020	2021	2022	2018'	2019'	2020'	2021'	2022'
Limestone 66/12	Manganese	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	15.4%	14.7%	14.0%	13.2%	12.4%	13.9	13.2	12.6	11.9	11.2
Limestone 66/12	Nickel	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	0.7%	0.2%	0.0%	0.0%	0.0%	0.6	0.2	0.0	0.0	0.0
Lindsay 66/12	Burr	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	1.1%	7.1%	9.4%	0.0	0.0	1.0	6.4	8.4
Lindsay 66/12	Cairns	Distribution Feeder	Capacity	Demand Growth	12/31/2020	Distribution	90.0	*Celsius	0.0%	0.0%	0.1%	1.0%	3.3%	0.0	0.0	0.0	0.9	3.0
Live Oak 66/12	Alamosa	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	0.2%	0.0	0.0	0.0	0.0	0.2
Live Oak 66/12	Forbes	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	0.2%	0.0	0.0	0.0	0.0	0.2
Live Oak 66/12	Palmer	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.3%	4.0%	5.5%	6.7%	7.6%	3.0	3.6	5.0	6.0	6.8
Maraschino 115/12	Ida	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	4.2%	10.7%	9.4%	10.1%	12.0%	3.7	9.6	8.5	9.1	10.8
Maraschino 115/12	Napoleon	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.3%	4.7%	19.6%	20.0%	21.7%	1.1	4.3	17.6	18.0	19.5
Maraschino 115/12	Duke	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	1.3%	0.0	0.0	0.0	0.0	1.2
Maraschino 115/12	Lapins	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	7.2%	18.9%	19.3%	21.3%	0.0	6.4	17.0	17.4	19.1
Maraschino 115/12	Morello	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	47.5%	46.5%	48.6%	0.0	0.0	42.8	41.9	43.8
Maraschino 115/12	Ranier	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	1.6%	0.0%	0.0%	0.0%	0.0	1.4	0.0	0.0	0.0
Maraschino 115/12	Schmidt	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	3.8%	2.3%	3.0%	4.8%	0.0	3.4	2.1	2.7	4.4
Maxwell 115/12	Brutte	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	7.0%	6.7%	6.5%	6.2%	6.9%	6.3	6.0	5.8	5.6	6.2
Maxwell 115/12	Duda	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.1%	2.8%	2.5%	2.2%	2.9%	2.8	2.5	2.2	2.0	2.6
Maxwell 115/12	Hackler	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	15.6%	15.6%	15.5%	15.5%	16.7%	14.1	14.0	14.0	13.9	15.0
Maxwell 115/12	Westbluff	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.0%	6.1%	6.2%	6.3%	7.4%	5.4	5.5	5.6	5.6	6.6
Mayberry 115/12	Dartmouth	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	10.4%	21.7%	22.2%	22.7%	42.2%	9.3	19.5	20.0	20.4	38.0
Mayberry 115/12	Erin	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.7%	7.3%	7.8%	8.3%	15.8%	3.4	6.6	7.0	7.4	14.2
Mayberry 115/12	Pachea	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	0.3%	0.0	0.0	0.0	0.0	0.2
Mayberry 115/12	Kadice	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.4%	7.5%	0.0	0.0	0.0	0.4	6.8
Mayberry 115/12	Tudor	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	0.9%	0.0	0.0	0.0	0.0	0.8
Mesa 66/16	Cerveza	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	0.2%	0.3%	0.6%	1.0%	2.9%	0.2	0.3	0.6	0.9	2.6
Milliken 66/12	Redlabel	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.1%	2.1%	2.2%	2.4%	3.8%	1.9	1.8	2.0	2.2	3.4
Mira Loma 66/12	Himalayas	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	20.4%	23.7%	30.2%	34.7%	39.6%	18.4	21.3	27.2	31.2	35.6
Mira Loma 66/12	Matterhorn	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	20.5%	23.6%	30.2%	8.3%	11.8%	18.4	21.3	27.2	7.5	10.6
Moraga 115/12	Playhouse	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.8%	1.5%	1.1%	0.8%	0.9%	1.6	1.4	1.0	0.7	0.8
Narod 66/12	Ballzak	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.5%	1.1%	1.0%	0.6%	1.6%	1.4	1.0	0.9	0.6	1.5
Narod 66/12	Dessau	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.3%	2.2%	2.2%	2.2%	3.2%	2.1	1.9	1.9	2.0	2.9
Narod 66/12	Tile	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.6%	3.3%	3.5%	3.4%	4.5%	3.3	3.0	3.1	3.1	4.1
Narrows 66/12	Aston	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	9.9%	10.4%	10.9%	11.4%	12.9%	8.9	9.3	9.8	10.3	11.6
Narrows 66/12	Ballard	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	17.0%	17.3%	17.5%	17.7%	19.4%	15.3	15.5	15.7	15.9	17.5
Narrows 66/12	Bronco	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.3%	5.6%	6.1%	6.5%	8.4%	2.9	5.1	5.5	5.9	7.6
Narrows 66/12	Cadillac	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	14.5%	14.5%	14.7%	15.1%	16.9%	13.0	13.1	13.2	13.6	15.2
Narrows 66/12	Corvette	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	0.6%	3.8%	4.7%	5.5%	7.8%	0.6	3.4	4.2	5.0	7.0
Narrows 66/12	Escamilla	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	24.7%	24.7%	24.9%	25.1%	27.0%	22.3	22.2	22.4	22.6	24.3
Narrows 66/12	Julep	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	25.0%	42.5%	43.7%	44.8%	47.7%	22.5	38.2	39.3	40.3	42.9
Narrows 66/12	Torpedo	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	17.7%	8.6%	9.6%	10.4%	12.9%	15.9	7.8	8.7	9.4	11.6
Narrows 66/12	Yorktown	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	19.5%	21.5%	22.4%	23.1%	25.5%	17.6	19.3	20.2	20.7	22.9
Narrows 66/12	Cornwall	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.2%	1.9%	0.0	0.0	0.0	0.2	1.7
Nelson 115/12	Savory	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.3%	1.5%	0.0	0.0	0.0	0.3	1.3
Newbury 66/16	Hooligan	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	3.6%	4.9%	8.3%	8.9%	11.7%	3.2	4.4	7.5	8.0	10.5
Newbury 66/16	Intrepid	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	19.1%	23.2%	23.7%	25.0%	27.8%	17.2	20.9	21.3	22.5	25.0
Newbury 66/16	Johnboy	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	16.1%	22.4%	22.3%	23.3%	26.7%	14.5	20.2	20.1	21.0	24.0
Newbury 66/16	Patriot	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	9.1%	13.0%	12.8%	13.8%	17.1%	8.2	11.7	11.5	12.4	15.4
Newbury 66/16	Splendor	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	15.6%	24.0%	19.8%	20.7%	24.0%	14.0	21.6	17.8	18.6	21.6
Newcomb 115/12	Farrington	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	1.3%	0.0	0.0	0.0	0.0	1.1
Newcomb 115/12	Harnage	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.0%	0.7%	0.6%	0.2%	0.0%	0.9	0.6	0.5	0.2	0.0
Newcomb 115/12	Neapolitan	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	0.2%	0.0	0.0	0.0	0.0	0.2
Newcomb 115/12	Oakdale	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	8.2%	19.1%	18.5%	18.4%	0.0	7.4	17.2	16.6	16.6
Newhall 66/16	Calgrove	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	12.0%	28.6%	47.2%	63.7%	0.0	10.8	25.8	42.5	57.3
Newhall 66/16	Gavin	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.7%	5.1%	0.0	0.0	0.0	0.7	4.6
Newhall 66/16	Lyons	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	9.8%	25.6%	43.7%	59.8%	0.0	8.8	23.1	39.4	53.8
Newhall 66/16	Powell	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.7%	9.0%	16.8%	25.5%	33.3%	1.5	8.1	15.1	22.9	30.0
Newhall 66/16	Wildwood	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	3.5%	8.2%	0.0	0.0	0.0	3.2	7.4
Newhall 66/16	Mentry	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	3.0%	9.8%	0.0	0.0	0.0	2.7	8.8

Substation / Subtransmission Line	Circuit	Element Identifier	Distribution Service Required	Primary Driver of Grid Need	Operating Date	Equipment			Deficiency (%)					Deficiency (MW, °C, V _{un})				
						Element	Rating	Units	2018	2019	2020	2021	2022	2018'	2019'	2020'	2021'	2022'
Niguel 66/12	Bassoon	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	11.0%	12.7%	11.9%	11.2%	11.5%	9.9	11.5	10.7	10.1	10.3
Niguel 66/12	Timpani	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	0.1%	0.0%	1.2%	0.0	0.0	0.1	0.0	1.1
Niguel 66/12	Trombone	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	11.4%	15.6%	16.0%	16.0%	17.1%	10.2	14.0	14.4	14.4	15.4
Oak Grove 66/12	De Camp	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	12.8%	13.1%	13.8%	14.7%	17.0%	11.5	11.7	12.5	13.2	15.3
Oak Grove 66/12	Elowin	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	12.0%	12.2%	12.7%	13.4%	15.6%	10.8	11.0	11.4	12.1	14.0
Oak Grove 66/12	Lowry	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	5.8%	5.9%	6.5%	7.0%	9.2%	5.2	5.4	5.8	6.3	8.3
Oak Grove 66/12	Whitendale	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.0%	3.1%	3.7%	4.4%	6.4%	2.7	2.8	3.3	3.9	5.8
Oak Grove 66/12	Monson	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.3%	1.7%	0.0	0.0	0.0	0.3	1.6
Oak Park 66/16	Cresthaven	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.1%	2.7%	3.9%	5.2%	8.8%	1.9	2.4	3.5	4.7	7.9
Oasis 66/12	Farms	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	4.3%	0.1%	0.0%	0.0%	0.1%	3.9	0.1	0.0	0.0	0.0
Oasis 66/12	Stealth	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.4%	2.7%	2.9%	2.9%	3.3%	2.2	2.4	2.6	2.6	3.0
Padua 66/12	Barilla	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.8%	2.7%	2.9%	2.7%	3.6%	2.5	2.5	2.7	2.5	3.2
Padua 66/12	Bianco	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	9.1%	9.1%	9.4%	9.5%	10.1%	8.2	8.2	8.5	8.5	9.1
Padua 66/12	Bruno	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.2%	3.0%	3.2%	3.2%	3.7%	2.9	2.7	2.9	2.9	3.4
Padua 66/12	Cagli	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	9.8%	9.7%	9.9%	9.9%	10.8%	8.8	8.7	9.0	8.9	9.7
Padua 66/12	Calvo	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	12.1%	11.9%	12.0%	11.9%	12.7%	10.9	10.7	10.8	10.7	11.4
Padua 66/12	Fano	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	7.7%	7.7%	8.0%	8.0%	8.6%	6.9	6.9	7.2	7.2	7.8
Padua 66/12	Ferrara	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	13.2%	13.2%	13.2%	13.3%	13.9%	11.9	11.9	11.9	12.0	12.5
Padua 66/12	Parina	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	20.0%	19.9%	19.8%	19.7%	20.2%	18.0	17.9	17.8	17.7	18.1
Padua 66/12	Pebble	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.2%	3.0%	3.1%	2.9%	3.6%	2.9	2.7	2.8	2.6	3.3
Padua 66/12	Prego	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.9%	6.9%	7.2%	7.4%	8.0%	6.2	6.2	6.5	6.6	7.2
Padua 66/12	Santorini	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	20.6%	20.8%	21.1%	21.3%	21.8%	18.6	18.7	19.0	19.2	19.6
Padua 66/12	Tully	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	7.8%	7.8%	7.8%	8.0%	8.5%	7.0	7.0	7.0	7.2	7.7
Padua 66/12	Verdi	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	11.0%	11.0%	11.1%	11.2%	11.7%	9.9	9.9	10.0	10.1	10.5
Palmdale 66/12	Ledford	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.9%	6.5%	6.3%	5.7%	5.7%	6.2	5.9	5.7	5.2	5.1
Palmdale 66/12	Paint	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.7%	6.7%	6.7%	6.4%	6.4%	6.0	6.0	6.0	5.8	5.8
Palmdale 66/12	Sims	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.1%	0.7%	0.4%	0.0%	0.0%	1.0	0.6	0.4	0.0	0.0
Pechanga 115/12	Lazaro	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	18.8%	19.4%	20.7%	22.1%	25.5%	16.9	17.4	18.6	19.9	23.0
Pechanga 115/12	Lobo	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	33.1%	33.7%	35.0%	36.4%	40.0%	29.8	30.3	31.5	32.8	36.0
Pechanga 115/12	Matera	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	4.4%	4.6%	5.1%	5.9%	8.3%	3.9	4.1	4.6	5.3	7.4
Pechanga 115/12	Pascal	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	28.4%	29.1%	30.3%	31.8%	35.4%	25.6	26.2	27.3	28.7	31.9
Pechanga 115/12	Crownhill	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	8.1%	8.7%	10.0%	11.3%	14.6%	7.3	7.9	9.0	10.1	13.1
Pedley 66/12	Arlington	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	1.0%	0.0	0.0	0.0	0.0	0.9
Pepper 115/12	Lancers	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	0.6%	0.9%	1.8%	0.0	0.0	0.5	0.8	1.6
Peyton 66/12	Alicia	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	0.4%	3.1%	4.4%	0.0	0.0	0.4	2.8	3.9
Peyton 66/12	East End	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	8.5%	8.2%	8.5%	9.1%	10.2%	7.7	7.3	7.6	8.2	9.2
Peyton 66/12	Stalling	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.0%	5.9%	6.4%	7.3%	8.5%	5.4	5.3	5.8	6.5	7.6
Placentia 66/12	Coach	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.9%	2.8%	2.8%	2.6%	3.1%	2.6	2.6	2.5	2.3	2.8
Potrero 66/16	Vaquero	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	11.8%	11.1%	25.8%	25.3%	25.0%	10.6	10.0	23.2	22.8	22.5
Potrero 66/16	Shenandoah	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	0.6%	0.5%	0.7%	0.0	0.0	0.6	0.5	0.6
Proctor 66/12	Zeus	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	27.3%	20.0%	21.3%	23.0%	27.0%	24.5	18.0	19.2	20.7	24.3
Puente 66/12	Suzy	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	5.1%	4.5%	9.4%	9.4%	10.4%	4.6	4.1	8.5	8.4	9.4
Railroad 66/12	Caboose	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.2%	3.2%	3.3%	3.5%	4.2%	2.9	2.9	2.9	3.1	3.8
Railroad 66/12	Diner	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	5.4%	5.4%	5.3%	5.4%	6.1%	4.9	4.9	4.8	4.9	5.5
Railroad 66/12	Trestle	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	0.1%	0.1%	0.3%	0.5%	0.0%	0.1	0.1	0.3	0.4	0.0
Rancho 33/12	Knolls	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	1.6%	1.7%	1.5%	2.1%	0.0	1.5	1.5	1.4	1.9
Rancho 33/12	Lakota	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	14.6%	14.6%	14.1%	14.7%	0.0	13.2	13.1	12.7	13.2
Rancho 33/12	Marianna	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	5.3%	5.5%	0.0%	0.0%	0.0	4.7	4.9	0.0	0.0
Rancho 33/12	Standing Rock	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.3%	15.3%	15.6%	15.3%	16.2%	3.0	13.7	14.1	13.8	14.6
Rancho 33/12	Symeron	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	1.4%	1.5%	1.3%	2.0%	0.0	1.3	1.3	1.1	1.8
Randall 66/12	Nicklin	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	4.1%	14.0%	14.4%	14.4%	15.7%	3.7	12.6	13.0	13.0	14.1
Randall 66/12	Mora	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	2.5%	2.8%	2.9%	3.8%	0.0	2.2	2.5	2.6	3.4
Randall 66/12	Silva	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	1.6%	1.9%	2.1%	3.1%	0.0	1.4	1.8	1.9	2.8
Rio Hondo 66/12	Euphrates	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	7.5%	6.9%	6.3%	5.8%	5.1%	6.7	6.2	5.7	5.2	4.6
Rio Hondo 66/12	Nile	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.1%	5.4%	4.9%	4.4%	3.7%	5.5	4.9	4.4	4.0	3.3
Rio Hondo 66/12	Rhine	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	3.1%	2.3%	1.6%	1.0%	0.2%	2.7	2.1	1.4	0.9	0.2
Rio Hondo 66/12	Tigris	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.2%	5.3%	4.6%	3.8%	2.8%	5.6	4.8	4.1	3.4	2.5

Substation / Subtransmission Line	Circuit	Element Identifier	Distribution Service Required	Primary Driver of Grid Need	Operating Date	Equipment			Deficiency (%)						Deficiency (MW, °C, V _{un})				
						Element	Rating	Units	2018	2019	2020	2021	2022		2018'	2019'	2020'	2021'	2022'
Riverway 66/12	Gila	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	4.4%	4.8%	5.4%	23.1%	20.6%		4.0	4.3	4.9	20.8	18.5
Riverway 66/12	Susquehanna	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.7%	2.4%	3.9%	4.2%	0.0%		1.5	2.2	3.5	3.8	0.0
Riverway 66/12	Yellowstone	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	4.7%	5.3%	7.3%	0.0%	0.0%		4.2	4.8	6.6	0.0	0.0
Riverway 66/12	Rio Grande	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	9.8%	10.8%	12.4%	8.6%	8.2%		8.8	9.7	11.2	7.7	7.4
Roadway 115/12	Caterpillar	Distribution Feeder	Capacity	Demand Growth	6/1/2021	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	18.2%	19.0%		0.0	0.0	0.0	16.3	17.1
Roadway 115/12	International	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.2%	0.0%	0.0%	0.0%	0.0%		2.0	0.0	0.0	0.0	0.0
Roadway 115/12	Peterbilt	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	9.2%	5.8%	5.9%	14.9%	15.5%		8.3	5.2	5.3	13.4	14.0
Royal 66/16	Appleton	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	5.8%	6.1%	6.8%	7.4%	10.0%		5.2	5.5	6.2	6.7	9.0
Royal 66/16	Erringer	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	0.0%		0.0	0.0	0.0	0.0	0.0
San Antonio 66/12	Gaylord	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	7.8%	7.9%	7.6%	7.6%	7.9%		7.0	7.1	6.9	6.9	7.1
San Antonio 66/12	Kingsley	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	0.2%	0.0%	0.1%	0.0%	0.8%		0.2	0.0	0.1	0.0	0.8
San Antonio 66/12	Lehigh	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	25.2%	25.2%	25.1%	25.1%	25.9%		22.7	22.6	22.6	22.6	23.4
San Antonio 66/12	Pitzer	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	13.7%	13.5%	13.6%	13.5%	14.4%		12.3	12.2	12.2	12.2	13.0
San Antonio 66/12	Satellite	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	30.9%	30.5%	30.3%	29.9%	30.5%		27.8	27.4	27.2	26.9	27.4
San Antonio 66/12	Sunsweet	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	12.3%	11.9%	11.7%	5.8%	6.2%		11.1	10.7	10.5	5.2	5.6
San Dimas 66/12	Avenida	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.7%	2.4%	3.5%	4.4%	7.4%		1.6	2.1	3.1	3.9	6.7
San Dimas 66/12	Bonita	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	13.9%	13.9%	14.3%	14.8%	17.3%		12.5	12.5	12.9	13.3	15.6
San Dimas 66/12	Cataract	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	7.1%	7.5%	8.7%	9.6%	12.6%		6.4	6.8	7.8	8.6	11.3
San Dimas 66/12	Kranzer	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	14.1%	14.1%	14.8%	15.6%	18.1%		12.7	12.7	13.3	14.0	16.3
San Dimas 66/12	Nubia	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	11.2%	11.2%	11.7%	12.3%	14.8%		10.1	10.1	10.5	11.1	13.3
Santa Fe Springs 66/12	Laird	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	9.6%	9.8%	9.6%	9.9%	10.2%		8.6	8.8	8.6	8.9	9.2
Santa Fe Springs 66/12	Painter	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	14.7%	14.7%	14.6%	14.8%	14.4%		13.2	13.2	13.1	13.3	13.0
Santiago 66/12	Euro	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.9%	2.0%	18.0%	18.2%	19.7%		6.2	1.8	16.2	16.4	17.7
Santiago 66/12	Franc	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	5.7%	4.2%	8.8%	9.0%	10.7%		5.1	3.8	7.9	8.1	9.6
Santiago 66/12	Guilder	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	7.7%	5.6%	10.1%	9.9%	11.0%		7.0	5.1	9.1	8.9	9.9
Santiago 66/12	Lire	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	7.3%	7.0%	8.6%	7.5%	8.9%		6.6	6.3	7.8	6.7	8.0
Santiago 66/12	Tolar	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	1.2%	19.9%	1.1%	1.7%		0.0	1.1	17.9	1.0	1.5
Santiago 66/12	Counterfeit	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	22.3%	21.3%	20.6%	20.1%	21.3%		20.0	19.2	18.6	18.1	19.2
Santiago 66/12	Krona	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	6.0%	5.6%	5.7%	5.7%	7.3%		5.4	5.0	5.1	5.2	6.5
Santiago 66/12	Yen	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	24.5%	23.4%	22.9%	22.3%	23.4%		22.1	21.1	20.6	20.1	21.0
Saugus 66/16	Bermite	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.8%	2.6%	1.5%	0.5%	4.0%		1.6	2.3	1.4	0.4	3.6
Saugus 66/16	Mint Canyon	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	1.0%		0.0	0.0	0.0	0.0	0.9
Savage 115/12	Boise	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	1.3%	1.0%	10.8%	11.0%		0.0	1.1	0.9	9.7	9.9
Savage 115/12	Burwood	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	8.9%	20.2%	19.7%	22.5%	22.5%		8.0	18.2	17.7	20.2	20.3
Savage 115/12	Frontage	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	0.3%	6.3%	6.1%	6.5%	6.7%		0.3	5.7	5.5	5.9	6.0
Savage 115/12	Prayer	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.6%	3.4%	3.5%	5.0%	5.4%		1.5	3.1	3.1	4.5	4.9
Savage 115/12	Talpa	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	4.9%	18.9%	18.5%	21.2%	21.3%		4.4	17.0	16.6	19.1	19.1
Shandin 115/12	Northpark	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.8%	1.3%	1.4%	1.3%	2.1%		1.6	1.2	1.3	1.2	1.9
Shuttle 66/12	Jedi	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.9%	1.4%	1.0%	0.6%	0.7%		1.7	1.2	0.9	0.5	0.6
Signal Hill 12/4.16	Derrick	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	3.2%	3.8%	4.0%	1.6%		0.0	2.9	3.4	3.6	1.4
Signal Hill 12/4.16	Michigan	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	9.6%	9.9%	10.4%	10.7%	12.0%		8.6	8.9	9.4	9.6	10.8
Signal Hill 66/12	Montana	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	2.0%	2.3%	2.2%	0.0%		0.0	1.8	2.0	2.0	0.0
Silver Spur 33/12	Bit	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	7.8%	7.9%	8.5%	3.5%	5.2%		7.0	7.1	7.7	3.1	4.7
Silver Spur 33/12	Carriage	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.0%	2.1%	2.7%	0.0%	0.0%		1.8	1.8	2.4	0.0	0.0
Stadler 115/12	Blitz	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	0.3%	0.0%	0.0%	0.0%	0.0%		0.2	0.0	0.0	0.0	0.0
Stewart 66/12	Clifford	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	15.9%	15.1%	14.4%	13.7%	13.3%		14.3	13.6	13.0	12.3	12.0
Stewart 66/12	Donald	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	33.3%	32.2%	31.4%	30.3%	29.8%		30.0	29.0	28.2	27.3	26.8
Stewart 66/12	Emory	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	9.2%	8.7%	8.4%	7.9%	7.9%		8.3	7.8	7.6	7.1	7.1
Stewart 66/12	Jimmy	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	7.4%	5.9%	4.7%	11.7%	19.7%		6.7	5.3	4.2	10.6	17.8
Stewart 66/12	Kordell	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	11.6%	10.9%	10.5%	9.9%	9.7%		10.4	9.8	9.5	8.9	8.7
Stewart 66/12	Walter	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	23.3%	22.8%	22.5%	22.0%	21.9%		20.9	20.5	20.3	19.8	19.7
Stewart 66/12	William	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	25.2%	24.1%	23.3%	22.2%	21.7%		22.7	21.7	20.9	19.9	19.5
Sun City 115/12	Equinox	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	3.2%		0.0	0.0	0.0	0.0	2.9
Sun City 115/12	Sundance	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	2.4%		0.0	0.0	0.0	0.0	2.2
Sunnyside 66/4.16	Sharp	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.3%	2.9%	3.2%	2.8%	3.5%		2.1	2.6	2.9	2.5	3.1
Tamarisk 115/12	Agave	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	9.7%		0.0	0.0	0.0	0.0	8.8
Tamarisk 115/12	Athel	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	0.1%	2.7%	6.2%		0.0	0.0	0.1	2.4	5.6

Substation / Subtransmission Line	Circuit	Element Identifier	Distribution Service Required	Primary Driver of Grid Need	Operating Date	Equipment			Deficiency (%)					Deficiency (MW, °C, V _{un})				
						Element	Rating	Units	2018	2019	2020	2021	2022	2018'	2019'	2020'	2021'	2022'
Tamarisk 115/12	Sumac	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	18.4%	18.1%	17.9%	17.7%	0.0	16.5	16.3	16.1	15.9
Tamarisk 115/12	Creosote	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	1.8%	0.0	0.0	0.0	0.0	1.6
Telegraph 66/12	Beta	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	5.6%	4.9%	4.6%	3.9%	3.5%	5.0	4.4	4.1	3.5	3.1
Trophy 66/12	Raceway	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	15.3%	14.0%	12.8%	11.7%	10.8%	13.8	12.6	11.5	10.5	9.7
Upland 66/12	Meagan	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	8.0%	7.5%	7.6%	7.6%	9.0%	7.2	6.7	6.9	6.8	8.1
Upland 66/12	Sapphire	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.3%	1.1%	1.4%	1.6%	3.1%	1.2	1.0	1.3	1.5	2.8
Upland 66/4.16	Klusman	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	14.4%	14.8%	15.9%	17.2%	20.7%	12.9	13.4	14.3	15.5	18.6
Upland 66/4.16	Colburn	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	1.7%	0.0	0.0	0.0	0.0	1.5
Victor 115/12	Astor	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	5.3%	0.0%	0.0%	0.4%	3.1%	4.8	0.0	0.0	0.4	2.8
Victor 115/12	Brucite	Distribution Feeder	Capacity	Demand Growth	6/1/2019	Distribution	90.0	*Celsius	0.0%	0.5%	1.6%	2.8%	5.0%	0.0	0.4	1.4	2.5	4.5
Victor 115/12	Koala	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	1.9%	0.1%	1.1%	2.2%	5.0%	1.7	0.1	1.0	1.9	4.5
Victor 115/12	Magua	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	14.9%	13.3%	14.3%	15.4%	18.4%	13.4	11.9	12.9	13.9	16.6
Victor 115/12	Olancho	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	4.3%	2.5%	3.3%	4.0%	6.7%	3.9	2.3	2.9	3.6	6.0
Victor 115/12	Zasadni	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	4.1%	2.3%	3.4%	4.5%	7.4%	3.7	2.1	3.0	4.0	6.7
Victor 115/12	Beeline	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	0.4%	1.0%	2.0%	3.2%	6.2%	0.3	0.9	1.8	2.9	5.6
Victor 115/12	Eagle Ranch	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	2.7%	0.0	0.0	0.0	0.0	2.4
Victor 115/12	Manzer	Distribution Feeder	Capacity	Demand Growth	6/1/2022	Distribution	90.0	*Celsius	0.0%	0.0%	0.0%	0.0%	2.7%	0.0	0.0	0.0	0.0	2.4
Walnut 66/12	Factory	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	2.9%	2.5%	2.5%	2.3%	3.0%	2.7	2.2	2.3	2.1	2.7
Walnut 66/12	Grazide	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	18.0%	17.6%	17.6%	17.3%	17.9%	16.2	15.9	15.8	15.6	16.1
Walnut 66/12	Kwis	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	8.9%	8.6%	8.8%	8.7%	9.6%	8.0	7.7	7.9	7.8	8.6
Walteria 66/4.16	Moon	Distribution Feeder	Capacity	Demand Growth	6/1/2020	Distribution	90.0	*Celsius	0.0%	0.0%	1.0%	2.6%	5.3%	0.0	0.0	0.9	2.3	4.8
Walteria 66/4.16	Narbonne	Distribution Feeder	Capacity	Demand Growth	6/1/2018	Distribution	90.0	*Celsius	4.3%	4.8%	5.9%	6.6%	9.2%	3.9	4.3	5.3	5.9	8.3
Chino 220/66 kV - Substation		TSP ABank	Reliability, Capacity	Demand Growth	12/31/2019	Substation	848	MW	1.9%	2.5%	3.2%	4.1%	6.9%	16.2	20.8	27.2	34.6	58.2
Valley-Elsinore-Ivyglen 115 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2020	Subtransmi	184.0	MW	7.9%	9.5%	10.2%	10.7%	11.6%	14.6	17.4	18.8	19.6	21.4
Alberhill 500/115 kV - Substation		TSP ABank	Reliability, Capacity	Demand Growth	6/1/2021	Substation	1119	MW	0.0%	0.0%	0.0%	0.0%	0.5%	0.0	0.0	0.0	0.0	6.0
Rector-Goshen-Liberty No. 1 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2018	Subtransmi	143.4	MW	24.3%	23.8%	24.7%	23.1%	25.3%	34.9	34.2	35.4	33.1	36.2
Elizabeth Lake - Pitchgen 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2022	Subtransmi	87.2	MW	1.8%	5.3%	13.3%	20.0%	24.8%	1.6	4.7	11.6	17.4	21.6
Rio Hondo-Dalton-Liquid 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2020	Subtransmi	88.2	MW	0.0%	1.2%	1.5%	1.7%	2.4%	0.0	1.0	1.3	1.5	2.1
Saugus-Elizabeth Lake-MWD Foothill 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2022	Subtransmi	87.2	MW	1.4%	5.3%	12.6%	19.7%	23.2%	1.2	4.7	11.0	17.2	20.2
Eagle Rock-Fairfax-Wabash 66 kV - Line/Eagle Rock-Bey		TSP STL	Reliability, Capacity	Demand Growth	6/1/2018	Subtransmi	59.2	MW	9.7%	10.9%	20.4%	23.0%	27.7%	5.7	6.5	12.1	13.6	16.4
Rector - Riverway No.2 66 kv new Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2021	Subtransmi	143.4	MW	9.4%	7.8%	9.0%	8.0%	10.5%	13.5	11.2	12.9	11.5	15.1
Valley-Auld-Triton 115 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2020	Subtransmi	293.0	MW	1.5%	1.7%	2.9%	4.8%	6.5%	4.4	5.0	8.4	14.0	19.0
Moorpark 220/66 kV - Substation		TSP ABank	Capacity	Demand Growth	6/1/2021	Substation	552	MW	0.9%	2.0%	2.9%	4.0%	4.9%	4.9	11.1	15.9	22.0	27.3
La Cienega-Beverly-Culver 66 kV - Line, La Cienega-Cu		TSP STL	Reliability, Capacity	Demand Growth	12/31/2018	Subtransmi	82.7	MW	6.2%	14.7%	14.3%	16.8%	16.0%	5.1	12.2	11.8	13.9	13.3
Springville-Strathmore 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2019	Subtransmi	63.3	MW	2.6%	2.3%	3.8%	6.2%	7.7%	1.7	1.4	2.4	3.9	4.9
Vestal-Browning-Delano 66 kV - Line		TSP STL	Reliability, Voltage	Demand Growth	12/31/2018	Subtransmi +/-	0.05	Vpu	13.2%	10.8%	44.0%	44.8%	7.8%	0.0	0.0	0.0	0.0	0.0
Del Amo 220/66(S) - Substation		TSP ABank	Reliability/Capacity	Demand Growth	6/1/2019	Substation	415.0	MW	24.7%	24.8%	26.0%	26.1%	26.9%	102.5	102.8	107.9	108.4	111.8
Vestal-Mariposa 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2018	Subtransmi	65.1	MW	13.4%	15.6%	17.1%	18.7%	18.0%	8.7	10.2	11.1	12.2	11.7
Lindsay-Strathmore 66 kV - Line		TSP STL	Reliability, Voltage	Demand Growth	6/1/2021	Subtransmi +/-	0.05	Vpu	2.8%	27.6%	32.8%	17.8%	2.2%	0.0	0.0	0.0	0.0	0.0
Rector Oakgrove 66 kV CB - Substation		TSP STL	Reliability, Capacity	Demand Growth	6/1/2018	Substation	143.4	MW	15.4%	13.7%	14.8%	13.8%	16.4%	22.1	19.6	21.3	19.7	23.5
Poplar 66/12 kV - Substation		TSP STV	Reliability, Voltage	Demand Growth	6/1/2019	Substation +/-	0.05	Vpu	52.0%	68.0%	104.0%	77.8%	82.2%	0.0	0.0	0.1	0.0	0.0
Vestal-Columbine-Delano-Earlmart 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	12/31/2018	Subtransmi	48.4	MW	2.0%	2.7%	2.7%	4.4%	5.4%	1.0	1.3	1.3	2.2	2.6
Johanna 220/66 kV - Substation		TSP ABank	Reliability, Capacity	Demand Growth	12/31/2018	Substation	307	MW	0.0%	0.0%	0.1%	0.2%	0.3%	0.0	0.0	0.3	0.7	0.8
Porterville-Woodville 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2019	Subtransmi	65.1	MW	1.5%	2.0%	2.9%	3.9%	6.1%	1.0	1.3	1.9	2.5	3.9
Newhall 66/16 kV - Substation		TSP STL	Reliability, Voltage	Demand Growth	6/1/2021	Substation +/-	0.05	Vpu	0.0%	0.0%	0.0%	8.0%	12.0%	0.0	0.0	0.0	0.0	0.0
Springville-Porterville-Strathmore 66 kV - Line		TSP STL	Reliability, Voltage	Demand Growth	6/1/2019	Subtransmi +/-	0.05	Vpu	34.8%	0.2%	1.2%	17.8%	2.2%	0.0	0.0	0.0	0.0	0.0
Saugus - Colossus - Lockheed - Pitchgen 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2019	Subtransmi	96.8	MW	10.5%	9.0%	11.2%	12.3%	15.6%	10.2	8.7	10.9	12.0	15.1
Viejo-Limestone 66 kV and Viejo-Limestone- Moulton		TSP STL	Reliability, Capacity	Demand Growth	6/1/2019	Subtransmi	143.4	MW	3.6%	5.5%	5.8%	5.2%	4.7%	5.1	7.9	8.4	7.5	6.8
Corona 66 kV Substation		TSP STL	Reliability, Capacity	Demand Growth	12/31/2018	Substation	143.4	MW	6.7%	7.7%	8.5%	12.6%	16.6%	9.6	11.1	12.2	18.0	23.8
El Nido-Felton-La Cienega 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	12/31/2019	Subtransmi	121.4	MW	0.0%	0.0%	4.1%	5.6%	8.1%	0.0	0.0	5.0	6.8	9.8
Browning-Delano 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2019	Subtransmi	65.1	MW	0.0%	15.2%	12.1%	12.5%	12.8%	0.0	9.9	7.9	8.1	8.4
Mariposa 66/12 kV - Substation		TSP STL	Reliability, Voltage	Demand Growth	6/1/2022	Substation +/-	0.05	Vpu	34.8%	0.2%	1.2%	17.8%	2.2%	0.0	0.0	0.0	0.0	0.0
Santa Clara – Goleta Tie Line Loss D60 Scheme		TSP STL	Reliability, Capacity	Demand Growth	12/31/2019	Subtransmi	188.1	MW	17.2%	17.2%	17.2%	17.2%	17.2%	32.4	32.4	32.4	32.4	32.4
El Nido-Lennox 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	12/31/2020	Subtransmi	137.0	MW	0.0%	0.0%	0.0%	0.0%	7.3%	0.0	0.0	0.0	0.0	10.0
Beverly 66/4.16 - Substation, Studio 66/12 - Substatio		TSP STL	Reliability, Capacity	Demand Growth	12/31/2018	Subtransmi	75.3	MW	0.0%	0.0%	8.4%	9.7%	11.4%	0.0	0.0	6.3	7.3	8.6
Crater-Latigo-Tapia 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2022	Subtransmi	29.3	MW	0.7%	2.1%	3.2%	3.9%	4.7%	0.2	0.6	0.9	1.1	1.4
Santa Clara-Channel Island-Mandalay 66 kV - Substati		TSP STL	Reliability, Voltage	Demand Growth	6/1/2020	Substation +/-	0.05	Vpu	0.0%	0.0%	46.0%	38.0%	38.0%	0.0	0.0	0.0	0.0	0.0

Substation / Subtransmission Line	Circuit	Element Identifier	Distribution Service Required	Primary Driver of Grid Need	Operating Date	Equipment			Deficiency (%)					Deficiency (MW, °C, V _{pu})				
						Element	Rating	Units	2018	2019	2020	2021	2022	2018'	2019'	2020'	2021'	2022'
Padua-Live Oak 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2021	Subtransmi	109.8 MW		3.4%	2.0%	2.6%	4.4%	4.5%	3.7	2.2	2.9	4.8	4.9
Mira Loma-Archibald 66 kV - Substation		TSP STL	Reliability, Capacity	Demand Growth	6/1/2019	Substation	143.4 MW		15.5%	15.9%	16.8%	21.5%	24.3%	22.2	22.8	24.1	30.8	34.8
Jefferson 66 kV - Substation		TSP STL	Reliability, Capacity	Demand Growth	6/1/2019	Substation	143.4 MW		1.3%	2.1%	4.0%	6.7%	9.2%	1.9	3.0	5.7	9.6	13.1
Mira Loma-Bain-Pedley 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2020	Subtransmi	86.4 MW		26.7%	27.9%	27.5%	30.6%	34.2%	23.1	24.1	23.8	26.4	29.5
Riverway 66 kV - Substation		TSP STL	Reliability, Capacity	Demand Growth	6/1/2018	Substation	143.4 MW		9.3%	7.8%	9.0%	8.0%	10.5%	13.4	11.2	12.9	11.5	15.1
Santiago-Chip-Coygen-Crown-Macarthur-Univeristy 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2019	Subtransmi	143.4 MW		0.3%	0.3%	0.4%	0.7%	0.7%	0.5	0.5	0.6	1.0	1.0
Santiago-Irvine 66 kV - Line		TSP STL	Reliability, Capacity	Demand Growth	6/1/2019	Subtransmi	143.4 MW		2.0%	4.4%	7.4%	9.8%	11.5%	2.9	6.3	10.6	14.0	16.5
Thornhill 115/12 - Substation		TSP STL	Reliability, Voltage	Demand Growth	6/1/2020	Substation +/-	0.05 Vpu		0.0%	0.0%	4.0%	40.0%	8.0%	0.0	0.0	0.0	0.0	0.0

	2018					2019					2020					2021					2022					
	Facility	se Demand (MW)	PV (MW) ¹⁸	EE (MW) ¹⁸	EV (MW) ¹⁸	LMDR (MW) ¹⁸	se Demand (MW)	PV (MW) ¹⁹	EE (MW) ¹⁹	EV (MW) ¹⁹	LMDR (MW) ¹⁹	se Demand (MW)	PV (MW) ²⁰	EE (MW) ²⁰	EV (MW) ²⁰	LMDR (MW) ²⁰	se Demand (MW)	PV (MW) ²¹	EE (MW) ²¹	EV (MW) ²¹	LMDR (MW) ²¹	se Demand (MW)	PV (MW) ²²	EE (MW) ²²	EV (MW) ²²	LMDR (MW) ²²
Doris 12kV	0.0056	-0.0446	-0.0279	0.0013	0.0032	0.0042	-0.0454	-0.0260	0.0015	-0.0010	0.0076	-0.0445	-0.0246	0.0013	-0.0012	0.0088	-0.0545	-0.0264	0.0006	-0.0004	0.0186	-0.0629	-0.0246	0.0025	-0.0009	
Dorman 12kV	0.0107	-0.0594	-0.0704	0.0022	0.0075	0.0079	-0.0591	-0.0697	0.0028	-0.0039	0.0144	-0.0589	-0.0699	0.0034	0.0016	0.0166	-0.0614	-0.0712	0.0007	0.0000	0.0381	-0.0640	-0.0660	0.0045	-0.0004	
Dornes 12kV	0.0168	-0.0751	-0.0476	0.0040	0.0075	0.0125	-0.0749	-0.0419	0.0048	-0.0009	0.0228	-0.0818	-0.0373	0.0042	-0.0017	0.0262	-0.1084	-0.0417	0.0017	-0.0031	0.0554	-0.1387	-0.0395	0.0077	-0.0009	
Dorol 12kV	0.0184	-0.0349	-0.0185	0.0018	0.0004	0.0385	-0.0175	-0.0136	0.0020	0.0004	0.0520	-0.0274	-0.0095	0.0014	-0.0013	0.0598	-0.0686	-0.0133	0.0000	0.1363	0.0586	-0.0138	0.0031	-0.0004		
Dorsey 12kV	0.0227	-0.1076	-0.0479	0.0022	0.0006	0.0140	-0.1045	-0.0431	0.0026	-0.0003	0.0256	-0.0993	-0.0394	0.0023	-0.0016	0.0295	-0.1202	-0.0436	0.0009	-0.0018	0.0623	-0.1387	-0.0410	0.0042	-0.0013	
Dot 4.16kV	0.0021	-0.0428	-0.0065	0.0012	0.0004	0.0016	-0.0450	-0.0046	0.0014	-0.0004	0.0029	-0.0439	-0.0029	0.0010	0.0000	0.0033	-0.0578	-0.0044	-0.0001	0.0000	0.0069	-0.0664	-0.0043	0.0021	0.0000	
Dover 16kV	0.0000	-0.0297	-0.0077	0.0018	0.0000	0.0000	-0.0036	-0.0044	0.0022	0.0000	0.0000	-0.0359	-0.0015	0.0016	0.0000	0.0000	-0.0542	-0.0040	-0.0014	0.0000	0.0000	-0.0721	-0.0041	0.0029	0.0000	
Dowell 4.16kV	0.0039	-0.0357	-0.0046	0.0038	0.0000	0.0029	-0.0353	-0.0026	0.0047	0.0000	0.0052	-0.0328	-0.0009	0.0035	0.0000	0.0060	-0.0423	-0.0024	-0.0029	0.0000	0.0127	-0.0475	-0.0024	0.0062	0.0000	
Doyle 4.16kV	0.0057	-0.0122	-0.0033	0.0036	0.0000	0.0042	-0.0119	-0.0019	0.0041	0.0000	0.0077	-0.0113	-0.0007	0.0028	0.0000	0.0089	-0.0156	-0.0018	-0.0065	0.0000	0.0187	-0.0197	-0.0018	0.0047	0.0000	
Dredge 12kV	0.0591	-0.0076	-0.0027	0.0005	0.0000	0.0000	-0.0093	-0.0018	0.0006	0.0000	0.0000	-0.0109	-0.0010	0.0005	0.0000	0.0000	-0.0175	-0.0017	0.0000	0.0000	0.0000	-0.0252	-0.0017	0.0008	0.0000	
Drachma 12kV	0.1738	-0.2276	-0.0827	0.0012	0.0002	0.0362	-0.2416	-0.0814	0.0015	-0.0004	0.0961	-0.2381	-0.0815	0.0013	0.0007	0.0760	-0.3004	-0.0837	0.0005	0.0000	0.1607	-0.3380	-0.0773	0.0023	-0.0013	
Drag 12kV	0.1304	-0.0453	-0.0511	0.0003	0.0030	0.0107	-0.0475	-0.0510	0.0003	-0.0003	0.0595	-0.0486	-0.0517	0.0003	-0.0003	0.0224	-0.0548	-0.0525	0.0001	-0.0013	0.0474	-0.0608	-0.0484	0.0005	-0.0004	
Dragon 12kV	0.0177	-0.0380	-0.0378	0.0002	0.0000	0.0132	-0.0424	-0.0375	0.0002	0.0000	0.0240	-0.0453	-0.0375	0.0003	0.0000	0.0276	-0.0494	-0.0375	0.0001	0.0000	0.0584	-0.0534	-0.0355	0.0004	0.0000	
Drake 12kV	0.1544	-0.0286	-0.0100	0.0001	0.0000	0.0593	-0.0292	-0.0088	0.0001	0.0000	0.0585	-0.0294	-0.0079	0.0001	0.0000	0.0673	-0.0327	-0.0088	-0.0002	0.0000	0.1066	-0.0344	-0.0087	0.0002	0.0000	
Drambule 12kV	0.0217	-0.0275	-0.0333	0.0003	0.0131	0.0217	-0.0308	-0.0333	0.0003	-0.0039	0.0272	-0.0334	-0.0336	0.0004	0.0014	0.0314	-0.0348	-0.0332	0.0001	0.0000	0.0664	-0.0366	-0.0314	0.0005	0.0000	
Dredge 12kV	1.2730	-0.0591	-0.0687	0.0008	0.0000	0.0111	-0.0661	-0.0685	0.0010	-0.0008	0.0203	-0.0718	-0.0686	0.0014	0.0005	0.0234	-0.0747	-0.0676	0.0033	0.0000	0.0494	-0.0787	-0.0643	0.0024	0.0000	
Dresson 12kV	0.0097	-0.0258	-0.0406	0.0002	0.0017	0.0072	-0.0289	-0.0413	0.0003	-0.0013	0.0132	-0.0313	-0.0425	0.0003	0.0000	0.0152	-0.0328	-0.0424	0.0001	0.0000	0.0321	-0.0347	-0.0392	0.0004	0.0000	
Dreyer 12kV	0.0040	-0.0522	-0.0201	0.0044	0.0005	0.0030	-0.0494	-0.0121	0.0054	0.0004	0.0054	-0.0454	-0.0052	0.0047	-0.0006	0.0062	-0.0601	-0.0113	0.0019	-0.0004	0.0131	-0.0736	-0.0113	0.0086	-0.0040	
Drift 12kV	0.0161	-0.0870	-0.1142	0.0012	0.0032	0.0120	-0.0970	-0.1145	0.0015	-0.0002	0.0218	-0.1055	-0.1164	0.0020	-0.0016	0.0251	-0.1248	-0.1178	0.0047	0.0000	0.0530	-0.1474	-0.1087	0.0034	-0.0004	
Driftwood 12kV	0.0000	-0.1065	-0.0466	0.0271	0.0043	0.0040	-0.1086	-0.0388	0.0306	0.0003	0.0000	-0.1081	-0.0324	0.0198	-0.0108	0.0000	-0.1454	-0.0388	-0.0255	-0.0035	0.0000	-0.1850	-0.0366	0.0414	-0.0035	
Drill 4.16kV	0.0032	-0.0258	-0.0029	0.0015	0.0000	0.0024	-0.0231	-0.0019	0.0017	0.0000	0.0044	-0.0183	-0.0011	0.0012	0.0000	0.0050	-0.0203	-0.0018	-0.0027	0.0000	0.0106	-0.0203	-0.0018	0.0019	0.0000	
Driller 12kV	0.0000	-0.0509	-0.0238	0.0052	0.0004	0.2083	-0.0497	-0.0186	0.0059	-0.0013	0.0000	-0.0475	-0.0143	0.0041	-0.0005	0.0000	-0.0615	-0.0183	-0.0005	-0.0004	0.0000	-0.0748	-0.0175	0.0090	-0.0013	
Driskill 16kV	0.0032	-0.1538	-0.0314	0.0261	0.0000	0.0032	-0.0377	-0.0293	0.0005	0.0043	-0.1234	-0.0173	0.0194	0.0000	0.0049	0.0147	-0.1413	-0.0389	0.0000	0.0104	-0.1455	-0.0223	0.0364	0.0000	0.0000	
Drive Inn 12kV	0.0000	-0.0289	-0.0092	0.0038	0.0000	0.0000	-0.0266	-0.0061	0.0047	0.0000	0.0000	-0.0240	-0.0034	0.0035	0.0000	0.0000	-0.0294	-0.0058	-0.0029	0.0000	0.0000	-0.0338	-0.0057	0.0062	0.0000	
Driver 12kV	0.3469	-0.0448	-0.0214	0.0008	0.0000	0.0124	-0.0473	-0.0199	0.0009	0.0000	0.0600	-0.0482	-0.0186	0.0006	0.0000	0.0379	-0.0527	-0.0195	-0.0015	0.0000	0.0401	-0.0559	-0.0190	0.0011	0.0000	
Droid 12kV	0.0160	-0.0740	-0.0217	0.0043	0.0008	0.0119	-0.0674	-0.0170	0.0048	-0.0012	0.0217	-0.0600	-0.0131	0.0031	-0.0011	0.0250	-0.0738	-0.0168	-0.0040	-0.0040	0.0528	-0.0845	-0.0160	0.0065	-0.0009	
Drone 12kV	0.0161	-0.1021	-0.0270	0.0070	-0.0006	0.0120	-0.0922	-0.0218	0.0079	-0.0025	0.0219	-0.0808	-0.0174	0.0056	-0.0025	0.0251	-0.0965	-0.0216	-0.0006	-0.0022	0.0531	-0.1078	-0.0206	0.0122	-0.0031	
Drum 12kV	0.0000	-0.0386	-0.0124	0.0048	0.0006	0.0034	-0.0401	-0.0091	0.0054	-0.0014	0.0061	-0.0403	-0.0064	0.0035	0.0000	0.0071	-0.0567	-0.0089	-0.0045	-0.0018	0.0149	-0.0738	-0.0086	0.0073	-0.0009	
Dry Canyon 16kV	0.0073	-0.1062	-0.0829	0.0020	0.0041	0.0054	-0.1087	-0.0022	0.0005	0.0000	0.0090	-0.1075	-0.0820	0.0016	0.0000	0.0104	-0.1247	-0.0841	0.0000	0.0000	0.0188	-0.1381	-0.0776	0.0034	-0.0004	
Ducat 12kV	0.0488	-0.0269	-0.0412	0.0119	-0.0038	0.0362	-0.0295	-0.0384	0.0144	0.0002	0.0661	-0.0313	-0.0366	0.0125	0.0000	0.0760	-0.0358	-0.0392	0.0051	0.0000	0.1607	-0.0404	-0.0364	0.0231	-0.0009	
Ducor 12kV	0.1446	-0.0219	-0.0060	0.0000	0.0000	0.0627	-0.0203	-0.0045	0.0000	0.0000	0.0849	-0.0181	-0.0032	0.0000	0.0000	0.0976	-0.0202	-0.0043	0.0000	0.0000	0.2062	-0.0203	-0.0043	0.0000	0.0000	
Duda 12kV	0.0290	-0.0516	-0.0683	0.0017	0.0045	0.0215	-0.0559	-0.0687	0.0019	-0.0002	0.0392	-0.0590	-0.0701	0.0013	-0.0012	0.0451	-0.0655	-0.0709	-0.0002	0.0000	0.0954	-0.0729	-0.0652	0.0029	0.0000	
Duffer 16kV	0.2278	-0.1518	-0.0667	0.0075	0.0092	0.0024	-0.1444	-0.0626	0.0085	-0.0069	0.0043	-0.1303	-0.0599	0.0060	-0.0013	0.0049	-0.1462	-0.0639	-0.0007	-0.0013	0.0104	-0.1504	-0.0593	0.0131	-0.0004	
Duke 12kV	0.6368	-0.0658	-0.0478	0.0041	0.0024	0.0329	-0.0636	-0.0459	0.0047	-0.0006	0.7898	-0.0606	-0.0449	0.0033	-0.0005	0.0690	-0.0697	-0.0470	-0.0004	-0.0013	0.1458	-0.0769	-0.0435	0.0072	-0.0022	
Dumas 12kV	0.3238	-0.1302	-0.0369	0.0008	0.0088	0.0065	-0.0371	-0.0009	-0.0008	0.0000	0.0119	-0.0357	-0.0381	0.0000	-0.0009	0.0137	-0.0388	-0.0383	-0.0007	0.0000	0.0296	-0.0437	-0.0354	0.0012	0.0000	
Dunbar 4.16kV	0.0076	-0.0148	-0.0067	0.0024	0.0000	0.0056	-0.0159	-0.0043	0.0027	0.0000	0.0103	-0.0147	-0.0022	0.0019	0.0000	0.0118	-0.0204	-0.0040	-0.0044	0.0000	0.0249	-0.0262	-0.0040	0.0032	0.0000	
Duncan 4.16kV	0.0038	-0.0186	-0.0091	0.0007	0.0000	0.0028	-0.0196	-0.0052	0.0023	0.0000	0.0051	-0.0201	-0.0018	0.0017	0.0000	0.0059	-0.0300	-0.0047	0.0049	0.0000	0.0125	-0.0422	-0.0048	0.0031	0.0000	
Dundas 16kV	0.0467	-0.0204	-0.0203	0.0002	0.0018	0.0347	-0.0238	-0.0198	0.0003	0.0063	0.0267	-0.0196	0.0004	-0.0007	0.0728	-0.0363	-0.0203	0.0003	0.0001	0.0000	0.1539	-0.0468	-0.0188	0.0005	0.0000	
Dungan 12kV	0.0673	-0.0850	-0.0279	0.0006	0.0002	0.0500	-0.0815	-0.0255	0.0007	-0.0002	0.0913	-0.0740	-0.0237	0.0005	-0.0009	0.1049	-0.0857	-0.0259	-0.0001	-0.0013	0.2217	-0.0903	-0.0243	0.0010	-0.0009	
Dunkirk 12kV	0.0432	-0.0809	-0.0340	0.0066	-0.0037	0.0320	-0.0841	-0.0285	0.0075	-0.0032	0.0585	-0.0833	-0.0240	0.0053	-0.0009	0.0673	-0.1091	-0.0283	-0.0006	-0.0027	0.1422	-0.1294	-0.0269	0.0116	-0.0031	
Dunlap 12kV	1.5000	-0.0346	-0.0372	0.0006</																						

Facility	2018					2019					2020					2021					2022				
	se Demand (MW)	PV (MW) ¹⁸	EE (MW) ¹⁸	EV (MW) ¹⁸	LMDR (MW) ¹⁸	se Demand (MW)	PV (MW) ¹⁹	EE (MW) ¹⁹	EV (MW) ¹⁹	LMDR (MW) ¹⁹	se Demand (MW)	PV (MW) ²⁰	EE (MW) ²⁰	EV (MW) ²⁰	LMDR (MW) ²⁰	se Demand (MW)	PV (MW) ²¹	EE (MW) ²¹	EV (MW) ²¹	LMDR (MW) ²¹	se Demand (MW)	PV (MW) ²²	EE (MW) ²²	EV (MW) ²²	LMDR (MW) ²²
Halfback 12kV	0.0089	-0.0694	-0.0274	0.0026	0.0034	0.0066	-0.0612	-0.0219	0.0030	-0.0016	0.0120	-0.0531	-0.0174	0.0021	-0.0011	0.0138	-0.0624	-0.0218	-0.0002	-0.0013	0.0292	-0.0693	-0.0207	0.0046	-0.0013
Halfbut 12kV	0.2483	-0.0475	-0.0350	0.0022	0.0092	0.0066	-0.0493	-0.0349	0.0026	-0.0018	0.3364	-0.0491	-0.0354	0.0023	0.0004	0.0438	-0.0584	-0.0359	0.0009	0.0000	0.0925	-0.0660	-0.0301	0.0042	0.0000
Halfdale 16kV	0.0131	-0.1001	-0.0468	0.0027	0.0015	0.0097	-0.1160	-0.0418	0.0033	0.0014	0.0178	-0.1272	-0.0378	0.0029	-0.0029	0.0204	-0.1797	-0.0414	0.0012	-0.0013	0.0432	-0.2317	-0.0394	0.0053	-0.0009
Halfet 16kV	0.0134	-0.0311	-0.0336	0.0039	0.0009	0.0099	-0.0312	-0.0327	0.0011	0.0000	0.0181	-0.0384	-0.0321	0.0015	0.0000	0.0145	-0.0399	-0.0466	-0.0332	0.0009	0.0441	-0.0541	-0.0309	0.0024	0.0000
Halfmark 12kV	4.0511	-0.0235	-0.0280	0.0002	0.0000	0.0031	-0.0263	-0.0280	0.0002	0.0000	0.0422	-0.0285	-0.0282	0.0003	0.0000	0.0485	-0.0297	-0.0278	0.0001	0.0000	0.1025	-0.0312	-0.0263	0.0004	0.0000
Halfmoor 12kV	0.0045	-0.0928	-0.0441	0.0037	0.0057	0.0034	-0.0939	-0.0405	0.0045	-0.0005	0.0061	-0.0914	-0.0379	0.0039	-0.0018	0.0071	-0.1147	-0.0412	0.0016	-0.0009	0.0149	-0.1339	-0.0384	0.0072	-0.0004
Halfey 12kV	0.0111	-0.0330	-0.0379	0.0108	0.0013	0.0082	-0.0358	-0.0322	0.0122	0.0006	0.0051	-0.0374	-0.0276	0.0079	-0.0014	0.0173	-0.0462	-0.0323	-0.0102	-0.0004	0.0366	-0.0552	-0.0304	0.0165	-0.0004
Halfey 12kV	0.0243	-0.0576	-0.0643	0.0029	0.0019	0.0180	-0.0605	-0.0639	0.0037	-0.0008	0.0329	-0.0617	-0.0644	0.0044	-0.0014	0.0378	-0.0691	-0.0656	0.0009	-0.0009	0.0300	-0.0761	-0.0606	0.0009	0.0000
Halfhome 12kV	0.0397	-0.0005	-0.0005	0.0003	0.0001	0.0001	0.0295	-0.0006	-0.0005	0.0003	0.0001	0.0538	-0.0006	-0.0005	0.0002	-0.0002	0.0619	-0.0007	-0.0005	0.0000	0.0308	-0.0008	-0.0005	0.0005	0.0000
Halfmoor 12kV	0.0000	-0.0009	-0.0285	0.0006	0.0028	0.0000	-0.0168	-0.0270	0.0007	-0.0003	0.0000	-0.0418	-0.0260	-0.0006	-0.0006	0.0000	-0.0598	-0.0276	0.0003	-0.0004	0.0000	-0.0808	-0.0256	0.0011	0.0000
Halfmoorhead 12kV	0.0617	-0.1348	-0.0125	0.0033	0.0000	0.0458	-0.1303	-0.0077	0.0035	-0.0008	0.0836	-0.1224	-0.0036	0.0025	-0.0013	0.0961	-0.1680	-0.0072	-0.0003	-0.0013	0.1777	-0.2117	-0.0072	0.0054	-0.0018
Hamack 33kV	0.9931	-0.0212	-0.0384	0.0016	0.0003	0.1623	-0.0238	-0.0394	0.0020	-0.0001	0.2964	-0.0258	-0.0409	0.0024	0.0001	0.3408	-0.0268	-0.0408	0.0005	0.0000	0.7203	-0.0283	-0.0375	0.0032	0.0000
Hampshire 16kV	0.0027	-0.1219	-0.0328	0.0193	0.0000	0.0360	-0.1147	-0.0236	0.0217	0.0000	0.0657	-0.1042	-0.0159	0.0143	0.0000	0.0756	-0.1323	-0.0230	-0.0288	0.0000	0.1598	-0.1561	-0.0222	0.0269	0.0000
Hampton 4.16kV	0.0049	-0.1005	-0.0043	0.0034	0.0001	0.0036	-0.0120	-0.0033	0.0038	0.0000	0.0067	-0.0127	-0.0025	0.0025	0.0000	0.0077	-0.0179	-0.0033	-0.0032	-0.0004	0.0162	-0.0023	-0.0031	0.0051	-0.0013
Han Solo 12kV	0.0160	-0.0679	-0.0478	0.0026	0.0000	0.0119	-0.0683	-0.0469	0.0029	0.0000	0.0217	-0.0666	-0.0467	0.0019	0.0000	0.0250	-0.0706	-0.0482	-0.0039	0.0000	0.0528	-0.0727	-0.0445	0.0036	0.0000
Harbor 12kV	0.0206	-0.0165	-0.0202	0.0007	0.0000	0.0185	-0.0185	-0.0202	0.0008	0.0000	0.0279	-0.0185	-0.0208	0.0010	0.0004	0.0321	-0.0208	-0.0206	0.0002	0.0000	0.0678	-0.0220	-0.0194	0.0013	0.0000
Haridar 12kV	0.0217	-0.0675	-0.0751	0.0009	0.0019	0.0401	-0.0720	-0.0748	0.0011	-0.0016	0.0285	-0.0746	-0.0750	0.0015	0.0000	0.0336	-0.0884	-0.0766	0.0000	0.0000	0.0710	-0.1030	-0.0707	0.0026	0.0000
Handy 12kV	0.0045	-0.1269	-0.0198	0.0078	-0.0002	0.0034	-0.1145	-0.0132	0.0088	-0.0007	0.0061	-0.0987	-0.0076	0.0062	-0.0003	0.0071	-0.1197	-0.0126	-0.0007	-0.0009	0.0149	-0.1338	-0.0124	0.0136	-0.0035
Hanes 12kV	0.0756	-0.0022	-0.0011	0.0000	0.0000	0.0513	-0.0025	-0.0010	0.0001	0.0000	0.0439	-0.0027	-0.0010	0.0001	0.0000	0.0505	-0.0029	-0.0010	0.0002	0.0000	0.0711	-0.0031	-0.0010	0.0000	0.0000
Hanger 12kV	0.2699	-0.3955	-0.0425	0.0009	0.0000	0.0125	-0.0440	-0.0425	0.0012	0.0000	0.0228	-0.0477	-0.0428	0.0018	0.0000	0.0262	-0.0498	-0.0424	0.0004	0.0000	0.0553	-0.0527	-0.0402	0.0020	0.0000
Hanks 12kV	0.0037	-0.0572	-0.0548	0.0012	0.0014	0.0027	-0.0627	-0.0538	0.0016	-0.0006	0.0050	-0.0669	-0.0532	0.0019	-0.0011	0.0057	-0.0711	-0.0533	0.0004	0.0000	0.0121	-0.0760	-0.0509	0.0025	0.0000
Harbor 4.16kV	0.0000	-0.0252	-0.0067	0.0033	0.0001	0.0000	-0.0262	-0.0039	0.0037	-0.0005	0.0000	-0.0266	-0.0015	0.0024	-0.0031	0.0000	-0.0397	-0.0036	-0.0031	-0.0018	0.0000	-0.0551	-0.0037	0.0050	-0.0018
Harco 4.16kV	0.0000	-0.0027	-0.0054	0.0047	0.0000	0.0030	-0.0035	-0.0033	0.0053	0.0004	0.0037	-0.0043	-0.0015	0.0034	0.0000	0.0042	-0.0483	-0.0031	-0.0044	0.0000	0.0000	-0.0042	-0.0031	0.0072	0.0000
Hardhat 12kV	0.0298	-0.0024	-0.0044	0.0009	0.0016	0.0221	-0.0225	-0.0248	0.0010	0.0000	0.0404	-0.0237	-0.0255	0.0007	-0.0002	0.0464	-0.0266	-0.0257	-0.0001	-0.0004	0.0982	-0.0289	-0.0236	0.0016	0.0000
Hardrock 12kV	0.0432	-0.0118	-0.0199	0.0000	0.0000	0.0320	-0.0132	-0.0195	0.0000	0.0000	0.0585	-0.0143	-0.0194	0.0000	0.0000	0.0673	-0.0149	-0.0199	0.0000	0.0000	0.1422	-0.0157	-0.0185	0.0000	0.0000
Hardrock 4.16kV	0.0076	-0.0195	-0.0067	0.0012	0.0000	0.0056	-0.0196	-0.0041	0.0015	0.0000	0.0103	-0.0191	-0.0019	0.0011	0.0000	0.0000	-0.0268	-0.0039	-0.0009	0.0000	0.0000	-0.0348	-0.0308	0.0020	0.0000
Hardy 4.16kV	0.0038	-0.0152	-0.0053	0.0007	0.0000	0.0028	-0.0181	-0.0035	0.0009	0.0000	0.0051	-0.0200	-0.0020	0.0006	0.0000	0.0059	-0.0306	-0.0033	-0.0005	0.0000	0.0125	-0.0404	-0.0033	0.0012	0.0000
Harkness 4.16kV	0.0063	-0.0404	-0.0083	0.0088	0.0000	0.0047	-0.0423	-0.0047	0.0108	0.0000	0.0086	-0.0422	-0.0016	0.0089	0.0000	0.0098	-0.0604	-0.0043	-0.0066	0.0000	0.0208	-0.0777	-0.0044	0.0143	0.0000
Harlem Springs 12kV	0.0000	-0.1030	-0.0441	0.0024	0.0000	0.0062	-0.1162	-0.0380	0.0027	0.0000	0.0119	-0.1245	-0.0330	0.0017	0.0000	0.0137	-0.0380	-0.0017	-0.0018	0.0000	0.0000	-0.2260	-0.0036	0.0036	-0.0035
Harlow 12kV	0.0412	-0.0410	-0.0337	0.0036	0.0077	0.0305	-0.0400	-0.0326	0.0040	-0.0013	0.0558	-0.0462	-0.0319	0.0026	0.0001	0.4204	-0.0528	-0.0326	-0.0034	0.0000	0.8896	-0.0601	-0.0307	0.0055	0.0000
Harmonica 12kV	0.0221	-0.0287	-0.0199	0.0106	0.0000	0.0164	-0.0306	-0.0182	0.0010	0.0000	0.0299	-0.0317	-0.0169	0.0083	0.0000	0.0344	-0.0374	-0.0185	-0.0194	0.0000	0.0726	-0.0435	-0.0172	0.0139	0.0000
Harmony 12kV	0.1087	-0.0287	-0.0125	0.0015	0.0000	0.0534	-0.0312	-0.0118	0.0018	0.0000	0.0975	-0.0330	-0.0113	0.0013	0.0000	0.1121	-0.0351	-0.0118	-0.0011	0.0000	0.2370	-0.0375	-0.0118	0.0024	0.0000
Harnage 12kV	0.0040	-0.1377	-0.0271	0.0051	-0.0001	0.0029	-0.1219	-0.0200	0.0057	-0.0013	0.0054	-0.1036	-0.0141	0.0037	-0.0010	0.0062	-0.1225	-0.0196	-0.0048	-0.0009	0.0131	-0.1321	-0.0188	0.0077	-0.0022
Harper 4.16kV	0.0030	-0.0227	-0.0066	0.0045	0.0000	0.0023	-0.0251	-0.0038	0.0056	0.0000	0.0041	-0.0254	-0.0014	0.0041	0.0000	0.0000	-0.0356	-0.0035	-0.0034	0.0000	0.0000	-0.0431	-0.0035	0.0073	0.0000
Harratt 4.16kV	0.0000	-0.0000	-0.0000	0.0078	0.0000	0.0000	-0.0001	-0.0000	0.0000	0.0000	0.0000	-0.0000	-0.0000	0.0000	0.0000	0.0000	-0.0000	-0.0000	-0.0000	0.0000	0.0000	-0.0000	-0.0000	-0.0000	0.0000
Harrier 12kV	0.8479	-0.0507	-0.0454	0.0008	0.0053	0.1105	-0.0526	-0.0412	0.0009	-0.0001	0.1110	-0.0540	-0.0376	0.0013	-0.0002	0.1176	-0.0575	-0.0398	0.0030	-0.0004	0.2698	-0.0609	-0.0386	0.0022	0.0000
Harrier 12kV	0.0571	-0.0864	-0.0264	0.0012	0.0011	0.0424	-0.0805	-0.0211	0.0014	-0.0003	0.0774	-0.0733	-0.0167	0.0009	0.0000	0.0890	-0.0918	-0.0210	-0.0011	-0.0004	0.1880	-0.1076	-0.0199	0.0019	-0.0027
Harrison 16kV	0.0467	-0.0508	-0.0516	0.0020	-0.0027	0.0347	-0.0587	-0.0507	0.0023	-0.0001	0.0633	-0.0654	-0.0506	0.0016	-0.0000	0.0728	-0.0836	-0.0517	-0.0002	0.0000	0.1539	-0.0002	-0.0480	0.0036	-0.0013
Hart 12kV	0.0285	-0.0804	-0.0229	0.0025	0.0000	0.0211	-0.0686	-0.0172	0.0028	0.0000	0.0386	-0.0557	-0.0124	0.0018	0.0000	0.0443	-0.0595	-0.0168	-0.0000	0.0000	0.0937	-0.0374	-0.0163	0.0034	0.0000
Hartle 4.16kV	0.0024	-0.0047	-0.0027	0.0004	0.0000	0.0018	-0.0058	-0.0015	0.0004	0.0000	0.0032	-0.0066	-0.0005	0.0003	0.0000	0.0037	-0.0107	-0.0014	-0.0003	0.0000	0.0078	-0.0151	-0.0014	0.0006	0.0000
Hartman 4.16kV</																									

Facility	2018					2019					2020					2021					2022				
	se Demand (MW)	PV (MW) ¹⁸	EE (MW) ¹⁸	EV (MW) ¹⁸	LMDR (MW) ¹⁸	se Demand (MW)	PV (MW) ¹⁹	EE (MW) ¹⁹	EV (MW) ¹⁹	LMDR (MW) ¹⁹	se Demand (MW)	PV (MW) ²⁰	EE (MW) ²⁰	EV (MW) ²⁰	LMDR (MW) ²⁰	se Demand (MW)	PV (MW) ²¹	EE (MW) ²¹	EV (MW) ²¹	LMDR (MW) ²¹	se Demand (MW)	PV (MW) ²²	EE (MW) ²²	EV (MW) ²²	LMDR (MW) ²²
Kelber 12kV	0.0540	-0.0453	-0.0427	0.0005	0.0000	0.0401	-0.0518	-0.0420	0.0006	0.0000	0.0731	-0.0571	-0.0417	0.0009	0.0000	0.0841	-0.0698	-0.0419	0.0004	0.0000	0.1777	-0.0837	-0.0396	0.0011	0.0000
Keller 12kV	0.0111	-0.0215	-0.0184	0.0049	-0.0004	0.0082	-0.1675	-0.0107	0.0055	-0.0021	0.0150	-0.1328	-0.0041	0.0035	0.0000	0.0173	-0.1519	-0.0099	-0.0046	-0.0004	0.0365	-0.1567	-0.0100	0.0074	-0.0004
Kelly 4.16kV	0.0000	-0.0004	-0.0017	0.0000	0.0000	0.0000	-0.0005	-0.0012	0.0000	-0.0002	0.0000	-0.0005	-0.0009	0.0000	0.0000	0.0000	-0.0005	-0.0012	0.0000	-0.0004	0.0000	-0.0006	-0.0012	0.0000	-0.0013
Kelvin 12kV	0.1746	-0.0738	-0.0314	0.0083	0.0021	0.0134	-0.0361	0.0093	-0.0019	0.0000	0.0244	-0.0748	-0.0271	0.0060	-0.0008	0.0060	-0.1021	-0.0263	-0.0077	-0.0013	0.0593	-0.1328	-0.0348	0.0126	-0.0015
Kelvin 12kV	0.0240	-0.0430	-0.0276	0.0034	0.0000	0.0178	-0.0448	-0.0223	0.0038	0.0000	0.0325	-0.0427	-0.0179	0.0025	0.0000	0.0047	-0.0503	-0.0221	-0.0051	0.0000	0.0099	-0.0542	-0.0210	0.0048	0.0000
Kelvinator 16kV	0.0149	-0.0978	-0.0743	0.0015	0.0032	0.0110	-0.1050	-0.0736	0.0019	-0.0004	0.0202	-0.1061	-0.0739	0.0025	-0.0076	0.0232	-0.1236	-0.0749	0.0061	-0.0004	0.0490	-0.1345	-0.0697	0.0044	-0.0013
Kembo 4.16kV	0.0045	-0.0126	-0.0031	0.0007	0.0001	0.0034	-0.1050	-0.0019	0.0009	0.0001	0.0062	-0.0167	-0.0008	0.0010	0.0000	0.0071	-0.0258	-0.0018	0.0002	-0.0004	0.0150	-0.0349	-0.0018	0.0014	-0.0004
Kendell 4.16kV	0.0027	-0.0117	-0.0039	0.0002	0.0013	0.0020	-0.0138	-0.0030	0.0003	-0.0004	0.0037	-0.0153	-0.0023	0.0002	0.0002	0.0042	-0.0232	-0.0030	0.0000	0.0000	0.0089	-0.0307	-0.0029	0.0004	-0.0004
Kenmore 4.16kV	0.0008	-0.0020	-0.0036	0.0023	0.0000	0.0006	-0.0232	-0.0021	0.0027	0.0001	0.0010	-0.0051	-0.0008	0.0019	-0.0004	0.0012	-0.0380	-0.0020	-0.0002	0.0000	0.0025	-0.0498	-0.0020	0.0041	-0.0004
Kennedy 33kV	0.7052	0.0000	0.0000	0.0104	0.0000	0.0262	-0.0002	0.0000	0.0016	0.0000	0.0477	-0.0002	0.0000	0.0011	0.0000	0.0549	-0.0003	0.0000	-0.0026	0.0000	0.1160	-0.0003	0.0000	0.0019	0.0000
Kennedy 16kV	0.0011	-0.0194	-0.0062	0.0022	0.0000	0.0008	-0.0202	-0.0035	0.0025	0.0000	0.0015	-0.0202	-0.0012	0.0017	0.0000	0.0017	-0.0290	-0.0032	-0.0040	0.0000	0.0036	-0.0376	-0.0032	0.0029	0.0000
Keno 12kV	0.0238	-0.1806	-0.0303	0.0049	0.0000	0.0177	-0.1790	-0.0180	0.0006	0.0000	0.0323	-0.1640	-0.0073	0.0044	0.0000	0.0371	-0.2105	-0.0166	-0.0036	0.0000	0.0784	-0.2370	-0.0167	0.0079	0.0000
Kenok 4.16kV	0.0076	-0.0167	-0.0039	0.0005	0.0010	0.0056	-0.0181	-0.0028	0.0006	-0.0009	0.0103	-0.0186	-0.0019	0.0006	-0.0002	0.0118	-0.0265	-0.0027	0.0002	0.0000	0.0249	-0.0340	-0.0026	0.0010	-0.0009
Kentucky 12kV	0.0052	-0.0428	-0.0314	0.0032	0.0021	0.0038	-0.0433	-0.0296	0.0036	0.0001	0.0070	-0.0429	-0.0285	0.0026	-0.0007	0.0081	-0.0523	-0.0302	-0.0003	0.0000	0.0170	-0.0614	-0.0281	0.0056	-0.0018
Kenwood 16kV	0.0295	-0.0305	-0.0354	0.0003	0.0049	0.0219	-0.0334	-0.0339	0.0004	-0.0005	0.0399	-0.0357	-0.0330	0.0005	-0.0001	0.0459	-0.0446	-0.0347	0.0012	0.0000	0.0970	-0.0554	-0.0322	0.0008	-0.0004
Kerles 12kV	0.0272	-0.1306	-0.0234	0.0032	0.0000	1.7502	-0.1342	-0.0178	0.0037	0.0000	0.0369	-0.1294	-0.0130	0.0023	0.0000	0.0424	-0.1671	-0.0173	-0.0059	0.0000	0.0897	-0.1924	-0.0168	0.0042	0.0000
Kernon 12kV	0.0132	-0.0510	-0.0272	0.0061	0.0000	0.0098	-0.0498	-0.0223	0.0058	0.0000	0.0179	-0.0473	-0.0184	0.0045	0.0000	0.0206	-0.0578	-0.0223	-0.0090	0.0000	0.0436	-0.0671	-0.0211	0.0085	0.0000
Kermit 12kV	0.0058	-0.1026	-0.0215	0.0108	-0.0007	0.0045	-0.1030	-0.0144	0.0122	0.0003	0.0307	-0.0990	-0.0083	0.0079	-0.0013	0.0089	-0.1345	-0.0138	-0.0102	-0.0040	0.0187	-0.1640	-0.0135	0.0165	-0.0035
Kern 12kV	0.0251	-0.0839	-0.0433	0.0008	0.0034	0.0186	-0.0848	-0.0397	0.0010	0.0005	0.0440	-0.0866	-0.0371	0.0008	-0.0031	0.0391	-0.1073	-0.0404	0.0003	-0.0004	0.0825	-0.1311	-0.0377	0.0015	-0.0027
Kernan 16kV	0.0359	-0.580	-0.0778	0.0004	0.0000	0.0267	-0.0646	-0.0771	0.0005	0.0000	0.0487	-0.0698	-0.0773	0.0008	0.0000	0.0560	-0.0753	-0.0779	0.0012	0.0000	0.1183	-0.0824	-0.0729	0.0011	0.0000
Kerry 12kV	0.0102	-0.0190	-0.0064	0.0002	0.0001	0.0075	-0.0172	-0.0044	0.0003	-0.0007	0.0138	-0.0151	-0.0027	0.0003	-0.0002	0.0158	-0.0190	-0.0042	0.0001	0.0000	0.0334	-0.0220	-0.0041	0.0004	-0.0004
Kessler 12kV	1.3432	-0.0487	-0.0789	0.0004	-0.0056	0.0870	-0.0545	-0.0804	0.0005	0.0001	0.0870	-0.0592	-0.0829	0.0006	0.0001	0.0870	-0.0616	-0.0825	0.0001	0.0000	0.1422	-0.0649	-0.0763	0.0008	0.0000
Ketch 12kV	0.0085	-0.1068	-0.0754	0.0056	-0.0019	0.0063	-0.1177	-0.0716	0.0071	-0.0020	0.0116	-0.1216	-0.0688	0.0085	-0.0013	0.0133	-0.1518	-0.0709	-0.0014	0.0000	0.0017	-0.0674	-0.0113	0.0000	0.0000
Keweenaw 12kV	0.0143	-0.0725	-0.0409	0.0210	0.0035	0.0143	-0.0810	-0.0325	0.0236	-0.0001	0.0143	-0.0859	-0.0256	0.0153	-0.0013	0.0143	-0.1247	-0.0323	-0.0197	-0.0009	0.0143	-0.1634	-0.0307	0.0320	-0.0013
Keweenaw 4.16kV	0.0011	-0.0090	-0.0059	0.0011	0.0011	0.0008	-0.0100	-0.0054	0.0013	0.0000	0.0015	-0.0107	-0.0050	0.0012	-0.0004	0.0018	-0.0150	-0.0055	0.0005	0.0000	0.0037	-0.0198	-0.0051	0.0021	-0.0004
Keystone 4.16kV	0.0000	-0.0305	-0.0105	0.0034	0.0000	0.0000	-0.0318	-0.0062	0.0042	0.0000	0.0000	-0.0323	-0.0025	0.0031	0.0000	0.0000	-0.0480	-0.0057	-0.0026	0.0000	0.0000	-0.0663	-0.0058	0.0056	0.0000
Kick 12kV	0.0081	-0.0895	-0.0348	0.0020	0.0027	0.0060	-0.0968	-0.0318	0.0023	0.0011	0.0110	-0.0978	-0.0296	0.0016	-0.0027	0.0126	-0.1280	-0.0323	-0.0002	-0.0009	0.0267	-0.1501	-0.0301	0.0035	-0.0004
Kickapoo Trail 12kV	0.0154	-0.1923	-0.0304	0.0036	0.0000	0.0114	-0.1879	-0.0227	0.0040	0.0000	0.0209	-0.1723	-0.0163	0.0026	0.0000	0.0240	-0.2400	-0.0222	-0.0053	0.0000	0.0507	-0.2405	-0.0214	0.0050	0.0000
Kids 12kV	0.0024	-0.0128	-0.0181	0.0005	0.0000	0.0040	-0.0144	-0.0044	0.0007	0.0000	0.0049	-0.0184	-0.0019	0.0000	0.0000	0.0026	-0.0163	-0.0188	0.0000	0.0000	0.0172	-0.0168	-0.0042	0.0000	0.0000
Kiewit 16kV	0.0000	-0.0467	-0.0332	0.0048	0.0000	0.0000	-0.0503	-0.0314	0.0054	0.0000	0.0000	-0.0530	-0.0302	0.0038	0.0000	0.0000	-0.0615	-0.0321	-0.0088	0.0000	0.0000	-0.0712	-0.0298	0.0063	0.0000
Kilkenny 12kV	0.0203	-0.0908	-0.0450	0.0049	0.0032	0.0151	-0.0951	-0.0362	0.0059	0.0009	0.0276	-0.0952	-0.0289	0.0051	-0.0016	0.0317	-0.1285	-0.0359	0.0021	-0.0018	0.0670	-0.1615	-0.0341	0.0095	-0.0009
Killdeer 4.16kV	0.0038	-0.0245	-0.0082	0.0022	0.0000	0.0028	-0.0245	-0.0048	0.0025	0.0000	0.0051	-0.0239	-0.0018	0.0017	0.0000	0.0059	-0.0339	-0.0044	-0.0040	0.0000	0.0125	-0.0443	-0.0044	0.0029	0.0000
Kilroy 12kV	0.0203	-0.0817	-0.0346	0.0021	0.0071	0.0151	-0.0848	-0.0305	0.0025	0.0004	0.0276	-0.0824	-0.0273	0.0022	-0.0017	0.0317	-0.1017	-0.0307	0.0009	0.0000	0.0670	-0.1134	-0.0288	0.0040	-0.0004
Kills 12kV	0.1511	-0.0698	-0.0173	0.0065	0.0000	0.0721	-0.0648	-0.0111	0.0073	0.0000	0.1463	-0.0621	-0.0058	0.0048	0.0000	0.1682	-0.0814	-0.0105	-0.0097	0.0000	0.0465	-0.0985	-0.0105	0.0091	0.0000
Kimblerly 24kV	0.0022	-0.0011	-0.0006	0.0005	0.0000	0.0016	-0.0006	-0.0006	0.0000	0.0000	0.0029	-0.0010	-0.0004	0.0000	0.0000	0.0034	-0.0013	-0.0005	0.0000	0.0000	0.0016	-0.0004	0.0000	0.0000	0.0000
Kimdale 12kV	0.0419	-0.0841	-0.0238	0.0050	0.0007	0.0311	-0.0767	-0.0174	0.0056	0.0005	0.0568	-0.0621	-0.0120	0.0037	-0.0014	0.0653	-0.0616	-0.0170	-0.0047	-0.0013	0.1380	-0.0608	-0.0164	0.0076	0.0000
King 16kV	0.0184	-0.1114	-0.0393	0.0356	0.0000	0.0136	-0.1210	-0.0325	0.0399	0.0000	0.0249	-0.1230	-0.0270	0.0263	0.0000	0.0286	-0.1619	-0.0325	-0.0529	0.0000	0.0605	-0.1919	-0.0307	0.0495	0.0000
Kingcobra 12kV	0.1295	-0.1185	-0.0153	0.0049	-0.0002	0.0041	-0.1021	-0.0113	0.0055	-0.0020	0.0731	-0.0830	-0.0079	0.0036	-0.0024	0.0841	-0.0947	-0.0110	-0.0046	-0.0004	0.0942	-0.0951	-0.0106	0.0075	-0.0018
Kinghurst 4.16kV	0.0000	-0.0161	-0.0040	0.0042	-0.0001	0.0000	-0.0173	-0.0027	0.0048	0.0003	0.0000	-0.0182	-0.0015	0.0031	-0.0002	0.0000	-0.0273	-0.0025	-0.0040	-0.0013	0.0000	-0.0374	-0.0025	0.0065	0.0000
Kingsford 12kV	0.0471	-0.0746	-0.0369	0.0040	0.0015	0.0350	-0.0674	-0.0350	0.0046	-0.0012	0.0638	-0.0600	-0.0338	0.0030	0.0002	0.0734	-0.0649	-0.0357	-0.0038	-0.0004	0.1551	-0.0670	-0.0332	0.0062	-0.0013
Kingsley 12kV	0.006																								

Facility	2018					2019					2020					2021					2022				
	se Demand (MW)	PV (MW) ¹⁹	EE (MW) ¹⁹	EV (MW) ¹⁹	LMDR (MW) ¹⁹	se Demand (MW)	PV (MW) ¹⁹	EE (MW) ¹⁹	EV (MW) ¹⁹	LMDR (MW) ¹⁹	se Demand (MW)	PV (MW) ²⁰	EE (MW) ²⁰	EV (MW) ²⁰	LMDR (MW) ²⁰	se Demand (MW)	PV (MW) ²¹	EE (MW) ²¹	EV (MW) ²¹	LMDR (MW) ²¹	se Demand (MW)	PV (MW) ²²	EE (MW) ²²	EV (MW) ²²	LMDR (MW) ²²
Lesser 16kV	0.0803	-0.0765	-0.0795	0.0008	0.0000	0.0596	-0.0856	-0.0784	0.0010	0.0000	0.1088	-0.0930	-0.0777	0.0014	0.0000	0.1251	-0.0967	-0.0762	0.0023	0.0000	0.2645	-0.1019	-0.0735	0.0021	0.0000
Lester 12kV	0.1619	-0.0543	-0.0166	0.0075	0.0015	0.1602	-0.0529	-0.0116	0.0085	-0.0013	0.0805	-0.0503	-0.0073	0.0055	-0.0003	0.0925	-0.0672	-0.0111	-0.0071	-0.0009	0.1955	-0.0833	-0.0109	0.0115	-0.0013
Lettuce 12kV	0.0402	-0.0273	-0.0053	0.0002	0.0000	0.0195	-0.0267	-0.0051	0.0000	0.0000	0.0044	-0.0253	-0.0050	0.0003	0.0000	0.0050	-0.0273	-0.0048	0.0004	0.0000	0.0106	-0.0281	-0.0048	0.0003	0.0000
Leveche 12kV	0.0186	-0.1031	-0.0185	0.0019	0.0000	0.0138	-0.1026	-0.0141	0.0021	0.0000	0.0023	-0.0971	-0.0105	0.0015	0.0006	0.0389	-0.1223	-0.0139	0.0000	0.0000	0.0612	-0.1376	-0.0134	0.0028	0.0000
Level 12kV	0.0270	-0.1104	-0.0280	0.0012	-0.0045	0.0200	-0.1269	-0.0225	0.0013	-0.0019	0.0366	-0.1391	-0.0180	0.0009	-0.0017	0.0420	-0.2101	-0.0223	-0.0001	-0.0022	0.0889	-0.2851	-0.0213	0.0020	-0.0049
Lewis 12kV	0.0461	-0.0190	-0.0034	0.0001	0.0000	0.0342	-0.0178	-0.0031	0.0002	0.0000	0.0625	-0.0164	-0.0029	0.0003	0.0000	0.0718	-0.0173	-0.0031	0.0006	0.0000	0.1518	-0.0176	-0.0030	0.0004	0.0000
Lexington 4.16kV	0.0000	-0.0118	-0.0021	0.0022	0.0000	0.0000	-0.0112	-0.0013	0.0025	0.0000	0.0000	-0.0104	-0.0006	0.0017	0.0000	0.0000	-0.0141	-0.0012	-0.0033	0.0000	0.0000	-0.00175	-0.0012	0.0031	0.0000
Liberator 16kV	0.0149	-0.0615	-0.1055	0.0009	0.0000	0.0110	-0.0688	-0.1082	0.0011	0.0000	0.0202	-0.0747	-0.1121	0.0015	0.0000	0.0232	-0.0777	-0.1117	0.0025	0.0000	0.0490	-0.0819	-0.1027	0.0023	0.0000
Liberty 4.16kV	0.0024	-0.0162	-0.0076	0.0007	0.0000	0.0018	-0.0192	-0.0046	0.0009	0.0000	0.0032	-0.0218	-0.0020	0.0007	0.0000	0.0037	-0.0347	-0.0043	-0.0005	0.0000	0.0078	-0.0490	-0.0043	0.0012	0.0000
Limbud 12kV	0.0000	-0.0459	-0.0520	0.0009	0.0017	0.0000	-0.0529	-0.0517	0.0011	0.0000	0.0000	-0.0588	-0.0520	0.0010	-0.0010	0.0000	-0.0738	-0.0528	0.0004	0.0000	0.0000	-0.0903	-0.0490	0.0018	0.0000
Lidams 4.16kV	0.0023	-0.0153	-0.0075	0.0019	0.0005	0.0017	-0.0175	-0.0053	0.0022	-0.0000	0.0032	-0.0191	-0.0031	0.0015	-0.0017	0.0036	-0.0281	-0.0049	-0.0002	-0.0009	0.0002	-0.0361	-0.0048	0.0034	-0.0009
Lift 12kV	0.0063	-0.0069	-0.0004	0.0000	0.0000	0.0047	-0.0010	-0.0004	0.0000	0.0000	0.0085	-0.0011	-0.0004	0.0000	0.0000	0.0098	-0.0011	-0.0004	0.0000	0.0000	0.0207	-0.0012	-0.0004	0.0001	0.0000
Lilac 4.16kV	0.0037	-0.0238	-0.0046	0.0040	0.0000	0.0000	-0.0217	-0.0268	0.0045	0.0000	0.0050	-0.0288	-0.0012	0.0030	0.0000	0.0058	-0.0438	-0.0026	-0.0059	0.0000	0.0122	-0.0589	-0.0026	0.0056	0.0000
Lily 4.16kV	0.0021	-0.0226	-0.0076	0.0003	0.0015	0.0026	-0.0238	-0.0065	0.0004	-0.0037	0.0029	-0.0232	-0.0056	0.0003	-0.0003	0.0033	-0.0298	-0.0065	0.0001	-0.0004	0.0069	-0.0337	-0.0061	0.0006	0.0000
Lima 4.16kV	0.0089	-0.0226	-0.0053	0.0034	0.0001	0.0070	-0.0227	-0.0039	0.0038	0.0003	0.0128	-0.0216	-0.0027	0.0027	-0.0007	0.0148	-0.0291	-0.0038	-0.0003	-0.0004	0.0312	-0.0349	-0.0037	0.0059	0.0000
Limbud 12kV	0.0714	-0.0448	-0.0119	0.0100	0.0002	0.0530	-0.0433	-0.0071	0.0112	0.0004	0.0968	-0.0405	-0.0030	0.0073	-0.0012	0.1118	-0.0545	-0.0066	-0.0094	-0.0018	0.2351	-0.0679	-0.0066	0.0152	-0.0004
Lime 4.16kV	0.0038	-0.0140	-0.0133	0.0021	0.0020	0.0020	-0.0148	-0.0107	0.0024	-0.0002	0.0050	-0.0151	-0.0086	0.0037	0.0002	0.0059	-0.0191	-0.0106	-0.0002	0.0000	0.0125	-0.0221	-0.0101	0.0037	-0.0009
Liming 12kV	0.0000	-0.0645	-0.0327	0.0041	0.0008	0.0000	-0.0645	-0.0295	0.0046	-0.0016	0.0000	-0.0626	-0.0272	0.0033	-0.0013	0.0000	-0.0793	-0.0300	-0.0004	-0.0013	0.0000	-0.0958	-0.0280	0.0071	-0.0011
Limited 12kV	0.0107	-0.0630	-0.0248	0.0015	0.0033	0.0079	-0.0588	-0.0208	0.0017	-0.0007	0.0144	-0.0537	-0.0175	0.0011	-0.0013	0.0166	-0.0651	-0.0208	-0.0014	-0.0004	0.0351	-0.0743	-0.0196	0.0023	-0.0009
Limonite 33kV	0.0035	-0.0045	-0.0041	0.0004	0.0000	0.0026	-0.0050	-0.0040	0.0005	0.0000	0.0047	-0.0055	-0.0039	0.0006	0.0000	0.0054	-0.0057	-0.0038	0.0015	0.0000	0.0115	-0.0060	-0.0037	0.0011	0.0000
Linda Vista 12kV	1.2062	-0.0250	-0.0151	0.0045	0.0005	1.1757	-0.0212	-0.0107	0.0051	-0.0013	1.1319	-0.0180	-0.0070	0.0033	-0.0010	0.3452	-0.0204	-0.0103	-0.0043	-0.0018	0.3733	-0.0215	-0.0100	0.0069	-0.0018
Lindero 12kV	0.0345	-0.0579	-0.0464	0.0009	-0.0007	0.0254	-0.0623	-0.0422	0.0011	-0.0010	0.0464	-0.0635	-0.0392	0.0010	-0.0012	0.0534	-0.0797	-0.0429	0.0004	0.0000	0.1128	-0.0928	-0.0400	0.0018	-0.0013
Linder 12kV	0.0078	-0.0266	-0.0114	0.0012	0.0000	0.0084	-0.0204	-0.0103	0.0025	0.0000	0.0067	-0.0236	-0.0093	0.0007	0.0000	0.0127	-0.0321	-0.0102	0.0000	0.0000	0.2592	-0.0302	0.0029	0.0000	
Lindero 16kV	0.0213	-0.1052	-0.0214	0.0075	-0.0009	0.0159	-0.0999	-0.0130	0.0085	-0.0022	0.0291	-0.0903	-0.0057	0.0060	-0.0002	0.0334	-0.1153	-0.0121	-0.0007	-0.0009	0.0707	-0.1321	-0.0121	0.0132	-0.0049
Limebacker 12kV	0.0089	-0.0075	-0.0357	0.0030	0.0041	0.0066	-0.0970	-0.0336	0.0034	-0.0010	0.0120	-0.0942	-0.0323	0.0024	-0.0020	0.0138	-0.1229	-0.0344	-0.0003	-0.0004	0.0292	-0.1509	-0.0319	0.0052	-0.0004
Linnel 12kV	0.0285	-0.0509	-0.0179	0.0027	0.0142	0.0211	-0.0465	-0.0141	0.0030	-0.0087	0.0386	-0.0414	-0.0109	0.0019	0.0049	0.0443	-0.0478	-0.0139	-0.0025	-0.0027	0.0937	-0.0025	-0.0134	0.0041	-0.0062
Linnit 2.4kV	0.0008	-0.0151	-0.0027	0.0013	0.0000	0.0006	-0.0177	-0.0016	0.0014	0.0000	0.0010	-0.0201	-0.0006	0.0009	0.0000	0.0012	-0.0322	-0.0014	-0.0019	0.0000	0.0000	-0.0463	-0.0015	0.0018	0.0000
Lire 12kV	0.2979	-0.0422	-0.0594	0.0019	0.0015	0.3362	-0.0472	-0.0602	0.0022	-0.0004	0.0661	-0.0513	-0.0616	0.0019	-0.0004	0.0760	-0.0534	-0.0611	0.0008	0.0000	0.1607	-0.0562	-0.0569	0.0036	0.0000
Lisa Anne 12kV	0.0056	-0.0526	-0.0285	0.0035	0.0003	0.0042	-0.0516	-0.0205	0.0042	-0.0016	0.0076	-0.0406	-0.0194	0.0037	0.0004	0.0088	-0.0626	-0.0234	0.0000	0.0000	0.0013	-0.0748	-0.0022	0.0067	0.0000
Lisbon 12kV	0.0040	-0.0311	-0.0238	0.0012	0.0002	0.0050	-0.0300	-0.0315	0.0024	0.0027	-0.0014	0.0054	-0.0313	-0.0177	0.0023	0.0008	-0.0062	-0.0205	0.0010	-0.0004	0.0131	-0.0483	-0.0193	0.0043	-0.0013
Liston 12kV	0.0142	-0.0592	-0.0404	0.0018	0.0040	0.0305	-0.0605	-0.0393	0.0020	-0.0014	0.0558	-0.0600	-0.0389	0.0014	-0.0001	0.0641	-0.0701	-0.0402	-0.0002	-0.0009	0.1355	-0.0791	-0.0374	0.0031	-0.0009
Lithium 12kV	0.0034	-0.0371	-0.0277	0.0018	-0.0245	0.0025	-0.0382	-0.0267	0.0022	-0.0003	0.0045	-0.0382	-0.0262	0.0019	-0.0007	0.0052	-0.0445	-0.0269	0.0008	-0.0009	0.0110	-0.0504	-0.0252	0.0035	-0.0004
Little Mountain 33kV	0.0035	0.0000	0.0000	0.0003	0.0000	0.0026	0.0000	0.0000	0.0003	0.0000	0.0047	0.0000	0.0000	0.0000	0.0000	0.0054	0.0000	0.0000	0.0001	0.0000	0.0115	0.0000	0.0000	0.0005	0.0000
Littler 12kV	0.0199	-0.0011	-0.0008	0.0014	0.0000	0.0147	-0.0012	-0.0007	0.0017	0.0000	0.0269	-0.0013	-0.0008	0.0013	0.0000	0.0309	-0.0014	-0.0008	0.0000	0.0000	0.0654	-0.0015	-0.0007	0.0023	0.0000
Livemore 12kV	0.0450	-0.1610	-0.0188	0.0032	0.0000	0.3688	-0.1124	-0.0036	-0.0007	0.0000	0.6010	-0.1084	-0.0068	0.0023	-0.0007	0.0701	-0.1384	-0.0117	-0.0038	0.0000	0.0023	0.1482	-0.1196	0.0116	0.0048
Lizard 4.16kV	0.0000	-0.0011	-0.0001	0.0001	0.0000	0.0000	0.0000	-0.0001	0.0001	0.0000	0.0000	-0.0008	-0.0001	0.0000	0.0000	0.0000	-0.0009	-0.0001	0.0000	0.0000	0.0000	-0.0010	-0.0001	0.0001	0.0000
Llewellyn 4.16kV	0.0076	-0.0183	-0.0059	0.0020	0.0002	0.0056	-0.0202	-0.0038	0.0024	-0.0002	0.0103	-0.0211	-0.0016	0.0021	-0.0020	0.0118	-0.0308	-0.0034	0.0009	0.0000	0.0249	-0.0405	-0.0034	0.0038	0.0000
Lloyd 12kV	0.0110	-0.0508	-0.0144	0.0021	0.0000	0.0081	-0.0456	-0.0102	0.0025	0.0000	0.0149	-0.0398	-0.0067	0.0036	0.0000	0.0171	-0.0408	-0.0099	0.0034	0.0000	0.0361	-0.0547	-0.0097	0.0055	0.0000
Lobby 12kV	0.0254	-0.0598	-0.0362	0.0039	0.0009	0.0188	-0.0367	-0.0309	0.0044	-0.0007	0.0344	-0.0678	-0.0266	0.0031	-0.0025	0.0395	-0.0929	-0.0310	-0.0004	-0.0018	0.0836	-0.1195	-0.0292	0.0068	-0.0009
Lobert 12kV	0.0255	-0.0641	-0.0320	0.0020	0.0103	0.0189	-0.0637	-0.0290	0.0023	-0.0015	0.0346	-0.0621	-0.0267	0.0016	0.0006	0.0398	-0.0745	-0.0289	-0.0002	0.0000	0.0840	-0.0858	-0.0274	0.0035	0.0000
Lobo 12kV	0.0604	-0.0680																							

Facility	2018					2019					2020					2021					2022				
	se Demand (MW)	PV (MW) ¹⁹	EE (MW) ¹⁸	EV (MW) ¹⁹	LMDR (MW) ¹⁹	se Demand (MW)	PV (MW) ¹⁹	EE (MW) ¹⁹	EV (MW) ¹⁹	LMDR (MW) ¹⁹	se Demand (MW)	PV (MW) ²⁰	EE (MW) ²⁰	EV (MW) ²⁰	LMDR (MW) ²⁰	se Demand (MW)	PV (MW) ²¹	EE (MW) ²¹	EV (MW) ²¹	LMDR (MW) ²¹	se Demand (MW)	PV (MW) ²²	EE (MW) ²²	EV (MW) ²²	LMDR (MW) ²²
Resort 33kV	0.3972	-0.0003	-0.0002	0.0035	0.0000	0.2948	-0.0003	-0.0002	0.0040	0.0000	0.6055	-0.0004	-0.0002	0.0028	0.0000	0.3868	-0.0004	-0.0002	-0.0065	0.0000	0.8175	-0.0004	-0.0002	0.0047	0.0000
Retreat 12kV	0.0432	-0.0398	-0.0084	0.0028	0.0003	0.0320	-0.0345	-0.0056	0.0031	0.0001	0.0585	-0.0284	-0.0003	0.0022	-0.0004	0.0673	-0.0333	-0.0053	-0.0003	0.0000	0.1422	-0.0354	-0.0052	0.0048	-0.0004
Reverse Peak 12kV	0.0060	-0.0027	-0.0047	0.0001	0.0000	0.0044	-0.0064	-0.0040	0.0001	0.0000	0.0081	-0.0063	-0.0034	0.0001	0.0000	0.0099	-0.0074	-0.0040	-0.0001	0.0000	0.0196	-0.0085	-0.0038	0.0001	0.0000
Rex 4.16kV	0.0007	-0.0016	-0.0056	0.0017	0.0003	0.0016	-0.0008	-0.0033	0.0019	0.0006	0.0010	-0.0461	-0.0013	0.0014	0.0001	0.0014	-0.0433	-0.0030	-0.0018	0.0000	0.0024	-0.0772	-0.0031	0.0009	-0.0013
Rexford 4.16kV	0.0100	-0.0049	-0.0077	0.0001	0.0000	0.0074	-0.0055	-0.0079	0.0001	0.0000	0.0135	-0.0059	-0.0081	0.0001	0.0000	0.0155	-0.0064	-0.0081	0.0002	0.0000	0.0328	-0.0069	-0.0075	0.0002	0.0000
Rheem 16kV	0.0652	-0.0351	-0.0359	0.0002	0.0000	0.0484	-0.0393	-0.0358	0.0004	0.0000	0.0884	-0.0427	-0.0360	0.0005	0.0000	0.1016	-0.0444	-0.0355	0.0011	0.0000	0.2148	-0.0467	-0.0337	0.0008	0.0000
Rhine 12kV	0.0000	-0.0411	-0.0440	0.0008	0.0001	0.0000	-0.0447	-0.0420	0.0010	-0.0017	0.0000	-0.0476	-0.0408	0.0008	-0.0078	0.0000	-0.0566	-0.0425	0.0003	0.0000	0.0000	-0.0671	-0.0397	0.0015	-0.0009
Rhinedollar 12kV	0.0000	-0.0006	-0.0009	0.0001	0.0003	0.0000	-0.0007	-0.0010	0.0001	-0.0001	0.0000	-0.0008	-0.0010	0.0001	0.0000	-0.0008	-0.0010	-0.0001	0.0000	0.0000	-0.0008	-0.0009	-0.0009	0.0001	0.0000
Rhoads 12kV	0.0531	-0.0868	-0.0349	0.0021	0.0087	0.0432	-0.0887	-0.0307	0.0025	-0.0055	0.0865	-0.0886	-0.0273	0.0022	-0.0037	0.0973	-0.1175	-0.0305	0.0009	-0.0031	0.2053	-0.1480	-0.0289	0.0040	-0.0027
Rhodes 16kV	0.0200	-0.0629	-0.0474	0.0033	-0.0069	0.0148	-0.0837	-0.0403	0.0040	-0.0002	0.0270	-0.0817	-0.0415	0.0035	-0.0009	0.0311	-0.0958	-0.0439	0.0014	-0.0022	0.0657	-0.1063	-0.0415	0.0064	-0.0009
Rhode Island 12kV	0.0052	-0.0192	-0.0242	0.0017	0.0000	0.0038	-0.0215	-0.0248	0.0027	0.0000	0.0070	-0.0234	-0.0256	0.0035	0.0000	0.0081	-0.0243	-0.0255	0.0081	0.0000	0.0170	-0.0256	-0.0235	0.0056	0.0000
Rhumba 16kV	0.0131	-0.1044	-0.0884	0.0042	0.0090	0.0097	-0.1204	-0.0841	0.0051	0.0003	0.0178	-0.1233	-0.0816	0.0044	-0.0011	0.0204	-0.1790	-0.0860	0.0018	-0.0009	0.0432	-0.2249	-0.0797	0.0082	-0.0013
Ricardo 16kV	0.0096	-0.0894	-0.0619	0.0039	0.0076	0.0071	-0.0970	-0.0595	0.0047	0.0019	0.0130	-0.0999	-0.0584	0.0041	-0.0019	0.0150	-0.1260	-0.0610	0.0017	-0.0018	0.0317	-0.1475	-0.0565	0.0076	0.0000
Richards 4.16kV	0.0030	-0.0048	-0.0013	0.0017	0.0000	0.0023	-0.0057	-0.0007	0.0051	0.0000	0.0041	-0.0063	-0.0003	0.0039	0.0000	0.0000	-0.0098	-0.0007	0.0112	0.0000	0.0000	-0.0131	-0.0007	0.0071	0.0000
Richgrove 12kV	0.3438	-0.1054	-0.0085	0.0005	0.0000	0.0801	-0.0172	-0.0083	0.0008	0.0000	0.0768	-0.0186	-0.0082	0.0010	0.0000	0.0841	-0.0194	-0.0082	0.0023	0.0000	0.1777	-0.0205	-0.0082	0.0016	0.0000
Richman 4.16kV	0.0044	-0.0208	-0.0039	0.0038	0.0004	0.0033	-0.0228	-0.0024	0.0043	-0.0006	0.0000	-0.0184	-0.0011	0.0031	0.0000	0.0000	-0.0227	-0.0023	-0.0003	0.0000	0.0145	-0.0245	-0.0022	0.0067	-0.0004
Richson 4.16kV	0.0000	-0.0041	-0.0011	0.0004	0.0000	0.0000	-0.0008	-0.0004	0.0000	0.0000	0.0000	-0.0056	-0.0002	0.0003	-0.0004	0.0000	-0.0089	-0.0005	0.0004	0.0000	0.0002	-0.0124	-0.0006	0.0006	-0.0004
Richsack 33kV	0.0644	0.0000	0.0000	0.0000	0.0000	0.0478	0.0000	0.0000	0.0000	0.0000	0.0872	0.0000	0.0000	0.0000	0.0000	0.1003	0.0000	0.0000	0.0000	0.0000	0.2120	0.0000	0.0000	0.0000	0.0000
Ricko 12kV	0.0067	-0.0853	-0.0266	0.0048	0.0002	0.0050	0.0873	-0.0189	0.0058	-0.0019	0.0090	-0.0873	-0.0123	0.0050	-0.0018	0.0104	-0.1256	-0.0183	0.0021	-0.0044	0.0220	-0.1677	-0.0177	0.0092	-0.0049
Rickover 33kV	0.0352	-0.1611	-0.2714	0.0011	0.0000	0.0262	-0.1803	-0.2785	0.0012	0.0000	0.0477	-0.1958	-0.2891	0.0009	0.0000	0.0549	-0.2036	-0.2883	-0.0001	0.0000	0.1160	-0.2146	-0.2647	0.0019	0.0000
Ridge 12kV	0.0270	-0.132	-0.0157	0.0001	0.0024	0.0200	-0.0134	-0.0153	0.0002	0.0010	0.0366	-0.0135	-0.0152	0.0001	-0.0003	0.0420	-0.0147	-0.0157	0.0000	0.0000	0.0889	-0.0161	-0.0145	0.0003	0.0000
Ridgeland 4.16kV	0.0112	-0.0143	-0.0065	0.0064	0.0000	0.0083	-0.0149	-0.0042	0.0072	0.0000	0.0152	-0.0050	-0.0023	0.0047	0.0000	0.0175	-0.0216	-0.0040	-0.0095	0.0000	0.0370	-0.0290	-0.0039	0.0089	0.0000
Ridgemoor 12kV	0.0040	-0.1492	-0.0236	0.0038	0.0024	0.0029	-0.1466	-0.0176	0.0024	-0.0023	0.0054	-0.1317	-0.0125	0.0022	0.0000	0.0176	-0.1654	-0.0172	-0.0003	0.0011	-0.1492	-0.0166	-0.0149	-0.0015	0.0000
Rick 12kV	0.1938	-0.0026	-0.0012	0.0001	0.0000	0.0801	-0.0029	-0.0012	0.0001	0.0000	0.0768	-0.0031	-0.0011	0.0002	0.0000	0.0841	-0.0033	-0.0012	0.0001	0.0000	0.1777	-0.0035	-0.0012	0.0002	0.0000
Rifle 12kV	0.0298	-0.0526	-0.0174	0.0016	0.0013	0.0221	-0.0562	-0.0142	0.0019	-0.0005	0.0404	-0.0561	-0.0116	0.0017	-0.0022	0.0464	-0.0748	-0.0141	0.0007	-0.0018	0.0982	-0.0886	-0.0134	0.0030	-0.0009
Riggin 4.16kV	0.0008	-0.0260	-0.0061	0.0029	0.0000	0.0006	-0.0294	-0.0041	0.0035	0.0000	0.0010	-0.0312	-0.0024	0.0026	0.0000	0.0012	-0.0449	-0.0039	-0.0021	0.0000	0.0025	-0.0561	-0.0039	0.0046	0.0000
Riggs 12kV	0.0558	-0.0526	-0.0435	0.0003	0.0000	0.0414	-0.0589	-0.0427	0.0005	0.0000	0.0756	-0.0640	-0.0420	0.0007	0.0000	0.0869	-0.0665	-0.0411	0.0021	0.0000	0.1837	-0.0701	-0.0399	0.0012	0.0000
Riley 12kV	0.0088	-0.0294	-0.0311	0.0001	0.0030	0.0065	-0.0339	-0.0305	0.0002	0.0005	0.0119	-0.0370	-0.0305	0.0002	-0.0079	0.0137	-0.0478	-0.0314	0.0006	0.0000	0.0290	-0.0586	-0.0290	0.0004	0.0000
Rim 12kV	0.0040	-0.0175	-0.0156	0.0053	0.0000	0.0030	-0.0131	-0.0059	0.0000	0.0000	0.0054	-0.0180	-0.0110	0.0038	0.0000	0.0062	-0.0209	-0.0131	0.0050	0.0000	0.0135	-0.0124	0.0080	0.0000	0.0000
Rimpuu 4.16kV	0.0060	-0.0493	-0.0082	0.0027	0.0000	0.0044	-0.0457	-0.0063	0.0031	0.0007	0.0081	-0.0383	-0.0046	0.0022	-0.0016	0.0093	-0.0446	-0.0092	-0.0002	-0.0004	0.0197	-0.0447	-0.0059	0.0047	0.0000
Rimrock 12kV	0.0129	-0.0850	-0.0708	0.0053	0.0112	0.0096	-0.0936	-0.0695	0.0064	-0.0029	0.0174	-0.0997	-0.0693	0.0055	-0.0014	0.0200	-0.1292	-0.0714	0.0023	-0.0004	0.0424	-0.1616	-0.0659	0.0102	-0.0004
Rincon 4.16kV	0.0000	-0.0020	-0.0005	0.0009	0.0000	0.0000	-0.0020	-0.0003	0.0010	0.0000	0.0000	-0.0019	-0.0002	0.0002	0.0000	0.0000	-0.0024	-0.0003	-0.0009	0.0000	0.0000	-0.0027	-0.0003	0.0014	0.0000
Riner 16kV	0.0073	0.0327	-0.0442	0.0024	-0.0004	0.0054	-0.0310	-0.0392	0.0029	-0.0006	0.0090	-0.0293	-0.0354	0.0026	-0.0004	0.0104	-0.0304	-0.0397	0.0010	-0.0004	0.0188	-0.0312	-0.0371	0.0047	0.0000
Ringo 12kV	0.4997	-0.0959	-0.0535	0.0035	0.0000	0.0178	-0.1062	-0.0527	0.0108	0.0000	0.0325	-0.1132	-0.0528	0.0082	0.0000	0.0047	-0.1198	-0.0542	0.0236	0.0000	0.0099	-0.1267	-0.0500	0.0149	0.0000
Rinkler 12kV	0.0242	-0.0702	-0.0637	0.0009	0.0000	0.0180	-0.0712	-0.0617	0.0010	0.0016	0.0328	-0.0707	-0.0609	0.0007	0.0010	0.0378	-0.0807	-0.0633	0.0001	-0.0027	0.0796	-0.0903	-0.0586	0.0015	0.0000
Rio Grande 12kV	0.2387	-0.0087	-0.0287	0.0049	0.0000	0.0807	-0.0547	-0.0187	0.0055	0.0000	0.1016	-0.0458	-0.0102	0.0036	0.0000	0.1168	-0.0530	-0.0178	0.0073	0.0000	0.2468	-0.0575	-0.0176	0.0068	0.0000
Riptide 16kV	2.7200	-0.1341	-0.1034	0.0233	0.0042	0.0000	-0.1374	-0.0982	0.0265	0.0013	0.0000	-0.1364	-0.0952	0.0187	-0.0024	0.0000	-0.1609	-0.1005	-0.0021	0.0000	0.0000	-0.1806	-0.0932	0.0408	-0.0004
Rita 4.16kV	0.0026	-0.0056	-0.0095	0.0001	0.0026	0.0020	-0.0063	-0.0097	0.0001	-0.0003	0.0036	-0.0069	-0.0100	0.0002	-0.0006	0.0041	-0.0075	-0.0100	0.0000	0.0000	0.0087	-0.0082	-0.0092	0.0002	0.0000
Ritter 12kV	0.0382	-0.0409	-0.0302	0.0010	0.0000	0.0284	-0.0419	-0.0296	0.0012	0.0000	0.0518	-0.0422	-0.0236	0.0008	0.0000	0.0595	-0.0467	-0.0305	-0.0016	0.0000	0.1258	-0.0509	-0.0281	0.0015	0.0000
Riva 16kV	0.0409	-0.1993	-0.0318	0.0166	0.0000	0.0304	-0.1761	-0.0218	0.0189	0.0000	0.0555	-0.1473	-0.0332	0.0130	0.0000	0.0638	-0.1647	-0.0209	-0.0304	0.0000	0.1347	-0.1697	-0.0206	0.0219	0.0000
Rivard 12kV	0.0																								

Facility	2018					2019					2020					2021					2022					
	se Demand (MW)	PV (MW) ¹⁹	EE (MW) ¹⁹	EV (MW) ¹⁹	LMDR (MW) ¹⁹	se Demand (MW)	PV (MW) ¹⁹	EE (MW) ¹⁹	EV (MW) ¹⁹	LMDR (MW) ¹⁹	se Demand (MW)	PV (MW) ²⁰	EE (MW) ²⁰	EV (MW) ²⁰	LMDR (MW) ²⁰	se Demand (MW)	PV (MW) ²¹	EE (MW) ²¹	EV (MW) ²¹	LMDR (MW) ²¹	se Demand (MW)	PV (MW) ²²	EE (MW) ²²	EV (MW) ²²	LMDR (MW) ²²	
Sandman 16kW	0.0000	-0.0237	-0.0438	0.0082	0.0035	0.0000	-0.0265	-0.0431	0.0093	-0.0004	0.0000	-0.0288	-0.0432	0.0066	-0.0080	0.0000	-0.0299	-0.0444	-0.0007	0.0000	0.0000	-0.0315	-0.0410	0.0143	-0.0009	
Sandra 16kW	0.1765	-0.1103	-0.0835	0.0038	-0.0021	0.1697	-0.1214	-0.0791	0.0046	0.0019	0.2159	-0.1253	-0.0764	0.0040	-0.0031	0.0413	-0.1569	-0.0808	0.0016	-0.0009	0.0873	-0.1800	-0.0750	0.0073	-0.0018	
Sandy 12kW	0.0300	-0.0506	-0.0367	0.0027	0.0048	0.0223	-0.0435	-0.0335	0.0030	-0.0002	0.0406	-0.0544	-0.0311	0.0021	-0.0010	0.0467	-0.0710	-0.0340	-0.0002	-0.0004	0.0987	-0.0896	-0.0317	0.0047	0.0000	
Santiaman 4.16kW	0.0265	-0.0425	-0.0566	0.0028	0.0001	0.0287	-0.0431	-0.0503	0.0001	-0.0008	0.0359	-0.0476	-0.0311	0.0001	-0.0023	0.0433	-0.0690	-0.0329	-0.0009	-0.0013	0.0624	-0.0873	-0.0030	0.0042	-0.0009	
Sanka 4.16kW	0.0000	-0.0099	-0.0042	0.0010	0.0005	0.0000	-0.0103	-0.0029	0.0012	-0.0003	0.0000	-0.0107	-0.0019	0.0008	-0.0001	0.0000	-0.0156	-0.0028	-0.0010	0.0000	0.0000	-0.0214	-0.0027	0.0016	-0.0009	
Santana 33kW	0.0760	-0.0005	-0.0004	0.0002	0.0000	0.0564	-0.0006	-0.0004	0.0004	0.0000	0.1030	-0.0006	-0.0004	0.0005	0.0000	0.1184	-0.0006	-0.0004	0.0011	0.0000	0.2503	-0.0006	-0.0003	0.0008	0.0000	
Santorini 12kW	0.0366	-0.0757	-0.0150	0.0081	-0.0003	0.0366	-0.0723	-0.0094	0.0091	-0.0022	0.0366	-0.0664	-0.0044	0.0065	-0.0028	0.0366	-0.0862	-0.0087	-0.0007	-0.0022	0.0366	-0.1024	-0.0088	0.0141	-0.0031	
Sapphire 12kW	0.0242	-0.0544	-0.0340	0.0071	0.0047	0.0179	-0.0555	-0.0305	0.0080	-0.0013	0.0327	-0.0530	-0.0040	0.0047	-0.0004	0.0377	-0.0616	-0.0309	-0.0067	0.0000	0.0796	-0.0654	-0.0288	0.0109	-0.0018	
Sapporo 12kW	0.0594	-0.0792	-0.0179	0.0055	-0.0004	0.0441	-0.0769	-0.0124	0.0062	-0.0009	0.0805	-0.0725	-0.0077	0.0041	-0.0013	0.0925	-0.0981	-0.0119	-0.0052	-0.0027	0.1955	-0.1222	-0.0116	0.0085	-0.0022	
Sawmill 33kW	0.0000	-0.0000	-0.0000	0.0000	0.0000	0.0000	-0.0000	-0.0000	0.0000	0.0000	0.0000	-0.0000	-0.0000	0.0000	0.0000	0.0000	-0.0000	-0.0000	-0.0000	-0.0000	0.0000	-0.0000	-0.0000	0.0000	0.0000	
Saratoga 16kW	0.0145	-0.0460	-0.0517	0.0010	0.0000	0.0107	-0.0514	-0.0517	0.0013	0.0000	0.0196	-0.0558	-0.0522	0.0019	0.0000	0.0225	-0.0583	-0.0515	0.0019	0.0000	0.0477	-0.0616	-0.0488	0.0025	0.0000	
Sargent 12kW	0.0571	-0.0029	-0.0092	0.0011	0.0000	0.0424	-0.0232	-0.0090	0.0014	0.0000	0.0774	-0.0251	-0.0088	0.0010	0.0000	0.0890	-0.0263	-0.0090	-0.0008	0.0000	0.1881	-0.0278	-0.0090	0.0018	0.0000	
Sassoon 12kW	0.0089	-0.0756	-0.0350	0.0123	0.0000	0.0066	-0.0836	-0.0251	0.0140	0.0000	0.0120	-0.0866	-0.0167	0.0097	0.0000	0.0138	-0.1169	-0.0244	-0.0226	0.0000	0.0292	-0.1405	-0.0236	0.0162	0.0000	
Satellite 12kW	0.0268	-0.1817	-0.0544	0.0043	0.0031	0.0199	-0.2020	-0.0445	0.0048	-0.0007	0.0363	-0.2105	-0.0364	0.0034	-0.0017	0.0418	-0.3004	-0.0444	-0.0004	-0.0044	0.0883	-0.3794	-0.0420	0.0074	-0.0058	
Saturn 16kW	0.0219	-0.0138	-0.0153	0.0004	0.0043	0.0163	-0.0166	-0.0152	0.0005	-0.0013	0.0297	-0.0178	-0.0153	0.0003	0.0001	0.0342	-0.0231	-0.0156	0.0000	0.0000	0.0723	-0.0291	-0.0144	0.0007	0.0000	
Saturnino 12kW	0.0086	-0.0242	-0.0307	0.0028	0.0077	0.0064	-0.0233	-0.0283	0.0032	0.0016	0.0117	-0.0225	-0.0266	0.0023	-0.0029	0.0135	-0.0237	-0.0288	-0.0003	-0.0035	0.0284	-0.0246	-0.0268	0.0050	0.0000	
Saucillo 12kW	0.7870	-0.0081	-0.0041	0.0013	0.0000	0.0080	-0.0087	-0.0040	0.0014	0.0000	0.0146	-0.0092	-0.0039	0.0009	0.0000	0.0202	-0.0109	-0.0040	0.0000	0.0000	0.0355	-0.1108	-0.0039	0.0018	0.0000	
Saunders 12kW	0.0183	-0.0158	-0.0171	0.0023	0.0019	0.0136	-0.0139	-0.0133	0.0026	-0.0032	0.0249	-0.0122	-0.0101	0.0018	-0.0029	0.0286	-0.0123	-0.0131	-0.0002	-0.0058	0.0604	-0.0139	-0.0125	0.0040	-0.0031	
Sauterne 12kW	0.0434	-0.0368	-0.0148	0.0016	0.0018	0.0322	-0.0433	-0.0114	0.0017	-0.0003	0.0588	-0.0478	-0.0086	0.0011	0.0000	0.0677	-0.0701	-0.0112	-0.0015	0.0000	0.1430	-0.0926	-0.0108	0.0024	-0.0004	
Sauza 12kW	0.0217	-0.0302	-0.0526	0.0008	0.0007	0.0217	-0.0338	-0.0540	0.0010	-0.0012	0.0272	-0.0367	-0.0560	0.0008	0.0007	0.0314	-0.0381	-0.0559	0.0003	0.0000	0.0664	-0.0402	-0.0513	0.0015	0.0000	
Savi 12kW	0.0096	-0.1250	-0.0209	0.0107	0.0000	0.0071	-0.1218	-0.0122	0.0132	0.0000	0.0130	-0.1126	-0.0047	0.0098	0.0000	0.0149	-0.1470	-0.0113	-0.0000	0.0000	0.0315	-0.1728	-0.0114	0.0174	0.0000	
Savory 12kW	0.0315	-0.0746	-0.0651	0.0041	0.0000	0.0234	-0.0595	-0.0366	0.0046	0.0000	0.0427	-0.0458	-0.0020	0.0031	0.0000	0.0491	-0.0477	-0.0334	-0.0061	0.0000	0.1039	-0.0466	-0.0340	0.0057	0.0000	
Sawmill 33kW	0.0152	-0.0152	-0.0012	0.0005	0.0000	0.0262	-0.0034	-0.0012	0.0007	0.0000	0.0477	-0.0036	-0.0012	0.0009	0.0000	0.0549	-0.0019	-0.0012	0.0029	0.0000	0.1160	-0.0041	-0.0012	0.0017	0.0000	
Sawpiti 33kW	0.0220	0.0000	0.0000	0.0010	0.0000	0.0163	0.0000	0.0000	0.0012	0.0000	0.0298	0.0000	0.0000	0.0000	0.0000	0.0343	0.0000	-0.0015	0.0000	0.0725	0.0000	0.0000	0.0000	0.0000		
Sawyer 12kW	0.0198	-0.0773	-0.0642	0.0017	0.0007	0.0147	-0.0875	-0.0602	0.0020	0.0009	0.0268	-0.0955	-0.0573	0.0018	-0.0037	0.0308	-0.1267	-0.0608	0.0007	-0.0007	0.0651	-0.1601	-0.0569	0.0032	0.0000	
Saxon 4.16kW	0.0045	-0.0112	-0.0066	0.0011	-0.0004	0.0034	-0.0121	-0.0046	0.0013	-0.0005	0.0062	-0.0127	-0.0030	0.0012	0.0000	0.0071	-0.0185	-0.0045	0.0005	-0.0009	0.0150	-0.0252	-0.0443	0.0021	0.0000	
Saxophone 12kW	0.0221	-0.0440	-0.0490	0.0027	0.0040	0.0164	-0.0479	-0.0487	0.0034	0.0010	0.0299	-0.0504	-0.0492	0.0040	-0.0020	0.0344	-0.0594	-0.0500	0.0008	-0.0009	0.0726	-0.0682	-0.0462	0.0054	-0.0004	
Saybrook 16kW	0.0438	-0.0243	-0.0347	0.0001	0.0070	0.0325	-0.0271	-0.0351	0.0001	0.0594	-0.0295	-0.0358	0.0001	0.0000	0.0683	-0.0307	-0.0356	0.0002	0.0000	0.1443	-0.0323	-0.0332	0.0000	0.0000	0.0000	
Scalp 12kW	0.0261	-0.0143	-0.0057	0.0001	0.0001	0.0194	-0.0122	-0.0049	0.0001	0.0351	-0.0101	-0.0043	0.0001	0.0000	0.0406	-0.0108	-0.0049	0.0000	0.0000	0.0000	0.0000	-0.0000	0.0000	0.0000	0.0000	
Scarlet 12kW	0.0058	-0.0420	-0.0386	0.0010	0.0000	0.0043	-0.0462	-0.0367	0.0013	0.0000	0.0079	-0.0479	-0.0353	0.0018	0.0000	0.0090	-0.0541	-0.0354	0.0029	0.0000	0.0191	-0.0588	-0.0345	0.0027	0.0000	
Schenley 12kW	0.6038	-0.0199	-0.0086	0.0002	0.0000	0.1233	-0.0220	-0.0086	0.0003	0.0000	0.0749	-0.0238	-0.0086	0.0003	0.0000	0.0861	-0.0248	-0.0087	0.0012	0.0000	0.1213	-0.0262	-0.0046	0.0006	0.0000	
Schilling 12kW	0.0488	-0.0354	-0.0594	0.0013	0.0088	0.0362	-0.0396	-0.0608	0.0015	-0.0001	0.0661	-0.0430	-0.0629	0.0013	0.0000	0.0760	-0.0448	-0.0627	0.0005	0.0000	0.1607	-0.0472	-0.0271	0.0024	0.0000	
Schmidt 12kW	0.0443	-0.0469	-0.0266	0.0035	0.0016	0.0329	-0.0518	-0.0214	0.0043	0.0002	0.0600	-0.0463	-0.0171	0.0037	-0.0019	0.0690	-0.0561	-0.0212	0.0015	0.0000	0.1458	-0.0631	-0.0501	0.0069	-0.0009	
Scholar 12kW	0.0138	-0.0357	-0.0164	0.0034	0.0015	0.0103	-0.0298	-0.0124	0.0038	-0.0005	0.0187	-0.0242	-0.0091	0.0025	-0.0007	0.0215	-0.0262	-0.0122	-0.0032	-0.0035	0.0455	-0.0264	-0.0117	0.0052	-0.0013	
School 12kW	0.0227	-0.0653	-0.0401	0.0008	0.0044	0.0140	-0.0663	-0.0099	0.0049	-0.0012	0.0256	-0.0619	-0.0337	0.0008	0.0000	0.0295	-0.0829	-0.0370	0.0000	0.0000	0.0623	-0.0997	-0.0346	0.0015	0.0000	
School 4.16kW	0.0026	-0.0172	-0.0066	0.0003	0.0008	0.0020	-0.0208	-0.0050	0.0004	0.0000	0.0036	-0.0240	-0.0037	0.0003	-0.0007	0.0041	-0.0381	-0.0049	0.0000	0.0000	0.0087	-0.0377	-0.0047	0.0005	0.0000	
Schooner 16kW	0.3356	-0.0797	-0.0407	0.0198	0.0000	0.2347	-0.0845	-0.0289	0.0243	0.0000	0.0948	-0.0879	-0.0189	0.0181	0.0000	0.0995	-0.1207	-0.0279	-0.0148	0.0000	0.2104	-0.1581	-0.0271	0.0132	0.0000	
Schuyler 4.16kW	0.0100	-0.0036	-0.0051	0.0007	0.0001	0.0074	-0.0039	-0.0032	0.0008	0.0007	0.0135	-0.0039	-0.0015	0.0000	0.0000	0.0155	-0.0053	-0.0030	0.0000	0.0000	0.0328	-0.0065	-0.0030	0.0013	0.0000	
Science 12kW	0.0166	-0.0210	-0.0157	0.0025	0.0024	0.0123	-0.0213	-0.0152	0.0029	-0.0004	0.0225	-0.0205	-0.0151	0.0000	0.0029	0.0000	0.0259	-0.0228	-0.0157	-0.0002	0.0000	0.0547	-0.0239	-0.0145	0.0044	-0.0009
Scirba 16kW	0.0246	-0.1176	-0.0413	0.0124	0.0058	0.0182	-0.1249	-0.0350	0.0141	-0.0026	0.0333	-0.1269	-0.0300	0.0099	-0.0019	0.0383	-0.1747	-0.0351	-0.0011	-0.0022	0.0809	-0.2173	-0.0331	0.0217	-0.0027	
Score 12kW	0.0073	-0.0073	-0.0329	0.0000	0.0000																					

Facility	2018					2019					2020					2021					2022				
	se Demand (MW)	PV (MW) ¹⁹	EE (MW) ¹⁹	EV (MW) ¹⁹	LMDR (MW) ¹⁹	se Demand (MW)	PV (MW) ¹⁹	EE (MW) ¹⁹	EV (MW) ¹⁹	LMDR (MW) ¹⁹	se Demand (MW)	PV (MW) ²⁰	EE (MW) ²⁰	EV (MW) ²⁰	LMDR (MW) ²⁰	se Demand (MW)	PV (MW) ²¹	EE (MW) ²¹	EV (MW) ²¹	LMDR (MW) ²¹	se Demand (MW)	PV (MW) ²²	EE (MW) ²²	EV (MW) ²²	LMDR (MW) ²²
Serra 16kV	0.0200	-0.0411	-0.0628	0.0043	-0.0135	0.0148	-0.0454	-0.0638	0.0049	0.0022	0.0270	-0.0487	-0.0657	0.0034	-0.0017	2.7311	-0.0519	-0.0660	-0.0004	0.0000	0.0657	-0.0556	-0.0606	0.0075	0.0000
Serranos 12kV	0.0255	-0.0829	-0.0454	0.0012	0.0115	0.0189	-0.0813	-0.0415	0.0014	-0.0032	0.0346	-0.0783	-0.0386	0.0012	-0.0029	0.0398	-0.0955	-0.0418	0.0005	0.0027	0.0840	-0.1111	-0.0392	0.0023	-0.0022
Servo 4.16kV	0.0060	-0.0412	-0.0106	0.0018	0.0040	0.0044	-0.0386	-0.0090	0.0021	-0.0007	0.0081	-0.0329	-0.0078	0.0019	0.0007	0.0093	-0.0380	-0.0090	0.0008	-0.0004	0.0197	-0.0382	-0.0085	0.0034	-0.0004
Seige 4.16kV	0.0001	-0.0001	-0.0002	0.0001	0.0000	0.0000	-0.0001	-0.0002	0.0001	-0.0001	0.0000	-0.0000	-0.0000	0.0001	0.0001	0.0000	-0.0011	-0.0001	0.0000	0.0000	0.0000	-0.0001	-0.0001	0.0000	0.0000
Settler 12kV	0.0084	-0.1141	-0.0343	0.0010	-0.0004	0.0063	-0.1016	-0.0309	0.0012	-0.0006	0.0114	-0.0952	-0.0283	0.0010	-0.0077	0.0131	-0.1127	-0.0311	0.0004	-0.0009	0.0278	-0.1229	-0.0292	0.0019	-0.0004
Seavine 12kV	0.2483	-0.0819	-0.0276	0.0055	0.0019	0.0215	-0.0738	-0.0213	0.0062	-0.0028	0.0375	-0.0650	-0.0159	0.0040	-0.0023	0.0431	-0.0782	-0.0209	-0.0052	-0.0013	0.0911	-0.0888	-0.0201	0.0084	-0.0013
Seventh St. 4.16kV	0.0047	-0.0023	-0.0033	0.0013	0.0000	0.0035	-0.0026	-0.0019	0.0016	0.0000	0.0064	-0.0030	-0.0000	0.0000	0.0000	0.0073	-0.0044	-0.0018	-0.0010	0.0000	0.0155	-0.0059	-0.0018	0.0021	0.0000
Seville 12kV	0.0324	-0.0031	-0.0013	0.0003	0.0000	0.0240	-0.0033	-0.0012	0.0004	0.0000	0.0439	-0.0035	-0.0011	0.0005	0.0000	0.0505	-0.0038	-0.0012	0.0009	0.0000	0.1066	-0.0041	-0.0012	0.0008	0.0000
Sewell 12kV	0.0073	-0.1167	-0.0414	0.0248	0.0000	0.0054	-0.1169	-0.0309	0.0278	0.0000	0.0098	-0.1143	-0.0222	0.0183	0.0000	0.0113	-0.1540	-0.0303	0.0368	0.0000	0.0239	-0.1953	-0.0291	0.0344	0.0000
Sheffield 16kV	0.0136	-0.0984	-0.0372	0.0234	0.0000	0.0101	-0.0961	-0.0292	0.0263	0.0000	0.0184	-0.0919	-0.0275	0.0173	0.0000	0.0211	-0.1177	-0.0288	0.0348	0.0000	0.0446	-0.1420	-0.0275	0.0326	0.0000
SHADE 12kV	0.0182	-0.0445	-0.0471	0.0003	0.0114	0.0182	-0.0491	-0.0460	0.0004	-0.0048	0.0182	-0.0527	-0.0453	0.0005	0.0020	0.0182	-0.0588	-0.0457	0.0013	-0.0013	0.0182	-0.0665	-0.0433	0.0009	-0.0009
Shadow 12kV	0.0000	-0.0656	-0.0278	0.0067	-0.0003	0.0000	-0.0667	-0.0220	0.0076	0.0002	0.0000	-0.0660	-0.0172	0.0054	-0.0012	0.0000	-0.0893	-0.0218	-0.0006	-0.0022	0.0000	-0.1135	-0.0408	0.0117	-0.0004
Shaffer 12kV	0.0255	-0.0496	-0.0198	0.0020	0.0047	0.0189	-0.0476	-0.0152	0.0023	-0.0025	0.0346	-0.0447	-0.0112	0.0016	-0.0003	0.0398	-0.0563	-0.0147	-0.0002	-0.0022	0.0840	-0.0666	-0.0142	0.0035	-0.0018
Shake 33kV	0.0220	0.0000	0.0000	0.0007	0.0000	0.0163	0.0000	0.0000	0.0008	0.0000	0.0298	0.0000	0.0000	0.0005	0.0000	0.0343	-0.0000	0.0000	0.0000	0.0725	0.0000	0.0000	0.0010	0.0000	
Shamrock 4.16kV	0.0114	-0.0079	-0.0050	0.0017	0.0006	0.0084	-0.0081	-0.0042	0.0019	-0.0005	0.0154	-0.0082	-0.0036	0.0013	0.0001	0.0120	-0.0109	-0.0042	-0.0002	0.0000	0.0374	-0.0138	-0.0040	0.0029	-0.0004
Shangila 12kV	0.0077	-0.0622	-0.0171	0.0042	0.0000	0.0057	-0.0574	-0.0096	0.0047	0.0000	0.0105	-0.0520	-0.0032	0.0031	0.0000	0.0120	-0.0633	-0.0088	-0.0062	0.0000	0.0254	-0.0724	-0.0090	0.0058	0.0000
Shank 12kV	0.0051	-0.0612	-0.0321	0.0035	0.0075	0.0038	-0.0578	-0.0029	0.0042	0.0000	0.0069	-0.0526	-0.0270	0.0037	0.0007	0.0080	-0.0595	-0.0295	0.0015	0.0004	0.0169	-0.0642	-0.0276	0.0068	0.0009
Sharp 4.16kV	0.0038	-0.0326	-0.0076	0.0042	0.0000	0.0028	-0.0332	-0.0043	0.0048	0.0000	0.0051	-0.0328	-0.0014	0.0033	0.0000	0.0059	-0.0482	-0.0039	-0.0077	0.0000	0.0125	-0.0649	-0.0040	0.0055	0.0000
Shasta 12kV	0.0183	-0.0181	-0.0133	0.0025	0.0002	0.0136	-0.0368	-0.0108	0.0029	0.0006	0.0248	-0.0345	-0.0087	0.0020	-0.0017	0.0285	-0.0444	-0.0107	-0.0002	-0.0013	0.0603	-0.0532	-0.0102	0.0005	-0.0013
Show 4.16kV	0.0112	-0.0305	-0.0062	0.0034	0.0000	0.0083	-0.0301	-0.0036	0.0041	0.0000	0.0152	-0.0290	-0.0015	0.0031	0.0000	0.0175	-0.0406	-0.0034	-0.0025	0.0000	0.0369	-0.0525	-0.0034	0.0055	0.0000
Sheep 12kV	0.0148	-0.0014	-0.0016	0.0000	0.0000	0.0110	-0.0015	-0.0015	0.0001	0.0000	0.0200	-0.0016	-0.0015	0.0001	0.0000	0.0230	-0.0017	-0.0015	0.0000	0.0000	0.0486	-0.0018	-0.0014	0.0001	0.0000
Sheephole 33kV	0.0760	-0.0010	-0.0006	0.0023	0.0000	0.0564	-0.0011	-0.0006	0.0028	0.0000	0.1030	-0.0012	-0.0006	0.0021	0.0000	0.1184	-0.0012	-0.0006	-0.0017	0.0000	0.2503	-0.0013	-0.0006	0.0037	0.0000
Sheffield 16kV	0.0222	-0.0917	-0.0321	0.0166	0.0000	0.0165	-0.0905	-0.0216	0.0204	0.0000	0.0409	-0.0845	-0.0125	0.0153	0.0000	0.0346	-0.1015	-0.0205	0.0124	0.0000	0.0731	-0.1139	-0.0205	0.0270	0.0000
Sheila 16kV	0.0493	-0.0204	-0.0345	0.0000	0.0019	0.0366	-0.0229	-0.0353	0.0000	-0.0004	0.0668	-0.0248	-0.0365	0.0000	0.0002	0.0768	-0.0258	-0.0364	-0.0000	0.0000	0.1623	-0.0272	-0.0335	0.0017	0.0000
Shell 12kV	0.0216	-0.0249	-0.0336	0.0004	0.0000	0.0160	-0.0278	-0.0339	0.0005	0.0000	0.0293	-0.0302	-0.0345	0.0007	0.0000	0.0336	-0.0314	-0.0341	0.0011	0.0000	0.0711	-0.0331	-0.0320	0.0011	0.0000
Shelldom 12kV	0.3562	-0.0058	-0.0102	0.0007	0.0000	0.2723	-0.0065	-0.0105	0.0008	0.0000	0.0279	-0.0070	-0.0109	0.0012	0.0000	0.0321	-0.0073	-0.0108	0.0019	0.0000	0.0678	-0.0077	-0.0099	0.0018	0.0000
Shenandoah 16kV	0.0244	-0.0800	-0.0377	0.0041	0.0046	0.0181	-0.0787	-0.0310	0.0050	-0.0023	0.0330	-0.0740	-0.0255	0.0043	-0.0006	0.0380	-0.0922	-0.0308	0.0018	-0.0018	0.0803	-0.1059	-0.0292	0.0080	-0.0018
Shepherd 12kV	0.0051	-0.1418	-0.0282	0.0040	0.0009	0.0038	-0.1399	-0.0202	0.0050	-0.0006	0.0069	-0.1296	-0.0134	0.0060	-0.0016	0.0079	-0.1693	-0.0196	0.0012	-0.0044	0.1688	-0.1993	-0.0190	0.0080	-0.0018
Sherraton 12kV	0.0086	-0.0369	-0.0518	0.0023	0.0069	0.0058	-0.3508	-0.0026	0.0026	-0.0007	0.0117	-0.0403	-0.0022	0.0018	-0.0004	0.0135	-0.0425	-0.0532	-0.0002	-0.0022	0.0448	-0.0022	0.0040	0.0000	0.0000
Sherrbourne 16kV	0.0197	-0.1167	-0.0535	0.0051	0.0021	0.0146	-0.1195	-0.0498	0.0065	-0.0007	0.0266	-0.1160	-0.0471	0.0077	-0.0030	0.0306	-0.1428	-0.0505	0.0015	-0.0018	0.0647	-0.1593	-0.0471	0.0103	-0.0022
Sheridan 12kV	0.0471	-0.0719	-0.0219	0.0025	0.0000	0.0350	-0.0706	-0.0155	0.0000	-0.0024	0.0638	-0.0671	-0.0100	0.0026	-0.0031	0.0734	-0.0899	-0.0150	0.0011	-0.0009	0.1551	-0.1115	-0.0476	0.0049	-0.0031
Sherman 4.16kV	0.0053	-0.0048	-0.0064	0.0009	0.0011	0.0039	-0.0050	-0.0048	0.0012	-0.0004	0.0071	-0.0051	-0.0034	0.0014	-0.0006	0.0082	-0.0063	-0.0046	0.0003	-0.0004	0.0173	-0.0074	-0.0045	0.0019	-0.0009
Sherry 12kV	0.0434	-0.0553	-0.0224	0.0005	-0.0001	0.0322	-0.0634	-0.0158	0.0006	0.0005	0.0588	-0.0685	-0.0101	0.0007	-0.0017	0.0677	-0.1026	-0.0152	0.0002	-0.0009	0.1430	-0.1366	-0.0148	0.0010	-0.0013
Sheswood 4.16kV	0.0000	-0.0021	-0.0014	0.0021	0.0018	0.0000	-0.0021	-0.0011	0.0023	-0.0008	0.0000	-0.0021	-0.0009	0.0016	0.0008	0.0000	-0.0024	-0.0011	-0.0002	0.0000	0.0000	-0.0027	-0.0011	0.0036	0.0000
Sheny 12kV	0.0043	-0.0227	-0.0083	0.0012	0.0006	0.0032	-0.0108	-0.0001	0.0014	-0.0003	0.0059	-0.0165	-0.0050	0.0003	0.0000	0.0067	-0.0185	-0.0064	0.0011	0.0000	0.0142	-0.0061	-0.0011	0.0018	0.0000
Shettland 12kV	0.0111	-0.0959	-0.0156	0.0044	0.0001	0.0082	-0.0894	-0.0127	0.0050	-0.0003	0.0150	-0.0812	-0.0104	0.0032	-0.0006	0.0173	-0.1049	-0.0127	-0.0042	-0.0018	0.0365	-0.1257	-0.0120	0.0068	-0.0013
Shine 12kV	0.0238	-0.1076	-0.0207	0.0042	0.0003	0.0176	-0.0994	-0.0133	0.0048	-0.0010	0.0322	-0.0893	-0.0070	0.0034	-0.0017	0.0370	-0.1150	-0.0126	-0.0004	-0.0031	0.0782	-0.1368	-0.0125	0.0073	-0.0027
Shipley 12kV	0.0111	-0.0221	-0.0336	0.0013	0.0104	0.0082	-0.0246	-0.0344	0.0016	-0.0017	0.0150	-0.0266	-0.0356	0.0014	-0.0001	0.0173	-0.0280	-0.0355	0.0006	0.0000	0.0365	-0.0297	-0.0327	0.0026	0.0000
Shipway 4.16kV	0.0027	-0.0352	-0.0054	0.0032	-0.0004	0.0020	-0.0351	-0.0031	0.0036	-0.0004	0.0037	-0.0339	-0.0011	0.0026	-0.0009	0.0042	-0.0479	-0.0028	-0.0003	-0.0022	0.0009	-0.0623	-0.0299	0.0056	-0.0009
Shiraz 12kV	0.0434	-0.1313	-0.0365	0.0008	-0.0066	0.0322	-0.1467	-0.0306	0.0010	0.0008	0.0588	-0.1541	-0.0259	0.0009	-0.0017	0.0677	-0.2142	-0.0306	0.0004	0.0000	0.1430	-0.2620	-0.0290	0.0016	-0.0027
Shirk 12kV	0.																								

Facility	2018					2019					2020					2021					2022					
	se Demand (MW)	PV (MW) ¹⁸	EE (MW) ¹⁸	EV (MW) ¹⁸	LMDR (MW) ¹⁸	se Demand (MW)	PV (MW) ¹⁹	EE (MW) ¹⁹	EV (MW) ¹⁹	LMDR (MW) ¹⁹	se Demand (MW)	PV (MW) ²⁰	EE (MW) ²⁰	EV (MW) ²⁰	LMDR (MW) ²⁰	se Demand (MW)	PV (MW) ²¹	EE (MW) ²¹	EV (MW) ²¹	LMDR (MW) ²¹	se Demand (MW)	PV (MW) ²²	EE (MW) ²²	EV (MW) ²²	LMDR (MW) ²²	
Toledo 4.16kV	0.0048	-0.0299	-0.0084	0.0056	0.0000	0.0035	-0.0328	-0.0070	0.0063	0.0000	0.0065	-0.0333	-0.0059	0.0041	0.0000	0.0074	-0.0444	-0.0070	-0.0083	0.0000	0.0000	-0.0522	0.0000	0.0000	0.0000	0.0000
Toll 4.16kV	0.0000	-0.0025	-0.0016	0.0003	0.0004	0.0000	-0.0028	-0.0016	0.0004	0.0007	0.0000	-0.0028	-0.0016	0.0003	-0.0002	0.0000	-0.0035	-0.0016	0.0000	0.0000	0.0000	-0.0040	-0.0015	0.0006	0.0000	0.0000
Tollhouse 4.16kV	0.0000	-0.0001	-0.0002	0.0000	0.0000	0.0000	-0.0001	-0.0002	0.0000	0.0003	0.0000	-0.0001	-0.0002	0.0000	-0.0004	0.0000	-0.0001	-0.0002	0.0000	0.0000	0.0000	-0.0001	-0.0002	0.0000	0.0000	0.0000
Toller 12kV	0.0043	-0.0364	-0.0014	0.0040	0.0000	0.0040	-0.0364	-0.0014	0.0040	0.0000	0.0059	-0.0402	-0.0035	0.0043	0.0000	0.0076	-0.0438	-0.0038	0.0043	0.0000	0.0000	-0.0327	0.0151	-0.0450	-0.0354	0.0040
Tollton 12kV	0.0412	-0.0277	-0.0442	0.0006	0.0074	0.0305	-0.0309	-0.0442	0.0007	-0.0005	0.0558	-0.0336	-0.0447	0.0008	-0.0003	0.0641	-0.0349	-0.0450	0.0002	0.0000	0.0000	0.1355	-0.0368	-0.0418	0.0011	0.0000
Tomahawk 12kV	0.1862	-0.1013	-0.0461	0.0007	0.0069	0.0138	-0.1035	-0.0430	0.0009	0.0006	0.0252	-0.0998	-0.0409	0.0010	-0.0024	0.0289	-0.1213	-0.0437	0.0002	-0.0022	0.0000	0.0612	-0.1350	-0.0407	0.0014	-0.0018
Tomcat 12kV	0.0168	-0.0081	-0.0285	0.0018	0.0000	0.0125	-0.0930	-0.0184	0.0022	0.0000	0.0228	-0.0861	-0.0097	0.0017	0.0000	0.0262	-0.1113	-0.0174	-0.0014	0.0000	0.0000	0.0553	-0.1341	-0.0172	0.0029	0.0000
Tommy 12kV	0.0557	-0.0601	-0.0273	0.0066	0.0020	0.0413	-0.0679	-0.0216	0.0075	-0.0037	0.0754	-0.0655	-0.0169	0.0053	-0.0010	0.0867	-0.0864	-0.0214	-0.0006	-0.0022	0.0000	0.1833	-0.1063	-0.0204	0.0116	-0.0004
Ton 12kV	0.0108	-0.0062	-0.0315	0.0041	0.0000	0.0080	-0.0554	-0.0268	0.0046	0.0000	0.0146	-0.0495	-0.0230	0.0030	0.0000	0.0168	-0.0543	-0.0269	-0.0061	0.0000	0.0355	-0.0570	-0.0253	0.0057	0.0000	
Tonic 12kV	0.0020	-0.0399	-0.0714	0.0003	-0.0046	0.0150	-0.0446	-0.0733	0.0003	-0.0002	0.0272	-0.0484	-0.0760	0.0004	-0.0002	0.0314	-0.0504	-0.0758	0.0001	0.0000	0.0664	-0.0531	-0.0696	-0.0000	0.0000	
Tonner 12kV	0.0084	-0.0525	-0.0279	0.0034	0.0053	0.0062	-0.0518	-0.0246	0.0041	-0.0020	0.0113	-0.0500	-0.0220	0.0035	-0.0008	0.0130	-0.0637	-0.0248	0.0014	-0.0004	0.0275	-0.0766	-0.0233	0.0065	-0.0013	
Tonto 12kV	0.0477	-0.1062	-0.0217	0.0071	0.0000	0.0354	-0.1032	-0.0136	0.0079	0.0000	0.0646	-0.0978	-0.0067	0.0052	0.0000	0.0743	-0.1328	-0.0128	-0.0105	0.0000	0.1570	-0.1663	-0.0128	0.0099	0.0000	
Ton 12kV	0.0270	-0.0470	-0.0394	0.0002	0.0061	0.0200	-0.0533	-0.0385	0.0003	-0.0014	0.0366	-0.0582	-0.0380	0.0004	0.0002	0.0420	-0.0711	-0.0384	0.0010	-0.0009	0.0889	-0.0853	-0.0364	0.0007	0.0000	
Topoka 4.16kV	0.0008	-0.0151	-0.0064	0.0013	0.0000	0.0006	-0.0156	-0.0037	0.0016	0.0000	0.0011	-0.0162	-0.0034	0.0012	0.0000	0.0012	-0.0241	-0.0035	-0.0010	0.0000	0.0026	-0.0334	-0.0035	0.0022	0.0000	
Topoc 16kV	4.5900	-0.7079	-0.0126	0.0026	0.0007	0.0000	-0.0652	-0.0105	0.0029	0.0012	0.1000	-0.0533	-0.0088	0.0019	-0.0043	0.0000	-0.0611	-0.0105	-0.0024	-0.0035	0.0000	-0.0594	-0.0099	0.0040	-0.0013	
Torchlight 12kV	0.0300	-0.0764	-0.0277	0.0019	0.0021	0.0223	-0.0859	-0.0231	0.0022	0.0000	0.0406	-0.0911	-0.0193	0.0015	-0.0005	0.0467	-0.1339	-0.0231	-0.0002	-0.0040	0.0987	-0.1796	-0.0028	0.0034	-0.0022	
Torino 12kV	0.3972	-0.0765	-0.0338	0.0075	-0.0019	0.2348	-0.0628	-0.0277	0.0091	-0.0009	0.0281	-0.0492	-0.0028	0.0079	-0.0015	0.0324	-0.0500	-0.0277	0.0000	0.0000	0.0694	-0.0473	-0.0262	0.0146	0.0004	
Tornado 12kV	0.0061	-0.1110	-0.0183	0.0129	0.0000	0.0045	-0.1075	-0.0119	0.0145	-0.0001	0.0082	-0.0988	-0.0064	0.0094	-0.0011	0.0094	-0.1280	-0.0113	-0.0121	-0.0013	0.0199	-0.1496	-0.0111	0.0196	-0.0009	
Toronto 12kV	0.0000	-0.0065	-0.0051	0.0032	0.0000	0.0000	-0.0065	-0.0039	0.0036	0.0000	0.0000	-0.0065	-0.0029	0.0024	0.0000	0.0000	-0.0079	-0.0038	-0.0030	0.0000	-0.0085	-0.0037	0.0049	0.0000	0.0000	
Torpedo 12kV	0.1619	-0.3099	-0.0201	0.0023	0.0000	0.0315	-0.0423	-0.0145	0.0028	0.0000	0.0574	-0.0443	-0.0097	0.0021	0.0000	0.0660	-0.0596	-0.0138	-0.0017	0.0000	0.1396	-0.0777	-0.0137	0.0037	0.0000	
Torrent 12kV	0.0061	-0.1227	-0.0168	0.0115	0.0000	0.0045	-0.1191	-0.0100	0.0129	0.0000	0.0082	-0.1096	-0.0041	0.0085	0.0000	0.0094	-0.1429	-0.0093	-0.0171	0.0000	0.0199	-0.1677	-0.0093	0.0160	0.0000	
Torro Peak 33kV	0.0190	-0.0000	0.0000	0.0010	0.0000	0.0141	0.0000	0.0000	0.0011	0.0000	0.0257	0.0000	0.0000	0.0007	0.0000	0.0296	0.0000	0.0000	-0.0009	0.0000	0.0625	0.0000	0.0000	0.0015	0.0000	
Torson 16kV	0.0000	-0.1209	-0.0004	0.0013	0.0000	0.0000	-0.1209	-0.0005	-0.0002	0.0000	0.0000	-0.1209	-0.0005	-0.0002	0.0000	0.0000	-0.1209	-0.0005	-0.0002	0.0000	0.0000	-0.1209	-0.0005	-0.0002	0.0000	
Tortuga 12kV	0.0335	-0.0362	-0.0452	0.0020	-0.0038	0.0249	-0.0352	-0.0406	0.0024	-0.0013	0.0419	-0.0342	-0.0372	0.0021	-0.0015	0.0482	-0.0370	-0.0411	0.0009	-0.0062	0.0946	-0.0391	-0.0384	0.0039	0.0000	
Touchdown 12kV	0.0081	-0.0559	-0.0479	0.0017	0.0050	0.0060	-0.0606	-0.0471	0.0020	-0.0012	0.0110	-0.0620	-0.0472	0.0017	-0.0083	0.0126	-0.0738	-0.0485	0.0007	-0.0004	0.0267	-0.0820	-0.0447	0.0032	-0.0009	
Tourmaline 4.16kV	0.0035	-0.0149	-0.0065	0.0075	0.0000	0.0026	-0.0157	-0.0038	0.0085	0.0000	0.0048	-0.0159	-0.0015	0.0059	0.0000	0.0055	-0.0229	-0.0036	-0.0138	0.0000	0.0116	-0.0303	-0.0036	0.0099	0.0000	
Tourney 12kV	0.1738	-0.0870	-0.0429	0.0058	0.0024	0.1290	-0.0832	-0.0386	0.0065	-0.0011	0.0069	-0.0766	-0.0351	0.0046	-0.0011	0.0080	-0.0811	-0.0376	-0.0005	0.0000	0.0169	-0.0820	-0.0363	0.0101	0.0000	
Tower 4.16kV	0.0150	-0.0136	-0.0045	0.0017	0.0003	0.0112	-0.0137	-0.0028	0.0019	-0.0006	0.0204	-0.0134	-0.0034	0.0012	-0.0027	0.0234	-0.0188	-0.0027	-0.0016	-0.0013	0.0495	-0.0246	-0.0026	0.0025	-0.0004	
Townhall 33kV	5.7617	-0.0004	-0.0002	0.0018	0.0000	4.1784	-0.0005	-0.0002	0.0014	0.0000	0.0002	-0.0002	-0.0002	0.0000	0.0000	0.1260	-0.0002	-0.0002	0.0000	0.0000	0.2551	-0.0006	-0.0002	0.0061	0.0000	
Towngate 16kV	0.2744	-0.0674	-0.0206	0.0102	0.0023	0.0181	-0.0653	-0.0148	0.0115	-0.0012	0.0330	-0.0602	-0.0098	0.0074	-0.0010	0.0380	-0.0769	-0.0143	-0.0096	-0.0018	0.0803	-0.0892	-0.0139	0.0155	-0.0040	
Township 16kV	0.0073	-0.1004	-0.0411	0.0074	0.0032	0.0054	-0.0943	-0.0343	0.0084	-0.0031	0.0099	-0.0892	-0.0288	0.0059	-0.0043	0.0114	-0.1121	-0.0343	-0.0007	-0.0018	0.0242	-0.1321	-0.0324	0.0130	-0.0027	
Townsite 2.4kV	0.0000	-0.0003	-0.0008	0.0000	0.0002	0.0000	-0.0004	-0.0007	0.0000	0.0001	0.0000	-0.0004	-0.0006	0.0000	0.0000	-0.0004	-0.0007	0.0000	0.0000	0.0000	-0.0004	-0.0006	0.0000	0.0000	0.0000	
Towt 4.16kV	0.0000	-0.0256	-0.0051	0.0001	0.0000	0.0000	-0.0208	-0.0040	0.0001	0.0007	0.0000	-0.0161	-0.0031	0.0001	-0.0011	0.0000	-0.0173	-0.0040	0.0000	0.0000	0.0000	-0.0169	-0.0038	0.0001	-0.0009	
Toyon 12kV	0.1445	-0.0060	-0.0100	0.0008	0.0014	0.0160	-0.0067	-0.0099	0.0009	0.0001	0.0293	-0.0073	-0.0099	0.0008	0.0000	0.0336	-0.0081	-0.0102	0.0003	0.0000	0.0711	-0.0090	-0.0094	0.0015	0.0000	
Trabuco 12kV	0.0140	-0.0381	-0.0173	0.0070	0.0000	0.0104	-0.0167	-0.0116	0.0085	0.0000	0.0190	-0.0323	-0.0068	0.0074	-0.0011	0.0219	-0.0414	-0.0009	0.0000	0.0462	-0.0495	-0.0139	0.0136	-0.0009	0.0000	
Track 4.16kV	0.0038	-0.0122	-0.0031	0.0029	-0.0004	0.0028	-0.0120	-0.0019	0.0033	-0.0003	0.0051	-0.0116	-0.0009	0.0021	0.0000	0.0000	-0.0161	-0.0028	0.0028	-0.0009	0.0000	-0.0208	-0.0018	0.0045	0.0000	
Tractor 12kV	0.0040	-0.0578	-0.0508	0.0005	0.0048	0.0030	-0.0636	-0.0492	0.0006	-0.0011	0.0054	-0.0681	-0.0478	0.0007	0.0006	0.0063	-0.0729	-0.0475	0.0002	0.0000	0.0132	-0.0787	-0.0461	0.0010	-0.0004	
Tradewind 16kV	3.2338	-0.0937	-0.1107	0.0177	0.0089	0.0251	-0.0938	-0.1078	0.0201	-0.0012	0.0458	-0.1030	-0.1070	0.0142	-0.0003	0.0526	-0.1156	-0.1108	-0.0016	-0.0000	0.1112	-0.1264	-0.1023	0.0310	-0.0004	
Trail 4.16kV	0.0000	0.0000	-0.0002	0.0000	0.0000	0.0000	0.0000	-0.0001	0.0000	0.0000	0.0000	0.0000	-0.0001	0.0000	0.0000	0.0000	0.0000	-0.0001	0.0000	0.0000	0.0000	0.0000	-0.0001	0.0000	0.0000	
Trailblazer 12kV	0.1209	-0.1259	-0.0182	0.0007	-0.0001	0.0897	-0.1203	-0.0138	0.0008	0.0000	0.1638	-0.1072	-0.0101	0.0005	-0.0019	0.1884	-0.1310	-0.0136	-0.0007	-0						

