



# ComEd Voltage Optimization Impact Evaluation Report

**Energy Efficiency/Demand Response Plan:  
Program Year 2021 (CY2021)  
(1/1/2021-12/31/2021)**

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## Table of Contents

<b>1. Introduction .....</b>	<b>1</b>
<b>2. Program Description .....</b>	<b>2</b>
<b>3. Program Savings Detail .....</b>	<b>3</b>
<b>4. Cumulative Persisting Annual Savings .....</b>	<b>4</b>
<b>5. Program Savings by Measure .....</b>	<b>7</b>
<b>6. Impact Analysis Findings and Recommendations .....</b>	<b>8</b>
<b>Appendix A. Impact Analysis Methodology .....</b>	<b>A-1</b>
A.1 Energy Savings Methodology .....	A-1
A.2 Peak Demand Savings Methodology .....	A-5
<b>Appendix B. Impact Findings Detailed Results .....</b>	<b>B-1</b>
<b>Appendix C. Total Resource Cost Detail .....</b>	<b>C-1</b>
<b>Appendix D. De-Rating Factor Calculation .....</b>	<b>D-1</b>

## List of Figures, Tables, and Equations

Figure 4-1. Cumulative Persisting Annual Savings .....	6
Table 2-1. Number of Substations and Feeders .....	2
Table 3-1. Total Annual Incremental Electric Savings .....	3
Table 4-1. Cumulative Persisting Annual Savings – Electric .....	5
Table A-1. Data Reconstruction Priority Sequence .....	A-3
Table A-2. Data Reconstruction .....	A-4
Table B-1. CY2021 Verified VO Energy Savings and Voltage Reductions by Feeder .....	B-1
Table B-2. CY2021 Verified VO Demand Savings and Peak Voltage Reductions by Feeder .....	B-14
Table B-3. CY2021 Verified VO Energy and Demand Realization Rates by Substation .....	B-28
Table C-1. Total Resource Cost Savings Summary .....	C-1
Table D-1. Excludable and Not Excludable Percentage of IL-TRM Defined Categories .....	D-1
Equation A-1. Energy Savings Calculation .....	A-1
Equation A-2. Amps-to-MW Conversion (Three-Phase with Line-to-Line Voltage) .....	A-1
Equation A-3. Amps-to-MW Conversion (Three-Phase with Line-to-Neutral Voltage) .....	A-1
Equation A-4. Amps-to-MW Conversion (Single Phase) .....	A-1
Equation A-5. Peak Savings Calculation .....	A-5

## 1. Introduction

This report presents the results of the impact evaluation of the CY2021 Voltage Optimization (VO) Program. It summarizes the total energy and demand impacts for the program broken out by relevant measure and program structure details. The appendices provide the impact analysis methodology and details of the total resource cost (TRC) analysis inputs. CY2021 covers January 1, 2021 through December 31, 2021.

## 2. Program Description

The VO Program includes ComEd’s plan to install hardware and software systems on a significant fraction of its electric power distribution grid to achieve voltage and reactive power optimization (Volt/VAR optimization, or VVO). VVO is a smart grid technology that uses distributed sensors, two-way communications infrastructure, remote controls on substation transformer load tap changers and line capacitor banks, and integrating/optimizing software to flatten voltage profiles and lower average voltage levels on an electric power distribution grid. ComEd is working with an automation optimization hardware and software vendor<sup>1</sup> to implement the VO Program on selected parts of its distribution grid.

Unlike energy efficiency programs that achieve savings by providing financial incentives to encourage customers to adopt energy efficient equipment or behavioral suggestions to encourage them to adopt no-cost energy-saving behaviors, the VO Program involves no direct customer engagement. Instead, savings are achieved by operating the voltage and reactive power controls on VO-enabled feeders and substations in a manner designed to maintain the voltages delivered to affected customers in the lower part of the allowable voltage range.<sup>2</sup>

The program installed and commissioned VO systems on 530 feeders at 45 substations in CY2021;<sup>3</sup> 42 substations were newly activated with VO in CY2021, and three were previously activated but had VO added to more transformers in CY2021 (see Table 2-1).

**Table 2-1. Number of Substations and Feeders**

Participation	Total
Newly VO-Enabled Substations	42
Previously VO-Enabled Substations with New VO Transformers	3
VO-Enabled Feeders	530

*Source: ComEd tracking data and evaluation team analysis*

<sup>1</sup> Open Systems International (OSI) of Medina, Minnesota.

<sup>2</sup> The bulk of the energy savings that occurs is expected to occur on the customer side of the meter, although additional savings are expected from reduced current flows along the full length of the affected circuits.

<sup>3</sup> CY2021 VO installations occurred throughout the program year. Table 2-1 shows only those substations and feeders on which installation, commissioning, and system testing were completed by December 31, 2021. This table excludes feeders where VO was fully enabled on a transformer in CY2021, but the specific feeder did not have any load in CY2021 and feeders where VO was initially enabled but not fully functional in CY2021. Savings for these types of feeders are expected to be claimed in a future year (either when load is added to the feeder or when VO is fully functional).

### 3. Program Savings Detail

Table 3-1 summarizes the incremental energy and demand savings the VO Program achieved in CY2021. VO is not a customer-facing program, so there is no free ridership or spillover; the net-to-gross (NTG) ratio is 1.0 and net and verified gross savings are identical. The program did not claim, and the evaluation did not examine, gas savings.

**Table 3-1. Total Annual Incremental Electric Savings**

Savings Category	Units	Ex Ante Gross Savings	Program Gross Realization Rate	Verified Gross Savings	Program Net-to-Gross Ratio (NTG)	CY2019 Net Carryover Savings	CY2020 Net Carryover Savings	Verified Net Savings
Electric Energy Savings - Direct	kWh	270,533,831	1.00	270,951,740	1.00	0	0	270,951,740
Electric Energy Savings - Converted from Gas	kWh	0	N/A	0	0.00	0	0	0
Total Electric Energy Savings	kWh	270,533,831	1.00	270,951,740	1.00	0	0	270,951,740
Summer Peak§ Demand Savings	kW	52,308	1.00	52,535	1.00	0	0	52,535

N/A = not applicable (refers to a piece of data that cannot be produced or does not apply).

The “Verified Net Savings” in row one include primary kWh savings as a result of measure implementation. It may also include Carryover Savings, Secondary kWh savings from Water, and electric heating penalties, if these are applicable to the program. Carryover savings do not apply to this program.

§ The coincident summer peak period is defined as 1:00-5:00 p.m. Central Prevailing Time (CPT) on non-holiday weekdays, June through August.

Source: ComEd tracking data and evaluation team analysis

## 4. Cumulative Persisting Annual Savings

Table 4-1 and Figure 4-1 show the measure-specific and total verified gross savings for the VO Program and the cumulative persisting annual savings (CPAS) for the measures installed in CY2021. The electric CPAS across all measures installed in 2021 is shown in Table 4-1. Guidehouse did not evaluate gas savings for this program, so electric CPAS is equivalent to total CPAS. The historic rows in this table are the CPAS contribution back to CY2018. The Program Total Electric CPAS is the sum of the CY2021 contribution and the historic contribution. Figure 4-1 shows the savings across the effective useful life (EUL) of the measures.

**Table 4-1. Cumulative Persisting Annual Savings – Electric**

End Use Type	Research Category	EUL	CY2021 Verified Gross Savings (kWh)	NTG*	Lifetime Net Savings (kWh)†	Verified Net kWh Savings									
						2018	2019	2020	2021	2022	2023	2024	2025	2026	
All	VO	15.0	270,951,740	1.00	4,064,276,100				270,951,740	270,951,740	270,951,740	270,951,740	270,951,740	270,951,740	270,951,740
CY2021 Program Total Electric Contribution to CPAS			270,951,740		4,064,276,100				270,951,740	270,951,740	270,951,740	270,951,740	270,951,740	270,951,740	270,951,740
Historic Program Total Electric Contribution to CPAS‡						66,014,049	250,055,552	466,051,868	466,051,868	466,051,868	466,051,868	466,051,868	466,051,868	466,051,868	466,051,868
Program Total Electric CPAS						66,014,049	250,055,552	466,051,868	737,003,608	737,003,608	737,003,608	737,003,608	737,003,608	737,003,608	737,003,608
CY2021 Program Incremental Expiring Electric Savings§										-	-	-	-	-	-
Historic Program Incremental Expiring Electric Savings										-	-	-	-	-	-
Program Total Incremental Expiring Electric Savings										-	-	-	-	-	-
End Use Type	Research Category	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038		
All	VO	270,951,740	270,951,740	270,951,740	270,951,740	270,951,740	270,951,740	270,951,740	270,951,740	270,951,740					
CY2021 Program Total Electric Contribution to CPAS		270,951,740	270,951,740	270,951,740	270,951,740	270,951,740	270,951,740	270,951,740	270,951,740	270,951,740	-	-	-		
Historic Program Total Electric Contribution to CPAS‡		466,051,868	466,051,868	466,051,868	466,051,868	466,051,868	466,051,868	400,037,819	215,996,316						
Program Total Electric CPAS		737,003,608	737,003,608	737,003,608	737,003,608	737,003,608	737,003,608	670,989,559	486,948,056	270,951,740					
CY2021 Program Incremental Expiring Electric Savings§		-	-	-	-	-	-	-	-	-	270,951,740	-	-		
Historic Program Incremental Expiring Electric Savings		-	-	-	-	-	-	66,014,049	184,041,503	215,996,316	-	-	-		
Program Total Incremental Expiring Electric Savings		-	-	-	-	-	-	66,014,049	184,041,503	215,996,316	270,951,740	-	-		

Note: The green highlighted cell shows program total first-year electric savings. The gray cells are blank, indicating values irrelevant to the CY2021 contribution to CPAS.

\* A deemed value. Source: Illinois Stakeholder Advisory Group (SAG) website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2021>.

† Lifetime savings are the sum of CPAS savings through the EUL.

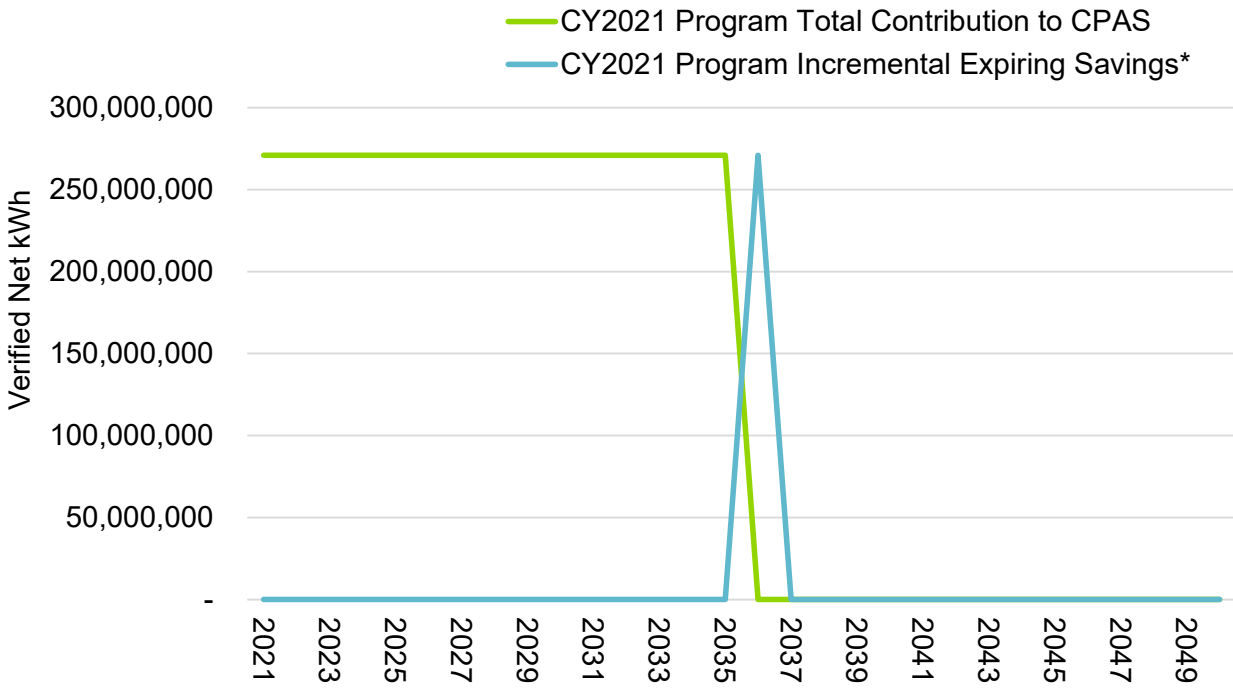
‡ Historic savings go back to CY2018.

§ Incremental expiring savings are equal to CPAS Y<sub>n-1</sub> - CPAS Y<sub>n</sub>.

Source: Evaluation team analysis



**Figure 4-1. Cumulative Persisting Annual Savings**



\* Incremental expiring savings are equal to  $CPAS_{Y_{n-1}} - CPAS_{Y_n}$ .

Source: Evaluation team analysis

## **5. Program Savings by Measure**

This program has only one measure, so measure-level results are the same as the program-level results discussed in the previous section.

## 6. Impact Analysis Findings and Recommendations

The evaluation team developed recommendations for ComEd based on findings from the CY2021 evaluation. ComEd and Guidehouse worked together throughout the year to examine data and modify the analysis as needed, thus there are relatively few findings in this report.

**Finding 1.** Based on guidance from the Illinois SAG,<sup>4</sup> Guidehouse normalized CY2021 savings for pandemic-related impacts. Based on the method ComEd, Guidehouse, and Illinois Commerce Commission (ICC) staff agreed to (a visual comparison of 2021, 2020, and 2019 during the same time period), Guidehouse and ComEd agreed that usage data (power or current) was affected by the pandemic during Phases 1 and 2 of the Illinois coronavirus response for approximately one-fifth of feeders while voltage data was not affected. Phase 1 began on March 16, 2020, and Phase 2 ended on May 28, 2020; together these phases covered the most extreme periods of pandemic restrictions in Illinois.<sup>5,6</sup> ComEd and Guidehouse removed usage data during Phases 1 and 2 of the Illinois coronavirus response for the affected feeders. Appendix A describes this in further detail.

**Finding 2.** Guidehouse identified several feeders where the lower limit for outliers for load data<sup>7</sup> seemed high compared to the actual data. That is, the lower limit for outliers caused the evaluation team to drop a relatively large amount of data that looked reasonable compared to the feeder's full stream of data. Additionally, the evaluation team identified several feeders where the upper limit for outliers for load data<sup>8</sup> seemed low. That is, the upper limit for outliers caused the evaluation team to drop reasonable values. In particular, for several feeders the upper limit for outliers caused the evaluation team to remove normal seasonal peaks from the analysis; this mostly happened on winter peaking feeders.

**Recommendation 1.** Following each year's peak season, ComEd should conduct a thorough review of the pre-VO peak load and distributed energy resources (DER) capacity values that feed into the load outlier calculations to ensure their accuracy. ComEd should pay particular attention to feeders where the pre and post VO peak load changed significantly which may indicate customers shifting onto or off of a feeder making the pre-VO peak load inappropriate for flagging outliers. Additionally, ComEd should specifically review winter peaking feeders for whether the summer pre-VO peak load values used to flag outliers are appropriate.

**Recommendation 2.** In October of each year, ComEd and Guidehouse should review the outlier values to identify feeders where an unreasonable amount of data are being flagged as outliers. The teams should work together to agree on revised peak load values for these feeders as needed.

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<sup>4</sup> This decision is documented in meeting notes from the June 11, 2020, August 24, 2020, and February 22, 2021 SAG meetings (available at <https://www.ilsag.info/events/list>).

<sup>5</sup> More information on restrictions by phase can be found at <https://coronavirus.illinois.gov/s/restore-illinois-introduction>.

<sup>6</sup> The CY2021 evaluation relies on data from January 1, 2020 to January 31, 2022.

<sup>7</sup> The lower limit for outliers on load data is currently defined as either (1) 10% of the feeder pre-VO peak load for feeders without DER, or (2) as 50% of feeder pre-VO peak load minus the expected reverse power for feeders with DER.

<sup>8</sup> The upper limit for outliers on load data is currently defined as 110% of pre-VO peak load.

**Recommendation 3.** ComEd and the evaluation team should review the outlier rules and consider an alternative if more than an agreed upon threshold of data values are dropped as outliers for a specific feeder. For example, the evaluation team could define outliers based on a number of standard deviations from the mean for these feeders.

## Appendix A. Impact Analysis Methodology

The evaluation team used the approach specified in the Illinois Technical Reference Manual version 9.0 (IL-TRM)<sup>9</sup> to estimate the VO Program's energy and demand savings.<sup>10</sup>

### A.1 Energy Savings Methodology

The IL-TRM relies on a conservation voltage reduction factor (CVRf), which is deemed at 0.8, and uses Equation A-1 to estimate energy savings.

#### Equation A-1. Energy Savings Calculation

$$\text{Energy Savings} = \text{Energy Baseline} * \text{CVRf} * \text{Voltage Reduction Percentage}$$

In accordance with the IL-TRM, in cases where power (MW) data was not available, Guidehouse converted the corresponding current (amps) value to MW using Equation A-2 through Equation A-4.<sup>11</sup> This conversion was applied to at least some of the data used for reconstruction (data from January 1, 2020 to January 31, 2022) for 427 feeders.

#### Equation A-2. Amps-to-MW Conversion (Three-Phase with Line-to-Line Voltage)

$$P_t = \sqrt{3} * V_t * I_t * p_f$$

#### Equation A-3. Amps-to-MW Conversion (Three-Phase with Line-to-Neutral Voltage)

$$P_t = 3 * V_t * I_t * p_f$$

#### Equation A-4. Amps-to-MW Conversion (Single Phase)

$$P_t = V_t * I_t * p_f$$

Where:

$P_t$	Calculated MW data at time $t$
$V_t$	Average measured voltage at time $t$
$I_t$	Average measured amps at time $t$ <sup>12</sup>
$p_f$	Power factor assumed to be 0.9 <sup>13</sup>

<sup>9</sup> In this report, unless stated otherwise, IL-TRM and IL-TRM Errata refers to version 9.0 (v9.0).

<sup>10</sup> See Measure 6.2.1, Volume 4, Version 9.0 of the IL-TRM.

<sup>11</sup> If the voltage data was removed for a data point due to the additional data cleaning steps described later, the associated amps-to-MW conversion resulted in a missing value (as no accurate voltage data was available for the conversion).

<sup>12</sup> In cases where amps are measured in three phases,  $I_t$  is the mean of the three (omitting from the mean any specific phases that are missing).

<sup>13</sup> Guidehouse used ComEd's assumed power factor of 0.9. The team reviewed this parameter during our CY2019 evaluation and found this assumption to be reasonable.

In accordance with the IL-TRM that the evaluator will address any data quality issues, Guidehouse cleaned the MW and voltage data by removing anomalous values of the following types:

1. Negative values<sup>14</sup>
2. Non-numeric values
3. Zero values
4. Missing values
5. Repetitive values<sup>15</sup>
6. Interpolated values<sup>16</sup>
7. Outlier values
  - a. MW
    - i. Defined as values above 110% or below 10% of the feeder peak load for feeders without DER.
    - ii. Defined as values above 110% of the feeder peak load or below the expected reverse power for feeders with DER.<sup>17</sup>
  - b. Voltage
    - i. Defined as values above 1.10 per unit (p.u.) and below 0.90 p.u. of the nominal line-to-line voltage level for regular transformers and the nominal line-to-neutral voltage for DC-in-a-box (DCIAB) transformers.

Guidehouse also executed the following data cleaning steps specific to CY2021 data anomalies:

- Power (MW) or current (amps) data were excluded from March 16, 2020 through May 28, 2020<sup>18</sup> for 90 feeders that appeared to be affected by pandemic-related impacts based on the same method used in CY2020. This was done in accordance with the SAG decision that CY2021 savings should be normalized for the effects of the pandemic.<sup>19</sup>

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<sup>14</sup> Only negative voltage values are removed in this step. Negative usage values are removed as outliers in step 7 for feeders without DER.

<sup>15</sup> Repetitive values are cases where three values in a row match when rounded to six decimal places. For a long string of repeated values, all intermediate values and the end value will be flagged as repeated while the first value will not.

<sup>16</sup> Interpolated values are detected when the difference between values is the same, when rounded to six decimal places, for at least two values in a row. In these cases, the second or middle value(s) is removed.

<sup>17</sup> The expected reverse power flow ( $P_{rev}$ ) is calculated based on the total installed DER capacity on the feeder ( $P_{DER}$ ) and the expected feeder demand during DER peak time ( $P_{Demand} = 50\%$  of feeder peak load):

$$P_{rev} = P_{Demand} - P_{DER}$$

<sup>18</sup> These dates align with the start of Phase 1 of the coronavirus response in Illinois and the end of Phase 2, covering the most extreme restrictions. More information on restrictions by phase can be found at <https://coronavirus.illinois.gov/s/restore-illinois-introduction>.

<sup>19</sup> This decision is documented in meeting notes from the June 11, 2020, August 24, 2020, and February 22, 2021 SAG meetings (available at <https://www.ilsag.info/events/list>).

- Twenty-five substations experienced periods of unregulated voltage, voltage testing periods, or periods where voltage was incorrect due to data irregularities. Voltage, and if needed the associated load, during these periods were excluded from the analysis.
- For 10 transformers across four substations, enabling VO revealed that new equipment was needed for the full potential reduction in voltage from VO to be realized. Installations of new equipment occurred and resulted in a revised VO go-live date to acknowledge that only the savings after VO was operating at its full potential reflect the expectation of how VO will operate for the rest of the 15-year measure life. For the analysis, load and voltage data for VO on periods before the revised VO go-live date were excluded and the VO status was assumed to be off.
- For 13 substations commissioning the transformer for VO revealed that the voltage was lower than the standardized operating level within ComEd territory. As a result, ComEd made a discrete increase to the voltage before enabling VO to bring it up to an acceptable level. For these transformers, voltage data from January 1, 2020 until said shift were excluded from the analysis.

In accordance with the IL-TRM, Guidehouse created a lookup table to reconstruct load (MW<sup>20</sup>) and voltage data that was missing or eliminated by the data cleaning process based on the priority sequence shown in Table A-1. Guidehouse used data from January 1, 2020 through January 31, 2022 to reconstruct data for CY2021.

**Table A-1. Data Reconstruction Priority Sequence**

Priority	Components and Commonalities of Table
1	Season*, Temperature†, Day Type‡, Hour§, VO Status
2	Temperature, Day Type, Hour, VO Status
3-5	Temperature +/-5  , Day Type, Hour, VO Status
6	Season, Day Type, Hour, VO Status
7	Temperature, Day Type, VO Status
8	Season, Day Type, VO Status
9	Temperature, VO Status
10	Season, VO Status
11	Day Type, Hour, VO Status
12	Day Type, VO Status
13	VO Status
14	Season*, Temperature†, Day Type, Hour
15	Temperature, Day Type, Hour
16-18	Temperature +/-5, Day Type, Hour
19	Season, Day Type, Hour
20	Temperature, Day Type
21	Season, Day Type
22	Temperature

<sup>20</sup> Either recorded MW or MW converted from amps.

Priority	Components and Commonalities of Table
23	Season
24	Day Type, Hour
25	Day Type
26	- #

\* Seasons are spring (March-May), summer (June-August), fall (September-November), and winter (December-February)

† Temperature was binned to the ceiling of the nearest 5°F interval. Guidehouse sourced temperature data from the National Oceanic and Atmospheric Administration (NOAA) Quality Controlled Local Climatological Data (QCLCD) weather station geographically closest to each feeder. The evaluation team filled in missing data via linear interpolation (for gaps of 4 or fewer hours) or from the next closest weather station (for gaps longer than 4 hours).

‡ Day types are weekdays (Monday-Friday) and weekends (Saturday and Sunday).

§ Hour refers to the same hour of the day.

|| Temperature +/-5 refers to temperatures one 5°F bin above or below the temperature of the observation being reconstructed. This occurred in three stages where the evaluation team first looked across the bin above and below and then in just one or the other if there were no data points in one of them.

# All data points will be averaged.

Source: ComEd and Guidehouse

Load and voltage data were cleaned separately, and Table A-2 shows how much of the reconstructed data for each unit came from each priority bin in Table A-1.

**Table A-2. Data Reconstruction**

Priority Bin	Percentage Voltage Data (kV)	Percentage Load Data (MW)
Actual Measured	90.81%	90.21%
1	6.67%	7.98%
2	2.09%	1.20%
3-5	0.23%	0.42%
6	0.00%	0.00%
7	0.00%	0.07%
8	0.00%	0.02%
9	0.00%	0.01%
10	0.00%	0.00%
11	0.00%	0.06%
12	0.00%	0.00%
13	0.00%	0.00%
14	0.00%	0.01%
15	0.00%	0.00%

Note: Priority bins beyond 15 were never used in the CY2021 evaluation.

Source: ComEd tracking data and evaluation team analysis



To estimate the voltage reduction percentage, Guidehouse constructed the counterfactual voltage profile based on the same priority sequence as Table A-1 shows.<sup>21</sup>

In CY2021, feeder W1033 was newly added to substation TDC510, which was originally VO-enabled in CY2019. This feeder reached 70% of its projected load in CY2021, so ComEd can claim savings from it. Per the IL-TRM, Guidehouse used the CY2019 voltage reduction from the applicable transformer to calculate CY2021 savings for W1033 as no on-off testing occurred on this transformer in CY2021.<sup>22</sup>

In estimating energy savings, Guidehouse accounted for line losses of 3.67%<sup>23</sup> and a de-rating factor of 0.2325% to account for times when VO is expected to be off for reasons that are within ComEd's control for each year of the 15-year measure life. The calculation of the de-rating factor is discussed in Appendix D.

## A.2 Peak Demand Savings Methodology

The estimation of peak demand savings was similar to energy savings and follows Equation A-5.

### Equation A-5. Peak Savings Calculation

$$\text{Peak Savings} = \text{Peak Baseline} * CVRf_{peak} * \text{Voltage Reduction Percentage}_{peak}$$

Where:

*Peak Baseline*

Baseline kW usage on the feeder during the peak period, defined as 1:00 p.m.-5:00 p.m. CPT on non-holiday weekdays from June 1 to August 31. This was calculated in the same manner as the baseline for energy savings but with the intent of estimating the baseline just for the peak period as opposed to for the entire year.

$CVRf_{peak}$

1.02

*Voltage Reduction Percentage<sub>peak</sub>*

Percentage voltage reduction on the feeder caused by VO during the peak period, defined as 1:00 p.m.-5:00 p.m. CPT on non-holiday weekdays from June 1 to August 31. This was calculated in the same manner as for energy savings but with the intent of estimating the peak period as opposed to the entire year.

<sup>21</sup> For constructing the counterfactual voltage profile, only bins 1-13 are used.

<sup>22</sup> The information about no load and future feeders first appears in v10.0 of the IL-TRM. Guidehouse is applying the v10.0 methodology to CY2021 as this topic was not covered in v9.0.

<sup>23</sup> Distribution system energy losses are assumed to be 3.67% based on ComEd's filed *2019 ComEd Distribution System Loss Study*.

ComEd. 2020. *2019 ComEd Distribution System Loss Study*. Docket No. 20. ComEd Ex. 6.01. Available at: <https://www.icc.illinois.gov/downloads/public/edocket/520735.PDF>.

## Appendix B. Impact Findings Detailed Results

Table B-1 presents the verified CY2021 VO Program energy impacts and realization rate by feeder; Table B-2 presents the same for demand; and Table B-3 rolls results up to the substation.

**Table B-1. CY2021 Verified VO Energy Savings and Voltage Reductions by Feeder**

Substation	Feeder	VO Go Live	CVRf	Energy Baseline (MWh)	Average Voltage Reduction* (%)	Ex Ante Energy Savings (MWh)	Verified Energy Savings (MWh)	Energy Realization Rate
DCA41	A410	7/15/2021	0.8	21,848.562	4.86%	816.680	816.176	1.00
DCB46	B465	2/13/2021	0.8	16,832.202	5.00%	647.274	647.411	1.00
DCB53	B537	1/19/2021	0.8	10,888.565	3.73%	312.998	312.593	1.00
DCB53	B539	1/19/2021	0.8	8,014.901	3.78%	232.999	232.721	1.00
DCB53	B531	1/12/2021	0.8	10,440.105	3.88%	311.595	311.527	1.00
DCD187	D8701	1/11/2021	0.8	20,228.521	3.88%	604.517	603.034	1.00
DCD187	D8711	1/11/2021	0.8	26,904.662	3.77%	789.617	779.354	0.99
DCD255	D551	1/19/2021	0.8	30,083.399	3.67%	849.376	848.646	1.00
DCE29	E297	12/22/2021	0.8	16,952.861	2.01%	260.322	261.425	1.00
DCE71	E718	2/13/2021	0.8	20,507.504	4.69%	739.267	739.481	1.00
DCE71	E717	2/13/2021	0.8	16,439.566	4.61%	581.893	582.430	1.00
DCH25	H256	8/24/2021	0.8	4,680.980	3.35%	122.642	120.495	0.98
DCH25	H255	8/24/2021	0.8	26,942.956	3.68%	760.324	761.278	1.00
DCH25	H257	8/24/2021	0.8	18,144.098	3.37%	468.603	470.651	1.00
DCJ13	J135	1/20/2021	0.8	22,454.136	4.17%	719.200	719.551	1.00
DCJ49	J496	9/25/2021	0.8	23,718.120	4.31%	762.371	785.970	1.03
DCJ49	J495	9/25/2021	0.8	6,613.695	4.22%	202.688	214.650	1.06
DCW10	W1002	8/24/2021	0.8	29,275.624	4.01%	901.032	901.560	1.00
DCW10	W1001	8/24/2021	0.8	17,347.146	3.61%	479.511	481.410	1.00
DCW25	W259	12/20/2021	0.8	18,379.804	2.81%	361.186	396.486	1.10
DCW336	W365	1/20/2021	0.8	25,382.613	3.74%	728.320	729.170	1.00
DCW336	W366	1/20/2021	0.8	13,280.213	3.72%	379.801	380.219	1.00
DCW35	W352	11/29/2021	0.8	16,086.078	3.79%	464.000	468.486	1.01
DCW35	W351	11/29/2021	0.8	18,115.527	3.11%	433.169	433.166	1.00
DCW73	W731	6/30/2021	0.8	15,126.030	3.86%	449.757	449.444	1.00
SS501	W503	1/20/2021	0.8	14,703.463	4.55%	515.032	514.777	1.00
TDC204	C043	10/19/2021	0.8	19,822.831	3.11%	473.908	474.107	1.00
TDC204	C0415	10/19/2021	0.8	11,903.704	3.10%	282.994	283.235	1.00
TDC204	C0411	10/19/2021	0.8	5,727.049	3.10%	136.692	136.707	1.00
TDC204	C048	10/19/2021	0.8	17,511.226	3.04%	409.527	408.600	1.00
TDC204	C046Y	10/19/2021	0.8	18,703.655	3.02%	435.860	434.742	1.00
TDC204	C0413Y	10/19/2021	0.8	21,698.707	3.03%	505.931	504.771	1.00
TDC204	C045	10/19/2021	0.8	25,006.522	3.40%	651.195	653.741	1.00

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TDC204	C0417	10/19/2021	0.8	29,800.093	3.01%	690.829	689.678	1.00
TDC204	C0412	10/19/2021	0.8	21,644.739	3.10%	515.561	515.752	1.00
TDC204	C042X	10/19/2021	0.8	19,874.336	3.42%	523.816	521.807	1.00
TDC204	C0413X	10/19/2021	0.8	12,180.789	3.03%	284.974	284.192	1.00
TDC204	C0410X	10/19/2021	0.8	18,215.678	3.03%	425.144	424.240	1.00
TDC204	C044	10/19/2021	0.8	18,698.358	3.05%	439.032	437.951	1.00
TDC204	C0410Y	10/19/2021	0.8	20,977.181	3.03%	489.372	488.564	1.00
TDC204	C046X	10/19/2021	0.8	21,677.037	3.03%	505.796	504.649	1.00
TDC204	C0416	10/19/2021	0.8	19,425.090	3.11%	464.605	464.885	1.00
TDC204	C042Y	10/19/2021	0.8	17,835.203	3.41%	468.565	467.170	1.00
TDC204	C047	10/19/2021	0.8	27,597.340	3.42%	721.410	725.426	1.01
TDC204	C0414	10/19/2021	0.8	23,719.350	3.09%	563.864	564.157	1.00
TDC204	C049	10/19/2021	0.8	25,178.472	3.42%	662.641	661.862	1.00
TDC213	C130	12/6/2021	0.8	17,480.814	3.54%	474.014	475.686	1.00
TDC213	C1313X	12/6/2021	0.8	17,927.523	3.55%	488.709	489.676	1.00
TDC213	C132	12/6/2021	0.8	17,997.564	3.59%	495.215	496.772	1.00
TDC213	C1319	12/6/2021	0.8	13,007.723	2.14%	214.537	213.754	1.00
TDC213	C137	12/6/2021	0.8	17,672.763	3.55%	480.655	481.890	1.00
TDC213	C1317	12/6/2021	0.8	17,372.370	2.10%	281.024	280.015	1.00
TDC213	C1311	12/6/2021	0.8	19,625.837	3.52%	530.265	531.464	1.00
TDC213	C136	12/6/2021	0.8	22,734.305	2.16%	376.361	377.208	1.00
TDC213	C1314	12/6/2021	0.8	10,578.640	3.51%	284.887	285.674	1.00
TDC213	C1313Y	12/6/2021	0.8	18,576.585	3.53%	503.048	503.988	1.00
TDC213	C138X	12/6/2021	0.8	19,544.582	3.57%	534.907	535.711	1.00
TDC213	C1320	12/6/2021	0.8	18,787.708	3.58%	515.359	516.823	1.00
TDC213	C135Y	12/6/2021	0.8	16,456.260	2.09%	265.358	264.536	1.00
TDC213	C1323	12/6/2021	0.8	12,748.198	2.08%	204.293	203.716	1.00
TDC213	C131	12/6/2021	0.8	14,065.103	3.59%	386.865	388.016	1.00
TDC213	C1318	12/6/2021	0.8	22,371.426	3.56%	609.995	611.884	1.00
TDC213	C1322	12/6/2021	0.8	21,325.645	2.10%	345.222	343.995	1.00
TDC213	C139	12/6/2021	0.8	23,656.953	2.10%	383.107	381.722	1.00
TDC213	C1312	12/6/2021	0.8	20,455.191	2.09%	328.942	328.037	1.00
TDC213	C135X	12/6/2021	0.8	13,559.346	2.11%	220.890	220.085	1.00
TDC213	C1315	12/6/2021	0.8	19,765.415	2.10%	320.581	319.403	1.00
TDC213	C1321	12/6/2021	0.8	20,832.156	3.56%	567.948	569.918	1.00
TDC213	C133	12/6/2021	0.8	17,207.052	2.18%	288.472	288.599	1.00
TDC213	C138Y	12/6/2021	0.8	12,926.432	3.56%	352.949	353.580	1.00
TDC213	C134	12/6/2021	0.8	8,012.473	2.14%	131.646	132.031	1.00
TDC213	C1316X	12/6/2021	0.8	7,739.860	2.20%	130.868	131.120	1.00
TDC213	C1316Y	12/6/2021	0.8	22,206.185	2.17%	368.961	369.696	1.00

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TDC213	C1310X	12/6/2021	0.8	6,341.842	3.51%	170.752	171.154	1.00
TDC213	C1310Y	12/6/2021	0.8	16,253.870	3.49%	435.274	436.135	1.00
TDC225	E251	5/20/2021	0.8	8,099.764	3.22%	200.045	200.281	1.00
TDC225	E257	5/20/2021	0.8	21,037.145	3.47%	554.455	560.655	1.01
TDC225	E259	5/20/2021	0.8	12,915.913	3.45%	341.109	342.273	1.00
TDC225	E258	5/20/2021	0.8	12,089.550	3.45%	338.428	320.893	0.95
TDC225	E250	5/20/2021	0.8	10,444.527	3.18%	254.921	255.449	1.00
TDC225	E252	5/20/2021	0.8	13,819.219	3.19%	337.717	338.424	1.00
TDC225	E253	5/20/2021	0.8	14,249.285	3.19%	348.500	349.199	1.00
TDC225	E2511	5/20/2021	0.8	20,191.796	3.45%	539.712	535.064	0.99
TDC225	E254	5/20/2021	0.8	22,083.118	3.21%	544.719	545.552	1.00
TDC225	E256	5/20/2021	0.8	18,436.229	3.42%	465.374	485.206	1.04
TDC225	E255	5/20/2021	0.8	23,743.641	3.18%	579.923	581.004	1.00
TDC259	E5902	3/18/2021	0.8	24,431.207	4.03%	757.200	756.776	1.00
TDC259	E5928	3/18/2021	0.8	17,897.962	3.91%	538.232	538.262	1.00
TDC259	E5910	3/18/2021	0.8	16,427.294	3.86%	487.988	488.002	1.00
TDC259	E5932	3/18/2021	0.8	18,763.584	4.03%	582.672	582.048	1.00
TDC259	E5927	3/18/2021	0.8	16,553.057	3.87%	492.640	492.776	1.00
TDC259	E5904	3/18/2021	0.8	19,852.924	4.06%	620.451	620.101	1.00
TDC259	E5909	3/18/2021	0.8	17,818.822	3.88%	532.216	532.146	1.00
TDC259	E5908	3/18/2021	0.8	17,841.247	4.00%	548.910	548.451	1.00
TDC259	E5905	3/18/2021	0.8	16,689.689	4.00%	513.245	513.089	1.00
TDC259	E5907	3/18/2021	0.8	16,884.665	4.03%	523.634	522.980	1.00
TDC411	J1171	12/14/2021	0.8	30,508.728	3.67%	861.639	860.585	1.00
TDC411	J1182	12/14/2021	0.8	21,387.500	3.24%	531.476	532.065	1.00
TDC411	J1172	12/14/2021	0.8	24,958.984	3.69%	708.128	707.172	1.00
TDC411	J1175	12/14/2021	0.8	15,304.963	3.61%	425.039	424.427	1.00
TDC411	J1174	12/14/2021	0.8	14,697.846	3.58%	405.519	404.798	1.00
TDC411	J1186	12/14/2021	0.8	29,618.148	3.24%	737.575	738.048	1.00
TDC411	J1176	12/14/2021	0.8	11,242.260	3.23%	278.948	278.982	1.00
TDC411	J1184	12/14/2021	0.8	13,121.071	3.29%	332.248	332.062	1.00
TDC411	J1173	12/14/2021	0.8	21,650.741	3.63%	604.853	604.139	1.00
TDC411	J1183	12/14/2021	0.8	16,432.346	3.26%	412.093	412.122	1.00
TDC411	J1181	12/14/2021	0.8	19,621.279	3.22%	485.422	485.932	1.00
TDC431	J3106	12/17/2021	0.8	18,141.016	3.24%	451.516	451.873	1.00
TDC431	J3128	12/17/2021	0.8	26,698.842	2.95%	602.575	604.792	1.00
TDC431	J3105	12/17/2021	0.8	19,720.086	3.35%	501.616	507.436	1.01
TDC431	J3103	12/17/2021	0.8	15,955.182	3.04%	373.852	373.047	1.00
TDC431	J3127	12/17/2021	0.8	13,856.394	2.92%	309.990	311.144	1.00
TDC431	J3113	12/17/2021	0.8	20,082.936	3.34%	509.112	515.248	1.01

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TDC431	J3101	12/17/2021	0.8	14,754.033	2.99%	340.283	339.298	1.00
TDC431	J3111	12/17/2021	0.8	15,487.933	3.36%	399.715	400.175	1.00
TDC431	J3123	12/17/2021	0.8	18,264.612	2.95%	412.843	414.333	1.00
TDC431	J3110	12/17/2021	0.8	6,558.144	3.35%	168.483	168.656	1.00
TDC431	J3102	12/17/2021	0.8	22,315.354	2.99%	514.773	513.202	1.00
TDC431	J3114	12/17/2021	0.8	22,773.464	3.33%	576.261	583.282	1.01
TDC431	J3108	12/17/2021	0.8	15,491.930	3.23%	384.664	384.765	1.00
TDC431	J3131	12/17/2021	0.8	17,543.127	3.12%	421.483	420.599	1.00
TDC431	J3126	12/17/2021	0.8	25,350.743	2.93%	569.246	571.188	1.00
TDC431	J3112	12/17/2021	0.8	15,757.095	3.36%	406.538	407.229	1.00
TDC431	J3132	12/17/2021	0.8	26,548.236	3.17%	648.495	647.433	1.00
TDC431	J3109	12/17/2021	0.8	23,001.632	3.36%	592.878	593.673	1.00
TDC431	J3104	12/17/2021	0.8	19,802.329	2.99%	457.138	455.782	1.00
TDC431	J3107	12/17/2021	0.8	21,125.832	3.25%	526.901	527.282	1.00
TDC436	J3686	11/20/2021	0.8	9,852.513	3.77%	284.339	285.326	1.00
TDC436	J3677	11/20/2021	0.8	21,604.282	3.79%	629.658	629.954	1.00
TDC436	J3694	11/20/2021	0.8	21,467.869	3.75%	618.519	618.658	1.00
TDC436	J3681	11/20/2021	0.8	24,009.040	3.69%	680.882	680.211	1.00
TDC436	J3682	11/20/2021	0.8	28,856.585	4.50%	999.878	999.295	1.00
TDC436	J3684	11/20/2021	0.8	17,155.483	4.42%	584.507	582.447	1.00
TDC436	J3679	11/20/2021	0.8	23,544.327	4.64%	839.775	838.987	1.00
TDC436	J3690	11/20/2021	0.8	17,925.182	3.61%	498.483	498.028	1.00
TDC436	J3689	11/20/2021	0.8	20,592.326	3.73%	590.081	590.325	1.00
TDC436	J3683	11/20/2021	0.8	13,551.433	4.41%	457.301	459.098	1.00
TDC436	J3675	11/20/2021	0.8	17,259.914	4.49%	593.955	595.465	1.00
TDC436	J3688	11/20/2021	0.8	22,102.652	3.72%	629.129	631.983	1.00
TDC436	J3678	11/20/2021	0.8	21,544.334	4.52%	747.849	749.199	1.00
TDC436	J3674	11/20/2021	0.8	20,063.877	4.51%	695.327	696.408	1.00
TDC436	J3691	11/20/2021	0.8	25,859.217	3.70%	735.423	734.795	1.00
TDC436	J3687	11/20/2021	0.8	21,462.049	3.73%	613.339	616.206	1.00
TDC436	J3680	11/20/2021	0.8	26,297.097	4.60%	929.489	930.141	1.00
TDC436	J3685	11/20/2021	0.8	23,256.462	3.75%	666.072	670.502	1.01
TDC436	J3676	11/20/2021	0.8	21,900.898	4.52%	758.382	761.032	1.00
TDC436	J3672	11/20/2021	0.8	19,224.552	3.71%	547.651	547.664	1.00
TDC436	J3673	11/20/2021	0.8	21,783.988	4.54%	759.180	759.877	1.00
TDC436	J3693	11/20/2021	0.8	29,525.629	3.68%	835.930	835.424	1.00
TDC436	J3671	11/20/2021	0.8	25,154.872	4.48%	861.254	865.451	1.00
TDC439	J3970	12/9/2021	0.8	22,691.889	4.17%	728.935	726.758	1.00
TDC439	J3974	12/9/2021	0.8	28,828.095	4.19%	929.845	927.607	1.00
TDC439	J3985	12/9/2021	0.8	32,825.664	4.14%	1,045.115	1,045.825	1.00

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TDC439	J3972	12/9/2021	0.8	1,852.661	4.18%	59.643	59.489	1.00
TDC439	J3983	12/9/2021	0.8	9,941.537	4.13%	315.881	315.999	1.00
TDC439	J3982	12/9/2021	0.8	30,558.658	4.12%	968.547	969.020	1.00
TDC439	J3986	12/9/2021	0.8	23,474.859	4.13%	745.177	745.318	1.00
TDC439	J3984	12/9/2021	0.8	22,738.836	4.15%	725.927	726.197	1.00
TDC439	J3971	12/9/2021	0.8	26,216.664	4.19%	847.434	845.030	1.00
TDC439	J3973	12/9/2021	0.8	31,437.248	4.19%	1,014.418	1,011.873	1.00
TDC439	J3975	12/9/2021	0.8	16,760.350	4.20%	542.432	540.936	1.00
TDC440	G402	6/13/2021	0.8	17,291.029	3.66%	486.277	486.398	1.00
TDC440	G405	6/13/2021	0.8	25,713.635	3.85%	760.689	761.363	1.00
TDC440	G4072	6/13/2021	0.8	25,688.425	3.85%	759.382	759.828	1.00
TDC440	G404	6/13/2021	0.8	19,592.166	3.66%	551.408	551.506	1.00
TDC440	G403	6/13/2021	0.8	5,989.154	3.85%	177.085	177.217	1.00
TDC440	G4075	6/13/2021	0.8	1,575.217	3.84%	46.429	46.453	1.00
TDC440	G4083	6/13/2021	0.8	17,427.880	3.66%	490.391	490.434	1.00
TDC440	G4074	6/13/2021	0.8	13,406.972	3.84%	395.496	395.697	1.00
TDC440	G4082	6/13/2021	0.8	16,963.190	3.65%	476.407	476.384	1.00
TDC440	G401	6/13/2021	0.8	14,524.132	3.65%	408.191	408.093	1.00
TDC440	G4081	6/13/2021	0.8	14,741.538	3.65%	413.948	414.020	1.00
TDC454	J5475	5/20/2021	0.8	16,520.037	3.19%	403.857	405.297	1.00
TDC454	J5491	5/20/2021	0.8	20,975.234	4.40%	712.050	709.116	1.00
TDC454	J5474	5/20/2021	0.8	23,538.730	3.21%	578.875	580.714	1.00
TDC454	J5483	5/20/2021	0.8	28,067.417	3.24%	695.846	698.072	1.00
TDC454	J5485	5/20/2021	0.8	19,307.545	4.35%	638.663	646.188	1.01
TDC454	J5472	5/20/2021	0.8	24,857.476	3.21%	612.243	614.316	1.00
TDC454	J5481	5/20/2021	0.8	17,044.460	3.20%	417.936	419.404	1.00
TDC454	J5478	5/20/2021	0.8	23,637.329	3.20%	579.923	581.902	1.00
TDC454	J5480	5/20/2021	0.8	21,289.318	3.20%	522.730	524.538	1.00
TDC454	J5476	5/20/2021	0.8	21,400.455	3.20%	524.681	526.542	1.00
TDC454	J5486	5/20/2021	0.8	25,213.086	4.39%	842.533	850.316	1.01
TDC454	J5470	5/20/2021	0.8	16,248.545	3.20%	398.504	399.821	1.00
TDC454	J5471	5/20/2021	0.8	24,782.465	3.21%	609.495	611.591	1.00
TDC454	J5473	5/20/2021	0.8	18,573.581	3.20%	454.995	456.532	1.00
TDC454	J5489	5/20/2021	0.8	18,154.818	4.38%	609.053	610.730	1.00
TDC454	J5479	5/20/2021	0.8	17,556.637	3.21%	431.881	433.329	1.00
TDC454	J5482	5/20/2021	0.8	8,849.103	3.19%	216.142	216.825	1.00
TDC454	J5487	5/20/2021	0.8	41,187.566	4.43%	1,412.201	1,402.449	0.99
TDC487	J8774	8/10/2021	0.8	14,620.288	3.67%	414.150	412.502	1.00
TDC487	J8773	8/10/2021	0.8	13,466.808	3.62%	376.524	374.940	1.00
TDC487	J8775	8/10/2021	0.8	20,407.787	3.79%	596.290	594.442	1.00

Substation	Feeder	VO Go Live	CVRf	Energy Baseline (MWh)	Average Voltage Reduction* (%)	Ex Ante Energy Savings (MWh)	Verified Energy Savings (MWh)	Energy Realization Rate
TDC487	J8783	8/10/2021	0.8	22,600.446	3.73%	651.532	647.803	0.99
TDC487	J8772	8/10/2021	0.8	23,164.210	3.76%	672.012	669.687	1.00
TDC487	J8771	8/10/2021	0.8	22,680.991	3.75%	655.924	653.652	1.00
TDC487	J8781	8/10/2021	0.8	16,820.105	3.67%	476.936	474.209	0.99
TDC487	J8784	8/10/2021	0.8	17,558.101	3.67%	497.791	494.809	0.99
TDC487	J8782	8/10/2021	0.8	14,947.382	3.73%	431.516	428.942	0.99
TDC510	W1033	4/21/2021	0.8	15,821.283	4.85%	572.200	589.910	1.03
TDC562	W627	12/16/2021	0.8	24,623.796	2.83%	533.773	535.935	1.00
TDC562	W6206	12/16/2021	0.8	15,696.460	3.40%	408.153	410.093	1.00
TDC562	W6220	12/16/2021	0.8	23,830.836	3.39%	618.471	621.509	1.00
TDC562	W6201	12/16/2021	0.8	23,315.388	3.39%	604.209	607.072	1.00
TDC562	W6216	12/16/2021	0.8	13,377.573	2.78%	285.252	286.347	1.00
TDC562	W6217Y	12/16/2021	0.8	4,877.847	2.62%	97.817	98.268	1.00
TDC562	W621	12/16/2021	0.8	23,802.706	2.87%	521.471	524.293	1.01
TDC562	W622Y	12/16/2021	0.8	17,701.767	2.71%	360.225	369.419	1.03
TDC562	W6223	12/16/2021	0.8	13,463.359	2.92%	300.485	301.969	1.00
TDC562	W6207	12/16/2021	0.8	16,603.659	3.42%	435.216	437.059	1.00
TDC562	W625	12/16/2021	0.8	26,737.082	2.77%	566.449	569.275	1.00
TDC562	W6205	12/16/2021	0.8	15,066.764	3.44%	396.543	398.174	1.00
TDC562	W622X	12/16/2021	0.8	24,271.306	2.79%	507.075	520.806	1.03
TDC562	W6218	12/16/2021	0.8	28,694.208	3.37%	738.613	742.315	1.01
TDC562	W6222	12/16/2021	0.8	15,680.351	2.79%	335.064	336.915	1.01
TDC562	W6202	12/16/2021	0.8	29,253.841	3.38%	757.296	760.918	1.00
TDC562	W6210X	12/16/2021	0.8	25,832.843	3.27%	645.592	648.963	1.01
TDC562	W6212	12/16/2021	0.8	31,142.691	3.33%	792.510	796.103	1.00
TDC562	W626	12/16/2021	0.8	27,030.224	2.78%	575.483	578.380	1.01
TDC562	W6209	12/16/2021	0.8	10,491.854	3.33%	267.377	268.580	1.00
TDC562	W6217X	12/16/2021	0.8	15,703.814	2.73%	328.039	329.416	1.00
TDC562	W6210Y	12/16/2021	0.8	18,465.789	3.36%	474.879	476.824	1.00
TDC562	W6215	12/16/2021	0.8	17,833.287	2.76%	377.130	378.642	1.00
TDC562	W6211	12/16/2021	0.8	21,062.561	3.33%	536.752	539.041	1.00
TDC562	W6219	12/16/2021	0.8	15,833.690	2.76%	334.401	336.108	1.01
TDC562	W6208	12/16/2021	0.8	23,588.897	3.39%	612.186	615.051	1.00
TDC565	W656	5/20/2021	0.8	22,013.546	3.89%	657.692	659.094	1.00
TDC565	W655	5/20/2021	0.8	22,597.346	3.90%	675.971	676.868	1.00
TDC565	W657	5/20/2021	0.8	23,483.526	3.89%	651.281	702.784	1.08
TDC565	W659X	5/20/2021	0.8	28,830.642	3.36%	744.812	745.509	1.00
TDC565	W654	5/20/2021	0.8	18,065.307	3.89%	495.500	540.758	1.09
TDC565	W659Y	5/20/2021	0.8	21,920.672	3.37%	566.814	568.417	1.00
TDC565	W651	5/20/2021	0.8	7,834.761	3.33%	200.621	200.633	1.00

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TDC565	W653	5/20/2021	0.8	23,485.539	3.28%	591.994	592.216	1.00
TDC565	W650	5/20/2021	0.8	11,432.297	3.90%	342.109	342.456	1.00
TDC565	W652	5/20/2021	0.8	21,799.482	3.34%	559.347	559.321	1.00
TDC565	W658	5/20/2021	0.8	29,205.285	3.36%	753.567	753.634	1.00
TDC566	W6620	11/20/2021	0.8	5,556.461	3.65%	155.461	155.872	1.00
TDC566	W6605	11/20/2021	0.8	7,862.616	3.41%	206.234	206.423	1.00
TDC566	W664X	11/20/2021	0.8	17,572.261	3.86%	489.353	520.857	1.06
TDC566	W6604	11/20/2021	0.8	25,489.838	3.44%	674.068	674.288	1.00
TDC566	W6616	11/20/2021	0.8	30,260.686	3.79%	863.388	880.864	1.02
TDC566	W6601	11/20/2021	0.8	17,065.891	3.37%	441.175	442.018	1.00
TDC566	W6611Y	11/20/2021	0.8	29,299.538	3.39%	763.072	763.001	1.00
TDC566	W665X	11/20/2021	0.8	17,377.980	3.39%	452.967	453.334	1.00
TDC566	W662	11/20/2021	0.8	33,575.515	3.84%	949.845	990.803	1.04
TDC566	W6622	11/20/2021	0.8	17,955.359	3.82%	499.530	527.524	1.06
TDC566	W6607	11/20/2021	0.8	12,879.431	3.39%	335.074	335.493	1.00
TDC566	W6602	11/20/2021	0.8	23,536.697	3.39%	613.041	612.804	1.00
TDC566	W6610Y	11/20/2021	0.8	19,369.423	3.93%	597.741	584.470	0.98
TDC566	W664Y	11/20/2021	0.8	20,481.601	3.87%	608.755	609.551	1.00
TDC566	W665Y	11/20/2021	0.8	18,265.904	3.37%	473.399	473.820	1.00
TDC566	W666	11/20/2021	0.8	7,876.004	3.91%	231.068	237.043	1.03
TDC566	W660	11/20/2021	0.8	17,894.595	3.83%	500.809	527.028	1.05
TDC566	W6618	11/20/2021	0.8	28,873.962	3.82%	838.717	847.210	1.01
TDC566	W6606	11/20/2021	0.8	21,497.524	3.38%	558.434	558.405	1.00
TDC566	W6603	11/20/2021	0.8	24,878.992	3.37%	645.025	645.338	1.00
TDC566	W6612	11/20/2021	0.8	22,053.911	3.85%	617.856	653.376	1.06
TDC566	W6610X	11/20/2021	0.8	15,072.329	3.87%	434.005	448.797	1.03
TDC566	W663	11/20/2021	0.8	21,964.719	3.36%	566.843	567.795	1.00
TDC566	W6613	11/20/2021	0.8	19,132.222	3.41%	501.424	501.295	1.00
TDC566	W668X	11/20/2021	0.8	21,488.049	3.44%	568.496	568.288	1.00
TDC566	W6624	11/20/2021	0.8	27,583.999	3.80%	769.281	805.393	1.05
TDC566	W6614	11/20/2021	0.8	12,155.441	3.75%	335.410	350.791	1.05
TDC566	W6611X	11/20/2021	0.8	2,431.182	3.33%	62.200	62.246	1.00
TDC566	W668Y	11/20/2021	0.8	27,352.900	3.47%	728.849	728.913	1.00
TDC572	W7210	6/29/2021	0.8	29,547.252	3.16%	717.787	718.850	1.00
TDC572	W7217	6/29/2021	0.8	32,697.551	3.41%	878.467	857.301	0.98
TDC572	W7216	6/29/2021	0.8	30,494.589	3.40%	806.195	796.894	0.99
TDC572	W7209	6/29/2021	0.8	20,051.506	3.19%	485.614	491.825	1.01
TDC572	W7223	6/29/2021	0.8	23,377.713	3.45%	604.661	619.817	1.03
TDC572	W7208	6/29/2021	0.8	14,467.737	3.20%	354.410	355.727	1.00
TDC572	W7212	6/29/2021	0.8	23,475.716	3.19%	553.753	575.290	1.04



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TDC572	W7201	6/29/2021	0.8	31,286.260	3.17%	760.179	761.406	1.00
TDC572	W7205	6/29/2021	0.8	17,801.630	3.21%	432.871	439.749	1.02
TDC572	W7218	6/29/2021	0.8	29,914.403	3.42%	776.537	786.006	1.01
TDC572	W7211	6/29/2021	0.8	22,379.144	3.15%	592.100	541.245	0.91
TDC572	W7222	6/29/2021	0.8	18,388.134	3.41%	487.113	482.386	0.99
TDC572	W7214	6/29/2021	0.8	16,117.413	3.17%	383.069	392.486	1.02
TDC572	W7215	6/29/2021	0.8	21,846.066	3.19%	536.031	536.254	1.00
TDC572	W7221	6/29/2021	0.8	25,770.680	3.39%	668.571	672.518	1.01
TDC577	W7704	5/20/2021	0.8	20,322.350	2.80%	438.724	438.182	1.00
TDC577	W7705	5/4/2021	0.8	18,326.774	2.75%	388.230	387.142	1.00
TDC577	W7715	5/20/2021	0.8	15,223.061	2.76%	323.579	323.272	1.00
TDC577	W7706	5/4/2021	0.8	17,488.171	2.74%	368.615	367.825	1.00
TDC577	W7702	5/20/2021	0.8	15,753.246	2.80%	338.899	338.502	1.00
TDC577	W7708	5/4/2021	0.8	24,268.398	2.73%	510.669	509.407	1.00
TDC577	W7710	5/4/2021	0.8	14,481.395	2.72%	305.857	302.731	0.99
TDC577	W7703	5/20/2021	0.8	16,132.345	2.83%	351.940	351.481	1.00
TDC577	W7701	5/20/2021	0.8	21,803.163	2.83%	475.360	474.711	1.00
TDC577	W7709	5/4/2021	0.8	18,634.572	2.73%	394.688	391.046	0.99
TDC577	W7707	5/4/2021	0.8	20,607.774	2.73%	433.650	432.629	1.00
TDC577	W7714	5/20/2021	0.8	10,018.104	2.74%	211.520	211.265	1.00
TDC580	W809	12/22/2021	0.8	20,103.043	3.93%	609.130	607.902	1.00
TDC580	W8015	12/22/2021	0.8	32,430.301	3.91%	977.418	975.735	1.00
TDC580	W8020	12/22/2021	0.8	23,339.977	3.89%	698.326	697.131	1.00
TDC580	W8023	12/22/2021	0.8	24,441.143	3.92%	738.104	735.770	1.00
TDC580	W8011	12/22/2021	0.8	20,555.136	3.94%	623.401	622.219	1.00
TDC580	W806	12/22/2021	0.8	18,883.827	4.01%	583.613	582.764	1.00
TDC580	W8014	12/22/2021	0.8	21,028.877	3.91%	634.021	632.521	1.00
TDC580	W808	12/22/2021	0.8	19,864.486	3.94%	602.892	601.705	1.00
TDC580	W8021	12/22/2021	0.8	20,481.334	3.90%	615.261	613.599	1.00
TDC580	W803	12/22/2021	0.8	12,744.854	3.90%	382.723	381.745	1.00
TDC580	W8024	12/22/2021	0.8	19,845.715	3.94%	603.113	601.285	1.00
TDC580	W8001	12/22/2021	0.8	16,851.863	3.95%	513.322	512.155	1.00
TDC580	W8013	12/22/2021	0.8	29,366.994	3.93%	888.731	887.149	1.00
TDC580	W8002	12/22/2021	0.8	23,099.977	4.00%	711.857	711.026	1.00
TDC580	W807	12/22/2021	0.8	20,852.294	4.00%	641.883	640.941	1.00
TDC580	W802	12/22/2021	0.8	18,420.158	3.94%	559.260	557.944	1.00
TDC580	W805	12/22/2021	0.8	18,580.585	3.99%	571.427	570.614	1.00
TDC580	W8010	12/22/2021	0.8	18,554.068	3.96%	565.248	564.202	1.00
TDC580	W8012	12/22/2021	0.8	15,518.755	3.90%	466.278	465.024	1.00
TDC580	W8017	12/22/2021	0.8	20,110.017	3.90%	604.113	602.538	1.00

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TDC580	W8016	12/22/2021	0.8	9,874.717	3.89%	295.459	295.028	1.00
TDC580	W8019	12/22/2021	0.8	23,456.354	3.93%	710.099	709.040	1.00
TDC580	W8022	12/22/2021	0.8	28,166.422	3.88%	842.052	839.696	1.00
TDC580	W804	12/22/2021	0.8	14,839.854	3.95%	451.891	450.890	1.00
TDC581	W8127	11/20/2021	0.8	22,241.721	4.24%	723.640	725.539	1.00
TDC581	W8123	11/20/2021	0.8	18,094.207	4.17%	578.578	580.193	1.00
TDC581	W8101	11/20/2021	0.8	15,618.681	4.16%	498.608	499.327	1.00
TDC581	W8117	11/20/2021	0.8	17,153.167	3.99%	524.210	525.729	1.00
TDC581	W8112	11/20/2021	0.8	7,668.220	4.20%	247.367	247.623	1.00
TDC581	W8103	11/20/2021	0.8	24,158.133	4.20%	778.122	779.206	1.00
TDC581	W8118	11/20/2021	0.8	13,526.333	3.99%	413.439	414.724	1.00
TDC581	W8111	11/20/2021	0.8	21,181.774	4.17%	678.634	679.547	1.00
TDC581	W8125	11/20/2021	0.8	16,569.391	4.16%	528.795	530.247	1.00
TDC581	W8104	11/20/2021	0.8	22,773.768	4.21%	736.239	737.252	1.00
TDC581	W8121	11/20/2021	0.8	17,362.053	3.97%	528.247	529.944	1.00
TDC581	W8102	11/20/2021	0.8	22,704.721	4.24%	738.786	739.607	1.00
TDC581	W8122	11/20/2021	0.8	16,356.075	4.18%	524.864	526.224	1.00
TDC581	W8110	11/20/2021	0.8	19,132.109	4.18%	614.281	614.955	1.00
TDC581	W8106	11/20/2021	0.8	6,697.700	4.16%	213.836	214.358	1.00
TDC581	W8116	11/20/2021	0.8	27,467.905	4.02%	845.772	848.729	1.00
TDC581	W8109	11/20/2021	0.8	24,446.539	4.20%	788.069	789.181	1.00
TDC581	W8126	11/20/2021	0.8	13,348.570	4.17%	426.634	427.865	1.00
TDC581	W8120	11/20/2021	0.8	27,526.666	4.04%	852.278	854.597	1.00
TDC581	W8114	11/20/2021	0.8	19,912.849	3.98%	607.659	609.148	1.00
TDC581	W8113	11/20/2021	0.8	16,315.630	4.00%	499.665	501.098	1.00
TDC581	W8119	11/20/2021	0.8	21,393.775	4.01%	657.067	658.836	1.00
TDC581	W8124	11/20/2021	0.8	14,336.471	4.19%	460.780	461.931	1.00
TDC581	W8107	11/20/2021	0.8	21,401.677	4.20%	689.926	690.901	1.00
TDC581	W8105	11/20/2021	0.8	20,729.836	4.18%	665.227	666.142	1.00
TDC581	W8115	11/20/2021	0.8	16,271.401	3.99%	498.079	499.570	1.00
TDC581	W8108	11/20/2021	0.8	4,535.438	4.20%	146.139	146.346	1.00
TDC592	W9228	6/30/2021	0.8	24,252.807	3.74%	696.269	697.376	1.00
TDC592	W9211	6/30/2021	0.8	25,427.236	3.88%	759.017	759.425	1.00
TDC592	W9205	6/30/2021	0.8	15,846.234	3.66%	444.221	445.318	1.00
TDC592	W9210	6/30/2021	0.8	11,323.168	3.84%	334.103	334.381	1.00
TDC592	W9230	6/30/2021	0.8	22,830.014	3.79%	664.765	665.234	1.00
TDC592	W9229	6/30/2021	0.8	17,344.808	3.72%	494.610	496.054	1.00
TDC592	W9202	6/30/2021	0.8	17,542.909	3.71%	498.934	499.838	1.00
TDC592	W9206	6/30/2021	0.8	19,066.670	3.75%	549.121	549.659	1.00
TDC592	W9231	6/30/2021	0.8	23,378.420	3.76%	673.972	675.828	1.00

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TDC592	W9204	6/30/2021	0.8	22,297.267	3.75%	641.758	643.072	1.00
TDC592	W9207	6/30/2021	0.8	18,274.939	3.74%	524.451	525.293	1.00
TDC592	W9212	6/30/2021	0.8	18,321.694	3.69%	519.751	520.176	1.00
TDC592	W9201	6/30/2021	0.8	24,308.210	3.76%	701.180	702.641	1.00
TDC840	Y84039	9/1/2021	0.8	18,171.900	2.23%	312.700	311.405	1.00
TDC840	Y84034	9/1/2021	0.8	34,521.860	2.19%	582.412	579.996	1.00
TDC840	Y84070	9/1/2021	0.8	15,621.650	2.22%	265.800	267.148	1.01
TDC840	Y84032	9/1/2021	0.8	17,989.119	2.24%	309.980	309.193	1.00
TDC840	Y84063	9/1/2021	0.8	24,699.999	2.19%	416.533	416.172	1.00
TDC840	Y84068	9/1/2021	0.8	25,327.251	2.21%	427.153	429.493	1.01
TDC840	Y84048	9/1/2021	0.8	22,235.918	2.23%	381.531	380.572	1.00
TDC840	Y84071	9/1/2021	0.8	13,794.066	2.23%	235.393	236.640	1.01
TDC840	Y84049	9/1/2021	0.8	6,903.651	2.26%	120.171	120.134	1.00
TDC840	Y84033	9/1/2021	0.8	17,952.937	2.19%	302.955	301.893	1.00
TDC840	Y84077	9/1/2021	0.8	11,253.075	2.22%	190.732	191.785	1.01
TDC840	Y84073	9/1/2021	0.8	38,345.840	2.18%	638.596	642.604	1.01
TDC840	Y84056	9/1/2021	0.8	14,596.647	2.21%	248.424	248.453	1.00
TDC840	Y84052	9/1/2021	0.8	23,775.540	2.20%	403.117	402.266	1.00
TDC840	Y84042	9/1/2021	0.8	23,724.767	2.22%	404.549	404.009	1.00
TDC840	Y84031	9/1/2021	0.8	36,963.426	2.25%	639.951	638.911	1.00
TDC840	Y84064	9/1/2021	0.8	19,894.764	2.23%	341.859	341.663	1.00
TDC840	Y84061	9/1/2021	0.8	9,393.022	2.23%	161.218	161.289	1.00
TDC840	Y84054	9/1/2021	0.8	13,035.032	2.21%	221.534	221.350	1.00
TDC840	Y84076	9/1/2021	0.8	17,528.954	2.19%	293.950	295.334	1.00
TDC840	Y84036	9/1/2021	0.8	27,728.469	2.21%	472.236	470.572	1.00
TDC840	Y84075	9/1/2021	0.8	14,352.243	2.19%	240.880	241.991	1.00
TDC840	Y84043	9/1/2021	0.8	1,251.015	2.25%	21.662	21.660	1.00
TDC840	Y84047	9/1/2021	0.8	9,462.891	2.29%	164.553	166.627	1.01
TDC840	Y84067	9/1/2021	0.8	14,116.011	2.20%	237.805	239.245	1.01
TDC840	Y84060	9/1/2021	0.8	11,234.697	2.22%	191.856	191.802	1.00
TDC840	Y84044	9/1/2021	0.8	21,119.612	2.23%	362.195	362.308	1.00
TDC840	Y84059	9/1/2021	0.8	26,512.101	2.19%	447.604	447.344	1.00
TDC840	Y84069	9/1/2021	0.8	10,792.657	2.22%	183.524	184.529	1.01
TDC840	Y84037	9/1/2021	0.8	24,605.869	2.20%	416.610	415.677	1.00
TDC840	Y84058	9/1/2021	0.8	11,050.090	2.24%	190.424	190.458	1.00
TDC840	Y84035	9/1/2021	0.8	20,352.520	2.21%	347.145	346.416	1.00
TDC840	Y84053	9/1/2021	0.8	21,711.374	2.23%	372.805	371.919	1.00
TDC840	Y84062	9/1/2021	0.8	16,676.752	2.19%	281.254	281.104	1.00
TSS114	X5369	12/15/2021	0.8	11,360.417	2.90%	254.124	253.532	1.00
TSS114	X5379	12/15/2021	0.8	20,658.056	3.10%	490.948	491.969	1.00

Substation	Feeder	VO Go Live	CVRf	Energy Baseline (MWh)	Average Voltage Reduction* (%)	Ex Ante Energy Savings (MWh)	Verified Energy Savings (MWh)	Energy Realization Rate
TSS114	X5386	12/15/2021	0.8	22,500.632	2.46%	428.498	425.822	0.99
TSS114	X5364	12/15/2021	0.8	9,039.618	2.44%	170.550	169.357	0.99
TSS114	X5382	12/15/2021	0.8	16,742.685	3.10%	398.475	399.393	1.00
TSS114	X5373	12/15/2021	0.8	18,886.568	3.08%	446.922	447.105	1.00
TSS114	X5383	12/15/2021	0.8	17,238.560	2.47%	329.701	327.615	0.99
TSS114	X5372	12/15/2021	0.8	15,577.652	3.11%	372.161	372.354	1.00
TSS114	X5375	12/15/2021	0.8	21,479.023	3.09%	509.381	509.497	1.00
TSS114	X5391	12/15/2021	0.8	17,914.625	2.46%	340.811	338.574	0.99
TSS114	X5385	12/15/2021	0.8	19,894.727	2.44%	375.400	373.026	0.99
TSS114	X5378	12/15/2021	0.8	22,830.609	3.08%	539.280	540.356	1.00
TSS114	X5367	12/15/2021	0.8	20,383.811	2.46%	387.970	385.120	0.99
TSS114	X5365	12/15/2021	0.8	13,965.992	2.46%	266.339	264.501	0.99
TSS114	X5371	12/15/2021	0.8	25,161.402	3.08%	595.386	595.841	1.00
TSS114	X5374	12/15/2021	0.8	23,155.093	3.14%	558.386	558.547	1.00
TSS114	X5362	12/15/2021	0.8	21,245.861	2.47%	406.769	403.875	0.99
TSS114	X5389	12/15/2021	0.8	19,884.021	2.47%	380.695	378.322	0.99
TSS114	X5387	12/15/2021	0.8	14,906.704	2.48%	286.434	284.645	0.99
TSS114	X5388	12/15/2021	0.8	26,425.554	2.44%	498.435	495.161	0.99
TSS114	X5368	12/15/2021	0.8	14,274.568	2.48%	274.229	272.228	0.99
TSS114	X5376	12/15/2021	0.8	25,048.682	3.10%	595.521	596.732	1.00
TSS114	X5377	12/15/2021	0.8	22,989.387	3.09%	544.873	545.953	1.00
TSS114	X5384	12/15/2021	0.8	21,126.380	2.46%	401.454	398.937	0.99
TSS114	X5370	12/15/2021	0.8	20,248.958	3.02%	470.333	470.338	1.00
TSS114	X5363	12/15/2021	0.8	25,948.183	2.44%	490.612	486.949	0.99
TSS114	X5380	12/15/2021	0.8	17,758.534	3.10%	422.684	423.625	1.00
TSS120	W2013	7/31/2021	0.8	17,042.780	2.88%	377.822	376.802	1.00
TSS120	W2027	7/31/2021	0.8	29,348.780	3.06%	692.982	691.226	1.00
TSS120	W2018	7/31/2021	0.8	18,690.850	4.29%	616.837	616.517	1.00
TSS120	W2019	7/31/2021	0.8	20,526.518	4.26%	672.925	672.448	1.00
TSS120	W2023	7/31/2021	0.8	21,137.316	2.86%	466.383	465.290	1.00
TSS120	W2026	7/31/2021	0.8	18,154.008	3.06%	427.806	426.594	1.00
TSS120	W2024	7/31/2021	0.8	31,396.039	2.88%	696.134	695.321	1.00
TSS120	W2015	7/31/2021	0.8	23,083.365	4.26%	757.133	756.554	1.00
TSS120	W2022	7/31/2021	0.8	29,067.510	2.88%	644.487	643.288	1.00
TSS120	W2011	7/31/2021	0.8	19,044.738	2.87%	421.329	419.763	1.00
TSS120	W2025	7/31/2021	0.8	21,039.894	3.05%	494.206	492.892	1.00
TSS120	W2020	7/31/2021	0.8	19,807.281	2.84%	434.601	432.986	1.00
TSS120	W2028	7/31/2021	0.8	32,056.229	3.07%	759.074	756.748	1.00
TSS120	W2021	7/31/2021	0.8	27,033.138	2.88%	598.789	598.050	1.00
TSS120	W2016	7/31/2021	0.8	22,252.396	4.28%	732.578	732.094	1.00

Substation	Feeder	VO Go Live	CVRf	Energy Baseline (MWh)	Average Voltage Reduction* (%)	Ex Ante Energy Savings (MWh)	Verified Energy Savings (MWh)	Energy Realization Rate
TSS120	W2012	7/31/2021	0.8	20,190.911	2.84%	443.020	441.386	1.00
TSS120	W2017	7/31/2021	0.8	17,973.132	4.29%	592.436	592.121	1.00
TSS129	C299	7/8/2021	0.8	23,805.701	3.93%	715.336	719.907	1.01
TSS129	C297	7/8/2021	0.8	20,085.665	4.20%	647.928	648.779	1.00
TSS129	C2920	7/8/2021	0.8	12,915.577	3.93%	386.135	390.289	1.01
TSS129	C295	7/8/2021	0.8	7,759.409	3.96%	235.027	236.274	1.01
TSS129	C2911	7/8/2021	0.8	23,852.469	3.93%	703.765	720.588	1.02
TSS129	C292	7/8/2021	0.8	18,293.765	4.24%	595.108	595.908	1.00
TSS129	C294	7/8/2021	0.8	29,184.945	3.93%	879.783	881.235	1.00
TSS129	C2916	7/8/2021	0.8	22,136.018	3.96%	670.320	673.617	1.00
TSS129	C291	7/8/2021	0.8	22,172.873	3.93%	667.178	670.116	1.00
TSS129	C2918	7/8/2021	0.8	23,311.481	3.95%	704.130	708.177	1.01
TSS129	C2917	7/8/2021	0.8	16,193.756	3.94%	487.680	490.284	1.01
TSS129	C2913	7/8/2021	0.8	19,331.972	3.95%	587.314	587.752	1.00
TSS129	C2915	7/8/2021	0.8	17,311.435	4.14%	549.554	550.397	1.00
TSS129	C296	7/8/2021	0.8	17,170.300	4.13%	544.124	545.000	1.00
TSS129	C293	7/8/2021	0.8	26,198.282	3.92%	782.755	788.772	1.01
TSS129	C2914	7/8/2021	0.8	12,388.629	3.93%	371.181	374.315	1.01
TSS129	C298	7/8/2021	0.8	21,575.150	3.92%	646.150	650.827	1.01
TSS129	C290	7/8/2021	0.8	18,505.726	4.23%	601.201	602.031	1.00
TSS129	C2912	7/8/2021	0.8	16,931.345	3.92%	506.287	510.744	1.01
TSS129	C2910	7/8/2021	0.8	19,145.059	4.19%	615.252	616.289	1.00
TSS145	W4510	11/20/2021	0.8	11,853.374	3.99%	359.869	363.824	1.01
TSS145	W4519	11/20/2021	0.8	19,199.103	4.02%	613.579	592.827	0.97
TSS145	W4571	11/20/2021	0.8	18,218.547	4.44%	618.558	622.532	1.01
TSS145	W456Y	11/20/2021	0.8	23,967.457	4.01%	731.799	738.905	1.01
TSS145	W4518	11/20/2021	0.8	23,473.988	3.91%	721.209	706.504	0.98
TSS145	W455X	11/20/2021	0.8	11,173.161	3.98%	338.658	341.936	1.01
TSS145	W4513Y	11/20/2021	0.8	18,500.961	4.07%	579.135	579.495	1.00
TSS145	W458X	11/20/2021	0.8	22,967.224	3.98%	695.077	702.040	1.01
TSS145	W457	11/20/2021	0.8	6,371.353	4.01%	194.480	196.478	1.01
TSS145	W4570	11/20/2021	0.8	21,654.369	4.47%	739.449	743.903	1.01
TSS145	W4514	11/20/2021	0.8	25,207.800	4.06%	785.465	786.222	1.00
TSS145	W454X	11/20/2021	0.8	20,530.461	3.99%	623.469	629.539	1.01
TSS145	W4515	11/20/2021	0.8	13,285.911	4.18%	426.480	426.973	1.00
TSS145	W4512	11/20/2021	0.8	5,158.921	3.98%	157.998	157.916	1.00
TSS145	W458Y	11/20/2021	0.8	18,810.391	3.94%	564.402	570.044	1.01
TSS145	W4540	11/20/2021	0.8	15,706.873	4.94%	596.021	596.022	1.00
TSS145	W4541	11/20/2021	0.8	21,036.464	4.96%	801.909	801.810	1.00
TSS145	W450	11/20/2021	0.8	22,787.145	4.01%	696.413	702.967	1.01

Substation	Feeder	VO Go Live	CVRf	Energy Baseline (MWh)	Average Voltage Reduction* (%)	Ex Ante Energy Savings (MWh)	Verified Energy Savings (MWh)	Energy Realization Rate
TSS145	W459	11/20/2021	0.8	21,133.270	3.94%	634.060	640.535	1.01
TSS145	W452	11/20/2021	0.8	24,509.390	4.01%	748.570	755.838	1.01
TSS145	W4572	11/20/2021	0.8	19,091.917	4.46%	650.455	654.531	1.01
TSS145	W4521	11/20/2021	0.8	23,735.168	3.97%	743.736	723.835	0.97
TSS145	W4516Y	11/20/2021	0.8	20,251.682	4.03%	626.900	627.515	1.00
TSS145	W4511	11/20/2021	0.8	18,391.896	4.04%	570.437	570.835	1.00
TSS145	W4513X	11/20/2021	0.8	23,839.721	4.07%	746.023	746.834	1.00
TSS145	W455Y	11/20/2021	0.8	18,017.470	4.00%	548.064	553.647	1.01
TSS145	W4516X	11/20/2021	0.8	18,166.343	4.03%	562.249	562.579	1.00
TSS145	W4517	11/20/2021	0.8	25,955.184	3.98%	820.063	794.120	0.97
TSS145	W4522	11/20/2021	0.8	26,009.947	3.97%	817.113	793.277	0.97
TSS145	W456X	11/20/2021	0.8	18,186.008	3.99%	552.264	557.454	1.01
TSS145	W4520	11/20/2021	0.8	17,698.542	3.90%	545.085	530.968	0.97
TSS145	W451	11/20/2021	0.8	15,789.858	3.99%	479.752	484.841	1.01
TSS145	W453	11/20/2021	0.8	4,200.140	3.92%	125.399	126.701	1.01
TSS149	J4971	5/28/2021	0.8	12,594.806	4.74%	458.541	458.743	1.00
TSS43	Z4349	9/25/2021	0.8	22,643.220	3.83%	663.112	665.890	1.00
TSS43	Z4335	9/25/2021	0.8	8,118.955	3.81%	237.170	238.072	1.00
TSS43	Z4343	9/25/2021	0.8	2,468.915	3.81%	72.137	72.321	1.00
TSS43	Z4344	9/25/2021	0.8	7,223.393	3.87%	213.644	214.659	1.00
TSS43	Z4331	9/25/2021	0.8	17,177.392	3.85%	505.912	508.434	1.00
TSS43	Z4346	9/25/2021	0.8	8,321.627	3.82%	243.235	244.372	1.00
TSS43	Z4347	9/25/2021	0.8	12,074.494	3.87%	356.794	358.915	1.01
TSS43	Z4332	9/25/2021	0.8	16,853.762	3.85%	495.984	498.649	1.01
TSS43	Z4330	9/25/2021	0.8	7,754.099	3.83%	227.002	228.094	1.00
TSS43	Z4337	9/25/2021	0.8	14,851.078	3.85%	437.782	439.394	1.00
TSS43	Z4336	9/25/2021	0.8	7,208.037	3.84%	211.885	212.765	1.00
TSS43	Z4341	9/25/2021	0.8	7,869.160	3.84%	231.423	232.190	1.00
TSS43	Z4333	9/25/2021	0.8	8,689.586	3.82%	254.095	254.876	1.00
TSS43	Z4334	9/25/2021	0.8	14,761.054	3.87%	436.148	438.842	1.01
TSS43	Z4342	9/25/2021	0.8	8,885.079	3.80%	258.160	259.392	1.00
TSS46	C461	12/14/2021	0.8	20,787.834	3.75%	598.914	598.522	1.00
TSS46	C4613	12/14/2021	0.8	13,561.736	2.80%	292.114	291.750	1.00
TSS46	C4618	12/14/2021	0.8	16,468.216	3.78%	478.560	478.294	1.00
TSS46	C460	12/14/2021	0.8	9,620.065	3.76%	278.496	278.310	1.00
TSS46	C467	12/14/2021	0.8	10,444.750	3.60%	288.895	289.300	1.00
TSS46	C4615	12/14/2021	0.8	27,526.875	3.74%	791.818	791.225	1.00
TSS46	C4614	12/14/2021	0.8	19,764.629	3.58%	543.172	543.966	1.00
TSS46	C468	12/14/2021	0.8	14,584.409	3.59%	402.088	402.638	1.00
TSS46	C4617	12/14/2021	0.8	9,424.993	2.84%	206.205	206.024	1.00

Substation	Feeder	VO Go Live	CVRf	Energy Baseline (MWh)	Average Voltage Reduction* (%)	Ex Ante Energy Savings (MWh)	Verified Energy Savings (MWh)	Energy Realization Rate
TSS46	C4616	12/14/2021	0.8	16,258.650	3.58%	446.413	446.988	1.00
TSS46	C464	12/14/2021	0.8	11,249.708	3.73%	322.820	322.520	1.00
TSS46	C469	12/14/2021	0.8	20,722.066	2.81%	448.892	448.434	1.00
TSS46	C462	12/14/2021	0.8	26,339.321	2.83%	573.445	573.089	1.00
TSS46	C463	12/14/2021	0.8	16,606.889	2.81%	359.023	358.593	1.00
TSS46	C466	12/14/2021	0.8	20,267.439	3.60%	559.808	560.522	1.00
TSS46	C465	12/14/2021	0.8	7,287.474	3.59%	200.766	201.181	1.00
TSS76	G765	12/6/2021	0.8	22,400.311	3.41%	606.900	586.533	0.97
TSS76	G760	12/6/2021	0.8	20,120.897	3.42%	547.151	529.051	0.97
TSS76	G769	12/6/2021	0.8	20,077.913	3.86%	597.655	595.335	1.00
TSS76	G763	12/14/2021	0.8	15,899.615	4.21%	528.045	514.110	0.97
TSS76	G767	12/6/2021	0.8	20,385.114	3.93%	618.183	615.870	1.00
TSS76	G761	12/14/2021	0.8	23,429.900	4.18%	790.491	752.600	0.95
TSS76	G766	12/6/2021	0.8	15,019.082	3.35%	399.993	387.065	0.97
TSS76	G768	12/6/2021	0.8	20,837.330	3.40%	563.806	544.906	0.97
TSS76	G762	12/14/2021	0.8	13,981.615	4.20%	474.552	451.286	0.95
TSS76	G7683	12/6/2021	0.8	26,469.292	3.91%	798.401	795.439	1.00
<b>Total</b>						<b>270,533.831</b>	<b>270,951.740</b>	<b>1.00</b>

\* The average voltage reduction is weighted by load.

Source: Evaluation team analysis

**Table B-2. CY2021 Verified VO Demand Savings and Peak Voltage Reductions by Feeder**

Substation	Feeder	VO Go Live	CVRf <sub>Peak</sub>	Demand Baseline (MW)	Average Voltage Reduction* (%)	Ex Ante Demand Savings (MW)	Verified Demand Savings (MW)	Demand Realization Rate
DCA41	A410	7/15/2021	1.02	3.334	4.69%	0.153	0.153	1.00
DCB46	B465	2/13/2021	1.02	2.468	4.61%	0.111	0.111	1.00
DCB53	B537	1/19/2021	1.02	1.734	3.11%	0.053	0.053	1.00
DCB53	B539	1/19/2021	1.02	1.255	3.13%	0.038	0.038	1.00
DCB53	B531	1/12/2021	1.02	2.085	3.91%	0.079	0.080	1.01
DCD187	D8701	1/11/2021	1.02	2.932	3.75%	0.108	0.108	1.00
DCD187	D8711	1/11/2021	1.02	4.212	3.76%	0.156	0.155	1.00
DCD255	D551	1/19/2021	1.02	4.435	3.19%	0.141	0.139	0.98
DCE29	E297	12/22/2021	1.02	3.737	1.84%	0.066	0.067	1.02
DCE71	E718	2/13/2021	1.02	3.835	4.50%	0.167	0.169	1.01
DCE71	E717	2/13/2021	1.02	3.123	4.37%	0.133	0.134	1.01
DCH25	H256	8/24/2021	1.02	0.652	2.73%	0.018	0.017	0.99
DCH25	H255	8/24/2021	1.02	4.835	3.66%	0.171	0.173	1.01
DCH25	H257	8/24/2021	1.02	3.163	2.74%	0.086	0.085	0.99
DCJ13	J135	1/20/2021	1.02	3.944	3.75%	0.144	0.145	1.01

Substation	Feeder	VO Go Live	CVR <sub>fPeak</sub>	Demand Baseline (MW)	Average Voltage Reduction* (%)	Ex Ante Demand Savings (MW)	Verified Demand Savings (MW)	Demand Realization Rate
DCJ49	J496	9/25/2021	1.02	3.939	4.25%	0.168	0.164	0.97
DCJ49	J495	9/25/2021	1.02	1.245	4.22%	0.050	0.051	1.04
DCW10	W1002	8/24/2021	1.02	5.323	3.67%	0.195	0.192	0.98
DCW10	W1001	8/24/2021	1.02	3.143	3.90%	0.119	0.120	1.01
DCW25	W259	12/20/2021	1.02	2.731	2.97%	0.076	0.079	1.04
DCW336	W365	1/20/2021	1.02	4.330	3.46%	0.146	0.147	1.01
DCW336	W366	1/20/2021	1.02	2.430	3.73%	0.089	0.089	1.00
DCW35	W352	11/29/2021	1.02	3.199	3.35%	0.104	0.105	1.01
DCW35	W351	11/29/2021	1.02	3.756	2.70%	0.102	0.099	0.98
DCW73	W731	6/30/2021	1.02	3.178	4.08%	0.130	0.127	0.98
SS501	W503	1/20/2021	1.02	2.964	4.51%	0.130	0.131	1.01
TDC204	C043	10/19/2021	1.02	3.723	2.53%	0.092	0.092	1.00
TDC204	C0415	10/19/2021	1.02	2.058	2.54%	0.052	0.051	0.99
TDC204	C0411	10/19/2021	1.02	1.067	2.54%	0.027	0.027	1.00
TDC204	C048	10/19/2021	1.02	2.478	2.61%	0.064	0.063	0.99
TDC204	C046Y	10/19/2021	1.02	3.602	2.59%	0.092	0.091	0.99
TDC204	C0413Y	10/19/2021	1.02	3.818	2.60%	0.098	0.097	0.99
TDC204	C045	10/19/2021	1.02	4.586	2.93%	0.133	0.132	0.99
TDC204	C0417	10/19/2021	1.02	4.782	2.63%	0.125	0.123	0.99
TDC204	C0412	10/19/2021	1.02	3.765	2.53%	0.094	0.093	1.00
TDC204	C042X	10/19/2021	1.02	3.425	2.93%	0.099	0.098	0.99
TDC204	C0413X	10/19/2021	1.02	2.225	2.58%	0.057	0.056	0.99
TDC204	C0410X	10/19/2021	1.02	3.239	2.59%	0.083	0.082	0.99
TDC204	C044	10/19/2021	1.02	3.182	2.60%	0.082	0.081	0.99
TDC204	C0410Y	10/19/2021	1.02	3.139	2.61%	0.082	0.080	0.98
TDC204	C046X	10/19/2021	1.02	3.926	2.58%	0.100	0.099	0.99
TDC204	C0416	10/19/2021	1.02	3.132	2.54%	0.078	0.078	1.00
TDC204	C042Y	10/19/2021	1.02	3.184	2.94%	0.093	0.092	0.99
TDC204	C047	10/19/2021	1.02	4.585	2.93%	0.133	0.132	0.99
TDC204	C0414	10/19/2021	1.02	4.033	2.54%	0.101	0.100	0.99
TDC204	C049	10/19/2021	1.02	3.761	2.94%	0.109	0.109	0.99
TDC213	C130	12/6/2021	1.02	3.152	3.69%	0.115	0.114	0.99
TDC213	C1313X	12/6/2021	1.02	3.789	3.70%	0.138	0.138	1.00
TDC213	C132	12/6/2021	1.02	3.629	3.68%	0.132	0.131	0.99
TDC213	C1319	12/6/2021	1.02	2.571	2.17%	0.055	0.055	0.98
TDC213	C137	12/6/2021	1.02	3.250	3.70%	0.119	0.118	0.99
TDC213	C1317	12/6/2021	1.02	3.050	2.16%	0.066	0.065	0.98
TDC213	C1311	12/6/2021	1.02	3.209	3.70%	0.117	0.116	0.99
TDC213	C136	12/6/2021	1.02	3.552	2.26%	0.080	0.079	0.98
TDC213	C1314	12/6/2021	1.02	1.708	3.69%	0.062	0.062	0.99



Substation	Feeder	VO Go Live	CVR <sub>fPeak</sub>	Demand Baseline (MW)	Average Voltage Reduction* (%)	Ex Ante Demand Savings (MW)	Verified Demand Savings (MW)	Demand Realization Rate
TDC213	C1313Y	12/6/2021	1.02	3.458	3.70%	0.126	0.125	1.00
TDC213	C138X	12/6/2021	1.02	3.927	3.70%	0.143	0.142	1.00
TDC213	C1320	12/6/2021	1.02	3.436	3.68%	0.125	0.124	0.99
TDC213	C135Y	12/6/2021	1.02	2.902	2.16%	0.063	0.061	0.98
TDC213	C1323	12/6/2021	1.02	2.181	2.15%	0.047	0.046	0.97
TDC213	C131	12/6/2021	1.02	2.660	3.69%	0.097	0.096	0.99
TDC213	C1318	12/6/2021	1.02	3.225	3.68%	0.118	0.116	0.99
TDC213	C1322	12/6/2021	1.02	3.568	2.17%	0.077	0.076	0.98
TDC213	C139	12/6/2021	1.02	3.874	2.16%	0.083	0.082	0.98
TDC213	C1312	12/6/2021	1.02	3.195	2.15%	0.069	0.067	0.98
TDC213	C135X	12/6/2021	1.02	2.668	2.16%	0.058	0.056	0.98
TDC213	C1315	12/6/2021	1.02	3.713	2.17%	0.080	0.079	0.98
TDC213	C1321	12/6/2021	1.02	3.949	3.67%	0.144	0.142	0.99
TDC213	C133	12/6/2021	1.02	3.221	2.27%	0.073	0.072	0.99
TDC213	C138Y	12/6/2021	1.02	2.710	3.71%	0.099	0.099	0.99
TDC213	C134	12/6/2021	1.02	1.242	2.25%	0.028	0.027	0.98
TDC213	C1316X	12/6/2021	1.02	1.303	2.30%	0.030	0.029	0.98
TDC213	C1316Y	12/6/2021	1.02	3.976	2.25%	0.090	0.088	0.98
TDC213	C1310X	12/6/2021	1.02	1.368	3.72%	0.050	0.050	0.99
TDC213	C1310Y	12/6/2021	1.02	2.492	3.71%	0.092	0.091	0.99
TDC225	E251	5/20/2021	1.02	1.672	2.95%	0.048	0.048	1.00
TDC225	E257	5/20/2021	1.02	3.477	3.44%	0.117	0.117	1.00
TDC225	E259	5/20/2021	1.02	2.509	3.42%	0.085	0.084	0.99
TDC225	E258	5/20/2021	1.02	2.329	3.44%	0.079	0.078	1.00
TDC225	E250	5/20/2021	1.02	2.157	2.93%	0.062	0.062	0.99
TDC225	E252	5/20/2021	1.02	2.090	2.93%	0.061	0.060	0.99
TDC225	E253	5/20/2021	1.02	2.643	2.93%	0.076	0.076	1.00
TDC225	E2511	5/20/2021	1.02	4.075	3.40%	0.136	0.136	1.00
TDC225	E254	5/20/2021	1.02	4.052	2.96%	0.117	0.118	1.00
TDC225	E256	5/20/2021	1.02	3.255	3.44%	0.110	0.110	1.00
TDC225	E255	5/20/2021	1.02	4.327	2.93%	0.125	0.124	1.00
TDC259	E5902	3/18/2021	1.02	4.618	3.13%	0.140	0.142	1.01
TDC259	E5928	3/18/2021	1.02	3.470	2.75%	0.091	0.093	1.03
TDC259	E5910	3/18/2021	1.02	3.666	2.72%	0.095	0.098	1.03
TDC259	E5932	3/18/2021	1.02	3.479	3.16%	0.107	0.108	1.01
TDC259	E5927	3/18/2021	1.02	3.680	2.74%	0.096	0.099	1.03
TDC259	E5904	3/18/2021	1.02	3.402	3.17%	0.105	0.106	1.01
TDC259	E5909	3/18/2021	1.02	3.929	2.76%	0.103	0.106	1.03
TDC259	E5908	3/18/2021	1.02	3.670	3.12%	0.111	0.112	1.01
TDC259	E5905	3/18/2021	1.02	3.519	3.15%	0.107	0.109	1.01

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TDC259	E5907	3/18/2021	1.02	2.983	3.13%	0.091	0.092	1.01
TDC411	J1171	12/14/2021	1.02	4.072	2.98%	0.118	0.119	1.01
TDC411	J1182	12/14/2021	1.02	3.827	2.64%	0.097	0.099	1.02
TDC411	J1172	12/14/2021	1.02	3.361	2.99%	0.099	0.099	1.00
TDC411	J1175	12/14/2021	1.02	3.080	2.93%	0.087	0.088	1.01
TDC411	J1174	12/14/2021	1.02	3.236	2.92%	0.092	0.093	1.01
TDC411	J1186	12/14/2021	1.02	4.726	2.64%	0.119	0.122	1.02
TDC411	J1176	12/14/2021	1.02	2.268	2.62%	0.056	0.058	1.04
TDC411	J1184	12/14/2021	1.02	1.580	2.64%	0.040	0.041	1.03
TDC411	J1173	12/14/2021	1.02	4.236	2.94%	0.121	0.122	1.01
TDC411	J1183	12/14/2021	1.02	2.757	2.63%	0.069	0.071	1.03
TDC411	J1181	12/14/2021	1.02	3.692	2.63%	0.093	0.095	1.03
TDC431	J3106	12/17/2021	1.02	3.739	2.68%	0.097	0.098	1.02
TDC431	J3128	12/17/2021	1.02	5.016	2.45%	0.119	0.120	1.01
TDC431	J3105	12/17/2021	1.02	4.453	2.91%	0.121	0.127	1.05
TDC431	J3103	12/17/2021	1.02	3.404	1.90%	0.063	0.063	1.00
TDC431	J3127	12/17/2021	1.02	3.050	2.44%	0.072	0.073	1.01
TDC431	J3113	12/17/2021	1.02	3.927	2.90%	0.107	0.112	1.04
TDC431	J3101	12/17/2021	1.02	3.279	1.88%	0.060	0.061	1.00
TDC431	J3111	12/17/2021	1.02	3.569	2.89%	0.099	0.101	1.02
TDC431	J3123	12/17/2021	1.02	3.983	2.53%	0.098	0.099	1.01
TDC431	J3110	12/17/2021	1.02	1.555	2.88%	0.043	0.044	1.02
TDC431	J3102	12/17/2021	1.02	4.707	1.89%	0.087	0.087	1.01
TDC431	J3114	12/17/2021	1.02	4.443	2.91%	0.122	0.127	1.04
TDC431	J3108	12/17/2021	1.02	3.647	2.67%	0.094	0.095	1.02
TDC431	J3131	12/17/2021	1.02	3.827	2.13%	0.079	0.080	1.01
TDC431	J3126	12/17/2021	1.02	4.397	2.45%	0.104	0.106	1.01
TDC431	J3112	12/17/2021	1.02	3.168	2.90%	0.088	0.090	1.02
TDC431	J3132	12/17/2021	1.02	5.223	2.14%	0.109	0.109	1.01
TDC431	J3109	12/17/2021	1.02	4.899	2.89%	0.136	0.139	1.02
TDC431	J3104	12/17/2021	1.02	4.390	1.89%	0.081	0.081	1.00
TDC431	J3107	12/17/2021	1.02	4.060	2.68%	0.105	0.107	1.02
TDC436	J3686	11/20/2021	1.02	1.878	2.67%	0.049	0.049	1.00
TDC436	J3677	11/20/2021	1.02	3.830	2.65%	0.100	0.099	1.00
TDC436	J3694	11/20/2021	1.02	3.958	2.65%	0.103	0.103	1.00
TDC436	J3681	11/20/2021	1.02	4.496	2.68%	0.119	0.118	0.99
TDC436	J3682	11/20/2021	1.02	4.667	3.29%	0.147	0.151	1.03
TDC436	J3684	11/20/2021	1.02	3.683	3.28%	0.115	0.119	1.03
TDC436	J3679	11/20/2021	1.02	3.804	3.29%	0.120	0.123	1.02
TDC436	J3690	11/20/2021	1.02	4.011	2.67%	0.106	0.105	1.00

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TDC436	J3689	11/20/2021	1.02	4.067	2.64%	0.106	0.105	0.99
TDC436	J3683	11/20/2021	1.02	2.740	3.27%	0.085	0.088	1.03
TDC436	J3675	11/20/2021	1.02	3.638	3.26%	0.113	0.116	1.03
TDC436	J3688	11/20/2021	1.02	4.140	2.64%	0.107	0.107	1.00
TDC436	J3678	11/20/2021	1.02	4.316	3.26%	0.134	0.138	1.03
TDC436	J3674	11/20/2021	1.02	4.315	3.26%	0.134	0.138	1.03
TDC436	J3691	11/20/2021	1.02	4.522	2.68%	0.119	0.119	0.99
TDC436	J3687	11/20/2021	1.02	4.206	2.64%	0.109	0.109	1.00
TDC436	J3680	11/20/2021	1.02	4.202	3.30%	0.133	0.136	1.02
TDC436	J3685	11/20/2021	1.02	4.287	2.64%	0.111	0.111	1.00
TDC436	J3676	11/20/2021	1.02	4.536	3.26%	0.141	0.145	1.03
TDC436	J3672	11/20/2021	1.02	4.213	2.64%	0.110	0.109	1.00
TDC436	J3673	11/20/2021	1.02	4.230	3.27%	0.132	0.136	1.03
TDC436	J3693	11/20/2021	1.02	5.499	2.69%	0.146	0.145	0.99
TDC436	J3671	11/20/2021	1.02	4.408	3.30%	0.138	0.142	1.03
TDC439	J3970	12/9/2021	1.02	4.481	3.21%	0.145	0.141	0.97
TDC439	J3974	12/9/2021	1.02	4.512	3.20%	0.147	0.142	0.96
TDC439	J3985	12/9/2021	1.02	5.305	3.69%	0.194	0.192	0.99
TDC439	J3972	12/9/2021	1.02	0.358	3.21%	0.012	0.011	0.97
TDC439	J3983	12/9/2021	1.02	1.696	3.68%	0.062	0.061	0.99
TDC439	J3982	12/9/2021	1.02	5.502	3.68%	0.201	0.199	0.99
TDC439	J3986	12/9/2021	1.02	4.914	3.69%	0.179	0.178	0.99
TDC439	J3984	12/9/2021	1.02	2.982	3.69%	0.109	0.108	0.99
TDC439	J3971	12/9/2021	1.02	4.326	3.22%	0.141	0.136	0.97
TDC439	J3973	12/9/2021	1.02	5.297	3.21%	0.173	0.167	0.96
TDC439	J3975	12/9/2021	1.02	2.374	3.19%	0.077	0.074	0.97
TDC440	G402	6/13/2021	1.02	3.890	3.59%	0.137	0.137	1.00
TDC440	G405	6/13/2021	1.02	4.179	3.73%	0.153	0.153	1.00
TDC440	G4072	6/13/2021	1.02	4.370	3.74%	0.160	0.160	1.00
TDC440	G404	6/13/2021	1.02	4.009	3.59%	0.141	0.141	1.00
TDC440	G403	6/13/2021	1.02	1.107	3.75%	0.040	0.041	1.01
TDC440	G4075	6/13/2021	1.02	0.348	3.74%	0.013	0.013	1.00
TDC440	G4083	6/13/2021	1.02	3.905	3.59%	0.137	0.138	1.00
TDC440	G4074	6/13/2021	1.02	2.804	3.75%	0.103	0.103	1.00
TDC440	G4082	6/13/2021	1.02	3.764	3.59%	0.132	0.132	1.00
TDC440	G401	6/13/2021	1.02	2.702	3.59%	0.095	0.095	1.00
TDC440	G4081	6/13/2021	1.02	3.114	3.59%	0.109	0.110	1.00
TDC454	J5475	5/20/2021	1.02	3.542	2.96%	0.102	0.103	1.01
TDC454	J5491	5/20/2021	1.02	3.775	3.80%	0.142	0.140	0.99
TDC454	J5474	5/20/2021	1.02	4.242	2.98%	0.123	0.124	1.01

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TDC454	J5483	5/20/2021	1.02	3.959	3.02%	0.116	0.117	1.01
TDC454	J5485	5/20/2021	1.02	4.111	3.75%	0.149	0.151	1.01
TDC454	J5472	5/20/2021	1.02	4.612	2.98%	0.133	0.135	1.01
TDC454	J5481	5/20/2021	1.02	3.655	2.97%	0.105	0.107	1.01
TDC454	J5478	5/20/2021	1.02	4.516	2.98%	0.130	0.132	1.01
TDC454	J5480	5/20/2021	1.02	4.009	2.98%	0.116	0.117	1.01
TDC454	J5476	5/20/2021	1.02	4.524	2.97%	0.130	0.132	1.01
TDC454	J5486	5/20/2021	1.02	4.765	3.79%	0.173	0.177	1.02
TDC454	J5470	5/20/2021	1.02	2.987	2.96%	0.086	0.087	1.01
TDC454	J5471	5/20/2021	1.02	4.586	2.98%	0.132	0.134	1.01
TDC454	J5473	5/20/2021	1.02	4.072	2.96%	0.117	0.118	1.01
TDC454	J5489	5/20/2021	1.02	3.711	3.78%	0.138	0.137	1.00
TDC454	J5479	5/20/2021	1.02	3.396	2.99%	0.099	0.099	1.01
TDC454	J5482	5/20/2021	1.02	1.593	2.97%	0.046	0.046	1.01
TDC454	J5487	5/20/2021	1.02	5.641	3.82%	0.213	0.211	0.99
TDC487	J8774	8/10/2021	1.02	2.901	3.12%	0.088	0.089	1.00
TDC487	J8773	8/10/2021	1.02	2.761	3.11%	0.084	0.084	1.00
TDC487	J8775	8/10/2021	1.02	2.979	3.14%	0.092	0.092	1.00
TDC487	J8783	8/10/2021	1.02	4.395	3.10%	0.134	0.133	1.00
TDC487	J8772	8/10/2021	1.02	3.152	3.12%	0.096	0.096	1.00
TDC487	J8771	8/10/2021	1.02	4.052	3.11%	0.124	0.124	1.00
TDC487	J8781	8/10/2021	1.02	3.622	3.07%	0.109	0.109	1.00
TDC487	J8784	8/10/2021	1.02	3.896	3.07%	0.117	0.117	1.00
TDC487	J8782	8/10/2021	1.02	3.019	3.10%	0.092	0.092	1.00
TDC510	W1033	4/21/2021	1.02	3.080	2.87%	0.084	0.087	1.03
TDC562	W627	12/16/2021	1.02	3.725	0.73%	0.027	0.027	1.00
TDC562	W6206	12/16/2021	1.02	3.046	2.70%	0.079	0.080	1.02
TDC562	W6220	12/16/2021	1.02	3.898	2.66%	0.101	0.102	1.01
TDC562	W6201	12/16/2021	1.02	3.817	2.68%	0.099	0.100	1.01
TDC562	W6216	12/16/2021	1.02	2.348	0.71%	0.016	0.016	1.01
TDC562	W6217Y	12/16/2021	1.02	1.192	0.70%	0.008	0.008	1.01
TDC562	W621	12/16/2021	1.02	3.970	0.83%	0.032	0.032	1.01
TDC562	W622Y	12/16/2021	1.02	3.404	0.70%	0.023	0.023	1.01
TDC562	W6223	12/16/2021	1.02	2.044	0.83%	0.017	0.017	1.00
TDC562	W6207	12/16/2021	1.02	2.835	2.69%	0.073	0.075	1.02
TDC562	W625	12/16/2021	1.02	4.286	0.73%	0.031	0.031	1.00
TDC562	W6205	12/16/2021	1.02	3.223	2.70%	0.084	0.085	1.02
TDC562	W622X	12/16/2021	1.02	4.694	0.81%	0.037	0.037	1.01
TDC562	W6218	12/16/2021	1.02	5.099	2.67%	0.132	0.134	1.01
TDC562	W6222	12/16/2021	1.02	2.809	0.82%	0.023	0.023	1.01

Substation	Feeder	VO Go Live	CVRf <sub>Peak</sub>	Demand Baseline (MW)	Average Voltage Reduction* (%)	Ex Ante Demand Savings (MW)	Verified Demand Savings (MW)	Demand Realization Rate
TDC562	W6202	12/16/2021	1.02	4.431	2.68%	0.115	0.116	1.01
TDC562	W6210X	12/16/2021	1.02	4.736	2.45%	0.113	0.114	1.00
TDC562	W6212	12/16/2021	1.02	4.713	2.48%	0.114	0.114	1.01
TDC562	W626	12/16/2021	1.02	4.593	0.73%	0.033	0.033	1.00
TDC562	W6209	12/16/2021	1.02	1.795	2.46%	0.043	0.043	1.01
TDC562	W6217X	12/16/2021	1.02	2.986	0.71%	0.021	0.021	1.01
TDC562	W6210Y	12/16/2021	1.02	3.333	2.48%	0.080	0.081	1.01
TDC562	W6215	12/16/2021	1.02	3.134	0.71%	0.022	0.022	1.01
TDC562	W6211	12/16/2021	1.02	4.191	2.47%	0.100	0.102	1.01
TDC562	W6219	12/16/2021	1.02	3.220	0.81%	0.025	0.025	1.01
TDC562	W6208	12/16/2021	1.02	3.451	2.67%	0.090	0.090	1.01
TDC565	W656	5/20/2021	1.02	3.978	3.98%	0.153	0.155	1.01
TDC565	W655	5/20/2021	1.02	4.283	3.98%	0.165	0.167	1.01
TDC565	W657	5/20/2021	1.02	3.048	3.97%	0.113	0.119	1.05
TDC565	W659X	5/20/2021	1.02	4.084	2.52%	0.102	0.101	0.99
TDC565	W654	5/20/2021	1.02	2.086	3.97%	0.072	0.081	1.12
TDC565	W659Y	5/20/2021	1.02	3.943	2.47%	0.096	0.095	1.00
TDC565	W651	5/20/2021	1.02	1.545	2.46%	0.037	0.037	1.00
TDC565	W653	5/20/2021	1.02	3.934	2.51%	0.097	0.097	0.99
TDC565	W650	5/20/2021	1.02	2.173	3.98%	0.084	0.085	1.01
TDC565	W652	5/20/2021	1.02	3.639	2.49%	0.089	0.089	1.00
TDC565	W658	5/20/2021	1.02	4.446	2.49%	0.109	0.109	1.00
TDC566	W6620	11/20/2021	1.02	0.809	5.06%	0.039	0.040	1.02
TDC566	W6605	11/20/2021	1.02	1.433	3.22%	0.045	0.045	1.00
TDC566	W664X	11/20/2021	1.02	2.935	4.81%	0.135	0.138	1.03
TDC566	W6604	11/20/2021	1.02	4.204	3.22%	0.133	0.133	1.00
TDC566	W6616	11/20/2021	1.02	4.077	5.06%	0.193	0.202	1.05
TDC566	W6601	11/20/2021	1.02	3.821	3.11%	0.118	0.116	0.99
TDC566	W6611Y	11/20/2021	1.02	4.134	3.22%	0.131	0.131	1.00
TDC566	W665X	11/20/2021	1.02	3.221	3.12%	0.099	0.098	1.00
TDC566	W662	11/20/2021	1.02	4.492	4.82%	0.208	0.212	1.02
TDC566	W6622	11/20/2021	1.02	3.450	5.07%	0.167	0.171	1.03
TDC566	W6607	11/20/2021	1.02	1.749	3.11%	0.054	0.053	1.00
TDC566	W6602	11/20/2021	1.02	3.025	3.19%	0.096	0.095	0.98
TDC566	W6610Y	11/20/2021	1.02	3.783	4.81%	0.172	0.178	1.04
TDC566	W664Y	11/20/2021	1.02	3.719	4.81%	0.169	0.175	1.04
TDC566	W665Y	11/20/2021	1.02	3.391	3.11%	0.104	0.103	1.00
TDC566	W666	11/20/2021	1.02	1.705	4.82%	0.079	0.080	1.02
TDC566	W660	11/20/2021	1.02	2.753	4.81%	0.130	0.130	1.00
TDC566	W6618	11/20/2021	1.02	5.030	5.06%	0.248	0.250	1.01

Substation	Feeder	VO Go Live	CVR <sub>fPeak</sub>	Demand Baseline (MW)	Average Voltage Reduction* (%)	Ex Ante Demand Savings (MW)	Verified Demand Savings (MW)	Demand Realization Rate
TDC566	W6606	11/20/2021	1.02	3.457	3.21%	0.109	0.109	1.00
TDC566	W6603	11/20/2021	1.02	4.059	3.22%	0.129	0.128	0.99
TDC566	W6612	11/20/2021	1.02	3.477	4.82%	0.160	0.164	1.03
TDC566	W6610X	11/20/2021	1.02	2.495	4.82%	0.115	0.118	1.03
TDC566	W663	11/20/2021	1.02	3.874	3.12%	0.119	0.118	1.00
TDC566	W6613	11/20/2021	1.02	3.369	3.21%	0.106	0.106	1.00
TDC566	W668X	11/20/2021	1.02	4.180	3.19%	0.131	0.131	1.00
TDC566	W6624	11/20/2021	1.02	4.236	5.07%	0.207	0.210	1.02
TDC566	W6614	11/20/2021	1.02	2.067	5.06%	0.099	0.103	1.03
TDC566	W6611X	11/20/2021	1.02	0.370	3.21%	0.012	0.012	1.00
TDC566	W668Y	11/20/2021	1.02	4.209	3.22%	0.133	0.133	1.00
TDC572	W7210	6/29/2021	1.02	5.434	3.10%	0.164	0.165	1.00
TDC572	W7217	6/29/2021	1.02	5.304	3.02%	0.158	0.157	1.00
TDC572	W7216	6/29/2021	1.02	5.023	3.02%	0.149	0.149	1.00
TDC572	W7209	6/29/2021	1.02	3.960	3.10%	0.119	0.120	1.01
TDC572	W7223	6/29/2021	1.02	2.751	3.02%	0.081	0.081	1.00
TDC572	W7208	6/29/2021	1.02	2.728	3.10%	0.082	0.083	1.01
TDC572	W7212	6/29/2021	1.02	3.113	3.09%	0.093	0.094	1.01
TDC572	W7201	6/29/2021	1.02	5.139	3.10%	0.156	0.156	1.00
TDC572	W7205	6/29/2021	1.02	3.152	3.10%	0.094	0.096	1.01
TDC572	W7218	6/29/2021	1.02	5.016	3.00%	0.147	0.148	1.01
TDC572	W7211	6/29/2021	1.02	3.064	3.09%	0.092	0.093	1.00
TDC572	W7222	6/29/2021	1.02	3.426	2.98%	0.099	0.100	1.01
TDC572	W7214	6/29/2021	1.02	2.539	3.09%	0.077	0.077	1.01
TDC572	W7215	6/29/2021	1.02	3.854	3.09%	0.115	0.117	1.01
TDC572	W7221	6/29/2021	1.02	4.837	2.99%	0.141	0.142	1.01
TDC577	W7704	5/20/2021	1.02	3.863	1.79%	0.068	0.068	1.00
TDC577	W7705	5/4/2021	1.02	3.752	1.55%	0.057	0.057	1.00
TDC577	W7715	5/20/2021	1.02	2.938	1.87%	0.054	0.054	1.00
TDC577	W7706	5/4/2021	1.02	3.497	1.54%	0.053	0.053	1.00
TDC577	W7702	5/20/2021	1.02	3.224	1.76%	0.056	0.056	1.00
TDC577	W7708	5/4/2021	1.02	4.748	1.55%	0.072	0.072	1.00
TDC577	W7710	5/4/2021	1.02	3.060	1.56%	0.047	0.047	1.00
TDC577	W7703	5/20/2021	1.02	2.964	1.80%	0.052	0.052	1.00
TDC577	W7701	5/20/2021	1.02	4.217	1.81%	0.075	0.075	0.99
TDC577	W7709	5/4/2021	1.02	3.465	1.57%	0.053	0.053	1.00
TDC577	W7707	5/4/2021	1.02	4.052	1.55%	0.061	0.061	1.00
TDC577	W7714	5/20/2021	1.02	2.035	1.88%	0.038	0.038	1.00
TDC580	W809	12/22/2021	1.02	4.068	3.12%	0.123	0.124	1.01
TDC580	W8015	12/22/2021	1.02	5.489	3.35%	0.180	0.180	1.00

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TDC580	W8020	12/22/2021	1.02	4.268	3.33%	0.140	0.139	1.00
TDC580	W8023	12/22/2021	1.02	4.116	3.36%	0.135	0.136	1.01
TDC580	W8011	12/22/2021	1.02	4.006	3.10%	0.121	0.122	1.01
TDC580	W806	12/22/2021	1.02	3.512	3.32%	0.113	0.114	1.01
TDC580	W8014	12/22/2021	1.02	4.030	3.34%	0.131	0.132	1.01
TDC580	W808	12/22/2021	1.02	3.908	3.12%	0.119	0.119	1.01
TDC580	W8021	12/22/2021	1.02	3.432	3.35%	0.113	0.113	1.00
TDC580	W803	12/22/2021	1.02	2.582	3.34%	0.084	0.085	1.01
TDC580	W8024	12/22/2021	1.02	3.511	3.41%	0.116	0.117	1.01
TDC580	W8001	12/22/2021	1.02	3.399	3.16%	0.104	0.105	1.01
TDC580	W8013	12/22/2021	1.02	4.601	3.35%	0.150	0.151	1.01
TDC580	W8002	12/22/2021	1.02	4.064	3.31%	0.131	0.132	1.01
TDC580	W807	12/22/2021	1.02	3.965	3.31%	0.127	0.129	1.01
TDC580	W802	12/22/2021	1.02	4.039	3.16%	0.124	0.125	1.01
TDC580	W805	12/22/2021	1.02	3.597	3.31%	0.116	0.117	1.01
TDC580	W8010	12/22/2021	1.02	3.495	3.12%	0.106	0.107	1.01
TDC580	W8012	12/22/2021	1.02	3.182	3.34%	0.103	0.104	1.01
TDC580	W8017	12/22/2021	1.02	4.068	3.34%	0.132	0.133	1.01
TDC580	W8016	12/22/2021	1.02	1.507	3.35%	0.050	0.050	1.00
TDC580	W8019	12/22/2021	1.02	4.212	3.14%	0.130	0.130	1.00
TDC580	W8022	12/22/2021	1.02	4.498	3.36%	0.149	0.148	0.99
TDC580	W804	12/22/2021	1.02	2.798	3.16%	0.086	0.087	1.01
TDC581	W8127	11/20/2021	1.02	3.189	3.40%	0.108	0.106	0.99
TDC581	W8123	11/20/2021	1.02	3.602	3.35%	0.119	0.118	0.99
TDC581	W8101	11/20/2021	1.02	3.382	3.34%	0.112	0.111	0.99
TDC581	W8117	11/20/2021	1.02	3.413	3.26%	0.110	0.109	0.99
TDC581	W8112	11/20/2021	1.02	1.101	3.45%	0.038	0.037	0.99
TDC581	W8103	11/20/2021	1.02	4.459	3.37%	0.149	0.147	0.99
TDC581	W8118	11/20/2021	1.02	2.866	3.25%	0.092	0.091	0.99
TDC581	W8111	11/20/2021	1.02	3.719	3.37%	0.124	0.123	0.99
TDC581	W8125	11/20/2021	1.02	3.500	3.35%	0.115	0.115	1.00
TDC581	W8104	11/20/2021	1.02	4.071	3.37%	0.136	0.134	0.99
TDC581	W8121	11/20/2021	1.02	3.865	3.24%	0.123	0.123	1.00
TDC581	W8102	11/20/2021	1.02	3.629	3.40%	0.123	0.121	0.98
TDC581	W8122	11/20/2021	1.02	3.115	3.36%	0.103	0.103	0.99
TDC581	W8110	11/20/2021	1.02	3.104	3.36%	0.103	0.102	0.99
TDC581	W8106	11/20/2021	1.02	1.464	3.41%	0.050	0.049	0.99
TDC581	W8116	11/20/2021	1.02	5.238	3.28%	0.170	0.169	0.99
TDC581	W8109	11/20/2021	1.02	4.098	3.43%	0.139	0.138	0.99
TDC581	W8126	11/20/2021	1.02	2.950	3.35%	0.098	0.097	0.99

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TDC581	W8120	11/20/2021	1.02	4.425	3.30%	0.145	0.143	0.99
TDC581	W8114	11/20/2021	1.02	3.394	3.27%	0.110	0.109	0.99
TDC581	W8113	11/20/2021	1.02	3.138	3.25%	0.101	0.100	0.99
TDC581	W8119	11/20/2021	1.02	3.501	3.28%	0.114	0.112	0.99
TDC581	W8124	11/20/2021	1.02	2.612	3.38%	0.088	0.087	0.99
TDC581	W8107	11/20/2021	1.02	4.130	3.37%	0.138	0.136	0.99
TDC581	W8105	11/20/2021	1.02	3.993	3.34%	0.132	0.131	0.99
TDC581	W8115	11/20/2021	1.02	3.224	3.25%	0.104	0.103	0.99
TDC581	W8108	11/20/2021	1.02	0.614	3.40%	0.021	0.020	0.99
TDC592	W9228	6/30/2021	1.02	4.587	2.65%	0.119	0.119	1.00
TDC592	W9211	6/30/2021	1.02	4.558	2.48%	0.110	0.111	1.00
TDC592	W9205	6/30/2021	1.02	3.693	2.60%	0.094	0.094	1.00
TDC592	W9210	6/30/2021	1.02	2.071	2.46%	0.050	0.050	1.01
TDC592	W9230	6/30/2021	1.02	4.510	2.40%	0.105	0.106	1.01
TDC592	W9229	6/30/2021	1.02	3.573	2.62%	0.091	0.092	1.00
TDC592	W9202	6/30/2021	1.02	3.693	2.60%	0.094	0.094	1.00
TDC592	W9206	6/30/2021	1.02	4.111	2.39%	0.096	0.096	1.01
TDC592	W9231	6/30/2021	1.02	4.151	2.63%	0.106	0.107	1.00
TDC592	W9204	6/30/2021	1.02	4.351	2.65%	0.113	0.113	1.00
TDC592	W9207	6/30/2021	1.02	3.241	2.39%	0.075	0.076	1.01
TDC592	W9212	6/30/2021	1.02	3.989	2.34%	0.091	0.092	1.01
TDC592	W9201	6/30/2021	1.02	4.707	2.66%	0.123	0.123	1.00
TDC840	Y84039	9/1/2021	1.02	2.993	1.96%	0.057	0.057	1.00
TDC840	Y84034	9/1/2021	1.02	5.495	1.96%	0.106	0.106	1.00
TDC840	Y84070	9/1/2021	1.02	2.655	1.97%	0.051	0.051	1.00
TDC840	Y84032	9/1/2021	1.02	2.309	1.96%	0.044	0.044	1.00
TDC840	Y84063	9/1/2021	1.02	4.339	1.95%	0.083	0.083	1.00
TDC840	Y84068	9/1/2021	1.02	3.992	1.90%	0.075	0.075	1.00
TDC840	Y84048	9/1/2021	1.02	3.709	1.95%	0.071	0.071	1.00
TDC840	Y84071	9/1/2021	1.02	1.930	1.93%	0.037	0.037	1.00
TDC840	Y84049	9/1/2021	1.02	0.956	1.94%	0.018	0.018	1.00
TDC840	Y84033	9/1/2021	1.02	2.870	1.94%	0.055	0.055	1.00
TDC840	Y84077	9/1/2021	1.02	1.687	1.96%	0.033	0.032	1.00
TDC840	Y84073	9/1/2021	1.02	4.151	1.86%	0.076	0.076	0.99
TDC840	Y84056	9/1/2021	1.02	2.147	1.88%	0.040	0.040	0.99
TDC840	Y84052	9/1/2021	1.02	4.122	1.95%	0.079	0.079	1.00
TDC840	Y84042	9/1/2021	1.02	3.537	1.93%	0.067	0.067	0.99
TDC840	Y84031	9/1/2021	1.02	4.456	1.93%	0.084	0.084	1.00
TDC840	Y84064	9/1/2021	1.02	3.388	1.94%	0.065	0.064	1.00
TDC840	Y84061	9/1/2021	1.02	1.063	1.79%	0.019	0.019	0.99



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TDC840	Y84054	9/1/2021	1.02	2.307	1.98%	0.045	0.045	1.00
TDC840	Y84076	9/1/2021	1.02	3.251	1.97%	0.063	0.063	1.00
TDC840	Y84036	9/1/2021	1.02	4.295	1.94%	0.082	0.082	1.00
TDC840	Y84075	9/1/2021	1.02	2.774	1.97%	0.054	0.054	1.00
TDC840	Y84043	9/1/2021	1.02	0.163	1.94%	0.003	0.003	1.00
TDC840	Y84047	9/1/2021	1.02	0.799	1.90%	0.015	0.015	1.00
TDC840	Y84067	9/1/2021	1.02	1.896	1.89%	0.035	0.035	0.99
TDC840	Y84060	9/1/2021	1.02	1.949	1.92%	0.037	0.037	0.99
TDC840	Y84044	9/1/2021	1.02	2.473	1.92%	0.047	0.047	1.00
TDC840	Y84059	9/1/2021	1.02	4.264	1.93%	0.081	0.080	0.99
TDC840	Y84069	9/1/2021	1.02	1.536	1.94%	0.029	0.029	1.00
TDC840	Y84037	9/1/2021	1.02	2.920	1.94%	0.055	0.055	1.00
TDC840	Y84058	9/1/2021	1.02	1.556	1.95%	0.030	0.030	1.00
TDC840	Y84035	9/1/2021	1.02	2.445	1.93%	0.046	0.046	1.00
TDC840	Y84053	9/1/2021	1.02	3.630	1.95%	0.070	0.070	1.00
TDC840	Y84062	9/1/2021	1.02	2.616	1.92%	0.049	0.049	0.99
TSS114	X5369	12/15/2021	1.02	1.153	3.27%	0.036	0.037	1.03
TSS114	X5379	12/15/2021	1.02	3.310	3.24%	0.102	0.105	1.03
TSS114	X5386	12/15/2021	1.02	3.856	2.54%	0.094	0.096	1.02
TSS114	X5364	12/15/2021	1.02	1.398	2.59%	0.035	0.036	1.02
TSS114	X5382	12/15/2021	1.02	3.201	3.22%	0.098	0.101	1.03
TSS114	X5373	12/15/2021	1.02	3.374	3.26%	0.105	0.108	1.03
TSS114	X5383	12/15/2021	1.02	3.167	2.52%	0.077	0.078	1.02
TSS114	X5372	12/15/2021	1.02	2.787	3.27%	0.087	0.089	1.03
TSS114	X5375	12/15/2021	1.02	3.876	3.26%	0.120	0.124	1.03
TSS114	X5391	12/15/2021	1.02	3.434	2.55%	0.084	0.086	1.02
TSS114	X5385	12/15/2021	1.02	3.117	2.55%	0.076	0.078	1.02
TSS114	X5378	12/15/2021	1.02	3.820	3.25%	0.118	0.122	1.03
TSS114	X5367	12/15/2021	1.02	3.401	2.54%	0.083	0.085	1.02
TSS114	X5365	12/15/2021	1.02	2.352	2.54%	0.057	0.058	1.02
TSS114	X5371	12/15/2021	1.02	4.432	3.25%	0.137	0.141	1.03
TSS114	X5374	12/15/2021	1.02	4.303	3.27%	0.133	0.138	1.03
TSS114	X5362	12/15/2021	1.02	3.520	2.54%	0.086	0.088	1.02
TSS114	X5389	12/15/2021	1.02	3.544	2.53%	0.086	0.088	1.02
TSS114	X5387	12/15/2021	1.02	2.602	2.53%	0.063	0.064	1.02
TSS114	X5388	12/15/2021	1.02	4.394	2.56%	0.109	0.110	1.02
TSS114	X5368	12/15/2021	1.02	2.673	2.53%	0.065	0.066	1.02
TSS114	X5376	12/15/2021	1.02	4.498	3.23%	0.138	0.142	1.03
TSS114	X5377	12/15/2021	1.02	3.977	3.24%	0.122	0.126	1.03
TSS114	X5384	12/15/2021	1.02	3.500	2.54%	0.085	0.087	1.02

Substation	Feeder	VO Go Live	CVR <sub>fPeak</sub>	Demand Baseline (MW)	Average Voltage Reduction* (%)	Ex Ante Demand Savings (MW)	Verified Demand Savings (MW)	Demand Realization Rate
TSS114	X5370	12/15/2021	1.02	3.104	3.23%	0.095	0.098	1.03
TSS114	X5363	12/15/2021	1.02	4.941	2.55%	0.122	0.124	1.02
TSS114	X5380	12/15/2021	1.02	3.200	3.25%	0.099	0.102	1.03
TSS120	W2013	7/31/2021	1.02	3.111	2.22%	0.067	0.068	1.01
TSS120	W2027	7/31/2021	1.02	4.758	2.48%	0.116	0.116	1.00
TSS120	W2018	7/31/2021	1.02	3.505	4.58%	0.156	0.158	1.01
TSS120	W2019	7/31/2021	1.02	4.083	4.59%	0.183	0.184	1.01
TSS120	W2023	7/31/2021	1.02	3.950	2.25%	0.086	0.087	1.01
TSS120	W2026	7/31/2021	1.02	3.592	2.50%	0.088	0.088	1.00
TSS120	W2024	7/31/2021	1.02	5.223	2.26%	0.116	0.116	1.00
TSS120	W2015	7/31/2021	1.02	4.490	4.58%	0.201	0.202	1.00
TSS120	W2022	7/31/2021	1.02	4.924	2.25%	0.108	0.109	1.01
TSS120	W2011	7/31/2021	1.02	3.681	2.21%	0.079	0.080	1.01
TSS120	W2025	7/31/2021	1.02	4.171	2.52%	0.102	0.103	1.01
TSS120	W2020	7/31/2021	1.02	4.002	2.21%	0.086	0.087	1.01
TSS120	W2028	7/31/2021	1.02	5.010	2.47%	0.122	0.121	1.00
TSS120	W2021	7/31/2021	1.02	4.444	2.25%	0.098	0.098	1.00
TSS120	W2016	7/31/2021	1.02	3.993	4.58%	0.178	0.179	1.01
TSS120	W2012	7/31/2021	1.02	3.865	2.22%	0.083	0.084	1.01
TSS120	W2017	7/31/2021	1.02	3.556	4.59%	0.159	0.160	1.01
TSS129	C299	7/8/2021	1.02	4.296	3.62%	0.147	0.152	1.04
TSS129	C297	7/8/2021	1.02	3.723	2.91%	0.104	0.106	1.02
TSS129	C2920	7/8/2021	1.02	2.490	3.62%	0.085	0.088	1.04
TSS129	C295	7/8/2021	1.02	0.971	3.62%	0.033	0.034	1.04
TSS129	C2911	7/8/2021	1.02	4.042	3.66%	0.141	0.145	1.03
TSS129	C292	7/8/2021	1.02	3.165	2.97%	0.091	0.092	1.01
TSS129	C294	7/8/2021	1.02	4.400	3.65%	0.152	0.158	1.03
TSS129	C2916	7/8/2021	1.02	3.878	3.63%	0.133	0.138	1.04
TSS129	C291	7/8/2021	1.02	4.086	3.60%	0.139	0.144	1.04
TSS129	C2918	7/8/2021	1.02	4.279	3.63%	0.146	0.152	1.04
TSS129	C2917	7/8/2021	1.02	2.935	3.62%	0.100	0.104	1.04
TSS129	C2913	7/8/2021	1.02	3.218	3.64%	0.111	0.115	1.03
TSS129	C2915	7/8/2021	1.02	3.569	2.86%	0.098	0.100	1.02
TSS129	C296	7/8/2021	1.02	3.743	2.85%	0.103	0.104	1.02
TSS129	C293	7/8/2021	1.02	5.008	3.64%	0.173	0.179	1.04
TSS129	C2914	7/8/2021	1.02	2.271	3.61%	0.077	0.080	1.04
TSS129	C298	7/8/2021	1.02	4.019	3.60%	0.136	0.142	1.04
TSS129	C290	7/8/2021	1.02	2.933	2.98%	0.084	0.086	1.02
TSS129	C2912	7/8/2021	1.02	3.067	3.58%	0.103	0.108	1.04
TSS129	C2910	7/8/2021	1.02	3.552	2.91%	0.100	0.101	1.02

Substation	Feeder	VO Go Live	CVRf <sub>Peak</sub>	Demand Baseline (MW)	Average Voltage Reduction* (%)	Ex Ante Demand Savings (MW)	Verified Demand Savings (MW)	Demand Realization Rate
TSS145	W4510	11/20/2021	1.02	1.892	3.32%	0.060	0.062	1.02
TSS145	W4519	11/20/2021	1.02	2.539	3.00%	0.076	0.075	0.98
TSS145	W4571	11/20/2021	1.02	3.188	4.24%	0.131	0.132	1.01
TSS145	W456Y	11/20/2021	1.02	3.685	3.30%	0.116	0.119	1.03
TSS145	W4518	11/20/2021	1.02	4.440	3.00%	0.133	0.131	0.98
TSS145	W455X	11/20/2021	1.02	2.096	3.29%	0.066	0.068	1.03
TSS145	W4513Y	11/20/2021	1.02	3.197	2.99%	0.096	0.094	0.98
TSS145	W458X	11/20/2021	1.02	3.883	3.32%	0.124	0.126	1.02
TSS145	W457	11/20/2021	1.02	1.050	3.31%	0.033	0.034	1.02
TSS145	W4570	11/20/2021	1.02	3.588	4.24%	0.147	0.149	1.01
TSS145	W4514	11/20/2021	1.02	4.415	2.99%	0.132	0.130	0.98
TSS145	W454X	11/20/2021	1.02	3.085	3.29%	0.097	0.100	1.02
TSS145	W4515	11/20/2021	1.02	1.718	3.01%	0.052	0.051	0.98
TSS145	W4512	11/20/2021	1.02	1.156	3.01%	0.035	0.034	0.98
TSS145	W458Y	11/20/2021	1.02	3.644	3.31%	0.115	0.118	1.03
TSS145	W4540	11/20/2021	1.02	2.647	4.97%	0.131	0.129	0.99
TSS145	W4541	11/20/2021	1.02	3.741	4.96%	0.184	0.182	0.99
TSS145	W450	11/20/2021	1.02	3.637	3.29%	0.114	0.117	1.02
TSS145	W459	11/20/2021	1.02	4.296	3.33%	0.137	0.140	1.02
TSS145	W452	11/20/2021	1.02	3.923	3.30%	0.124	0.127	1.02
TSS145	W4572	11/20/2021	1.02	3.804	4.25%	0.156	0.158	1.02
TSS145	W4521	11/20/2021	1.02	3.346	3.02%	0.101	0.099	0.98
TSS145	W4516Y	11/20/2021	1.02	3.594	2.98%	0.107	0.105	0.98
TSS145	W4511	11/20/2021	1.02	3.542	2.98%	0.105	0.104	0.98
TSS145	W4513X	11/20/2021	1.02	3.908	2.99%	0.117	0.115	0.98
TSS145	W455Y	11/20/2021	1.02	3.244	3.30%	0.102	0.105	1.02
TSS145	W4516X	11/20/2021	1.02	3.484	2.99%	0.104	0.102	0.98
TSS145	W4517	11/20/2021	1.02	4.080	3.01%	0.123	0.121	0.98
TSS145	W4522	11/20/2021	1.02	4.629	2.99%	0.139	0.136	0.98
TSS145	W456X	11/20/2021	1.02	2.988	3.30%	0.095	0.097	1.02
TSS145	W4520	11/20/2021	1.02	3.672	2.98%	0.109	0.107	0.98
TSS145	W451	11/20/2021	1.02	2.202	3.29%	0.070	0.071	1.02
TSS145	W453	11/20/2021	1.02	0.586	3.27%	0.018	0.019	1.02
TSS149	J4971	5/28/2021	1.02	2.058	4.51%	0.090	0.091	1.01
TSS43	Z4349	9/25/2021	1.02	3.701	3.48%	0.126	0.126	1.00
TSS43	Z4335	9/25/2021	1.02	1.146	3.55%	0.040	0.040	1.00
TSS43	Z4343	9/25/2021	1.02	0.359	3.54%	0.012	0.012	1.00
TSS43	Z4344	9/25/2021	1.02	1.246	3.55%	0.043	0.043	1.01
TSS43	Z4331	9/25/2021	1.02	2.480	3.50%	0.085	0.085	1.01
TSS43	Z4346	9/25/2021	1.02	1.276	3.45%	0.043	0.043	1.01

Substation	Feeder	VO Go Live	CVRf <sub>Peak</sub>	Demand Baseline (MW)	Average Voltage Reduction* (%)	Ex Ante Demand Savings (MW)	Verified Demand Savings (MW)	Demand Realization Rate
TSS43	Z4347	9/25/2021	1.02	2.153	3.49%	0.073	0.074	1.00
TSS43	Z4332	9/25/2021	1.02	2.613	3.50%	0.089	0.090	1.01
TSS43	Z4330	9/25/2021	1.02	1.093	3.50%	0.037	0.037	1.00
TSS43	Z4337	9/25/2021	1.02	2.425	3.54%	0.084	0.084	1.00
TSS43	Z4336	9/25/2021	1.02	1.123	3.55%	0.039	0.039	1.01
TSS43	Z4341	9/25/2021	1.02	1.165	3.54%	0.040	0.040	1.01
TSS43	Z4333	9/25/2021	1.02	1.232	3.49%	0.042	0.042	1.00
TSS43	Z4334	9/25/2021	1.02	2.692	3.49%	0.092	0.092	1.00
TSS43	Z4342	9/25/2021	1.02	1.687	3.41%	0.056	0.056	1.01
TSS46	C461	12/14/2021	1.02	3.200	3.90%	0.124	0.122	0.98
TSS46	C4613	12/14/2021	1.02	2.879	2.21%	0.063	0.062	0.99
TSS46	C4618	12/14/2021	1.02	2.852	3.91%	0.111	0.109	0.98
TSS46	C460	12/14/2021	1.02	1.824	3.91%	0.071	0.070	0.98
TSS46	C467	12/14/2021	1.02	1.461	3.42%	0.050	0.049	0.97
TSS46	C4615	12/14/2021	1.02	4.462	3.89%	0.173	0.170	0.98
TSS46	C4614	12/14/2021	1.02	3.407	3.42%	0.117	0.114	0.98
TSS46	C468	12/14/2021	1.02	2.387	3.41%	0.082	0.080	0.97
TSS46	C4617	12/14/2021	1.02	1.900	2.21%	0.042	0.041	0.99
TSS46	C4616	12/14/2021	1.02	2.987	3.43%	0.103	0.100	0.98
TSS46	C464	12/14/2021	1.02	1.544	3.89%	0.060	0.059	0.99
TSS46	C469	12/14/2021	1.02	3.846	2.22%	0.085	0.084	0.99
TSS46	C462	12/14/2021	1.02	4.070	2.22%	0.090	0.089	0.99
TSS46	C463	12/14/2021	1.02	3.522	2.22%	0.077	0.077	0.99
TSS46	C466	12/14/2021	1.02	3.463	3.42%	0.119	0.116	0.97
TSS46	C465	12/14/2021	1.02	1.205	3.43%	0.042	0.041	0.98
TSS76	G765	12/6/2021	1.02	3.822	3.19%	0.123	0.120	0.97
TSS76	G760	12/6/2021	1.02	3.907	3.20%	0.126	0.123	0.97
TSS76	G769	12/6/2021	1.02	3.650	3.53%	0.129	0.126	0.98
TSS76	G763	12/14/2021	1.02	2.250	4.20%	0.094	0.093	0.99
TSS76	G767	12/6/2021	1.02	3.210	3.57%	0.114	0.112	0.99
TSS76	G761	12/14/2021	1.02	3.761	4.19%	0.158	0.155	0.98
TSS76	G766	12/6/2021	1.02	2.056	3.18%	0.066	0.064	0.96
TSS76	G768	12/6/2021	1.02	3.229	3.19%	0.104	0.101	0.97
TSS76	G762	12/14/2021	1.02	2.207	4.23%	0.093	0.092	0.98
TSS76	G7683	12/6/2021	1.02	4.159	3.56%	0.147	0.145	0.99
					<b>Total</b>	<b>52.308</b>	<b>52.535</b>	<b>1.00</b>

\* The average voltage reduction is weighted by load.

Source: Evaluation team analysis

**Table B-3. CY2021 Verified VO Energy and Demand Realization Rates by Substation**

Substation	Ex Ante Energy Savings (MWh)	Verified Energy Savings (MWh)	Energy Realization Rate	Ex Ante Demand Savings (MW)	Verified Demand Savings (MW)	Demand Realization Rate
DCA41	816.680	816.176	1.00	0.153	0.153	1.00
DCB46	647.274	647.411	1.00	0.111	0.111	1.00
DCB53	857.593	856.841	1.00	0.171	0.171	1.00
DCD187	1,394.133	1,382.388	0.99	0.264	0.263	1.00
DCD255	849.376	848.646	1.00	0.141	0.139	0.98
DCE29	260.322	261.425	1.00	0.066	0.067	1.02
DCE71	1,321.160	1,321.910	1.00	0.300	0.303	1.01
DCH25	1,351.569	1,352.424	1.00	0.275	0.276	1.00
DCJ13	719.200	719.551	1.00	0.144	0.145	1.01
DCJ49	965.058	1,000.620	1.04	0.218	0.216	0.99
DCW10	1,380.544	1,382.970	1.00	0.314	0.312	0.99
DCW25	361.186	396.486	1.10	0.076	0.079	1.04
DCW336	1,108.122	1,109.389	1.00	0.234	0.236	1.01
DCW35	897.169	901.652	1.00	0.206	0.204	0.99
DCW73	449.757	449.444	1.00	0.130	0.127	0.98
SS501	515.032	514.777	1.00	0.130	0.131	1.01
TDC204	9,651.717	9,646.237	1.00	1.794	1.779	0.99
TDC213	10,691.104	10,702.288	1.00	2.576	2.545	0.99
TDC225	4,504.903	4,514.001	1.00	1.015	1.014	1.00
TDC259	5,597.187	5,594.631	1.00	1.044	1.064	1.02
TDC411	5,782.940	5,780.333	1.00	0.990	1.007	1.02
TDC431	9,168.362	9,190.436	1.00	1.884	1.919	1.02
TDC436	15,556.405	15,576.476	1.00	2.677	2.710	1.01
TDC439	7,923.356	7,914.051	1.00	1.440	1.408	0.98
TDC440	4,965.703	4,967.393	1.00	1.220	1.222	1.00
TDC454	10,661.609	10,687.681	1.00	2.250	2.267	1.01
TDC487	4,772.674	4,750.986	1.00	0.936	0.936	1.00
TDC510	572.200	589.910	1.03	0.084	0.087	1.03
TDC562	12,410.460	12,487.473	1.01	1.537	1.552	1.01
TDC565	6,239.709	6,341.690	1.02	1.117	1.134	1.01
TDC566	15,481.519	15,733.040	1.02	3.638	3.684	1.01
TDC572	9,037.360	9,027.755	1.00	1.767	1.777	1.01
TDC577	4,541.731	4,528.194	1.00	0.686	0.686	1.00
TDC580	14,889.621	14,858.624	1.00	2.884	2.899	1.01
TDC581	15,464.941	15,498.818	1.00	2.963	2.935	0.99
TDC592	7,502.152	7,514.295	1.00	1.267	1.272	1.00
TDC840	10,829.112	10,831.965	1.00	1.801	1.796	1.00
TSS114	11,236.371	11,209.374	1.00	2.513	2.578	1.03
TSS120	9,828.543	9,810.079	1.00	2.027	2.038	1.01

Substation	Ex Ante Energy Savings (MWh)	Verified Energy Savings (MWh)	Energy Realization Rate	Ex Ante Demand Savings (MW)	Verified Demand Savings (MW)	Demand Realization Rate
TSS129	11,896.207	11,961.298	1.01	2.257	2.330	1.03
TSS145	19,414.139	19,383.446	1.00	3.450	3.455	1.00
TSS149	458.541	458.743	1.00	0.090	0.091	1.01
TSS43	4,844.484	4,866.865	1.00	0.902	0.905	1.00
TSS46	6,791.429	6,791.355	1.00	1.409	1.383	0.98
TSS76	5,925.177	5,772.195	0.97	1.155	1.130	0.98
<b>Total</b>	<b>270,533.831</b>	<b>270,951.740</b>	<b>1.00</b>	<b>52.308</b>	<b>52.535</b>	<b>1.00</b>

Source: Evaluation team analysis

## Appendix C. Total Resource Cost Detail

Table C-1 shows the TRC cost-effectiveness analysis inputs available at the time of finalizing this impact evaluation report. This table does not include additional required cost data (e.g., measure costs, program-level incentives, and non-incentive costs). ComEd will provide this data to the evaluation team later.

**Table C-1. Total Resource Cost Savings Summary**

End Use Type	Research Category	Units	Quantity	EUL (years)*	ER Flag†	Gross Electric Energy Savings (kWh)	Gross Peak Demand Reduction (kW)	Gross Gas Savings (Therms)	Gross Secondary Savings due to Water Reduction (kWh)	Gross Heating Penalty (kWh)	Gross Heating Penalty (Therms)	NTG (kWh)	NTG (kW)	NTG (Therms)	Net Electric Energy Savings (kWh)	Net Peak Demand Reduction (kW)	Net Gas Savings (Therms)	Net Secondary Savings due to Water Reduction (kWh)	Net Heating Penalty (kWh)	Net Heating Penalty (Therms)
All	VO	Feeders	530	15.0	No	270,951,740	52,535	0	0	0	0	1.00	1.00	1.00	270,951,740	52,535	0	0	0	0
	<b>Total</b>			<b>15.0</b>		<b>270,951,740</b>	<b>52,535</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>				<b>270,951,740</b>	<b>52,535</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

\* The total of the EUL column is the weighted average measure life (WAML) and is calculated as the sum product of EUL and measure savings divided by total program savings.

† Early replacement (ER) measures are flagged as YES, otherwise a NO is indicated in the column.

Source: ComEd tracking data and evaluation team analysis

## Appendix D. De-Rating Factor Calculation

To calculate a de-rating factor to account for times when VO is expected to be off for reasons that are within ComEd’s control for each year of the 15-year measure life, ComEd reviewed the intended on-off VO cycling schedule versus the actual VO status logs and identified misalignments greater than a day (48 half hourly intervals). ComEd categorized each of these deviations as excludable or not excludable based on the IL-TRM.

ComEd identified misalignments between the schedule and the logs 10.15% of the time; this breaks down into 9.92% excludable and 0.23% not excludable. Table D-1 shows this breakdown. Guidehouse applied the not excludable percentage (0.2325%) as a de-rating factor to the annualized savings.

**Table D-1. Excludable and Not Excludable Percentage of IL-TRM Defined Categories**

Event	Category	Duration (half hourly intervals)	Percentage (%)
VO Control System	Excludable	11,975	0.39%
	Not Excludable	0	0.00%
Loss of communication	Excludable	32,649	1.07%
	Not Excludable	0	0.00%
System Operational Requirements	Excludable	256,900	8.43%
	Not Excludable	7,080	0.23%
Equipment Issue	Excludable	408	0.01%
	Not Excludable	0	0.00%
VO On-Off Cycling Schedule	Excludable	88	0.00%
Under Investigation	Not Excludable	0	0.00%
Customer Maintenance	Excludable	0	0.00%
Summary	Not Excludable	7,080	0.2325%
	Excludable	302,020	9.9162%

Source: ComEd