Company: San Diego Gas & Electric Company (U 902 M)
Proceeding: 2019 General Rate Case
Application: A.17-10-___
Exhibit: SDG&E-34

SDG&E

DIRECT TESTIMONY OF MATTHEW C. VANDERBILT

(DEPRECIATION)

October 6, 2017

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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SUMMARY

I sponsor the Test Year (TY) 2019 depreciation and amortization expense and accumulated reserve balances for the common, electric, and gas plant for San Diego Gas & Electric Company (SDG&E). Tangible assets, usually referred to as property, plant, and equipment, are depreciated. Intangible assets, such as software, land rights, and rights-of-way, are amortized. The purpose of depreciation and amortization expense is to provide recovery of the original cost of tangible and intangible assets, less estimated net salvage, over their used and useful life by means of a methodical, rational, and equitable plan of charges to operating expense.

Cumulative depreciation expense is captured in the provisions (or reserves) for accumulated depreciation and amortization. These reserves represent the return of the investment and provide an ongoing record of a deduction from rate base. Rate base is sponsored in Exhibit SDG&E-33, Direct Testimony of R. Craig Gentes.

SDG&E requests adoption of its proposed depreciation parameters, consisting of average service lives, survivor curve types, and future net salvage rates outlined herein, which were identified through a depreciation study in accordance with California Public Utilities Commission (CPUC or Commission) Standard Practice U-4, for the annual calculation of depreciation rates. SDG&E also requests approval of the resultant depreciation and amortization expense, and associated revenues, of $559.6 million, and estimated accumulated provision (reserve) of $5.7 billion at the end of TY 2019.

SDG&E DIRECT TESTIMONY OF MATTHEW C. VANDERBILT (DEPRECIATION)

I. INTRODUCTION

My testimony sets forth the TY 2019 depreciation parameters, which includes average service life (ASL)[1] and survivor curve type (collectively, survivor curve or curve), and future net salvage rate (FNS%) necessary for SDG&E to calculate its annual depreciation rates such that the original cost of tangible and intangible assets, less estimated net salvage, is methodically and rationally allocated over the used and useful life of such assets. My testimony also provides the TY 2019 depreciation and amortization expense calculated using such depreciation parameters and amortization lives, as well as the accumulated reserves for depreciation. In addition, I sponsor and am responsible for SDG&E's depreciation study, which applies a systematic process to analyze historical data and other information to estimate the probable life and net-salvage characteristics of assets. Unless specifically noted otherwise, all averages reported herein are based on the cost-weighted average.

A. Summary of Proposals

SDG&E's proposed depreciation parameters were developed through my depreciation study, for which I analyzed available asset history, reviewed accounting procedures, and had discussions with operations personnel and independent consultants. As shown in Table MCV-1 below, the total depreciation and amortization expense for Recorded Year 2016 was $407.1 million and the expense requested for TY 2019 is $559.6 million. The Recorded Year 2016 depreciation and amortization expense was based on the depreciation parameters adopted by the CPUC in SDG&E's 2016 General Rate Case (GRC) Decision (D.) 16-06-054. For TY 2019, the requested depreciation and amortization expense is calculated using new rates determined from the application of the parameters proposed herein.

The increase in depreciation and amortization expense is reasonable for the recovery of tangible and intangible plant and is supported by the accompanying work papers for the underlying depreciation rates and the depreciation study described in my testimony. The increase results from a combination of plant growth from Recorded Year 2016 to TY 2019 and the application of the revised depreciation parameters. As discussed more fully throughout my

[1] ASL is expressed in mixed-numeral (summation of integer and proper fraction) years, with the fractional component relating to months.

testimony, the revised depreciation parameters shift remaining life and net salvage estimates, resulting in depreciation rate and, subsequently, expense changes.

Table MCV-1

SAN DIEGO GAS & ELECTRIC COMPANY
TEST YEAR 2019
DEPRECIATION & AMORTIZATION EXPENSE
(Thousands of Dollars)

Line No.	Description	2016 Recorded (2016$)	2019 Test Year (2019$)
	Depreciation Expense		
1	Common Tangible Plant	30,516	54,062
2	Electric Tangible Plant	274,587	369,438
3	Gas Tangible Plant	37,499	50,054
4	TOTAL DEPRECIATION	342,602	473,554
	Amortization Expense		
5	Land Rights	2,135	2,303
6	Software	62,410	83,789
7	TOTAL AMORTIZATION	64,545	86,092
8	TOTAL DEPR. & AMORT.	407,147	559,646

Table MCV-2

SAN DIEGO GAS & ELECTRIC COMPANY
TEST YEAR 2019
END-OF-YEAR ELECTRIC DEPRECIATION & AMORTIZATION RESERVES
(Thousands of Dollars)

Line No.	Description	2016 Recorded (2016$)	2019 Test Year (2019$)
	Depreciation Reserve		
1	Common Tangible Plant	237,004	292,762
2	Electric Tangible Plant	3,146,581	3,787,778
3	Gas Tangible Plant	947,192	1,046,454
4	TOTAL DEPRECIATION RESERVE	4,330,777	5,126,994
	Amortization Reserve		
5	Limited Term Investments	289	289
6	Land Rights	49,271	54,551
7	Software	300,720	536,508
8	TOTAL AMORTIZATION RESERVE	350,280	591,348
9	TOTAL ELEC. DEPR. & AMORT. RESERVE	4,681,057	5,718,342

B. Organization of Testimony

My testimony is organized as follows:

- Sections II and III provide necessary background, definitions, and process details regarding depreciation and the depreciation study;
- Section IV provides proposed depreciation parameters and discussion by Federal Energy Regulatory Commission (FERC) accounts;
- Section V outlines the results of operations (RO) model output for depreciation, and provides a concluding summary of my testimony;
- Section VI provides my witness qualifications;
- Appendix A summarizes and compares current depreciation parameters with proposed depreciation parameters; and
- Appendix B sets forth the defined terms.

C. Support from Other Witnesses

During the process of performing the depreciation study and developing my testimony, I consulted with personnel throughout SDG&E's accounting, engineering, and operations divisions, as well as relevant gas accounting and operations personnel from Southern California

Gas Company (SoCalGas), for their input and review. As further detailed in the applicable FERC account discussion below, the depreciation parameters for certain gas accounts for which historical data and activity is limited is adopted from those determined and outlined in Exhibit SCG-36, Direct Testimony of Flora Ngai. Plant in service, a key input to depreciation, is discussed in Exhibit SDG&E-33, Direct Testimony of R. Craig Gentes. Exhibit SDG&E-14, Direct Testimony of Alan Colton (Electric Distribution – Capital) and Exhibit SDG&E-21, Direct Testimony of Carmen L. Herrera (Fleet Services) were referenced for the purpose of analyzing FERC Uniform System of Account 392.[2]

II. DEPRECIATION OVERVIEW

A. Survivor Curves

ASL, or the cost-weighted average of the time between an asset being placed in service and retired, is generally stated in terms of a specific survivor-curve type.[3] As stated in CPUC Standard Practice U-4, "…numerous studies of utility properties made by many individuals and organizations under widely varying circumstances [have shown] that large groups of like plant generally follow a mortality pattern [or survivor curve]. This pattern is such that the portion of an original group surviving at a time may be statistically predicted as a function of age."[4] Iowa-type curves are "[b]y far the most used standard curve system in the industrial property field."[5]

Use of a curve allows for the adjustment of asset remaining lives based on the statistical probability formulated by history. This approach provides that the cost-weighted-average, remaining, life expectancy (expectancy) does not decrement equivalent to the age increment. At any point along the curve, the probable life (PL) of an asset equals the summation of the asset's age and expectancy ($PL(n) = n + Expectancy_n$). Thus, while PL equals ASL at installation ($PL(0) = 0 + Expectancy_0 \equiv ASL$), PL will continue incrementing thereafter. In general, curves are selected such that assets are not expected to retire until the minimum theoretical life of the curve, nor are they anticipated to remain in service past the maximum theoretical life of the curve.

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[2] 18 Code of Federal Regulations (CFR) Part 101 (Electric); 18 CFR Part 201 (Gas).

[3] "Survivor curve" and "mortality curve" may be used interchangeably, with "survivor curve" being the most common reference for plant, property, and equipment. The standardized survivor curve types are graphically provided in my work papers.

[4] CPUC Standard Practice U-4: Determination of Straight-Line Remaining Life Depreciation Accruals, 1961 (CPUC Standard Practice U-4) at 19.

[5] John George Russo, Revalidations of Iowa Type Survivor Curves (1978) at 11-24.

There is a single exception to the above insofar as the Square Iowa-type (SQ) curve is utilized. The SQ curve assumes 100% survivorship until expected retirement of all assets immediately at the ASL. This results in the ASL, probable life, minimum theoretical life, and maximum theoretical life, all being generally equal, with expectancy equivalent to ASL less age.

B. Salvage Value and Cost of Removal

Salvage value (salvage) is "…the amount received for property retired, less any expenses incurred in connection with the sale or in preparing the property for sale; or, if retained, the amount at which the material recoverable is chargeable to materials and supplies, or other appropriate account."[6] Cost of removal (COR) is "…the cost of demolishing, dismantling, tearing down or otherwise removing [gas and] electric plant, including the cost of transportation and handling incidental thereto."[7] Net salvage (NS) is "…the salvage value of property retired less the cost of removal" ($NS = Salvage - COR$).[8]

As stated in CPUC U-4 through references to the recovery of "the original cost of fixed capital (less estimated net salvage),"[9] utility depreciation expense includes components for both the recovery of the original cost of assets, as well as the net salvage estimated to be incurred upon retirement and removal. The Edison Electric Institute (EEI) and American Gas Association (AGA) explains that the inclusion of net salvage with depreciation rates "ensures that customers who are paying for the capital costs are benefitting from the service value of the asset."[10] However, when developing their depreciation rates, utilities are cautioned that "[d]epreciation accounting concepts and regulatory rules require that the net salvage to be built into depreciation rates be the net of salvage expected to be received and the cost of removal to be incurred at the time of abandonment or removal [and not the] 'current price level' or 'present value.'"[11] To accomplish this, SDG&E's estimates for net salvage are expressed as FNS% applied to the original cost of assets in service and generally derived as the quotient of net salvage and retired asset costs ($FNS\% = \frac{Salvage - COR}{Original\ Cost\ Retired}$). A positive FNS% is indicative of instances where

[6] 18 CFR Part 101, Definition 35. Salvage value may also be referred to as "gross salvage" herein.
[7] 18 CFR Part 101, Definition 10.
[8] 18 CFR Part 101, Definition 19.
[9] CPUC U-4 at 5.
[10] EEI/AGA, Introduction to Depreciation for Public Utilities and Other Industries, April 2013 (EEI/AGA Intro to Depreciation) at 111, Chapter 7.
[11] Joel Berk, Public Utility Finance & Accounting: A Reader (Second Edition) at 89-90, Figure 2.

salvage is anticipated to exceed costs of removal, while a negative FNS% indicates expected removal costs are anticipated in excess of salvage.

Given the indexing of net salvage to original costs, an inflationary component is inherently embedded with the rates. FNS% is sensitive to the age of assets, such that "…the older the asset at retirement, the higher the removal cost will be as compared to the original cost."[12] Therefore, as technology, maintenance, and other practices extend the lives of assets, net salvage estimates will have a corresponding, but not necessarily proportionate, increase. This is reasonable given that, as a general concept, an older and more used asset will have decreased salvage, and inflation and other factors will result in a higher removal cost.

It is important to note that revisions to FNS% are not only caused by inflationary adjustments. Changes in designs, technology, and environmental regulations, will influence both costs of removal and salvage values. Additionally, while FNS% is expressed in terms of unique depreciation accounts, actual removal costs incurred by project are generally allocated across depreciation accounts, as they cannot be reasonably direct-charged.

C. Depreciation Accounting

Depreciation accounting requires selection of a depreciation system comprised of four key elements: Method, Procedure, Technique, and Basis. The combination of these elements determines the depreciation accrual formula and the required depreciation parameters.

1. Group Remaining-Life Accounting

The most widely used depreciation system at SDG&E is the straight-line method, broad-group procedure, remaining-life technique. Under this depreciation system, assets are grouped by unique characteristics and the depreciation accrual is allocated ratably over the expectancy, which must be regularly recalculated using the depreciation account balance, age dispersion, and curve. Intergenerational inequities[13] resulting from retirement dispersion, or the natural occurrence of retirements before and after the ASL, are eliminated, as "[t]he timing of depreciation expense due to the early retirement of short-lived units is made up by depreciation

[12] EEI/AGA Intro to Depreciation at 125, Chapter 7.

[13] In Rulemaking (R.) 04-09-003 at 15, the CPUC defined intergenerational equity by stating that "[a] lack of intergenerational equity arises, for example, when benefits that accrue to current customers are paid by future customers…[t]he theory is that the group of customers that realize the benefit should pay the cost associated with the benefit."

expense on other units which outlive the average life of the group."[14] Put differently, any depreciation "…deficiency due to early retirement of a particular unit is made up through greater accruals on a unit which outlives the average."[15]

2. End-of-Life Accounting

The "end-of-life" method, also referred to as the life span method, is a modified form of group remaining-life accounting primarily utilized by SDG&E for its generation facilities that are comprised of numerous individual assets. Under this system, a static decommissioning date (decom. date) for the entire plant is utilized in the development of expectancy, rather than a curve that provides for remaining-life dispersion. Essentially, where group remaining-life accounting uses a fixed curve to estimate remaining life, plant end-of-life accounting incorporates a SQ Iowa-type curve with variable ASL based on individual asset vintages.

3. Vintage Accounting

To provide for bookkeeping efficiencies, certain high-volume and low-cost assets leverage vintage accounting, also referred to as general plant amortization or life-auto retirement, which represents the straight-line method, individual-unit procedure, remaining-life technique with total-life basis.[16] Regardless of actual operation, assets are retired from the financial ledger as full depreciation is identified. FERC Accounting Release 15 (FERC AR-15),[17] made effective January 1, 1997, provides the specific requirements for use of this retirement methodology.

4. Amortization Accounting

This depreciation system mirrors vintage accounting, except that it is not applied under FERC AR-15, so fully-depreciated assets are not retired from the financial ledger until operationally obsolete and removed from service. While this system may be expressed in terms of SQ-curve utilization, no curve data is applied in practice.

D. Depreciation Accruals

SDG&E performs an annual review of depreciation accruals in accordance with CPUC U-4. "During the intervals between complete depreciation studies…[the method] used to determine accruals [involves using] the survivor curves selected in the study [to] derive new

[14] EEI/AGA Intro to Depreciation at 37, Chapter 4.
[15] CPUC U-4 at 10.
[16] *Id*. 35-48, Chapter 4.
[17] http://www.ferc.gov/enforcement/acct-matts/docs/ar-15.asp.

remaining life estimates by direct weighting from new age distribution data [in order to] compute the accrual…for new beginning-of-year plant and reserves."[18] By identifying the expectancy based on authorized parameters and the account balance and age dispersion, the accrual is calculated as the quotient of the net recoverable value (original cost less net salvage and reserves) and expectancy ($Accrual = \frac{[Original\ Cost\ (1-Net\ Salvage)]-Reserves}{Expectancy}$). The depreciation rate appropriately applied monthly to gross plant in service is then calculated by dividing the accrual by the original cost ($Rate = \frac{Accrual}{Original\ Cost}$).

The depreciation parameters proposed herein were used to generate depreciation rates and accruals for each depreciation account[19] under CPUC jurisdiction for TY 2019 based on balances and age dispersion as of the end of Recorded Year 2016. Those rates were then composited through direct weighting to asset-group categories utilized for the RO Model and associated planning purposes.[20] The calculation of composite rates does not incorporate any forecasted and/or proposed activity incremental to the Recorded Year 2016 balances. Based on the Recorded Year 2016 ending balances and age dispersion, the total CPUC-jurisdictional composite depreciation rate of 3.7361% increases to 3.9320% after application of the proposed parameters. The depreciation rate recalculation summary and a comparison of current and proposed depreciation parameters are provided in my work papers.

III. DEPRECIATION STUDY

"The purpose of a book depreciation study is to determine the [depreciation parameters] applicable to the property in question [and] to use these [parameters] to calculate depreciation rates."[21] While calculation of rates is a mechanical process, development of the depreciation parameters requires significant effort to identify the appropriate ASL, survivor curve type (*i.e.*, retirement dispersion), and FNS%. The depreciation study was performed consistent with CPUC U-4 and the procedures and methods described in the various technical and professional guidance discussed herein.

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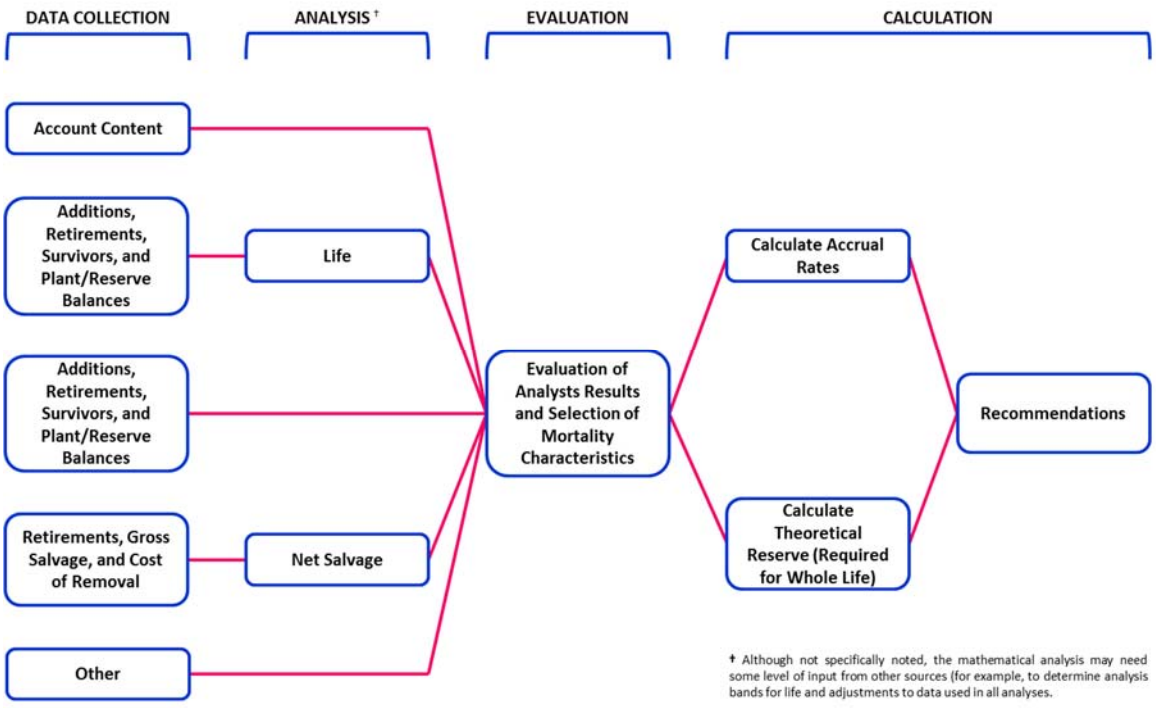
[18] CPUC U-4 at 42; Chapter 8, Paragraph 3(e).
[19] Depreciation accounts represent the lowest level of detail for which parameters are generated. Each account is at the FERC account level or, where deemed appropriate, a subordinate level of detail.
[20] Workpapers SDG&E-34-WP-001 includes summarizations by primary asset groups.
[21] Joel Berk, Public Utility Finance & Accounting: A Reader 2nd Edition (Berk) at 83; Depreciation Issues of the Eighties: It's Back to Basics by John S. Ferguson.

As outlined in Figure MCV- 1: Book Depreciation Study Flow Diagram,[22] the depreciation study consists of four primary phases, with reperformance of a phase possible throughout the process: Data Collection, Analysis, Evaluation, and Calculation, the latter of which is described in Section II.D, Depreciation Accruals.

Figure MCV- 1: Book Depreciation Study Flow Diagram



A. Data Collection Phase

The first step of the depreciation study involved compiling historical accounting data utilized for the actuarial analysis of each depreciation account.[23] Continuing Property Record (CPR) sources included PowerPlan,[24] SAP,[25] and other historical hardcopy and electronic records. The CPR data included total addition, transfer, retirement, salvage, and cost of removal activity by original installation year (vintage), activity year, and depreciation account.

[22] *Id*. at 89, adapted from Figure 2.
[23] Reconciliations of depreciation-study plant and reserve balances are provided in Exhibit SDG&E-34-WP-003 and Exhibit SDG&E-34-WP-004.
[24] PowerPlan, which interfaces with SAP, is the capital-accounting subledger for SDG&E.
[25] SAP, an Enterprise Resource Planning (ERP) system, is the financial system of record for SDG&E.

To provide independent analysis for unique, large-scale, production facilities, and certain new technologies for which limited historical data was available, SDG&E engaged Sargent & Lundy, LLC (S&L), an engineering and environmental services firm, to review facilities and estimate decommissioning cost and service life.[26]

B. Analysis Phase

CPR data by depreciation account was converted to observed life tables,[27] which detail the historical exposures, retirements, and survivors by age increment. Using computer applications and statistical techniques, the observed life was plotted against the standardized survivor curve types in order to mathematically determine the best-fit curve-type and ASL.[28] To better understand assets and provide context to the life dispersion, discussions were held with accounting, engineering, and operations personnel.

In addition to the statistical life-dispersion analysis, net salvage data was also analyzed.[29] This involved a review of the historical salvage and cost-of-removal activity, as well as the five-, ten-, and fifteen-year, rolling-average net salvage rates. To minimize the impact of outliers, professional judgment was used to make certain adjustments in order to normalize net salvage activity. The adjustments primarily transferred net salvage between periods to align data and retirements, and reduced removal costs for an activity year to visually normalize data. These adjustments were necessary to account for the timing differences between the retirement and removal of an asset, and the final disposition of materials, as well as the accounting processes that allocate actual asset removal costs and salvage returns across depreciation accounts.

C. Evaluation Phase

As required by CPUC U-4[30] and detailed within other guidance,[31] mathematical curve fitting represents the beginning of the evaluation phase. It is at this point that informed judgment is used to assess the historical data trends and other information to identify the most appropriate curve for estimation of future experience. This incorporates field and engineering expectations, visual alignment of curves to observed life, statistical materiality of available data, and the reasonableness of ASL, minimum theoretical life, and maximum theoretical life. While most

[26] The S&L Decommissioning Studies are provided in Exhibit SDG&E-34-WP-008.
[27] Observed Life Table reports from PowerPlan are provided in Exhibit SDG&E-34-WP-005.
[28] Summarized results of this life analysis are provided in Exhibit SDG&E-34-WP-006.
[29] Adjusted net salvage history is provided in Exhibit SDG&E-34-WP-007.-WP-007.
[30] CPUC U-4 at 39, Chapter 5, Item 2.
[31] EEI/AGA Intro to Depreciation at 57, Chapter 6.

depreciation parameters are selected from the survivor curves best fit to observed life, visually-best-fit curves were identified for certain accounts with limited historical activity. In order to minimize subjective curve selection and provide for more empirical analysis, the depreciation parameters proposed by SoCalGas in Exhibit SCG-36, Direct Testimony of Flora Ngai, were adopted for certain gas accounts with limited historical activity at SDG&E.

In addition to examining results of the life analysis, net salvage data was examined during the evaluation phase and informed judgment was used to select a FNS% expected to be representative of the future. This involved review and evaluation of the historical trends and patterns for realized net salvage. Where a decommissioning study was performed, S&L decommissioning estimates were converted to a FNS%. While additional inflation is to be considered during net-salvage analysis, and S&L specifically noted that "[d]ecommissioning costs are expected to increase by the end of service life due to escalation,"[32] no additional escalation of FNS% was performed. Additionally, in order to mitigate rate changes over time and in consideration of the historical CPUC gradualism requirement for the conservative application of FNS% changes, changes not supported by a decommissioning study were generally limited to a 25-point or 25% change.

IV. ACCOUNT DETAIL FOR PROPOSED DEPRECIATION PARAMETERS

The following depreciation account detail summarizes the proposed curves and FNS% for each account covered in this GRC. This information also includes the depreciation accounting utilized for the account, as well as the process of determining the proposed parameters. Proposals are intended to identify the useful life of property in order to recover the original cost of fixed capital (less estimated net salvage) equitably such that risks to intergenerational equity and rate variability are minimized. As needed, due to changing conditions, depreciation accounts may be modified during intervals between rate cases. Depreciation parameters used for the posting of depreciation expense to the financial ledger shall remain consistent with those proposed herein, with the exception that activities not contemplated may require identification of unique parameters to then be presented in the subsequent rate case.

[32] Example: *SL-013559.D SDGE Decom (Desert Star)*, Conceptual Cost Estimate, page 9.

A. Common Plant

1. Account C303.00 – Software and Franchises

This account includes self-developed and purchased software, software licenses, and franchises, used in support of common[33] operations. Amortization accounting is used for this account, with the most assets recovered over a five-year life. SDG&E proposes continuation of the current amortization lives of "five (5) years, seven (7) years, ten (10) years, or longer,"[34] with expansion to cover any IT-identified service life from two to 20 years. No FNS% is associated with this account.

2. Account C390.10 – Structures and Improvements

This account includes structures and improvements used for common utility purposes, and utilizes group remaining-life accounting. Based on actuarial analysis and review of mortality summary data, a change from the current S1-30 curve with 0.25% Interim Retirement Rate (IRR)[35] to R0.5-41$^{11}/_{12}$ without an IRR is proposed for the estimation of remaining life. Due to the relative consistency of adjusted net salvage history for this account, use of the 15-year historical average FNS% of approximately (10.00%) is proposed, representing an increase from the current (15.00%).

3. Account C391 – Office Furniture and Equipment

This account includes the cost of office furniture and equipment used for common utility purposes. Due to the difference in life dispersion, SDG&E categorizes this account by (a) furniture and non-computer equipment, and (b) office computers and equipment.

a. Account C391.10 – Furniture and Non-Computer Equipment

To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current S6-18 curve to the SQ-18 curve is necessary. A review of adjusted net salvage history for this account shows a declining trend. The five-year historical average is, therefore, selected as more representative than the 15-year. This does provide an increase of FNS% from the current 0.00% to 3.73%.

[33] Common plant represents shared infrastructure utilized to support both gas and electric service.
[34] A.14-11-003, Exhibit SDG&E-28-R at BJW-67.
[35] IRR applies a small correction to decrease the remaining life of property to account for the capital replacement of smaller components of an asset.

b. Account C391.20 – Office Computers and Equipment

To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current S6-5 curve to the SQ-5 is necessary. Adjusted net salvage for this account has been consistently negligible, so no change from the current 0.00% FNS% is proposed.

4. Account C392 – Transportation Equipment

This account includes the cost of transportation vehicles used for common utility purposes, including automobiles, electric vehicles, motor trucks, and trailers. Due to the difference in life dispersion, SDG&E categorizes transportation equipment into: (a) owned vehicles, (b) leased vehicles, (c) trailers, and (d) aerial vehicles.

a. Account C392.10 – Owned Vehicles

This account is primarily comprised of safety-related equipment added to leased vehicles. Group remaining life accounting is utilized to provide life dispersion consistent with the weighted-average life of leased vehicles, resulting in direct-judgment selection of the S3-3 ½ curve. No FNS% is expected for these assets.

b. Account C392.11 – Leased Automobiles

The amortization of leased vehicles is discussed in the Direct Testimony of Carmen L. Herrera (Fleet Services), Exhibit SDG&E-21.

c. Account C392.20 – Trailers

To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current L0-20 curve to the SQ-23 curve is necessary. While the 15-year, adjusted, historical average shows a FNS%, there has been none observed since 2007 due to sporadic retirement activity. Therefore, the five-year historical average of 0.00% is proposed, consistent with the current rate.

d. Account C392.30 – Aerial Vehicles

This account utilizes amortization accounting to provide for the unique lives of aerial assets used to support utility operations. Such assets include a planned helicopter acquisition[36] and unmanned aircraft systems (UAS),[37] commonly referred to as drones. Based on discussions

[36] *See* Project 17242 in Exhibit SDG&E-14, Direct Testimony of Alan Colton.
[37] The FAA defines a UAS as "an aircraft without a human pilot onboard." (http://www.faa.gov/uas).

with operational personnel anticipating a five-to-seven-year utilization with net salvage value of approximately $7.1 million,[38] a six-year life and 71.00% FNS% is proposed for the helicopter.

Given the lack of historical data to analyze UAS life dispersion, S&L was contracted to provide a conceptual cost estimate for the decommissioning of UAS, as well as an evaluation of ASL. S&L estimated the decommissioning cost for each UAS at approximately $175 with equipment retirement expected after three years due to failure or technological obsolescence. Based on the S&L study, a three-year life is proposed with no FNS%.

5. Account C393.10 – Stores Equipment

This account includes the cost of equipment used for the receiving, shipping, handling, and storage of materials and supplies. Vintage accounting is utilized for this account, necessitating a change from the L0-19 curve to SQ-23 to provide alignment between capital and depreciation accounting. No change to the current 0.00% FNS% is proposed.

6. Account C394 – Tools, Shop, and Garage Equipment

This account includes the cost of tools, implements, and equipment used in construction, repair work, general shops, and garages. Due to the difference in life dispersion, SDG&E categorizes this account into: (a) portable tools, (b) shop equipment, and (c) garage equipment.

a. Account C394.11 – Portable Tools

To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current R2.5-23 curve to the SQ-23 curve is necessary. FNS% remains at 0.00% based on the 15-year historical average.

b. Account C394.21 – Shop Equipment

To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current L1.5-35 curve to the SQ-29 curve is necessary. FNS% remains at 0.00% based on the 15-year historical average.

c. Account C394.31 – Garage Equipment

To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current R3-19 curve to the SQ-21 curve is necessary. No change to the current 0.00% FNS% is proposed.

[38] The salvage value was estimated using the Conklin & de Decker aircraft financial analysis tool.

7. Account C395.10 – Laboratory Equipment

This account includes general laboratory equipment used for common utility purposes. To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current R5-25 curve to SQ-26 is necessary. No change to the current 0.00% FNS% is proposed.

8. Account C397.10 – Communication Equipment

This account includes communication and control systems used in connection with common utility operations. To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current S6-13 curve to SQ-13 is necessary. Given the immaterial, adjusted, historical average, no change to the current 0.00% FNS% is proposed.

9. Account C398.10 – Miscellaneous Equipment

This account includes common-use utility equipment not included in other depreciation accounts. To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current R0.5-13 curve to SQ-14 is necessary. Based on the five-, ten-, and 15-year historical averages, a FNS% decrease from 10.00% to 1.00% is proposed.

B. Electric Production Plant

Electric production plant consists of several, large-scale, generation plants, and numerous, smaller, renewable-energy projects. While these plants are discussed as single units, the unique assets comprising them are accounted for across the FERC accounts below, with separate delineation by large-scale facility and renewable-energy type.

Table MCV-3: Electric Production FERC Accounts

Steam Production	Other Production
310: Land Rights	**340:** Land Rights
311: Structures and Improvements	**341:** Structures and Improvements
312: Boiler Plant Equipment	**342:** Fuel Holders, Producers, and Accessories
313: Engines and Engine-Driven Generators	**343:** Prime Movers
314: Turbogenerator Units	**344:** Generators
315: Accessory Electric Equipment	**345:** Accessory Electric Equipment
316: Miscellaneous Power Plant Equipment	**346:** Miscellaneous Power Plant Equipment

1. Cuyamaca Peak Energy Plant

The Cuyamaca Peak Energy Plant (CPEP) is a 45-megawatt (MW) single unit simple-cycle peaking power plant that was purchased from CalPeak Power-El Cajon LLC in January

2012.[39] S&L performed an independent conceptual dismantling cost estimate and an average service life estimate for CPEP based upon review of drawings and documents, a site visit, and the development of a conceptual demolition cost estimate and report. Based on current maintenance protocols, S&L expects CPEP to have a service life of approximately 30 years, but notes that, "…considering the regional transition to renewable energy resources and other regulatory impacts in California, a reduction in estimated service life may be realistic."[40]

As a single production site, SDG&E continues to utilize end-of-life Accounting with a fixed decommissioning date of mid-2027 based on a conservative 25-year ASL. While S&L notes that "[t]he decommissioning costs are expected to increase by the end of service life of the asset due to escalation,"[41] the FNS% proposal is based on a conservative, non-escalated, allocation across associated depreciation accounts.

Table MCV-4: Depreciation Parameters - CPEP

	Current			Proposed		
Account	**Curve**	**Decom. Date**	**FNS%**	**Curve**	**Decom. Date**	**FNS%**
E341.00	SQ	mid-2027	(1.00%)	SQ	mid-2027	(20.08%)
E342.00	SQ	mid-2027	(2.00%)	SQ	mid-2027	(5.78%)
E343.00	SQ	mid-2027	-	SQ	mid-2027	-
E344.00	SQ	mid-2027	(0.50%)	SQ	mid-2027	(10.45%)
E345.00	SQ	mid-2027	(2.00%)	SQ	mid-2027	(16.65%)
E346.00	SQ	mid-2027	-	SQ	mid-2027	-
			(0.36%)			(4.72%)

2. Desert Star Energy Center

The Desert Star Energy Center (DSEC) is a 480-MW electric generating facility situated on land leased from the City of Boulder. In mid-2000, DSEC entered commercial operation as El Dorado Energy, LLC, and SDG&E purchased DSEC from Sempra Energy in October 2011. S&L performed independent conceptual dismantling cost and average service life estimates for DSEC, based on which, S&L expects DSEC to have a service life of approximately 30 years, but

[39] SDG&E Peaker Plants Fact Sheet (May 27, 2014) https://www.sdge.com/newsroom/sdge-peaker-plants-fact-sheet.
[40] S&L Cuyamaca Peak Energy Plant Decommissioning Study (February 2017) at 10.
[41] *Id*. at 15.

notes that, "…considering the regional transition to renewable energy resources and other regulatory impacts in California, a reduction in estimated service life may be realistic."[42]

As a single production site, SDG&E continues to utilize end-of-life accounting with a fixed decommissioning date based upon lease requirements. Review of the DSEC lease and the decommissioning project schedule estimated by S&L[43] necessitates a reduction of the decommissioning date to mid-2026. While S&L notes that "[t]he decommissioning costs are expected to increase by the end of service life of the asset due to escalation,"[44] the FNS% proposal is based on a conservative, non-escalated, allocation across associated depreciation accounts.

Table MCV-5: Depreciation Parameters - DSEC

	Current			Proposed		
Account	**Curve**	**Decom. Date**	**FNS%**	**Curve**	**Decom. Date**	**FNS%**
E311.00	SQ	mid-2029	(6.00%)	SQ	mid-2026	(12.70%)
E312.00	SQ	mid-2029	(6.00%)	SQ	mid-2026	(5.12%)
E314.00	SQ	mid-2029	(6.00%)	SQ	mid-2026	(12.60%)
E315.00	SQ	mid-2029	(6.00%)	SQ	mid-2026	(0.10%)
E316.00	SQ	mid-2029	(6.00%)	SQ	mid-2026	(0.84%)
E341.00	SQ	mid-2029	(6.00%)	SQ	mid-2026	(36.89%)
E342.00	SQ	mid-2029	(6.00%)	SQ	mid-2026	(29.00%)
E343.00	SQ	mid-2029	(6.00%)	SQ	mid-2026	-
E344.00	SQ	mid-2029	(6.00%)	SQ	mid-2026	(0.50%)
E345.00	SQ	mid-2029	(7.00%)	SQ	mid-2026	5.65%
E346.00	SQ	mid-2029	(6.00%)	SQ	mid-2026	-
			(6.03%)			(2.90%)

3. Miramar Energy Facility

The Miramar Energy Facility (MEF) consists of two units; the first facility entered service in 2005, while the second, which is virtually identical to the first, entered service in 2009. S&L performed independent conceptual dismantling cost and average service life estimates for MEF, based on which, S&L expects MEF to have a service life of approximately 30 years, but

[42] S&L Desert Star Energy Center Decommissioning Study (February 2017) at 10.
[43] *Id.*at 21.
[44] *Id*. at 17.

notes that, "…considering the regional transition to renewable energy resources and other regulatory impacts in California, a reduction in estimated service life may be realistic."[45]

As a single production site, SDG&E continues to utilize end-of-life accounting with a fixed decommissioning date of mid-2032, based on a conservative 25-year ASL from the simple-average in-service date for the units. While S&L notes that "…decommissioning costs are expected to increase by the end of service life due to escalation,"[46] the FNS% proposal is based on a conservative, non-escalated, allocation across associated depreciation accounts.

Table MCV-6: Depreciation Parameters - MEF

	Current			Proposed		
Account	**Curve**	**Decom. Date**	**FNS%**	**Curve**	**Decom. Date**	**FNS%**
E341.00	SQ	mid-2032	(1.00%)	SQ	mid-2032	(7.80%)
E342.00	SQ	mid-2032	(2.00%)	SQ	mid-2032	(3.36%)
E343.00	SQ	mid-2032	-	SQ	mid-2032	-
E344.00	SQ	mid-2032	(0.50%)	SQ	mid-2032	(3.01%)
E345.00	SQ	mid-2032	(2.00%)	SQ	mid-2032	(1.24%)
E346.00	SQ	mid-2032	-	SQ	mid-2032	-
			(0.52%)			(1.33%)

4. Palomar Energy Center

The Palomar Energy Center (PEC), which went into service in 2006, is a 565.6 MW, natural gas-fired, electric generation facility owned by SDG&E. S&L performed independent conceptual dismantling cost and average service life estimates for PEC, and expects PEC to have a service life of approximately 30 years, but notes that, "…considering the regional transition to renewable energy resources and other regulatory impacts in California, a reduction in estimated service life may be realistic."[47]

As a single production site, SDG&E continues to utilize End-of-Life Accounting with a fixed decommissioning date of mid-2036, based on a 30-year ASL. While S&L notes that "[t]he decommissioning costs are expected to increase by the end of service life of the asset due to escalation,"[48] the FNS% proposal is based on a conservative, non-escalated, allocation across associated depreciation accounts.

[45] S&L Miramar Energy Facility Decommissioning Study (February 2017) at 10.
[46] *Id*. at 15.
[47] S&L Palomar Energy Center Decommissioning Study (February 2017) at 10.
[48] *Id*. at 15.

Table MCV-7: Depreciation Parameters - PEC

	Current			Proposed		
Account	Curve	Decom. Date[49]	FNS%	Curve	Decom. Date	FNS%
E311.00	SQ	mid-2036	(18.00%)	SQ	mid-2036	(3.23%)
E312.00	SQ	mid-2036	(10.00%)	SQ	mid-2036	(3.24%)
E314.00	SQ	mid-2036	(2.00%)	SQ	mid-2036	(1.98%)
E315.00	SQ	mid-2036	(2.00%)	SQ	mid-2036	(0.45%)
E316.00	SQ	mid-2036	(3.00%)	SQ	mid-2036	(0.36%)
E341.00	SQ	mid-2036	(1.00%)	SQ	mid-2036	(4.62%)
E342.00	SQ	mid-2036	(2.00%)	SQ	mid-2036	(2.04%)
E343.00	SQ	mid-2036	-	SQ	mid-2036	-
E344.00	SQ	mid-2036	(0.50%)	SQ	mid-2036	(0.85%)
E345.00	SQ	mid-2036	(2.00%)	SQ	mid-2036	4.30%
E346.00	SQ	mid-2036	-	SQ	mid-2036	-
			(4.75%)			(1.78%)

5. Solar Energy Projects

SDG&E has installed numerous solar energy projects (SEP), or photovoltaic (PV) power-generation equipment, throughout its service territory. S&L performed independent conceptual dismantling cost and average service life estimates for SEP. Based on that study, S&L expects SEP to have a service life of approximately 25 years, but provides the following detail:

> PV technology is relatively new compared to most utility-scale power generation equipment. For example, the first megawatt- (MW-) scale PV site was installed in 1982. Since that time, technology has advanced a great deal, especially over the last decade. Consequently, very few utility-scale PV sites have reached the end of their service life. Average service life estimates are primarily based on manufacturers' guarantees. Since the number of PV assets to reach their end life is small, a left-modal Iowa curve is appropriate as a survivor curve because of its positive skew.[50]

Based upon the S&L recommendations, SDG&E utilizes group remaining-life accounting and proposes a shift from the SQ-25 curve to L3-25. While S&L notes that "[d]ecommissioning costs are expected to increase by the end of service life due to escalation,"[51] the FNS% proposal is based on a conservative, non-escalated, allocation across associated depreciation accounts.

[49] While an IRR of 0.25% was previously applied to PEC E344.00, none is proposed.
[50] S&L PV Sites Decommissioning Study (February 2017) at 32-33.
[51] *Id*. at 17.

Table MCV-8: Depreciation Parameters - SEP

	Current		Proposed	
Account	**Curve**	**FNS%**	**Curve**	**FNS%**
E341.10	SQ-25	-	L3-25	(15.00%)
E342.10	SQ-25	-	L3-25	(15.00%)
E343.10	SQ-25	-	L3-25	(15.00%)
E344.10	SQ-25	-	L3-25	(15.00%)
E345.10	SQ-25	-	L3-25	(15.00%)
E346.10	SQ-25	-	L3-25	(15.00%)
		-		(15.00%)

6. Wind Energy Projects

SDG&E has a single wind-production facility, or wind energy project (WEP), installation in eastern San Diego County. To align more closely with equipment-failure curves suggestive of inherent risk potential, a shift from the current SQ-20 curve to the S5-13$^{1}/_{12}$ curve is proposed using group remaining-life accounting. While this curve has a reduced ASL, it is representative of a theoretical maximum life similar to that of the SQ-20.

Due to the lack of company history regarding the decommissioning of wind facilities, there is no currently authorized FNS% for this equipment. However, engineering personnel have roughly estimated the net cost of decommissioning the facility at 30% FNS% under the assumption that there will be limited scrap value to the equipment. Conservatively, a (15.00%) FNS% is proposed.

Table MCV-9: Depreciation Parameters - SEP

	Current		Proposed	
Account	**Curve**	**FNS%**	**Curve**	**FNS%**
E341.20	SQ-20	-	S5-13	(15.00%)
E342.20	SQ-20	-	S5-13	(15.00%)
E343.20	SQ-20	-	S5-13	(15.00%)
E344.20	SQ-20	-	S5-13	(15.00%)
E345.20	SQ-20	-	S5-13	(15.00%)
E346.20	SQ-20	-	S5-13	(15.00%)
		-		(15.00%)

7. Land Rights

This account includes land rights, or easements, used in connection with steam- and other-power generation. Amortization accounting continues for this account without change to the current ASL, which is 45 years for steam-power generation (E310.20) and 25 year for other production (E340.20). There is no FNS% associated with this depreciation account.

C. Electric Distribution Plant

1. Account E360.20 – Land Rights

This account includes land rights, or easements, used in connection with electric distribution operations. Amortization accounting continues for this account without change to the 45-year ASL. There is no FNS% associated with this depreciation account.

2. Account E361.00 – Structures and Improvements

This account includes structures and improvements used in connection with electric distribution operations, and utilizes group remaining-life accounting. A review of mortality summary data and actuarial analysis results in the recommended shift to the S0-62 $^{5}/_{12}$ curve from the current R2.5-63 to most appropriately estimate remaining life.

Adjusted net salvage history has shown a continued increase over time, with the ten and 15-year FNS% averages just lower than (145%). While the five-year average is higher, the volatility provides limited confidence, so a decrease from (125%) to (145%) is proposed based on the 15-year average.

3. Account E362.10 – Station Equipment

This account includes station equipment, including transformer banks, etc., that are used for the purpose of changing the characteristics of electricity in connection with its distribution. Group remaining-life accounting is utilized for this account. A review of mortality summary data and actuarial analysis results in the proposed shift to the R1.5-53$^{1}/_{2}$ curve from the current R1.5-51.

Adjusted net salvage history has shown a continued decrease over time. In order to prevent any intergenerational inequities, the FNS% is decreased from (125%) to (145%) based on the five-year average, which is higher than the ten and 15-year averages.

4. Account E363.00 – Energy Storage Equipment

This account includes the cost of battery energy storage system (BESS) equipment used to store energy for load managing purposes, and utilizes group remaining-life accounting. Given

the lack of historical data for these assets, S&L was engaged to perform a conceptual decommissioning cost and ASL estimate for planned and installed BESS. S&L concluded, "[t]he average service life of the BESS sites (small scale, utility scale, and flow battery) in SDG&E's portfolio are limited by battery service life to approximately 10 years."[52] Within S&L's decommissioning cost estimate, they noted that that "[d]ecommissioning costs are expected to increase by the end of service life due to escalation."[53] Based on the S&L estimates, it is proposed that the current SQ-10 curve be maintained with a decrease of FNS% from 0.00% to (15.00%), which is a conservative estimate that excludes escalation.

5. Account E364.00 – Poles, Towers, and Fixtures

This account, which uses group remaining-life accounting, includes poles, towers, and appurtenant fixtures used for supporting overhead distribution conductors and service wires. Based on actuarial analysis and review of mortality summary data, a change from the current R0.5-47 curve to R0.5-48$^{2}/_{3}$ is proposed for the estimation of remaining life. Given the stability of adjusted net salvage, which shows minimal variation since 2009, and five-, ten-, and 15-year averages around (100.00%), no change is proposed to the current (100.00%) FNS%.

6. Account E365.00 – Overhead Conductors & Devices

This account, which uses group remaining-life accounting, includes overhead conductors and devices used for distribution purposes. Based on actuarial analysis and review of mortality summary data, a change from the current R0.5-55 curve to R1-59$^{1}/_{12}$ is proposed for estimation of remaining life. Given the adjusted net salvage history, no change is proposed to the current (70.00%), which aligns with the ten- and 15-year averages.

7. Account E366.00 – Underground Conduit

This account, which uses group remaining-life accounting, includes the cost installed of underground conduit and tunnels used for housing distribution cables or wires. Based on actuarial analysis and review of mortality summary data, a change from the current R3-57 curve to the R3-59 $^{2}/_{3}$ is proposed for the estimation of remaining life. Given that adjusted net salvage shows a continued decrease, with seven of the past eight years all having observed rates below (75.00%), a gradualism-limited decrease from (50.00%) to (75.00%) is proposed.

[52] S&L BESS Sites Decommissioning Study (February 2017) at 11.
[53] *Id*. at 17.

8. Account E367.00 – Underground Conductors & Devices

This account, which uses group remaining-life accounting, includes underground conductors and devices used for distribution purposes. Based on actuarial analysis and review of mortality summary data, a change from the current R3-45 curve to R3-49 is proposed for the estimation of remaining life. Given that adjusted net salvage shows a decreasing trend, with the ten-year average below the 15-year and above the five-year, a gradualism-limited decrease from (65.00%) to (90.00%) is proposed.

9. Account E368 – Line Transformers

This account includes overhead and underground distribution line transformers and pole-type and underground voltage regulators used to transform electricity to the voltage at which it is to be used by the customer. Group remaining-life accounting is used for this account, which is categorized into E368.10 for transformers and E368.20 for capacitors, sectionalizing, and system-protection devices.

a. Account E368.10 – Line Transformers

Based on actuarial analysis and review of mortality summary data, a slight refinement of the current L0.5-34 curve to L0.5-34$^{1}/_{3}$ is proposed. Additionally, a FNS% decrease is proposed from (70.00%) to (95.00%), which is above the five-, ten-, and 15-year historical averages, as well as the 2010 through 2016 observed rates.

b. Account E368.20 – Capacitors and System Protection

Based on actuarial analysis and review of mortality summary data, a shift from the current L0-12 curve to O2-12$^{1}/_{4}$ is proposed. Additionally, a FNS% decrease is proposed from (70.00%) to (95.00%), which is above the five- and ten-year averages based on adjusted history, as well as the observed rates since 2011.

10. Account E369 – Services

This account includes overhead and underground conductors and conduit leading from the final utility asset to the point of connection with customers' outlets or wirings. Group remaining-life accounting is used for this account, which is categorized into overhead (E369.10) and underground (E369.20) service accounts.

a. Account E369.10 – Overhead Services

Based on actuarial analysis and review of mortality data, asset survivorship to approximately 50% aligns closely with the S-.5-58$^{7}/_{12}$ survivor curve, which is proposed in favor

of the current R0.5-55. Net salvage history for this account shows a decreasing trend, with the ten-year average below the 15-year and above the five-year averages. Based on this, a gradualism-limited decrease of FNS% is proposed from (110.00%) to (137.50%), which is above the five-, ten-, and 15-year historical averages, as well as observed rates since 2010.

b. Account E369.20 – Underground Services

Based on actuarial analysis and review of mortality data, a shift from the current L4-53 curve to L4-55$^{1}/_{6}$ is proposed for the estimation of remaining life. Net salvage history for this account shows a decreasing trend, with the ten-year average below the 15-year and above the five-year averages. Based on this, a gradualism-limited decrease of FNS% is proposed from (75.00%) to (100.00%), which is still above the five-, ten-, and 15-year historical averages, as well as observed rates since 2010.

11. Account E370 – Meters

This account includes meters and devices and appurtenances thereto, for use in measuring the electricity delivered to customers. Group remaining-life accounting is used for this account, which is categorized into: (a) E370.10 – Mechanical Meters,[54] (b) E370.11 – Smart Meters, (c) E370.20 – Mechanical Meter Installation Costs,[55] and (d) E370.21 – Smart Meter Installation Costs.

a. Account E370.10 – Mechanical Meters and Account E370.20 – Installation Costs

While SDG&E has switched primarily to "smart" meters from legacy mechanical meters, a relatively small number of legacy meters are deployed. In deriving the survivor-curve proposal, the mortality was limited to 2009 through 2016 to exclude data from prior to smart-meter implementation. As a result, a change from the current R0.5-48 curve to the O2-19$^{5}/_{12}$ curve is proposed. This change will minimize intergenerational inequities caused by legacy technology having an expected decrease in necessary service life, and will have a minimal impact to current ratepayers given the relatively low value within this account. FNS% remains constant at the current 0.00%.

[54] Excludes legacy meters replaced during the smart meter conversion project and previously recovered as a regulatory asset.
[55] *Id.*

b. Account E370.11 – Smart Meters

Smart meters have not been in service for sufficient time to develop mortality data. Using informed judgment, no change is proposed to the current 15-year ASL, but a shift to the R5 survivor curve from SQ is proposed to recognize reasonable life dispersion amongst the assets. Continuation of the current 0.00% FNS% is also proposed.

c. Account E370.21 – Smart Meter Installation Costs

The cost of initial installation of a smart meter at a property is separately tracked in E370.21 rather than being commingled with hardware costs in E370.11. As meters require replacement over the life of a property, such periodic re-installation costs are expensed rather than booked to E370.21,[56] meaning that the life dispersion of this account is anticipated to be longer and less varied than that of E370.11. As with E370.11, there is insufficient data to perform a mortality analysis; however, given that installations are related more to the property than the meter, mechanical-meter installations prior to 2009 may be used as a proxy.[57] Therefore, a change from the current SQ-15 curve to R0.5-50$^{1}/_{6}$ is proposed, with no change to the current 0.00% FNS%.

12. Account E371.00 – Installations on Customers' Premises

This account, which uses group remaining-life accounting, includes utility-owned and operated lighting installed on the customers' premises. Available mortality data for this account does not reasonably align with a standardized survivor curve. However, given that Account E373.20 – Street Lighting and Signal Systems has more defined mortality data and is used for similar assets, its parameters are adopted for this account. Therefore, a change from the current R0.5-34 curve to the O1-40 is proposed for the estimation of remaining life, as well as a decrease of the FNS% from (90.00%) to (106.25%).

13. Account E373.20 – Street Lighting and Signal Systems

This account, which uses group remaining-life accounting, includes equipment related to public street and highway lighting and traffic, fire alarm, police, and other signal systems. Based on actuarial analysis and review of mortality summary data, a change from the current L0-36 curve to O1-40 is proposed for the estimation of remaining life. Given that adjusted net salvage

[56] In accordance with FERC USofA, Balance Sheet Chart of Accounts, Account E370, Note B: "[t]he cost of removing and resetting meters shall be charged to account 586, Meter Expenses…"
[57] Significant retirement of mechanical meters for smart meters began in 2009.

shows a decreasing trend, with the ten-year average below the 15-year and above the five-year, a gradualism-limited decrease from (85.00%) to (110.00%) is proposed.

D. Electric General Plant

1. Account E303.00 – Software and Franchises

This account includes self-developed and purchased software, software licenses, and franchises, used in support of electric operations. Amortization accounting is used for this account, with the most assets recovered over a five-year life. SDG&E proposes continuation of the current amortization lives of "five (5) years, seven (7) years, ten (10) years, or longer,"[58] with expansion to cover any IT-identified service life from two to 20 years. There is no FNS% associated with this account.

2. Account E390.00 – Structures and Improvements

This account includes structures and improvements used for electric utility purposes, and utilizes group remaining-life accounting. Based on actuarial analysis and review of mortality summary data, a change from the current S4-34 curve with 0.25% IRR to R2.5-51 without an IRR is proposed for the estimation of remaining life. Due to the variability of adjusted net salvage history, no change is proposed to the current FNS% of (10.00%), which aligns with the ten-year average.

3. Account E392.20 – Transportation Equipment – Trailers

This account includes trailers used in support of electric operations. To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current L5-27 curve to SQ-27 is necessary. No change is proposed to the current 0.00% FNS%.

4. Account E393.10 – Stores Equipment

This account includes equipment used for the receiving, shipping, handling, and storage of materials and supplies. To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current S5-25 curve with 0.50% IRR to SQ-26 without IRR is proposed. No change is proposed to the current 0.00% FNS%.

5. Account E394 – Tools, Shop, and Garage

This account includes the cost of tools, implements, and equipment used in construction, repair work, general shops, and garages, supporting electric operations. Due to the difference in

[58] A.14-11-003 Exhibit SDG&E-28-R at BJW-67.

life dispersion, SDG&E categorizes this account into (a): portable tools, and (b) shop equipment.

a. Account E394.11 – Portable Tools

To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current S6-27 curve to the SQ-27 curve is necessary. No change is proposed to the current 0.00% FNS%.

b. Account E394.20 – Shop Equipment

To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current L4-26 curve to the SQ-24 curve is necessary. No change is proposed to the current 0.00% FNS%.

6. Account E395.10 – Laboratory Equipment

This account includes laboratory equipment used in support of electric operations. To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current L3-22 curve to SQ-20 is proposed. No change is proposed to the current 0.00% FNS%.

7. Account E397 – Communication Equipment

This account includes telephone and wireless communications equipment used in support of electric operations. To provide for improved reporting of related transmission facilities, this account is subdivided into E397.20 for the Southwest Powerlink (SWPL), E397.60 for the Sunrise Powerlink (SRPL), E397.10 for other facilities, and E397.70 for telecommunications equipment. Based on actuarial analysis and review of mortality summary data associated with E397.10, which is the only account with sufficient mortality data, a change from the current R2-30 curve to R2.5-34$^{11}/_{12}$ is proposed for the estimation of remaining life. Adjusted net salvage history has shown a continued decrease over time. In order to prevent intergenerational inequities, a gradualism-limited decrease of FNS% from (50.00%) to (75.00%) is proposed.

8. Account E398 – Miscellaneous Equipment

This account includes equipment and other devices that are used in support of electric operations but are not properly includible in other accounts. To provide for varied life dispersion, assets are categorized by (a): E398.10 – Miscellaneous Equipment, and (b) E398.20 – Electric Vehicle Supply Equipment (EVSE).

a. Account E398.10 – Miscellaneous Equipment

To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current L4-16 curve to the SQ-14$^{7}/_{12}$ based on the 14- and 15-year vintage lives assigned to the related assets. While the 15-year, adjusted, historical average suggests a FNS% of (2.41%), none has been observed since 2007, so no change is proposed from the current 0.00%.

b. Account E398.20 – Electric Vehicle Supply Equipment

This account has been created to include the EVSE, or electric vehicle charging infrastructure (EVCI) and other unique equipment not properly includible in other electric-distribution accounts. Given the lack of mortality data, S&L was contracted to perform an independent conceptual dismantling cost and average service life estimate. They identified that "[t]he expected average service life of an SDG&E EV charging station is five years...[although] some EV charging stations' electronic control systems have been shown to fail or become obsolete before that time...[while other] stations may last longer than five years with investments to maintain the units and regular upgrades to electronic systems."[59] Due to the anticipated high-volume/low-cost of associated assets, vintage accounting is applied with the five-year ASL recommended by S&L.

Although there is no salvage history available, it is unreasonable to assume that the retirement of EVSE will not result in the incurrence of negative net salvage. While the S&L study estimated negative net salvage of $5,400 per charging station, this included removal costs related to assets that could be assigned to other electric-distribution accounts. To provide for a conservative FNS%, the S&L estimate was judgmentally reduced by approximately 75% resulting in a (10.00%) proposed rate.

E. Gas Storage and Transmission Plant

1. Account G363.60 – Distribution Storage Equipment

This account, which uses group remaining-life accounting, contains the costs of security systems, storage, and structures at the Borrego Springs Liquefied Natural Gas (LNG) Facility. No change is proposed to the current S4-20 curve or 0.00% FNS%.

[59] S&L Electric Vehicle (EV) Charging Stations Decommissioning Study (February 2017) at 9.

2. Account G365.20 – Land Rights

This account includes land rights and easements used in connection with gas transmission operations. Amortization accounting continues for this account without change to the current 40-year ASL. There is no FNS% associated with this depreciation account.

3. Account G366.00 – Structures & Improvements

This account, which uses group remaining-life accounting, includes structures and improvements used in connection with gas transmission operations. In order to leverage the larger database of mortality and net-salvage history, the SoCalGas parameters are adopted for this account,[60] resulting in a proposed change from the current S3-34 curve with no net salvage to the R2-53 curve with gradualism-limited FNS% of (25.00%).

4. Account G367.00 – Mains

This account, which uses group remaining-life accounting, includes gas transmission system mains. In order to leverage the larger database of mortality and net-salvage history, the SoCalGas parameters are adopted for this account,[61] resulting in a proposed change from the current S4-45 curve with (25.00%) FNS% to the R3-64 curve with gradualism-limited FNS% of (50.00%).

5. Account G368.00 – Compressor Station Equipment

This account, which uses group remaining-life accounting, includes compressor station equipment and associated appliances used in connection gas transmission system operations. Given the minimal retirement history available for this account, visual curve fitting was used to estimate the proposed change from the current S3-35 curve to the R3-55 for the purpose of estimating remaining life. Adjusted net salvage history showed five-, ten-, and 15-year average FNS% of (18.55%), (14.31%), and (16.60%). Given the relative consistency of the averages, a conservative decrease of FNS% is proposed from (10.00%) to (15.00%).

6. Account G369.00 – Measuring and Regulating Station Equipment

This account, which uses group remaining-life accounting, includes meters, gauges, and other equipment used in measuring or regulating gas in connection with transmission system operations. Given the minimal retirement history available for this account, visual curve fitting was used to estimate the proposed change from the current S3-31 curve to the R2.5-51 for the

[60] Exhibit SCG-36, Direct Testimony of Flora Ngai (Depreciation) at FN-16.
[61] Exhibit SCG-36 at FN-16.

purpose of estimating remaining life. Based on adjusted net salvage history, the five-, ten-, and 15-year average FNS% were more closely aligned with the (15.00%) rate in effect from 2004 through 2011 than the current (5.00%) rate. A conservative decrease to (10.00%) is conservatively proposed for FNS%.

7. Account G371.00 – Other Equipment

This account, which uses group remaining-life accounting, includes other equipment used in connection with transmission-system operations that is not assignable to another gas-transmission account. In order to leverage the larger database of mortality and net-salvage history, the SoCalGas parameters are adopted for this account,[62] resulting in a proposed change from the current SQ-27 curve with no FNS% to L0.5-23 with (10.00%) FNS%.

F. Gas Distribution Plant

1. Account G374.20 – Land Rights

This account includes land rights or easements, used in connection with gas distribution operations. Amortization accounting continues for this account without change to the current 31-year ASL. There is no FNS% associated with this depreciation account.

2. Account G375.00 – Structures and Improvements

This account, which uses group remaining-life accounting, includes structures and improvements used in connection with gas distribution operations. In order to leverage the larger database of mortality and net-salvage history, the SoCalGas parameters are adopted for this account,[63] resulting in a proposed change from the current S3-44 curve with no net salvage to the S0-44 curve with FNS% of (15.00%).

3. Account G376.00 – Mains

This account, which uses group remaining-life accounting, includes gas distribution-system mains. Based on actuarial analysis and review of mortality summary data, no change to the current R3-69 curve is proposed. While observed life-dispersion is suggestive of an increased ASL, proactive gas replacement activities are expected to result in reduced service lives. Additionally, with plastic mains having a design life of 50 years and SDG&E's average age at only a fraction of that, significant ASL extensions would be imprudent.[64]

[62] Exhibit SCG-36 at FN-17.
[63] Exhibit SCG-36 at FN-18.
[64] Exhibit SCG-36 at FN-18.

Adjusted net salvage for this account shows continued decrease over time, with observed rates exceeding the authorized FNS% parameter for the last five years. While below the five, ten, and 15-year averages, a gradualism-limited FNS% decrease from (55.00%) to (80.00%) is proposed.

4. Account G378.00 – Measuring and Regulating Station Equipment

This account, which uses group remaining-life accounting, includes meters, gauges, and other equipment used in measuring and regulating gas in connection with distribution system operations, excluding measurement of gas deliveries to customers. Based on actuarial analysis and review of mortality summary data, a change from the current R2-47 curve to R2-52 is proposed.

Adjusted net salvage for this account shows continued decrease over time, with observed rates exceeding the authorized FNS% parameter for the last five years. While below the five, ten, and 15-year averages, a gradualism-limited FNS% decrease from (25.00%) to (50.00%) is proposed.

5. Account G380.00 – Services

This account, which uses group remaining-life accounting, service pipes and accessories leading to customers' premises. In order to leverage the larger database of mortality and net-salvage history, the SoCalGas parameters are adopted for this account,[65] resulting in a proposed change from the current R2.5-65 curve with (70.00%) FNS% to the R2-67 with gradualism-limited FNS% of (95.00%).

6. Account G381 – Meters

This account includes meters and devices and appurtenances thereto, for use in measuring gas delivery to customers. Group remaining-life accounting is used for this account, which is categorized into: (a) G381.00 – Meters, Regulators, and Smart Combination Meters; and (b) G381.01 – Smart Modules and G382.01 – Smart Module Installations.

a. Account G381.00 – Meters and Modules

Based on actuarial analysis and review of mortality summary data, a change from the current L1.5-41 curve to L1-40 $^{2}/_{3}$ is proposed to provide for the estimation of remaining life.

[65] Exhibit SCG-36 at FN-19.

No change to the existing 0.00% FNS% is proposed, as observed net salvage has been consistent with this since 2001.

b. Account G381.01 – Smart Modules and Account G382.01 – Smart Module Installations

With the oldest assets in these accounts having been placed in service in 2008, and the bulk of assets having been installed from 2010 through 2012, there is limited mortality data for this account. Based on visual alignment with available G381.01 data and the expectation that equipment will follow a pattern of retirement rather than all assets achieving a specified end-of-life, a shift from the SQ to R3 curve with static ASL of 15 years is proposed. No change to the current 0.00% FNS% is proposed.

7. Account G382.00 – Meter and Regulator Installations

This account, which uses group remaining-life accounting, includes the cost of the original installation of customer meters. Costs relating to the replacement of such meters is not included within this account. Based on actuarial analysis and review of mortality summary data, a change from the current L2-35 curve to L2-35$^{1}/_{12}$ is proposed to provide for the estimation of remaining life. Adjusted net salvage has shown continued increase since 2012 resulting in the proposed FNS% increase from (30.00%) to (22.50%).

8. Account G385.00 – Industrial Measuring and Regulating Station Equipment

This account, which uses group remaining-life accounting, includes measuring and regulating station equipment serving large industrial customers through the gas distribution system. Given the minimal mortality data for this account, mathematical curve fitting is imprecise and results in overly extended service lives. Therefore, a conservative extension of the ASL from 28 years to 35 years with the current S6 survivor-curve type is proposed. No change is proposed to the current FNS% of 0.00%.

9. 387 – Other Equipment

This account includes other gas-distribution equipment, including street-lighting equipment, not properly assignable to other accounts. Group remaining-life accounting is used for this account, which is categorized into: (a) G387.12 – Compressed Natural Gas (CNG) Equipment, and (b) G387.11 – Other Equipment.

a. Account G387.12 – CNG Equipment

Mortality data for this account was insufficient for mathematical fitting, which resulted in unreasonably long remaining service lives. Therefore, visual curve fitting was used to identify the proposed R2-25 curve, representing a change from the current L0-16 curve. No change from the current 0.00% FNS% is proposed.

b. Account G387.11 – Other Equipment

Due to the mixed nature of assets within this account, the dispersion pattern follows a unique trend of rapid failures at four to seven years from 100% to just under 80% survivorship, followed by virtually constant survivorship until 22 years, at which point a standard failure dispersion is seen. To best fit this unique distribution, while also considering the theoretical maximum life relative to the maximum observe life of existing assets, a shift to the O1-33 $^{11}/_{12}$ curve is proposed, representing a change from the current L0-16 curve. No change from the current 0.00% FNS% is proposed.

G. Gas General Plant

1. Account G303.00 – Software and Franchises

This account includes self-developed and purchased software, software licenses, and franchises, used in support of gas operations. Amortization accounting is used for this account, with the most assets recovered over a five-year life. SDG&E proposes continuation of the current amortization lives of "five (5) years, seven (7) years, ten (10) years, or longer,"[66] with expansion to cover any IT-identified service life from two to 20 years. There is no FNS% associated with this depreciation account.

2. Account G392.20 – Transportation Equipment – Trailers

This account includes trailers used in support of gas operations. To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current R5-21 curve to SQ-21 is necessary. No change is proposed to the current 0.00% FNS%.

3. Account 394 – Tools, Shop, and Garage Equipment

This account includes the cost of tools, implements, and equipment used in construction, repair work, general shops, and garages supporting gas operations. Due to the difference in life dispersion, SDG&E categorizes this account into: (a) portable tools, and (b) shop equipment.

[66] A.14-11-003 Exhibit SDG&E-28-R at BJW-67.

a. Account G394.10 – Portable Tools

To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current L5-24 curve to the SQ-23 curve is necessary. No change is proposed to the current 0.00% FNS%.

b. Account G394.20 – Shop Equipment

To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current R1.5-24 curve to the SQ-23 curve is necessary. No change is proposed to the current 0.00% FNS%.

4. Account G395.00 – Laboratory Equipment

This account includes laboratory equipment used in support of gas operations. To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current L1-19 curve to SQ-18 is proposed. Although some adjusted net salvage has been sporadically observed within this account over time, it has been minimal and none has been observed since 2000. Therefore, no change to the current 0.00% FNS% is proposed.

5. Account G396.00 – Power-Operated Equipment

This account includes power-operated equipment used in gas construction and repair work. To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current S6-20 curve to SQ-20 is proposed. No change is proposed to the current FNS% of 0.00%.

6. Account G397.00 – Communication Equipment

This account includes telephone and wireless communications equipment used in support of gas operations. To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current S6-15 curve to SQ-15 is proposed. No change is proposed to the current FNS% of 0.00%.

7. Account G398.00 – Miscellaneous Equipment

This account includes equipment and other devices that are used in support of gas operations but are not properly includible in other accounts. To provide vintage-accounting alignment between capital and depreciation accounting, a change from the current R2.5-19 curve to SQ-19 is proposed. No change is proposed to the current FNS% of 0.00%.

V. CONCLUSION

As explained in my testimony, the proposed depreciation parameters, which includes survivor curve types, ASL, and FNS%, and developed in accordance with CPUC U-4, are reasonable and should be adopted. The resulting depreciation and amortization expense of $559.6 million, set forth in Table MCV-1 above, and associated reserves at year-end of TY 2019 totaling $5.7 billion, set forth in Table MCV-2 above, should be authorized by the CPUC for determination of the TY 2019 revenue requirement.

The estimated depreciation and amortization expense increase from $407.1 million (Recorded Year 2016) to $559.6 million (TY 2019) represents the combined impact of net plant additions and changes resulting from the proposed depreciation parameters. These revised parameters are necessary to ensure that the cost of fixed capital, less net salvage, is equitably recovered over the useful life of the property, such that customers are appropriately charged for their consumption of plant.

Account-level and other details pertaining to the proposed depreciation parameters, depreciation rates calculated based on Recorded Year 2016 balances and age dispersion, and accrual estimates, are included in my workpapers. Calculations and the proposed depreciation parameters were developed in accordance with CPUC U-4.

This concludes my prepared direct testimony.

VI. WITNESS QUALIFICATIONS

My name is Matthew C. Vanderbilt; my business address is 8335 Century Park Court, San Diego, California 92123. I am employed by SDG&E as a Principal Accountant in the Accounting Operations department within the Controller's division, where I have held varying responsibilities since 2009. My current duties principally include the preparation of depreciation and amortization rates, analyses, estimation, and studies; monitoring of depreciation and amortization practices utilized at SDG&E; and special projects.

I have worked at SDG&E for almost 20 years, and have held various financial and engineering-related positions within Electric Reliability & Distribution Planning, Electric Distribution Operations, and Accounting Operations. My previous responsibilities have included analysis and reporting of primary electric outages; creation of mathematical and statistical simulations of equipment failures; applications development; financial analysis, reporting, and modeling; and plant, project, and cost-center accounting. I have also worked as a financial and operational auditor at Sempra Energy, the parent company of SDG&E.

I received Associate of Arts and Associate of General Studies degrees from Scottsdale Community College in 1995, a Bachelor's of Science degree in Accountancy from National University in 2005, and I am enrolled in the Master of Science in Business Analytics program at National University. I am a member of the Society of Depreciation Professionals, with whom I have attended conferences and training; the American Statistical Association; the American Society for Quality; and the Project Management Institute. I have completed coursework in Lean / Six Sigma and have previously been a member of the American Society of Certified Public Accountants, California Society of Certified Public Accountants, and Institute of Internal Auditors. My education and professional experience satisfy the requirements to become a Certified Depreciation Professional.

I have not previously testified before the California Public Utilities Commission, but have authored testimony to the Federal Energy Regulatory Commission regarding depreciation and amortization.

APPENDIX A:PROPOSED DEPRECIATION PARAMETERS

This appendix provides a summary comparison of current depreciation parameters to those proposed within this testimony. Additional detail regarding this comparison is located in Exhibit SDG&E-34-WP-002, Comparison of Current and Proposed Depreciation Parameters.

	Current		Proposed		Change[1]	
Depreciation Account	**Curve-ASL[2] (1)**	**FNS% (2)**	**Curve-ASL (3)**	**FNS% (4)**	**ASL (5)**	**FNS% (6)**
Common Plant						
C303.00-Software & Franchise	3,5,7,10	-	2-20	-	-1/+10	-
C390.10-Structures & Imprv.	S1-30	(15.00)	R0.5-41 $^{11}/_{12}$	(10.00)	11 $^{11}/_{12}$	5.00
C391.10-Furniture & Equip.	S6-18	-	SQ-18	3.73	-	3.73
C391.20-Computers & Equip.	S6-5	-	SQ-5	-	-	-
C392.10-Automotive Equip.	SQ-10	-	S3-3 $^{1}/_{2}$	-	($6^{1}/_{2}$)	-
C392.20-Trailers	L0-20	-	SQ-23	-	3	-
C392.30-Aviation	-	-	SQ-6	71.00	6	71.00
C393.10-Stores Equip.	L0-19	-	SQ-23	-	4	-
C394.11-Portable Tools	R2.5-23	-	SQ-23	-	-	-
C394.21-Shop Equip.	L1.5-35	-	SQ-29	-	(6)	-
C394.31-Garage Equip.	R3-19	-	SQ-21	-	2	-
C395.10-Laboratory Equip.	R5-25	-	SQ-26	-	1	-
C397.10-Commun Equip.	S6-13	-	SQ-13	-	-	-
C398.10-Miscellaneous Equip.	R0.5-13	10.00	SQ-14	1.00	1	(9.00)
Electric Production Plant[3]						
Cuyamaca Peak Energy Plant	mid-2027	(0.36)	mid-2027	(4.72)	-	(4.36)
Desert Star Energy Center	mid-2029	(6.03)	mid-2026	(2.90)	($3^{1}/_{6}$)	3.13
Miramar Energy Facility	mid-2032	(0.52)	mid-2032	(1.33)	-	(0.81)
Palomar Energy Center	mid-2036	(4.75)	mid-2036	(1.78)	-	2.97
Solar Energy Projects	SQ-25	-	L3-25	(15.00)	-	(15.00)
Wind Energy Projects	SQ-20	-	S5-13	(15.00)	(7)	(15.00)
Land Rights – Steam	45	-	45	-	-	-
Land Rights – Other	25	-	25	-	-	-
						(cont.)
Depreciation Account	**Current**		**Proposed**		**Change**	

[1] While presented here, changes in ASL should be viewed in conjunction with survivor-curve dispersion in terms of resultant expectancy shifts for existing plant, as well as the minimum and maximum theoretical life. Additionally, ASL and FNS% are partially correlated, meaning ASL increases will generally result in FNS% decreases due to rising removal costs and lower salvage value over time.
[2] Curve-ASL referenced in this table provides the expected decommissioning date for end-of-life plant.
[3] FNS% for Electric Production Plant is expressed as the weighted-average figure based on year-end 2016 (BY 2016) plant balances and age dispersion. The FERC breakdown is provided in Exhibit SDG&E-34-WP-002.

	Curve-ASL (1)	FNS% (2)	Curve-ASL (3)	FNS% (4)	ASL (5)	FNS% (6)
Electric Distribution Plant						
E360.20-Land Rights	45	-	45	-	-	-
E361.00-Structures & Imprv.	R2.5-63	(125.00)	S0-62 5/12	(145.00)	(7/12)	(20.00)
E362.10-Sta. Equip.	R1.5-51	(125.00)	R1.5-53 1/2	(145.00)	2 1/2	(20.00)
E363.00-Energy Storage Equip.	SQ-10	-	SQ-10	(15.00)	-	(15.00)
E364.00-Poles, Towers, & Fxtr.	R0.5-47	(100.00)	R0.5-48 2/3	(100.00)	1 2/3	-
E365.00-OH Conductor & Dev.	R0.5-55	(70.00)	R1-59 1/12	(70.00)	4 1/12	-
E366.00-UG Conduit	R3-57	(50.00)	R3-59 2/3	(75.00)	2 2/3	(25.00)
E367.00-UG Conductor & Dev.	R3-45	(65.00)	R3-49	(90.00)	4	(25.00)
E368.10-Line Transformers	L0.5-34	(70.00)	L0.5-34 1/3	(95.00)	1/3	(25.00)
E368.20-Capacitors	L0-12	(70.00)	O2-12 1/4	(95.00)	¼	(25.00)
E369.10-OH Services	R0.5-55	(110.00)	S-.5-58 7/12	(137.50)	3 7/12	(27.50)
E369.20-UG Services	L4-53	(75.00)	L4-55 1/6	(100.00)	2 1/6	(25.00)
E370.10-Legacy Meters	R0.5-48	-	O2-19 5/12	-	(28 7/12)	-
E370.11- “Smart” Meters	SQ-15	-	R5-15	-	-	-
E370.20-Legacy Meter Install.	R0.5-48	-	O2-19 5/12	-	(28 7/12)	-
E370.21- “Smart” Meter Install.	SQ-15	-	R0.5-50 1/6	-	35 1/6	-
E371.00-Install. on Cust. Prem.	R0.5-34	(90.00)	O1-40	(106.25)	6	(16.25)
E373.20-Street Light. & Signals	L0-36	(85.00)	O1-40	(110.00)	4	(25.00)
Electric General Plant						
E303.00-Software & Franchise	3,5,7,10	-	2-20	-	-1/+10	-
E390.00- Structures & Imprv.	S4-34	(10.00)	R2.5-51	(10.00)	17	-
E392.20-Trailers	L5-27	-	SQ-27	-	-	-
E393.10-Stores Equip.	S5-25	-	SQ-26	-	1	-
E394.11-Portable Tools	S6-27	-	SQ-27	-	-	-
E394.20-Shop Equip.	L4-26	-	SQ-24	-	(2)	-
E395.10-Laboratory Equip.	L3-22	-	SQ-20	-	(2)	-
E397.10-Com. Equip. - Other	R2-30	(50.00)	R2.5-34 11/12	(75.00)	4 11/12	(25.00)
E397.20-Com. Equip. - SWPL	R2-30	(50.00)	R2.5-34 11/12	(75.00)	4 11/12	(25.00)
E397.60-Com. Equip. - SRPL	R2-30	-	R2.5-34 11/12	(75.00)	4 11/12	(75.00)
E397.70-Com. Dev. - Telecom	R2-30	(50.00)	R2.5-34 11/12	(75.00)	4 11/12	(25.00)
E398.10-Miscellaneous Equip.	L4-16	-	SQ-14 7/12	-	(1 5/12)	-
E398.20-EVSE	-	-	SQ-5	(10.00)	5	(10.00)
Gas Storage and Transmission Plant						
G363.60-LNG DI Strg. Equip.	S4-20	-	S4-20	-	-	-
G365.20-Land Rights	40	-	40	-	-	-
G366.00-Struct and Land Imp.	S3-34	-	R2-53	(25.00)	19	(25.00)
G367.00-Mains	S4-45	(25.00)	R3-64	(50.00)	19	(25.00)
G368.00-Compressor Sta. Equip.	S3-35	(10.00)	R3-55	(15.00)	20	(5.00)
						(cont.)
Depreciation Account	**Current**		**Proposed**		**Change**	

	Curve-ASL (1)	FNS% (2)	Curve-ASL (3)	FNS% (4)	ASL (5)	FNS% (6)
G369.00-Meas. & Reg. Sta. Equip.	S3-31	(5.00)	R2.5-51	(10.00)	20	(5.00)
G371.00-Other Equipment	SQ-27	-	L0.5-23	(10.00)	(4)	(10.00)
Gas Distribution Plant						
G374.20-Land Rights	31	-	31	-	-	-
G375.00-Struct & Imp	S3-44	-	S0-44	(15.00)	-	(15.00)
G376.00-Mains	R3-69	(55.00)	R3-69	(80.00)	-	(25.00)
G378.00-Meas. & Reg. Sta. Equip.	R2-47	(25.00)	R2-52	(50.00)	5	(25.00)
G380.00-Services	R2.5-65	(70.00)	R2-67	(95.00)	2	(25.00)
G381.00-Meters & Reg.	L1.5-41	-	L1-40 2/3	-	(1/3)	-
G381.01-Meter Modules	SQ-15	-	R3-15	-	-	-
G382.00-Meter & Reg. Install.	L2-35	(30.00)	L2-35 1/12	(22.50)	1/12	7.50
G382.01-Meter Module Install.	SQ-15	-	R3-15	-	-	-
G385.00-Ind. Meas. & Reg. Equip.	S6-28	-	S6-35	-	7	-
G387.11-Other Equipment	L0-16	-	O1-33 11/12	-	17 11/12	-
G387.12- CNG	L0-16	-	R2-25	-	9	-
Gas General Plant						
G303.00-Software & Franchise	3,5,7,10	-	2-20	-	-1/+10	-
G392.20-Trailers	R5-21	-	SQ-21	-	-	-
G394.10-Portable Tools	L5-24	-	SQ-23	-	(1)	-
G394.20-Shop Equip.	R1.5-24	-	SQ-23	-	(1)	-
G395.00-Laboratory Equip.	L1-19	-	SQ-18	-	(1)	-
G396.00-Power Operated Equip.	S6-20	-	SQ-20	-	-	-
G397.00-Com. Equip.	S6-15	-	SQ-15	-	-	-
G398.00-Miscellaneous Equip.	R2.5-19	-	SQ-19	-	-	-

APPENDIX B: GLOSSARY OF TERMS

AGA	American Gas Association
ASL	Average Service Life
BESS	Battery Energy Storage System(s)
CFR	Code of Federal Regulations
COR	Cost of Removal
CPEP	Cuyamaca Peak Energy Plant
CPR	Continuing Property Record
CPUC	California Public Utilities Commission
CPUC U-4	California Public Utilities Commission, Standard Practice U-4
D.	Decision
DSEC	Desert Star Energy Cente
EEI	Edison Electric Institute
ERP	Enterprise Resource Planning
EV	Electric Vehicle
EVCI	Electric Vehicle Charging Infrastructure
EVSE	Electric Vehicle Supply Equipment
FERC	Federal Energy Regulatory Commission
FERC AR-15	Federal Energy Regulatory Commission Accounting Release 15
FNS%	Future Net Salvage Rate
GRC	General Rate Case
IRR	Interim Retirement Rate
LNG	Liquified Natural gas
MEF	Miramar Energy Facility
MW	Megawatt
NARUC	National Association of Regulatory Utility Commissioners
NS	Net Salvage
PDF	Probability Density Function
PEC	Palomar Energy Center
PL	Probable Life
PV	Photovoltaic

R.	Rulemaking
RO	Results of Operations
S&L	Sargent & Lundy, L.L.C.
SCG	Southern California Gas Company
SDG&E	San Diego Gas & Electric Company
SDP	Society of Depreciation Professionals
SEP	Solar Energy Project(s)
SoCalGas	Southern California Gas Company
SQ	Square
SRPL	Sunrise Powerlink
SWPL	Southwest Powerlink
TY 2019	Test Year 2019
UAS	Unmanned Aircraft Systems
USofA	FERC Uniform System of Accounts
WEP	Wind Energy Project(s)