

Company: Southern California Gas Company (U 904 G)
Proceeding: 2024 General Rate Case
Application: A.22-05-015
Exhibit: SCG-32-2R

SECOND REVISED
PREPARED DIRECT TESTIMONY OF
DANE A. WATSON
(DEPRECIATION)

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA



November 2022

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SoCalGas 2024 GRC Testimony Revision Log –November 2022

SUMMARY

- I sponsor depreciation rates used in the calculation of the Test Year (TY) 2024 depreciation and amortization expense recommendations of the Gas Plant depreciation area for Southern California Gas Company (SoCalGas or Company). The purpose of depreciation and amortization expense is to provide for recovery of the original cost of plant (less estimated net salvage) over the used and useful life of the property by means of an equitable plan of charges to operating expenses.
- Tangible assets, usually referred to as plant, property, and equipment, are depreciated. Intangible assets, such as software, land rights and rights-of-way, are amortized. The technical definition for depreciation and related terms is provided in Section II of my testimony.
- The cumulative depreciation costs recovered through depreciation rates is captured in the depreciation reserve. The reserve represents the return of the investment and provides an ongoing record of one of the components in calculating rate base. SoCalGas' rate base proposals are sponsored in Exhibit (Ex.) SCG-31, direct testimony of Patrick D. Moersen.
- SoCalGas is requesting the adoption of proposed service lives and net salvage rates that were developed in accordance with the California Public Utilities Commission Standard Practice U-4.

**SECOND REVISED PREPARED DIRECT TESTIMONY OF
DANE A. WATSON
(DEPRECIATION)**

I. INTRODUCTION

A. Summary of Proposals

I sponsor the Test Year (TY) 2024 depreciation parameters, and the resultant depreciation and amortization expense for Southern California Gas Company (SoCalGas or Company). As shown in Figure DW-1, the Gas Plant depreciation and amortization expense for Recorded Year 2021 is \$703¹ million and the expense requested for TY 2024 is \$970 million. Beginning in TY 2024, the requested expense is calculated using new depreciation rates resulting from an updated depreciation study.

**Figure DW-1
Southern California Gas Company
Summary of Depreciation Expense and Amortization
(Thousands of Dollars)**

Line No.	Description	2021 Recorded (2021\$)	2024 Test Year (2024\$)
	<u>Depreciation Expense</u>		
1	Underground Storage	\$ 56,875	\$ 88,168
2	Transmission	99,339	157,529
3	Distribution	334,446	458,243
4	General Plant	212,297	266,444
5	Total Depreciation & Amortization Expense	<u>\$ 702,956</u>	<u>\$ 970,383</u>

B. Organization of Testimony

My testimony is organized as follows:

1. In Section II, I explain the definitions of depreciation and the type of property analyzed in the Depreciation Rate Study (Depreciation Study), attached to my testimony as Attachment C, and the property included or excluded from the Depreciation Study.
2. In Section III, I describe the four-phase approach I used to conduct the Depreciation Study; and the depreciation system (straight-line method, Broad

¹ Depreciation expense excludes non-General Rate Case (GRC) items (incremental projects). Reconciliation is provided in Ex. SCG-32-WP.

1 (Average) Life Group (ALG) procedure, remaining-life technique) used for the
2 Depreciation Study. Next, I explain how depreciation rates are determined. This
3 portion of my Direct Testimony also explains and fully discusses each portion of
4 the depreciation rate formula that is supported by my Depreciation Study. Section
5 III is broken into the following subparts, which align with the components of the
6 depreciation rate formula that the Depreciation Study supports: (A) Depreciation
7 Study Process; (B) Methodology; and (C) Determination of the Depreciation
8 Rates

- 9 3. Section IV, discusses the California Public Utilities Commission's (CPUC or
10 Commission) approach to gradualism and how I recommend it be applied in this
11 depreciation study.
- 12 4. Section V, discusses the specific changes in life and net salvage parameters by
13 plant account.
- 14 5. Section VI, is the conclusion which describes the change in depreciation expense
15 as a result of the proposed depreciation rates. Specifically, I explain why
16 SoCalGas's depreciation expense is increasing. Note that the 2021 depreciation
17 expense shown in this section is different from that shown in Figure DW-1, above
18 due to the depreciation expense in this section being calculated at December 31,
19 2021 for comparison purposes instead of the actual recorded depreciation expense
20 during 2021.
- 21 6. Section VII, details my witness qualifications.

22 **II. DEPRECIATION DEFINITIONS AND APPROACH**

23 The term "depreciation," as used in my testimony is used in the accounting sense – that
24 is, a system of accounting that distributes the cost of assets, less net salvage (if any), over the
25 estimated useful life of the assets in a systematic and rational manner. Depreciation is a process
26 of allocation, not valuation. In other words, depreciation expense allocates the cost of the asset,
27 including any estimated net salvage necessary to remove the asset, as an ongoing cost of
28 operations over the economic life of the asset. However, the amount allocated to any one
29 accounting period does not necessarily represent an actual loss or decrease in value that will
30 occur during that particular period. The Company accrues depreciation on the basis of the
31 original cost of all depreciable property included in each functional property group. On

1 retirement, the full cost of depreciable property, less the net salvage value, is charged to the
2 depreciation reserve.

3 A depreciation study is a comprehensive analysis of the property characteristics of a
4 utility's assets. A depreciation study is specific to each utility and that utility's assets in order to
5 determine the appropriate annual depreciation accrual rate for each asset account. The primary
6 factors that influence the depreciation rate for an account are the remaining investment to be
7 recovered in the account, the depreciable life of the account, and the net salvage for the account.

8 The key functions of the Depreciation Study are to: (1) determine the average service
9 lives for Underground Storage, Transmission, Distribution, General Plant; (2) determine the net
10 salvage percentages for Underground Storage, Transmission, Distribution, General Plant;
11 (3) calculate the theoretical reserve of each property group based on the remaining life of the
12 group, the total life of the group and the estimated net salvage; and (4) develop depreciation
13 rates, including the annual depreciation accrual.

14 After following all these steps, I conclude that the depreciation rates developed for the
15 Company's Gas Utility Plant accounts as set forth in the Depreciation Study encompass the best
16 and most recent information for calculating the Company's depreciation and amortization
17 expense associated with these assets. Based on life and net salvage parameters developed for
18 actual plant asset balances and depreciation reserves as of December 31, 2021, the depreciation
19 rates in the Depreciation Study will result in an increase in the annual depreciation expense for
20 SoCalGas's utility assets of approximately \$65.3 million per year. I calculated that amount by
21 comparing the depreciation expense based on the current depreciation rates to the depreciation
22 expense based on the proposed depreciation rates applied to plant balances as of December 31,
23 2021. These rates as approved by the CPUC will be implemented in 2024 at the conclusion of
24 this proceeding. This comparison is shown in detail in Appendix B of the Depreciation Study
25 and is summarized on page 2 of that Study.

26 **III. DEPRECIATION STUDY**

27 In this section of my Direct Testimony, I testify to: the property included or excluded
28 from the Depreciation Study; the four-phase approach I used to conduct the Depreciation Study;
29 and the depreciation system (straight-line method, ALG procedure, remaining-life technique)
30 used for the study. For gas property, there are four general classes, or functional groups, of
31 depreciable property that are analyzed in the study: (1) Underground Storage Plant; (2)

1 Transmission Plant; (3) Distribution Plant; and (4) General Property.

2 **A. Depreciation Study Process**

3 As noted, with the assistance of my staff, I conducted the Depreciation Study in four
4 phases, as described at pages 12-13 of the Depreciation Study. The four phases are data
5 collection, analysis, evaluation, and calculation. During the initial phase of the Depreciation
6 Study, I collected historical data through December 31, 2020 to be used in the analysis. After the
7 data was assembled, I performed analyses to determine the lives and net salvage percentages for
8 the different property groups being studied. As part of this process, I conferred with field
9 personnel, engineers, and managers responsible for the installation, operation, and removal of the
10 assets to gain their input into the operation, maintenance, and salvage of the assets. I then
11 evaluated the information obtained from those Company representatives, combined with the
12 Depreciation Study results, to determine how the results of the historical asset activity analysis,
13 in conjunction with the Company's expected future plans, should be applied. In the final phase, I
14 calculated depreciation rates and the theoretical reserve.

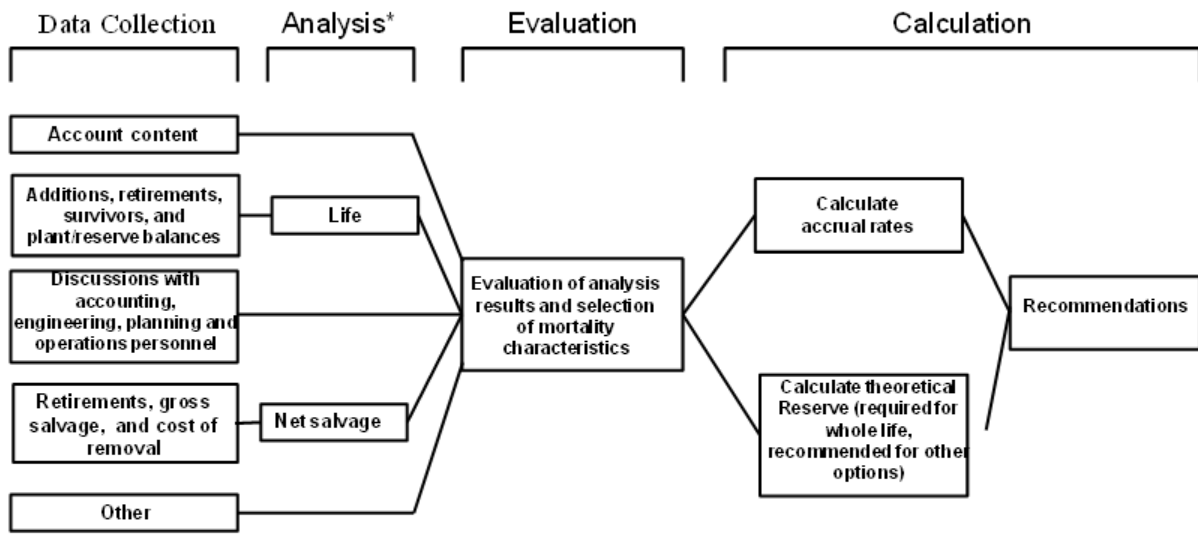
15 The authoritative treatise, DEPRECIATION SYSTEMS, documents the following stages of a
16 depreciation study: statistical analysis, evaluation of statistical analysis, discussions with
17 management, forecast assumptions, and document recommendations.² My approach mirrors this
18 process, and following this approach ensures that Alliance comprehensively and thoroughly
19 projects the future expectations for the Company's assets.

20 Figure DW-2 demonstrates the four phases of the Depreciation Study at page 14.

² W.C. Fitch and F.K. Wolf, DEPRECIATION SYSTEMS, at page 289 (Iowa State Press, 1994).

1
2

FIGURE DW-2
Stages to Develop a Depreciation Study



Source: Introduction to Depreciation for Public Utilities and Other Industries, AGA EEI , 2013.

*Although not specifically noted, the mathematical analysis may need some level of input from other sources (for example, to determine analysis bands for life and adjustments to data used in all analysis).

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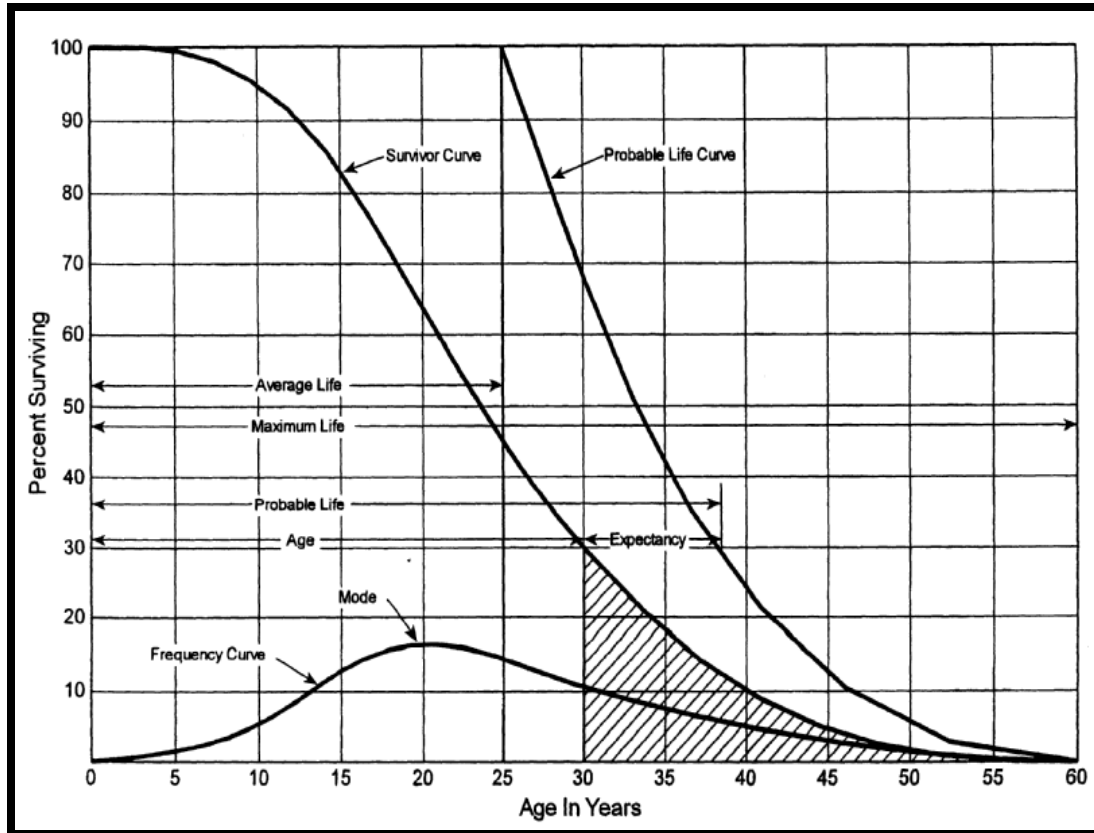
I used the straight-line (method), ALG (procedure), remaining-life (technique) depreciation method for this Depreciation Study, as discussed at page 3. This is the same methodology used by the Company in past GRCs and is consistent with CPUC Standard Practice U-4.

A survivor curve represents the percentage of property remaining in service at various age intervals. The Iowa Curves, the predominantly used survivor curve method in the utility industry, are the result of an extensive investigation of life characteristics of physical property made at Iowa State College Engineering Experiment Station in the first half of the twentieth century. Through common usage, revalidation, and regulatory acceptance, the Iowa Curves have become a descriptive standard for the life characteristics of industrial property. An example of an Iowa Curve is shown below in Figure DW-3. For more detail on survivor curves, see pages 4-9 of the Depreciation Study.

18

1
2

FIGURE DW-3
Survivor Curve



3

4 Most property groups can be closely fitted to one Iowa Curve with a unique average service life.
5 By blending of judgment concerning current conditions and future trends with the matching of
6 historical data, the depreciation analyst can make an informed selection of an account's average
7 service life and survivor curve. When selecting an average service life, the analyst also selects a
8 survivor curve. When recommending depreciation rates, the depreciation analyst selects the
9 average service life and survivor curve that are used to compute remaining life, annual
10 depreciation accrual, and annual depreciation accrual rate.

11 Historical lives and net salvage data are not the only factors to consider in making life
12 and net salvage recommendations. It is **crucial** to incorporate future trends, changes in
13 equipment, and Company-specific operational information before finally making life and net
14 salvage recommendations. Once all the calculations and data are prepared, I take into account
15 my judgment, Company expectations, and trends to determine the appropriate net salvage
16 percentages. A summary of the proposed net salvage percentages is shown in Attachment B of

1 this testimony.

2 For instance, if most of the dollars in an account are associated with assets that have
3 projected lives between 20 and 40 years, an overall life of 60 years for that account would not be
4 reasonable. This is true even if a particular mathematical curve match mechanically produces a
5 60-year overall life. A statistical analysis may suggest a longer life because there may be
6 insufficient retirement data (*i.e.*, the full life cycle of assets is not yet visible in the mathematical
7 calculations)³ or because there have been recent changes in technology or changes in how the
8 assets are operated that are not adequately reflected in the statistical results. While the results of
9 the calculations themselves may seem accurate to someone who is not aware of or ignores the
10 actual life cycles exhibited, failure modes, and engineering expectations for the various assets in
11 the account, the results are inaccurate because they do not reflect the real-life expectations of the
12 assets in the account.

13 As noted above, the manner in which the Company currently uses its assets provides
14 important indicators as to the expected service life of those assets and reveals flaws in generic
15 statistical assumptions. The information was extracted from interviews with Company subject
16 matter experts and is described in my study and accompanying workpapers.

17 As an example, if a Company expert suggests a life for a specific asset that is shorter or
18 longer than I would expect from my experience, I conduct further investigation as to why they
19 understand the life expectation to vary from what I would normally expect, conduct my own
20 research of the asset as necessary, and use my judgment to determine how much weight to give
21 the Company expert's feedback.

22 Accordingly, as I noted before, one must consider the operational information, the
23 expectations across the country for similar assets in similar environments, and the statistical
24 analysis to verify the reasonableness of the results. Information provided by Company personnel
25 on the specific plant and equipment being studied is of critical importance in the depreciation
26 study process to ensure the statistical analysis accurately reflects the expected service lives of the
27 assets. In its 1996 edition of the publication *Public Utility Depreciation Practices*, the National
28 Association of Regulatory Utility Commissioners (NARUC), specifically advises against strict
29 reliance on historical data and curve fitting:

³ This is the case for Accounts 367, 376 and 380, as discussed in the account level results section.

1 Depreciation analysts should avoid becoming ensnared in the historical life study
2 and relying solely on mathematical solutions. The reason for making an historic
3 life analysis is to develop a sufficient understanding of history in order to evaluate
4 whether it is a reasonable predictor of the future. The importance of being aware
5 of circumstances having direct bearing on the reason for making an historical life
6 analysis cannot be understated.... The analyst should become familiar with the
7 physical plant under study and its operating environment, **including talking with**
8 **the field people who use the equipment being studied.**⁴

9 **B. Methodology**

10 The methods used to calculate the mortality characteristics (*i.e.*, service lives, retirement
11 dispersions, and net salvage rates) and to calculate the straight-line remaining life depreciation
12 rates are consistent with CPUC Standard Practice U-4.

13 **C. Determination of the Depreciation Rates**

14 In this section of my Direct Testimony, I explain how depreciation rates are determined,
15 and I identify the formula for depreciation rates. This portion of my Direct Testimony also
16 explains and fully discusses each portion of the depreciation rate formula that is supported by the
17 Depreciation Study. Section III is broken into the following subparts, which align with the
18 components of the depreciation rate formula that the Depreciation Study supports: (A)
19 Depreciation Study Process; (B) Methodology; (C) and Determination of the Depreciation Rates.

20 The formula to derive depreciation rates calculates annual depreciation accrual amounts
21 for each group by dividing the original cost of the asset (gross plant), less allocated depreciation
22 reserve, less estimated net salvage, by the group's respective remaining life. The resulting
23 annual accrual amounts for all depreciable property within an account are accumulated, and the
24 total is divided by the original cost (gross plant) of all depreciable property within the account to
25 determine the annual accrual amount and the annual accrual rate. The Depreciation Study
26 determines several pieces of the overall formula used to derive depreciation rates. The portions
27 of the formula derived by the Depreciation Study are:

- 28 • **Depreciation Reserve Balance:** To calculate depreciation reserve, the Company
29 provided me with the actual gross plant balance amounts and the actual depreciation
30 reserve. I calculated the theoretical reserve that is used as a point of comparison to the
31 book depreciation reserve balance.

⁴ NARUC, *Public Utility Depreciation Practices* (1996) at 126 (emphasis added).

- 1 • **Net Salvage Amounts or Percentages:** For Underground Storage, Transmission,
2 Distribution and General Plant, I calculated the net salvage percentages reflected in the
3 Depreciation Study. For these plant accounts, I calculated salvage and removal cost
4 percentages by dividing the current cost of salvage or removal, as supported by the
5 Depreciation Study, by the original installed cost of the retired asset.
- 6 • **Remaining Life:** The Depreciation Study supports the remaining life calculation by
7 determining the appropriate average service lives and retirement survivor curve for each
8 account within a functional group.
- 9 • **Resulting Annual Depreciation Accrual and Depreciation Rates:** As discussed above,
10 I calculated the depreciation rates, and I then derived the annual accrual amounts from
11 these rates. The computations of the annual depreciation rates and annual accrual
12 amounts are shown in Appendix A of the Depreciation Study.

13 The May 2022 filing date for this case made it necessary to determine whether the
14 depreciation study would be based on year end 2021 or year-end 2020 data. Given the short
15 amount of time between year-end 2021 closing and the filing of this case, the Company and I
16 determined it best to base the analytics on year end 2020 data to determine the proposed
17 depreciation parameters for life and net salvage. That process was completed in late 2021.
18 After the Company closed its accounting records for 2021 business, we updated the depreciation
19 rate computations to reflect year end 2021 plant and accumulated depreciation balances.

20 Annual depreciation expense amounts for SoCalGas's depreciable accounts were
21 calculated by the straight-line method, life-span procedure, and remaining-life technique. With
22 this approach, remaining lives were calculated according to standard ALG group expectancy
23 techniques, using the Iowa Curves noted in the calculation. For each plant account, the
24 difference between the surviving investment, adjusted for estimated net salvage, and the
25 allocated book depreciation reserve, was divided by the average remaining life to yield the
26 annual depreciation expense. These calculations are shown in Appendix A to the Depreciation
27 Study.

28 In a whole life representation, the annual accrual rate is computed by the following
29 equation,

$$30 \quad \text{Annual Accrual Rate} = \frac{(100\% - \text{Net Salvage Percent})}{\text{Average Service Life}}$$

1 In the case of natural gas assets, each vintage within the group has a unique average
2 service life and remaining life determined by computing the area under the Iowa Curve.

3 Use of the remaining life depreciation system adds a self-correcting mechanism, which
4 accounts for any differences between theoretical and book depreciation reserve over the
5 remaining life of the group. For each vintage,

$$6 \text{ Remaining Life}(i) = \frac{\text{Area Under Survivor Curve to the Right of Age } (i)}{\text{Survivors } (i)}, \text{ and}$$

$$7 \text{ Average Service Life} = \frac{\text{Area Under Survivor Curve}}{\text{Survivors at age zero}}$$

8
9
10 With the straight line, remaining life, average life group system using Iowa Curves, composite
11 remaining lives were calculated by computing a direct weighted average of each remaining life
12 by vintage within the group. Within each group (plant account/unit), for each plant account, the
13 difference between the surviving investment, adjusted for estimated net salvage, and the
14 allocated book depreciation reserve, was divided by the composite remaining life to yield the
15 annual depreciation expense as noted in this equation, where the net salvage percent represents
16 future net salvage.

$$17 \text{ Annual Depreciation Expense} = \frac{\text{Original Cost} - \text{Book Reserve} - (\text{Original Cost} * \text{Net Salvage \%})}{\text{Remaining Life}}$$

18 Within a group, the sum of the group annual depreciation expense amounts, as a
19 percentage of the depreciable original cost investment summed, gives the annual depreciation
20 rate as shown below:

$$\text{Annual Depreciation Rate} = \frac{\sum \text{Annual Depreciation Expense}}{\sum \text{Original Cost}}$$

21 These calculations are shown in Appendix A of the Depreciation Study. The calculations
22 of the theoretical depreciation reserve values and the corresponding remaining life calculations
23 are shown in the workpapers.

1 The theoretical reserve represents the portion of a property group’s cost that would have
2 been accrued as depreciation reserve if current expectations were used throughout the life of the
3 property group for future depreciation accruals. The theoretical reserve for the asset group
4 serves as a point of comparison to the book reserve to determine if the unrecovered investment of
5 the asset and its removal cost are over or under-accrued.

6 In the Depreciation Study, I computed theoretical reserves based on plant balances as of
7 December 31, 2021. I calculated the theoretical reserve using a reserve model that relies on a
8 prospective concept relating future retirement and accrual patterns for property, given current life
9 and salvage estimates. More specifically, I determined the theoretical reserve of a property
10 group from the estimated remaining life of the group, the total life of the group, and estimated
11 net salvage. This computation for the straight-line, remaining-life theoretical reserve ratio,
12 which I describe in more detail starting on page 11 of the Depreciation Study, involves
13 multiplying the vintage balances within the property group by the theoretical reserve ratio for
14 each vintage.

15 While discussed more fully in the Depreciation Study itself, net salvage is the difference
16 between the gross salvage (what the asset was sold for) and the COR (cost to remove and dispose
17 of the asset). If the COR exceeds gross salvage, net salvage is negative. Some plant assets can
18 experience significant negative removal cost percentages due to the amount of removal cost and
19 the timing of any capital additions versus the retirement. Salvage and removal cost percentages
20 are calculated by dividing the current cost of salvage or removal by the original installed cost of
21 the assets retired.

22 The Depreciation Study separately calculates the net salvage percentages for the
23 Underground Storage, Transmission, Distribution, and General Plant accounts. To determine the
24 appropriate net salvage percentages for each account, I started by using an industry-standard
25 method that divides the current cost of salvage or removal by the original installed cost of the
26 assets retired. I also applied judgment, however, to select a net salvage percentage that
27 represents the future expectations for each account. To apply this judgment, I compiled
28 historical salvage and removal data by functional group and account to determine values and
29 trends in gross salvage and removal cost. As detailed in the Depreciation Study, for most
30 accounts, data for retirements, gross salvage and COR covered the period from 2002-2020. I
31 calculated moving averages with this data to remove timing differences between retirement and

1 salvage and removal cost; those moving averages are analyzed over periods varying from one to
2 10 years. These calculations are found in Appendix D of the Depreciation Study, along with a
3 detailed history. The current and proposed net salvage percentages are shown in Appendix C to
4 the Depreciation Study.

5 For the Depreciation Study, I analyzed all Underground Storage, Transmission,
6 Distribution, and General Plant accounts using actuarial analysis (retirement rate method) to
7 estimate the life of the property in each account where sufficient activity is available. In much
8 the same manner as human mortality is analyzed by actuaries, depreciation analysts use models
9 of property mortality characteristics that have been validated in research and empirical
10 applications. Aged retirements are combined to develop retirements and property exposed to
11 retirement for each age interval. And interval exposures (total property subject to retirement at
12 the beginning of the age interval, regardless of vintage) and age interval retirements are
13 calculated.

14 The complement of the ratio of interval retirements to interval exposures establishes a
15 survivor ratio. The survivor ratio is the fraction of property surviving to the end of the selected
16 age interval, given that it has survived to the beginning of that age interval. Survivor ratios for
17 all of the available age intervals were chained by successive multiplications to establish a series
18 of survivor factors, collectively known as an observed life table.

19 The observed life table shows the experienced mortality characteristic of the account and
20 may be compared to standard mortality curves such as the Iowa Curves. Where data was
21 available, accounts were analyzed using this method. Placement bands were used to illustrate the
22 composite history over a specific era, and experience bands were used to focus on retirement
23 history for all vintages during a set period.

24 The Depreciation Study report provides details regarding the life selection for each
25 account. Graphs and other data supporting the proposed life estimate are provided in the
26 "Determination of the Lives" section of the Depreciation Study. A summary comparison of the
27 depreciable lives is shown in Attachment B attached to this testimony.

28 **IV. GRADUALISM**

29 In this section of my testimony, I discuss how the Commission gradualism in rate
30 setting's policy is impacting the Company. Specifically, in recent proceedings, the Commission
31 has applied a principle of gradualism to depreciation rates in response to concerns about growing

1 cost burdens associated with increasing cost trends for negative net salvage.⁵ The Commission
2 explained that:

3 [t]he principle of gradualism applies where there is a recognized need to revise
4 estimated parameters, but where the change is allowed to occur incrementally
5 over time rather than all at once. Applying gradualism thus limits the approved
6 increase that would otherwise be warranted, all else being equal and mitigates the
7 short-term impact of large changes in depreciation parameters. Also, it is
8 advisable to be cautious in making large changes in estimates of service lives and
9 net salvage for property that will be in service for many decades, as future
10 experience may show the current estimates to be incorrect.⁶

11 The Commission gave specificity to this directive in D.14-08-032, instructing to “adopt no more
12 than 25% of the estimated net [salvage] increase from current [net salvage] rates”⁷ a directive
13 that was reiterated in D.15-11-021⁸ and D.19-05-020.⁹ This Depreciation Study follows these
14 directives in the selections for life and net salvage parameters for SoCalGas’s depreciable and
15 amortized assets.

16 Yet instead of gradualism being applied, in its 2019 GRC, SoCalGas was ordered to
17 retain all depreciation rates and parameters from the 2016 GRC.¹⁰ Because of this, the Company
18 is behind in the recovery of the removal cost for its investment in property, plant, and equipment.
19 The gradualism principle only exacerbates this issue. Figure DW-4 below shows the change in
20 life from 2012 to 2019 GRC for the Company’s largest accounts, as measured by plant
21 investment at December 31, 2020.

22 **FIGURE DW-4**
23 **SoCal Gas Changes in Life Largest Accounts**

Acct	2012 GRC Life	2019 GRC Life	Change
G352- Wells	29	49	20
G354 Compressor Station Equipment	45	41	-4
G367 Transmission Mains	57	64	7

⁵ Decision (D.)14-08-032 at 598.

⁶ *Id.*

⁷ *Id.* at 600.

⁸ D.15-11-021 at 413, 421, and 425.

⁹ D.19-05-020 at 315-320.

¹⁰ D.19-09-051 at 623.

Acct	2012 GRC Life	2019 GRC Life	Change
G376 Distribution Mains	55	68	13
G380 Services	51	67	14

1
2 The life is extending for a number of the larger accounts. And the gradualism applied to
3 net salvage is creating a shortfall in capital recovery for some accounts. The reality is that the
4 Company is incurring much more negative net salvage than currently authorized. Figure DW-5
5 shows how approved net salvage has changed over the past two GRCs.

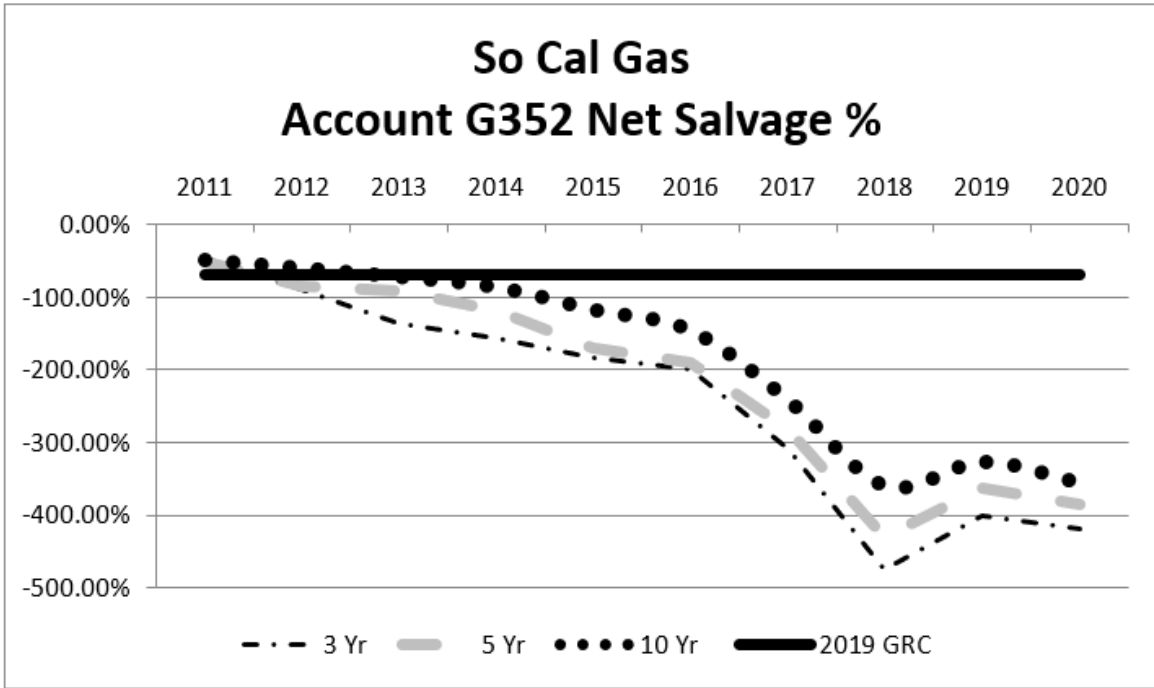
6 **FIGURE DW-5**
7 **SoCal Gas Changes in Net Salvage Largest Accounts**

Acct	2012 GRC Net Salvage	2019 GRC Net Salvage	Change
G352- Wells	-45	-70	25
G354 Compressor Station Equipment	-5	-15	10
G367 Transmission Mains	-30	-60	30
G376 Distribution Mains	-55	-80	25
G380 Services	-95	-115	20

8 Figures DW-6 through DW-10 show the actual negative net salvage incurred since 2011 as
9 compared to the currently authorized net salvage.

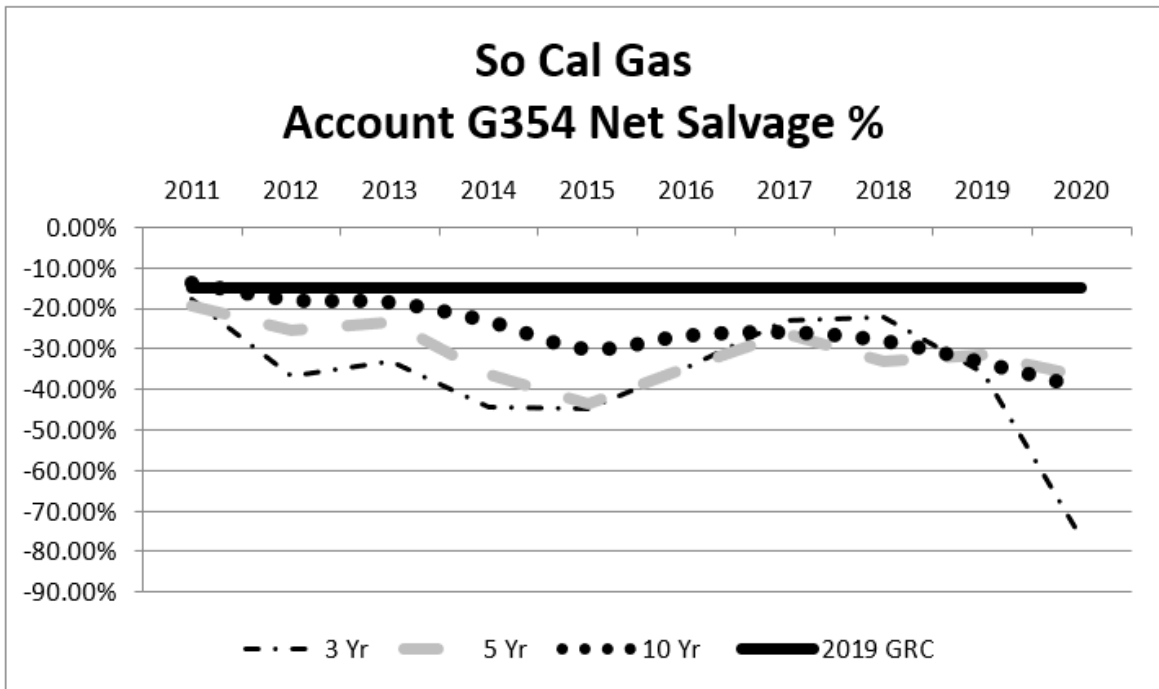
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FIGURE DW-6
SoCalGas Account 352 Net Salvage Experience 2011-2020



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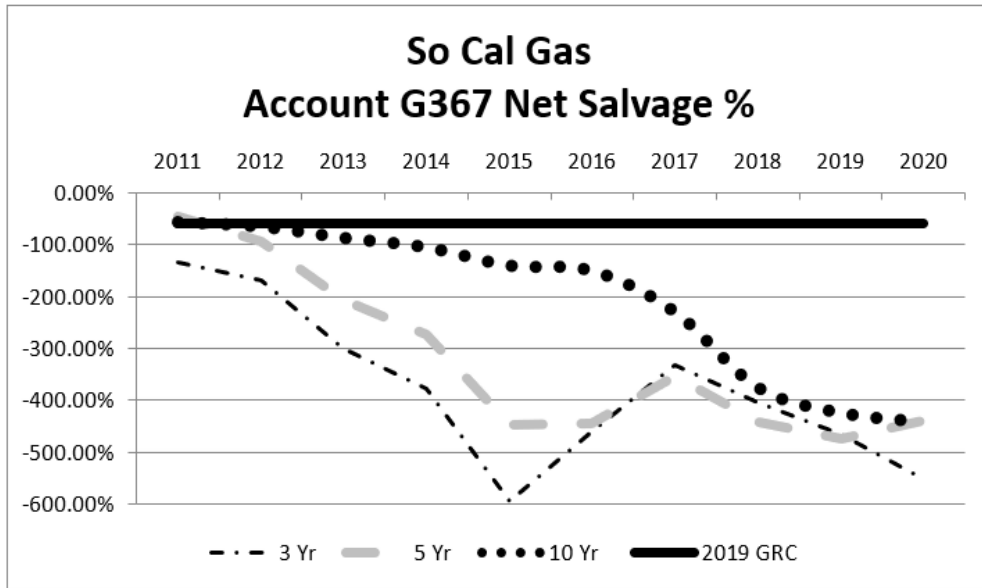
FIGURE DW-7
SoCalGas Account 354 Net Salvage Experience 2011-2020



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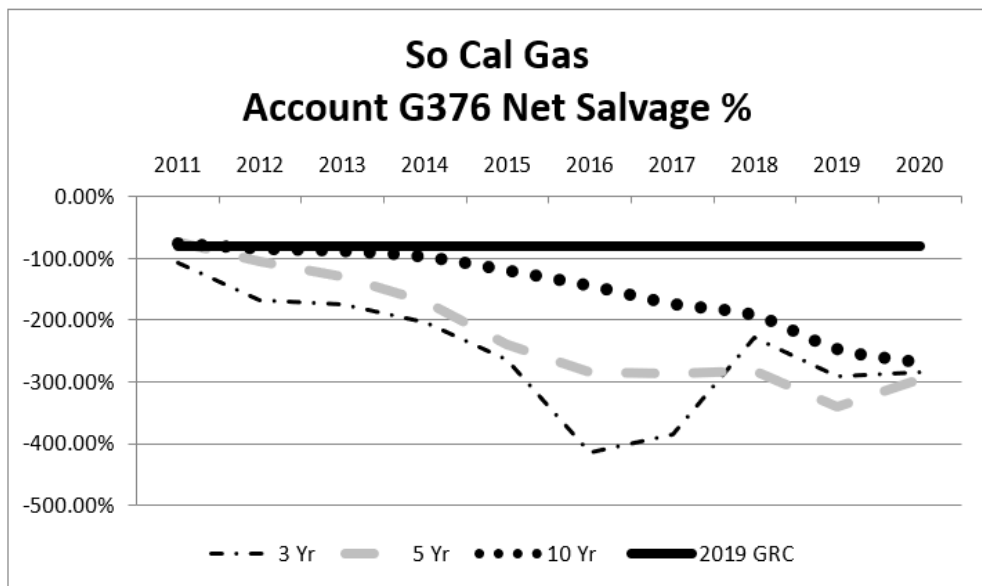
1 Notably, Account 354 experienced a moderate amount of net salvage in prior periods. But
2 indications in recent years are showing increasing negative net salvage. This is also true for the
3 Company's largest accounts in Mains and Services.

4 **FIGURE DW-8**
5 **SoCalGas Account 367 Net Salvage Experience 2011-2020**



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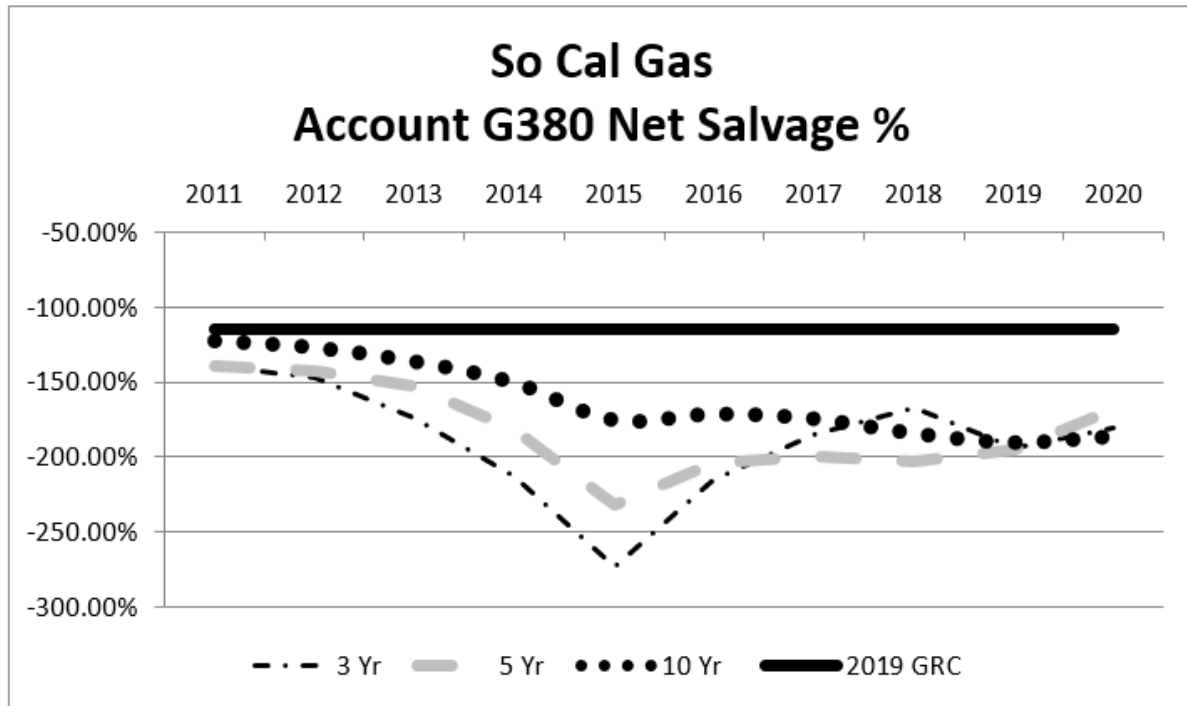
8 **FIGURE DW-9**
9 **SoCalGas Account 376 Net Salvage Experience 2011-2020**



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FIGURE DW-10
SoCalGas Account 380 Net Salvage Experience 2011-2020



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5 Given that SoCalGas' 2019 GRC decision continued the Company's previous depreciation
6 rates¹¹—combined with the gradualism principle—it is even more urgent that the Commission
7 adopt these net salvage proposals in this Depreciation Study.

8 **V. RESULTS OF DEPRECIATION STUDY**

9 The proposed life and curve dispersion and net salvage rates by account, grouped by
10 functional class, are presented below. Documentation in support of these results is found in my
11 workpapers, Exhibit SCG-32-WP. The service life and curve dispersion selections and estimated
12 net salvage rates for each account were derived from statistical analyses of historical data, visual
13 matching to Iowa curves, informed judgment, discussions with field personnel, and expectations
14 about the future projection of life and dispersion curve and net salvage.

15 **A. Underground Storage Plant**

16 Underground storage plant balance at December 31, 2021, is \$1.680 million, excluding
17 \$5 million for land which is non-depreciable. The accumulated reserve is \$213.5 million.

¹¹ D.19-09-051 at 623.

1 **1. Account 350: Rights-of-Way**

2 This account includes the cost of all interests in land on which underground storage lines,
3 telephone poles, their associated lines, and like property used in connection with underground
4 gas storage operations are located. Storage rights, recoverable oil, and rights-of-way are
5 subaccounts within this account. Assets in this account are individually amortized over 40 years
6 until fully amortized and will remain on the books until retired. Given that the assets this right of
7 way rests upon will last as long as 50 years, this Depreciation Study recommends moving to a
8 50-year amortization period. There is insufficient retirement data to analyze this account through
9 actuarial analysis. Based on judgment, this Depreciation Study recommends a 50-year life with a
10 Square (SQ) dispersion.

11 The current net salvage parameter for this account is 0 percent. These assets generally
12 have no residual value. This Depreciation Study proposes to retain the existing net salvage
13 parameter.

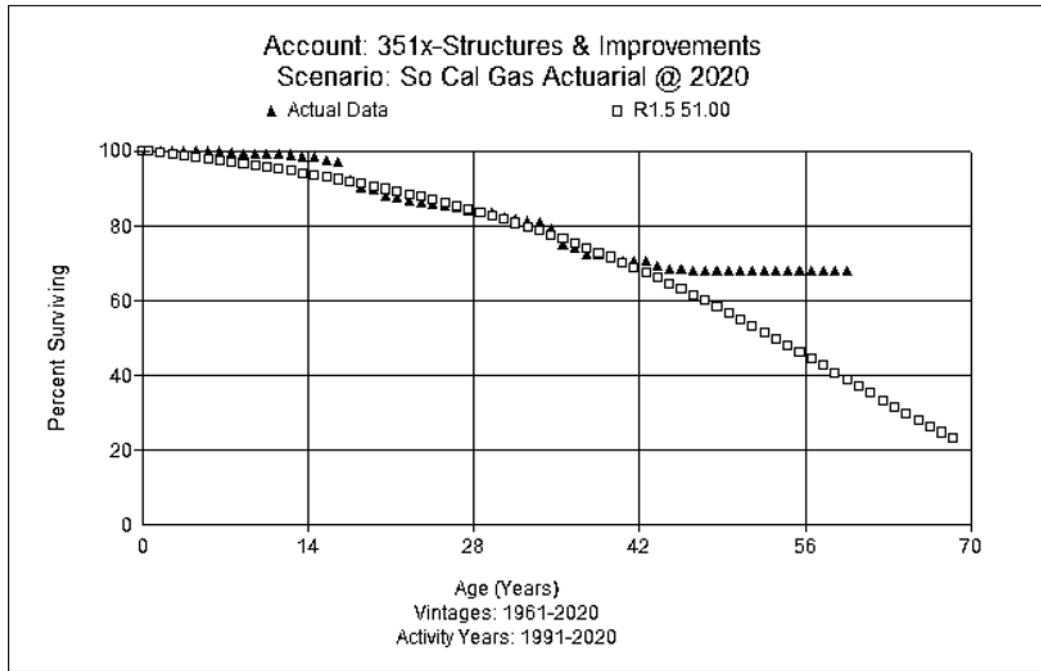
14 **2. Account 351: Structures and Improvements**

15 This account includes the cost of structures and various improvements in connection with
16 underground storage plant. Compressor station structures and other structures are subaccounts of
17 this account. The assets in this account consist of long-lived items such as buildings, structures,
18 site prep, electrical, roads, and foundations, as well as shorter lived assets such as roofs,
19 generators, fencings, lightings, fixtures, and other items. The current life/curve is 48 R1.5. The
20 average age of the surviving plant balance is 10 years.

21 Operations personnel support a slight increase in the life of this account from the
22 approved 48 years, as supported by this analysis. Actuarial analysis for this account also shows a
23 slight increase in life after comparing analytics from multiple placement and experience bands.
24 This Depreciation Study thus recommends increasing the average service life to 51 years and
25 retaining the current R1.5 dispersion curve based on input from operations personnel and
26 analytics from actuarial analysis. The observed life table from Company data is shown below in
27 Figure DW-11 comparing the proposed life estimate.

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FIGURE DW-11
Account 351x – Structure and Improvements



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The current authorized net salvage for this account is negative 70 percent. Net salvage has been erratic in recent years, with the five-year and ten-year average net salvage for this account being negative 143 and 141 percent, respectively. There was lower net salvage in 2018 and 2019 than prior periods. Given this pattern of data, this Depreciation Study recommends retaining 70 percent net salvage for this account.

3. Account 351.20: Storage Solar and Fuel Cells

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This account includes the cost of solar and fuel cell assets used for utility service. There is currently no plant in this account. SoCalGas expects to have these types of assets for this function in the future, and it is assumed that they will be incorporated into existing structures. However, since these are materially different assets than buildings and other structures, separating this plant into a new account is recommended. Based on judgment, this Depreciation Study recommends a 10-year life with an SQ dispersion for this account.

Based on judgment, negative 5 percent net salvage is recommended for this account.

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4. Account 352: Wells

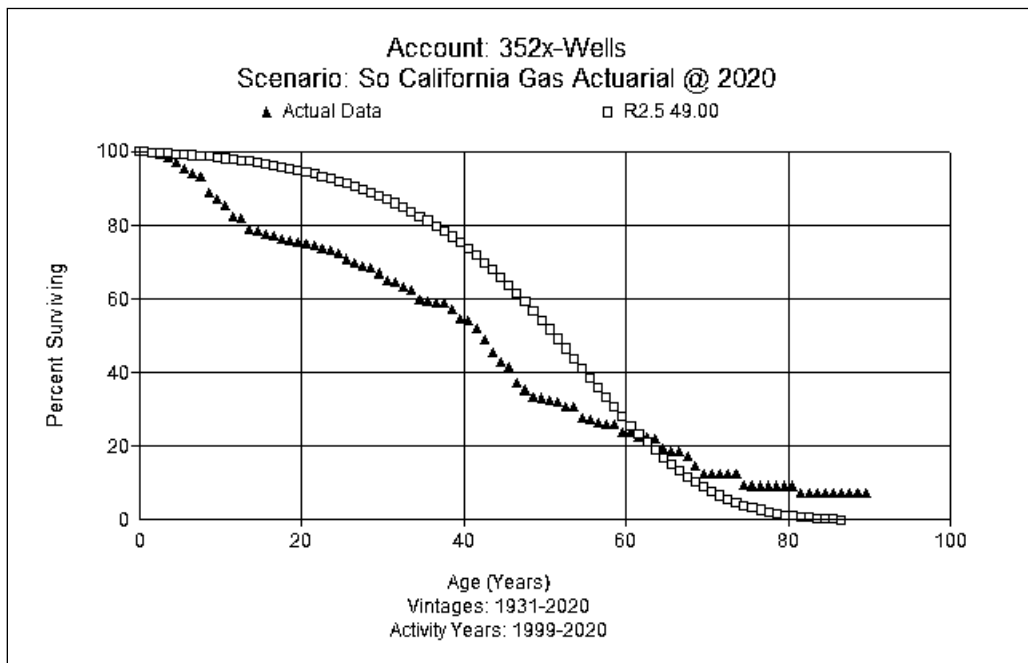
This account includes the drilling cost of wells used for injection and withdrawal of gas from underground storage projects, including wells kept open and used for observation. On average, components for wells require replacement every 10 years. Company personnel report

1 that there are current programs that are impacting lives in this account in the short run.

2 An example of this is well replacement, which is both multi-year and multimillion dollar
3 (\$40M per year). The well replacement program aims to replace storage well capacity that have
4 been abandoned (e.g., Honor Rancho) and will continue into 2023. Other activity will continue
5 to 2030 at other sites.

6 In discussion with operations personnel, some assets will routinely be replaced every 5 to
7 7 years. The current life/curve is 49 R2.5. The average age of the surviving plant balance is 11
8 years. Analytics from actuarial analysis show a decrease in life from 2016-2019 when many
9 well replacements occurred. Operations personnel recommend retention of the current life, even
10 though actuarial analysis shows a decrease in life. Based on input from operations personnel, the
11 Depreciation Study recommends retention of the 49 R2.5 life and dispersion curve. As a point
12 for comparison, Figure DW-12 below compares the observed life table to the proposed life
13 estimate.

14 **FIGURE DW-12**
15 **Account 352x-Wells**



16 The current net salvage parameter for this account is negative 70 percent. Years 2012-
17 2020 show negative net salvage well in excess of 100 percent annually driven by the well
18 abandonment projects. The cost to abandon wells has increased significantly due to new
19
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1 regulations.¹² Some abandonment work done for retired assets many years ago must be redone
2 to current regulation compliance, which will increase removal cost. The composite estimate
3 from recent well abandonments demonstrates an estimated negative 120 percent net salvage.
4 Based on the above estimates and remaining population of wells, this Depreciation Study
5 proposes negative 95 percent net salvage for this account, based on the 25 percent gradualism
6 criteria.

7 **5. Account 353: Lines**

8 This account includes installed gas pipelines used for conveying gas from point of
9 connection with transmission or field lines to underground storage wells and from underground
10 storage wells to the point where the gas enters the transmission or distribution system. The
11 average age of the surviving plant balance is 13 years. The current approved life for this account
12 is 54 years with an R3 dispersion.

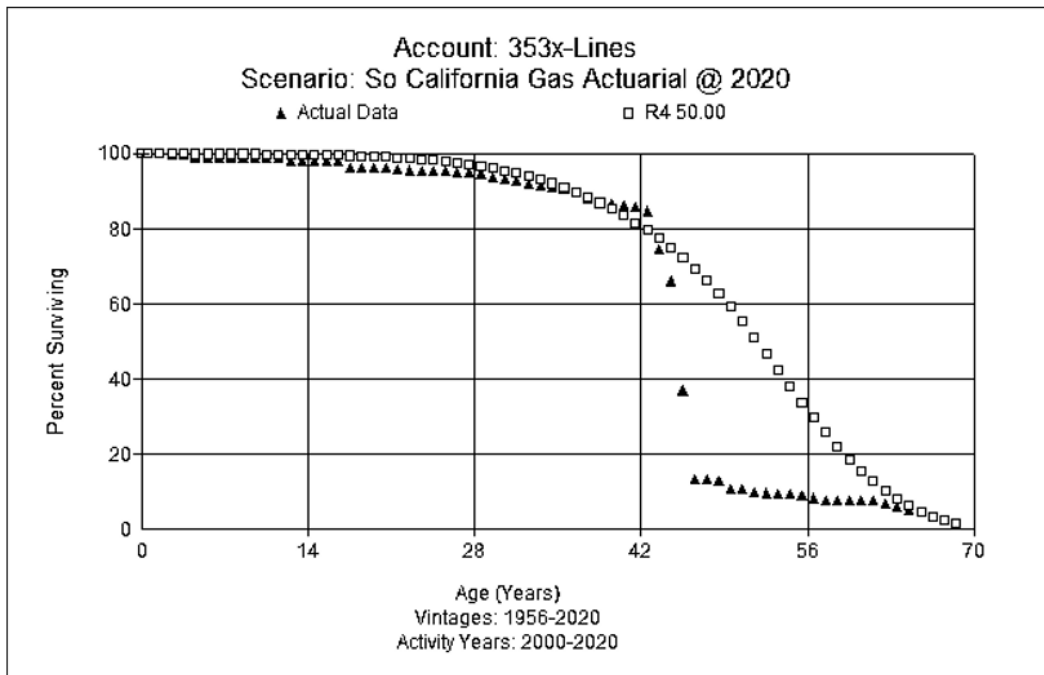
13 Actuarial analysis shows a decline in life to 50 years. Company personnel believe that
14 the decrease in life seen in the analysis could be related to well abandonments since surface
15 facilities are removed. Lines are carbon steel and, depending on the field, the pipe is wrapped,
16 buried, and catholically protected.

17 If the lines are above ground, they do not need cathodic protection. Company experts
18 expect a shorter life for buried pipe than above ground pipe from an operational perspective. At
19 one site (Honor Rancho), the coating is failing on underground pipe. Company subject matter
20 experts believe a 50-year life for this account is reasonable. Actuarial analysis shows a shorter
21 life in various placement and experience bands. Based on input from operations personnel and
22 actuarial analysis, the Depreciation Study recommends decreasing the life to 50 with a R4 life
23 dispersion curve. As a point for comparison, Figure DW-13 below compares the observed life
24 table to the proposed life estimate.

¹² The removal costs in this account have been so high that accumulated depreciation at December 31, 2020 is (\$46,996,177).

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FIGURE DW-13
Account 353x-Wells



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The current authorized net salvage is negative 40 percent. Moving averages in this account in the most recent year are negative 82 for both the 5- and 10-year periods. Based on judgment and Company history, this Depreciation Study recommends moving by negative 25 percent as allowed by the CPUC in recent proceedings to negative 65 percent net salvage for this account.

6. Account 354: Compressor Station Equipment

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This account includes installed compressor station equipment used for the purpose of raising the pressure of gas for delivery to underground storage or to raise the pressure of gas withdrawn from underground storage for delivery to the transmission or distribution system. The current life/curve is 41 L0.5. The average age of the surviving plant balance is 8 years.

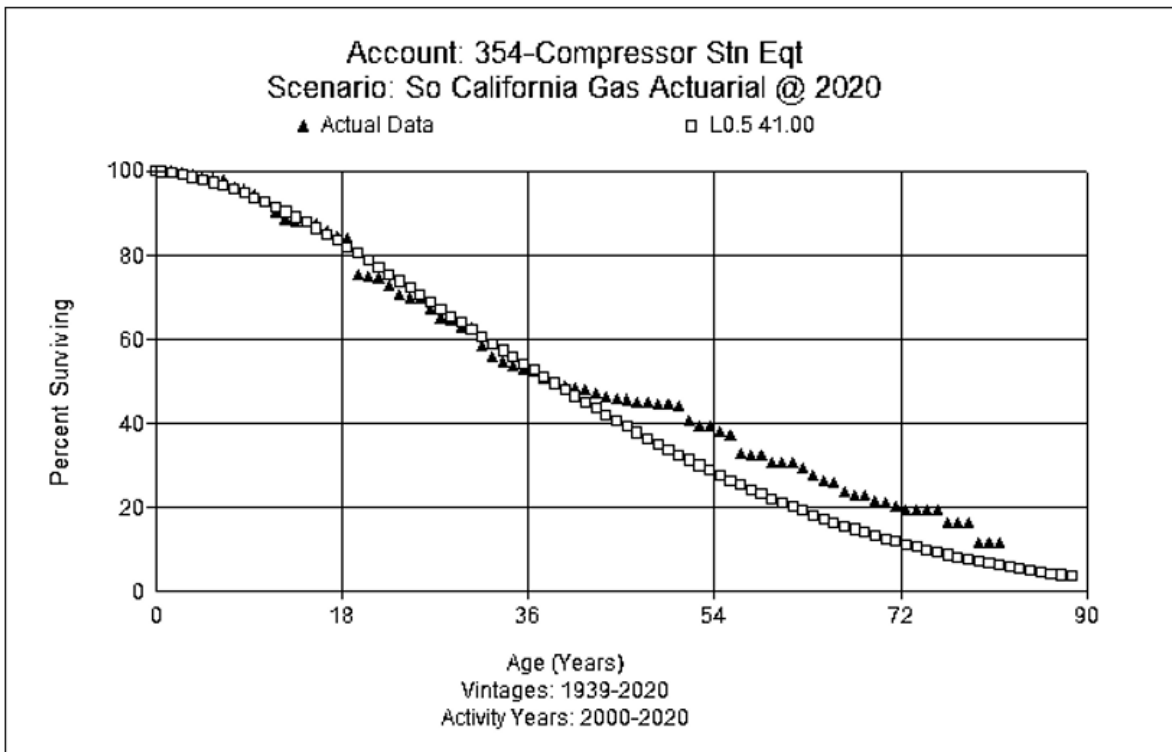
A program of compressor modernization is underway, with \$600M at Honor Rancho, the second largest of the Company's four underground sites, and a smaller program at Playa Del Ray. Company personnel report that this modernization effort is driven by aging equipment and air quality regulations by Air Quality Management District. The Company is also adding emissions controls at some sites.

1 At Honor Rancho, which was converted to storage in 1975, the Company is installing a
2 new compressor station and removing the original compressors once the new station is in place.
3 The completion date for that project is estimated for 2027.

4 The life of reciprocating compressors and turbine driven compressors are similar. Aliso
5 Canyon has been replaced in the same way that Honor Rancho will be at an estimated cost of
6 \$300M. This project only replaced one portion of the original injection system.

7 Turbine driver compressors require more capital replacements than reciprocating
8 compressors, where maintenance costs are higher. Company personnel recommend retention of
9 the current service life and dispersion of 41-year average service life with an L0.5 dispersion
10 curve. Actuarial analysis shows a close visual match using the current life, with good visual
11 matches to 40 percent surviving in the widest bands. Based on input from Company personnel
12 combined with actuarial analysis, this Depreciation Study proposes retaining a 41-year life with a
13 L0.5 dispersion. As a point for comparison, Figure DW-14 below compares the observed life
14 table to the proposed life estimate.

15 **FIGURE DW-14**
16 **Account 354 – Compressor Station Equipment**



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1 The current authorized net salvage rate for this account is negative 15 percent. Moving
2 averages in this account in the most recent year are negative 27 percent and negative 33 percent
3 for the 5- and 10-year periods. Based on recent experience, this Depreciation Study recommends
4 moving from negative 15 percent net salvage to negative 25 percent for this account.

5 **7. Account 355: Measuring and Regulating Equipment**

6 This account includes installed gas pipelines used for the purpose of measuring and
7 regulating deliveries of gas to underground storage, and withdrawals of gas from underground
8 storage. The current life/curve is 22 L0. The average age of the surviving plant balance is seven
9 years.

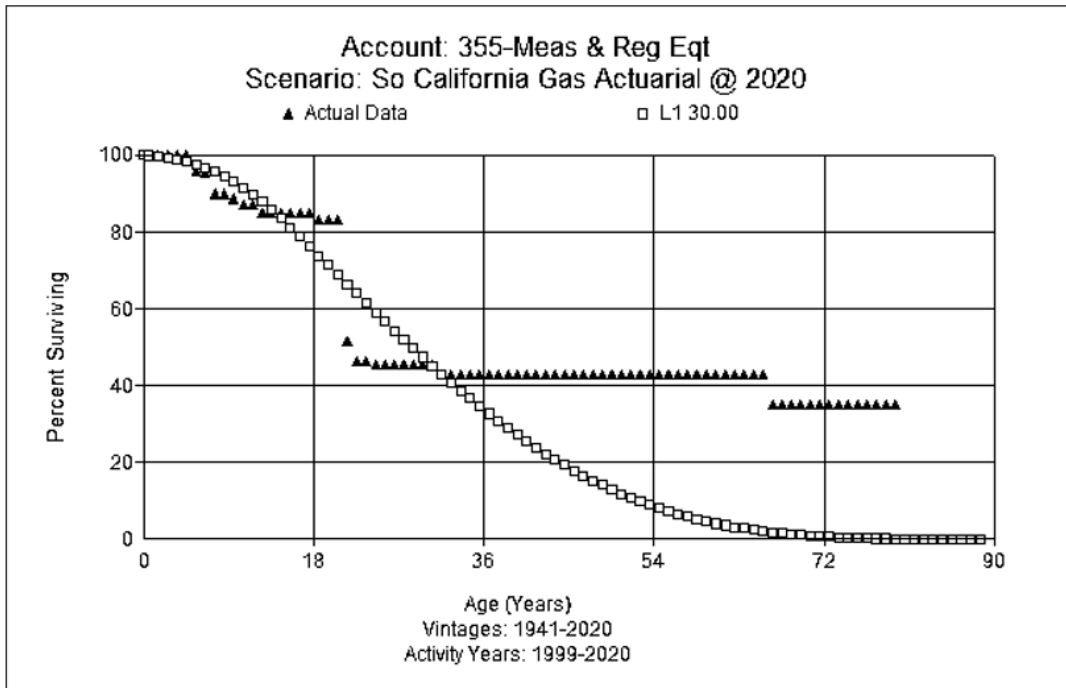
10 Company personnel report that technology change is the biggest force impacting this
11 account through retirements. Specifically, the Company is changing from older technology to
12 digital equipment, which Company personnel believe will have an effect on the life of this
13 account. For example, the Company is still using dial-up modems to collect data. Assets that
14 will be replaced frequently are measurement related, such as flow elements (turbine meter and
15 orifice plates), flow computers, and transmitters.

16 At the same time, Company personnel believe that many of the assets will attain a longer
17 life than the 22-year authorized life from an operations perspective. Company personnel support
18 moving the life longer, perhaps to 30 years, based on operational considerations. Actuarial
19 analysis shows large retirements around age 20 that make it difficult to match various Iowa
20 curves.

21 Based on input from Company personnel, this Depreciation Study recommends a 30 L1
22 life and dispersion curve for this account. For comparison, Figure DW-15 below shows the
23 observed life table and the proposed life estimate.

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FIGURE DW-15
Account 355 – Measuring and Regulating Equipment



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The current authorized net salvage rate for this account is positive 5 percent. The most recent five-year and 10-year moving averages in this account are negative 9 and negative 8 percent, respectively. Based on recent experience, this Depreciation Study recommends moving to the trend in negative net salvage with a proposed negative 5 percent net salvage for this account.

8. Account 356: Purification Equipment

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This account includes installed apparatus used for the removal of impurities from and the conditioning of gas delivered to or removed from underground storage fields. The current life/curve is 39 R2.5. The average age of the surviving plant balance is 16 years. Company experts report that there have recently been some changes in the dehydration equipment, with changing vessels and modifying internals of existing vessels.

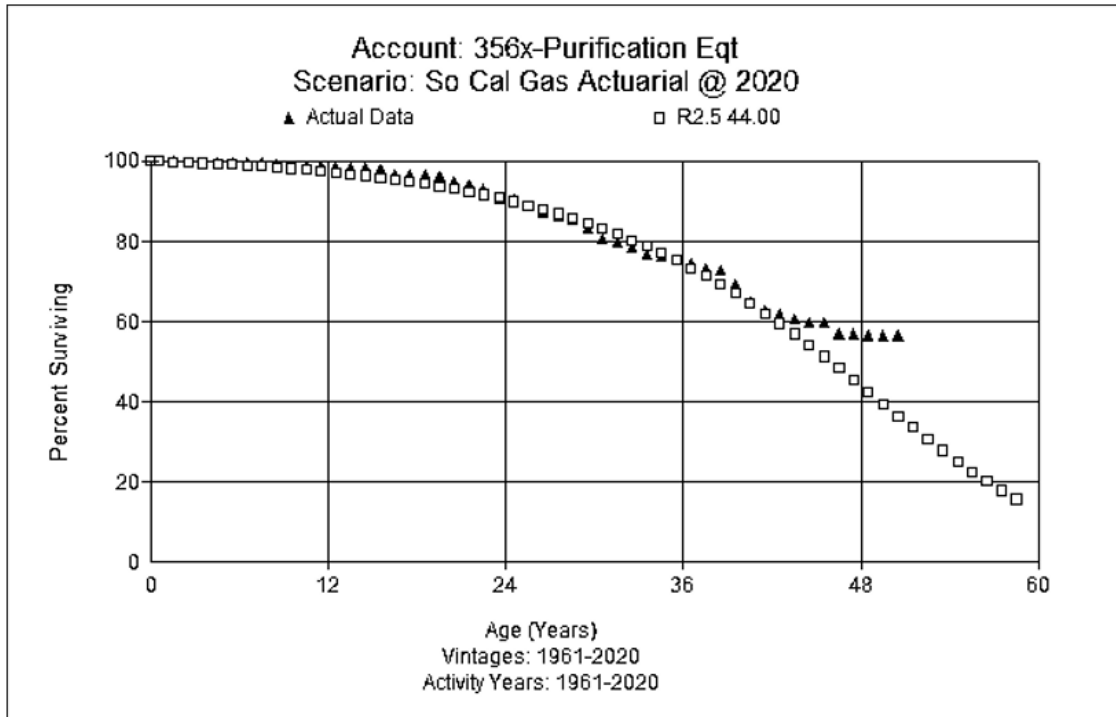
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The Company is changing technology (*e.g.*, structured packing instead of bubble trays). In the past, the Company moved to hot oil heaters from steam. Analytics from actuarial analysis show a slight increase of 5 or 6 years, which Company engineers believe is reasonable based on current conditions. Actuarial analysis shows a good match with this longer life and the same dispersion. Based on input from operations personnel and actuarial analysis, the Depreciation

1 Study recommends an average service life of 44 years and retaining the R2.5 curve. For
2 comparison, Figure DW-16 below shows the observed life table and the proposed life estimate.

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FIGURE DW-16
Account 356x - Purification Equipment



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7 The current authorized net salvage rate for this account is negative 30 percent. There are
8 environmental drivers that are driving removal cost higher, including new asbestos and concrete
9 regulations. Regulations impact asbestos in concrete foundations, which will increase removal
10 cost. Moving averages in this account in the most recent year are negative 46 and 59 percent for
11 the 5- and 10-year periods, respectively. For years 2018 and 2019, the net salvage indications
12 were more in line with the existing negative 30 percent. Based on recent experience, this
13 Depreciation Study recommends retaining negative 30 percent net salvage for this account.

14

9. Account 357: Other Equipment

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16 This account includes installed equipment used in connection with underground storage
17 of gas, when not assignable to any of the foregoing accounts. The current life/curve is 37 R2.5.

17

18 The average age of the surviving plant balance is 8 years. Company personnel report that there
19 are significant amounts of electrical assets, roads, and non-Department of Transportation piping

19

in this account. Programmable Logic Controllers and pumps would be components with shorter

1 **1. Account 365.29: Rights-of-Way**

2 This account includes the cost of rights-of-way used in connection with transmission
3 operations. Assets in this account are individually amortized over 40-years until fully amortized
4 and will remain on the books until retired. In 2018, the Company signed an agreement with the
5 Morongo Indian Tribe to lease various gas transmission easements across the Tribe’s reservation.
6 The agreement is for 40 years. Based on the new agreement, SoCalGas recommends retaining
7 the 40-year amortization period. There is insufficient retirement data to analyze this account
8 through actuarial analysis. Based on judgment, this Depreciation Study recommends retaining a
9 40-year life with a SQ dispersion.

10 There are no removal costs associated with rights-of way.

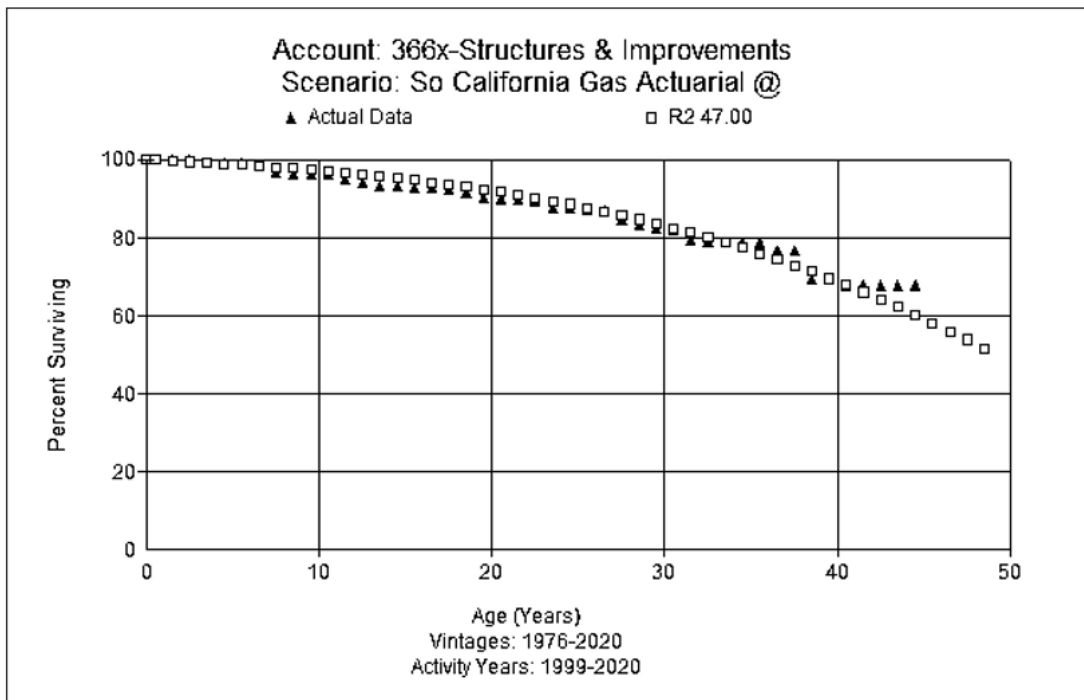
11 **2. Account 366: Structures and Improvements**

12 This account includes the cost of structures and various improvements in connection with
13 transmission plant. Compressor station structures, measuring and regulating structures, and other
14 structures are subaccounts included in this account. The current life/curve is 47 R2. The average
15 age of the surviving plant balance is 13 years. Company experts report that operating rules,
16 maintenance practices, and other retirement forces impacting this account have been the same for
17 the past several years. They thus do not believe there would be any operational reason for a
18 change in life for this account.

19 Actuarial analysis shows good visual matching through age 40. Based on actuarial
20 analysis and input from Company operations personnel, the Depreciation Study recommends
21 retaining the average service life to 47 with a R2 dispersion curve. For comparison, Figure DW-
22 18 below shows the observed life table and the proposed life estimate.

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FIGURE DW-18
Account 366x – Structures and Improvements



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The authorized net salvage rate for this account is negative 40 percent. Negative net salvage has increased for this account, with the five-year moving averages showing negative 245 percent and the 10-year average showing negative 242 percent. Based on judgment and Company history, this Depreciation Study recommends moving by negative 25 percent as approved by the Commission in recent proceedings, resulting in a negative 65 percent net salvage for this account.

11

3. Account 366.20: Transmission Solar and Fuel Cell

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This account includes the cost of solar and fuel cell assets used for utility service. There is currently no plant in this account. SoCalGas expects to have these types of assets for this function in the future, however, and it is assumed that they will be incorporated into existing structures.

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But since these are materially different assets than buildings and other structures, separating this plant is recommended. Based on judgment, this Depreciation Study recommends a 10-year life with an SQ dispersion, and a negative 5 percent net salvage is recommended for this account.

1 **4. Account 367: Mains**

2 This account includes the cost of installed transmission system mains. Assets include
3 large high pressured gas mains of different sizes and types, cathodic protection equipment, drip
4 lines and pots, pipe coating, pipe and fittings, pipe supports, anchors, and valves. The current
5 life/curve is 64 R3.

6 The average age of the surviving plant balance is 14 years. The Company is also seeing
7 some class changes as population densities increase. Typically, it is much more rectifier based,
8 which would have a life from between 20 and 25 with anodes around 15 years or less.

9 The Integrity Management Program (IMP) forced the retirement of some valves. The
10 Company has been adding more instrumentation and automation (remote control) in recent years.
11 For the most part, automation could be added to existing assets (such as valves) in most
12 instances.

13 But in about 40% of the cases, they would have to replace the full valve assembly.
14 Actuarial analysis shows a life of 75 years or greater that is beyond industry norms. Based on
15 input from Company personnel and incorporating judgment, this Depreciation Study
16 recommends moving to a 70-year life and an R2 dispersion.

17 The authorized net salvage rate for this account is negative 60 percent. The five- and 10-
18 year moving averages show negative 360 and negative 373 percent, respectively. Based on
19 judgment and Company history, this Depreciation Study recommends moving by the negative 25
20 percent as approved by the Commission in recent proceedings to negative 85 percent net salvage
21 for this account.

22 **5. Account 367.6: Hydro Test Equipment**

23 This is a new account that will be used as the Company complies new Pipeline
24 Hazardous Materials and Safety Administration (PHMSA) regulations, effective July 1, 2020,
25 that will impact pipelines of vintage 1970 and older. The rule, known as the Mega Rule, seeks to
26 improve pipeline safety by combining previous regulations for onshore gas transmission
27 addressing pipeline safety and environmental risk.

28 With new regulations for operations and increased requirements for reporting, pipeline
29 operators expand Integrity Management Programs, verify Maximum Allowable Operating

1 Pressure, and test previously untested pipe to ensure they are in compliance.¹³ Costs incurred to
2 comply with the Mega Rule will be treated as a capital item. After examining the remaining life
3 of vintages 1970 and older, those assets will have an average remaining life of about 21 years,
4 assuming the proposed life and curve for Account 367.

5 Since this is a new account with no history, actuarial analysis was not utilized. The
6 testing costs are proposed to be depreciated over 21 years with an SQ curve. Since these costs
7 are not directly tied to specific mains, auto retirement is recommended. No net salvage is
8 estimated for this account.

9 **6. Account 368: Compressor Station Equipment**

10 This account includes the cost of installed compressor station equipment and associated
11 appliances used in connection with transmission system operations. Due to the high pressures
12 used at compressor stations, replacement of engines, gas turbines, and compressors may have to
13 occur after 15 years. The current life/curve is 50 R1.

14 The average age of the surviving plant balance is 16 years. Company personnel report
15 that the Company has a modernization program driven by emissions compliance and
16 decarbonization initiatives. SoCalGas has used low speed reciprocating engines. But it is
17 moving more to turbine compressors in the future, which have a shorter life than reciprocating
18 compressors.

19 Several replacement projects are underway. For example, Ventura replacements will have
20 a reciprocating engine, Honor Rancho is replacing compressors which have been cycled more
21 frequently causing more deterioration, and carbon reduction solutions are being considered. The
22 project at Honor Rancho has an estimated cost of \$500M for one station and replaces assets from
23 the 1950s to 1990s. SoCalGas is focused on replacing old technology with new turbines and
24 adding hydrogen production to use on site.

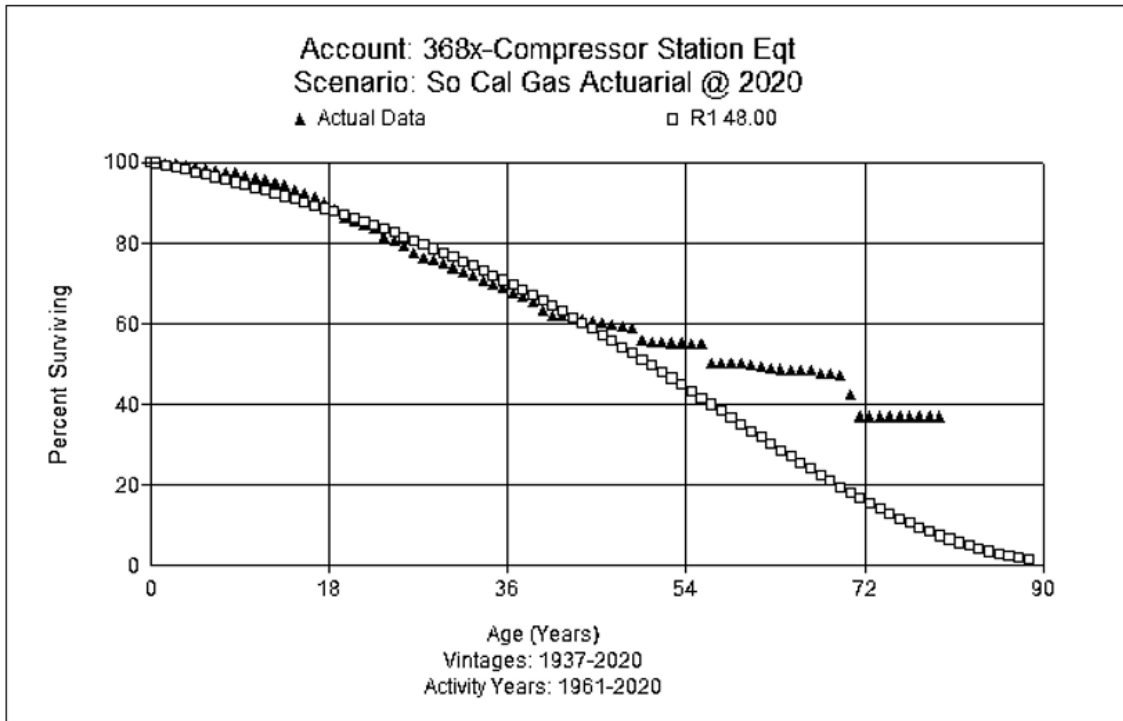
25 From a technical standpoint, operations personnel report that reciprocating compressors
26 operated at high speed have more issues. There is also a transition where the longer-lived
27 reciprocating compressors are being replaced with shorter lived turbines and electric motor

¹³ DynamicRisk.net, The PHMSA Gas “Mega Rule” in Practice (November 14, 2020) available at <https://dynamicrisk.net/2020/11/14/phmsa-mega-rule-in-practice/#:~:text=PHMSA's%20Mega%20Rule%20is%20now,management%20programs%20and%20operating%20practices.>

1 driven compressors. Storage operations are requiring the cycling of compressors more than in
2 the past, which shortens the life of the compressors.

3 The program is just beginning. It will be in service between 2024-2026, and Marino and
4 Honor Rancho will not be used and useful until 2025 or 2026. Actuarial analysis shows good
5 visual matching through age 45 for a 48-year life with a R1 dispersion. Based on actuarial
6 analysis and input from Company operations personnel, the Depreciation Study recommends
7 moving the average service life to 48 years with a R1 dispersion curve. For comparison, Figure
8 DW-19 below shows the observed life table and the proposed life estimate.

9 **FIGURE DW-19**
10 **Account 368x – Compressor Station Equipment**



11 The authorized net salvage rate for this account is negative 15 percent. The five- and 10-
12 year moving averages show negative 88 and negative 117 percent, respectively. Based on
13 judgment and Company history, this Depreciation Study recommends applying the negative 25
14 percent change permitted by the Commission in recent proceedings to negative 40 percent net
15 salvage for this account.
16
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1 The authorized net salvage rate for this account is negative 50 percent. The five- and 10-
2 year moving averages show negative 187 and negative 198 percent, respectively. Based on
3 judgment and Company history, this Depreciation Study recommends moving by negative 25
4 percent as allowed by the CPUC in recent proceedings to negative 75 percent net salvage for this
5 account.

6 **8. Account 370: Transmission Communication Equipment**

7 This account includes installed communication equipment used in the operation and
8 maintenance of the gas transmission system, including supervisory control and data acquisition
9 (SCADA). The average age of the surviving plant balance is 3 years. Company operations
10 personnel report that technology improvements and obsolescence of old equipment may decrease
11 the life of this equipment.

12 Cyber threats also can cause reasons to replace with stronger equipment. The assets in
13 this account are a combination of all forms of communication (4-wire, radio, fiber, cell, satellite).
14 Company personnel report that there is an ongoing project to replace cell equipment. New
15 control equipment is being installed as part of the Pipeline Safety Enhancement Plant
16 (PSEP). Although a 15-year life remains reasonable, it may decrease in future years. Since this
17 account is relatively new, there is insufficient actuarial data to perform life analysis. Based on
18 input from Company personnel, this Depreciation Study recommends retaining the existing 15
19 SQ life and dispersion curve. Based on judgment this Depreciation Study recommends retention
20 of the existing future net salvage rate of 0%.

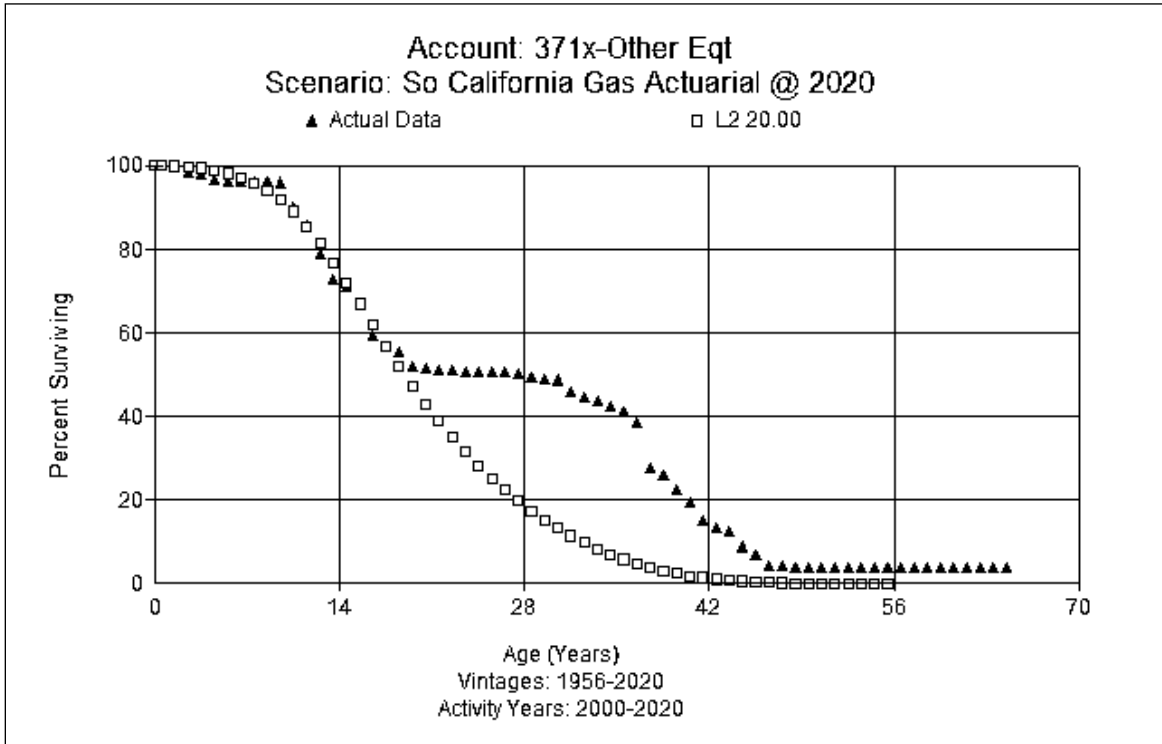
21 **9. Account 371: Other Equipment**

22 This account includes installed equipment used in transmission system operations, when
23 not assignable to any of the foregoing accounts. The current life/curve is 21 L0.5. The average
24 age of the surviving plant balance is 12 years.

25 This equipment has had little change over the years. Nor do subject matter experts expect
26 a large change. Analytics from actuarial analysis show an excellent visual match through age 20
27 for a 20-year life and L2 dispersion. Based on actuarial analysis and judgment, this Depreciation
28 Study recommends moving to a 20-year life with a L2 dispersion. For comparison, Figure DW-
29 21 below shows the observed life table and the proposed life estimate.

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FIGURE DW-21
Account 371x – Other Equipment



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5 The authorized net salvage rate for this account is negative 10 percent. The retirement
6 data since 2012 is very sparse with few retirements. While there are indications of higher
7 negative net salvage, the data is not indicative of a pronounced trend. Based on recent data, this
8 Depreciation Study recommends retention of negative 10 percent net salvage for this account.

9

10. Account 371.1: Temporary Assemblies and Test Heads

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11 This account includes the cost of temporary assemblies and test heads used in connection
12 with transmission operations. This is a new account that will be separated from Account 371.
13 There is no plant investment at present.

13

14 Company subject matter experts state that the assets in this account will differ from
15 Account 371. They believe that these assets will be used during a period of at least 10
16 years. The 10-year depreciation is chosen due to the nature of how these assets are used and
17 their service life, after which they are sent to salvage.

17

18 These assets are used to conduct post construction strength test on pipelines and there are
19 only so many tests that can be performed with a test head before it could no longer be
utilized. Since this is a new account with no history, actuarial analysis was not utilized. Based

1 on the recommendation of Company operations personnel, a 10-year life with an SQ dispersion
2 is proposed for this account. Company operations personnel do not think these assets will have
3 any residual value. Thus, a net salvage percentage of 0 percent is proposed for this account.

4 **C. Distribution Plant**

5 Distribution plant balance at December 31, 2021 is \$12,115 million, excluding \$30
6 million for land which is non-depreciable. The accumulated reserve is \$5,934 million.

7 **1. Account 374.2: Land Rights**

8 This account includes the cost of land rights used in connection with distribution
9 operations. Assets in this account are individually amortized over 40-years until fully amortized
10 and will remain on the books until retired.

11 Given that the proposed lives of account 376 and 380 are close to 70 years, this
12 Depreciation Study recommends extending the life of this account to a 70-year amortization
13 period. There is insufficient retirement data to analyze this account through actuarial analysis.
14 Based on judgment, this Depreciation Study recommends a 70-year life with a SQ dispersion.
15 There are no removal costs associated with rights-of way.

16 **2. Account 375: Structures and Improvements**

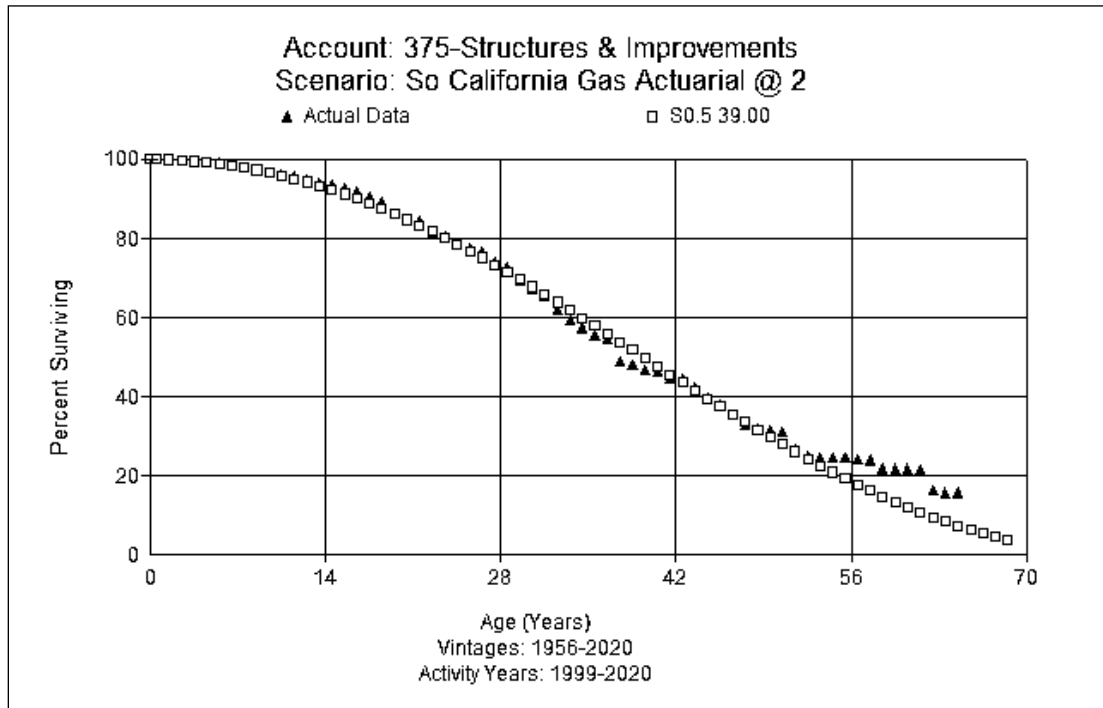
17 This account includes the cost of structures and improvements used in connection with
18 distribution operations. Besides long-lived assets such as buildings and structures, this account
19 consists of many short-lived assets such as roofs, interior office improvements, wiring upgrades,
20 and other items. The current life/curve is 40 S0.

21 The average age of the surviving plant balance is 14 years. Operations personnel state
22 that there are no obvious changes in the usage or characteristics of these assets that would
23 suggest a material change in life. There are a number of shorter life assets within the group:
24 roofs, HVAC, generators, parking lot replacements, etc. that would moderate the building lives.

25 Analytics from actuarial analysis shows the life account is close to the current 40-year
26 range. Lives of the assets in this account are expected to be shorter than assets in Account 390,
27 which have more robust systems like general office facilities. Actuarial analysis shows an
28 excellent visual match for a 39-year life and S0.5 dispersion. Based on information from
29 Company operations personnel and actuarial analysis, SoCalGas recommends decreasing the
30 average service life to 39 years and moving to a S0.5 dispersion curve. For comparison, Figure
31 DW-22 below shows the observed life table and the proposed life estimate.

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FIGURE DW-22
Account 375 – Structures and Improvements



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The Commission has authorized a negative 10 percent net salvage rate for this account. The three-year, five-year, and 10-year moving averages are negative 40, negative 39, and negative 39 percent, respectively. To move in the direction of this trend, a higher (more negative) net salvage is recommended. Based on judgment and Company experience, this Depreciation Study recommends moving to negative 20 percent net salvage.

3. Account 375.20: Distribution Solar and Fuel Cell

11 This account includes the cost of solar and fuel cell assets used for utility service. There
12 is currently no plant in this account. SoCalGas expects to have these types of assets for this
13 function in the future, and it is assumed that they will be incorporated into existing structures.

14 Yet since these are materially different assets than buildings and other structures,
15 separating this plant is recommended. Based on judgment, this Depreciation Study recommends
16 a 10-year life with an SQ dispersion for this account. Likewise, based on judgment, negative 5
17 percent net salvage is recommended for this account.

4. Account 376: Mains

18 This account includes the cost of installed distribution system mains. Steel mains, plastic
19 mains, and deep well anodes are all subaccounts included in this account. The current life/curve
20

1 is 68 R2.5. The average age of the surviving plant balance is 17 years.

2 The Integrity management program is replacing \$280M per year of bare steel and early
3 vintage plastic (pre-1973 and 1973-1985) for both mains and services. Over the last 4 years, the
4 replacements have tripled. This program is a continuing effort that has been in effect for a while
5 and has escalated over the last few years.

6 This is in addition to normal replacements. Company personnel would have expected the
7 life to decrease, given the level of retirements that are occurring. From a longer-term operational
8 perspective, company personnel recommend retaining the 68-year life and the R2.5 dispersion.
9 Actuarial analysis shows a life of more than 80 years, which is well beyond industry
10 expectations. Based on input from Company personnel and uncertainty regarding
11 decarbonization in the future, this Depreciation Study recommends retention of the existing
12 service life, 68 R2.5.

13 The Commission has authorized a negative 80 percent net salvage rate for this account.
14 The three-year, five-year, and 10-year moving averages show negative 243, negative 251, and
15 negative 243 percent, respectively. To move in the direction of this trend, a higher (more
16 negative) net salvage is recommended. Based on judgment and Company experience, this
17 Depreciation Study recommends moving to negative 105 percent net salvage, based on the
18 amount of change allowed by the Commission under its gradualism precedent.

19 **5. Account 378: Measuring and Regulating Equipment**

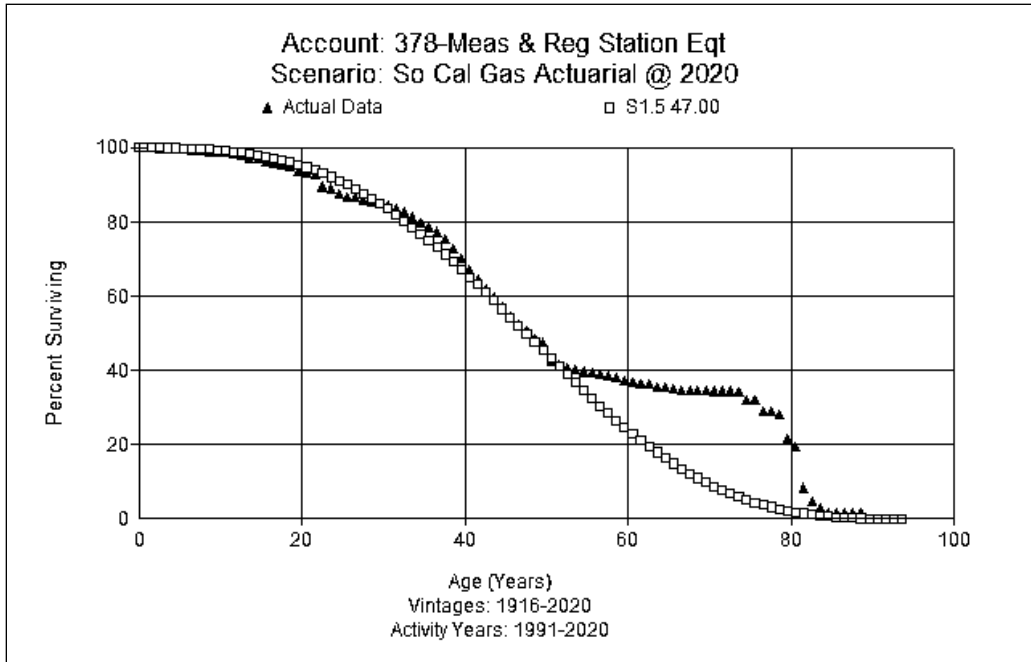
20 This account includes the cost of installed meters, gauges, and other equipment used in
21 measuring and regulating gas in connection with distribution system operations other than
22 measurement of gas deliveries to customers. The current life/curve is 47 S0.5. The average age
23 of the surviving plant balance is 13 years.

24 Company personnel report that the Company is targeting higher risk regulation stations
25 for replacement. The regulations for regulating stations have changed more than the regulations
26 for mains and services. The Company has also been upgrading stations. And they are more
27 aggressively targeting regulating stations than they previously have.

28 Operationally, there is no reason that the life should increase. There are drivers that
29 would decrease the life, such as Risk Assessment and Mitigation Phase and Control Center
30 Modernization programs. Actuarial analysis shows an excellent visual match for a 47-year life
31 with a S1.5 dispersion. Based on input from operations and actuarial analysis, this Depreciation

1 Study recommends retaining the existing 47-year life and moving to a S1.5 dispersion. For
2 comparison, Figure DW-23 below shows the observed life table and the proposed life estimate.

3 **FIGURE DW-23**
4 **Account 378 – Measuring and Regulation Equipment**



5 The current net salvage parameter for this account is negative 95 percent. The 10-year
6 historical average for net salvage shows a net salvage rate of -267%. SoCalGas recommends
7 increasing the current future net salvage rate from -95% to -120%, based on the amount of
8 change allowed by the Commission under its gradualism precedent.
9
10

11 **6. Account 380: Services**

12 This account includes the cost of installed service pipes and accessories leading to
13 customers' premises. The current life/curve is 67 R2. The average age of the surviving plant
14 balance is 19 years.

15 Company personnel report that if a service is cut, the Company will generally repair the
16 service. If a service has a leak, the Company will likely replace it. When a steel main is replaced
17 with plastic, the service would typically be replaced if it were also steel.

18 Company personnel expect the life of services to be slightly shorter than the life of mains,
19 as there are a number of factors that would cause services to retire earlier than mains. Actuarial
20 analysis continues to support a life around 67 years. Based on input from Company personnel

1 and judgment, this Depreciation Study recommends retaining the 67-year life with an R2
2 dispersion for this account.

3 The current authorized net salvage is negative 115 percent. The three-year, five-year, and
4 10-year moving averages show negative 181, negative 168, and negative 187 percent,
5 respectively. Based on judgment and Company experience, this Depreciation Study
6 recommends moving to negative 140 percent net salvage for this account, based on the amount
7 change allowed by the Commission under its gradualism precedent.

8 **7. Account 381: Meters**

9 This account includes the cost of installed meters, or devices and appurtenances thereto,
10 for use in measuring gas delivered to users, whether actually in service or held in reserve. The
11 current life/curve is 25 S0.5. The average age of the surviving plant balance is 11 years.
12 Operations personnel report that meters would have historically lasted longer.

13 SoCalGas has 6 million meters in service. Operations personnel report that they target
14 replacing aging meters that were approaching the 30-year life and will request more capital in
15 this GRC. When SoCalGas installed Advanced Metering Infrastructure (AMI), they would also
16 replace older meters.

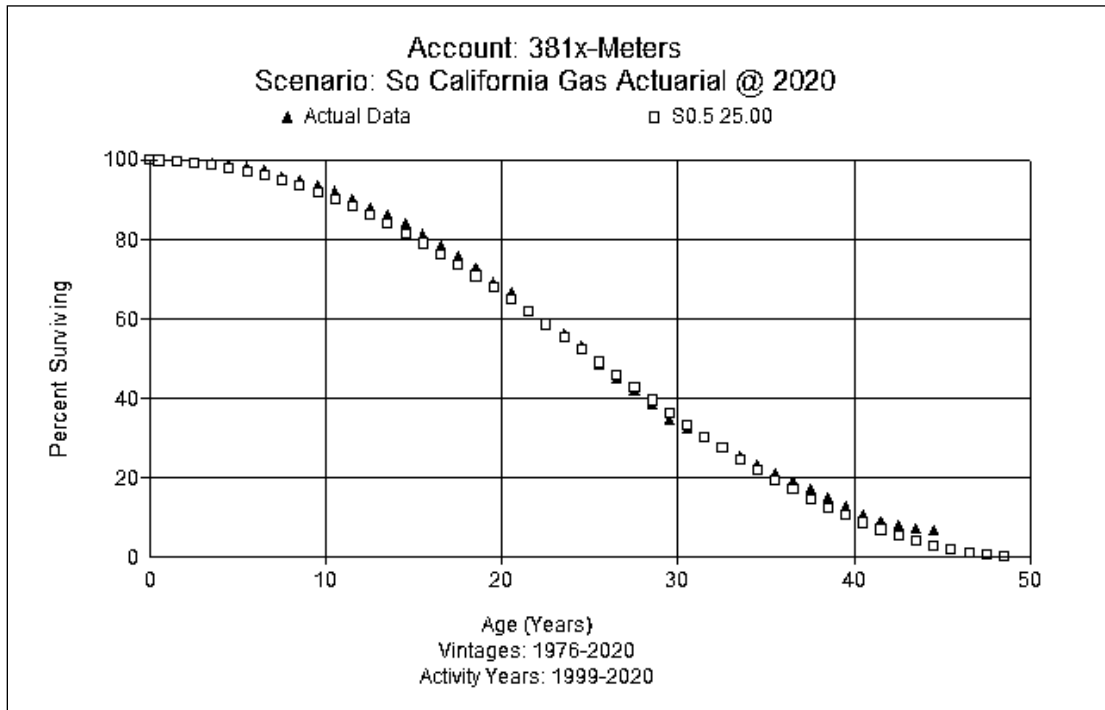
17 Company experts anticipate an operational life of about 25 years for SoCalGas. Two
18 years ago, SoCalGas made a change to their sampling program that will likely extend the life of
19 meters on average. Now, if a meter fails, they will take 2% off the bill for the family until the
20 AMI battery fails.

21 In the future, they may expect to see a slight increase in life as this goes forward. Meters
22 that are not in the residential sampling program must be tested every 10 years or replaced (with a
23 few exceptions for very large meters). Meters that weigh less than 50 lbs. will be taken to see if
24 repair and rebuilding is possible. While under repair, the meters remain in service.

25 Meter costs have escalated, as there are now only two manufacturers in the United States.
26 Analytics from actuarial analysis shows an excellent visual match with the existing curve. Based
27 on input from Company personnel and actuarial analysis, the Depreciation Study recommends
28 retaining the current 25 S0.5 life and dispersion curve. For comparison, Figure DW-24 below
29 shows the observed life table and the proposed life estimate.

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FIGURE DW-24
Account 381x – Meters



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The current authorized net salvage rate is positive 5 percent. Gross salvage proceeds as a percentage of retirements have declined in recent years. The current moving averages for 3 and 5 years are positive 2 for both periods. Based on judgment and Company experience, this Depreciation Study recommends moving to positive 2 percent net salvage for this account.

8. Accounts 381.15: AMI Modules and Account 382.15: Module Installations

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These accounts include the cost of gas modules used to provide daily meter reads and the cost to install these modules on gas meters as part the AMI deployment. The average age of the surviving plant balance is 6 years. Currently these accounts have a of 20 SQ life/curve. Operations personnel believe that the life of this account will be the same as the current estimate. There is insufficient actuarial analysis to analyze for this account. Based on input from operations personnel, SoCalGas recommends retaining the current 20 SQ life and dispersion curve.

18
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The current authorized net salvage rate is 0 percent. In the periods for which history is available, there has been no net salvage received. Based on Company history and judgment, this Depreciation Study recommends retention of 0 percent net salvage for this account.

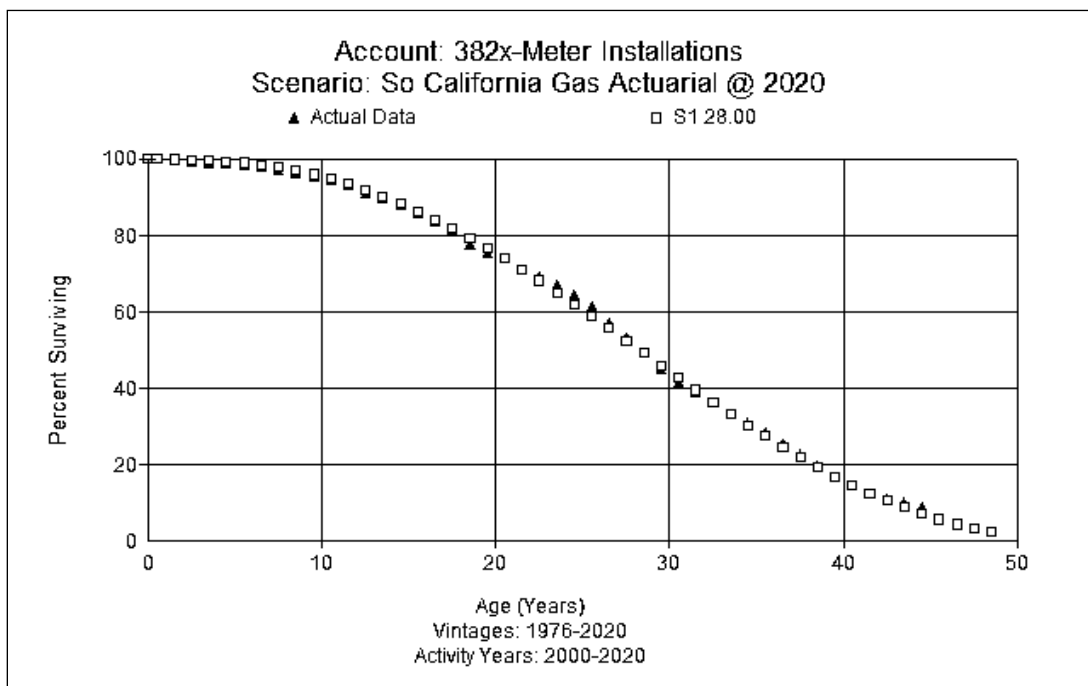
1 **9. Account 382: Meter Installations**

2 This account includes the cost of labor and materials used, and the expenses incurred in
3 connection with the original installation of customer meters. The current life/curve is 30 S1. The
4 average age of the surviving plant balance is 11 years.

5 Operations personnel report that the Company has started using a pre-manufactured
6 Meter Set Assembly (MSA). If there is no over-pressure protection on a regulator, they will
7 replace the regulator. Normally they replace one regulator for every two replaced meters.

8 Typically, the MSA would not be replaced before the meter, but the MSA may be
9 replaced at the same time as a meter. Actuarial analysis shows a slightly shorter life. Analytics
10 results from actuarial analysis shows an excellent visual match for a 28-year life with S1
11 dispersion curve. Based on actuarial analysis and judgment, this Depreciation Study
12 recommends moving from the 30 S1 to the 28 S1 for this account. For comparison, Figure DW-
13 25 below shows the observed life table and the proposed life estimate.

14 **FIGURE DW-25**
15 **Account 382x – Meter Installations**



16 The current authorized net salvage percent is negative 10 percent. The overall 5- and 10-
17 year moving averages show 0 and positive 2 percent. Based on Company experience, this
18 Depreciation Study recommends moving less negative to 0 percent net salvage for this account.
19
20

1 **10. Account 382.6: Meter Installation-Other**

2 This account includes the cost of the installed Gas Energy Measurement Systems
3 (GEMS), which are automated metering devices attached to customers' meters. The average age
4 of the surviving plant balance is 8 years. These assets are automatically retired when the average
5 service life is attained.

6 These assets have only been in service since 2012. There is thus insufficient history to
7 analyze the data. Operations personnel believe that the life of this account will be the same as
8 the current estimate. Based on input from Company personnel, this Depreciation Study
9 recommends retention of the 15-year life with a SQ dispersion.

10 Based on input from field personnel, these devices advance quickly and are upgraded
11 over a 15-year life cycle. The current life/curve is 15 SQ. There is insufficient actuarial analysis
12 to analyze for this account. Based on input from operations personnel, SoCalGas recommends
13 maintaining the existing life/curve of 15 SQ.

14 The current authorized net salvage rate is 0 percent. The three-year, five-year, and 10-
15 year moving averages are 0 for all periods. Based on recent experience and judgment, this
16 Depreciation Study recommends retention of 0 percent net salvage for this account.

17 **11. Account 383: House Regulators**

18 This account includes the cost of installed house regulators, whether actually in service or
19 held in service. The current life/curve is 33 L5. The average age of the surviving plant balance
20 is 17 years.

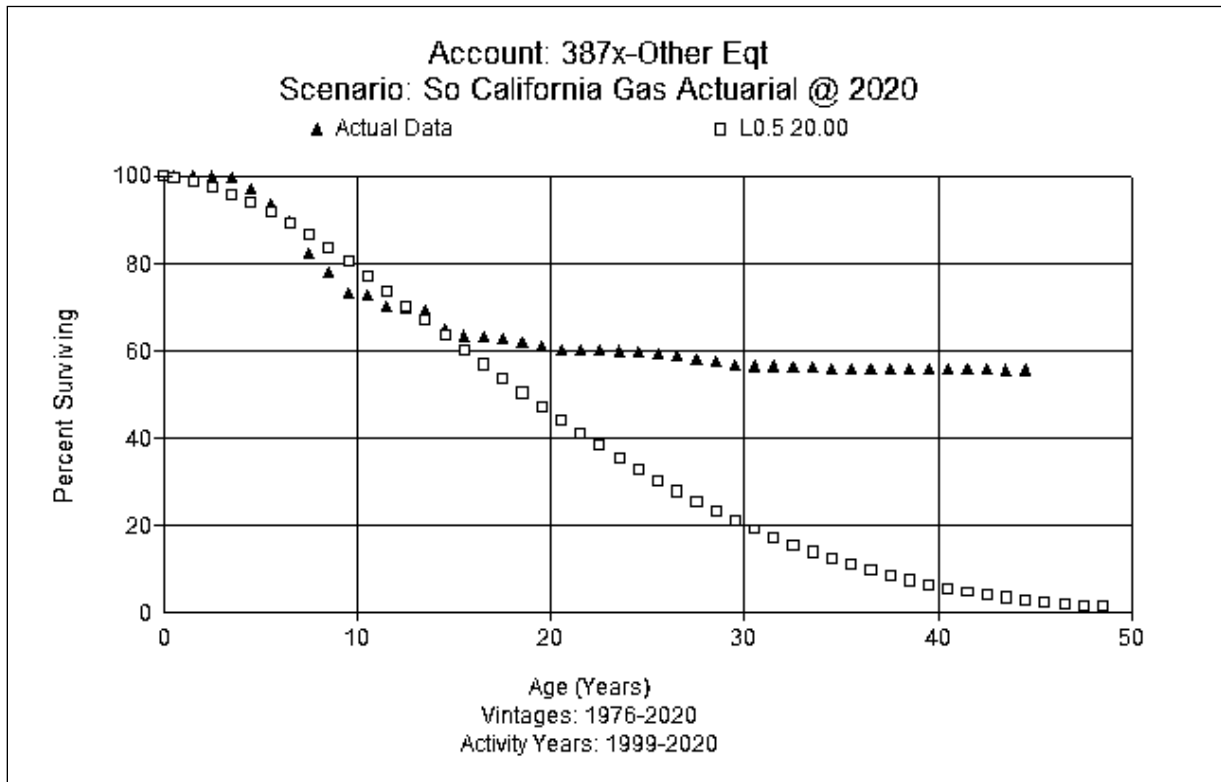
21 The retirement data is very limited for this account and does not produce actuarial results
22 that are reasonable for this type of assets. The curve from actuarial analysis only drops to 80
23 percent surviving (which makes it not predictive for the future). Input from operations was used
24 to estimate the life for this account. Company subject matter experts recommend leaving the life
25 account at its current parameter. Based on input from Company operations personnel, this
26 Depreciation Study recommends retention of 33 years with an L5 dispersion.

27 The current authorized net salvage rate is positive 5 percent. The three-year, five-year,
28 and 10-year moving averages are 0, 0, and negative 6 percent, respectively. The six- and seven-
29 year moving averages moderate the experience with a value of positive 4 percent for each time
30 frame. Based on recent experience and judgment, this Depreciation Study moves in the direction
31 of this trend and recommends positive 4 percent net salvage for this account.

1 **12. Account 387: Other Equipment**

2 This account includes the cost of installed distribution system equipment not provided for
3 in the foregoing accounts, including street lighting equipment. The current life/curve is 21
4 O1.¹⁴ The average age of the surviving plant balance is 11 years. Analytical results from
5 actuarial analysis show a good visual match for the 20-year life with a L0.5 dispersion curve.
6 Based on actuarial analysis, the Depreciation Study recommends a 20 L0.5 life and dispersion
7 curve. For comparison, Figure DW-26 below shows the observed life table and the proposed life
8 estimate.

9 **FIGURE DW-26**
10 **Account 387x – Other Equipment**



11 The current authorized net salvage rate is positive 5 percent. The three-year, five-year,
12 and 10- year moving averages are negative 9, negative 6, and negative 5 percent, respectively.
13 Based on recent experience and judgment, this Depreciation Study moves in the direction of this
14 trend and recommends 0 percent net salvage for this account.
15
16

¹⁴ The O1 curve is sometimes called a survivor curve (SC) or straight-line (SL), meaning it is a straight-line retirement.

1 **D. General Plant**

2 General plant balance excluding amortized software accounts at December 31, 2021 is
3 \$1.639 million, excluding \$1 million for land which is non-depreciable. The accumulated
4 reserve is 884 million.

5 **1. Account 303.10: Cloud Computing**

6 This account consists of asset related to cloud computing software used for general utility
7 service. There is approximately \$640 thousand in this account. This is a new account. The
8 Company is requesting a fixed life for amortization of 5 years based on contract duration.

9 This Depreciation Study recommends a 5- year amortization rate for this account.
10 Software has no intrinsic value at the end of its life. Therefore, this Depreciation Study
11 recommends 0 per cent net salvage for this account.

12 **2. Account 389.2: Land Rights**

13 This account includes the cost of general plant land rights used for utility purposes, the
14 cost of which is not properly includible in other land rights accounts. Assets in this account are
15 individually amortized over 40 years until fully amortized and will remain on the books until
16 retired. Because the life of the structures in this account is proposed to increase, the
17 Depreciation Study proposes to increase the amortization period of this account.

18 As such, SoCalGas recommends moving to a 50-year amortization period. There is
19 insufficient retirement data to analyze this account through actuarial analysis. Based on
20 judgment, this Depreciation Study recommends a 50-year life with a SQ dispersion.

21 There are no removal costs associated with rights-of way.

22 **3. Account 390.0: Structures and Improvements**

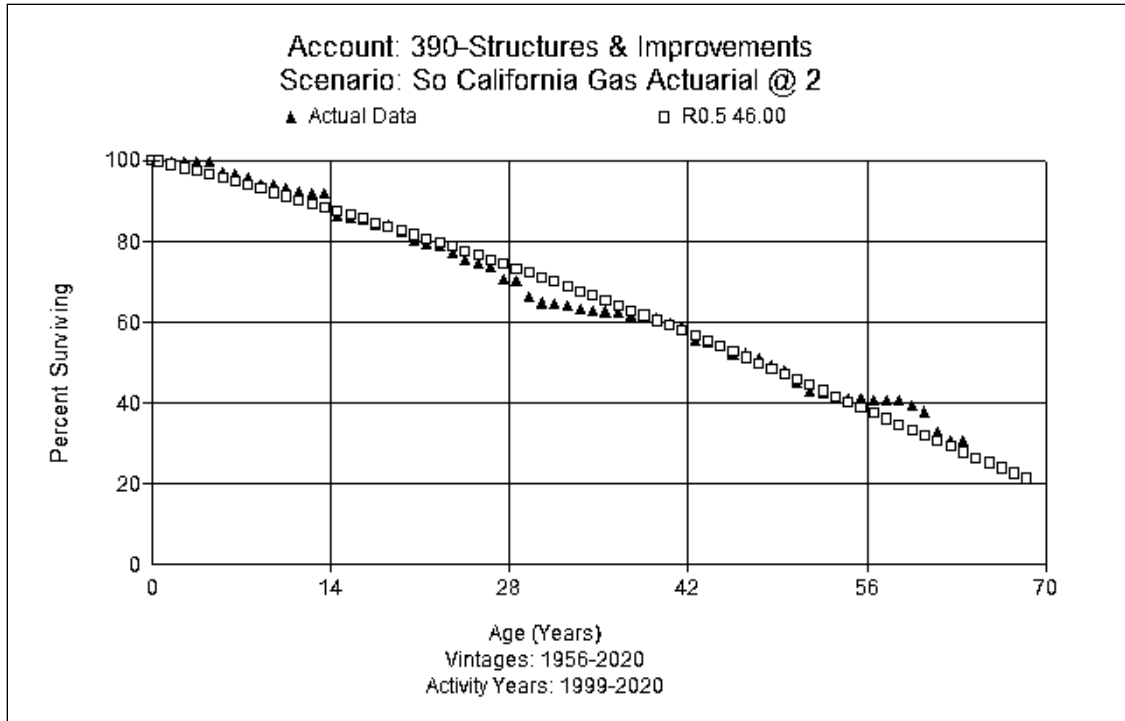
23 This account includes the cost in place of structures and improvements used for utility
24 purposes. The current life/curve is 33 R1.5. The average age of the surviving plant balance is 15
25 years.

26 Company experts feel that the current 33-year life seems short for buildings from an
27 operations perspective. They instead would expect a life in the mid 40-year range. While there
28 are a number of shorter-lived assets within the group such as roofs, HVAC, Generators, and
29 parking, other items like the building shell should have a longer life.

30 Analytics from actuarial analysis show an excellent match for the 46 year life with a R0.5
31 curve through age 50. Based on input from Company experts and actuarial analysis, SoCalGas

1 recommends increasing the average service life to 46 years and R0.5 dispersion curve. For
2 comparison, Figure DW-27 below shows the observed life table and the proposed life estimate.

3 **FIGURE DW-27**
4 **Account 390 – Structures and Improvements**



5
6
7 The 10-year historical average for net salvage shows a net salvage rate of -15%.
8 SoCalGas recommends retaining the current future net salvage rate of -15%.

9 **4. Account 390.1: GCT Leasehold Structures and Improvements**

10 This account includes the cost in place of structures and improvements used for utility
11 purposes for the Gas Company Tower (GCT). The assets in this account are tied to the GCT
12 lease, which expires in 2026. The current life/curve is 15 remaining life span. SoCalGas
13 recommends retaining the life span of 15 years. The lease on the Tower expires at year end 2026
14 when the asset will be retired. There is thus a six year remaining life at year end 2020.

15 This account has experienced higher negative net salvage than 390.0, but those
16 indications on a small sample of activity are not sufficient to increase the negative net salvage
17 recommendations for this account. This Depreciation Study recommends retention of a net
18 salvage rate of -15%, consistent with account 390.0 General Plant Structures and Improvements
19 account.

1 **5. Account 390.2: Solar and Fuel Cells**

2 This account includes the cost of solar and fuel cell assets used for utility service.
3 Previously these items were booked in Account 390. There is approximately \$8.2 million in this
4 account. The current life for this account (in Account 390) is 33 years with an R1.5 dispersion.
5 Since these are materially different assets that office buildings, separating this plant is
6 recommended. The average age of survivors in this account is 0.50 years. Based on judgment,
7 this Depreciation Study recommends a 10-year life with an SQ dispersion for this account.

8 Based on judgment, negative 5 percent net salvage is recommended for this account.

9 **6. Accounts 391.3-391.6: Software Amortization**

10 These accounts include costs of installed software programs of various estimated useful
11 lives, as determined by information technology operations staff. Software programs may include
12 shelf software and self-developed software used for accounting, customer accounts, workforce
13 scheduling, dispatching, and mapping, among others. With advances in technology, the
14 tendency is towards an increase in shorter lived software.

15 Assets are treated as individual units of property. Each project is individually amortized
16 over the average service life of that subaccount: 3, 5, 6, 10, 15, and 20 years. However,
17 amortization periods could range from 2 years to 20 years. For example, assets in subaccount
18 391.3 2-4 Years Software may have assets amortized over two years, three years, or four years.
19 But the default will be the average service life of each subaccount for ease of administration.

20 SoCalGas recommends retaining the current subaccounts and average service lives.
21 These assets are amortized on a straight-line remaining life, unit basis. Fully amortized software
22 will stop accruing amortization expense but remain on the asset ledger until retired. There is no
23 net salvage associated with software accounts.

24 **7. Accounts 391 through 398: Vintage Group Amortization**

25 Assets are automatically retired when the average service life assigned is reached, except
26 for account 392 Transportation Equipment. Fleet services notifies Plant Accounting when assets
27 are retired and when gross salvage is received for transportation equipment. Vintage group
28 accounting is applied to the following accounts:

1
2

Figure DW-28
General Plant Life Comparison for Amortized Accounts

Account	Description	Current Life/Curve	Proposed Life
391.1	Office Furniture and Eq	14 SQ	14
391.2	Computer Hardware	5 SQ	5
392	Transportation Eq	7 SQ	7
392.	Drones	N/A	5 SQ
393	Stores Eq	20 SQ	20
394	Shop and Garage Eq	29 SQ	20
394.19	Large Portable Tools	24 SQ	24
395	Laboratory Eq	25 SQ	15
396	Construction Eq	12 SQ	12
397	Communication Eq	15 SQ	15
397.1	General Network Eq	5 SQ	5
397.2	PBX and Voice Eq	7 SQ	7
397.3	Microwave and Radio Eq	10 SQ	10
397.4	Communication Structures	15 SQ	15
397.	Poles- AMI	40 SQ	47
398	Miscellaneous Eq	20 SQ	20

3

4 Operations personnel were consulted. They confirmed the current average service lives
5 for the most vintage groups remains appropriate from an operational perspective. The following
6 accounts are proposed to be changed based on feedback from Company subject matter experts.

7

8 Account 392.3 Drones are assets that are being installed in the forecast period to monitor
9 Company assets across the system. Company operations' experts believe that a 5-year life is the
10 longest foreseeable life for these assets.

11

12 Account 394 Tools and Shop Equipment are more tied to technology change than in the
13 past. Based on that trend, this Depreciation Study recommends a 20-year amortization period.

14

15 Account 395 Laboratory Equipment - These assets are more tied to technology than in the
16 past. Given the current rates of change, Company personnel recommend a 15-year life for this
17 account.

18

19 Account 397.55 Poles - AMI SoCalGas has no similar investment to these poles. This
account is more like San Diego Gas and Electric Company's (SDG&E) Account 364 Poles,
Towers and Fixtures. The current life for SDG&E's Account 364 is 47 years and retention of the
47-year life is recommended in SDG&E's concurrent GRC. Based on SDG&E's experience,
this Depreciation Study recommends moving to a 47-year amortization life for this account.

1 Net salvage studies were performed on all accounts. Retaining the current future net
 2 salvage rate is recommended for most of the above general plant amortization accounts:

3 **Figure DW-29**
 4 **General Plant Net Salvage Comparison for Amortized Accounts**

Account	Description	Current Net Salvage	Proposed Net Salvage
391.1	Office Furniture and Eq	0%	0%
391.2	Computer Hardware	0%	0
392	Transportation Eq	5%	5
392.3	Drones	N/A	0%
393	Stores Eq	0%	0%
394	Shop and Garage Eq	0%	0%
394.19	Large Portable Tools	0%	0%
395	Laboratory Eq	0%	0%
396	Construction Eq	25%	25
397	Communication Eq	0%	0%
397.1	General Network Eq	0%	0
397.2	PBX and Voice Eq	0%	0
397.3	Microwave and Radio Eq	0%	0%
397.4	Communication Structures	-5%	-5%
397.55	Poles- AMI	0%	-
398	Miscellaneous Eq	0%	0%

5
 6 Account 392.3 is a new account which will be used for drones. According to Company
 7 personnel, the old drones will not have a scrap value. Based on judgment, 0 percent net salvage
 8 is recommended for that account. The only account recommended for a change in negative net
 9 salvage is 397.55 Poles AMI. Poles for SDG&E in Account 364 have a currently approved net
 10 salvage percent of negative 100 percent, and my study recommends that it should be negative 95
 11 percent in SDG&Es current GRC. To move in the direction of that trend, this Depreciation
 12 Study proposed negative 25 percent net salvage for that account.

13 **VI. CONCLUSION**

14 SoCalGas' proposed service lives and net salvage rates, which were developed in
 15 accordance with CPUC Standard Practice U-4, are reasonable and should be adopted. The
 16 resulting depreciation expense set forth in Figure DW-1 above, should be approved by the CPUC
 17 for use in TY 2024 for determination of SoCalGas' revenue requirement.

18 I conducted a complete depreciation study using standard depreciation processes and
 19 methodologies that resulted in the recommended parameters and depreciation rates. My

1 recommended life and net salvage parameters are reasonable and specific to SoCalGas's unique
2 circumstances. The depreciation rates, as shown in Appendices B, and C to my Direct
3 Testimony, should be applied to the Company's plant in service. My depreciation rates, when
4 applied to SoCalGas's plant in service balances, provide fair and reasonable recovery to both the
5 Company and its customers.

6 Account-level detail workpapers (historical data, statistical tables, and charts) are
7 submitted separately with this testimony in support of the proposed underlying
8 depreciation rates.

9 This concludes my prepared direct testimony.

1 **VII. WITNESS QUALIFICATIONS**

2 My name is Dane A. Watson. My business address is 101 E. Park Blvd, Suite 220,
3 Plano, TX 75074, I am Manager Partner of Alliance Consulting Group. Alliance Consulting
4 Group provides consulting and expert services to the utility industry. In this proceeding I am
5 testifying on behalf of Southern California Gas Company (SoCalGas).

6 I hold a Bachelor of Science degree in Electrical Engineering from the University of
7 Arkansas at Fayetteville and a master's degree in Business Administration from Amberton
8 University.

9 Since graduation from college in 1985, I have worked in the area of depreciation and
10 valuation. I founded Alliance Consulting Group in 2004 and am responsible for conducting
11 depreciation, valuation, and certain accounting-related studies for clients in various industries.
12 My duties related to depreciation studies include the assembly and analysis of historical and
13 simulated data, conducting field reviews, determining service life and net salvage estimates,
14 calculating annual depreciation, presenting recommended depreciation rates to utility
15 management for its consideration, and supporting such rates before regulatory bodies.

16 I have twice been Chair of the Edison Electric Institute (EEI) Property Accounting and
17 Valuation Committee and have been Chairman of EEI's Depreciation and Economic Issues
18 Subcommittee. I am a Registered Professional Engineer in the State of Texas and a Certified
19 Depreciation Professional. I am a Senior Member of the Institute of Electrical and Electronics
20 Engineers (IEEE) and served for several years as an officer of the Executive Board of the Dallas
21 Section of IEEE as well as national and worldwide offices. I have served as President of the
22 Society of Depreciation Professionals twice.

23 I am qualified as Certified Depreciation Professional as recognized by the Society of
24 Depreciation Professionals. The Society administers an examination and has certain required
25 qualifications to become and remain certified in this field. I meet and maintain all those
26 requirements.

27 I have presented testimony and or depreciation studies in nearly 300 depreciation studies
28 over the course of my career. I have testified before the California Public Utilities Commission
29 in nine cases: on behalf of Southwest Gas Corporation – Northern California and Southwest Gas
30 Corporation - Southern California both in proceeding Application (A.)19-08-015; on behalf of
31 San Diego Gas and Electric Company in proceeding A.17-10-007; on behalf of Golden State

1 Water Company in proceeding A.14-07-006; California American Water Company in
2 proceedings A.16-07-002 and A.10-07-007, and Southern California Edison Company in
3 proceedings A.10-11-015 and A.13-11-003. I have appeared before the Federal Energy
4 Regulatory Commission, more than 35 United States state commissions, and three international
5 proceedings.

6 I train people who want to learn more about utility depreciation by serving on the training
7 faculty of the Society of Depreciation Professionals, teaching classes in utility seminars at
8 Michigan State University and the EEI American Gas Association accounting conference.

ATTACHMENT A

GLOSSARY OF TERMS

Below is a list of acronyms and its definition used in my testimony.

A.:	Application
ALG	Average Life Group
AMI:	Advanced Metering Infrastructure
Amort:	Amortization
ASL:	Average Service Life
COR	Cost to Remove and dispose of the asset
CPUC or Commission:	California Public Utilities Commission
D.:	Decision
EEI:	Edison Electric Institute
GCT:	Gas Company Tower
GEMS:	Gas Energy Measurement Systems
GRC:	General Rate Case
IMP	Integrity Management Program
NARUC:	National Association of Regulatory Utility Commissioners
PHMSA	Pipeline Hazardous Materials and Safety Administration
SCADA:	Supervisory Control and Data Acquisition
SDG&E:	San Diego Gas & Electric Company
SCG:	Southern California Gas Company
SoCalGas or Company:	Southern California Gas Company
SQ:	Square
TY:	Test Year

ATTACHMENT B

**SOUTHERN CALIFORNIA GAS COMPANY
COMPARISON OF AUTHORIZED VS PROPOSED DEPRECIATION PARAMETERS
(LIFE-YEARS / NET SALVAGE-PERCENT)**

Southern California Gas Company
Comparison of Authorized vs Proposed Depreciation Parameters
(Life-Years / Net Salvage-Percent)

Account	Account Description	2019 Authorized		2024 Proposed		Change	
		Life/ Curve (1)	Future Net Salvage (2)	Life/ Curve (3)	Future Net Salvage (4)	Life (3)- (1)	Future Net Salvage (4)-(2)
Underground Storage Plant							
350x	Rights-of-Way	40 Amort	0	50 Amort	0	10	0
351x	Structures and Improvements	48 R1.5	-70	51 R1.5	-70	3	0
351.2	Storage Solar and Fuel Cell	NA	NA	10 SQ	-5	NA	NA
352x	Wells	49 R2.5	-70	49 R2.5	-95	0	-25
353x	Lines	54 R3	-40	50 R4	-65	-4	-25
354	Compressor Station Equipment	41 L0.5	-15	41 L0.5	-25	0	-10
355	Meas and Reg Equipment	22 L0	5	30 L1	-5	8	-10
356x	Purification Equipment	39 R2.5	-30	44 R2.5	-30	5	0
357x	Other Equipment	37 R2.5	-100	38 R3	-100	1	0
Transmission							
365.29	Rights-of-Way	40 Amort	0	40 Amort	0	0	0
366x	Structures and Improvements	47 R2	-40	47 R2	-65	0	-25
366.2	Transmission Solar and Fuel Cells	NA	NA	10 SQ	-5	NA	NA
367x	Mains	64 R3	-60	70 R2	-85	6	-25
367.6	Hydro Test Costs	NA	NA	21 SQ	0	NA	NA
368x	Compressor Station Equipment	50 R1	-15	48 R1	-40	-2	-25
369	Meas and Reg Equipment	46 S0	-50	48 R0.5	-75	2	-25
370	Communication Equipment	15 SQ	0	15 SQ	0	0	0
371x	Other Equipment	21 L0.5	-10	20 L2	-10	-1	0
371.1	Temporary Assembly Test Head	NA	NA	10 SQ	0	NA	NA
Distribution							
374.2	Land Rights	40 Amort	0	70 Amort	0	30	0
375	Structures and Improvements	40 S0	-10	39 S0.5	-20	-1	-10
375.2	Distribution Solar and Fuel Cells	NA	NA	10 SQ	-5	NA	NA

376x	Mains	68 R2.5	-80	68 R2.5	-105	0	-25
378	Meas and Reg Equipment	47 S0.5	-95	47 S1.5	-120	5	-25
380x	Services	67 R2	-115	67 R2	-140	0	-35
381x	Meters	25 S0.5	5	25 S0.5	2	0	-3
381.15	AMI Modules	20 SQ	0	20 SQ	0	0	0

Account	Account Description	2019 Authorized		2024 Proposed		Change	
		Life/ Curve (1)	Future Net Salvage (2)	Life/ Curve (3)	Future Net Salvage (4)	Life (3)- (1)	Future Net Salvage (4)-(2)
382x	Meter Installations	30 S1	-10	28 S1	0	-2	10
382.6	Meter Installations (Other)	15 SQ	0	15 SQ	0	0	0
382.15	AMI Module Installations	20 SQ	0	20 SQ	0	0	0
383	House Regulators	33 L5	5	33 L5	4	0	-1
387x	Other Equipment	21 SC	5	20 L0.5	0	1	-5
General Plant							
303.10	Cloud Computing	NA	NA	5 Amort	0	NA	NA
389.2	Land Rights	40 Amort	0	50 Amort	0	10	0
390	Structures and Improvements	33 R1.5	-15	46 R0.5	-15	13	0
390.1	Gas Company Tower Lease	15 EL	-15	15 EL	-15	0	0
390.2	Solar and Fuel Assets	33 R1.5	-15	10 SQ	-5	-23	10
391.1	Office Furniture & Equipment	14 SQ	0	14 SQ	0	0	0
391.2	Computer Equipment	5 SQ	0	5 SQ	0	0	0
391.3	Software 2-4 Yrs (3yr ASL)	3 Amort	0	3 Amort	0	0	0
391.35	Software 5 Yrs (AMI)	5 Amort	0	5 Amort	0	0	0
391.4	Software 5-8 Yrs (6yr ASL)	6 Amort	0	6 Amort	0	0	0
391.5	Software 9-12 Yrs (10yr ASL)	10 Amort	0	10 Amort	0	0	0
391.55	Software 15 Yrs (15yr ASL)	15 Amort	0	15 Amort	0	0	0
391.6	Software 20 Yrs (20yr ASL)	20 Amort	0	20 Amort	0	0	0
392x	Transportation Equipment	7 SQ	5	7 SQ	5	0	0
392.3	Drones	NA	NA	5 SQ	0	0	0
393	Stores Equipment	20 SQ	0	20 SQ	0	0	0
394x	Shop and Garage Equipment	29 SQ	0	20 SQ	0	-9	0
394.19	Large Portable Tools	24 SQ	0	24 SQ	0	0	0
395	Laboratory Equipment	25 SQ	0	15 SQ	0	-10	0
396.1	Construction Equipment	12 SQ	25	12 SQ	25	0	0
397x	Communication Equip	15 SQ	0	15 SQ	0	0	0
397.1	General Network Equip-5yr ASL	5 SQ	0	5 SQ	0	0	0
397.2	PBX and Voice Equip-7yr ASL	7 SQ	0	7 SQ	0	0	0
397.3	Microwave and Radio-10yr	10 SQ	0	10 SQ	0	0	0

Account	Account Description	2019 Authorized		2024 Proposed		Change	
		Life/ Curve (1)	Future Net Salvage (2)	Life/ Curve (3)	Future Net Salvage (4)	Life (3)- (1)	Future Net Salvage (4)-(2)
	ASL						
397.4	Communication Structures	15 SQ	-5	15 SQ	-5	0	0
397.55	AMI Communication Poles	40 SQ	0	47 SQ	-25	7	-25
398	Miscellaneous Equipment	20 SQ	0	20 SQ	0	0	0

ATTACHMENT C
DEPRECIATION RATE STUDY

SOUTHERN CALIFORNIA GAS
NATURAL GAS OPERATIONS
DEPRECIATION RATE STUDY
AT DECEMBER 31, 2021



<http://www.utilityalliance.com>

**SOUTHERN CALIFORNIA GAS
NATURAL GAS OPERATIONS
DEPRECIATION RATE STUDY
EXECUTIVE SUMMARY**

Southern California Gas (“SoCalGas” or “Company”) engaged Alliance Consulting Group to conduct a depreciation study of the Company’s natural gas operations depreciable assets as of December 31, 2021. This study was conducted under the traditional depreciation study approach.

The Company is filing this depreciation study in May 2022. Given year end reporting for 2021 is not complete until February 2022, the Company and I determined that the life and net salvage parameters for the depreciation study would be based on activity through December 31, 2020. To compute rates for the general rate case, the rates were recomputed at December 31, 2021, based on parameters estimated through December 2020.

Overall, the lives of the accounts have moved longer. There are 14 accounts that have increasing lives and nine accounts that have decreasing lives. Net salvage has also moved more negative in many accounts. Eighteen accounts had decreasing (i.e., more negative) net salvage and one account had increasing (i.e., less negative) net salvage. The accounts with the largest decreases of 25 percent are: Account 352 Wells, Account 353 Lines, Account 366 Structures and Improvements, Account 367 Mains, Account 368 Compressor Station Equipment, Account 369 Measuring and Regulating Equipment, Account 376 Mains, Account 378 Measuring and Regulating Equipment, Account 380 Services, and Account 397.55 Poles AMI. The account with increasing (less negative) net salvage is Account 382, Meter Installations.

Based on plant as of December 31, 2021, this study recommends an increase of \$65.3 million in annual depreciation expense compared to the depreciation rates currently in effect. Appendix A to this study provides the change in depreciation expense.

**SOUTHERN CALIFORNIA GAS
NATURAL GAS OPERATIONS
DEPRECIATION RATE STUDY
AT DECEMBER 31, 2021**

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- Appendix A – Depreciation Rate Calculations**
- Appendix B - Depreciation Expense Comparison**
- Appendix C - Depreciation Parameter Comparison**
- Appendix D – Net Salvage Data**

PURPOSE

The purpose of this study is to develop depreciation rates for the depreciable property as recorded on SoCalGas's books at December 31, 2020. The account-based depreciation rates were designed to recover the total remaining undepreciated investment, adjusted for net salvage, over the remaining life of SoCalGas's property on a straight-line basis. Non-depreciable property was excluded from this study. For amortized software, the Company proposes to retain the same life estimates, net salvage, and amortization rates for those accounts.

SoCalGas is the nation's largest natural gas distribution utility. The Company serves to 21.8 million consumers through 5.9 million meters in more than 500 communities. The Company's service territory encompasses approximately 24,000 square miles in diverse terrain throughout Central and Southern California, from Visalia to the Mexican border.

SoCalGas owns transmission mains, distribution mains, underground storage, and various other plant assets. SoCalGas's assets consist of a complex system of high and intermediate pressure transmission, underground storage, and intermediate and low pressure distribution networks located across the service area. More than 101,000 miles of transmission and distribution pipes and four natural gas storage facilities make up the natural gas infrastructure needed to provide natural gas throughout SoCalGas' service territory. The Aliso Canyon storage facility, which is the largest such facility in the western United States, supports natural gas deliveries to homes and businesses throughout the Los Angeles Basin and directly supports 17 natural gas-powered electric plants needed to provide reliable generation and delivery of electricity

There are numerous receipt points or city gates, throughout the system where gas is delivered by the transmission system. Once gas is metered into individual cities, the pressure is reduced through regulators in order to meet system requirements as determined by pressure and volume needs. The gas is then delivered to customers for burner tip consumption.

STUDY RESULTS

Overall depreciation rates for all SoCalGas depreciable property are shown in Appendix A to this study. These rates translate into an annual depreciation accrual of \$796.0 million based on SoCalGas's depreciable investment at December 31, 2021. The annual equivalent depreciation expense calculated by the same method using the approved rates was \$730.8 million at December 31, 2021. A summary of the results by function at December 31, 2021 is shown in the table below.

SOUTHERN CALIFORNIA GAS COMPARISON OF CURRENT AND PROPOSED DEPRECIATION RATES

Function	Plant In Service 12/31/2021	Current Accrual Expense	Proposed Accrual Expense	Difference
Underground Storage	1,679,942,666	61,063,971	66,619,178	5,555,208
Transmission	4,250,727,067	114,311,206	123,878,858	9,567,652
Distribution	12,115,018,771	351,430,031	401,764,014	50,333,983
General wo Software	810,150,645	75,511,721	75,313,810	(197,911)
Software Amortized	828,993,588	128,452,120	128,452,120	0
Total	19,684,192,422	730,768,359	796,027,980	65,259,621

General plant excludes amortized software accounts which retain current rates.

Appendix A to this study demonstrates the development of the annual depreciation rates and accruals. Appendix B to this study presents a comparison of approved rates versus proposed rates by account. Appendix C to this study presents a comparison of mortality and net salvage estimates by account. Appendix D to this study shows net salvage experience for the Company's depreciable assets from 1999 through 2020. Removal costs were included throughout the life of the project. For projects where retirements had not yet been recorded, an adjustment was recorded to reflect the proper balance.

GENERAL DISCUSSION

Definition

The term "depreciation" as used in this study is considered in the accounting sense, that is, a system of accounting that distributes the cost of assets, less net salvage (if any), over the estimated useful life of the assets in a systematic and rational manner. It is a process of allocation, not valuation. This expense is systematically allocated to accounting periods over the life of the properties. The amount allocated to any one accounting period does not necessarily represent the loss or decrease in value that will occur during that particular period. The Company accrues depreciation on the basis of the original cost of all depreciable property included in each functional property group. On retirement the full cost of depreciable property, less the net salvage value, is charged to the depreciation reserve.

Basis of Depreciation Estimates

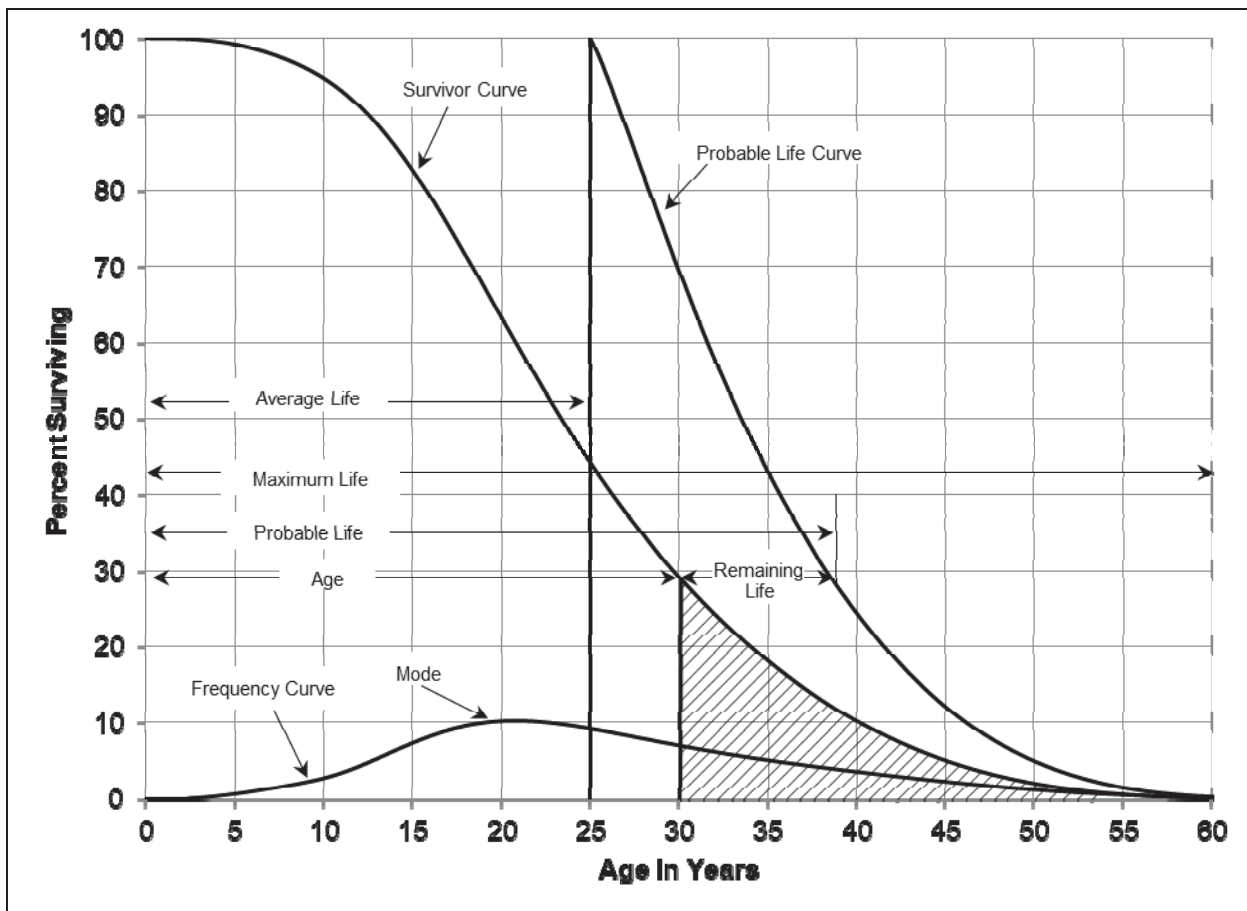
The straight-line, broad (average) life group, remaining-life depreciation system was employed to calculate annual and accrued depreciation in this study. In this system, the annual depreciation expense for each group is computed by dividing the original cost of the asset less allocated depreciation reserve less estimated net salvage by its respective average life group remaining life. The resulting annual accrual amounts of all depreciable property within a function were accumulated, and the total was divided by the original cost of all functional depreciable property to determine the depreciation rate. The calculated remaining lives and annual depreciation accrual rates were based on attained ages of plant in service and the estimated service life and salvage characteristics of each depreciable group. The computations of the annual account level depreciation rates are shown in Appendix A to this study and remaining life calculations are shown in the study's workpapers.

Actuarial analysis was used with each account within a function where sufficient data was available, and judgment was used to some degree on all accounts.

Survivor Curves

To fully understand depreciation projections in a regulated utility setting, there must be a basic understanding of survivor curves. Individual property units within a group do not normally have identical lives or investment amounts. The average life of a group can be determined by first constructing a survivor curve, which is plotted as a percentage of the units surviving at each age. A survivor curve represents the percentage of property remaining in service at various age intervals. The chart below shows a typical generalized survivor curve, as well as some of the life characteristics that can be derived from the survivor curve.

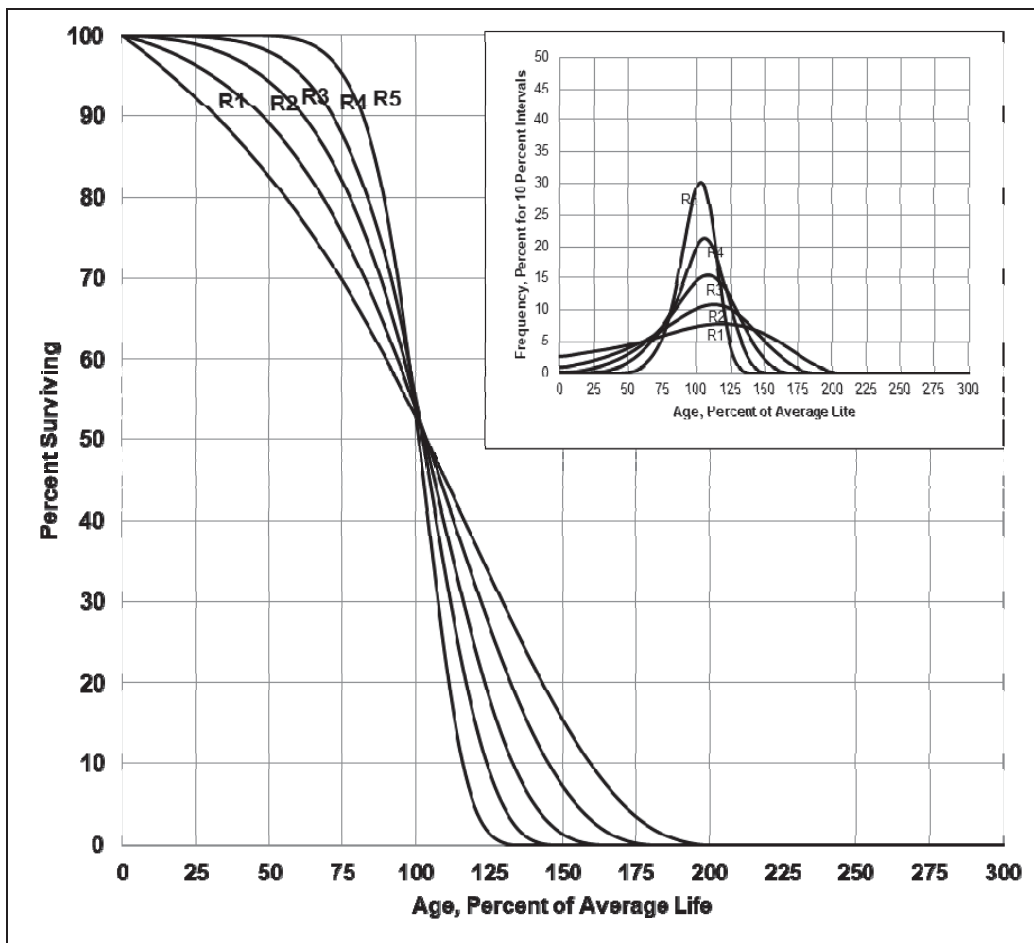
GENERALIZED SURVIVOR CURVE



The Iowa Curves are the result of an extensive investigation of life characteristics of physical property made at Iowa State College Engineering Experiment Station in the first half of the twentieth century. Through common usage, revalidation and regulatory acceptance, these curves have become a descriptive standard for the life characteristics of industrial property.

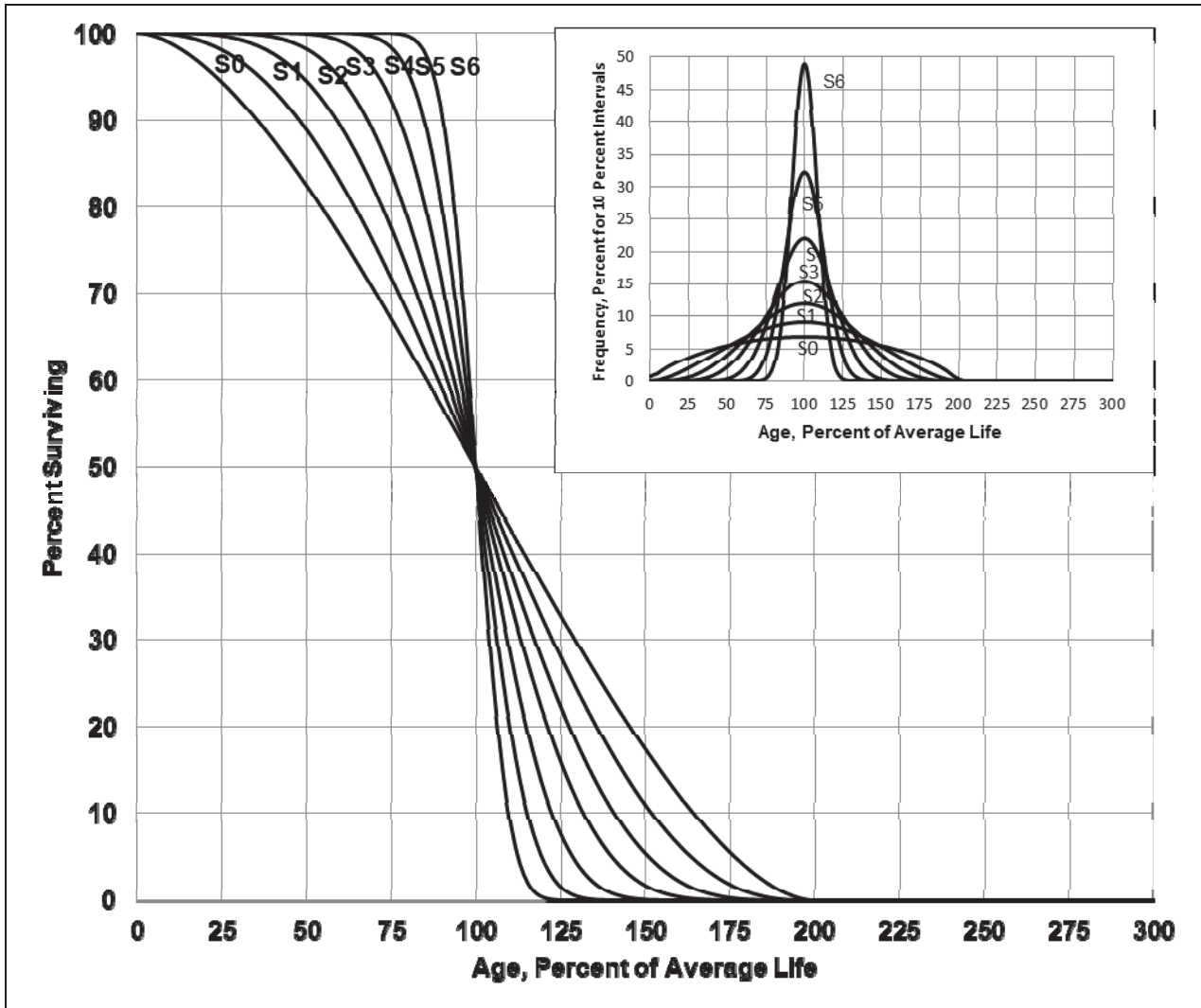
There are four families in the Iowa Curves that are distinguished by the relation of the age at the retirement mode (largest annual retirement frequency) and the average life. For distributions with the mode age greater than the average life, an "R" designation (i.e., Right modal) is used. The family of "R" moded curves is shown below.

R-TYPE IOWA SURVIVOR CURVES



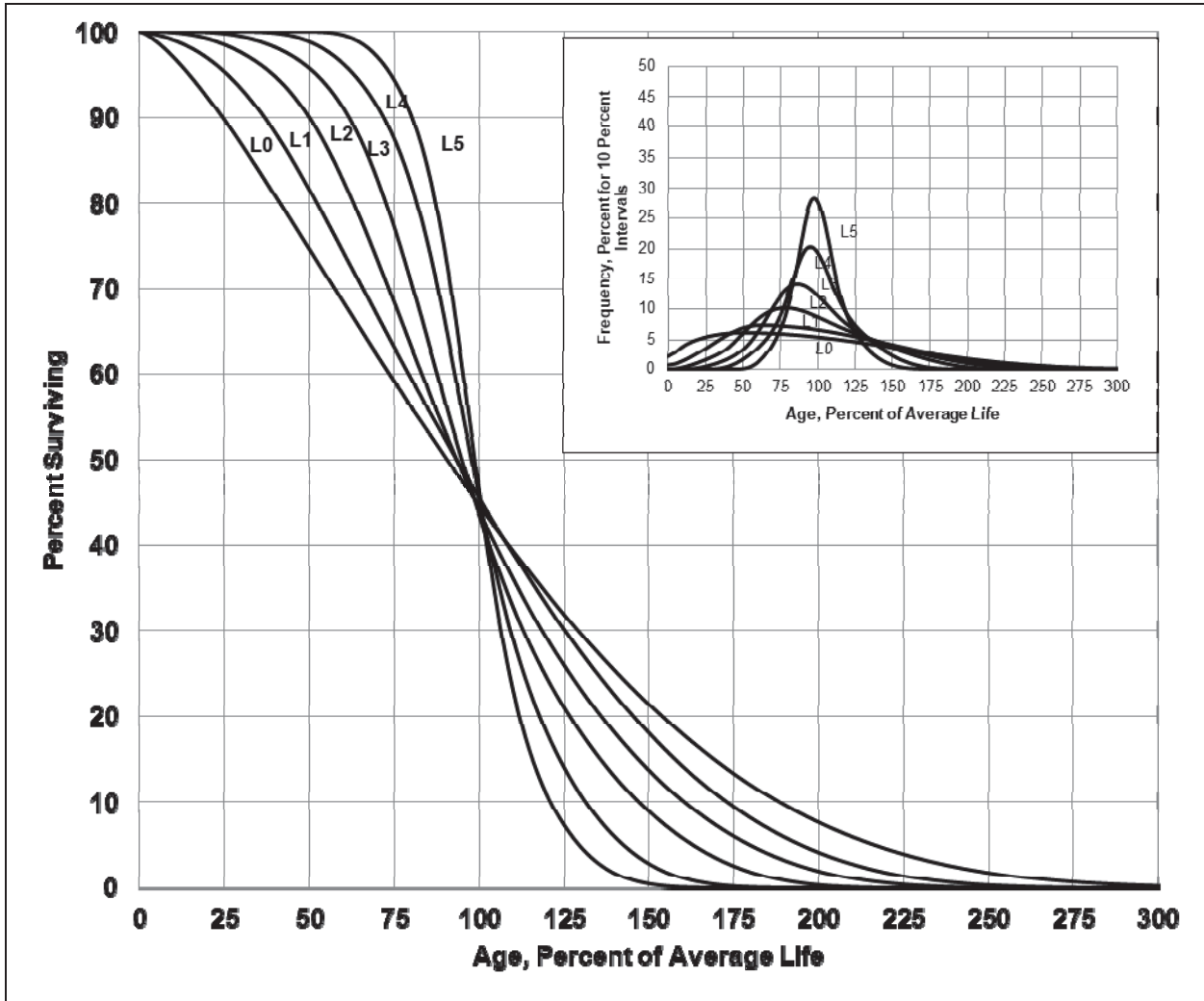
Similarly, an "S" designation (i.e., Symmetric modal) is used for the family whose mode age is symmetric about the average life. The higher the number of the curve, the greater the peak. A graph showing the S curves is shown below.

S-TYPE IOWA SURVIVOR CURVES



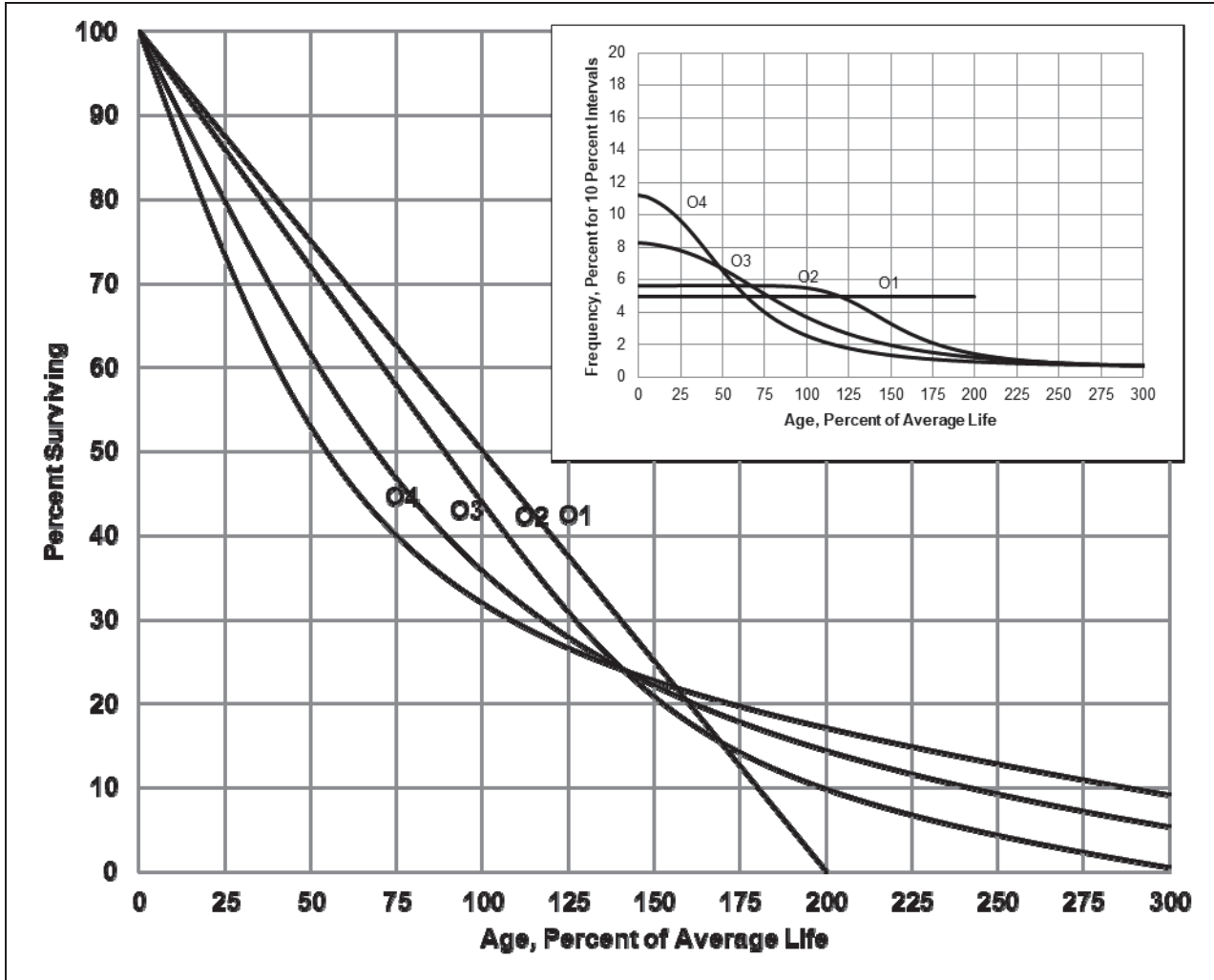
For distributions with the mode age less than the average life, an "L" designation (i.e., Left modal) is used. The family of "L" moded curves is shown below.

L-TYPE IOWA SURVIVOR CURVES



A special case of left modal dispersion is the "O" or origin modal curve family, which was developed in the 1950s.

O-TYPE IOWA SURVIVOR CURVES



Given how long the O curves live, the O curves are seldom used in analyzing utility property in Alliance Consulting Group's experience, other than for intellectual property in unregulated settings.

Within each curve family, numerical designations are used to describe the relative magnitude of the retirement frequencies at the mode. A "6" indicates that the retirements are not greatly dispersed from the mode (i.e., high mode frequency), while a "1" indicates a large dispersion about the mode (i.e., low mode frequency). For example, a curve with an average life of 30 years and an "L3" dispersion is a moderately dispersed, left modal curve that can be designated as a 30 L3 Curve. An SQ, or square, survivor curve occurs where no dispersion is present (i.e., units of common age retire simultaneously).

Most property groups can be closely fitted to one Iowa Curve with a unique average service life. The blending of judgment concerning current conditions and future trends, along with the matching of historical data, permits the depreciation analyst to make an informed selection of an account's average life and retirement dispersion pattern.

Actuarial Analysis

Actuarial analysis (retirement rate method) was used in evaluating historical asset retirement experience where vintage data were available and sufficient retirement activity was present. In actuarial analysis, interval exposures (total property subject to retirement at the beginning of the age interval, regardless of vintage) and age interval retirements are calculated. The complement of the ratio of interval retirements to interval exposures establishes a survivor ratio. The survivor ratio is the fraction of property surviving to the end of the selected age interval, given that it has survived to the beginning of that age interval. Survivor ratios for all of the available age intervals were chained by successive multiplications to establish a series of survivor factors, collectively known as an observed life table. The observed life table shows the experienced mortality characteristic of the account and may be compared to standard mortality curves such as the Iowa Curves. Where data was available, accounts were analyzed using this method. Placement bands were used to illustrate the composite history over a specific era, and experience bands were used to focus on retirement history for all vintages during a set period. The results from these analyses for those accounts which had data sufficient to be analyzed using this method are shown in the Life Analysis section of this report.

Judgment

Any depreciation study requires informed judgment by the analyst conducting the study. A knowledge of the property being studied, company policies and procedures, general trends in technology and industry practice, and a sound basis of understanding in depreciation theory are needed to apply this informed judgment. Judgment was used in areas such as survivor curve modeling and selection, depreciation method selection, simulated plant record method analysis, and actuarial analysis.

Judgment is not defined as being used in cases where there are specific, significant pieces of information that influence the choice of a life or curve. Those cases would simply be a reflection of specific facts in the analysis. Where there are multiple factors, activities, actions, property characteristics, statistical inconsistencies, implications of applying certain curves, property mix in accounts or a multitude of other considerations that impact the analysis (potentially in various directions), judgment is used to take all of these factors and synthesize them into a general direction or understanding of the characteristics of the property.

Individually, no one factor in these cases may have a substantial impact on the analysis. But overall, they may shed light on the utilization and characteristics of assets. Judgment may also be defined as deduction, inference, wisdom, common sense, or the ability to make sensible decisions. There is no single correct result from statistical analysis; hence, there is no answer absent judgment. At the very least for example, any analysis requires choosing which bands to place more emphasis on.

The establishment of appropriate lives, interim retirement dispersions, and interim net salvage for SDGE's generation accounts requires judgment to incorporate the understanding of the operation of the system with the available accounting information. The appropriateness of lives and curves depends not only on statistical analyses, but also on how well future retirement patterns will match past retirements.

Current applications and trends in use of the equipment also need to be factored into life and survivor curve choices to allow appropriate mortality characteristics to be chosen.

Average Life Group Depreciation

SoCalGas was authorized to use the average life group (“ALG”) depreciation procedure with the remaining life technique in California Public Utilities Commission A.17-10-008. At the request of SoCalGas, this study continues to use the ALG depreciation procedure to group the assets within each account. After an average service life and dispersion were selected for each account, those parameters were used to estimate what portion of the surviving investment of each vintage was expected to retire. The depreciation of the group continues until all investment in the vintage group is retired. ALG groups are defined by their respective account dispersion, life, and salvage estimates. A straight-line rate for each ALG group is calculated by computing a composite remaining life for each group across all vintages within the group, dividing the remaining investment to be recovered by the remaining life to find the annual depreciation expense and dividing the annual depreciation expense by the surviving investment. The resultant rate for each ALG group is designed to recover all retirements less net salvage when the last unit retires. The ALG procedure recovers net book cost over the life of each account by averaging many components.

Theoretical Depreciation Reserve

The book depreciation reserve was derived from Company records and was reallocated from a functional level to individual accounts level. As a point of comparison, a theoretical depreciation reserve model was computed for each account. This study used a reserve model that relied on a prospective concept relating future retirement and accrual patterns for property, given current life and salvage estimates. The theoretical reserve of a group is developed from the estimated remaining life, total life of the property group, and estimated net salvage.

The theoretical reserve represents the portion of the group cost that would have been accrued if current forecasts were used throughout the life of the group for future depreciation accruals. The computation involves multiplying the vintage balances within the group by the theoretical reserve ratio for each vintage. The average life group method requires an estimate of dispersion and service life to establish how much of each vintage is expected to be retired in each year until all property within the group is retired. Estimated average service lives and dispersion determine the amount within each average life group.

The straight-line remaining-life theoretical reserve ratio at any given age (RR) is calculated as:

$$RR = 1 - \frac{(Average\ Remaining\ Life)}{(Average\ Service\ Life)} * (1 - Net\ Salvage\ Ratio)$$

DETAILED DISCUSSION

Depreciation Study Process

This depreciation study encompassed four distinct phases. The first phase concerned data collection and field interviews. The second phase involved initial data analysis. The third phase encompassed information and analysis evaluation. Once the first three stages were complete, the fourth phase began. This phase involved the calculation of deprecation rates and the documentation of the corresponding recommendations.

During the Phase 1 data collection process, historical data was compiled from continuing property records and general ledger systems. Data was validated for accuracy by extracting and comparing to multiple financial system sources. An audit of this data was validated against historical data from prior periods, historical general ledger sources, and field personnel discussions. This data was reviewed extensively to put in the proper format for a depreciation study. Further discussion on data review and adjustment is found in the Salvage Considerations Section of this study.

Also, as part of the Phase 1 data collection process, numerous discussions were conducted with Company engineers and field operations personnel to obtain information that would assist in formulating life and salvage recommendations in this study. One of the most important elements of performing a proper depreciation study is to understand how the Company utilizes assets and the environment of those assets. Interviews with engineering and operations personnel are important steps to allow the analyst to obtain information that is beneficial when evaluating the output from the life and net salvage programs in relation to the Company's actual asset utilization and environment. Information that was gleaned in these discussions is found both in the Detailed Discussion of this study in the life analysis and salvage analysis sections and in the accompanying workpapers.

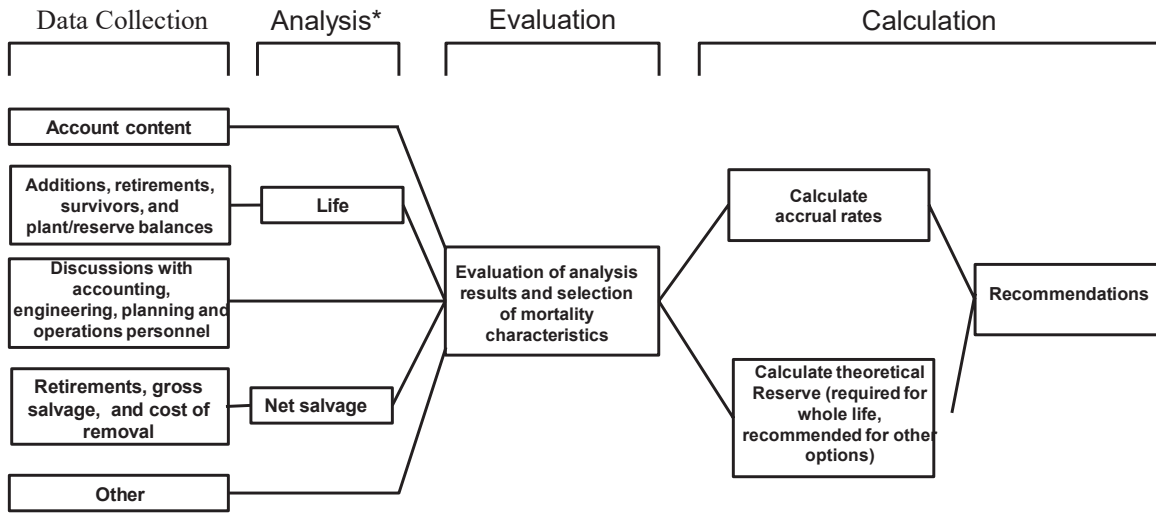
Phase 2 is where the actuarial and SPR analysis is performed. Phase 2 and Phase 3 overlap to a significant degree. In Phase 2, the detailed property records information is used to develop observed life tables for life analysis. These tables are visually compared to industry standard tables to determine historical life characteristics. It is possible that the analyst would cycle back to this phase based on the evaluation process performed in Phase 3. Net salvage analysis consists of compiling historical salvage and removal data by functional group to determine values and trends in gross salvage and removal cost. This information is then carried forward into Phase 3 for the evaluation process.

Phase 3 is the evaluation process, synthesizing analysis, interviews, and operational characteristics into a final selection of asset lives and net salvage parameters. The historical analysis from Phase 2 is further enhanced by the incorporation of recent or future changes in the characteristics or operations of assets that were revealed in Phase 1. Phases 2 and 3 allow the depreciation analyst to validate the asset characteristics as seen in the accounting transactions with actual Company operational experience.

Finally, Phase 4 involves the calculation of accrual rates, developing recommendations, and documenting the conclusions in the study. The calculation of accrual rates is found in Appendix A to this study. Recommendations for the various accounts are contained within Section VI. The depreciation study flow diagram shown as Figure 1¹ below also documents the steps used in conducting this Study. DEPRECIATION SYSTEMS², at page 289, documents the same basic processes in performing a depreciation study, which are: statistical analysis, evaluation of statistical analysis, discussions with management, forecast assumptions, and document recommendations.

¹ INTRODUCTION TO DEPRECIATION FOR PUBLIC UTILITIES & OTHER INDUSTRIES, AGA EEI (2013).

² W. C. Fitch and F.K.Wolf, DEPRECIATION SYSTEMS, Iowa State Press, at page 289 (1994).



Source: Introduction to Depreciation for Public Utilities and Other Industries, AGA EEI , 2013.

*Although not specifically noted, the mathematical analysis may need some level of input from other sources (for example, to determine analysis bands for life and adjustments to data used in all analysis).

Figure 1

SOUTHERN CALIFONRIA GAS DEPRECIATION STUDY PROCESS

Depreciation Rate Calculation

Annual depreciation expense amounts for the depreciable accounts of SoCalGas were calculated by the straight line, ALG, remaining life procedure. With this approach, remaining lives were calculated according to standard ALG group expectancy techniques, using the Iowa Curves noted in the calculation. For each plant account, the difference between the surviving investment, adjusted for estimated net salvage, and the allocated book depreciation reserve was divided by the average remaining life to yield the annual depreciation expense. These calculations are shown in Appendix A.

Remaining Life Calculation

The establishment of appropriate average service lives and retirement dispersions for each account within a functional group was based on engineering judgment that incorporated available accounting information analyzed using the Retirement Rate actuarial method. After establishment of appropriate average service lives and retirement dispersion, remaining life was computed for each account. Theoretical depreciation reserve with zero net salvage was calculated using theoretical reserve ratios as defined in the theoretical reserve portion of the General Discussion section. The difference between plant balance and theoretical reserve was then spread over the ALG depreciation accruals. Remaining lives for each account are found in Appendix A, and the computations are shown in the workpapers.

GRADUALISM

In recent proceedings, the California Public Utilities Commission has expressed concerns about growing cost burdens associated with increasing cost trends for negative net salvage and applied a principle of gradualism for these rates.³ The Commission explained that

[t]he principle of gradualism applies where there is a recognized need to revise estimated parameters, but where the change is allowed to occur incrementally over time rather than all at once. Applying gradualism thus limits the approved increase that would otherwise be warranted, all else being equal and mitigates the short-term impact of large changes in depreciation parameters. Also, it is advisable to be cautious in making large changes in estimates of service lives and net salvage for

³ D-14-08-032 at 597.

property that will be in service for many decades, as future experience may show the current estimates to be incorrect.⁴

The Commission gave specificity to this directive in PGE's 2014 general rate case to "adopt no more than 25 percent of the estimated net salvage increase from current [net salvage] rates."⁵ The Commission gave specificity to this directive in PGE's 2014 general rate case by allowing "no more than 25 percent of the estimated net salvage increase from current [net salvage] rates."⁶ The Commission has then applied this principle to Southern California Edison in D.15-11-021⁷ and D.19-05-020.⁸

By contrast, the Company's last GRC, the depreciation rates, lives, and net salvage parameters from the A.14-11-003 GRC were retained.⁹ As such, since the Company's depreciation rates were set in D.16-06-054, no changes in authorized life or net salvage rates have been made. That is, even with the CPUC's guidance for gradualism, the Company was not allowed to gradually increase net salvage estimates (impacted by increased removal costs) or increase lives in the last GRC.

This exacerbated the gap between the Company's actual life and net salvage experience and the amount authorized by the CPUC. Because of this, the Company is behind in the recovery of the removal cost for its investment in property, plant, and equipment. The gradualism principle only exacerbates this issue. Nevertheless, study follows these directives in the selections for life and net salvage parameters for SoCalGas's depreciable and amortized assets.

Table 1 below shows the change in life from 2012 to 2019 GRC for the Company's largest accounts, as measured by plant investment at December 31, 2020.

⁴ *Id.*

⁵ *Id.*, at 600.

⁶ *Id.*, at 600.

⁷ *Id.* at 413, 421, 425.

⁸ A19-05-020 at 315 and 329.

⁹ D-19-09-051 020 at 623;

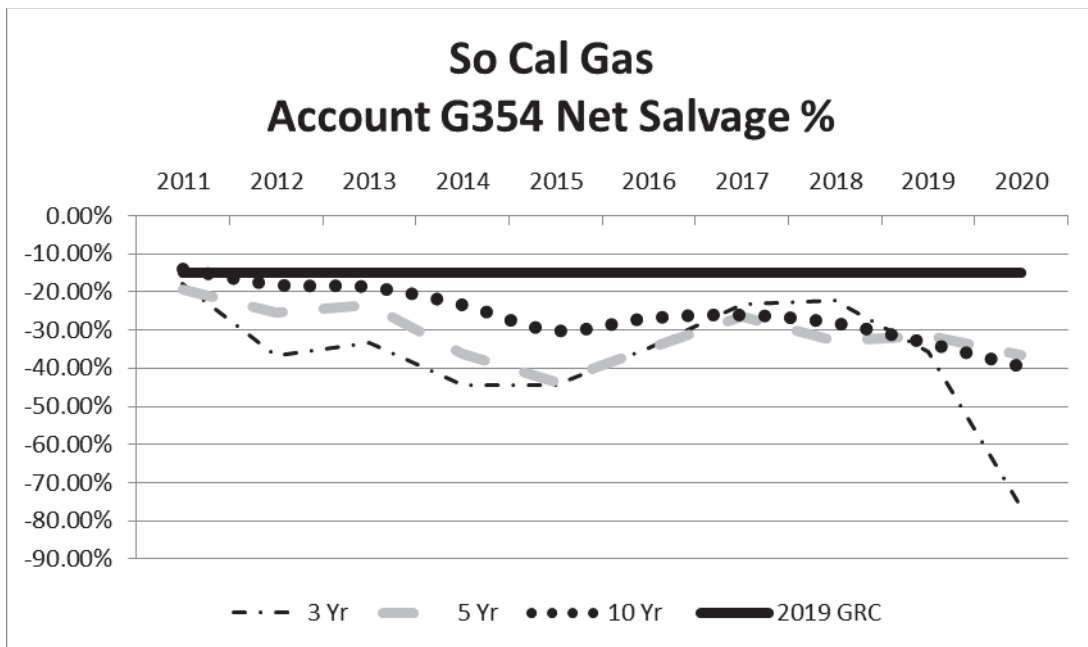
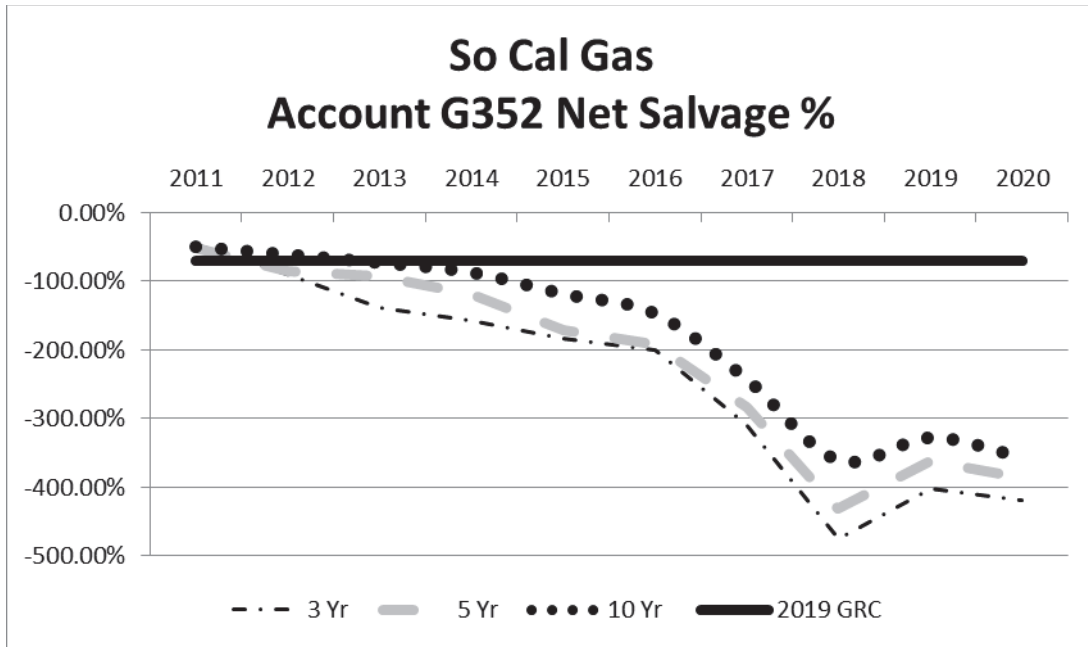
Table 1
SoCalGas Changes in Life Largest Accounts

Acct	2012 Life	2019 Life	Change
G352- Wells	29	49	20
G354 Compressor Station Equipment	45	41	-4
G367 Transmission Mains	57	64	7
G376 Distribution Mains	55	68	13
G380 Services	51	67	14

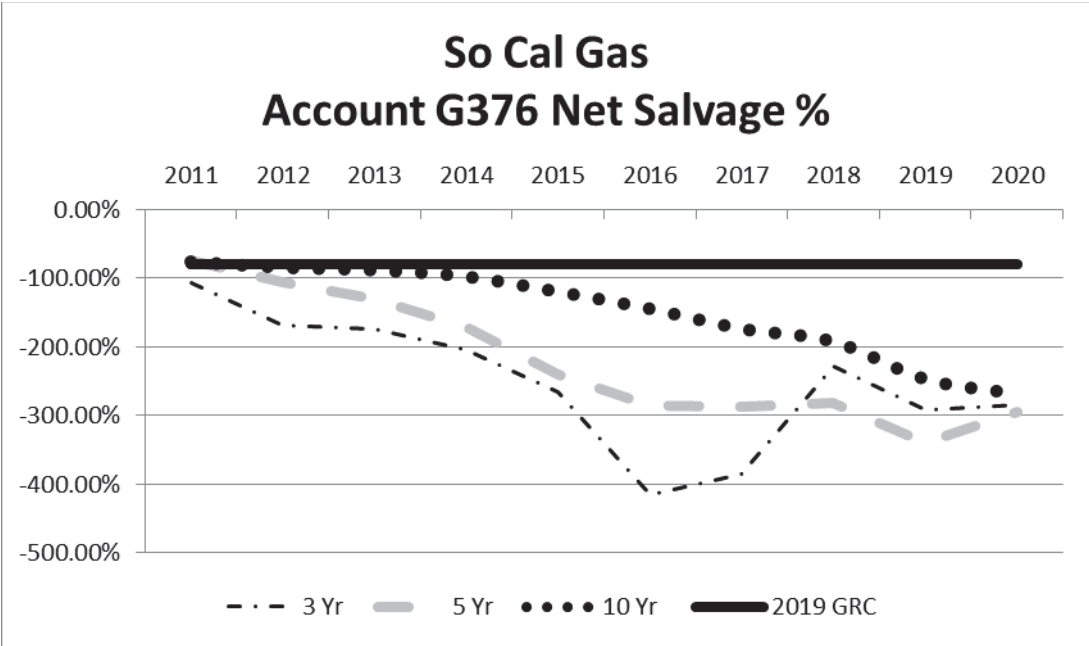
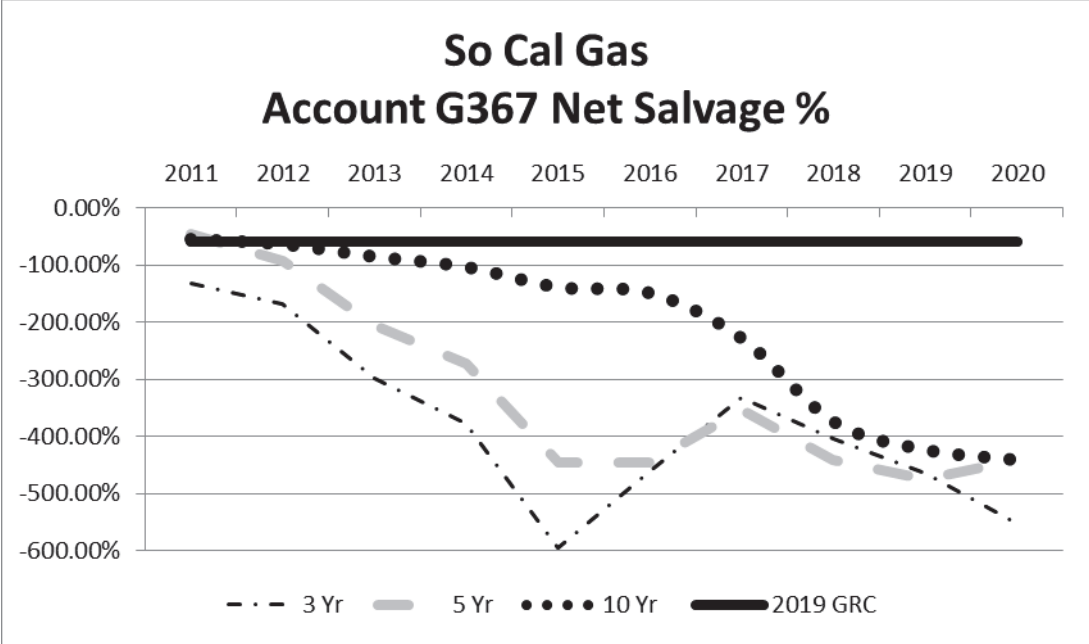
Over the period 2012 through 2019, the Commission’s decisions have moved lives more than 25 percent. Account G352 Wells had an increase of 69% in life, and Account G380 Services and an increase of 27.4 % in life. Due to the gradualism directive, net salvage has only been allowed to move by a maximum of 25 percent. In fact, the Company’s case retained the existing life and net salvage parameters with no change. Net salvage has been allowed, but the rate of change is not keeping up with the Company’s experience. The table below shows how net salvage has changed over the past nine years.

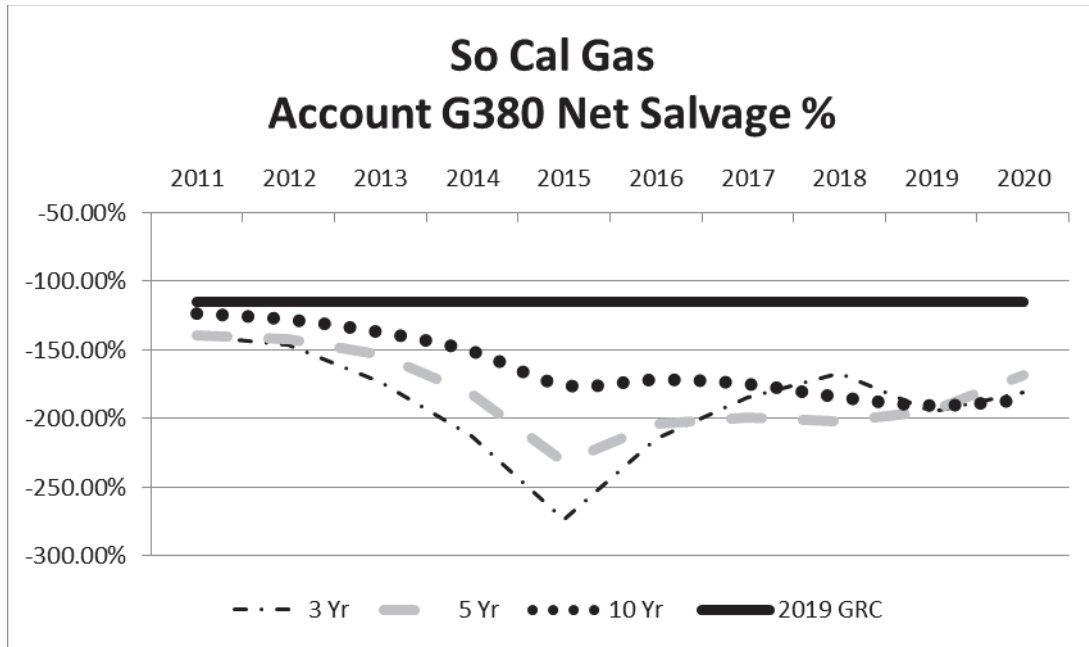
Table 2
SoCalGas Changes in Net Salvage Largest Accounts

Acct	2012 Net Salvage	2019 Net Salvage	Change
G352- Wells	-45	-70	25
G354 Compressor Station Equipment	-5	-15	10
G367 Transmission Mains	-30	-60	30
G376 Distribution Mains	-55	-80	25
G380 Services	-95	-115	20



Account 354 experienced a moderate amount of net salvage in prior periods, but indications in recent years are showing increasing negative net salvage. This is also true for the Company's largest account in Mains and Services.





Given that the 2019 GRC continued the Company’s previous depreciation rates, combined with the Commission’s gradualism limitation, it is even more urgent that the CPUC adopt these net salvage proposals in this study.

Programs Impacting Life and Net Salvage of SCG Assets

SoCalGas has been focused on various Integrity Management Programs (“IMP”) in recent years that impact various functional groups—Storage, Facilities, Transmission, and Distribution. These ongoing programs will impact the life of various asset groups now and going forward.

SIMP (“Storage Integrity Management Program”) is primarily focused on well and well head reservoirs, as well as tubing. There have been some replacement of well heads and tubing and some remediation of casing (e.g., installation of new inner strings) as well as some abandonment of assets. The program began in 2016 and 2017. Many wells were abandoned at the beginning of the program, but abandonment declined as the program went forward and will continue to decline in the future. With the level of inspection and analysis that is now required, the overall life for various storage assets would be expected to decrease. CalGEM (California Geologic Energy Management Division) and Pipeline and Hazardous Materials Safety Administration (“PHMSA”) are the primary driver of the regulations.

FIMP (“Facilities Integrity Management Program”) is another program impacting SoCalGas assets. Unlike other IMP programs, there is no underlying regulatory driver for facility management programs. The Company is adopting a phased approach to develop the program. Certain equipment has been selected in the first phase, such as pressure vessels, tanks, and curtailed piping. The program is in the early stages of development.

In these early stages, the focus of FIMP is on assets such as fixed equipment, rotating equipment, and electrical equipment. Some replacement of pressure vessels has already taken place, and more is to come. There will be some retirements, but they will be fewer than the number of retirements seen in the SIMP program. In Account 356, some pressure vessels may be slated for retirement. Visual inspections are done every five years and internal inspections will be done at intervals not exceeding 10 years, depending on the condition of the vessel. There are a substantial number that will be replaced in the next few years as part of a modernization program at the compressor stations. Each equipment type will have its own plans but those are still in flux. Tanks and pressure vessels are similar. Certain pipes at the storage facilities are inspected every two years, and the Company will typically replace short segments. Other facilities that are included in the program are NGV (Natural Gas Vehicle) and RNG (Renewable Natural Gas).

Transmission Integrity Management Program (“TIMP”) is focused on transmission function assets. It uses the same process as other IMP programs. PHMSA is the main regulatory driver for this program. TIMP began around 2004. There is a 7-year cycle for inspection, evaluation, etc. for most assets, although some may be on a 5-year cycle. The assets will either get reconditioned (e.g., repaired and recoated) or replaced, with replacements varying from a few feet to miles. There was a comprehensive retrofitting of the system to be able to pig lines. There were initially a larger number of replacements in the early years. Pigging, pressure testing, and physical inspections are the primary activities in TIMP.

Distribution Integrity Management Program (“DIMP”) is focused on distribution assets. DIMP is similar in process and scope as the other IMP programs, but began earlier, in the 2011-2012 time frame. PHMSA is the main driver for this program. There is an active pipeline replacement program for medium pressure (< 60 psig), which is replacing around 120 miles (30% steel and 70% plastic). The DIMP program targets plastic pipe prior to 1986 and steel prior to 1971. The mains and services have roughly 42 thousand

miles of “modern” plastic and 24 thousand miles of vintage plastic combined. SoCalGas is at 100+ years at its current replacement level.

Life Analysis

The retirement rate actuarial analysis method was applied to all accounts for SoCalGas. For each account, an actuarial retirement rate analysis was made with placement and experience bands of varying width. The historical observed life table was plotted and compared with various Iowa Curves to obtain the most appropriate match. A selected curve for each account is shown in the Life Analysis Section of this report. The observed life tables for all analyzed placement and experience bands are provided in workpapers.

For each account on the overall band (i.e., placement from earliest vintage year, which varied for each account, through 2020), approved survivor curves from D.19-09-051 were used as a starting point. Then, using the same average life, various dispersion curves were plotted. Frequently, visual matching would confirm one specific dispersion pattern (e.g., L, S, or R) as an obviously better match than others.

The next step would be to determine the most appropriate life using that dispersion pattern. Then, after looking at the overall experience band, different experience bands were plotted and analyzed in increments of approximately ten years, for instance 1991-2020, 1981-2020, etc. Next, placement bands of varying width were plotted with each experience band discussed above. Repeated matching usually pointed to a focus on one dispersion family and small range of service lives. The goal of visual matching was to minimize the differential between the observed life table and Iowa Curve in the top and mid range of the plots. These results are used in conjunction with all other factors that may influence asset lives.

Underground Storage

There are four underground storage facilities: Aliso Canyon, Playa Del Rey, La Goleta, and Honor Rancho. Aliso Canyon is centrally located in the Santa Susana Mountains. Playa del Rey storage facility (PDR) has a central location in the heart of the Company's metropolitan service area.

La Goleta natural gas storage is one of the Company's oldest facilities, having been in service since the 1940s. The La Goleta storage facility encompasses the porous sandstone of the Vaqueros Formation at an average depth of 4,200 feet. Honor Rancho is located in Santa Clarita and has been in operation since 1976. The site is a naturally occurring underground storage reservoir. The four facilities are modeled together for each account discussed below with a common life assigned for each account.

Account 350.31 Storage Rights (50 SQ)

This account includes the cost of storage rights used in connection with underground storage operations. There is approximately \$17.4 million in this account. After removing fully accrued assets, the plant balance in this account is \$667 thousand.

Currently, the approved life for this account is 40 years with an SQ dispersion. The average age of survivors in this account is 49.71 years. There is limited data on which to perform actuarial analysis.

After discussing Right of Way and storage rights with Company personnel, the determination is that the life of rights of way and storage rights should be at least equal to the life of the underlying assets. The status of owned land versus leased land varies by site. Since the lives of many accounts in the underground storage function are increasing, this study recommends increasing the life to 50 years and retaining the SQ dispersion.

Account 350.32 Recoverable Oil (50 SQ)

This account includes the cost of recoverable oil used in connection with underground storage operations. There is approximately \$571 thousand in this account. This account is fully accrued, and no additional depreciation is requested.

Currently, the approved life for this account is 40 years with an SQ dispersion. The average age of survivors in this account is 45.50 years. There is limited data on which to perform actuarial analysis. This account is fully accrued, and it is similar to Account 350.31

(discussed above). Since the lives of many accounts in the underground storage function are increasing, this study recommends increasing the life to 50 years and retaining the SQ dispersion in the event of any new assets capitalized to this account.

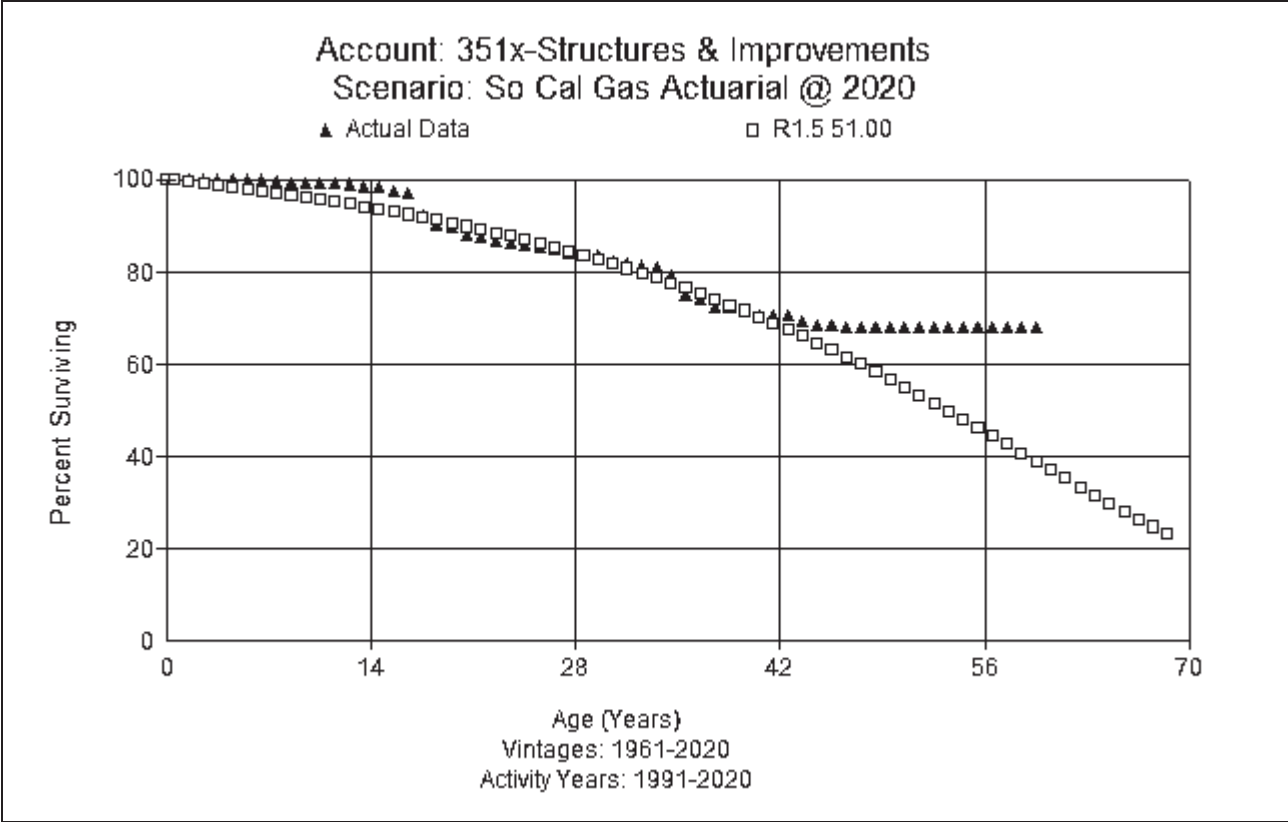
Account 350.40 Rights of Way (50 SQ)

This account includes the cost of land rights used in connection with underground storage operations. There is approximately \$25 thousand in this account. After removing fully accrued assets, the plant balance in this account is \$20 thousand. Currently, the approved life for this account is 40 years with a SQ dispersion. The average age of survivors in this account is 31.28 years. There is limited data on which to perform actuarial analysis. This account is similar to Account 350.31 (discussed above). Since the lives of many accounts in the underground storage function are increasing, this study recommends increasing the life to 50 years and retaining the SQ dispersion.

Account 351 Structures and Improvements (51 R1.5)

This account consists of compressor station structures associated with underground storage sites. There is approximately \$113.8 million in this account. Currently, the approved life for this account is 48 years with an R1.5 dispersion.

The average age of survivors in this account is 10.30 years. Company personnel expect the operational life for these assets to be long. The assets in this account consist of long-lived items such as buildings, structures, site prep, electrical, roads, and foundations, as well as shorter lived assets such as security and fencing. Operations personnel support a slight increase in the life of this account from the approved 48 years. Based on actuarial analysis and input from Company experts, this study recommends moving to a 51 year life with the R1.5 dispersion. An observed life table is graphed for this account with the recommended life and curve below.



Account 351.20 Storage Solar and Fuel Cell Assets (10 SQ)

This account includes the cost of solar and fuel cell assets used for utility service. Currently, there is no plant in this account. However, SCG expects to have these types of assets for this function in the future. There is no similar asset on SoCalGas’s books at this time. Similar assets used by SDGE currently have a 10-year life. Based on the judgment and SDGE’s similar assets, this study recommends a 10-year life with an SQ dispersion for this account. No graph is shown.

Account 352 Wells (49 R2.5)

This account consists of assets created in the construction of well sites used in the underground storage operations. There is approximately \$542.9 million in this account. Currently, the approved life for this account is 49 years with an R2.5 dispersion.

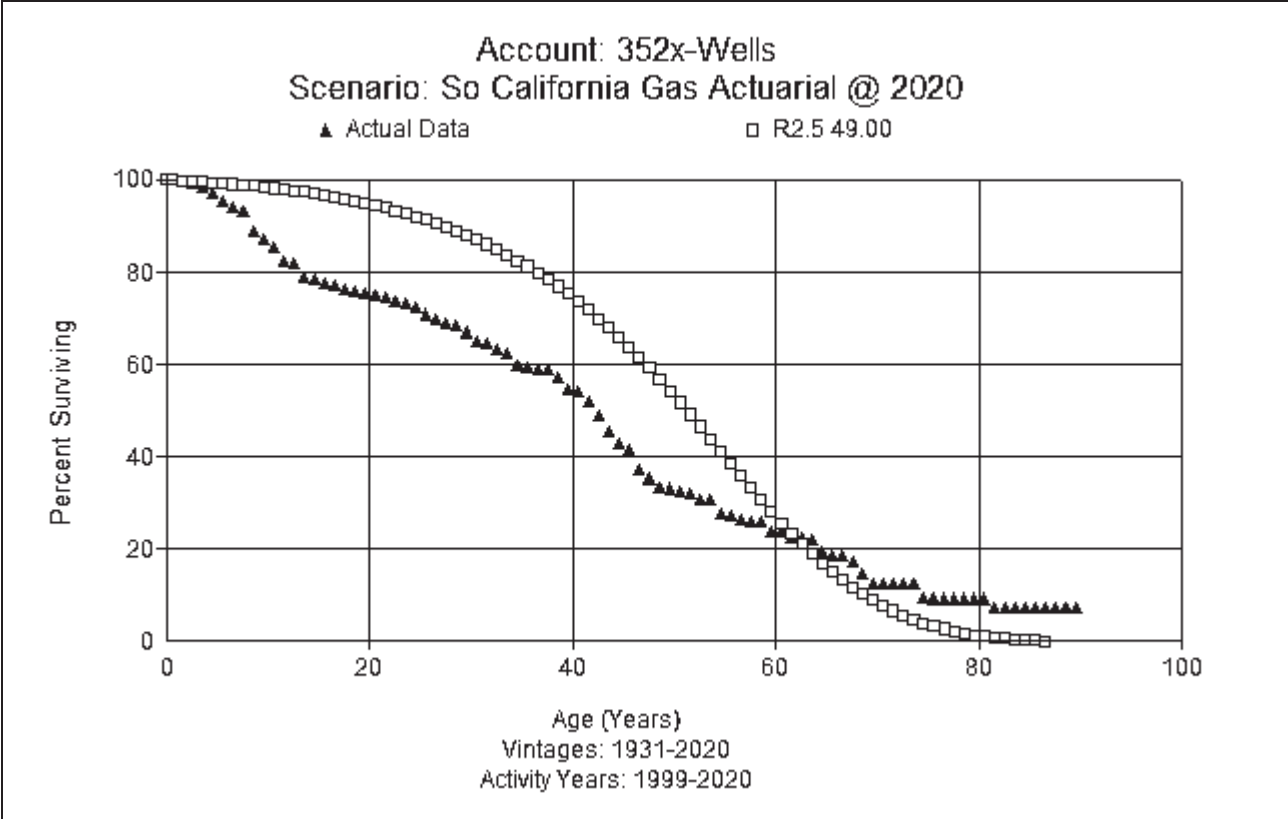
The average age of survivors in this account is 11.32 years. Company personnel report that there are current programs that are impacting lives in this account in the short run. An example of this is well replacement, which is both multi-year and multi-million dollar (\$40M per year). The well replacement program aims to replace storage well capacity that

have been abandoned (Honor Rancho) and will continue into 2023. Other activity will continue to 2030 at other sites.

Company experts report that the regulatory requirements have significantly increased. For a number of wells, the cost-benefit ratio of on-going compliance with those regulations meant that it was not justifiable to keep older wells in service. The retired assets were generally (but not always) some of the oldest wells in the system. The regulation change began in 2016 and was finalized in 2018. The related retirements began in 2016 and ended around 2020. A second round of retirements started in 2020 and 2021. The first round retired 60+ wells and the second round will retire 10-12. Company experts do not anticipate that level of retirements going into the future, only for the next 2-5 years.

Longer term historical indications of a life close to 50 years are still valid. The large retirements are somewhat of an anomaly. Generally, the technology has improved over the decades, and Company personnel do not see any reason for the life to decrease in the long-term. Cementing the well to the surface (which is a new requirement) may help to extend the life in the future. This will offset some of the historical aging mechanisms. The shorter-lived assets in the account include tubing string and packers (down hole assembly), which may only have a 7-year life, and well head, which may only have a 15-year life.

Analytical results include the recent years reflect the 2016-2019 abandonment retirements. Even though that shows a decline to life, Company engineers recommend holding a current life. Based on the input from Company experts and judgment, this study recommends retention of a 49-year life with an R2.5 dispersion for this account. An observed life table is graphed for this account with the recommended life and curve below.

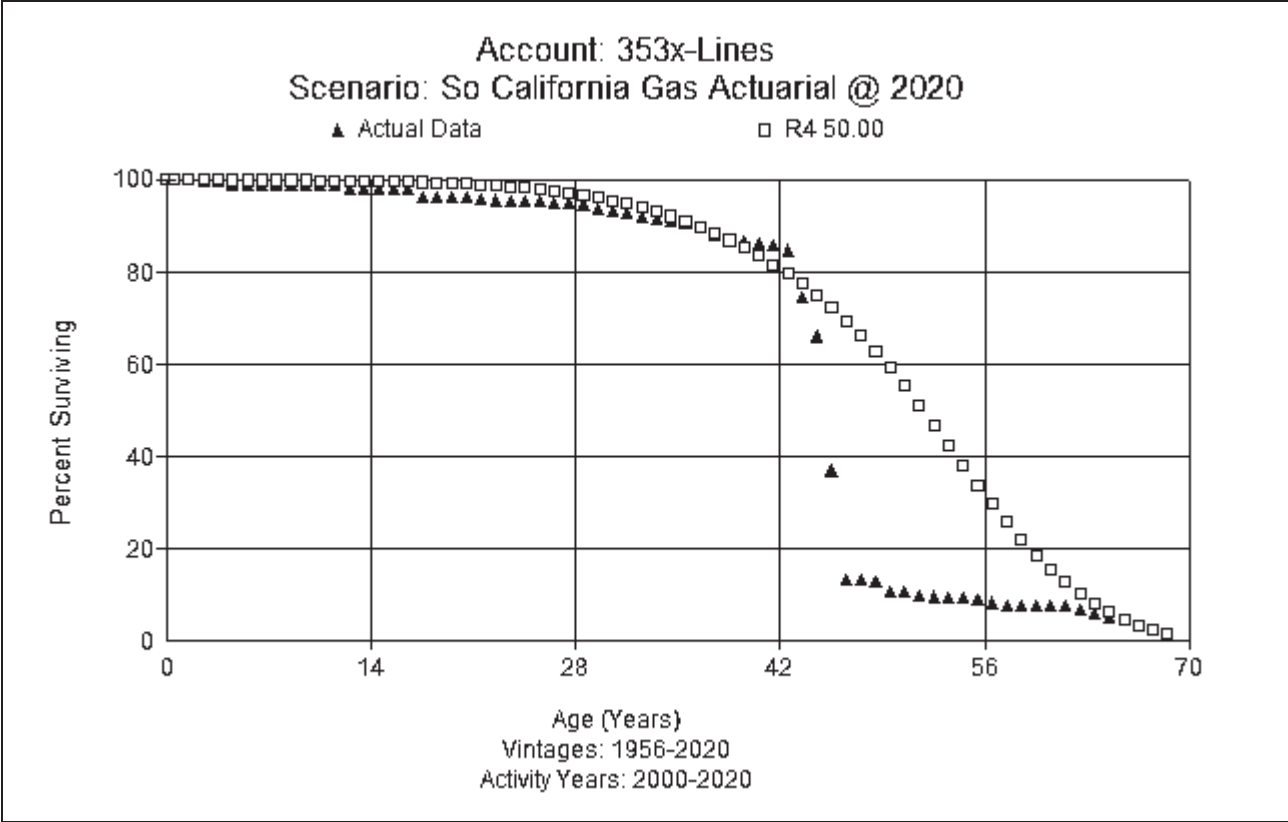


Account 353 Lines (50 R4)

This account consists of well lines used in the underground storage operations. There is approximately \$177.3 million of investment in this account. The current approved life for this account is 54 years with an R3 dispersion. The average age of survivors in this account is 13.10 years. Actuarial analysis shows a decline in life to 50 years.

Company personnel believe that the decrease in life seen in the analysis could be related to well abandonments, since surface facilities are removed. Lines are carbon steel and, depending on the field, the pipe is wrapped, buried, and cathodically protected. If the lines are above ground, they do not need cathodic protection.

Company experts expect a shorter life for buried pipe than above ground pipe from an operational perspective. At one site (Honor Rancho), the coating is failing on underground pipe. Company subject matter experts believe a 50-year life for this account is reasonable. Based on input from Company personnel and judgment, this study recommends moving to a 50-year life and the R4 dispersion. An observed life table is graphed for this account with the recommended life and curve below.



Account 354 Compressor Station Equipment (41 L0.5)

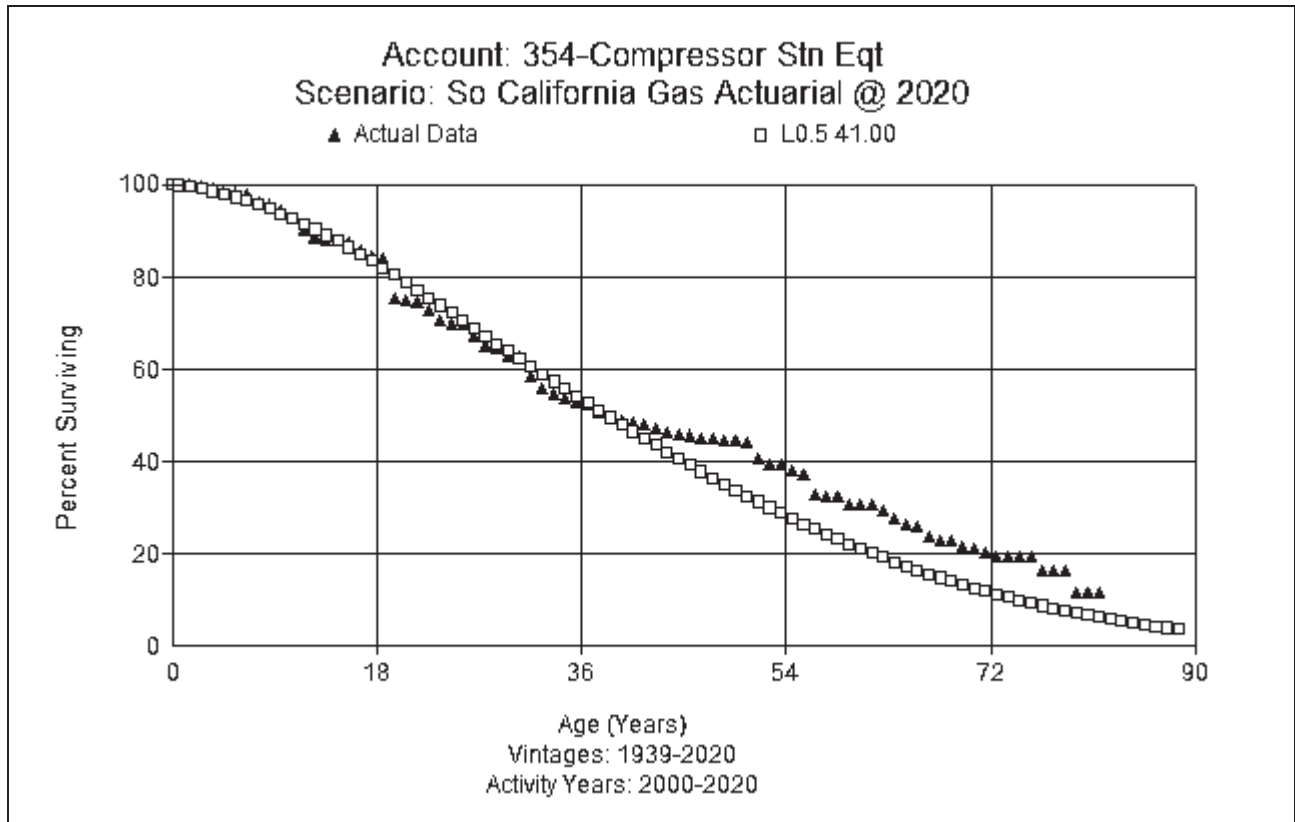
This account consists of compressor station equipment used in the underground storage operations. There is approximately \$457.2 million of investment in this account. The current approved curve for this account is 41 years with an L0.5 dispersion.

The average age of survivors in this account is 8.21 years. A program of compressor modernization is underway, with \$600M at Honor Rancho, the second largest of the Company’s four underground sites, and a smaller program at Playa Del Ray. Company personnel report that this modernization effort is driven by aging equipment and air quality regulations by Air Quality Management District (“AQMD”).

The Company is also adding emissions controls at some sites. Honor Rancho is installing a new compressor station and will remove the old one once the new station is in place. The completion date for that project is estimated for 2027. Honor Rancho was converted to storage in 1975, and the original compressors are being replaced. The life of reciprocating compressors and turbine driven compressors are similar. Aliso Canyon has been replaced in the same way that Honor Rancho will be at an estimated cost of \$300M. This project only replaced one portion of the original injection system. Turbine driver

compressors require more capital replacements than reciprocating compressors, and where maintenance costs are higher.

Company personnel recommend retaining the current service life and dispersion. Based on the actuarial matching of history and input from Company experts, this study recommends retaining the existing 41-year life and L0.5 dispersion. An observed life table is graphed for this account with the recommended life and curve below.



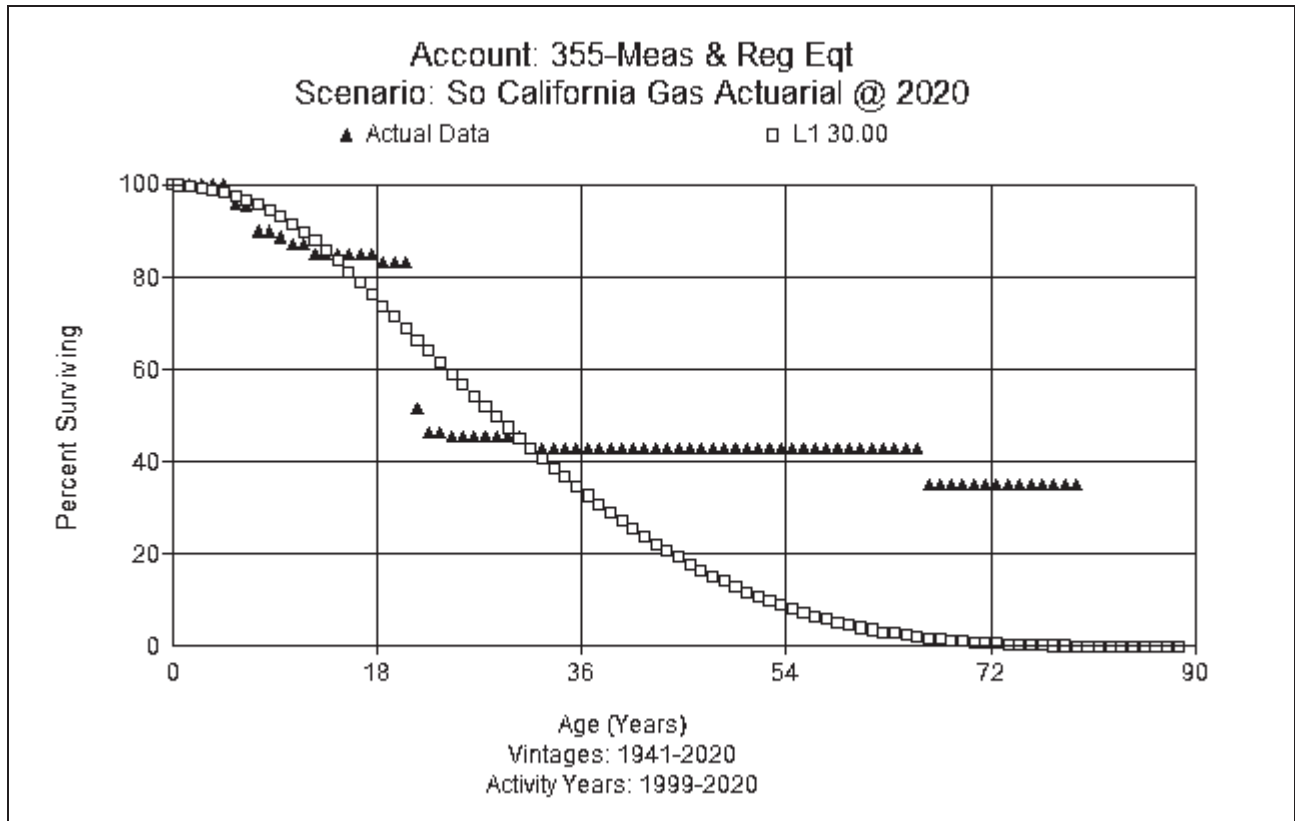
Account 355 Measuring and Regulating Station Equipment (30 L1)

This account consists of measuring and regulating station equipment used in the underground storage operations. There is approximately \$18.4 million of investment in this account. The current approved life for this account is 22 years with an L0.5 dispersion.

The average age of survivors in this account is 6.91 years. Company personnel report that technology change is the biggest force of retirement that impacts this account. The Company is changing from older technology to digital equipment. For example, the Company is still using dial-up modems to collect data. Assets that will be replaced frequently are measurement related, such as flow elements (turbine meter and orifice

plates), flow computers, and transmitters. Regulators and similar equipment are more robust and last longer. Unless there is change in process requirements, there is not often a need to change regulators. Flow meters can last longer than the current life of 22 years and will have a life similar to dehydrators.

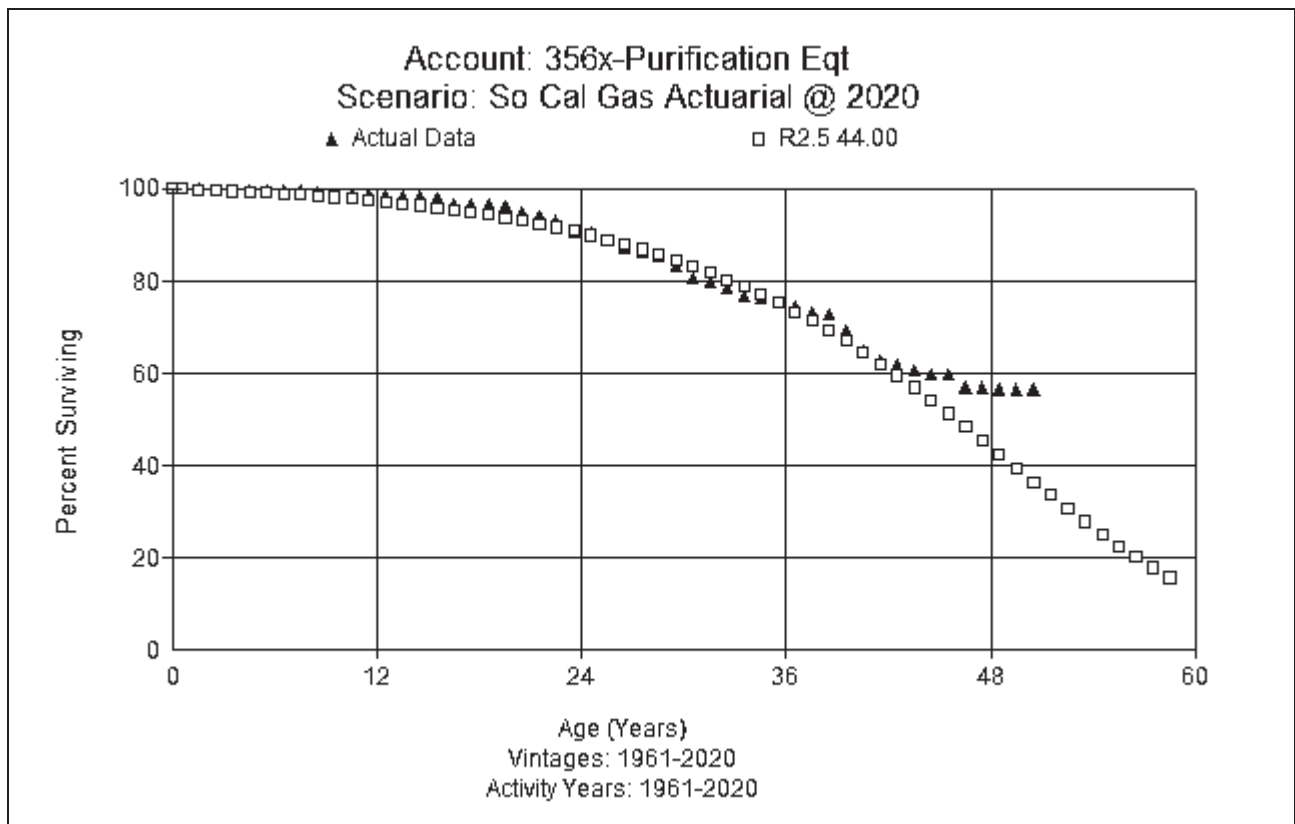
Company personnel believe the 22-year life seems short from an operations perspective. Company personnel support moving the life longer, perhaps to 30 years, based on operational considerations. Based on input from Company operations personnel, this study recommends moving to 30-year life with an L1 dispersion. An observed life table is graphed for this account with the recommended life and curve below.



Account 356 Purification Equipment (44 R2.5)

This account consists of purification equipment used in the underground storage operations. There is approximately \$161.3 million of investment in this account. The current approved life for this account is 39 years with an R2.5 dispersion.

The average age of survivors in this account is 16.49 years. Company experts report that there have recently been some changes in the dehydration equipment, with changing vessels and modifying internals of existing vessels. The Company is changing technology (e.g., structured packing instead of bubble trays). In the past, the Company moved to hot oil heaters from steam. Analytics show a slight increase of 5 or 6 years, which Company engineers believe is reasonable based on current conditions. This study recommends a slight increase to a 44 year life and moving to an R2.5 dispersion. An observed life table is graphed for this account with the recommended life and curve below.

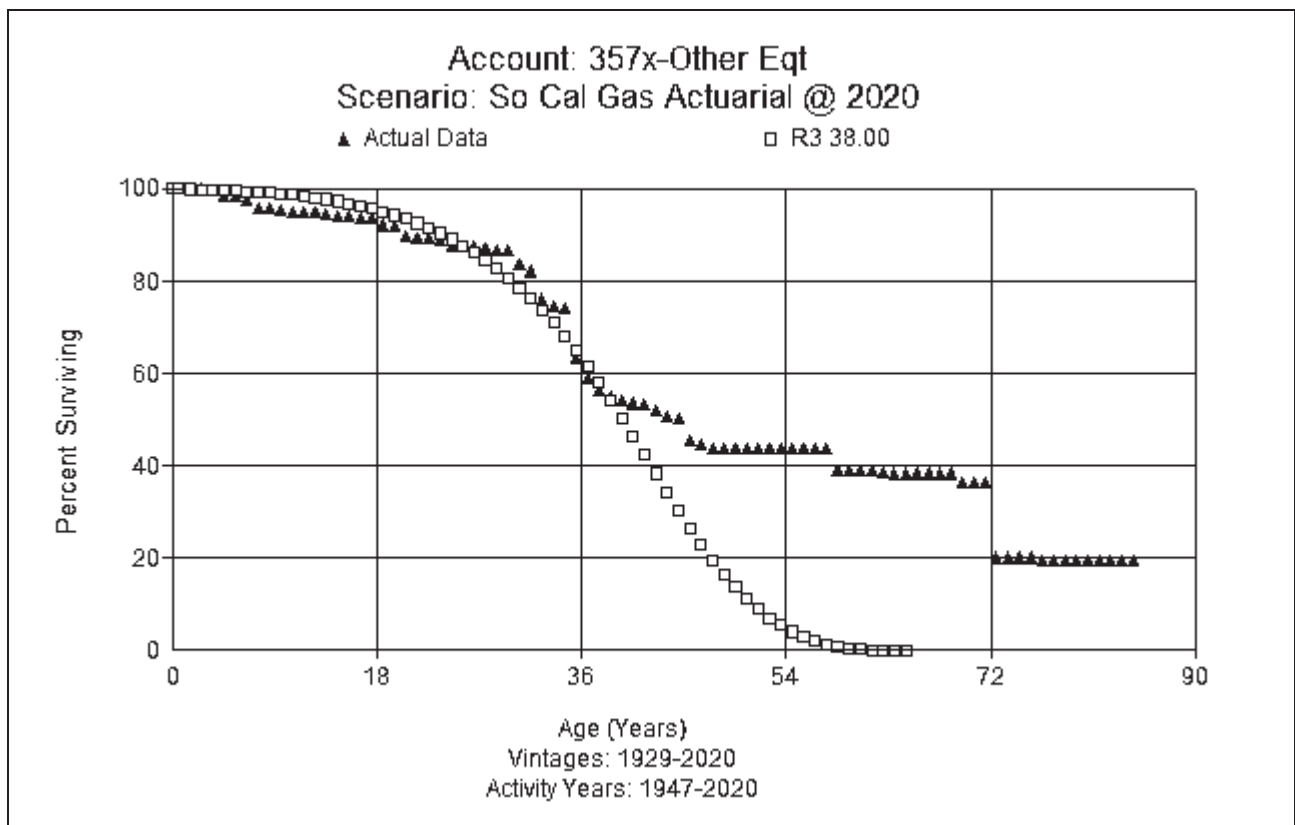


Account 357 Other Equipment (38 R3)

This account consists of communication equipment, miscellaneous equipment, and purification equipment used in the underground storage operations. There is approximately

\$74.9 million of investment in this account. The current approved life for this account is 37 years with an R2.5 dispersion.

The average age of survivors in this account is 7.73 years. Company personnel report that there are significant amounts of electrical assets, roads, and non-DOT piping in this account. PLCs and pumps would be components with shorter lives, while other assets tend to have fairly long lives. Operationally, there is no trigger seen to change the life significantly. Based on input from Company personnel and the actuarial matching of history, this study recommends a slight increase to a 38-year life and moving to an R3 dispersion. An observed life table is graphed for this account with the recommended life and curve below.



Transmission Function

Account 365.29 Rights of Way (40 SQ)

This account includes the cost of land rights used in connection with transmission operations. There is approximately \$129.2 million in this account. After removing fully accrued assets, the plant balance in this account is \$123.0 million. Currently, the approved life for this account is 40 years with an SQ dispersion. The average age of survivors in this

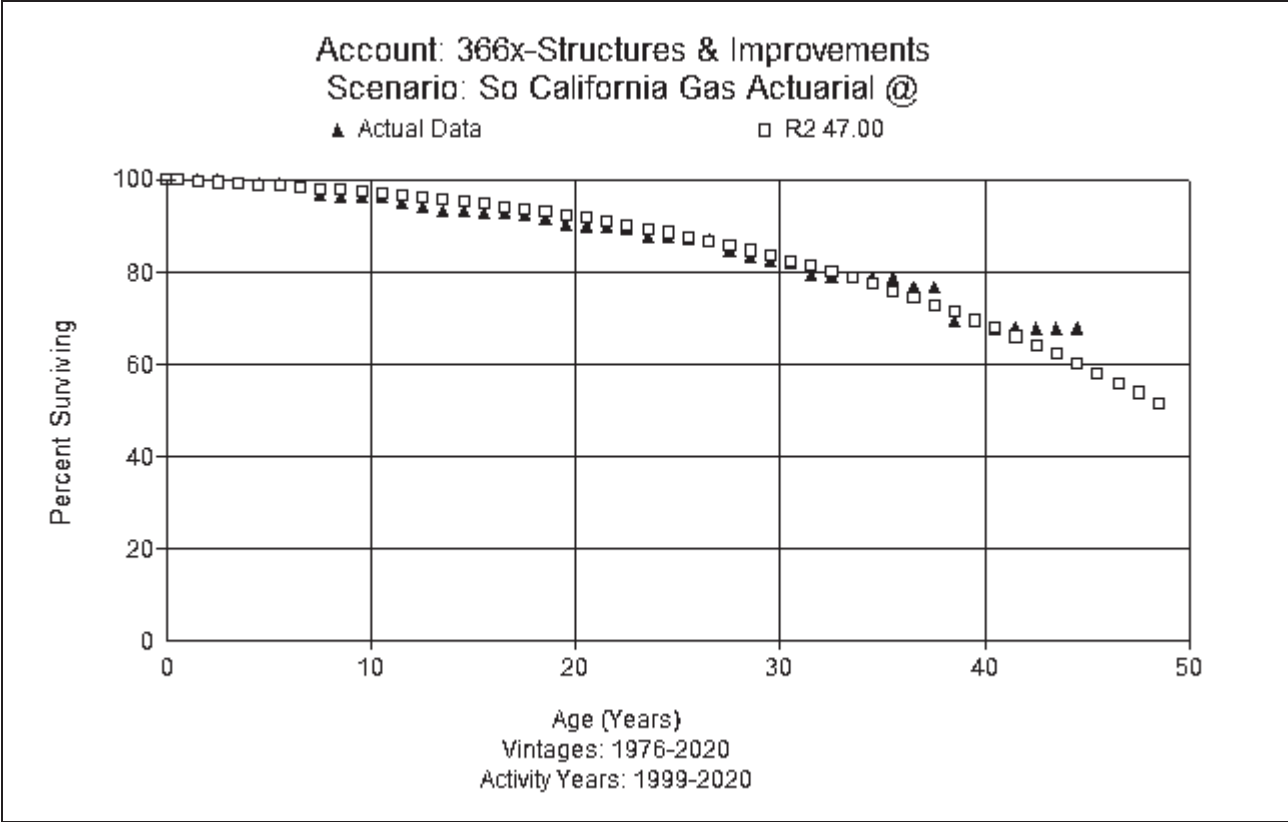
account is 6.43 years.

There have been few retirements in this account. In 2018, the Company signed an agreement with the Morongo Indian Tribe to lease various gas transmission easements across the tribe's reservation. The agreement is for 40 years. Over \$100 million was placed in service related to this agreement in transaction year 2020 for lines 2000 and 5000. Given the large amount of investment is tied to this 40-year agreement, this study recommends retaining the 40 year life and SQ dispersion. As such, no graph is shown.

Account 366 Structures and Improvements (47 R2)

This account includes the cost of structures and improvements such as buildings, gas pumping, and regulating stations and other items used in connection with distribution operations. There is approximately \$84.5 million in this account. Currently, the approved life for this account is 47 years with an R2 dispersion.

The average age of survivors in this account is 12.91 years. Company experts report that operating rules, maintenance practices, and other forces of retirement impacting this account have been the same for the past several years. Thus, they do not believe there would be a change in life for this account. Based on actuarial analysis and input from Company experts, this study recommends retention of the 47-year life with an R2 dispersion. An observed life table is graphed for this account with the recommended life and curve below.



Account 366.20 SCG Solar and Fuel Cell Assets (10 SQ)

This account includes the cost of solar and fuel cell assets used for utility service. Currently, there is no plant in this account. However, SCG expects to have these types of assets for this function in the future.

There is no similar asset on SoCalGas’s books at this time. Similar assets used by SDGE currently have a 10-year life. Based on the judgment and SDGE’s similar assets, this study recommends a 10-year life with an SQ dispersion for this account. No graph is shown.

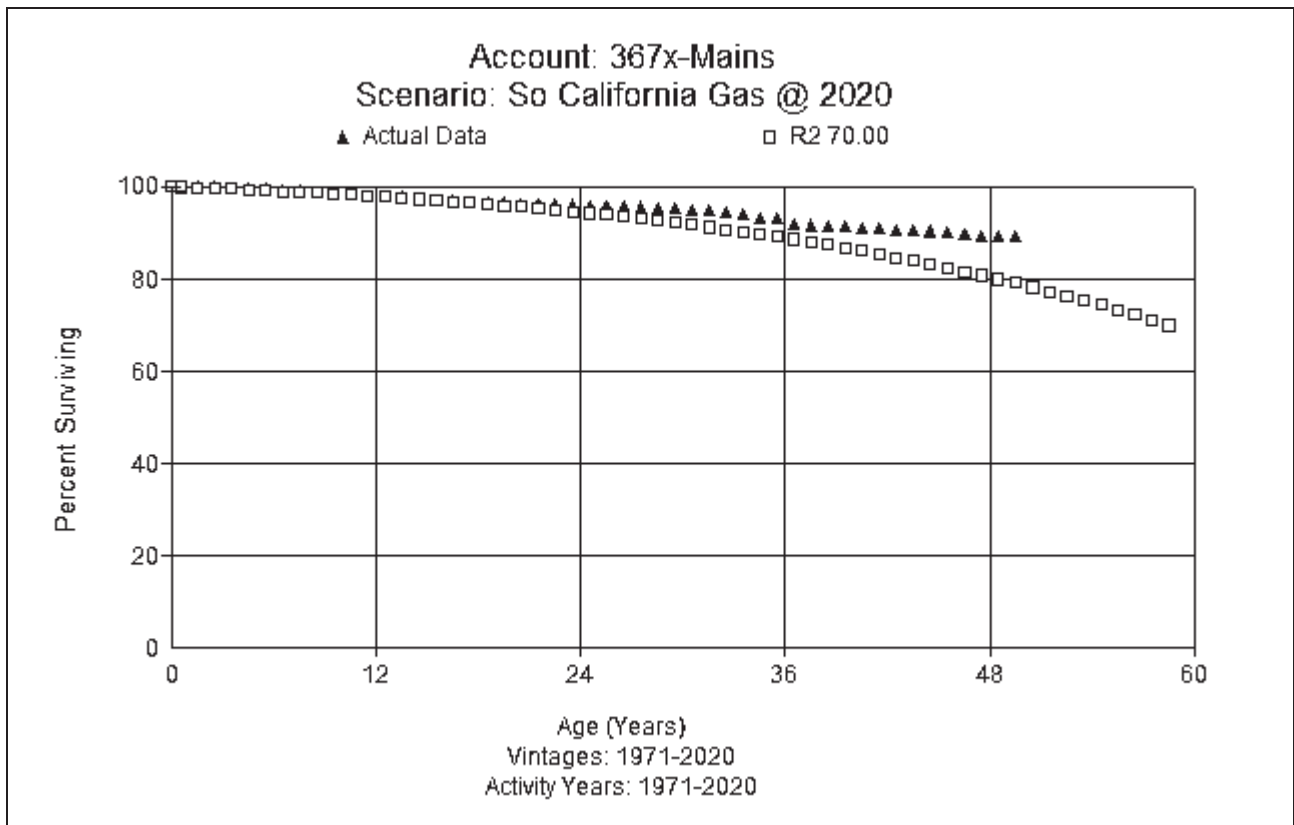
Account 367 Mains (70 R2)

This account includes the cost of transmission mains, primarily coated and wrapped steel. The current approved life for this account is 64 years with an R3 dispersion. There is approximately \$2.7 billion in plant in this account. The average age of survivors in this account is 13.64 years.

The Company is seeing some class changes as population density increases. Typically, it is much more rectifier based, which would have a life from between 20 and 25

with anodes around 15 years or less. IMP forced the retirement of some valves. The Company has been adding more instrumentation and automation (remote control) in recent years. For the most part, the automation could be added to existing assets (such as valves) in the majority of instances. But in about 40% of cases, the Company would have to replace the full valve assembly.

The 70-year average life suggested by some of the actuarial analysis is on the high side of expectations for the life of transmission mains. But it is still within a reasonable range. Given the young age of the investment and the effects of the TIMP program, this study recommends moving to a 70-year life and an R2 dispersion. An observed life table is graphed for this account with the recommended life and curve below.



Account 367.6 Hydro Test Costs (21 SQ)

PHMSA) has issued new regulations effective July 1, 2020 that will impact pipelines compliance costs for existing assets. The rule, known as the Mega Rule, combines previous regulations for onshore gas transmission regarding pipeline safety and environmental risk. The new mega rule operates with the goal of improving pipeline safety.

With new regulations for operations and increased requirements for reporting, pipeline operators expand Integrity Management Programs, verify Maximum Allowable Operating Pressure ('MAOP'), and test previously untested pipe to ensure they are in compliance.¹⁰ Company experts believe this will focus on vintage years 1970s and older. Costs incurred to comply with the Mega Rule will be treated as a capital item. After examining the remaining life of vintages 1970 and older, those assets will have an average remaining life of about 21 years, assuming the proposed life and curve for Account 376. Since these costs are not directly tied to specific mains, auto retirement is recommended. The testing costs are proposed to be depreciated over 21 years with an SQ curve.

Account 368 Compressor Station Equipment (48 R1)

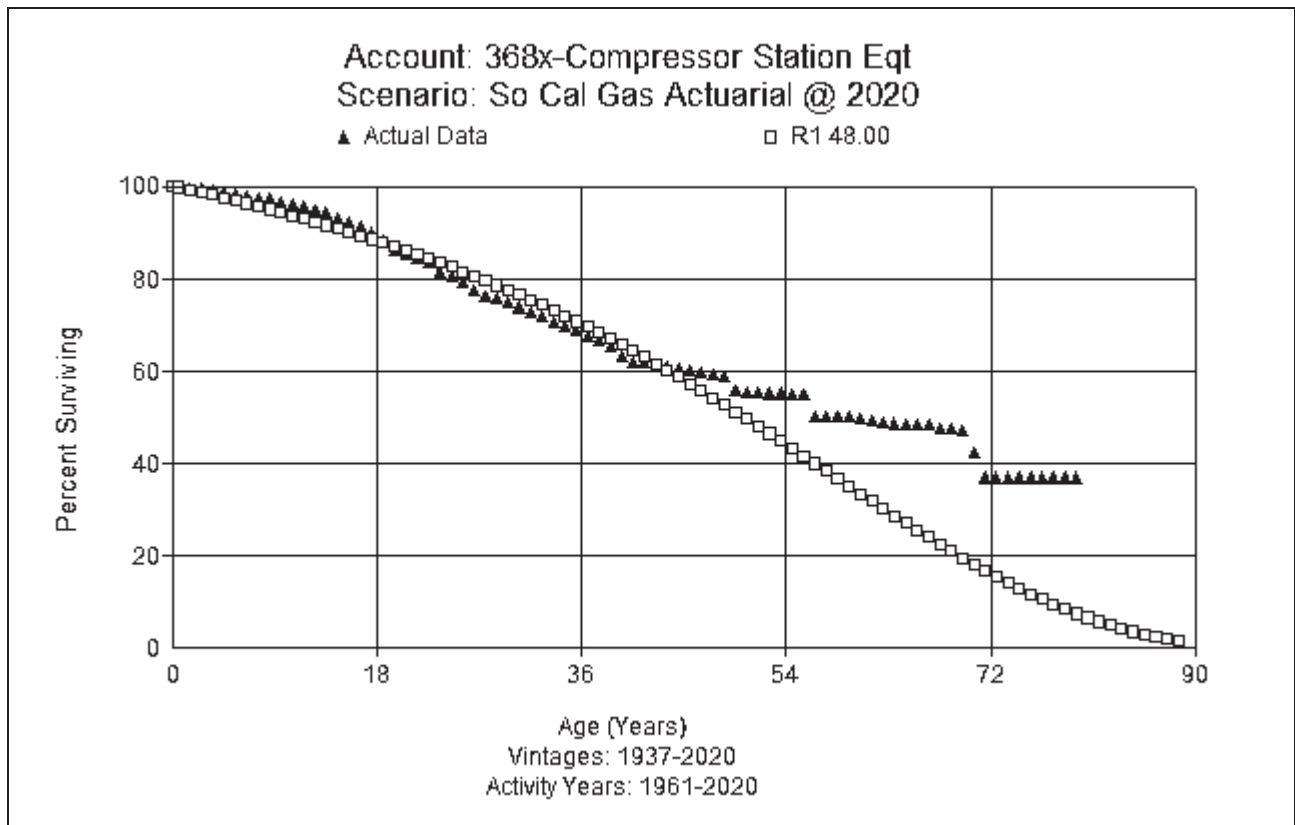
This account includes the cost of compressor station equipment used in connection with transmission operations. There is approximately \$309.3 million in this account. Currently, the approved life for this account is 50 years with an R1 dispersion.

The average age of survivors in this account is 16.27 years. Company personnel report that the Company has a modernization program driven by emissions compliance and decarbonization initiatives. SoCalGas is focused on replacing old technology with new turbines and adding hydrogen production to use on site. SoCalGas has used low speed reciprocating engines. But it is moving more to turbine compressors in the future, which have a shorter life than reciprocating compressors.

Several replacement projects are underway: Ventura replacements will have a reciprocating engine; and Honor Rancho is replacing compressors which have been cycled more frequently causing more deterioration, and more environmental compliance equipment will be installed. The project at Honor Rancho has an estimated cost of \$500M for one station and replaces assets from the 1950s to 1990s.

¹⁰ <https://dynamicrisk.net/2020/11/14/phmsa-mega-rule-in-practice/#:~:text=PHMSA's%20Mega%20Rule%20is%20now,management%20programs%20and%20operating%20practices.>

From a technical standpoint, operations personnel report that reciprocating compressors operated at high speed have issues. There is a transition where the longer-lived reciprocating compressors are being replaced with shorter lived turbines and electric motor driven compressors. Storage operations are requiring the cycling of compressors more than in the past, which shortens the life of the compressors. The program is just beginning with in service planned for 2024-2026. Marino and Honor Rancho compressor stations will not be used and useful until 2025 or 2026. After examining the technical issues with this account, this study recommends a slight reduction in life to 48 years and retaining the R1 dispersion. An observed life table is graphed for this account with the recommended life and curve below.

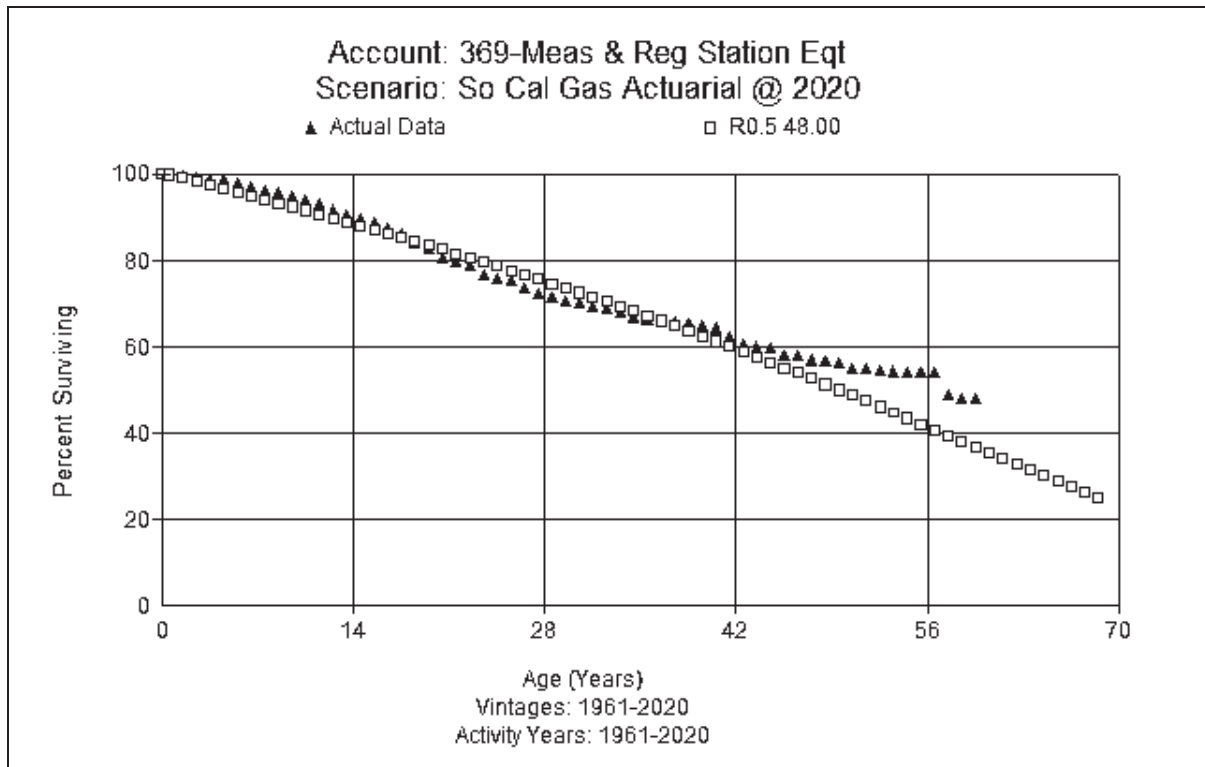


Account 369 Measuring and Regulating Station Equipment (48 R0.5)

This account includes the cost of measuring and regulating station equipment used in connection with transmission operations. There is approximately \$253.0 million in this account. Currently, the approved life for this account is 46 years with an S0 dispersion.

The average age of survivors in this account is 7.84 years. Company subject matter experts report that there has been a lot of investment related to IMP to retrofit for pigging. They have been adding more instrumentation and automation (remote control) in recent years. For the most part, the automation could be added to existing assets (such as valves) in the majority of instances. But about 40% of the time, the Company has to replace the full valve assembly. There have been activities to change out actuating equipment that might release methane.

As communities become more developed, increasing population density can trigger class location changes and the need for more accurate regulating equipment. A slight change in life is reasonable, but there are no forces of retirement that would cause a significant change. Based on input from Company personnel, this study recommends moving to a 48 year life while retaining the R0.5 dispersion. An observed life table is graphed for this account with the recommended life and curve below.



Account 370 Communication Equipment (15 SQ)

This account includes the cost of communication equipment used in connection with transmission operations. There is approximately \$69.2 million in this account. Currently, the approved life for this account is 15 years with an SQ dispersion.

The assets in this account are a combination of all forms of communication (4-wire, radio, fiber, cell, satellite). Company personnel report that there is an ongoing project to replace cell equipment. New control equipment installed as part of the Pipeline Safety Enhancement Plant ("PSEP").

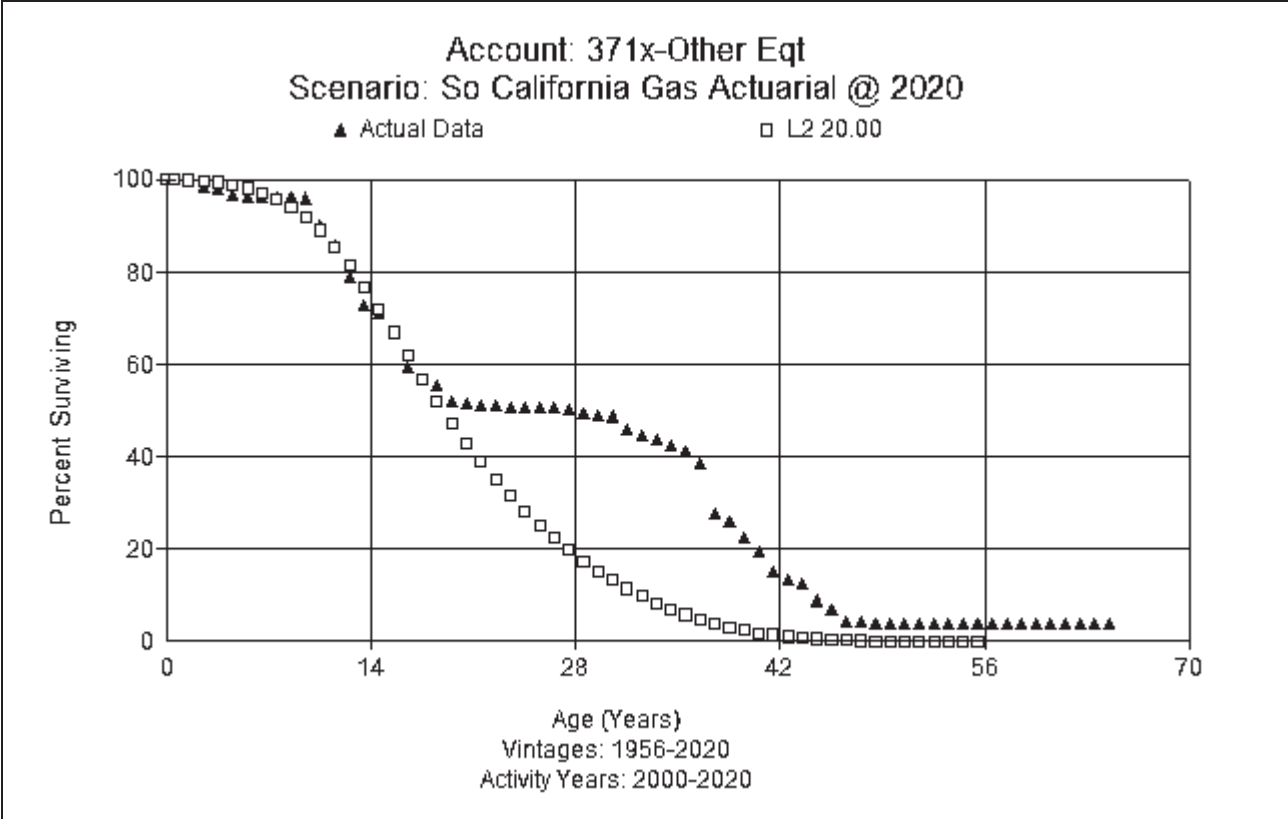
The average age of survivors in this account is 3.04 years. Company operations personnel report that technology may decrease the life of this equipment. Cyber threats also may provide reasons to replace with updated equipment.

Operationally, the life of 15 years is still reasonable but may decrease in future years. Based on input from Company personnel, this study recommends retaining the approved 15 year life with an SQ dispersion. No graph is shown.

Account 371 Other Equipment (20 L2)

This account includes the cost of other equipment used in connection with transmission operations. There is approximately \$9.1 million in this account. Currently, the approved life for this account is 21 years with an L0.5 dispersion.

The average age of survivors in this account is 12.10 years. This equipment has had little change over time, and subject matter experts do not expect a large change. Based on actuarial analysis and judgment, this study recommends moving from the approved 21-year life to a 20 year life with an L2 dispersion. An observed life table is graphed for this account with the recommended life and curve below.



Account 371.1 Temporary Assemblies and Test Heads (10 SQ)

This account includes the cost of temporary assemblies and test heads used in connection with transmission operations. This is a new account that will be separated from Account 371. There is no plant investment at present.

Company subject matter experts state that the assets in this account will differ from Account 371. They believe that these assets will be used during a period of at least 10 years. As such, a 10-year life with an SQ dispersion is proposed for this account based on the recommendation of Company operations personnel. The 10-year depreciation is chosen due to the nature of how these assets are used and their service life, after which they are sent to salvage. Because these assets are used to conduct post construction strength test on pipelines, there are only so many test that can be performed with a test head before it could no longer be utilized. No graph is shown.

Distribution Plant

Account 374.2 Rights of Way (70 SQ)

This account includes the cost of land rights used in connection with distribution operations. There is approximately \$2.9 million in this account. After excluding fully accrued assets, the current balance in this account is \$1.9 million. Currently, the approved life for this account is 40 years with an SQ dispersion.

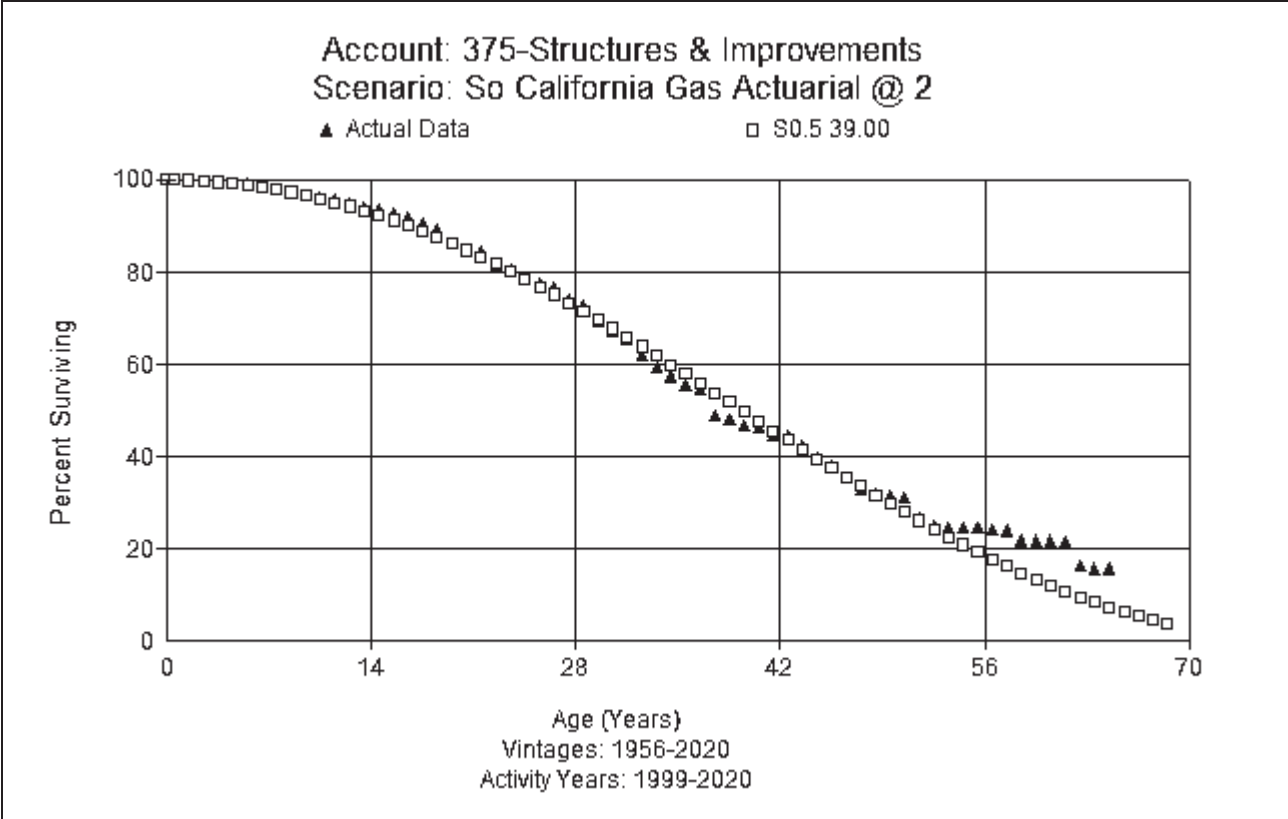
The average age of survivors in this account is 34.64 years. There have been few retirements in this account. Company personnel state the life of the right of way should be equal to the underlying life of the asset. Since the longest life proposed for any account in this function is 70 years, this study recommends moving to a 70-year life and retaining the SQ dispersion. No graph is shown.

Account 375 Structures and Improvements (39 S0.5)

This account includes the cost of structures and improvements used in connection with distribution operations. There is approximately \$329.6 million in this account. Currently, the approved life for this account is 40 years with an S0 dispersion.

The average age of survivors in this account is 13.92 years. The average age of retirements in this account is 22.97 years. Operations personnel state that there are no obvious changes in the usage or characteristics of these assets that would suggest a material change in life.

There are a number of shorter life assets within the group: roofs, HVAC, generators, parking lot replacements, etc. that would moderate the building lives. The analysis shows lives holding in the 40-year range. Lives of the assets in this account are expected to be shorter than assets in Account 390, which have more robust systems like general office facilities. Actuarial analysis shows a life close to the current 40-year life parameter. Based on actuarial analysis and input from Company experts, this study recommends a slight change to a 39-year life while retaining the S0.5 dispersion. An observed life table is graphed with the proposed life and dispersion curve below.



Account 375.20 SCG Solar and Fuel Cell Assets (10 SQ)

This account includes the cost of solar and fuel cell assets used for utility service. Currently, there is no plant in this account. But SoCalGas expects to have these types of assets for this function in the future. Although, there is no similar asset on SoCalGas’s books at this time, similar assets used by SDGE currently have a 10 year life. Based on the judgment and SDGE’s similar assets, this study recommends a 10 year life with an SQ dispersion for this account. No graph is shown.

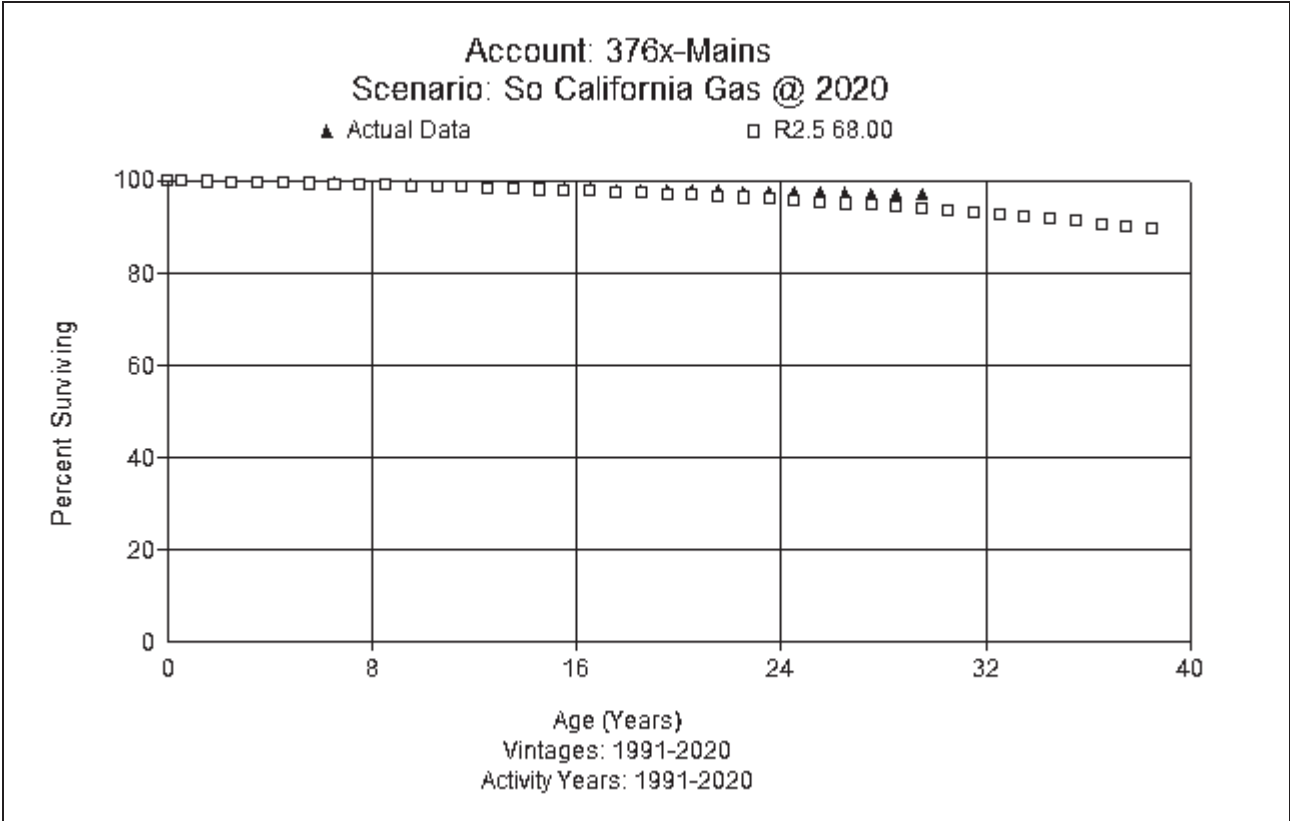
Account 376.Mains (68 R2.5)

This account includes the cost of mains used in connection with distribution operations. There is approximately \$5.8 billion in this account. Currently, the approved life for this account is 68 years with an R2.5 dispersion. The average age of survivors in this account is 17.35 years. The average age of retirements in this account is 28.63 years. This account combines three sub-accounts into one group. The table below shows the various components of this group.

Description	Plant at 12/31/2020
Steel Mains	2,920,110,083.01
Plastic Mains	2,844,782,527.82
Anodes	7,091,529.38
Total	5,771,984,140.21

Integrity management program is replacing (\$280M per year) bare steel and early vintage plastic (pre-1973 and 1973 -1985) for both mains and services. This program is a continuing effort that has been ongoing over time but has escalated over the last few years. Over the last 4 years, the replacements have tripled—in addition to normal replacements.

Operations personnel recommend retaining the 68 year life and the R2.5 dispersion. They would have expected the life to decrease with the level of retirements that are occurring. Given the situation with climate change and decarbonization, this study retains the existing service life. An observed life table is graphed with the proposed life and dispersion curve below.



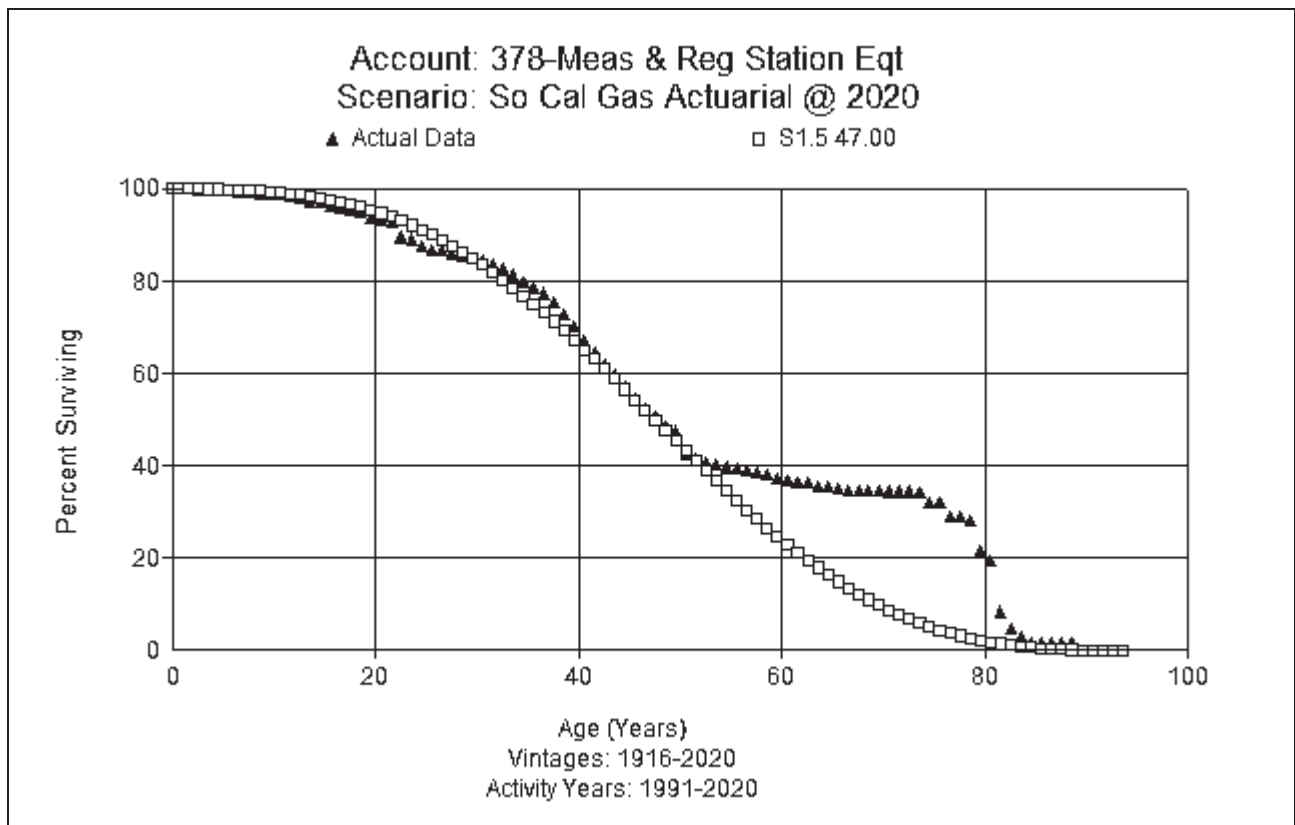
Account 378 Measuring and Regulating Equipment (47 S1.5)

This account consists of measuring and regulating equipment used in distribution operations. There is approximately \$135.8 million of investment in this account. The current approved life for this account is 47 years with an S0.5 dispersion.

The average age of survivors in this account is 13.38 years. The average age of retirements in this account is 23.60 years. Higher risk regulating stations are being targeted for replacement.

The regulations for regulating stations have changed more than the regulations for mains and services. The Company has also been upgrading stations. They are also more aggressively targeting regulating stations that they have in the past.

Operationally, there is no reason that the life should increase. There are drivers that would decrease the life, such as Risk Assessment and Mitigation Phase (“RAMP”) and Control Center Modernization programs. This study recommends retaining the 47-year life while moving to an S1.5 dispersion for this account. An observed life table is graphed with the proposed life and dispersion curve below.



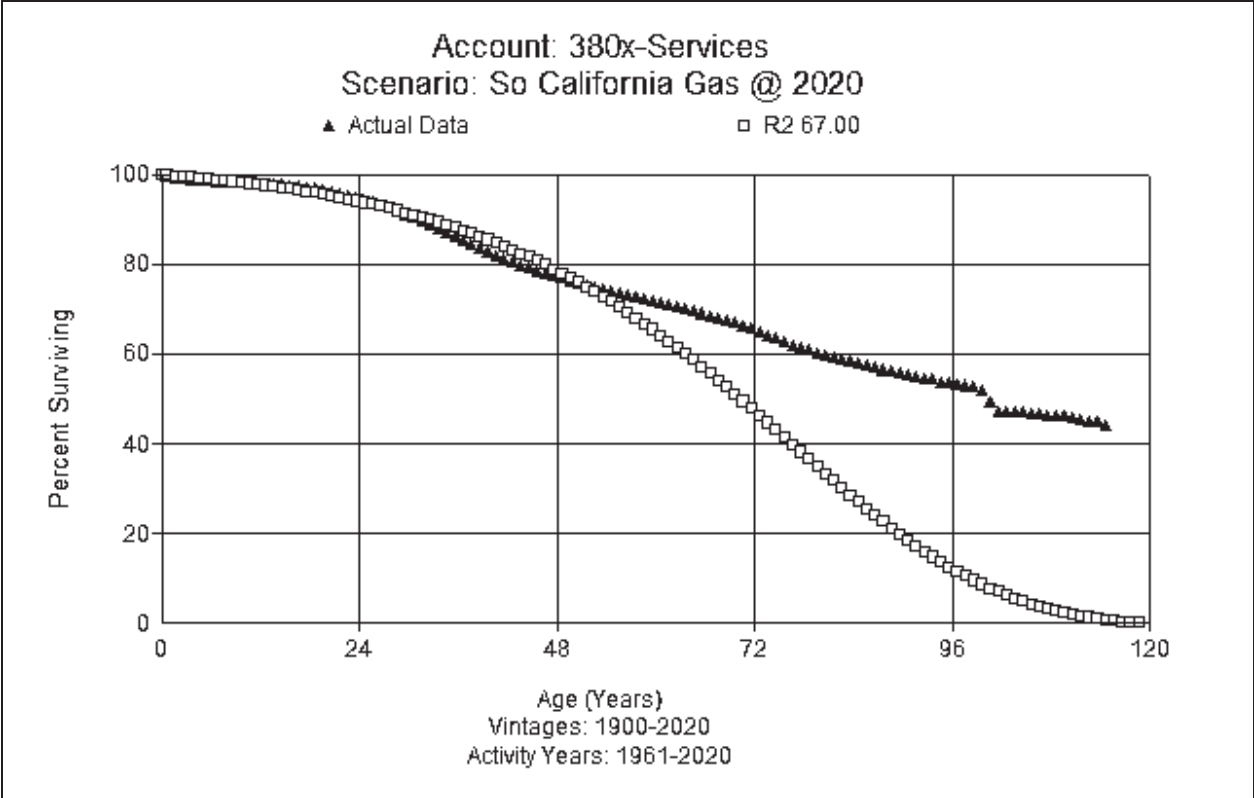
Account 380 Services (67 R2)

This account consists of services used in distribution operations. There is approximately \$3.3 billion of investment in this account. The current approved life for this account is 67 years with an R2 dispersion.

This group is made up of four subgroups shown below. The average age of survivors in this account is 19.47 years. The average age of retirements in this account is 22.25 years.

Description	Plant at 12/31/2020
Steel Services	309,657,510.30
Plastic Services	2,911,783,893.30
Copper Services	1,518,313.00
Stub Labor and Non Labor	81,926,227.50
Total	3,304,885,944.10

Company personnel report that if a service is cut, the Company will generally repair the service. If a service has a leak, the Company would likely replace it. When a steel main is replaced with plastic, the service would typically be replaced if it was also steel. Company personnel expect the life of services to be slightly shorter than the life of mains, as there are a number of factors that would cause services to retire earlier than mains. This study recommends retaining the 67 year life with an R2 dispersion for this account. An observed life table is graphed with the proposed life and dispersion curve below.



Account 381 Meters (25 S0.5)

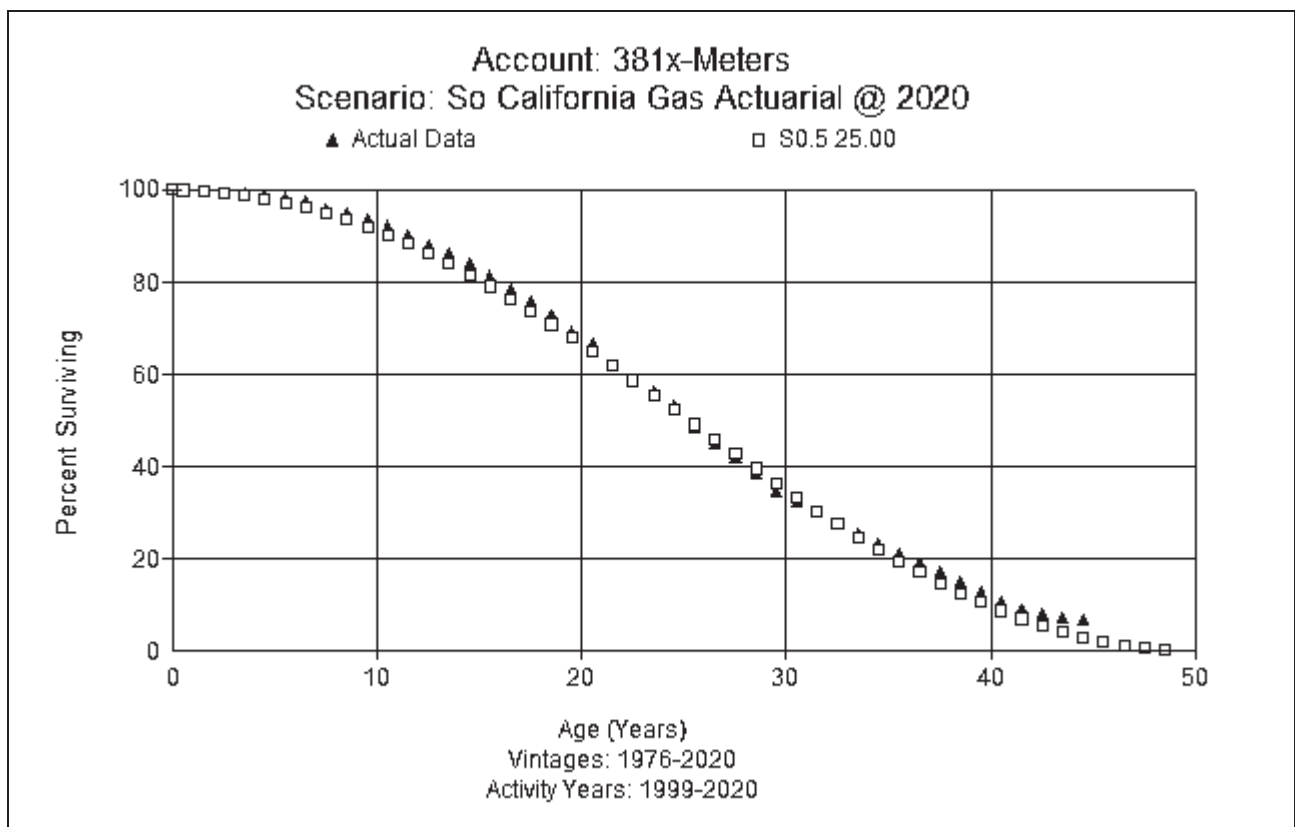
This account includes the cost of meters used in measuring gas to residential, commercial, and industrial customers. There is approximately \$648.0 million in plant in this account. The current approved life of the meter account is 25 years with an S0.5 dispersion.

The average age of survivors in this account is 11.45 years. The average age of retirements in this account is 24.69 years. Operations personnel report that meters would have historically lasted longer. SoCalGas has six million meters in service. Operations personnel report that they target replacing aging meters that were approaching the 30-year life and will request more capital in this GRC. When SoCalGas installed meters under the Advanced Metering Infrastructure (“AMI”), they would also replace older meters.

Company experts anticipate an operational life of about 25 years for SoCalGas. Two years ago, SoCalGas made a change to their sampling program that will likely extend the life of meters on average. Now, if a meter fails, they will take 2% off the bill for the family until the AMI battery fails.

In the future, they may expect to see a slight increase in life as this goes forward. Meters that are not in the residential sampling program must be tested every 10 years or replaced (with a few exceptions for very large meters). Meters that weigh less than 50 pounds will be taken to the meter shop to see if repair and rebuilding is possible. While under repair, the meters remain in service.

Meter costs have escalated, as there are now only two manufacturers in United States. Based on the visual matching and input from operations personnel, retention of a 25 S0.5 curve is recommended for this account. An observed life table is graphed with the proposed life and dispersion curve below.



Account 381.15 Modules- AMI (20 SQ)

This account includes the cost of module installations for domestic meter installations. The current approved life for this account is 20 years with an SQ dispersion. There is approximately \$316.2 million in plant in this account.

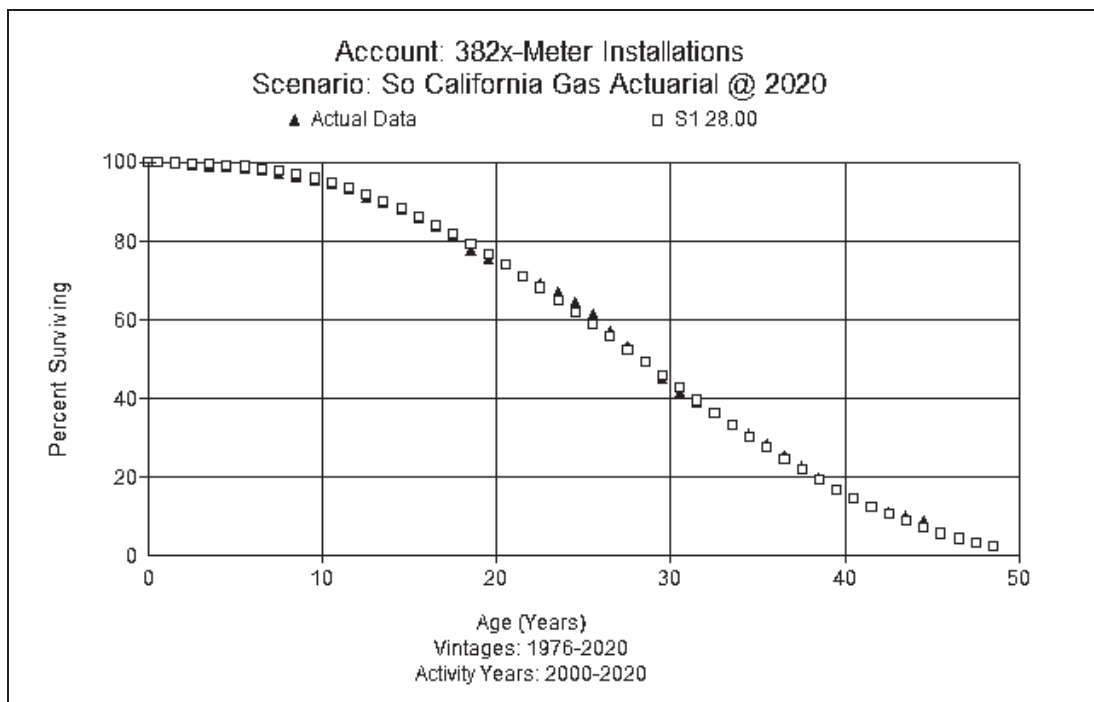
The average age of survivors in this account is 6.04 years. The average age of retirements in this account is 5.06 years. These assets have only been in service since 2012, so there is insufficient history to analyze the data. Operations personnel believe that

the life of this account will be the same as the current estimate. Based on input from Company personnel, this study recommends retention of the 20 year life with an SQ dispersion. No graph is shown.

Account 382 Meter Installations (28 S1)

This account includes the cost of domestic meter installations (excluding the meters). The current approved life for this account is 30 years with an S1 dispersion. There is approximately \$453.7 million in plant in this account. The average age of survivors in this account is 10.70 years.

The average age of retirements in this account is 15.03 years. Operations personnel report that the Company has started using a pre-manufactured Meter Set Assembly (MSA). If there is no over-pressure protection on a regulator, they will replace the regulator. Normally they replace one regulator for every two meters they replace. Typically, the MSA would not be replaced before the meter, but the MSA may be replaced at the same time as a meter. Actuarial analysis shows a slightly shorter life. Based on actuarial analysis and judgment, this study recommends moving from the 30 S1 to the 28 S1 for this account. An observed life table is graphed with the proposed life and dispersion curve below.



Account 382.15 Module Installs-AMI (20 SQ)

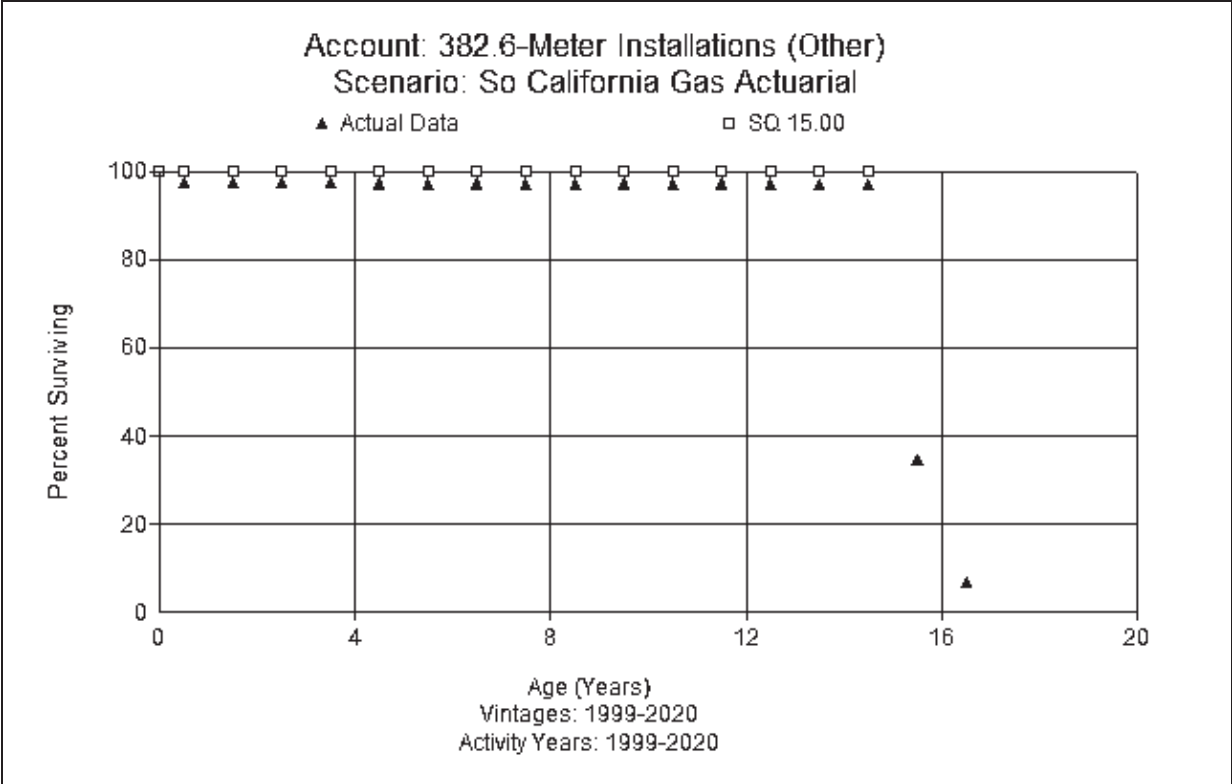
This account includes the cost of module installations for domestic meter installations (excluding the meters). The current approved life for this account is 20 years with an SQ dispersion. There is approximately \$151.9 million in plant in this account.

The average age of survivors in this account is 5.95 years. The average age of retirements in this account is 5.96 years. These assets have only been in service since 2012, so there is insufficient history to analyze the data. Operations personnel believe that the life of this account will be the same as the current estimate. Based on input from Company personnel, this study recommends retention of the 20 year life with a SQ dispersion. No graph is shown.

Account 382.60 Meter Installations-Other (15 SQ)

This account includes the cost of modules for meter installations (excluding the meters). The current approved life for this account is 15 years with an SQ dispersion. There is approximately \$10.6 million in plant in this account.

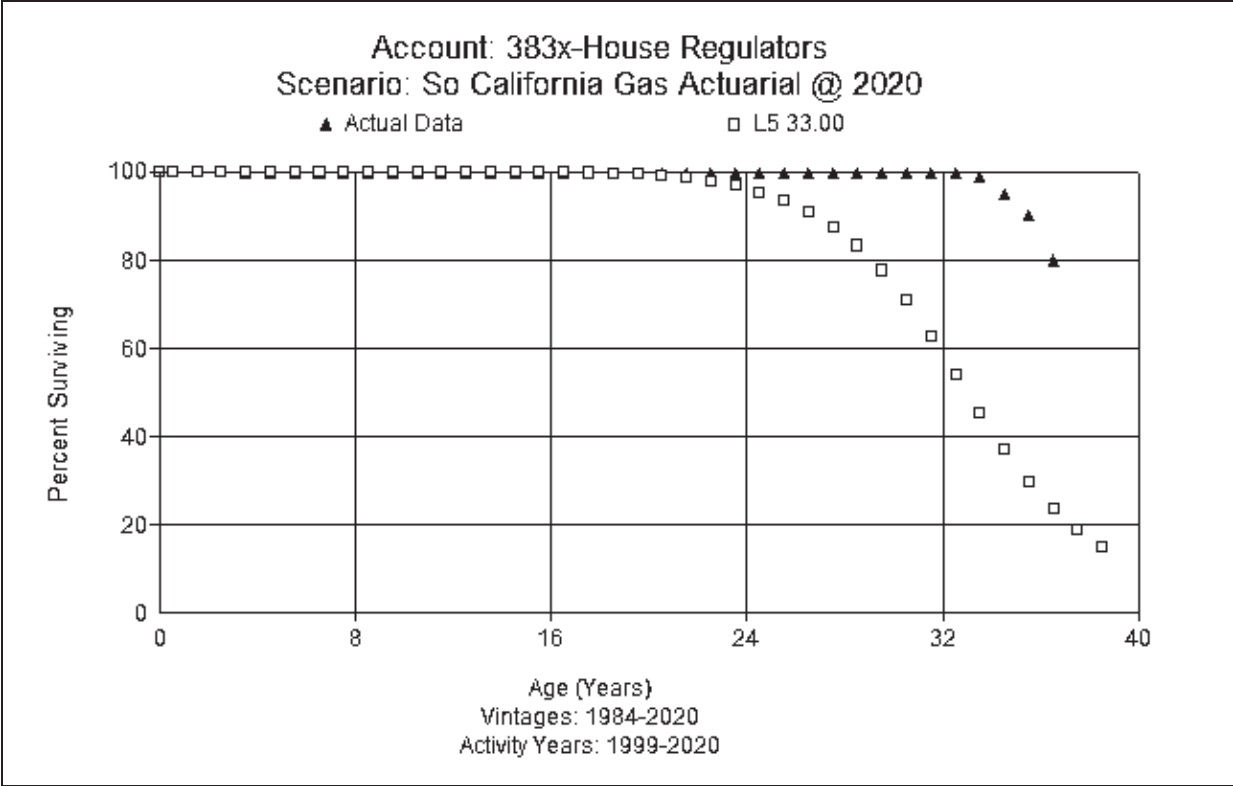
The average age of survivors in this account is 7.94 years. The average age of retirements in this account is 15.03 years. Operations personnel agree with the current life and see no force of retirement that would cause a change. Based on input from Company experts and judgment, this study recommends retention of the 15-year life with an SQ dispersion for this account. An observed life table is graphed with the proposed life and dispersion curve below.



Account 383 Regulators (33 L5)

This account includes the cost of domestic regulators. There is approximately \$182.5 million of plant in this account. The current approved life for this account is 33 years with an L5 dispersion.

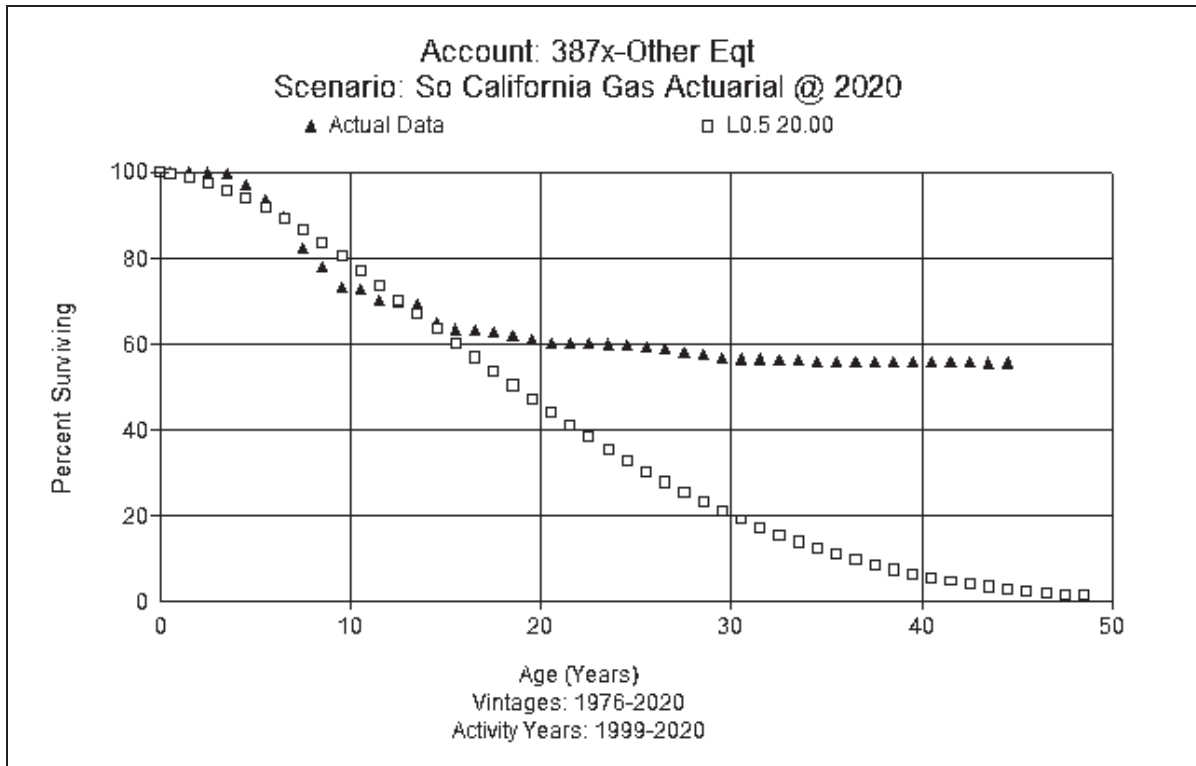
The average age of survivors in this account is 16.55 years. The average age of retirements in this account is 31.16 years. The retirement data is very limited for this account; and the data that does exist does not produce actuarial results that are reasonable for this type of assets. Company subject matter experts recommend leaving the life account at its current parameter, and accordingly this study recommends retention of 33 years with an L5 dispersion. An observed life table is graphed with the proposed life and dispersion curve below.



Account 387 Other Equipment (20 L0.5)

This account includes the cost of natural gas vehicle charging stations and related equipment. There is approximately \$67.4 million of plant in this account. The current approved life for this account is 21 years with an SC dispersion. The average age of survivors in this account is 10.53 years.

The average age of retirements in this account is 10.91 years. This study recommends moving from the 21-year life to a 20-year life with an L0.5 dispersion. An observed life table is graphed with the proposed life and dispersion curve below.



General Plant

Account 389.2 Rights of Way (50 SQ)

This account includes the cost of land rights used in connection with distribution operations. There is approximately \$74.1 thousand in this account. Currently, the approved life for this account is 40 years with an SQ dispersion.

The average age of survivors in this account is 22.32 years. There have been few retirements in this account. Since the life of the largest account in this group (Account 390 Structures and Improvements) is moving to 46 years, the land that those assets rest upon should also have a longer life. Based on judgment and the proposed longer life for Account 390, this study recommends moving to a 50 year life and SQ dispersion.

Account 390 Structures and Improvements (46 R0.5)

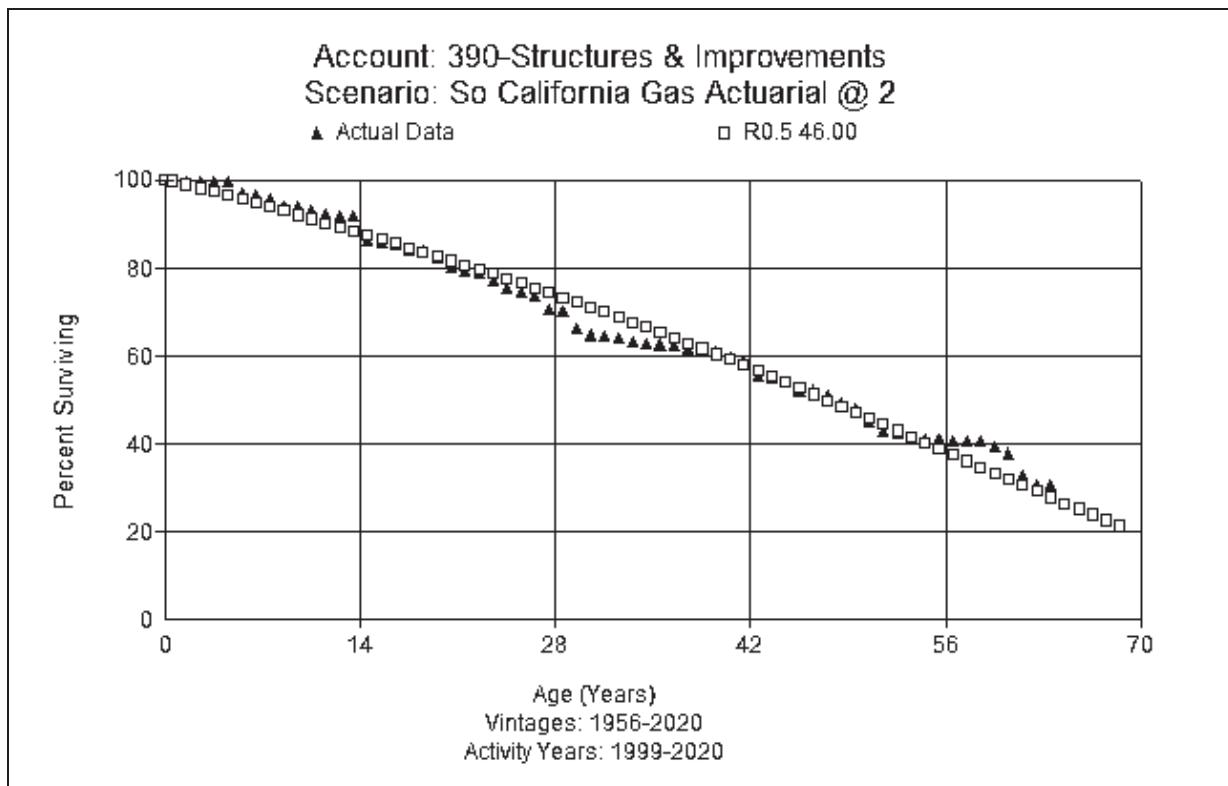
This account includes the cost of general structures and improvements used for utility service. There is approximately \$193.1 million in this account. The current life for this account is 33 years with an R1.5 dispersion.

The average age of survivors in this account is 15.32 years. The average age of retirements in this account is 18.96 years. Company experts believe that the current 33

year life seems short for buildings from an operations perspective.

They report that they would expect a life in the mid 40-year range. There are a number of shorter-lived assets within the group: roofs, HVAC, Generators, parking. Pico Rivera (built in 1955) and Monterey Park (built in 1962) are the only sites in Account 390. Everything else is in other functions.

The Company is planning to do a campus wide revitalization for Pico Rivera, including adding a new building. The Company is also performing some upgrades at Monterey Park. They are in the early phases of a master plan for the two campuses. The average age of the assets is in the 40+ year range. Based on the actuarial analysis and judgment, this study recommends moving to a 46-year life and moving to an R0.5 dispersion for this account. An observed life table is graphed with the proposed life and dispersion curve below.



Account 390.10 Leasehold Improvements (Life Span, Retire 2026)

This account includes the cost of general structures and improvements leasehold assets used for utility service. There is approximately \$41.2 million in this account. Currently this account is treated as life span property with a 15 year life.

The tower lease expires in December 2026. The average age of survivors in this account is 8.06 years. Based on judgment, this study recommends retention of the existing life span and retirement curve. No graph is shown.

Account 390.20 SCG Solar and Fuel Cell Assets (10 SQ)

This account includes the cost of solar and fuel cell assets used for utility service. Previously these items were booked in Account 390. There is approximately \$8.2 million in this account.

The current life for this account (in Account 390) is 33 years with an R1.5 dispersion. The average age of survivors in this account is 0.50 years. There is no similar asset on SoCalGas's books at this time. Similar assets used by SDGE currently have a 10 year life. Based on the judgment and SDGE's similar assets, this study recommends a 10 year life with an SQ dispersion for this account. No graph is shown.

Account 391.10 Office Furniture and Equipment (14 SQ)

This account consists of miscellaneous office furniture such as desks, chairs, filing cabinets, and tables used for general utility service. There is approximately \$9.0 million in this account. This account currently has a fixed life for amortization of 14 years. Since this account has been amortized, it is not possible to perform actuarial analysis to estimate the life for this account. This study recommends retaining the 14-year amortization life for this account.

Account 391.20 Computer Equipment (5 SQ)

This account consists of computer equipment used for general utility service. There is approximately \$193.5 million in this account. This account currently has a fixed life for amortization of 5 years. Since this account has been amortized, it is not possible to perform actuarial analysis to estimate the life for this account. This study recommends retaining the 5-year amortization life for this account.

Account 392 Transportation Equipment Autos (7 SQ)

This account consists of transportation equipment used for general utility service. There is approximately \$269 thousand million in this account. This account currently has a fixed life for amortization of 7 years. Since this account has been amortized, it is not

possible to perform actuarial analysis to estimate the life for this account. This study recommends retaining the 7-year amortization life.

Account 392.3 Drones (5 SQ)

This account consists of drones that will be used to monitor company assets. This is a new account that will be added during the forecast period. Drone technology changes quickly and Company experts recommend a 5-year life. This study recommends using that 5-year amortization life.

Account 393.0 Stores Equipment (20 SQ)

This account consists of stores equipment used for general utility service. There is approximately \$113 thousand in this account. This account currently has a fixed life for amortization of 20 years. Since this account has been amortized, it is not possible to perform actuarial analysis to estimate the life for this account. This study recommends retaining the 20-year amortization life for this account.

Account 394.0 Capital Tools and Shop Equipment (20 SQ)

This account consists of various items or small tools used in shop and garages such as air compressors, grinders, and mixers. There is approximately \$8.1 million in this account. This account currently has a fixed life for amortization of 29 years.

Since this account has been amortized, it is not possible to perform actuarial analysis to estimate the life for this account. Given the small and portable nature of these assets, this study recommends a reduction in life for this account. This study recommends moving to a 20 year amortization life for this account.

Account 394.19 Large Portable Tools (24 SQ)

This account consists of large items or tools used in shop and garages such as hoists, and cranes. There is approximately \$96.2 million in this account. This account currently has a fixed life for amortization of 24 years. Since this account has been amortized, it is not possible to perform actuarial analysis to estimate the life for this account. This study recommends retaining the 24 year amortization life for this account.

Account 395.0 Laboratory Equipment (15 SQ)

This account consists of laboratory equipment used in general utility service. There is approximately \$7.9 million in this account. This account currently has a fixed life for amortization of 25 years.

Since this account has been amortized, it is not possible to perform actuarial analysis to estimate the life for this account. Company personnel state the life of this equipment is changing as laboratory equipment becomes more technology driven, with electric components. This study recommends moving to a 15 year amortization life for this account.

Account 396.0 Construction Equipment (12 SQ)

This account consists of bulldozers, forklifts, trenchers, and other power operated equipment that cannot be licensed on roadways. The current approved life for this account is 12 years with an SQ dispersion. There is approximately \$12 thousand in plant in this account. Since this account has been amortized, it is not possible to perform actuarial analysis to estimate the life for this account. This study recommends retaining the 12 year amortization life for this account.

Account 397.0 Communication Equipment (15 SQ)

This account consists of miscellaneous communication equipment such as fiber optics, and various upgrades to equipment used in general utility service. There is approximately \$134.7 million in this account. This account currently has a fixed life for amortization of 15 years. Since this account has been amortized, it is not possible to perform actuarial analysis to estimate the life for this account. This study recommends retaining the 15 year amortization life for this account.

Account 397.1 General Communication Equipment (5 SQ)

This account consists of general communication equipment used in general utility service. There is approximately \$34.7 million in this account. This account currently has a fixed life for amortization of 5 years. Since this account has been amortized, it is not possible to perform actuarial analysis to estimate the life for this account. This study recommends retaining the 5 year amortization life for this account.

Account 397.2 PBX & Other Voice Equipment (7 SQ)

This account consists of miscellaneous communication equipment related to PBX and other voice equipment used in general utility service. There is approximately \$785,000 in this account. This account currently has a fixed life for amortization of 7 years. Since this account has been amortized, it is not possible to perform actuarial analysis to estimate the life for this account. This study recommends retaining the 7 year amortization life for this account.

Account 397.30 Microwave and Radio Equipment (10 SQ)

This account consists of microwave and radio equipment used in general utility service. There is approximately \$10.0 million in this account. This account currently has a fixed life for amortization of 10 years. Since this account has been amortized, it is not possible to perform actuarial analysis to estimate the life for this account. This study recommends retaining the 10 year amortization life for this account.

Account 397.40 Communication Structure (15 SQ)

This account consists of miscellaneous structures used for communication equipment used in general utility service. There is approximately \$5.3 million in this account. This account currently has a fixed life for amortization of 15 years. Since this account has been amortized, it is not possible to perform actuarial analysis to estimate the life for this account. This study recommends retaining the 15 year amortization life for this account.

Account 397.55 Poles AMI (47 SQ)

This account consists of poles used with AMI metering equipment. There is approximately \$19.0 million in this account. This account currently has a fixed life for amortization of 40 years.

SoCalGas has no similar investment to these poles. This account is more like SDGE's Account 364 Poles, Towers and Fixtures. The current life for SDGE's Account 364 is 47 years. Retention of the 47 year life is recommended in SDGE's concurrent GRC. Based on SDGE's experience, this study recommends moving to a 47 year amortization life for this account.

Account 398.0 Miscellaneous Equipment (20 SQ)

This account consists of miscellaneous equipment used in general utility service. There is approximately \$1.3 million in this account. This account currently has a fixed life for amortization of 20 years. Since this account has been amortized, it is not possible to perform actuarial analysis to estimate the life for this account. This study recommends retaining the 20 year amortization life for this account.

Salvage Analysis

Terminal retirement occurs when a capital asset is retired, physically removed from service and finally disposed of. The residual value of a terminal retirement is called gross salvage. Net salvage is the difference between the gross salvage (what the asset was sold for) and the removal cost (cost to remove and dispose of the asset). Salvage and removal cost percentages are calculated by dividing the current cost of salvage or removal by the original installed cost of the asset. Some plant assets can experience significant negative removal cost percentages due to the timing of the original addition versus the retirement.

For example, a Distribution asset in FERC Account 367 with a current installed cost of \$500 (2020) would have had an installed cost of \$27.99¹¹ in 1950. If one were to calculate removal cost as a percent of current cost, a removal cost of \$50 for the asset would only have a -10 percent removal cost (\$50/\$500). This would be incorrect. A correct removal cost calculation would show a negative 179 percent removal cost for that asset (\$50/\$27.99). Inflation from the time of installation of the asset until the time of its removal must be taken into account in the calculation of the removal cost percentage because the depreciation rate, which includes the removal cost percentage, will be applied to the original installed cost of assets.

Below are the rules surrounding SoCal Gas' removal of gas mains.

Gas Main Abandonment Procedures

While gas mains for distribution are usually abandoned in place, the following removal costs are incurred per 49 CFR 192.727 (entitled "Abandonment or deactivation of facilities"). This regulation provides as follows:

¹¹ Using the Handy-Whitman Bulletin No. 194, G-6, line 27, $\$27.99 = \$500 \times 37/661$.

(a) Each operator shall conduct abandonment or deactivation of pipelines in accordance with the requirements of this section.

(b) Each pipeline abandoned in place must be disconnected from all sources and supplies of gas; purged of gas; in the case of offshore pipelines, filled with water or inert materials; and sealed at the ends. However, the pipeline need not be purged when the volume of gas is so small that there is no potential hazard.

(c) Except for service lines, each inactive pipeline that is not being maintained under this part must be disconnected from all sources and supplies of gas; purged of gas; in the case of offshore pipelines, filled with water or inert materials; and sealed at the ends. However, the pipeline need not be purged when the volume of gas is so small that there is no potential hazard.

Over time, the Company has been experiencing increasing costs to remove assets from service. There are many factors that contribute to this increasing cost. Some general factors are described below.

Time Value of Money

Many gas main assets have a life cycle of 60 years or more. Some of the assets being removed were installed nearly 60 years ago when materials, labor, and cost of goods were cheaper.

Urban Areas

The majority of the construction and reconstruction projects are in urban areas. Many cities require permits. These permits may impose fees and certain limitations such as the closure of roads during high traffic times. These permits may also require construction to occur in the evening or on weekends, which requires overtime of crews and additional equipment. Some municipalities are increasingly requiring companies to repave more of the road than just the paving disturbed by excavation activity.

Contract Labor

In the last decade, investment in utility gas main renewal projects has increased substantially across the country. In addition, the same skills and resources are needed in

the larger oil and gas industry. This has created a high demand for the limited number of qualified personnel available to construct the work. Therefore, the cost of external contracts has increased due to supply and demand factors.

Safety Requirements

The industry, and specifically SoCalGas, strives to provide a very high level of safe working practices. The equipment and provisions required today have increased substantially from 50 years ago. SoCalGas uses work safety practices that align with modern industry practice. These policies have increased the cost of doing business but are an important part of the strong safety principles at SoCalGas.

Net Salvage Characteristics

For each function, data for retirements, gross salvage, and cost of removal for each functional group, adjusted as discussed above, was derived from 1993-2020. Moving averages, which remove timing differences between retirement and salvage and removal cost, were analyzed over periods varying from one to 10 years.

Underground Storage Plant

Account 350.31 Storage Rights (0% Net Salvage)

This account includes any salvage and removal cost related to storage rights used in connection with underground storage operations. The current authorized net salvage for this account is 0 percent. Generally, little or no removal cost is incurred, and no salvage is received at the retirement of land rights. Therefore, this study recommends retaining the approved 0 percent net salvage for this account.

Account 350.32 Recoverable Oil (0% Net Salvage)

This account includes any salvage and removal cost related to recoverable oil. The current authorized net salvage for this account is 0 percent. Generally, little or no removal cost is incurred, and no salvage is received at the retirement of land rights. Therefore, this study recommends retaining the approved 0 percent net salvage for this account.

Account 350.41 Rights of Way (0% Net Salvage)

This account includes any salvage and removal cost related to rights of way used in connection with underground storage operations. The current authorized net salvage for

this account is 0 percent. Generally, little or no removal cost is incurred, and no salvage is received at the retirement of land rights. Therefore, this study recommends retaining the approved 0 percent net salvage for this account.

Account 351 Structures and Improvements (Negative 70% Net Salvage)

This account includes any salvage and removal cost related to structures used in connection with underground storage operations. The current authorized net salvage for this account is negative 70 percent. Net salvage has been erratic in recent years, with the five-year and ten-year average net salvage for this account being negative 143 and 141 percent respectively. There was lower net salvage in 2018 and 2019 than prior periods. Given the pattern of data, this study recommends retaining 70 percent net salvage for this account.

Account 351.20 Storage Solar and Fuel Cell Assets (-5% Net Salvage)

This account includes any salvage and/or removal cost related to cost of solar and fuel cell assets used for utility service. SoCalGas expects to have these types of assets for this function in the future, and it is assumed that they will be incorporated into existing structures. However, since these assets are very different from buildings, the existing net salvage parameter for Account 351 is not representative of the future. There are costs of disposal, and SDGE is estimating negative 5 percent net salvage based on a disposal study performed by a consultant. Based on the proposed parameter requested by SDGE, this study recommends moving to negative 5 percent net salvage for this account

Account 352 Wells (Negative 95% Net Salvage)

This account includes any salvage and removal cost related to wells used in connection with underground storage operations. The current authorized net salvage rate for this account is negative 70 percent. Experience during 2012-2020 show negative net salvage well in excess of 100 percent annually driven by the well abandonment projects. The cost to abandon wells has increased significantly due to new regulations. Some abandonment work done for retired assets many years ago must be redone to current regulation compliance, which will increase removal cost. Company experts provided average costs to abandon wells for each underground storage costs as shown in the table below.

Storage Site	Avg Cost to Abandon Well	No of Wells	Estimated Removal Cost Inflated
Goleta	1,700,000	15	\$ 55,200,992
Honor Rancho	1,321,441	32	\$ 91,538,640
Playa del Rey	1,500,000	32	\$ 103,907,749
Aliso Canyon	1,688,040	110	\$ 401,959,333
Total Wells		189	\$ 652,606,714
Total Plant at 2020			\$ 542,879,812
Net salvage %			-120.21%

The composite estimate from those amounts shows an estimated negative 120 percent net salvage. Based on the above estimates and remaining population of wells, this study proposes negative 95 percent net salvage for this account, based on the Commission's 25 percent gradualism precedent.

Account 353.0 Lines (Negative 65% Net Salvage)

This account includes any salvage and removal cost related to lines used in connection with underground storage operations. The current authorized net salvage is negative 40 percent. Moving averages in this account in the most recent year are negative 82 for both the 5 and 10 year periods. Based on judgment and Company history, this study recommends moving by negative 25 percent as allowed by the CPUC in recent proceedings to negative 65 percent net salvage for this account.

Account 354 Compressor Station Equipment (Negative 25% Net Salvage)

This account includes any salvage and removal cost related to compressor station equipment used in connection with underground storage operations. The current authorized net salvage rate for this account is negative 15 percent. Moving averages in this account in the most recent year are negative 27 percent and negative 33 percent for the 5 and 10 year periods. Based on recent experience, this study recommends moving from negative 15 percent net salvage to negative 25 percent for this account.

Account 355 Measuring & Regulating Equipment (Negative 5% Net Salvage)

This account includes any salvage and removal cost related to measuring and regulating equipment used in connection with underground storage operations. The current authorized net salvage rate for this account is positive 5 percent. The most recent five-year and 10-year moving averages in this account are negative 9 and negative 8 percent, respectively. Based on recent experience, this study recommends moving to the trend in negative net salvage with a proposed negative 5 percent net salvage for this account.

Account 356 Purification Equipment (Negative 30% Net Salvage)

This account includes any salvage and removal cost related to purification equipment used in connection with underground storage operations. The current authorized net salvage rate for this account is negative 30 percent. There are environmental drivers that are increasing removal costs, including new asbestos and concrete regulations that impact the removal of asbestos in concrete foundations. Moving averages in this account in the most recent year are negative 46 and 59 percent for the 5 and 10 year periods respectively. For years 2018 and 2019, the net salvage indications were more in line with the existing negative 30 percent. Based on recent experience, this study recommends retaining negative 30 percent net salvage for this account.

Account 357 Other Storage Equipment (Negative 100% Net Salvage)

This account includes any salvage and removal cost related to other storage equipment used in connection with underground storage operations. The current authorized net salvage rate for this account is negative 100 percent. Moving averages in this account range from negative 91 negative 110 percent in the 5 and 10 year period. Based on recent experience, this study recommends retaining negative 100 percent net salvage for this account.

Transmission Plant

Account 365.2 Rights of Way (0% Net Salvage)

This account includes any salvage and removal cost related to land rights used in connection with transmission operations. The authorized net salvage rate for this account is 0 percent. Generally, little or no removal cost is incurred, and no salvage is received at the retirement of land rights. Therefore, this study recommends retaining the approved 0

percent net salvage for this account.

Account 366 Structures and Improvements (Negative 65% Net Salvage)

This account includes any salvage and removal cost related to structures and improvements used in connection with transmission operations. The authorized net salvage rate for this account is negative 40 percent. Negative net salvage has increased for this account, with the five year moving averages showing negative 245 percent and the 10 year average showing negative 242 percent. Based on judgment and Company history, this study recommends moving by negative 25 percent as allowed by the CPUC in recent proceedings to negative 65 percent net salvage for this account.

Account 366.20 Transmission Solar and Fuel Cell Assets (-5% Net Salvage)

This account includes the any salvage and/or removal cost related to cost of solar and fuel cell assets used for utility service. SoCalGas expects to have these types of assets for this function in the future, and it is assumed that they will be incorporated into existing structures. However, since these assets are very different from buildings, the existing net salvage parameter for Account 366 is not representative of the future. There are costs of disposal, and SDGE is estimating negative 5 percent net salvage based on a disposal study performed by a consultant. Based on the proposed parameter requested by SDGE, this study recommends moving to negative 5 percent net salvage for this account

Account 367 Mains (Negative 85% Net Salvage)

This account includes any salvage and removal cost related to mains used in connection with transmission operations. The authorized net salvage rate for this account is negative 60 percent. The five and 10 year moving averages show negative 360 and negative 373 percent, respectively. Based on judgment and Company history, this study recommends moving by negative 25 percent as allowed by the CPUC in recent proceedings to negative 85 percent net salvage for this account.

Account 367.6 Hydro Test Costs (0% Net Salvage)

This is a new account that will be used as the Company complies with new regulations. As noted, PHMSA has issued the Mega Rule effective July 1, 2020 that will impact pipeline of vintage 1970 and older. Costs incurred to comply with Mega Rule will be

treated as a capital item. These costs will have no residual value, so a 0% net salvage rate is recommended for this account.

Account 368 Compressor Station Equipment (Negative 40% Net Salvage)

This account includes any salvage and removal cost related to compressor station equipment used in connection with transmission operations. The authorized net salvage rate for this account is negative 15 percent. The five and 10 year moving averages show negative 88 and negative 117 percent, respectively. Based on judgment and Company history, this study recommends moving by negative 25 percent as allowed by the CPUC in recent proceedings to negative 40 percent net salvage for this account.

Account 369 Measuring & Regulating Equipment (Negative 75% Net Salvage)

This account includes any salvage and removal cost related to measuring and regulating station equipment used in connection with transmission operations. The authorized net salvage rate for this account is negative 50 percent. The five and 10 year moving averages show negative 187 and negative 198 percent, respectively. Based on judgment and Company history, this study recommends moving by negative 25 percent as allowed by the CPUC in recent proceedings to negative 75 percent net salvage for this account.

Account 370.0 Communication Equipment (0% Net Salvage)

This account includes any salvage and removal cost related to communication equipment used in connection with transmission operations. The authorized net salvage rate for this account is 0 percent. The retirement data since 2012 is very sparse with few retirements. While there are indications of higher negative net salvage, the data is not indicative of a pronounced trend. Based on recent data, this study recommends retention of 0 percent net salvage for this account.

Account 371 Other Equipment (Negative 10% Net Salvage)

This account includes any salvage and removal cost related to other equipment used in connection with transmission operations. The authorized net salvage rate for this account is negative 10 percent. The retirement data since 2012 is very sparse with few retirements. While there are indications of higher negative net salvage, the data is not

indicative of a pronounced trend. Based on recent data, this study recommends retention of negative 10 percent net salvage for this account.

Account 371.1 Temporary Assemblies and Test Heads (0% Net Salvage)

This account will include any gross salvage or cost of removal associated with temporary assemblies and test heads used in connection with transmission operations. This is a new account that will be separated from Account 371. Currently the authorized net salvage rate for the combined account is negative 10 percent. Company subject matter experts do not think there will be any residual net salvage for these assets at the end of their lives. Based on input from Company experts, this study recommends 0 percent net salvage for the new account.

Distribution Function

Account 374.2 Rights of Way (0% Net Salvage)

This account includes any salvage and removal cost related to land rights used in connection with distribution operations. Generally, little or no removal cost is incurred, and no salvage is received at the retirement of land rights. The historical data also supports a 0 percent net salvage for this account. Therefore, this study recommends retaining the approved 0 percent net salvage.

Account 375.0 Structures and Improvements (Negative 20% Net Salvage)

This account consists of any salvage and removal cost related to small structures and associated assets on the distribution system. The Commission has authorized a negative 10 percent net salvage rate for this account. The three-year, five-year, and 10-year moving averages are negative 40, negative 39, and negative 39 percent, respectively. To move in the direction of this trend, a higher (more negative) net salvage is recommended. Based on judgment and Company experience, this study recommends moving to negative 20 percent net salvage.

Account 375.20 Distribution Solar and Fuel Cell Assets (-5% Net Salvage)

This account includes the any salvage and/or removal cost related to cost of solar and fuel cell assets used for utility service. SoCalGas expects to have these types of assets for this function in the future, and it is assumed that they will be incorporated into

existing structures. However, since these assets are very different from buildings, the existing net salvage parameter for Account 375 is not representative of the future. There are costs of disposal, and SDGE is estimating negative 5 percent net salvage based on a disposal study performed by a consultant. Based on the proposed parameter requested by SDGE, this study recommends moving to negative 5 percent net salvage for this account

Account 376 Mains (Negative 105% Net Salvage)

This account consists of any salvage and removal cost related to distribution mains. The Commission has authorized a negative 80 percent net salvage rate for this account. The three-year, five-year, and 10-year moving averages show negative 243, negative 251, and negative 243 percent, respectively. To move in the direction of this trend, a higher (more negative) net salvage is recommended. Based on judgment and Company experience, this study recommends moving to negative 105 percent net salvage, based on the amount allowed by the CPUC for gradualism.

Account 378.0 Measuring & Regulating Station Equipment (Negative 120% Net Salvage)

This account includes any salvage and removal cost related to installed equipment used in regulating gas at entry points to the distribution system. The current authorized net salvage is negative 95 percent. The three-year, five-year, and 10-year moving averages show negative 375, negative 311, and negative 295 percent, respectively. Based on judgment and Company experience, this study recommends moving to negative 120 percent net salvage for this account, based on the amount allowed by the CPUC precedent regarding gradualism.

Account 380 Services (Negative 140% Net Salvage)

This account includes any salvage and removal cost related to services related to distribution operations. Service lines are the pipes and accessories leading from the main to the customers' premises. The material types in these accounts range from steel and plastic. The current authorized net salvage is negative 115 percent. The three-year, five-year, and 10-year moving averages show negative 181, negative 168, and negative 187 percent respectively. Based on judgment and Company experience, this study recommends moving to negative 140 percent net salvage for this account, based on the

amount allowed by the CPUC precedent regarding gradualism.

Account 381.0 Meters (Positive 2% Net Salvage)

This account includes any salvage and removal cost related to meters used in measuring gas to residential customers. The current authorized net salvage rate is positive 5 percent. Gross salvage proceeds as a percentage of retirements have declined in recent years. The current moving averages for 3 and 5 years are positive 2 for both periods. Based on judgment and Company experience, this study recommends moving to positive 2 percent net salvage for this account,

Account 381.0 AMI Meters (0% Net Salvage)

This account includes any salvage and removal cost related to AMI meters used in measuring gas to residential customers. The current authorized net salvage rate is 0 percent. These meter installations have net salvage history from 2018-2020, and there has been no net salvage received. Based on Company history and judgment, this study recommends retention of 0 percent net salvage for this account.

Account 382.0 Meter Station Installation (0% Net Salvage)

Account 382 includes any salvage and removal cost related to meter stations (excluding regulators). The current authorized net salvage percent is negative 10 percent. The overall 5 and 10 year moving averages show 0 and positive 2 percent. Based on Company experience, this study recommends moving in the direction of this trend to 0 percent net salvage for this account.

Account 382.15 Meter Station Installation-AMI (0% Net Salvage)

This account includes any salvage and removal cost related to AMI meter installations. The current authorized net salvage rate is 0 percent. These meter installations have net salvage history from 2018-2020, and there has been no net salvage received. Based on Company history and judgment, this study recommends retention of 0 percent net salvage for this account.

Account 382.60 Meter Station Installation Other (0% Net Salvage)

This account includes any salvage and removal cost related to other meter installations used in measuring gas to customers. The current authorized net salvage rate

is 0 percent. The three-year, five-year, and 10-year moving averages are 0 for all periods. Based on recent experience and judgment, this study recommends retention of 0 percent net salvage for this account.

Account 383.0 House Regulators (Positive 4% Net Salvage)

This account includes any salvage and removal cost related to house regulators. The current authorized net salvage rate is positive 5 percent. The three-year, five-year, and 10-year moving averages are 0, 0, and negative 6 percent, respectively. The six- and seven-year moving averages moderate the experience with a value of positive 4 percent for each time frame. Based on recent experience and judgment, this study moves in the direction of this trend and recommends positive 4 percent net salvage for this account.

Account 387.0 Other Equipment (0% Net Salvage)

This account includes any salvage and removal cost related to other equipment such as CNG charging stations. The current authorized net salvage rate is positive 5 percent. The three-year, five-year, and 10-year moving averages are negative 9, negative 6, and negative 5 percent, respectively. Based on recent experience and judgment, this study moves in the direction of this trend and recommends 0 percent net salvage for this account.

GENERAL PLANT

Account 389.2 Rights of Way (0% Net Salvage)

This account includes any salvage and/or removal cost related to land rights used in connection with general utility operations. The current authorized net salvage rate for this account is negative 0 percent. Generally, little or no removal cost is incurred, and no salvage is received at the retirement of land rights. Therefore, this study recommends retaining the approved 0 percent net salvage for this account.

Account 390 Structures and Improvements (-15% Net Salvage)

This account includes the any salvage and/or removal cost related to cost of general structures and improvements used for utility service. The current authorized net salvage rate for this account is negative 15 percent. The three-year, five-year, and 10-year moving averages are negative 28, negative 32, and negative 15 percent, respectively. Based on recent experience and judgment, this study recommends retention of negative 15 percent

net salvage for this account.

Account 390.10 Leasehold Improvements (-15% Net Salvage)

This account includes any salvage and/or removal cost related to cost of general office leasehold improvements used for utility service. The current authorized net salvage rate for this account is negative 15 percent. Recent experience shows negative net salvage at a much higher level. The three-year, five-year, and 10-year moving averages are negative 282, negative 266, and negative 395 respectively. There has been limited data to support a change in the current net salvage parameter. Based on recent experience and judgment, this study recommends retention of negative 15 percent net salvage for this account.

Account 390.20 SCG Solar and Fuel Cell Assets (-5% Net Salvage)

This account includes the any salvage and/or removal cost related to cost of solar and fuel cell assets used for utility service. These assets will be segregated going forward. Previously these items were booked in Account 390.

The current authorized net salvage rate for this account is negative 15 percent, based on Account 390. Since these assets are very different from buildings, the existing net salvage parameter is not representative of the future. There are costs of disposal, and SDGE is estimating negative 6 percent net salvage based on a disposal study performed by a consultant. Based on the proposed parameter requested by SDGE, this study recommends moving to negative 5 percent net salvage for this account.

Account 391.10 Office Furniture and Equipment (0% Net Salvage)

This account includes any salvage and/or removal cost related to miscellaneous office furniture such as desks, chairs, filing cabinets, and tables used for general utility service. The current authorized net salvage rate for this account is 0 percent. The three-year, five-year, and 10-year moving averages are negative 6, negative 8, and negative 10 percent respectively. Based on recent experience and judgment, this study recommends retention of 0 percent net salvage for this account.

Account 391.20 Computer Equipment (0% Net Salvage)

This account consists of any salvage and/or removal cost related to computer equipment used for general utility service. The current authorized net salvage rate for this account is 0 percent. The three-year, five-year, and 10-year moving averages are 0 percent for all periods. Based on recent experience and judgment, this study recommends retaining 0 percent net salvage for this account.

Account 392 Transportation Equipment Autos (5% Net Salvage)

This account consists of any salvage and/or removal cost related to transportation equipment and autos used for general utility service. The current authorized net salvage rate for this account is positive 5 percent. Net salvage activity from 2016 forward has been very erratic, with no indication of trends going forward. Based on judgment, this study recommends retention of positive 5 percent net salvage for this account.

Account 392.3 Drones (0% Net Salvage)

This account consists of any gross salvage or cost of removal associated with drones that are used to monitor company assets. This is a new account that will add assets to plant during the forecast period. Drone technology changes quickly and Company experts do not believe there will be any value for these assets at the end of its life. Based on input from Company experts, this study recommends using 0 percent net salvage for this account.

Account 393.0 Stores Equipment (0% Net Salvage)

This account consists of any salvage and/or removal cost related to stores equipment used for general utility service. The current authorized net salvage rate for this account is 0 percent. No gross salvage or cost of removal has been received in this account in many years. The 10-year moving average is 0 percent. Based on recent experience and judgment, this study recommends retention of 0 percent net salvage for this account.

Account 394.0 Capital Tools and Shop Equipment (0% Net Salvage)

This account consists of any salvage and/or removal cost related to small tools used in shop and garages such as air compressors, grinders, and mixers. The current

authorized net salvage rate for this account is 0 percent. The three-year, five-year, and 10-year moving averages are 0, 1, and 0 percent respectively. Based on recent experience and judgment, this study recommends retention of 0 percent net salvage for this account.

Account 394.19 Large Portable Tools (0% Net Salvage)

This account consists of any salvage and/or removal cost related to various large items or tools used in shop and garages such as hoists and cranes. The current authorized net salvage rate for this account is 0 percent. The three-year, five-year, and 10-year moving averages are 0 percent for all periods. Based on recent experience and judgment, this study recommends retention of 0 percent net salvage for this account.

Account 395.0 Laboratory Equipment (0% Net Salvage)

This account consists of any salvage and/or removal cost related to laboratory equipment used in general utility service. The current authorized net salvage rate for this account is 0 percent. The five year and 10 year moving averages are 0 and negative 1 percent respectively. Based on recent experience and judgment, this study recommends retention of 0 percent net salvage for this account.

Account 396.0 Construction Equipment (25% Net Salvage)

This account consists of any salvage and/or removal cost related to bulldozers, forklifts, trenchers, and other power operated equipment that cannot be licensed on roadways. The current authorized net salvage rate for this account is positive 25 percent. Retirements and net salvage activity has been sparse in recent years. Since recent data is not robust, no change in net salvage for this account seems reasonable. Accordingly, based on judgment this study recommends retention of positive 25 percent net salvage for this account.

Account 397.0 Communication Equipment (0% Net Salvage)

This account consists of any salvage and/or removal cost related to miscellaneous assets such as fiber optics, and various upgrades to communication equipment used in general utility service. The current authorized net salvage rate for this account is 0 percent. The three-year, five-year, and 10-year moving averages are negative 7, negative 6, and negative 2 percent respectively. Based on recent experience and judgment, this study

recommends retention of 0 percent net salvage for this account.

Account 397.1 General Communication Equipment (0% Net Salvage)

This account consists of any salvage and/or removal cost related to general network communication equipment used in general utility service. The current authorized net salvage rate for this account is 0 percent. The three-year, five-year, and 10-year moving averages are 0 percent for all periods. Based on recent experience and judgment, this study recommends retention of 0 percent net salvage for this account.

Account 397.2 PBX & Other Voice Equipment (0% Net Salvage)

This account consists of any salvage and/or removal cost related to PBX and other voice equipment used in general utility service. The current authorized net salvage rate for this account is 0 percent. The three-year, five-year, and 10-year moving averages are 0 percent for all periods. Based on recent experience and judgment, this study recommends retention of 0 percent net salvage for this account.

Account 397.30 Microwave and Radio Equipment (0% Net Salvage)

This account consists of any salvage and/or removal cost related to microwave and radio equipment used in general utility service. The current authorized net salvage rate for this account is 0 percent. The three-year, five-year, and 10-year moving averages are negative 2, negative 1, and 0 percent respectively. Based on recent experience and judgment, this study recommends retention of 0 percent net salvage for this account.

Account 397.40 Communication Structure (-5% Net Salvage)

This account consists of any salvage and/or removal cost related communication structures used in general utility service. The current authorized net salvage rate for this account is negative 5 percent. The three-year, five-year, and 10-year moving averages are negative 16, negative 15, and negative 10 percent, respectively. Based on Company history and judgment, this study recommends retention of negative 5 percent net salvage for this account.

Account 397.55 Poles AMI (-25% Net Salvage)

This account consists of any salvage and/or removal cost related to poles used with AMI metering equipment. The current authorized net salvage rate for this account is 0

percent. There has been no retirement or net salvage experience in this account as yet.

These assets are similar to Account 364- Poles, Towers, and Fixtures in SDGE. The current authorized net salvage parameter for SDGE is negative 95 percent, which is what SDG&E recommends retaining in its GRC. Given the net salvage position for this account for SDGE, this study recommends moving in the direction of negative net salvage for this account. Based on judgment, this study recommends moving to negative 25 percent net salvage for this account, based on the amount allowed by the CPUC's gradualism precedent.

Account 398.0 Miscellaneous Equipment (0% Net Salvage)

This account includes any salvage and/or removal cost related to miscellaneous equipment. The current authorized net salvage rate for this account is 0 percent. No gross salvage or cost of removal has been received in this account since 2017. The three-year, five-year, and 10-year moving averages are 0.00, 0.05, and 0.11 percent, respectively. Based on recent experience and judgment, this study recommends retention of 0 percent net salvage for this account.

AMORTIZATION ACCOUNTS- COMPUTER SOFTWARE

Life Parameters

Account 303.1 Cloud Computing (5 SQ)

This account consists of assets related to cloud computing used software used for general utility service. There is approximately \$640 thousand in this account. This is a new account. The Company is requesting a fixed life amortization of 5 years based on contract duration. This study recommends a 5- year amortization rate for this account.

Account 391.30 Computer Software 3 Years ASL (3 SQ)

This account consists of computer software used for general utility service. There is approximately \$30.6 million in this account. This account currently has a fixed life for amortization of 3 years. This study recommends retaining the 3 year amortization rate for this account.

Account 391.35 Computer Software AMI (5 SQ)

This account consists of computer software used for general utility service. There is approximately \$8.0 million in this account. This account currently has a fixed life for amortization of 5 years. This study recommends retaining the 5 year amortization rate for this account.

Account 391.40 Computer Software 6 Years (6 SQ)

This account consists of computer software used for general utility service. There is approximately \$525.7 million in this account. This account currently has a fixed life for amortization of 6 years. This study recommends retaining the 6 year amortization rate for this account.

Account 391.50 Computer Software 10 Years (10 SQ)

This account consists of computer software used for general utility service. There is approximately \$286.0 million in this account. This account currently has a fixed life for amortization of 10 years. This study recommends retaining the 10 year amortization rate for this account.

Account 391.55 Computer Software 15 Years (15 SQ)

This account consists of computer software used for general utility service. There is approximately \$6.5 million in this account. This account currently has a fixed life for amortization of 15 years. This study recommends retaining the 15 year amortization rate for this account.

Account 391.60 Computer Software 20 Years (20 SQ)

This account consists of computer software used for general utility service. There is approximately \$1.3 million in this account. This account currently has a fixed life for amortization of 20 years. This study recommends retaining the 20 year amortization rate for this account.

Net Salvage Parameters**Account 303.10 Cloud Computing (0% Net Salvage)**

This account consists of any salvage and/or removal cost related to cloud computing

assets used for general utility service. This is a new account with no net salvage parameter. Cloud computing and related software has no intrinsic net salvage value. Using knowledge of the asset base, this study proposes zero percent net salvage for this account.

Account 391.30 Computer Software 3 Years ASL (0% Net Salvage)

This account consists of any salvage and/or removal cost related to computer software with a life of three years used for general utility service. The current net salvage rate for this account is 0 percent. Software has no intrinsic net salvage value. Using judgment and experience, this study proposes retaining the current net salvage parameter of zero percent for this account.

Account 391.35 Computer Software AMI (0% Net Salvage)

This account consists of any salvage and/or removal cost related to computer software with a life of 5 years used for general utility service. The current net salvage rate for this account is 0 percent. Software has no intrinsic net salvage value. Using judgment and experience, this study proposes retaining the current net salvage parameter of zero percent for this account.

Account 391.40 Computer Software 6 Years (0% Net Salvage)

This account consists of any salvage and/or removal cost related to computer software with a life of 6 years used for general utility service. The current net salvage rate for this account is 0 percent. Software has no intrinsic net salvage value. Using judgment and experience, this study proposes retaining the current net salvage parameter of zero percent for this account.

Account 391.50 Computer Software 10 Years (0% Net Salvage)

This account consists of any salvage and/or removal cost related to computer software with a life of 10 years used for general utility service. The current net salvage rate for this account is 0 percent. Software has no intrinsic net salvage value. Using judgment and experience, this study proposes retaining the current net salvage parameter of zero percent for this account.

Account 391.50 Computer Software 15 Years (0% Net Salvage)

This account consists of any salvage and/or removal cost related to computer software with a life of 15 years used for general utility service. The current net salvage rate for this account is 0 percent. Software has no intrinsic net salvage value. Using judgment and experience, this study proposes retaining the current net salvage parameter of zero percent for this account.

Account 391.60 Computer Software 20 Years (0% Net Salvage)

This account consists of any salvage and/or removal cost related to computer software with a life of 20 years used for general utility service. The current net salvage rate for this account is 0 percent. Software has no intrinsic net salvage value. Using judgment and experience, this study proposes retaining the current net salvage parameter of zero percent for this account.

Amortization Rates

For these accounts, this study recommends retention of the existing rates, which are based on whole-life depreciation. The table below gives the current and proposed accrual rate for each account.

Account	Current/ Proposed Amortization Rate
391.30 Computer Software 3 yr Life	33.33%
391.35 Computer Software and 303.1 Cloud Computing 5 yr Life	20.00%
391.40 Computer Software 6 yr Life	16.67%
391.50 Computer Software 10 yr Life	10.00%
391.55 Computer Software 15 yr Life	6.67%
391.60 Computer Software 20 yr Life	5.00%

APPENDIX A
Depreciation Rate Calculations

**SOUTHERN CALIFORNIA GAS
COMPUTATION OF DEPRECIATION ACCRUAL RATES AT DECEMBER 31, 2021**

Account	Description	Plant In Service at 12/31/2021	Book Depreciation at 12/31/2021	Net Salvage %	Net Salvage Amount	Amount to be Recovered	Remaining Life	Annual Depreciation Amount	Accrual Rate
	Underground Storage Plant								
350.31	Storage Rights	1,769,562	280,655	0.00%	0	1,488,907	43.94	33,885	1.91%
350.32	Recoverable Oil	0	0	0.00%	0	0		0	2.00%
350.40	Rights-of-Way Structures & Improvements	19,998	13,433	0.00%	0	6,565	24.69	266	1.33%
351.00	Underground Storage Solar & Fuel Cell	130,243,659	35,146,485	-70.00%	(91,170,562)	186,267,736	43.48	4,283,804	3.29%
351.20	Wells	598,590,798	-107,213,422	-5.00%	(568,661,258)	1,274,465,477	10.00	31,678,788	10.50%
352.00	Lines	196,882,073	60,795,938	-65.00%	(127,973,348)	264,059,483	40.23	6,848,933	5.29%
353.00	Compressor Station						38.55		3.48%
354.00	Measuring & Regulating	471,034,627	98,644,895	-25.00%	(117,758,657)	490,148,389	35.37	13,856,866	2.94%
355.00	Eqt	18,374,050	4,438,712	-5.00%	(918,703)	14,854,041	24.47	607,059	3.30%
356.00	Purification Equipment	170,515,026	92,676,604	-30.00%	(51,154,508)	128,992,930	29.89	4,315,766	2.53%
357.00	Other Equipment	92,512,870	28,758,287	-100.00%	(92,512,870)	156,267,454	31.29	4,993,811	5.40%
		1,679,942,666	213,541,587		(1,050,149,905)	2,516,550,984		66,619,178	
	Transmission Plant								
365.29	Rights-of-Way Structures & Improvements	122,996,702	14,964,261	0.00%	0	108,032,441	35.09	3,078,006	2.50%
366.00	Transmission Solar & Fuel Cell	143,727,588	22,238,585	-65.00%	(93,422,932)	214,911,935	40.43	5,315,673	3.70%
366.20	Mains						10.00		10.50%
367.00	Compressor Station	3,004,328,727	777,642,031	-85.00%	(2,553,679,418)	4,780,366,115	59.11	80,868,001	2.69%
368.00	Measuring & Regulating	541,246,895	106,642,723	-40.00%	(216,498,758)	651,102,930	41.24	15,786,525	2.92%
369.00	Eqt	344,966,875	48,459,707	-75.00%	(258,725,156)	555,232,324	44.06	12,600,764	3.65%
370.00	Communication Eqt	81,964,952	16,923,474	0.00%	0	65,041,479	11.51	5,651,222	6.89%
371.00	Other Equipment	11,494,628	4,779,387	-10.00%	(1,149,463)	7,864,703	13.61	577,851	5.03%
371.10	Temporary Assemblies and Test Heads	699	-7,070	0.00%	0	7,769	9.50	818	116.96%
		4,250,727,067	991,643,098		-3,123,475,728	6,382,559,696		123,878,859	
	Distribution Plant								
374.20	Land Rights Structures & Improvements	1,868,656	1,215,002	0.00%	0	653,654	24.49	26,695	1.43%
375.00	Distribution Solar & Fuel Cell	361,003,945	97,104,264	-20.00%	(72,200,789)	336,100,470	28.69	11,714,662	3.25%
375.20	Mains						10.00		10.50%
376.00	Measuring & Regulating	6,152,508,423	2,816,036,120	-105.00%	(6,460,133,844)	9,796,606,146	53.00	184,836,390	3.00%
378.00	Eqt	155,426,546	88,006,090	-120.00%	(186,511,855)	253,932,311	35.95	7,064,313	4.55%
380.00	Services	3,551,498,851	2,268,159,415	-140.00%	(4,972,098,391)	6,255,437,827	51.29	121,969,999	3.43%
381.00	Meters	667,538,824	213,870,181	2.00%	13,350,776	440,317,867	16.32	26,979,582	4.04%
381.15	Modules - AMI	318,851,448	103,321,070	0.00%	0	215,530,378	13.07	16,493,537	5.17%
382.00	Meter Installations	480,153,801	174,367,848	0.00%	0	305,785,953	19.27	15,867,357	3.30%
382.15	Module Installs-AMI	150,549,481	49,429,948	0.00%	0	101,119,533	13.05	7,748,401	5.15%
382.60	Meter Installations - Other	10,062,865	6,445,904	0.00%	0	3,616,961	7.01	516,188	5.13%
383.00	House Regulators	188,953,322	85,150,604	4.00%	7,558,133	96,244,586	17.72	5,431,707	2.87%
387.00	Other Equipment	76,602,610	30,416,583	0.00%	0	46,186,027	14.83	3,115,185	4.07%

**SOUTHERN CALIFORNIA GAS
COMPUTATION OF DEPRECIATION ACCRUAL RATES AT DECEMBER 31, 2021**

Account	Description	Plant In Service at 12/31/2021	Book Depreciation at 12/31/2021	Net Salvage %	Net Salvage Amount	Amount to be Recovered	Remaining Life	Annual Depreciation Amount	Accrual Rate
		12,115,018,771	5,933,523,028		(11,670,035,969)	17,851,531,712		401,764,014	
	General Plant								
389.20	389.20-Land Rights	74,149	43,774	0.00%	0	30,375	20.48	1,483	2.00%
390.00	Structures & Improvements	207,101,932	166,406,427	-15.00%	(31,065,290)	71,760,794	36.90	1,944,894	0.94%
390.10	Improvements-GCT	41,074,629	30,181,079	-15.00%	(6,161,194)	17,054,745	5.00	3,410,949	8.30%
390.20	SCG Solar & Fuel Cell Assets	8,167,775	327,384	-5.00%	(408,389)	8,248,780	8.50	970,445	11.88%
390.00	Total 390	256,344,336	196,914,890	-14.68%	(37,634,873)	97,064,319	15.34	6,326,287	2.47%
391.10	Office Furniture & Eqpt	4,568,078	938,216	0.00%	0	3,629,862	7.71	471,007	10.31%
391.20	Computer Equipment	200,206,251	96,860,671	0.00%	0	103,345,580	2.41	42,894,529	21.43%
392.00	Transportation Eqpt - Autos	149,370	77,425	5.00%	7,469	64,477	3.91	16,509	11.05%
392.30	Transportation Eqpt- Aviation			0.00%	0		5.00		20.00%
393.00	Stores Equipment	112,635	80,923	0.00%	0	31,712	10.16	3,120	2.77%
394.00	Capital Tools-KM/Shop Eqpt	8,190,996	3,662,342	0.00%	0	4,528,655	6.08	745,030	9.10%
394.19	Large Portable Tools	115,086,593	29,929,377	0.00%	0	85,157,216	17.63	4,829,007	4.20%
395.00	Laboratory Equipment	8,399,288	1,822,398	0.00%	0	6,576,891	9.66	680,546	8.10%
396.00	Construction Equipment	1,124	-1,828	25.00%	281	2,671	1.00	2,671	237.65%
397.00	Communication Eqpt	144,037,717	56,260,013	0.00%	0	87,777,704	8.78	9,997,425	6.94%
397.10	General Conn Eqpt - 5 yrs ASL	36,986,145	20,240,703	0.00%	0	16,745,441	2.30	7,285,719	19.70%
397.20	PBX & Other Voice Eqpt - 7 yrs ASL	521,389	185,968	0.00%	0	335,422	4.90	68,460	13.13%
397.30	Microwave & Radio Eqpt - 10 yrs ASL	9,689,743	6,430,057	0.00%	0	3,259,686	3.26	999,058	10.31%
397.40	Communication Structure	5,302,685	2,808,664	-5.00%	(265,134)	2,759,156	7.34	376,136	7.09%
397.55	Poles - AMI	19,035,309	3,381,619	-25.00%	(4,758,827)	20,412,518	39.85	512,224	2.69%
398.00	Miscellaneous Equipment	1,444,836	288,478	0.00%	0	1,156,358	11.06	104,598	7.24%
		810,150,645	419,923,690		-42,651,085	432,878,040		75,313,810	
	Amortization Accounts After retirement fully accrued accounts								
	391.3 Computer Stlwr - 3 yrs ASL	34,752,030	21,478,525	0.00%	0	13,273,506	1.15	11,582,852	33.33%
	Cloud Computing and								
303.10	& 391.3f Computer SW 5 Yr	6,058,913	4,918,681	0.00%	0	1,140,232	0.94	1,211,783	20.00%
	391.4 Computer Stlwr - 6 yrs ASL	556,616,872	251,018,059	0.00%	0	305,598,813	3.29	92,788,033	16.67%
	391.5 Computer Stlwr - 10 yrs ASL	223,651,356	182,455,038	0.00%	0	41,196,318	1.84	22,365,136	10.00%
	391.55 Computer Stlwr - 15 yrs ASL	6,502,820	3,860,552	0.00%	0	2,642,267	6.09	433,738	6.67%
	391.6 Computer Stlwr - 20 yrs ASL	1,411,598	95,353	0.00%	0	1,316,245	18.65	70,500	5.00%
		828,993,588	463,826,208	0	0	365,167,381	32	128,452,120	
	Total Plant	19,684,832,737	8,022,457,611		-15,886,312,687	27,548,687,813		796,027,981	

APPENDIX B
Depreciation Expense Comparison

**SOUTHERN CALIFORNIA GAS
COMPARISON OF CURRENT AND PROPOSED DEPRECIATION RATES**

Account Description	Plant In Service at 12/31/2021	Current Accrual Rate	Current Accrual Expense	Proposed Accrual Rate	Proposed Accrual Expense	Difference
Underground Storage Plant						
350.31 Storage Rights	1,769,562	2.50%	44,239	1.91%	33,885	(10,354)
350.32 Recoverable Oil	0	2.50%	0	2.00%	0	0
350.40 Rights-of-Way	19,998	2.50%	500	1.33%	266	(234)
351.00 Structures & Improvements	130,243,659	3.53%	4,595,098	3.29%	4,283,804	(311,294)
351.20 Underground Storage Solar & Fuel Cell				10.50%		
352.00 Wells	598,590,798	4.67%	27,959,685	5.29%	31,678,788	3,719,102
353.00 Lines	196,882,073	2.54%	4,997,531	3.48%	6,848,933	1,851,402
354.00 Compressor Station Eqpt	471,034,627	2.66%	12,524,929	2.94%	13,856,866	1,331,937
355.00 Measuring & Regulating Eqpt	18,374,050	3.92%	719,792	3.30%	607,059	(112,733)
356.00 Purification Equipment	170,515,026	3.00%	5,118,072	2.53%	4,315,766	(802,306)
357.00 Other Equipment	92,512,870	5.52%	5,104,126	5.40%	4,993,811	(110,314)
	1,679,942,666		61,063,971		66,619,178	5,555,208
Transmission Plant						
365.29 Rights-of-Way	122,996,702	2.50%	3,078,290	2.50%	3,078,006	(284)
366.00 Structures & Improvements	143,727,588	3.08%	4,427,022	3.70%	5,315,673	888,650
366.20 Transmission Solar & Fuel Cell				10.50%		
367.00 Mains	3,004,328,727	2.57%	77,307,807	2.69%	80,868,001	3,560,193
367.60 Hydro Test costs		2.57%	0	4.76%	0	0
368.00 Compressor Station Eqpt	541,246,895	2.21%	11,936,183	2.92%	15,786,525	3,850,342
369.00 Measuring & Regulating Eqpt	344,966,875	3.31%	11,414,640	3.65%	12,600,764	1,186,124
370.00 Communication Eqpt	81,964,952	6.89%	5,651,221	6.89%	5,651,222	0
371.00 Other Equipment	11,494,628	4.32%	496,013	5.03%	577,851	81,839
371.10 Temporary Assemblies and Test Heads	699	4.32%	30	116.96%	818	788
	4,250,727,067		114,311,206		123,878,858	9,567,652
Distribution Plant						
374.20 Land Rights	1,868,656	2.50%	46,716	1.43%	26,695	(20,021)
375.00 Structures & Improvements	361,003,945	2.73%	9,864,003	3.25%	11,714,662	1,850,659
375.20 Distribution Solar & Fuel Cell				10.50%		
376.00 Mains	6,152,508,423	2.53%	155,818,921	3.00%	184,836,390	29,017,469
378.00 Measuring & Regulating Eqpt	155,426,546	3.73%	5,798,315	4.55%	7,064,313	1,265,998
380.00 Services	3,551,498,851	2.95%	104,658,693	3.43%	121,969,999	17,311,306
381.00 Meters	667,538,824	3.86%	25,756,011	4.04%	26,979,582	1,223,571
381.15 Modules - AMI	318,851,448	5.17%	16,493,538	5.17%	16,493,537	(2)
382.00 Meter Installations	480,153,801	3.49%	16,744,980	3.30%	15,867,357	(877,623)
382.15 Module Installs-AMI	150,549,481	5.15%	7,749,360	5.15%	7,748,401	(959)
382.60 Meter Installations - Other	10,062,865	5.14%	516,822	5.13%	516,188	(634)
383.00 House Regulators	188,953,322	2.82%	5,326,241	2.87%	5,431,707	105,466
387.00 Other Equipment	76,602,610	3.47%	2,656,431	4.07%	3,115,185	458,754
	12,115,018,771		351,430,031		401,764,014	50,333,983

**SOUTHERN CALIFORNIA GAS
COMPARISON OF CURRENT AND PROPOSED DEPRECIATION RATES**

Account Description	Plant In Service at 12/31/2021	Current Accrual Rate	Current Accrual Expense	Proposed Accrual Rate	Proposed Accrual Expense	Difference
General Plant						
389.20 389.20-Land Rights	74,149	1.57%	1,164	2.00%	1,483	319
390.00 Structures & Improvements	207,101,932	1.57%	3,250,382	0.94%	1,944,894	(1,305,488)
390.10 Structures & Improvements-GCT	41,074,629	9.23%	3,789,943	8.30%	3,410,949	(378,994)
390.20 SCG Solar & Fuel Cell Assets	8,167,775	3.49%	285,373	11.88%	970,445	685,072
391.10 Office Furniture & Eqpt	4,568,078	10.31%	470,969	10.31%	471,007	38
391.20 Computer Equipment	200,206,251	21.42%	42,888,089	21.43%	42,894,529	6,440
392.00 Transportation Eqpt - Autos	149,370	11.05%	16,505	11.05%	16,509	4
392.30 Transportation Eqpt-Aviation				20.00%		
393.00 Stores Equipment	112,635	2.77%	3,120	2.77%	3,120	(0)
394.00 Capital Tools-KM/Shop Eqpt	8,190,996	3.88%	317,811	9.10%	745,030	427,219
394.19 Large Portable Tools	115,086,593	4.20%	4,829,007	4.20%	4,829,007	0
395.00 Laboratory Equipment	8,399,288	4.11%	345,211	8.10%	680,546	335,335
395.00 Construction Equipment	1,124	475.30%	5,342	237.65%	2,671	(2,671)
397.00 Communication Eqpt	144,037,717	6.94%	9,997,458	6.94%	9,997,425	(32)
397.10 General Comm Eqpt - 5 yrs ASL	36,986,145	19.70%	7,285,719	19.70%	7,285,719	0
397.20 PBX & Other Voice Eqpt - 7 yrs ASL	521,389	13.13%	68,460	13.13%	68,460	0
397.30 Microwave & Radio Eqpt - 10 yrs ASL	9,689,743	10.31%	999,058	10.31%	999,058	0
397.40 Communication Structure	5,302,685	7.09%	376,136	7.09%	376,136	0
397.55 Poles - AMI	19,035,309	2.50%	476,678	2.69%	512,224	35,546
398.00 Miscellaneous Equipment	1,444,836	7.24%	104,606	7.24%	104,598	(8)
Total	810,150,645		75,511,031		75,313,810	(197,221)
Amortization Accounts After retirement fully accrued accounts						
391.30 Computer Sftwr - 3 yrs ASL	34,752,030	33.33%	11,582,852	33.33%	11,582,852	0
303.10 & Cloud Computing & Computer SW 5 Yr	6,058,913	20.00%	1,211,783	20.00%	1,211,783	0
391.40 Computer Sftwr - 6 yrs ASL	556,616,872	16.67%	92,788,033	16.67%	92,788,033	0
391.50 Computer Sftwr - 10 yrs ASL	223,651,356	10.00%	22,365,136	10.00%	22,365,136	0
391.55 Computer Sftwr - 15 yrs ASL	6,502,820	6.67%	433,738	6.67%	433,738	0
391.60 Computer Sftwr - 20 yrs ASL	1,411,598	5.00%	70,580	5.00%	70,580	0
Total	828,993,588		128,452,120		128,452,120	0
Total Depreciable	19,684,832,737		730,768,359		796,027,980	65,259,621

APPENDIX C
Depreciation Parameter Comparison

**Southern California Gas
Current and Proposed Depreciation and Amortization Parameters
at December 31, 2021**

Account	Description	Current Parameters			Proposed Parameters		
		Life	Curve	Net Salvage %	Life	Curve	Net Salvage %
303.10	Cloud Computing	NA	NA	NA	5	SQ	0.00%
	Underground Storage Plant						
350.31	Storage Rights		40	SQ	50	SQ	0.00%
350.32	Recoverable Oil		40	SQ	50	SQ	0.00%
350.40	Rights-of-Way		40	SQ	50	SQ	0.00%
351.00	Structures & Improvements		48	R1.5	51	R1.5	-70.00%
351.20	Underground Storage Solar & Fuel Cell		48	R1.5	10	SQ	-5.00%
352.00	Wells		49	R2.5	49	R2.5	-95.00%
353.00	Lines		54	R3	50	R4	-65.00%
354.00	Compressor Station Eqpt		41	L0.5	41	L0.5	-25.00%
355.00	Measuring & Regulating Eqpt		22	L0	30	L1	-5.00%
356.00	Purification Equipment		39	R2.5	44	R2.5	-30.00%
357.00	Other Equipment		37	R2.5	38	R3	-100.00%
	Transmission Plant						
365.29	Rights-of-Way		40	SQ	40	SQ	0.00%
366.00	Structures & Improvements		47	R2	47	R2	-65.00%
366.20	Transmission Solar & Fuel Cell		47	R2	10	SQ	-5.00%
367.00	Mains		64	R3	70	R2	-85.00%
367.60	Hydro Test costs		NA	NA	21	SQ	0.00%
368.00	Compressor Station Eqpt		50	R1	48	R1	-40.00%
369.00	Measuring & Regulating Eqpt		46	S0	48	R0.5	-75.00%
370.00	Communication Eqpt		15	SQ	15	SQ	0.00%
371.00	Other Equipment		21	L0.5	20	L2	-10.00%
371.10	Temporary Assemblies and Test Heads		NA	NA	10	SQ	0.00%
	Distribution Plant						
374.20	Land Rights		40	SQ	70	SQ	0.00%
375.00	Structures & Improvements		40	S0	39	S0.5	-20.00%
375.20	Distribution Solar & Fuel Cell		40	S0	10	SQ	-5.00%
376.00	Mains		68	R2.5	68	R2.5	-105.00%
378.00	Measuring & Regulating Eqpt		47	S0.5	47	S1.5	-120.00%
380.00	Services		67	R2	67	R2	-140.00%

**Southern California Gas
Current and Proposed Depreciation and Amortization Parameters
at December 31, 2021**

Account	Description	Current Parameters			Proposed Parameters		
		Life	Curve	Net Salvage %	Life	Curve	Net Salvage %
381.00	Meters	25	S0.5	5.00%	25	S0.5	2.00%
381.15	Modules - AMI	20	SQ	0.00%	20	SQ	0.00%
382.00	Meter Installations	30	S1	-10.00%	28	S1	0.00%
382.15	Module Installs-AMI	20	SQ	0.00%	20	SQ	0.00%
382.60	Meter Installations - Other	15	SQ	0.00%	15	SQ	0.00%
383.00	House Regulators	33	L5	5.00%	33	L5	4.00%
387.00	Other Equipment	21	SC	5.00%	20	L0.5	0.00%
General Plant							
389.20	389.20-Land Rights	40	SQ	0.00%	50	SQ	0.00%
390.00	Structures & Improvements	33	R1.5	-15.00%	46	R0.5	-15.00%
390.10	Structures & Improvements-GCT	15	EL	-15.00%	15	EL	-15.00%
390.20	SCG Solar & Fuel Cell Assets	33	R1.5	-15.00%	10	SQ	-5.00%
391.10	Office Furniture & Eqpt	14	SQ	0.00%	14	SQ	0.00%
391.20	Computer Equipment	5	SQ	0.00%	5	SQ	0.00%
391.30	Computer Sftwr - 3 yrs ASL	3	SQ	0.00%	3	SQ	0.00%
391.35	391.35-Computer SW AMI (SL)	5	SQ	0.00%	5	SQ	0.00%
391.40	Computer Sftwr - 6 yrs ASL	6	SQ	0.00%	6	SQ	0.00%
391.50	Computer Sftwr - 10 yrs ASL	10	SQ	0.00%	10	SQ	0.00%
391.55	Computer Sftwr - 15 yrs ASL	15	SQ	0.00%	15	SQ	0.00%
391.60	Computer Sftwr - 20 yrs ASL	20	SQ	0.00%	20	SQ	0.00%
392.00	Transportation Eqpt - Autos	7	SQ	5.00%	7	SQ	5.00%
392.30	Transportation Eqpt-Aviation	NA	NA	NA	5	SQ	0.00%
393.00	Stores Equipment	20	SQ	0.00%	20	SQ	0.00%
394.00	Capital Tools-KM/Shop Eqpt	29	SQ	0.00%	20	SQ	0.00%
394.19	Large Portable Tools	24	SQ	0.00%	24	SQ	0.00%
395.00	Laboratory Equipment	25	SQ	0.00%	15	SQ	0.00%
396.00	Construction Equipment	12	SQ	25.00%	12	SQ	25.00%
397.00	Communication Eqpt	15	SQ	0.00%	15	SQ	0.00%
397.10	General Comn Eqpt - 5 yrs ASL	5	SQ	0.00%	5	SQ	0.00%
397.20	PBX & Other Voice Eqpt - 7 yrs ASL	7	SQ	0.00%	7	SQ	0.00%
397.30	Microwave & Radio Eqpt - 10 yrs ASL	10	SQ	0.00%	10	SQ	0.00%
397.40	Communication Structure	15	SQ	-5.00%	15	SQ	-5.00%
397.55	Poles - AMI	40	SQ	0.00%	47	SQ	-25.00%
398.00	Miscellaneous Equipment	20	SQ	0.00%	20	SQ	0.00%

APPENDIX D
Net Salvage Analysis

368	284,547.31	0.00	331,133.00	-116.37%	-150.34%	-72.13%	-21.23%	-10.09%	-11.02%	-10.09%	-8.80%
369	2,750,122.00	390,000.00	19,574.00	0.71%	-10.27%	-15.46%	-22.50%	-16.09%	-10.27%	-16.09%	-9.53%
370	445,554.03	0.00	298,491.00	-66.99%	-8.73%	-7.81%	-8.80%	-7.81%	-8.80%	-7.81%	-8.43%
371	5,620,586.84	0.00	101,165.00	-1.80%	-4.45%	-7.80%	-5.68%	-4.31%	-9.86%	-4.31%	-11.09%
372	2,232,283.38	0.00	247,963.00	-11.11%	-4.45%	-8.07%	-9.14%	-6.70%	-9.44%	-6.70%	-8.43%
373	30,570.48	0.00	113,746.00	-15.98%	-10.07%	-10.48%	-6.18%	-8.48%	-8.48%	-8.48%	-8.43%
374	3,462,572.18	7,750.00	238,066.00	-6.88%	-10.07%	-9.04%	-9.72%	-6.13%	-8.24%	-6.13%	-8.43%
375	1,068,778.43	0.00	60,698.00	-5.68%	-23.98%	-11.25%	-13.61%	-12.80%	-7.87%	-12.80%	-9.90%
376	1,255,615.79	0.00	224,999.00	-3.99%	-18.90%	-13.69%	-9.70%	-11.56%	-11.44%	-9.70%	-9.90%
377	2,165,718.74	0.00	136,061.00	-6.92%	-12.60%	-17.68%	-11.57%	-13.36%	-8.37%	-13.36%	-10.17%
378	883,181.55	2,365.00	2,230,248.78	-252.26%	-12.60%	-10.44%	-76.08%	-43.33%	-12.76%	-43.33%	-24.11%
379	766,955.52	0.00	2,097,219.13	-273.45%	-262.11%	-238.98%	-144.46%	-116.09%	-111.66%	-116.09%	-55.67%
380	272,157.90	0.00	344,983.78	-126.76%	-293.16%	-285.40%	-224.70%	-144.42%	-144.42%	-144.42%	-67.98%
381	907,991.78	750.00	3,115,535.97	-343.04%	-233.03%	-285.40%	-259.97%	-165.25%	-185.17%	-165.25%	-95.77%
382	3,352,160.02	0.00	2,110,309.17	-62.90%	-122.65%	-122.90%	-144.69%	-160.05%	-131.69%	-131.69%	-86.15%
383	1,913,688.90	0.00	2,301,185.09	-120.25%	-83.78%	-121.91%	-122.11%	-138.20%	-148.38%	-138.20%	-117.72%
384	2,692,685.91	0.00	3,381,010.41	-125.56%	-123.38%	-97.91%	-123.02%	-107.14%	-144.38%	-107.14%	-129.10%
385	3,629,174.84	0.00	2,481,142.53	-68.37%	-92.73%	-99.12%	-88.66%	-107.14%	-124.33%	-107.14%	-114.81%
386	3,371,848.85	0.00	2,907,524.30	-86.23%	-76.97%	-90.47%	-95.38%	-88.11%	-102.70%	-88.11%	-117.85%
387	242,594.56	0.00	71,065.00	-29.29%	-16.69%	-28.65%	-38.10%	-40.82%	32.77%	-38.83%	21.55%
388	449,586.43	0.00	47,269.00	-8.99%	-28.45%	-41.79%	-43.44%	-37.46%	-40.25%	-37.46%	-21.32%
389	301,230.00	0.00	169,124.00	-56.14%	-74.63%	-41.79%	-46.65%	-48.45%	-51.89%	-46.65%	-20.82%
390	153,530.07	0.00	156,622.00	-115.71%	-79.05%	-57.97%	-41.13%	-19.51%	-19.51%	-41.13%	-21.11%
391	180,861.68	0.00	93,237.00	-51.59%	-12.96%	-31.99%	-46.66%	-30.05%	-31.99%	-46.66%	-24.17%
392	173,226.99	0.00	46,667.00	-26.11%	-60.66%	-41.13%	-38.41%	-16.51%	-16.51%	-38.41%	-41.65%
393	340,344.08	0.00	177,571.00	-52.17%	-10.61%	-34.55%	-48.45%	-21.51%	-21.51%	-48.45%	-41.65%
394	2,518,620.51	0.00	171,691.00	-67.26%	-11.25%	-15.93%	-19.51%	-19.51%	-19.51%	-19.51%	-41.65%
395	710,473.32	0.00	222,438.00	-10.81%	-10.81%	-16.51%	-16.51%	-21.51%	-21.51%	-21.51%	-41.65%
396	272,949.87	0.00	371,356.00	-98.36%	-41.65%	-41.65%	-41.65%	-41.65%	-41.65%	-41.65%	-41.65%
397	859,516.00	0.00	899,616.00	-445.63%	-251.98%	-173.97%	-143.59%	-67.70%	-67.70%	-67.70%	-69.90%
398	859,892.02	0.00	1,413,985.00	-164.43%	-159.76%	-166.87%	-141.59%	-68.68%	-68.68%	-68.68%	-69.90%
399	169,189.30	0.00	212,065.00	-134.36%	-159.76%	-166.87%	-141.59%	-68.68%	-68.68%	-68.68%	-69.90%
400	236,639.44	0.00	223,534.00	-94.48%	-110.44%	-147.44%	-100.09%	-171.84%	-139.48%	-100.09%	-68.37%
401	515,527.12	0.00	792,135.00	-153.69%	-135.08%	-134.91%	-149.25%	-182.08%	-171.84%	-134.91%	-78.88%
402	387,149.79	0.00	2,051,455.00	-529.89%	-315.02%	-369.21%	-263.45%	-215.58%	-224.02%	-215.58%	-108.08%
403	495,558.33	0.00	2,387,934.00	-235.89%	-317.45%	-273.17%	-245.27%	-233.29%	-233.29%	-233.29%	-126.93%
404	1,005,136.55	0.00	113,267.88	-22.88%	-150.24%	-228.10%	-201.58%	-189.94%	-189.94%	-189.94%	-174.55%
405	448,763.50	0.00	1,036,899.42	-97.81%	-168.85%	-228.67%	-205.86%	-202.38%	-202.38%	-202.38%	-200.67%
406	1,182,197.49	0.00	1,986,726.04	-168.90%	-186.00%	-168.87%	-208.59%	-195.63%	-195.63%	-195.63%	-199.01%
407	577,495.74	0.00	1,655,429.03	-288.68%	-207.54%	-212.32%	-169.22%	-187.21%	-212.22%	-204.20%	-198.37%
408	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA
409	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA
410	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA
411	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA
412	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA
413	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA
414	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA
415	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA
416	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA
417	57,173.34	0.00	14,662.26	-206.09%	-231.73%	-231.73%	-231.73%	-231.73%	-231.73%	-231.73%	-231.73%
418	117,826.99	0.00	138,440.08	-36.05%	10.41%	10.41%	10.41%	10.41%	10.41%	10.41%	10.41%
419	47,697.84	0.00	47,697.84	-83.43%	158.71%	-23.69%	-36.51%	-36.51%	-36.51%	-36.51%	-36.51%
420	0.00	0.00	71,474.19	NA	41.59%	283.73%	38.82%	26.00%	26.00%	26.00%	26.00%
421	0.00	0.00	37,717.00	NA	-5.04%	-56.07%	-3.88%	-3.11%	-4.56%	-3.11%	-5.66%
422	116,419.52	0.00	31,846.00	-27.35%	-30.33%	-2.29%	-2.30%	-1.54%	-3.03%	-1.54%	-3.35%
423	30,071.93	0.00	76,272.00	-253.63%	-3.82%	-3.81%	-3.01%	-4.54%	-4.86%	-3.01%	-5.69%
424	2,220,417.13	0.00	9,740.00	-0.44%	-0.47%	-3.81%	-2.30%	-1.54%	-3.03%	-1.54%	-3.35%
425	27,905.77	0.00	881.00	-143.39%	42.10%	0.32%	-3.01%	-4.54%	-4.86%	-3.01%	-5.69%
426	12,470.44	0.00	17,881.00	-65.34%	-28.09%	-20.99%	-1.30%	-1.66%	-2.52%	-1.66%	-2.52%
427	57,404.93	0.00	37,510.00	-59.37%	-101.49%	-51.36%	-24.70%	-39.08%	-49.29%	-39.08%	-47.47%
428	20,362.34	0.00	6,673.00	-251.82%	-101.49%	-71.30%	-49.29%	-86.17%	-74.10%	-86.17%	-73.73%
429	7,991.41	0.00	20,124.00	-164.79%	-184.73%	-152.28%	-184.73%	-184.73%	-184.73%	-184.73%	-184.73%
430	26,879.75	0.00	44,295.00	-64.91%	-176.04%	-194.20%	-139.84%	-102.41%	-102.41%	-102.41%	-102.41%
431	1,605.10	0.00	6,419.00	-99.91%	-11.19%	-121.23%	-141.62%	-113.40%	-92.01%	-113.40%	-92.01%
432	14,706.17	0.00	1,646.00	-11.19%	-49.44%	-121.23%	-141.62%	-113.40%	-92.01%	-113.40%	-92.01%

371	54,047.98	2,436.00	-4.51%	-5.94%	-14.92%	-56.35%	-71.20%	-66.55%	-52.80%	-46.60%	-4.66%
371	13,764.13	0.00	-14.01%	-6.44%	-7.28%	-14.78%	-11.10%	-61.36%	-62.52%	-50.25%	-44.71%
371	1,929.00	0.00	NA	NA	-117.50%	-98.56%	-104.31%	-118.95%	-127.88%	-100.80%	-86.24%
371	75,317.00	0.00	NA	NA	-843.17%	-174.73%	-153.92%	-160.49%	-183.81%	-143.24%	-120.52%
371	38,809.00	0.00	NA	NA	-104.80%	-174.73%	-153.92%	-160.49%	-183.81%	-143.24%	-120.52%
371	27,520.00	0.00	NA	NA	-104.80%	-174.73%	-153.92%	-160.49%	-183.81%	-143.24%	-120.52%
371	13,473.00	0.00	NA	NA	-104.80%	-174.73%	-153.92%	-160.49%	-183.81%	-143.24%	-120.52%
371	9,417.67	0.00	-16.59%	-40.32%	-89.21%	-157.57%	-290.24%	-196.55%	-189.45%	-191.05%	-185.14%
371	24,702.49	0.00	NA	-60.10%	-132.72%	-201.08%	-271.36%	-155.59%	-140.34%	-143.30%	-176.31%
371	50,099.13	0.00	NA	-148.35%	-172.09%	-220.97%	-289.33%	-422.00%	-342.39%	-195.80%	-173.00%
371	56,769.75	0.00	11.73%	-76.52%	-120.03%	-88.31%	-80.18%	-138.80%	-205.14%	-184.47%	-130.84%
375	59,830.37	272,244.09	-660.07%	187.38%	121.88%	90.08%	26.53%	19.66%	7.59%	-0.30%	-1.76%
375	642,675.70	1,798,545.00	266.29%	165.95%	12.07%	121.59%	27.73%	20.85%	2.16%	0.41%	-1.23%
375	419,058.19	128,891.33	-8.33%	2.61%	12.99%	-40.07%	-7.12%	-8.91%	-9.31%	-10.25%	-11.33%
375	362,536.69	176,099.73	-32.10%	-9.23%	-9.15%	-11.34%	-11.04%	-9.71%	-8.87%	-10.75%	-12.66%
375	2,008,485.32	0.00	9.09%	-9.23%	-11.59%	-11.19%	-11.04%	-8.74%	-8.91%	-10.80%	-11.33%
375	806,008.74	0.00	-22.19%	0.13%	-11.59%	-11.19%	-11.04%	-8.74%	-8.91%	-10.75%	-12.66%
375	2,095,920.62	0.00	-10.34%	-6.63%	-9.63%	-10.04%	-12.17%	-13.12%	-11.65%	-12.66%	-14.24%
375	8,005,021.85	0.00	-8.16%	-13.63%	-16.79%	-11.87%	-11.61%	-13.46%	-15.30%	-15.13%	-17.46%
375	1,474,128.55	0.00	-12.03%	-9.05%	-16.79%	-11.87%	-11.61%	-13.46%	-15.30%	-15.13%	-17.46%
375	2,256,646.05	0.00	-16.55%	-20.70%	-20.87%	-18.49%	-23.86%	-18.06%	-17.22%	-19.12%	-21.95%
375	1,673,888.74	0.00	-22.66%	-30.06%	-31.82%	-29.87%	-35.30%	-29.21%	-30.92%	-31.77%	-34.67%
375	2,450,030.92	0.00	-43.31%	-58.17%	-42.95%	-53.46%	-40.86%	-38.74%	-43.57%	-42.67%	-48.19%
375	1,686,446.73	0.00	-63.52%	-84.62%	-50.33%	-61.71%	-49.86%	-46.01%	-57.20%	-57.20%	-64.19%
375	2,053,001.71	0.00	-57.82%	-84.62%	-42.39%	-47.16%	-38.66%	-41.78%	-43.66%	-35.91%	-33.16%
375	1,919,037.14	0.00	-97.22%	-84.62%	-30.65%	-37.41%	-36.89%	-41.78%	-39.01%	-33.16%	-33.16%
375	3,056,925.75	0.00	-20.06%	-19.95%	-30.65%	-37.41%	-36.89%	-41.78%	-39.01%	-33.16%	-33.16%
375	1,597,668.32	0.00	-17.95%	-18.55%	-18.55%	-25.77%	-28.07%	-28.56%	-32.43%	-30.96%	-30.96%
375	6,441,308.73	0.00	-17.95%	-18.55%	-18.55%	-25.77%	-28.07%	-28.56%	-32.43%	-30.96%	-30.96%
375	1,112,153.81	0.00	-17.95%	-18.55%	-18.55%	-25.77%	-28.07%	-28.56%	-32.43%	-30.96%	-30.96%
375	6,441,308.73	0.00	-153.47%	-48.59%	-59.95%	-33.23%	-38.54%	-38.47%	-39.45%	-40.96%	-39.96%
376	1,955,669.58	3,060,853.05	-155.47%	-105.38%	-111.20%	-118.21%	-105.32%	-104.71%	-88.51%	-101.40%	-83.59%
376	3,985,692.58	3,223,942.49	-80.31%	-97.73%	-111.20%	-118.21%	-105.32%	-104.71%	-88.51%	-101.40%	-83.59%
376	2,570,360.73	3,206,322.35	-124.74%	-133.09%	-105.28%	-98.36%	-104.41%	-100.01%	-96.29%	-84.15%	-76.48%
376	2,585,108.32	3,777,469.87	-141.39%	-98.89%	-95.69%	-91.84%	-95.64%	-91.84%	-84.15%	-76.48%	-68.40%
376	5,246,010.53	4,158,698.23	-77.95%	-86.84%	-85.75%	-81.84%	-85.75%	-81.84%	-79.09%	-68.40%	-65.57%
376	3,168,172.51	3,341,140.06	-101.57%	-91.84%	-85.75%	-81.84%	-85.75%	-81.84%	-79.09%	-68.40%	-65.57%
376	3,550,295.25	3,160,754.69	-83.17%	-91.84%	-85.75%	-81.84%	-85.75%	-81.84%	-79.09%	-68.40%	-65.57%
376	6,066,675.30	4,985,317.00	-39.26%	-41.97%	-44.61%	-47.97%	-44.61%	-41.97%	-39.26%	-35.91%	-33.16%
376	7,448,729.69	2,484,515.01	-28.61%	-36.21%	-37.19%	-39.26%	-36.21%	-33.16%	-30.96%	-28.56%	-25.77%
376	5,496,025.11	1,012,157.00	-55.67%	-40.76%	-42.05%	-45.31%	-42.05%	-39.26%	-36.21%	-33.16%	-30.96%
376	4,924,557.47	3,079,918.72	-102.18%	-106.58%	-107.32%	-107.32%	-106.58%	-104.15%	-102.18%	-100.01%	-98.94%
376	2,240,931.65	8,240,931.65	-172.04%	-136.58%	-136.58%	-136.58%	-136.58%	-136.58%	-136.58%	-136.58%	-136.58%
376	2,977,408.88	2,782.10	-90.93%	-176.26%	-176.26%	-176.26%	-176.26%	-176.26%	-176.26%	-176.26%	-176.26%
376	4,681,298.34	6,669,873.33	-287.00%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%
376	2,478,578.34	1,844,375.07	-287.00%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%
376	2,478,578.34	1,844,375.07	-287.00%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%
376	2,478,578.34	1,844,375.07	-287.00%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%
376	2,478,578.34	1,844,375.07	-287.00%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%	-378.03%
376	4,877,644.49	66,368.64	-317.48%	-264.48%	-317.48%	-317.48%	-317.48%	-317.48%	-317.48%	-317.48%	-317.48%
376	6,136,075.90	99,900.23	-117.54%	-170.68%	-170.68%	-170.68%	-170.68%	-170.68%	-170.68%	-170.68%	-170.68%
376	2,682,082.82	44,066.70	-537.26%	-263.22%	-263.22%	-263.22%	-263.22%	-263.22%	-263.22%	-263.22%	-263.22%
376	5,128,832.80	19,464.14	-209.46%	-336.29%	-336.29%	-336.29%	-336.29%	-336.29%	-336.29%	-336.29%	-336.29%
376	122,712.90	379,007.90	-508.86%	-91.16%	-125.27%	-172.76%	-228.57%	-190.12%	-180.49%	-180.49%	-180.49%
376	284,730.19	7,475.30	2.63%	-55.99%	-127.24%	-207.29%	-278.06%	-202.44%	-177.60%	-177.60%	-177.60%
376	4,045.14	189,544.90	466.93%	-57.25%	-562.41%	-627.65%	-627.65%	-627.65%	-627.65%	-627.65%	-627.65%
376	41,763.80	284,619.40	-66.19%	-208.95%	-250.85%	-275.06%	-275.06%	-275.06%	-275.06%	-275.06%	-275.06%
376	96,197.18	442,159.50	-123.91%	-198.09%	-247.39%	-270.39%	-270.39%	-270.39%	-270.39%	-270.39%	-270.39%
376	340,228.53	603,669.60	-94.04%	-191.57%	-186.86%	-201.39%	-201.39%	-201.39%	-201.39%	-201.39%	-201.39%
376	1,727,990.00	3,069.20	-10.35%	-38.69%	-38.69%	-38.69%	-38.69%	-38.69%	-38.69%	-38.69%	-38.69%
376	2,145,308.41	388,852.00	98.64%	-21.55%	-37.82%	-38.69%	-38.69%	-38.69%	-38.69%	-38.69%	-38.69%
376	417,308.96	817,253.30	-147.81%	-126.44%	-126.44%	-126.44%	-126.44%	-126.44%	-126.44%	-126.44%	-126.44%
376	460,885.13	487,214.60	-106.71%	-130.46%	-130.46%	-130.46%	-130.46%	-130.46%	-130.46%	-130.46%	-130.46%
376	327,647.71	541,692.40	-165.33%	-130.46%	-130.46%	-130.46%	-130.46%	-130.46%	-130.46%	-130.46%	-130.46%
376	100,978.72	599,295.20	-481.27%	-240.76%	-240.76%	-240.76%	-240.76%	-240.76%	-240.76%	-240.76%	-240.76%
376	423,239.91	640,347.50	-151.30%	-198.79%	-198.79%	-198.79%	-198.79%	-198.79%	-198.79%	-198.79%	-198.79%
376	151,436.80	1,012,471.70	-668.71%	-287.63%	-287.63%	-287.63%	-287.63%	-287.63%	-287.63%	-287.63%	-287.63%
376	231,103.02	0.00	-322.07%	-459.28%	-459.28%	-459.28%	-459.28%	-459.28%	-459.28%	-459.28%	-459.28%
376	216,884.89	771,791.20	-358.85%	-338.42%	-421.85%	-308.88%	-328.54%	-290.85%	-228.54%	-209.07%	-111.96%
376	320,854.33	386,407.92	-120.43%	-215.38%	-247.45%	-316.76%	-264.64%	-281.03%	-228.08%	-215.50%	-199.79%

383	2007	659,198.19	37,291.00	0.00	37,291.00	5.66%	5.59%	1.23%	1.61%	1.72%	1.75%	1.77%	1.83%	2.22%
383	2008	893,759.17	61,671.00	0.00	61,671.00	6.90%	6.37%	6.12%	1.69%	2.03%	2.13%	2.17%	2.29%	2.10%
383	2009	1,011,416.77	569.00	0.00	569.00	0.06%	3.27%	3.88%	4.22%	1.55%	1.87%	1.96%	2.00%	1.85%
383	2010	1,006,679.51	0.00	0.00	0.00	0.00%	0.03%	2.14%	2.79%	3.22%	1.43%	1.72%	1.84%	1.75%
383	2011	661,829.76	0.00	0.00	0.00	0.00%	0.00%	0.02%	1.74%	2.35%	2.78%	1.36%	1.64%	1.64%
383	2012	671,734.25	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.02%	1.47%	2.03%	2.45%	1.59%	3.25%
383	2013	564,547.09	263,202.00	0.00	263,202.00	46.62%	22.21%	13.87%	9.06%	6.77%	6.77%	6.51%	5.99%	2.88%
383	2014	620,390.42	0.00	0.00	0.00	0.00%	10.11%	14.18%	10.45%	7.47%	5.81%	5.99%	5.81%	7.71%
383	2015	2,439,485.62	309,243.00	0.00	309,243.00	12.68%	15.79%	15.79%	13.32%	11.55%	9.60%	8.21%	8.06%	6.76%
383	2016	1,414,750.68	682.00	0.00	682.00	0.05%	8.04%	6.81%	11.37%	10.04%	8.99%	7.77%	6.84%	6.37%
383	2017	708,158.36	811.31	0.11%	811.31	0.11%	0.07%	6.81%	6.00%	9.99%	8.94%	8.11%	7.05%	5.66%
383	2018	1,094,034.69	2,093.43	0.19%	2,093.43	0.19%	0.16%	0.11%	5.53%	4.98%	8.42%	7.67%	6.27%	5.74%
383	2019	877,383.36	1,063.14	0.12%	1,063.14	0.12%	0.16%	0.15%	5.11%	4.80%	4.39%	7.48%	6.38%	5.80%
383	2020	904,917.50	614.59	0.07%	614.59	0.07%	0.09%	0.13%	0.13%	0.11%	4.23%	3.90%	6.22%	5.80%
387	1999	2,690,763.43	94,708.00	-1.19%	(32,061.00)	-1.19%	7.64%	6.16%	4.85%	5.97%	5.54%	5.42%	4.02%	4.57%
387	2000	3,006,332.62	537,602.00	14.22%	512,997.00	14.22%	10.19%	8.13%	9.03%	8.13%	8.15%	7.94%	6.36%	6.46%
387	2001	1,300,200.48	13,864.00	-0.99%	(12,844.00)	-0.99%	-8.00%	2.08%	1.62%	1.66%	1.41%	1.37%	1.00%	1.02%
387	2002	63,187.56	96,263.00	-152.34%	(96,263.00)	-152.34%	4.98%	3.26%	3.32%	2.85%	1.36%	0.73%	0.26%	0.35%
387	2003	1,328,984.24	7,675.00	-0.16%	165,071.00	-0.16%	8.15%	8.21%	7.49%	4.11%	3.89%	4.29%	4.04%	4.06%
387	2004	679,451.63	1,221.00	0.00	(1,221.00)	0.00%	-0.01%	-0.89%	7.49%	-0.72%	-0.21%	-0.15%	0.10%	0.09%
387	2005	1,014,311.69	1,107.00	-0.77%	(6,668.00)	-0.77%	-5.65%	-0.69%	7.49%	-0.92%	1.36%	0.41%	0.28%	0.35%
387	2006	1,410,651.23	13,228.00	-0.94%	(13,228.00)	-0.94%	-1.35%	-1.01%	-0.94%	-0.72%	3.89%	4.30%	4.04%	4.06%
387	2007	1,686,630.70	412.00	1.57%	2,367.00	1.57%	0.68%	-1.01%	-0.94%	-0.22%	-0.21%	-0.15%	0.26%	0.35%
387	2008	1,467,600.00	12,150.00	65.66%	12,150.00	65.66%	7.29%	0.12%	-0.28%	0.20%	-0.14%	-0.09%	0.10%	0.09%
387	2009	24,961.95	1,366.00	5.47%	1,366.00	5.47%	31.10%	7.10%	2.99%	-0.36%	-0.14%	-0.09%	0.10%	0.09%
387	2010	192,877.91	9,487.00	0.00	(9,487.00)	0.00%	-32.15%	9.14%	2.99%	-0.36%	-0.14%	-0.09%	0.10%	0.09%
387	2011	8,853.78	2,268.00	0.00	20,025.00	8.45%	6.45%	5.14%	10.15%	6.35%	0.75%	0.35%	0.41%	0.35%
387	2012	0.00	0.00	-68.89%	(6,098.00)	-68.89%	6.96%	2.17%	2.34%	0.94%	4.81%	4.41%	4.04%	4.06%
387	2013	2,761.00	551.00	0.00	(4,143.00)	0.00%	-115.60%	-3.95%	0.13%	0.01%	5.07%	3.83%	3.19%	-0.11%
387	2014	299,771.98	2,761.00	-1.48%	(1,467.00)	-1.48%	-1.94%	-3.32%	0.13%	0.01%	0.39%	0.11%	0.11%	-0.25%
387	2015	985,948.34	25,000.00	-0.36%	(1,345.15)	-0.36%	-0.89%	-0.94%	-5.20%	0.70%	-0.11%	-0.78%	0.71%	0.85%
387	2016	985,489.98	5,000.00	-13.57%	(13,759.80)	-13.57%	-9.84%	-8.34%	-1.65%	-2.50%	-8.60%	-7.51%	-6.35%	-6.66%
387	2017	272,382.79	0.00	-10.97%	(4,174.80)	-10.97%	-8.47%	-7.30%	-7.30%	-7.48%	-7.87%	-7.08%	-6.74%	-6.61%
387	2018	105,958.84	0.00	20.18%	(21,382.58)	20.18%	4.55%	-8.55%	-6.73%	-5.98%	-6.03%	-6.24%	-5.06%	-4.68%
387	2019	22,898.78	0.00	-392.69%	(89,922.00)	-392.69%	-137.76%	-233.00%	-107.31%	-67.39%	-42.72%	-63.66%	-83.08%	-22.92%
387	2020	47,326.85	0.00	-14.41%	(6,818.00)	-14.41%	-137.76%	-233.00%	-107.31%	-67.39%	-42.72%	-63.66%	-83.08%	-22.92%
390	1999	22,898.78	89,922.00	-392.69%	(89,922.00)	-392.69%	-137.76%	-233.00%	-107.31%	-67.39%	-42.72%	-63.66%	-83.08%	-22.92%
390	2000	47,326.85	0.00	14.41%	(6,818.00)	14.41%	137.76%	233.00%	107.31%	67.39%	42.72%	63.66%	83.08%	22.92%
390	2001	75,293.42	242,316.00	-321.83%	(242,316.00)	-321.83%	-203.16%	-88.44%	-56.37%	-36.04%	-80.46%	-78.39%	-21.85%	-24.52%
390	2002	223,690.00	59,863.00	-25.54%	(57,136.00)	-25.54%	-100.16%	-88.44%	-56.37%	-36.04%	-80.46%	-78.39%	-21.85%	-24.52%
390	2003	329,791.04	74,831.00	-23.84%	(74,831.00)	-23.84%	-14.81%	-59.53%	-46.31%	-42.29%	-20.77%	-20.90%	-23.58%	-24.46%
390	2004	524,750.89	51,712.00	-9.85%	(51,712.00)	-9.85%	-18.43%	-46.31%	-42.29%	-20.77%	-20.77%	-20.90%	-23.58%	-24.46%
390	2005	74,172.14	303,579.00	-409.29%	(303,579.00)	-409.29%	-59.32%	-46.31%	-42.29%	-20.77%	-20.77%	-20.90%	-23.58%	-24.46%
390	2006	235,523.33	447,718.00	-190.09%	(447,718.00)	-190.09%	-24.59%	-96.23%	-75.40%	-67.36%	-80.46%	-78.39%	-21.85%	-24.52%
390	2007	6,093,248.21	342,605.00	-7.78%	(342,605.00)	-7.78%	-11.68%	-19.13%	-18.43%	-18.63%	-18.83%	-20.77%	-22.12%	-24.46%
390	2008	897,747.86	473,790.00	-38.16%	(473,790.00)	-38.16%	-14.56%	-17.49%	-19.29%	-22.79%	-22.01%	-22.04%	-24.46%	-23.15%
390	2009	978,019.91	318,456.00	-30.52%	(318,456.00)	-30.52%	-35.24%	-14.24%	-19.29%	-22.79%	-22.01%	-22.04%	-24.46%	-23.15%
390	2010	401,109.25	35,357.00	8.81%	(35,357.00)	8.81%	-20.53%	-27.48%	-13.14%	-17.98%	-11.67%	-13.42%	-20.85%	-23.15%
390	2011	8,106,788.04	402,624.00	-4.97%	(402,624.00)	-4.97%	-4.32%	-7.23%	-9.90%	-9.12%	-11.67%	-13.42%	-20.85%	-23.15%
390	2012	653,387.72	200,994.00	-6.83%	(195,367.00)	-6.83%	-6.14%	-8.51%	-8.69%	-11.09%	-9.91%	-12.35%	-14.04%	-14.08%
390	2013	1,579,884.43	282,463.00	-17.83%	(281,713.00)	-17.83%	-21.36%	-8.51%	-7.86%	-9.92%	-11.93%	-10.58%	-14.36%	-14.24%
390	2014	206,359.29	329,510.00	-34.22%	(329,510.00)	-34.22%	-33.06%	-11.47%	-7.86%	-9.92%	-11.93%	-10.58%	-14.36%	-14.24%
390	2015	315,147.70	33,724.00	-10.45%	(32,918.00)	-10.45%	-68.50%	-30.65%	-30.47%	-11.44%	-10.71%	-12.44%	-14.36%	-14.33%
390	2016	880,521.55	427,806.00	-48.59%	(427,806.00)	-48.59%	-38.53%	-56.36%	-35.95%	-34.86%	-14.22%	-14.46%	-16.38%	-13.77%
390	2017	4,036,184.53	423,013.10	-10.48%	(423,013.10)	-10.48%	-17.30%	-16.89%	-22.31%	-21.30%	-22.03%	-14.88%	-13.85%	-15.06%
390	2018	897,834.85	212,335.35	-23.65%	(212,335.35)	-23.65%	-12.88%	-18.28%	-22.31%	-22.50%	-21.57%	-12.72%	-13.29%	-14.34%
390	2019	763,214.82	658,642.75	-86.43%	(658,642.75)	-86.43%	-52.50%	-22.73%	-26.19%	-29.37%	-29.37%	-27.46%	-17.00%	-16.42%
390	2020	5,120,986.43	15,000.00	-19.49%	(988,046.54)	-19.49%	-28.17%	-27.57%	-21.20%	-23.26%	-22.92%	-24.38%	-17.57%	-17.57%
390.1	1999	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2000	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2001	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2002	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2003	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2004	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2005	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2006	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2007	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2008	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2009	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2010	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2011	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2012	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2013	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2014	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2015	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2016	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2017	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2018	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2019	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2020	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
390.1	2021	0.00	0.00	0.00										

SoCalGas 2024 GRC Testimony Revision Log – November 2022

Exhibit	Witness	Page	Line or Table	Revision Detail
SCG-32-R	Dane A. Watson	DAW-1	Figure DW-1	Revised table