JEFF ATWATER
President of the Senate

STATE OF FLORIDA
OFFICE OF PUBLIC COUNSEL

LARRY CRETUL
*Speaker of the
House of Representatives*

J.R. Kelly
Public Counsel

09 SEP 16 PM 4:38
COMMISSION CLERK
RECEIVED-FPSC

September 16, 2009

Ms, Ann Cole, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Petition for increase in rates by Progress Energy Florida; Docket No. 090079-EI

Dear Ms Cole:

Enclosed for filing on behalf of the Office of Public Counsel are :

Kim Dismukes   LATE FILED DEPOSITION EXHIBITS
- Exhibit #2   Florida PSC Orders Reviewed
- Exhibit #3   ROE Materials Reviewed

Daniel Lawton   LATE FILED DEPOSITION EXHIBITS
- Exhibit #1   Agenda Transcript from 2002. Re: FPL
- Exhibit #2   List of 108 Depreciation Cases

Helmuth Schultz   LATE FILED DEPOSITION EXHIBITS
- Exhibit #1   Explanation of 72.19 on HWS-1, C-3, and $ 12,094,011
- Exhibit #2   2009 Hewitt Study

Jacob Pous   LATE FILED DEPOSITION EXHIBITS
- Exhibit #3   Quantification of Hours through September 1, 2009
- Exhibit #4 -   Determination of Straight – Line Remaining Life Depreciation Accruals Standard Practices U-4
- Exhibit #9 -   FPSC dockets and orders concluding amortization of Reserve imbalances over periods other than the remaining life
- Exhibit #10   Sample of Entities recommending longer life spans for combined cycle generating facilities

DOCUMENT NUMBER-DATE
09636 SEP 16 09
FPSC-COMMISSION CLERK

If you have any questions or concerns; please do not hesitate to contact me at (850) 488-9330. Thank you for your assistance in this matter.

Sincerely,

Charles J. Rehwinkel
Associate Public Counsel

cc: Parties of Record

<u>CERTIFICATE OF SERVICE</u>
<u>DOCKET NO. 090079-EI</u>

I HEREBY CERTIFY that a copy of the foregoing has been furnished by U.S. Mail on the 1th day of September 2009.

John T. Burnett
Progress Energy Service Company, LLC
P.O. Box 14042
St. Petersburg, FL 33733-4042

Mr. Paul Lewis, Jr.
Progress Energy Florida, Inc.
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Tallahassee, FL 32301-7740

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Office of Attorney General
The Capitol – PL01
Tallahassee, FL 32399-1050

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Florida Retail Federation
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Kay Davoodi, Director Utility Rates
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Marco Iannella
701 Milwaukee Ave.
Dunedin, FL 34698

Charles J. Rehwinkel
Associate Public Counsel

Witness Dismukes Late-Filed Deposition Exhibit 2

Orders Reviewed by Ms. Dismukes

97-0262

16213

990771

20604

22402

21847

09-0057

NC-2 Sub 814

NC-2 Sub 846

04-0713

07-0816

Case No. SC01-323

Docket No. 090079

Dismukes Late-Filed Deposition Exhibit 3

The ROE materials that Ms. Dismukes reviewed for this proceeding were produced by FPL in Docket No. 080677-EI in response to Staff Interrogatories 128 and 129. The responses are attached.

Florida Power & Light Company
Docket No. 080677-EI
Staff's Ninth Set of Interrogatories
Question No. 128
Attachment No. 1
Page 1 of 1

Attachment 128
Achieved ROE

Straight Electric Group	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average
Alabama Power Company	14.08%	13.93%	13.65%	12.15%	14.09%	14.03%	13.98%	14.03%	13.45%	13.96%	13.50%	13.71%
Appalachian Power Company	8.46%	10.47%	6.74%	14.36%	17.62%	20.95%	10.86%	7.41%	8.91%	2.63%	5.17%	9.47%
Arizona Public Service Company	12.92%	6.48%	14.46%	12.34%	9.23%	8.21%	8.94%	5.71%	8.41%	8.47%	7.86%	9.10%
Carolina Power & Light Company	13.54%	11.20%	16.16%	11.76%	13.95%	14.89%	15.01%	15.81%	13.48%	13.35%	12.42%	13.69%
Cleveland Electric Illuminating Company	16.35%	20.08%	19.06%	20.24%	11.41%	13.46%	12.76%	11.71%	20.84%	18.55%	17.74%	16.10%
Columbus Southern Power Company	16.63%	17.46%	13.31%	20.45%	21.37%	22.32%	15.61%	13.95%	17.57%	22.17%	19.04%	18.33%
Dayton Power and Light Company	13.32%	14.84%	29.91%	20.67%	21.14%	20.99%	19.79%	19.62%	19.69%	19.83%	19.66%	19.71%
Detroit Edison Company	11.90%	11.96%	11.04%	9.48%	16.78%	8.30%	5.04%	9.29%	10.30%	9.60%	9.31%	10.18%
Duke Energy Carolinas, LLC	15.36%	16.75%	17.66%	14.96%	6.92%	-9.62%	9.06%	11.10%	13.16%	10.10%	9.43%	9.56%
Duke Energy Indiana, Inc.	5.33%	11.10%	11.94%	12.53%	15.29%	8.17%	9.81%	10.18%	5.78%	9.90%	9.95%	9.85%
Entergy Arkansas, Inc.	10.29%	6.57%	12.02%	14.51%	11.03%	9.86%	10.72%	12.21%	12.08%	10.05%	3.37%	10.25%
Entergy Louisiana, LLC	15.46%	16.73%	13.15%	10.80%	14.86%	15.10%	12.35%	11.59%	10.44%	9.86%	9.80%	12.48%
Florida Power & Light Company	12.60%	12.04%	12.21%	12.30%	13.33%	13.58%	12.68%	12.31%	12.01%	11.92%	10.83%	12.35%
Florida Power Corporation	13.74%	14.17%	10.78%	15.31%	15.87%	13.88%	14.43%	10.02%	12.21%	10.56%	11.33%	12.69%
Georgia Power Company	15.23%	13.79%	13.18%	13.89%	13.94%	13.90%	13.47%	13.72%	13.30%	13.09%	13.38%	13.65%
Indiana Michigan Power Company	9.27%	3.43%	-16.65%	8.81%	7.26%	8.01%	12.21%	12.04%	9.40%	9.88%	9.19%	7.42%
Kansas City Power & Light	13.54%	9.47%	17.23%	16.08%	12.84%	13.69%	13.03%	12.47%	10.80%	10.59%	7.72%	12.01%
Kentucky Utilities Company	8.01%	9.20%	7.78%	8.42%	6.90%	10.19%	8.07%	5.98%	9.48%	8.39%	6.16%	8.01%
Nevada Power Company	9.68%	3.50%	-2.93%	4.55%	-20.46%	1.64%	7.26%	7.53%	10.34%	6.97%	5.76%	4.06%
NSTAR Electric Company	15.13%	22.33%	17.49%	15.71%	17.77%	16.75%	15.87%	10.51%	11.19%	11.83%	11.22%	13.83%
Ohio Edison Company	10.10%	11.34%	13.16%	13.11%	12.54%	12.57%	13.74%	12.55%	10.73%	12.51%	16.36%	12.46%
Ohio Power Company	15.31%	15.47%	7.09%	12.44%	17.84%	25.66%	14.26%	13.91%	11.38%	11.84%	9.60%	13.72%
Oklahoma Gas and Electric Company	18.78%	15.64%	15.34%	13.09%	13.95%	12.54%	10.13%	11.62%	11.29%	11.36%	7.84%	12.29%
PacifiCorp	-0.91%	2.30%	2.16%	-2.58%	11.32%	4.39%	7.57%	7.58%	7.02%	8.71%	7.70%	5.13%
Portland General Electric Company	13.76%	12.30%	12.83%	3.12%	5.85%	4.90%	7.19%	5.35%	5.80%	11.02%	6.43%	7.92%
Public Service Company of Oklahoma	15.95%	13.06%	14.04%	12.03%	10.28%	11.16%	7.09%	10.55%	6.30%	-3.76%	10.49%	9.32%
Southern California Edison Co.	15.45%	16.25%	-259.84%	76.54%	28.44%	21.40%	20.37%	15.19%	15.18%	12.17%	11.27%	16.19%
Virginia Electric and Power Company	5.85%	6.14%	15.04%	11.51%	17.85%	12.71%	8.85%	0.19%	8.86%	8.09%	13.77%	9.81%

Regional Group	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average
Florida Power & Light Company	12.60%	12.04%	12.21%	12.30%	13.33%	13.58%	12.68%	12.31%	12.01%	11.92%	10.83%	12.35%
Florida Power Corporation	13.74%	14.17%	10.78%	15.31%	15.87%	13.88%	14.43%	10.02%	12.21%	10.56%	11.33%	12.69%
Gulf Power Company	13.37%	12.76%	12.19%	11.59%	12.24%	12.33%	11.56%	12.61%	12.51%	12.03%	12.72%	12.34%
Tampa Electric Company	11.14%	10.92%	11.49%	10.92%	10.66%	7.47%	10.45%	10.61%	9.66%	9.87%	7.78%	9.98%

Large Utility Group	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Average
Dominion Resources, Inc.	10.08%	6.22%	6.23%	6.50%	13.34%	3.02%	10.93%	9.94%	10.69%	26.99%	18.20%	11.48%
DTE Energy Company	11.98%	12.36%	11.67%	7.23%	13.84%	9.85%	7.77%	9.31%	7.40%	16.59%	9.11%	10.53%
Entergy Corporation	11.05%	8.36%	10.15%	10.07%	7.95%	10.92%	11.25%	11.59%	13.82%	14.43%	15.32%	11.41%
Florida Power & Light Company	12.60%	12.04%	12.21%	12.30%	13.33%	13.58%	12.68%	12.31%	12.01%	11.92%	10.83%	12.35%
Progress Energy, Inc.	13.54%	11.20%	8.82%	9.03%	7.91%	10.51%	9.94%	8.67%	6.89%	6.00%	9.55%	8.87%
Southern Company	9.97%	13.86%	12.28%	15.81%	15.13%	15.28%	14.91%	14.88%	13.83%	14.39%	13.61%	13.95%
Xcel Energy, Inc.	11.38%	8.77%	9.47%	12.83%	-47.55%	12.05%	NA	9.51%	9.83%	9.16%	9.27%	5.14%

Source: SNL Interactive, 10-K

Notes:
ROEs were calculated using after-tax net income for investor-owned utilities divided by common equity.
NSTAR achieved ROEs for 1998-2004 include only Boston Edison Company.
Southern California Edison Co. 2000-2001 achieved ROEs were impacted by large counteracting debit and credits to operating expenses in these years.
Dayton Power and Light Company's achieved ROEs for 2000-2001 were adjusted to account for a restatement made in its 2003 10K which was not captured by SNL Interactive's data.
Florida Power & Light Company's achieved ROEs were calculated using surveillance report data.

Florida Power & Light Company
Docket No. 080677-EI
Staff's Ninth Set of Interrogatories
Question No. 129
Attachment No. 1
Page 1 of 1

Attachment 129
Authorized ROE

Straight Electric Group	State	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Alabama Power Company	Alabama	13.75	13.75	13.75	13.75	13.75	13.75	13.75	13.75	13.75	13.75	13.75
Appalachian Power Company	Virginia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA - 10.00	10.00 - 10.20
Appalachian Power Company	West Virginia	NA	NA	NA	NA	NA	NA	NA	NA	NA - 10.50	10.50	10.50
Arizona Public Service Company	Arizona	11.25	11.25	11.25	11.25	11.25	11.25	11.25	11.25 - 10.25	10.25	10.25 - 10.75	10.75
Carolina Power & Light Company	North Carolina	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carolina Power & Light Company	South Carolina	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cleveland Electric Illuminating Company	Ohio	12.59	12.59	12.59	12.59	12.59	12.59	12.59	12.59	12.59	12.59	12.59
Columbus Southern Power Company	Ohio	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50
Dayton Power and Light Company	Ohio	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00
Detroit Edison Company	Michigan	11.00 - NA	NA	NA	NA	NA	NA	NA - 11.00	11.00	11.00 - NA	NA	NA - 11.00
Duke Energy Carolinas, LLC	North Carolina	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50	12.50 - 11.00	11.00
Duke Energy Carolinas, LLC	South Carolina	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25
Duke Energy Indiana, Inc.	Indiana	11.00	11.00	11.00	11.00	11.00	11.00	11.00 - 10.50	10.50	10.50	10.50	10.50
Entergy Arkansas, Inc.	Arkansas	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00 - 9.90	9.90
Entergy Louisiana, LLC	Louisiana	NA-10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.5 - 10.25	10.25	10.25	10.25
Florida Power & Light Company	Florida	12.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Florida Power Corporation	Florida	12.00	12.00	12.00	12.00	12.00	NA	NA	NA	NA	NA	NA
Georgia Power Company	Georgia	12.25 - NA	NA	NA	NA - 12.50	12.50	12.50	12.5 - 11.25	11.25	11.25	11.25	11.25
Indiana Michigan Power Company	Indiana	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Indiana Michigan Power Company	Michigan	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00
Kansas City Power & Light	Kansas	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kansas City Power & Light	Missouri	NA -	NA	NA	NA	NA	NA	NA	NA	NA - 11.25	11.25-10.75	10.75
Kentucky Utilities Company	Kentucky	NA	NA	NA - 11.50	11.50	11.50	11.50	11.50 -	10.50	10.50	10.50	10.50
Nevada Power Company	Nevada	NA	NA	NA	NA	NA - 10.10	10.10	10.10 - 10.25	10.25	10.25	10.25 - 10.70	10.70
NSTAR Electric Company	Massachusetts	11.75	11.75	11.75	11.75	11.75	11.75	11.75	11.75 - NA	NA	NA	NA
Ohio Edison Company	Ohio	13.21	13.21	13.21	13.21	13.21	13.21	13.21	13.21	13.21	13.21	13.21
Ohio Power Company	Ohio	12.81	12.81	12.81	12.81	12.81	12.81	12.81	12.81	12.81	12.81	12.81
Oklahoma Gas and Electric Company	Arkansas	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA - 10.00	10.00
Oklahoma Gas and Electric Company	Oklahoma	NA	NA	NA	NA	NA - 11.55	11.55	11.55	11.55 - 10.75	10.75	10.75	10.75
PacifiCorp	Idaho	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA - 10.25	10.25
PacifiCorp	Oregon	NA	NA	NA	NA - 10.75	10.75	10.75 - 10.50	10.50	10.50 - 10.00	10.00	10.00	10.00
PacifiCorp	Utah	12.10	12.10 - 10.50	10.50 - 11.00	11.00	11.00	11.00 - 10.70	10.70	10.70 - 10.50	10.50 - 10.25	10.25	10.25
PacifiCorp	Washington	NA	NA	NA	NA	NA	NA	NA	NA	NA - 10.20	10.20	10.20 - NA
PacifiCorp	Wyoming	11.25	11.25	11.25	11.25 - 11.00	11.00	11.00 - 10.75	10.75	10.75	10.75 - NA	NA	NA - 10.25
Portland General Electric Company	Oregon	11.60	11.60	11.60	11.60 - 10.50	10.50	10.50	10.50	10.50	10.50	10.50 - 10.10	10.10
Public Service Company of Oklahoma	Oklahoma	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA - 10.00	10.00
Southern California Edison Company	California	NA	NA	NA	NA	NA	NA	NA - 11.60	11.60	11.60	11.60	11.60
Virginia Electric & Power Company	North Carolina	11.80	11.80	11.80	11.80	11.80	11.80	11.80	11.80 - NA	NA	NA	NA
Virginia Electric & Power Company	Virginia	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40	11.40

Regional Group	State	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Florida Power & Light Company	Florida	12.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Florida Power Corporation	Florida	12.00	12.00	12.00	12.00	12.00	NA	NA	NA	NA	NA	NA
Gulf Power Company	Florida	12.00	11.50	11.50	11.50	11.75	11.75	11.75	11.75	11.75	11.75	11.75
Tampa Electric Company	Florida	11.75	11.75	11.75	11.75	11.75	11.75	11.75	11.75	11.75	11.75	11.75

Source: SNL Interactive, Regulatory Research Associates, FPSC Commission Orders

Notes:
Allowed ROEs were not calculated for the Large Utility Group since these companies operate in different states and therefore have several allowed ROEs.
An allowed ROE for Florida Power & Light Company is not applicable from 1999 - 2008 due to a revenue sharing agreement with no authorized ROE.
An allowed ROE for Florida Power Corporation is not applicable from 2003- 2008 due to a revenue sharing agreement with no authorized ROE.

1
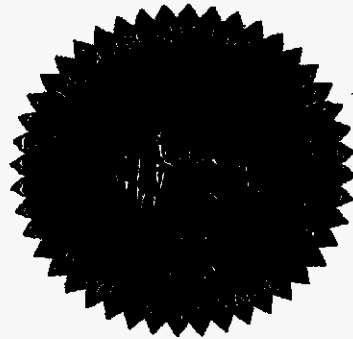
BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

2

3

DOCKET NO. 001148-EI

4

5   In the Matter of

6   REVIEW OF THE RETAIL RATES
     OF FLORIDA POWER & LIGHT
7   COMPANY.
                                          /
8

9

10   ELECTRONIC VERSIONS OF THIS TRANSCRIPT ARE
            A CONVENIENCE COPY ONLY AND ARE NOT
11   THE OFFICIAL TRANSCRIPT OF THE HEARING,
          THE .PDF VERSION INCLUDES PREFILED TESTIMONY.
12

13   PROCEEDINGS: SPECIAL AGENDA CONFERENCE

14   BEFORE: CHAIRMAN LILA A. JABER
                         COMMISSIONER J. TERRY DEASON
15   COMMISSIONER BRAULIO L. BAEZ
                         COMMISSIONER MICHAEL A. PALECKI
16   COMMISSIONER RUDOLPH "RUDY" BRADLEY

17   DATE: Friday, March 22, 2002

18   TIME: Commenced at 8:35 a.m.
                         Concluded at 10:05 a.m.
19
     PLACE: Betty Easley Conference Center
20   Room 148
                         4075 Esplanade Way
21   Tallahassee, Florida

22   REPORTED BY: LINDA BOLES, RPR
                         Official FPSC Reporter
23   (850) 413-6734

24

25

OPC-LFE-LAWTON-000001

1 APPEARANCES:

2   PAUL EVANSON, and R. WADE LITCHFIELD, Florida Power

3 & Light Company, 700 Universe Boulevard, Juno Beach, Florida

4 33408-0420, appearing on behalf of Florida Power & Light

5 Company.

6   KENNETH L. WISEMAN, Andrews & Kurth, L.L.P., 1701

7 Pennsylvania Avenue, N.W., Suite 300, Washington, D.C.

8 20006-5805, appearing on behalf of South Florida Hospital and

9 Health Care Association.

10   ROBERT SCHEFFEL WRIGHT, Landers & Parsons, P.A., 310

11 West College Avenue, Tallahassee, Florida 32302, appearing on

12 behalf of Lee County.

13   MICHAEL B. TWOMEY, Post Office Box 5256, Tallahassee,

14 Florida 32314-5256, appearing on behalf of Thomas and

15 Genevieve Twomey.

16   SEANN FRAZIER, Greenberg, Traurig, P.A., 101 East

17 College Avenue, Tallahassee, Florida 32302, appearing on

18 behalf of Florida Retail Federation.

19   VICKI GORDON KAUFMAN, McWhirter, Reeves, McGlothlin,

20 Davidson, Decker, Kaufman, Arnold and Steen, P.A., 117 South

21 Gadsden Street, Tallahassee, Florida 32301, appearing on

22 behalf of Florida Industrial Power Users Group.

23

24

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FLORIDA PUBLIC SERVICE COMMISSION

1 APPEARANCES CONTINUED:

2   JACK SHREVE, Public Counsel, Office of the Public

3 Counsel, c/o The Florida Legislature, 111 W. Madison Street,

4 Suite 812, Tallahassee, Florida 32399, appearing on behalf of

5 the Citizens of the State of Florida.

6   ED PASCHALL, 200 West College Avenue, Tallahassee,

7 Florida 32301, appearing on behalf of AARP.

8   ROBERT V. ELIAS, FPSC Division of Legal Services, 2540

9 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850,

10 appearing on behalf of the Commission Staff.

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FLORIDA PUBLIC SERVICE COMMISSION

P R O C E E D I N G S

1
2   CHAIRMAN JABER: Good morning. We're going to go
3   ahead and get started with the Agenda. This is a special
4   agenda. There's no notice to be read or anything like that.
5   MR. ELIAS: No.
6   CHAIRMAN JABER: I suppose it would be appropriate to
7   say that we are here to consider the proposed settlement that
8   was filed by FP&L, et al. We are going to allow some time for
9   parties to make presentations. I have to tell you that I'm
10   going to allow you up to five minutes. We'll start with
11   Mr. Evanson over here and move this way. Feel free to take up
12   to five minutes, but we will be brief in the presentations.
13   Go ahead, Mr. Evanson.
14   MR. LITCHFIELD: Commissioner Jaber, if it would be
15   acceptable to you, we'd defer initially to Mr. Shreve, if
16   that's all right.
17   CHAIRMAN JABER: Absolutely.
18   MR. LITCHFIELD: Thank you.
19   CHAIRMAN JABER: Good morning.
20   MR. SHREVE: Good morning. We do appreciate the
21   Commission taking this matter up as early as you have so that
22   we can get these benefits to the customers. And I will be
23   brief. We have several Intervenors here that would like to
24   speak this morning.
25   I think you've all seen the settlement and I'm sure

FLORIDA PUBLIC SERVICE COMMISSION

1   the Staff has thoroughly reviewed it. It calls for a

2   $250 million decrease in rates, which brings the total decrease

3   to $600 million.

4   In addition to that, we have some protections in

5   there allowed to Florida Power & Light in case there are

6   anymore downturns which have to be covered. We have protection

7   for the customers in the way of a rebate and a sharing program

8   such as we did last time with what we feel very comfortable

9   with on the sharing points. The last agreement has produced or

10 will have produced when the agreement is up in April over

11 $200 million in refunds. We feel this agreement will do just

12 as much, if not much more, as far as refunds go.

13 It's been a pleasure to work with all of the parties

14 in this case. And after Mr. Evanson completes his remarks, I

15 would like for the Commission, if we could, to give the parties

16 that are here an opportunity to speak and say what their

17 thoughts are on the agreement.

18 Here again, it's been a team effort. We've all

19 worked together on this and feel that we've produced a

20 settlement that is beneficial to the ratepayers in the State of

21 Florida. Thank you.

22 CHAIRMAN JABER: Thank you, Mr. Shreve. Mr. Evanson?

23 MR. EVANSON: Okay. Good morning. I'm delighted to

24 be here to seek your final order of approval of this settlement

25 agreement which I believe is in the best interest of all the

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1   parties, including especially the FPL customers.

2   I'd first like to express our appreciation to the

3   Commission for encouraging the settlement and to end this

4   protracted, costly rate review proceeding. And I'd also like

5   to express my appreciation to Jack Shreve, the Office of Public

6   Counsel, and all the Intervenors for their constructive

7   approach in negotiating this agreement with us, sometimes

8   negotiating it too well, perhaps.

9   Reaching this agreement, reaching this settlement

10   agreement came after a very thorough and complete review of

11   FPL's operations by your Staff as well as all the Intervenors

12   in the case.

13   FPL filed or produced over 1,300 pages of minimum

14   filing requirements, 4,100 responses to discovery, 750 pages of

15   direct testimony from 13 expert witnesses with over 100,000

16   pages of documents attached. So the record, the record

17   demonstrates this was a comprehensive and exhaustive review of

18   our operations.

19   Now, as Mr. Shreve said, this agreement provides for

20   an annual permanent base rate reduction of $250 million or

21   seven percent for all of our customers, and in addition a

22   midcourse fuel correction of $200 million. This will put FPL's

23   rates about 18 to 20 percent below national averages.

24   The new agreement is patterned after the existing

25   agreement, which was entered into in 1999 and which cut base

1 rates by $350 million. With the approval of this agreement,

2 base rates will then be $600 million below the level of only

3 three years ago. And, frankly, we know of no company that has

4 ever cut rates by that order of magnitude.

5   Like its predecessor, the new agreement also provides

6 for future revenue sharing. And under the existing agreement,

7 we estimate that over $200 million in special one-time refunds

8 to customers will be paid over the term of that agreement.

9   The agreement also continues the innovative

10 incentive-based regulatory structure championed by FPL, the

11 Office of Public Counsel and this Commission. The approach

12 offers FPL the opportunity to be rewarded to the extent that,

13 and really only to the extent that it improves operational

14 efficiencies and drives costs out of the system.

15   The FPL incentive during the term of the agreement

16 becomes the benefit to customers at the end of the agreement

17 through permanent rate cuts, which is exactly what this new

18 agreement is all about.

19   I believe the State of Florida and this Commission

20 are leading the nation in enlightened and progressive utility

21 regulation.

22   So in summary, I think this settlement is really a

23 win, win, win. I think it's a win for our customers, it's a

24 win for our shareholders and I think it's a win for the State

25 of Florida, and I urge your prompt, final order of approval of

1   it so that our customers may begin to enjoy these lower rates

2   beginning April 15th. Thank you very much.

3   CHAIRMAN JABER: Thank you, Mr. Evanson. Any other

4   parties to the settlement?

5   MR. SHREVE: Commissioner, if I might. We do have

6   several of the parties represented here, and I'll call on all

7   that I know that are represented here. And, once again, I

8   would like to point out that this is a docket that the

9   Commission opened. You elected to have this rate review. And

10 if the Commission had not opened it, then there's probably a

11 very good chance that we wouldn't be at the tables now with

12 this rate reduction. So I'd like to thank the Commission and

13 congratulate you on opening this docket. It is a different

14 situation than we normally have as far as a full-blown rate

15 case petitioned by the parties, but that's where we are.

16   I'd like to call, mention that we have had good

17 cooperation, excellent cooperation with everyone, and a few

18 people would like to make a few brief remarks. I'd like to

19 first call on Scheff Wright, if I could, who represents Lee

20 County. And this is one of the first times we've actually had

21 a county involved, and I think it's excellent that we have a

22 local government involved like this.

23   CHAIRMAN JABER: Mr. Wright.

24   MR. WRIGHT: Thank you, Madam Chairman. Scheff

25 Wright appearing on behalf of Lee County, Florida.

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1   Lee County supports the stipulation and settlement.
2 I'd like to echo the comments of Mr. Shreve and Mr. Evanson;
3 thank the Commission very much for undertaking to hear the
4 settlement this quickly so that we can get the benefits of the
5 settlement in place for all of FPL's customers as soon as
6 possible.
7   This settlement is fair, reasonable and appropriate.
8 It provides a good incentive-based regulatory structure. It's
9 specifically beneficial to Lee County government as well as to
10 all FPL's residential, commercial, industrial and institutional
11 customers in Lee County and everywhere else in FPL's service
12 territory. We support the settlement. We thank you for your
13 prompt consideration of the settlement and we urge you to
14 approve it. Thanks.
15   MR. SHREVE: Publix Super Market is represented by
16 Tom Cloud. Mr. Cloud was on the road and I think unable to be
17 here. I'm not sure if anyone else had come in for Tom, but he
18 was, worked hard on all aspects of this case and the
19 settlement.
20   Ron LaFace representing the Florida Retail Federation
21 has worked diligently with us on this, and Seann Frazier, I
22 know, is here from the firm. I think Mr. LaFace is tied up in
23 the Legislature probably since this is the last day of the
24 session. So if, Seann, if you had any comments you wanted to
25 make.

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1   MR. FRAZIER: We just want to echo the sentiments and

2 express our appreciation for this settlement. Thank you.

3   CHAIRMAN JABER: Thank you.

4   MR. SHREVE: Mr. McWhirter has worked diligently with

5 us in this, he is back in Tampa today, representing the Florida

6 Industrial Power Users Group. This is a group that we have in,

7 I guess, every single case and it's always good to have them in

8 here. They're real stalwart in their representation and work

9 in all of the cases. And although John is not here, Vicki

10 Kaufman is here representing FIPUG.

11   MS. KAUFMAN: Thank you, Madam Chairman, Mr. Shreve.

12 Vicki Gordon Kaufman on behalf of the Florida Industrial Power

13 Users Group. We echo all the comments that you have heard.

14   As Mr. Shreve said, FIPUG has a long history of

15 participation before this Commission in rate cases and other

16 matters that affect large consumers. We wish that all our

17 cases would have such a happy conclusion as this one.

18   We're very appreciative of the hard work of the

19 Commission Staff, the Commissioners and all the parties, and we

20 echo the comments that this is a settlement that's in the

21 interest of all the ratepayers of Florida. Not only does it

22 have tremendous benefits to all of the ratepayers, but it also

23 has resulted in the elimination of some protracted litigation

24 that has saved my clients and others as well a lot of costs.

25 We'd rather see that money coming back to the customers than

1 being expended on litigation before the Commission. So we

2 wholeheartedly support the settlement and also ask for your

3 final approval of it today. Thank you.

4   CHAIRMAN JABER: Ms. Kaufman, I just wanted you to

5 know that all your cases can conclude like this, if you want.

6 I couldn't let that go.

7   MR. SHREVE: Madam Chairman, one of our larger

8 clients we're going to have appear here today and make some

9 comments; Mr. Ed Paschall of AARP. Ed has come back from

10 Israel specifically for this hearing. I appreciate Ed coming

11 out. Ed always works with us, and we're happy to be able to

12 converse with them throughout these proceedings and have worked

13 with them and tried to cooperate with our, really with our

14 largest single consumer group in the state. And they've worked

15 with us on every case that we've had and it's always a

16 pleasure, and I appreciate Ed coming out.

17   CHAIRMAN JABER: Good morning.

18   MR. PASCHALL: Good morning, Madam Chairman, members

19 of the Commission. It's always a pleasure for us to have the

20 opportunity to come over here and speak to the Public Service

21 Commission, and especially in this case since it appears pretty

22 much that the deal has been done and it looks like a good deal

23 for everybody who is involved in it.

24   We would like to extend our compliments to all of the

25 parties who were involved in the deliberations that led to this

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1   negotiated settlement, which does appear to be a very good one

2   for, as was mentioned a few minutes ago, a win, win, win

3   situation, that it should be a great benefit to everybody,

4   especially to a lot of the older people whom we represent and

5   who can certainly use every dollar that they can save as far as

6   their utilities are concerned because that's one of their

7   highest costs when it comes to their continuing their existence

8   either in the summer or in the winter. So we think this is

9   good, a good agreement and we hope that you will speedily

10 approve it. Thank you very much.

11   CHAIRMAN JABER: Thank you, Mr. Paschall.

12   MR. SHREVE: And of the parties that signed on the

13 agreement, last and by far from least, Mr. Mike Twomey. We

14 were wondering about Mike, but he did receive his fee from his

15 mother and dad last night, as I understand it. And I'd like to

16 ask if Mike would, if he has any comments he'd like to make.

17 Mike has worked with us hard on this and he's a hard man to

18 please, but he's up here.

19   CHAIRMAN JABER: Are you saying you saved Mr. Twomey

20 for last, is that what you're saying?

21   MR. TWOMEY: Not the best for last necessarily.

22   Madam Chairman, Commissioners, Mike Twomey on behalf

23 of Thomas and Genevieve Twomey. I'd like to just briefly

24 recognize some folks probably or chronologically, I guess, in

25 the order of this case.

1   First, I'd like to commend your Staff for bringing

2 this case to you and urging the filing that brings us to this

3 point. They deserve a lot of credit for that.

4   Next, y'all deserve credit for accepting the

5 recommendation and ordering the filing in this case and

6 sticking to that throughout.

7   Next, of course, would be the parties and Staff for

8 engaging in the very thorough discovery they engaged in, which

9 gave us reams of data Mr. Evanson spoke to moments ago, which

10 should have given confidence to all the parties that this

11 settlement is in the best interest of the consumers and the

12 company and give y'all confidence and your Staff confidence as

13 well that we had all the information we needed to make a

14 reasonable judgment of what the reduction should be.

15   Next, of course, I'd like to compliment Jack Shreve

16 and the management of the company for engaging in these

17 settlement negotiations and the other parties that played a

18 role in that, but particularly Jack Shreve for doing such a

19 great job for the consumers and for the company, being as

20 reasonable as they have been.

21   As one advocate in this case, I think the settlement

22 is excellent for the consumers of Florida, I assume it's good

23 for the company as well, and would urge your acceptance of it.

24 Thanks.

25   CHAIRMAN JABER: Thank you, Mr. Twomey.

1   MR. SHREVE: Okay. Madam Chairman, I think it's good

2 that Mr. Twomey pointed out the one thing that this Commission

3 did want and that everyone wanted was all the information that

4 was needed to review, and I think that has been thoroughly

5 reviewed, particularly by your Staff and all the parties and

6 the discovery that we've had in it.

7   South Florida Hospital Association is also a party.

8 Mr. Wiseman or the association has not signed on the agreement,

9 but I'd like to call on him, if he has any remarks at this

10 time.

11   CHAIRMAN JABER: Give me your name one more time.

12   MR. WISEMAN: Kenneth Wiseman for the South Florida

13 Hospital Health Care Association.

14   First of all, I want to express our appreciation to

15 Jack Shreve for the hard work that he's done in trying to craft

16 what would be a universal settlement of any support in the

17 concept of attempting to reach a settlement. Unfortunately, we

18 cannot support the settlement in this case and I guess I'm

19 feeling a little bit lonely over here, given the other

20 comments.

21   But that being said, let me also say at the outset,

22 and I say this with no disrespect whatsoever to the Commission,

23 but I'm somewhat chagrined that we have but five minutes to

24 present our position because we thought at least that we'd be

25 given the opportunity to present a thorough analysis to show

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1 why this settlement should not be approved.

2 CHAIRMAN JABER: How much time do you need,

3 Mr. Wiseman?

4 MR. WISEMAN: I would need at least a half an hour.

5 CHAIRMAN JABER: Okay. Commissioners, what's your

6 pleasure? I mean, we've read the settlement. We really are

7 here to discuss the proposed settlement. It was a proceeding

8 that the Commission initiated. How about you do the best you

9 can with 15 minutes.

10 MR. WISEMAN: All right. I'll take a shot at that.

11 Thank you very much.

12 The first item that I'd like to point out that we

13 disagree with strenuously is the proposition that the

14 $250 million cost-of-service reduction is adequate. We believe

15 that if we were given the opportunity to present evidence in

16 this case, we could show that a cost-of-service reduction more

17 along the lines of a minimum of $500 million is what's needed

18 in this case, and we think the evidence would support that.

19 Now I don't have time, I don't believe, to go through

20 the items individually as I had intended. But we have

21 presented testimony concerning specific items that are included

22 in FPL's test year, projected test year cost-of-service that

23 are inappropriate. And when you compile those items together,

24 it amounts to, I believe it's approximately $475 million in

25 cost-of-service reductions.

1   On top of that, certain items that we can quantify at

2 this time, but which were, we intended to develop through

3 cross-examination and on brief, relate to FPL's requested

4 return on equity, which we believed the evidence that's in the

5 case right now, if you simply look at the evidence presented by

6 Dr. Olivera, FPL's witness on return on equity, would support a

7 100 to 200 basis point reduction in the midpoint return on

8 equity that he's proposed. And that produces an additional

9 $47 million reduction to FPL's test year cost-of-service.

10   On top of that, there are, there's an issue related

11 to the Sanford repowering project. Based upon the evidence

12 that is available to us right now, we know that there's a cost

13 overrun of approximately $100 million on that project. FPL's

14 ratepayers shouldn't be required to pay for a cost overrun

15 that's caused by FPL's inefficient process of constructing the

16 repowering project. That would produce another $13 million per

17 year reduction to the test year cost-of-service.

18   So when you add those items up together, and these

19 are items that we can quantify right now, we come up with

20 $535 million in cost-of-service reductions. And to be honest,

21 when we compare that to the $250 million reduction that's

22 called for in the settlement, the $250 million reduction does

23 not seem adequate and we don't believe that it's, it will

24 result in just and reasonable rates.

25   One particular item that I want to talk about in the

1 cost-of-service reductions relates to FPL's capital structure.

2 FPL has an extraordinarily thick equity component in its

3 capital structure. It's 64 percent. That's excessive for an

4 A-rated utility. If you look at Standard & Poor's, Standard &

5 Poor's suggests that an A-rated utility facing, having a risk

6 profile similar to FPL's should have a capital structure of

7 approximately 50 percent common equity. That's, in fact -- by

8 the way, the 50 percent common equity is directly consistent

9 with a comparison group that Mr., I'm sorry, Dr. Olivera used

10 in his testimony on behalf of FPL.

11   Standard & Poor's and Moody's have both said that FPL

12 Group is engaged in high-risk business activities by its

13 nonregulated affiliates. Those nonregulated affiliates are

14 involved in building independent power projects in other

15 states. And it's because of those unregulated activities in

16 the high business risk that FPL Group has to have a very thick

17 equity component in order to provide credit protection.

18   Now the effect of having that equity component, that

19 thick equity component is FPL's ratepayers are subsidizing the

20 activities of unregulated affiliates. And, again, those

21 activities are the construction of power plants in other states

22 that in no way serve the ratepayers in Florida.

23   The effect of that item alone is approximately

24 $173 million in the test year cost-of-service. So you take

25 that item alone and you're bumping right up against the

1   $250 million reduction that the settlement provides without

2   even getting into the other items that I would include in our

3   quantification of $500 million in cost-of-service reductions.

4   Now those are the items -- so far I've referred to

5   items that we can quantify, but I want to stress that there are

6   a lot of items that we can't quantify at this time. And,

7   frankly, that's because FPL has been stonewalling on discovery

8   in this case.

9   There's no question but that FPL has been engaged in

10 numerous transactions with unregulated business affiliates.

11 The law is clear that we have the right in discovery to obtain

12 information about those activities to find out whether they're

13 impacting rates or not.

14   In fact, as we're sitting here today, there's an

15 order from Commissioner Baez acting as presiding officer

16 requiring FPL to produce that information, but FPL hasn't done

17 it. Instead what it did is it filed what we regard as a

18 frivolous motion for reconsideration, which was a way of FPL

19 stonewalling and not providing the information to which we're

20 entitled.

21   Now what are those activities? First of all, there

22 is a -- FPL Group's 2000 annual report indicated that the FPL

23 Group owned interest in an entity called Adelphia

24 Communications Corp. It sold that at a $150 million gain. The

25 annual report also indicated that FPL Group redeemed interest

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1 in a cable TV partnership for a $108 million gain. We know for

2 sure that FPL's been engaged in activities at least with

3 Adelphia, and we were trying to find out whether it was engaged

4 in activities, business activities with this other organization

5 as well.

6   The business activities with Adelphia, FPL admits

7 that Adelphia uses FPL property in conducting Adelphia's

8 business. Now FPL does get rentals, rent revenues from

9 Adelphia, but the question is are those adequate or not? Are

10 they covering the costs or are FPL's ratepayers subsidizing

11 Adelphia's investors?

12   We'd like to get discovery about that, but we have

13 been denied discovery at this point because FPL just hasn't

14 turned it over, notwithstanding the order from Commissioner

15 Baez.

16   FPL also sold property in 2000 to an affiliate called

17 FiberNet. Now those assets, and FPL admits this, those assets,

18 it was a fiber optic network, originally were constructed to

19 support FPL's utility operations. Since the transfer to

20 FiberNet, FPL's rental revenues have dropped precipitously. I

21 think that creates a clear question: What is going on with

22 this affiliate? Again, we've sought information about this and

23 FPL has stonewalled. We haven't gotten the information.

24   There's another affiliate named Land Resource

25 Investment Company. FPL surveillance reports clearly disclose

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1 that millions of dollars of FPL property have been shed and
2 provided to that entity. But, again, we don't know what the
3 purpose of that is and whether that's resulting in a transfer
4 of ratepayer value over to the investors in the unregulated
5 business activities.

6   COMMISSIONER JABER: Mr. Wiseman, I just want to give
7 you a heads-up that you have just two or three minutes left.

8   MR. WISEMAN: All right. Thank you.

9   The point is that there's an inadequate record in
10 this proceeding. Neither the Commission nor really any members
11 that signed onto the stipulation have any knowledge of what the
12 impact is of the unregulated business activities on FPL's
13 rates.

14   Since I only have a couple of minutes, I'll cut to
15 the end. The bottom line is that we think there's inadequate
16 information about FPL's dealings with affiliates. We believe
17 that if you look at FPL's resource planning process, that also
18 is a matter that's not been disclosed on this record because
19 FPL stonewalled on providing discovery concerning it. And we
20 know at a minimum that it's resulted in a $100 million overrun
21 in at least one case.

22   FPL's rates haven't been examined on a comprehensive
23 basis in 18 years. And, again, I don't say this -- well, I say
24 this with no disrespect to the Commission, but that has got to
25 be a record for a regulated public utility in this, in this

1 country. .

2   It's time that FPL's rates be examined

3 comprehensively. What we would ask is that you defer ruling on

4 this stipulation; that what you do is you allow the discovery

5 process to be completed so that we obtain the information

6 concerning FPL's affiliate dealings and concerning its resource

7 planning process; that after obtaining that discovery, you hold

8 a hearing on the merits of the settlement proposal to find out

9 whether the settlement proposal, in fact, results in just and

10 reasonable rates. And that's a determination that we submit

11 can only be based upon a full and adequate administrative

12 record, and that's not something that the Commission has

13 currently before it. Thank you very much.

14   CHAIRMAN JABER: Thank you, Mr. Wiseman. Staff, I've.

15 got -- and, parties, I know you probably want to respond, but

16 let's allow you to respond after the Commissioners ask

17 questions as well. .

18   Staff, I have a series of questions. Some go to the

19 points raised by Mr. Wiseman, some go to your recommendation

20 and some really serve to clarify for me the terms of the

21 settlement.

22   I was trying to understand the revenue sharing

23 mechanism, first of all. And, Dale, I'm sorry to skip around

24 on you like this, but the revenue sharing mechanism, if I

25 understood it correctly, for the Year 2002, all revenues

1 between $3,580,000 and $3,740,000 would be shared one-third to

2 the shareholders and two-thirds to retail customers. Now

3 because we're, we've already started 2002, there's a cap, if I

4 understand it correctly, for the Year 2002 to 71.5 percent of

5 the revenues exceeding the cap.

6   MR. MAILHOT: That's correct.

7   CHAIRMAN JABER: For the Year 2003, revenues between

8 $3,680,000 and $3,840,000 are shared, again, one-third to

9 shareholders, two-thirds to the retail consumer.

10   MR. MAILHOT: That's right.

11   CHAIRMAN JABER: All -- and this is critical. I want

12 to make sure I'm doing this right. All revenue over $3,840,000

13 will be refunded entirely to the retail customer. Is that your

14 understanding of this settlement?

15   MR. MAILHOT: Yes.

16   CHAIRMAN JABER: For the Year 2004, all revenues

17 between $3,780,000 and $3,940,000 are shared, again, one-third

18 to the shareholders, two-thirds to the retail customers, and

19 all revenue over the $3,940,000 will be refunded entirely to

20 the consumers.

21   MR. MAILHOT: Yes.

22   CHAIRMAN JABER: In the Year 2005, which, if we

23 accept the settlement, will be the last year of the settlement;

24 right? That's all revenues between $3,880,000 and $4,040,000

25 will be shared one-third to shareholders and two-thirds to

1 retail consumers. All, all revenue over $4,040,000 will be

2 refunded entirely to the retail consumer.

3   MR. MAILHOT: That's correct. But all those amounts

4 are billions, yes.

5   CHAIRMAN JABER: All right. Now I want to

6 understand -- what did you say?

7   MR. MAILHOT: They're all billions.

8   CHAIRMAN JABER: Oh, thank you. See.

9   MR. LITCHFIELD: We appreciate that clarification

10 from Staff.

11   CHAIRMAN JABER: So do I. So do I. So do I.

12   Now I want to understand the cost-of-service study.

13 It's my understanding that the cost-of-service study filed by

14 FP&L shows that some groups are below parity and some are above

15 parity.

16   MS. KUMMER: Yes, ma'am.

17   CHAIRMAN JABER: For the hospital group, it's your

18 representation that the Hospital Association is currently below

19 parity.

20   MS. KUMMER: I would assume without first-hand

21 knowledge that they would be served under one of the general

22 service demand classes, and those are all below parity to some

23 degree. Yes, ma'am.

24   CHAIRMAN JABER: What do you mean by parity?

25   MS. KUMMER: Parity is a bit of a short-hand term in.

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1 cost-of-service. The purpose of a cost-of-service study is to
2 determine if a class's revenue recovers the costs necessary to
3 serve that class.

4   A benchmark we use is to compare the rate of return
5 within a class to the system rate of return. That's what we
6 call a parity ratio. If the system, if the class rate of
7 return is higher than the system rate of return, it's above
8 parity. If it's below the system rate of return, it's below
9 parity.

10   CHAIRMAN JABER: And through the rate case
11 proceeding, as I recall when we initiated the proceeding, one
12 of the discussions we had was let's make sure that the rate
13 classes are at parity, they're where they need to be in terms
14 of contribution levels. And had -- if this Commission decides
15 to go forward with the rate proceeding, what that means for the
16 Hospital Association is we take them to parity, which in
17 dollars, and, again, correct me if I'm wrong, but in dollars
18 that equates to a rate increase.

19   MS. KUMMER: In a theoretical sense, that's correct,
20 that we do try to bring classes as close to parity as possible
21 in a rate case. In a case where we have a revenue reduction
22 across the board, what would likely happen is they would get
23 less of an increase perhaps than other classes are above parity
24 if -- for classes which are already below parity. And that, in
25 fact, is what happened with the lighting classes, as stated in

1 the stipulation, that they did not get a decrease for those

2 classes because they're already so far below parity, we didn't

3 feel that it was necessary.

4   CHAIRMAN JABER: Now how does the stipulation address

5 that? If I understand the stipulation correctly, it actually

6 keeps the classes right where they are and allows the rate

7 reduction to be shared with all classes regardless of the fact

8 that they're not at parity.

9   MS. KUMMER: That's the proposal. It is an

10 across-the-board reduction. This is different from what has

11 been proposed and accepted in the other stipulations offered by

12 the company and the parties in that those were allocated on

13 energy. If you allocate the decrease on energy, more of the

14 decrease goes to large customers simply because they have more

15 kilowatt hours to allocate it on.

16   This method of allocating on a percentage across the

17 board does not help parity, but it does not make it worse the

18 way an energy allocation would tend to do.

19   CHAIRMAN JABER: Now from the recommendation, just a

20 couple of things I need to understand, on Page 4 you make the

21 comparison of a percentage reduction in base rates to, in the

22 fashion that the stipulation sets forth, to sort of a base rate

23 reduction based on an energy allocation. And Staff's

24 recommendation is the settlement actually does it better, that

25 an allocation based on energy usage is, is, and I'm reading

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1 into your sentence, is almost unfair.

2   MS. KUMMER: It tends --

3   CHAIRMAN JABER: Can you elaborate?

4   MS. KUMMER: That is correct. An energy allocation,

5 again, tends to give a larger percentage of the decrease to the

6 larger customer classes, the commercial classes which are

7 already below parity. The across-the-board increase gives

8 everybody a fairer shot at the pot of dollars to decrease

9 those, yes.

10   CHAIRMAN JABER: In the last stipulation was the rate

11 reduction done based on an energy allocation?

12   MS. KUMMER: Yes, ma'am. And we much prefer the

13 across-the-board.

14   CHAIRMAN JABER: On Page 5 of your recommendation,

15 when you're going through the individual items of the

16 stipulation, you make reference to the fact that Item 10

17 probably should be clarified.

18   MR. SLEMKEWICZ: Yes. That the -- that -- they can

19 take that credit of up to $125 million against depreciation

20 expense, but it would be on a calendar year basis. So for 2002

21 it would just be over the rest of the year and then it would be

22 on an annual calendar year basis for the rest of the agreement.

23   CHAIRMAN JABER: But the purpose of your statement,

24 is that something we, if we accept the settlement, we should

25 clarify in the order or should we seek clarification from the

1 parties? What is it you need to accomplish this clarification?

2 MR. SLEMKEWICZ: Well, we've been looking at the, you

3 know, the plan -- the existing plan ends this April. And we

4 just wanted to make sure that it did not keep going from April

5 to April on an annual basis for their proposal. And we just

6 wanted to make sure they're doing it on a calendar year basis

7 rather than April to April.

8 COMMISSIONER DEASON: Under your proposal or the way

9 that you view this, what would be the maximum amount of credit

10 which could be taken in the Year 2002?

11 MR. SLEMKEWICZ: They could take the entire

12 $125 million, if they decided to do that.

13 COMMISSIONER DEASON: But it would be from April to

14 December 31, and then after, every subsequent year it would be

15 a calendar year basis until the termination of the agreement,

16 which is in 2005.

17 MR. SLEMKEWICZ: That's correct.

18 COMMISSIONER DEASON: Okay. Is that the parties'

19 understanding as well?

20 MR. LITCHFIELD: That's correct.

21 CHAIRMAN JABER: Mr. Shreve?

22 MR. SHREVE: Yes.

23 CHAIRMAN JABER: All right. Finally, Staff, we heard

24 Mr. Wiseman's remarks. Do you have any concern that you didn't

25 have responses to your discovery or that there was stonewalling

1 on your discovery? The parties have represented that actually

2 there's adequate discovery and adequate information in the

3 case. I want to make sure that Staff agrees with that.

4   MR. MAILHOT: I believe the company has provided

5 responses to all of our questions so far.

6   CHAIRMAN JABER: And, Staff, if I've done my math

7 correctly and understand the revenue sharing mechanism, it's

8 actually a continuation of the revenue sharing plan that has

9 been existence, in existence that will expire April 15th of

10 this year. And do you have any idea of what that equates to in

11 dollars at the end of 2005? How big of a revenue refund, rate

12 refund are we talking about for the consumers of the State of

13 Florida at the end of 2005?

14   MR. MAILHOT: Beginning in April of 2002?

15   CHAIRMAN JABER: Yes.

16   MR. MAILHOT: Roughly, if you add in the midcourse

17 correction, it's probably to a billion dollars over three and

18 three-quarters years.

19   CHAIRMAN JABER: Dale, I can't hear you.

20   MR. MAILHOT: It's probably close to a billion

21 dollars over three and three-quarters years in total.

22   CHAIRMAN JABER: Commissioners, those are all the

23 questions I have right now. Any questions?

24   COMMISSIONER DEASON: Madam Chairman, I have just a

25 few questions concerning the agreement and Staff's

1 recommendation, more, I think, clarification than anything

2 else. If now is the appropriate time, I can ask those

3 questions.

4   CHAIRMAN JABER: Absolutely.

5   COMMISSIONER DEASON: Okay. I'll direct this at

6 Staff and then, if I need further amplification, I'll address

7 it to the parties. But I'm looking at the agreement itself,

8 which is Page 14 of the recommendation, and I'm looking at

9 Paragraph 12. And this is, this concerns amortization expense

10 that's recorded as an offset to the investment tax credit

11 interest synchronization adjustment.

12   I just need further understanding. Exactly what,

13 what does this accomplish and what's the reason for it?

14   MR. MAILHOT: Items 11 and 12 actually are very old

15 items from the company's last rate case, and they should have

16 been or they should be addressed at the time of the company's

17 next rate case. And this is really, it's somewhat of a cleanup

18 item for something that they've been recording for the last

19 probably 15 years at least.

20   COMMISSIONER DEASON: So this is something that if we

21 had actually taken this matter to hearing, this would have been

22 something that would have been accomplished, at least it would

23 have been Staff's recommendation to have accomplished this in

24 the final order?

25   MR. MAILHOT: That's correct.

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1   COMMISSIONER DEASON: Okay. The, the other question
2 I have, I guess this is probably more appropriately addressed
3 to the company, and it has to do with the ability of the
4 company to, to book credit amounts to the depreciation expense
5 up to $125 million per year. And we got, just got
6 clarification as to how that would work during the, during the
7 duration of this agreement.
8   I, I can understand the necessity for this. It gives
9 the company some, some flexibility. This agreement is over a
10 number of years and you cannot look into a crystal ball and
11 know exactly what's going to transpire during that period of
12 time. I guess it gives the company some ability to have some
13 consistency and stabilize earnings, if necessary.
14   I guess my question, I guess I'm looking for some
15 assurance from the company, is that this provision will not be
16 utilized unnecessarily. I think that I'm looking for a
17 commitment that the company will continue its, its stellar
18 track record in the past of being efficient in managing their
19 company effectively to the benefit of its stockholders and its
20 customers and that these amounts will not be utilized unless
21 necessary, and that's the kind of comfort I'm looking for. And
22 if someone can address that, I certainly would appreciate it.
23   MR. EVANSON: Well, Commissioner Deason, we certainly
24 intend to continue to operate the company in the same efficient
25 manner we have in the past and we certainly will be making

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1 every effort to improve operational efficiency and

2 productivity. And I think that's also inherent in the

3 agreement that's giving us that incentive to continue to do it,

4 number one.

5 Number two, on the depreciation side, I think it's

6 likely that we would avail ourselves of that provision probably

7 to the fullest extent probably in every year. And I say that

8 for not, not primarily because of the earnings impact, but also

9 because when we actually compare ourselves, our depreciation

10 rates to all of our various peers in the industry, it's very

11 clear that our rates are far higher than most. In fact, they

12 may be the highest in the industry in terms of the depreciation

13 rate that we're taking.

14 So we've done a lot to do that, we've changed a lot

15 of policies, and I think perhaps we've gone too far in that

16 area. We did, as you know, in the '90s under the depreciation,

17 special depreciation program approved by the Commission take

18 perhaps an additional billion dollars of special depreciation

19 secondly. And then when we go back and look at the remaining

20 book value of our assets, they are extremely low and extremely

21 low compared to industry averages. The fossil is about, I

22 think it's almost a fourth of what the industry average is; the

23 nuclear is about the same order of magnitude. So in a sense

24 we've significantly -- it appeared to me relative to industry

25 and also relative to market value, those assets have been very

1 highly depreciated.

2   And indeed, as you know, when the 2020 Study

3 Commission was looking at issues of transferring assets out of

4 rate base unlike almost every jurisdiction in the country that

5 had a concern about stranded costs, the issue that, that raised

6 in the Commission was really stranded benefit because the

7 assets are depreciated to that degree.

8   So, frankly, we think it's appropriate to look at

9 that depreciation and that, and that this reduction is probably

10 bringing depreciation to an appropriate level. And since we

11 will not be having, I believe, not having a full review of

12 depreciation by the Staff during that period, we think the

13 review probably would have shown that we were overdepreciating.

14   So it serves a few purposes, but I think it certainly

15 would serve the purpose of bringing our depreciation more

16 in-line. And I think after we've taken that, to the extent

17 that we take the full $125 million, we actually will be in-line

18 with peer groups.

19   So, first, I think we probably will be taking it but,

20 secondly and most importantly, it will have no impact

21 whatsoever on our intense effort to continue to improve

22 operations.

23   COMMISSIONER DEASON: When is, when is the next

24 depreciation study due to be filed?

25   MR. EVANSON: Depreciation study?

1   COMMISSIONER DEASON: Depreciation study, yes.

2   MR. EVANSON: I think it otherwise would have been

3 filed in 2003. And I believe, the attorneys can correct me, I

4 believe under this agreement that'll be postponed until --

5   CHAIRMAN JABER: Ms. Lee, you have the date?

6   MS. LEE: Yes. The company was granted a waiver to

7 file their depreciation study April 30th, 2003, unless there

8 was a settlement in the rate case, at which time it would come

9 forth that they would come forward.

10   CHAIRMAN JABER: Come forth when?

11   MS. LEE: That date would be relooked at, come

12 forward, it would be a lot sooner than the April 2003 date.

13   COMMISSIONER DEASON: So when do we anticipate that

14 the next study will be due?

15   MS. LEE: It is my understanding talking with the

16 company, they can file a study by October the 30th of this

17 year, recognizing the settlement goes through.

18   MR. ELIAS: And, Commissioners, if I might add, we

19 recognize that one of the explicit terms of the settlement is

20 that depreciation rates will not change during the term of the

21 settlement, but we still see validity to the study and getting

22 the information and keeping tabs on it on a regular basis.

23   COMMISSIONER DEASON: Well, I'm glad we're having

24 this discussion because it's clarifying to me the purpose of

25 this latitude which is given to the company that it's really

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1 not a cushion to be able to absorb earnings or unforeseen

2 circumstances. This is really an effort to get depreciation,

3 at least in the view of the company, to a level to where it

4 needs to be. That's what I understand the explanation. Am I

5 oversimplifying it, Mr. Evanson?

6   MR. EVANSON: Well, I think there are two aspects.

7 That's clearly one, and I think one that otherwise is

8 overlooked. But the second is certainly it helps, it does

9 cushion the earnings impact to the company on, from a

10 $250 million rate cut.

11   COMMISSIONER DEASON: I guess what I'm, I'm hopeful

12 that we can avoid, and it gives me some comfort in your

13 representation that this is really an effort to get

14 depreciation reserves, not the rates, the rates stay the same,

15 get the depreciation reserves in the long-term where they, they

16 need to be.

17   We know that if, if we underdepreciate or

18 overdepreciate, there has to be corrective measures taken after

19 the next study. And my effort, I mean, my concern is try -- I

20 want the depreciation reserves to be as accurate as possible.

21 I want to hopefully avoid though erratic changes in

22 depreciation rates. And I know that this agreement keeps rates

23 frozen, depreciation rates frozen during the entire period. I

24 would hope that after the conclusion of this settlement, if it

25 is approved, that we would not find ourselves in a situation

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1 where depreciation reserves are way out of balance from where

2 they should, theoretically should be. And you've given me the

3 indication that you think this is a step in the right direction

4 to get those, actually to get those, as a positive thing to get

5 the reserves where they should be.

6   MR. EVANSON: Right.

7   COMMISSIONER DEASON: I'm looking for some feedback

8 from Staff. Does Staff share that view or does Staff feel like

9 that it's just too unpredictable at this point to forecast that

10 far ahead as to where depreciation reserves should be?

11   MS. LEE: Commissioner, I think it's too early to

12 tell, as the story goes.

13   I am concerned with the company's statement that all

14 of the sudden their plant is, quote, overdepreciated. My

15 personal opinion is this reversal of depreciation expense, if

16 you will, is a cushion, a management of, to help them manage

17 earning. And it's interesting, at least to me, that the prior

18 stipulation where the company was recording additional

19 depreciation expense, and I think it was in the magnitude of up

20 to $100 million a year in discretionary amortization expense,

21 and the caveat was that that accelerated amount would not be

22 carried forward in the design of depreciation rates. Follow me

23 through, you're booking additional depreciation expense, which

24 would, if it was included in the reserve, would lower your

25 depreciation rate. That stipulation did not allow us to

1 include it in the depreciation rate design.

2   Now when it's going the other way, they're going to

3 credit the, the expense, they want that included in the

4 depreciation, depreciation rate design next time, which will

5 lower depreciation rates even further.

6   COMMISSIONER DEASON: We have -- under the previous

7 stipulation though we have accumulated some $170 million in

8 recognition of that additional, additional depreciation.

9   MS. LEE: Right.

10   COMMISSIONER DEASON: And that that's going to be the

11 first item which is going to be addressed in the flexibility of

12 the company to book $125 million per year; correct?

13   MS. LEE: Exactly. Essentially reversing that out.

14 Uh-huh.

15   COMMISSIONER DEASON: Okay.

16   CHAIRMAN JABER: Commissioners, any other questions?

17   COMMISSIONER BRADLEY: Yes, I have a question.

18   Item 13, and by no means am I encouraging an

19 increase, but I just need some explanation of Item 13. You

20 know, one of your service areas is Dade County, and I'm just

21 curious as to what the impact of Item 13 is going to be upon

22 your quality of service if, in fact, we have another no-name

23 storm come through South Florida. What are your plans to, to

24 deal with that, if we have another catastrophic event such as

25 what we had a couple of years ago?

1   MR. LITCHFIELD: We do have reserves. This is Wade

2   Litchfield on behalf of FPL. We do have a storm fund reserve

3   which would be used as well as insurance proceeds to finance

4   reconstruction of any portion of the system that happened to be

5   taken down by a major storm. We would hope that would be

6   sufficient.

7   To the extent that it wasn't and we needed additional

8   funds, we would make that request of the Commission at that

9   time. But that is our plan.

10   We had asked to increase the accrual in the reserve

11 in the storm fund, but as part of the give and take in the

12 course of reaching a settlement we had agreed to withdraw a

13 request in that regard. We feel, however, though that we have

14 the good faith of the Commission backing us, as well as. to

15 some extent, the reserves and the insurance proceeds to back us

16 in those instances.

17   COMMISSIONER BRADLEY: One other question.

18   CHAIRMAN JABER: Uh-huh. Go ahead.

19   COMMISSIONER BRADLEY: Now this is not going to

20 result in any layoffs within your labor force, is it? I'm

21 thinking about the crews that need to be available.

22   MR. LITCHFIELD: The agreement of the -- the

23 settlement agreement will not result in layoffs, is that your

24 question, Commissioner Bradley?

25   COMMISSIONER BRADLEY: Yes. Will it?

1   MR. LITCHFIELD: Will it?

2   COMMISSIONER BRADLEY: Yes.

3   MR. EVANSON: Well, I wouldn't say the settlement as

4 such would, but we continually and regularly look at improving

5 our operations and our productivity. And I'd say over the

6 whole decade of the '90s we have regularly perhaps made

7 reductions of one kind or another in personnel; some years

8 greater, some years not.

9   So this, this in and of itself doesn't change that,

10 although it certainly makes it more challenging to achieve what

11 people might consider satisfactory return because there will be

12 a lot of pressure on the company to try to make those

13 satisfactory returns. But we're not going to do it. We're not

14 going to jeopardize service in any way as a result of that.

15   COMMISSIONER BRADLEY: Okay.

16   CHAIRMAN JABER: Just to follow-up, just to drive

17 this point home, one of the things, frankly, I was impressed

18 with as I went to your service hearings in particular was the

19 amount of customers that came out in support of FP&L's service.

20 And only a handful in terms of -- you know, it's all relative,

21 I'm sure. But in terms of how many customers you serve, it was

22 just a handful of people that were not pleased with your

23 quality of service. And as I recall, those concerns were

24 immediately addressed by your staff, and there were a lot of

25 concerns with respect to the rate levels.

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1   But similar to Commissioner Deason, I guess I'm
2 looking for your assurance that if we accept this settlement at
3 the end of the discussion, that the good quality of service
4 that you do provide will not be jeopardized in any manner.
5   MR. EVANSON: That's absolutely so. And the
6 agreement that we're entering into is really very similar and
7 analogous to the agreement that we entered into three years
8 ago. And I think, as you noted, the quality of service has
9 actually improved significantly during that three-year period.
10 So our intention is clearly to try to continue that going
11 forward, and this will in no way, signing this, approving this
12 agreement would in no way jeopardize that.
13   CHAIRMAN JABER: Commissioners, any other questions?
14   COMMISSIONER PALECKI: I'd just like to ask a
15 follow-up question to Commissioner Bradley's inquiry, inquiry
16 regarding the storm damage reserve.
17   I recollect that this reserve fund was created after
18 Hurricane Andrew because it was impossible to get reasonable,
19 reasonably-priced insurance after that disaster.
20   Has that situation changed in Florida Power & Light's
21 territory and do you have a situation now where you can
22 purchase insurance at a more reasonable rate?
23   MR. EVANSON: The insurance has improved a little
24 bit. Certainly right after Hurricane Andrew you could not get
25 any insurance coverage at almost any reasonable price. It has

1 improved, but I think the, the economics is such that to the

2 extent you can reasonably build the fund, it's more economic to

3 do that than to purchase insurance. And what we've tried to do

4 is get a mix of the two because the insurance gives you a big

5 benefit day one, big coverage day one; whereas, the fund builds

6 up over time.

7   COMMISSIONER PALECKI: What is the level of the fund?

8   MR. EVANSON: So we don't, we still don't have

9 insurance more, the levels necessarily that we'd like or the

10 rates the way they are. I think now it's about $100 million of

11 insurance coverage. At the time of Hurricane Andrew it was

12 $350 million with a premium of about, I believe it was

13 $3 million, maybe even less. It was like a one percent. So

14 since then the percentage premiums have increased

15 significantly.

16   COMMISSIONER PALECKI: So your situation now is that

17 you're insured in the amount of $100 million?

18   MR. EVANSON: $100 million, $100 million at certain

19 levels.

20   COMMISSIONER PALECKI: And that's in addition --

21   MR. EVANSON: It's kind of complicated because there

22 are deductibles and then it goes in certain levels.

23   COMMISSIONER PALECKI: And that's in addition to the

24 storm fund?

25   MR. EVANSON: Yes.

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1   COMMISSIONER PALECKI: Thank you.

2   CHAIRMAN JABER: Commissioner Baez?

3   COMMISSIONER BAEZ: Just one follow-up on that

4 because this Section 13 of the -- is Section 13 creating a

5 right of recovery that didn't exist before? Does the

6 agreement, is the agreement offering you the ability to come

7 back and, and recover prudently incurred costs in excess of

8 whatever the storm reserve was that didn't exist before?

9   MR. EVANSON: Well, no, it doesn't change, I think,

10 what was there before. Actually what, what makes the most

11 economic sense, and I think what we came in and requested some

12 time ago from the Commission after Hurricane Andrew was, was an

13 agreement or a rule from the Commission that to the extent that

14 there were losses, significant losses from the storm, that we

15 would have the ability to recover them via a clause over a

16 three-to-five year period. That's probably -- that's more

17 economic, makes more economic sense, you might say, using that

18 word generally, than it is even to set up a fund.

19   But the Commission at that time said that that logic

20 made a lot of sense and, to the extent you are short, why don't

21 you come in and we'll talk about it then? And I think what

22 this is doing is continuing that same logic. So there's not a

23 change in my mind in the substance of where we were before that

24 provision.

25   COMMISSIONER BAEZ: Thank you.

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1   CHAIRMAN JABER: Commissioner Bradley?

2   COMMISSIONER BRADLEY: Yes. Just to, not to belabor

3 the point, but so then the Commission should assume then that

4 you have sufficient funds to cover a catastrophic event at this

5 time in this particular reserve fund?

6   MR. EVANSON: No. We, we have, we have what we think

7 is adequate for most occurrences. But I could tell you surely

8 if a storm like Hurricane Andrew hit Miami and came right up

9 the east coast through Palm Beach, there would not be nearly

10 enough assets in that fund in insurance and it would be a

11 significant impact to the company, and there's no doubt I would

12 be here before you asking for some kind of special relief on it

13 because you could be talking about billions of dollars in that

14 case.

15   COMMISSIONER BRADLEY: Okay.

16   CHAIRMAN JABER: Mr. Shreve, we've had some

17 discussion this morning. Is there anything that you've heard

18 this morning that changes your opinion or your involvement in

19 this settlement being, in your opinion, a good settlement?

20   MR. SHREVE: No, Commissioner, there's not. And I do

21 have a couple of comments, if I may.

22   I don't really have any argument or disagreement with

23 Mr. Wiseman's statements on the issues that he made. As you

24 know, we come in with what we consider a strong case and put

25 forth every issue before this Commission that we feel is

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1 justified and credible. I will have to say we have not always

2 won on the issues that we have, even though they're totally

3 justified, and we always intend to put on that strong case,

4 knowing we won't necessarily win on every issue and certainly

5 the company will not win on every issue. So we take that into

6 consideration.

7 Our case actually issue by issue would have called

8 for larger cuts in some issues than Mr. Wiseman's would, and I

9 think he did a good job in putting those issues together.

10 Some of the parties filed for less of a rate

11 reduction than we have in the settlement. So I think you have

12 to take it in perspective. If we could get some type of

13 assurance from the Commission that we could have our way on all

14 the issues, you'd be surprised what we'd have.

15 CHAIRMAN JABER: We'll see what we can do.

16 MR. SHREVE: But we don't have that assurance.

17 CHAIRMAN JABER: We'll see what we can do for you.

18 MR. SHREVE: Well, I appreciate that, and y'all have

19 done well. You've provided us an opportunity here to file and

20 get the discovery. And on the discovery, we, of course, have

21 had some arguments with Florida Power & Light, as we do with

22 all the utilities on the discovery, sometimes they're things

23 that we think we might be entitled to that they might disagree

24 and we come to you and have those straightened out. And I

25 think we have, we've certainly had arguments in this case. I

1 think we've availed ourselves of the procedures and done well

2 and had good cooperation with some disagreement on what we

3 should have.

4 Back to the point about the issues. We understand

5 that and we'll always continue to put forth the strongest

6 credible issues we can.

7 The Commission is not, does not lose any authority in

8 this. As you know, and the parties have discussed this, we do

9 not take away any of your authority to bring Florida Power &

10 Light back, if you deem to at some time in the future, just

11 like you did this last time. And Mr. Wiseman may have done the

12 wise thing -- that's a bad pun -- the correct thing here. I

13 mean, the other parties are bound by this that have signed on

14 the stipulation. Mr. Wiseman has not, so the Hospital

15 Association, I think if they decided they wanted to pursue

16 something in addition at a later time, they could. I don't

17 think they're bound in some ways the same way the other parties

18 are.

19 Just to go into a little of the logic or background

20 of this agreement and possibly some other agreements. And, you

21 know, we've had quite a few stipulations that have come out. I

22 guess the first really -- now we started having stipulations

23 with some refunds in cases before basically on overearnings.

24 Then we moved into really an incentive-type stipulation with

25 Bell was the first really large one where we had a $300 million

1 rate cut with refunds that amounted to over, over $300 million

2 during the four-year term of that agreement.

3   We then tailored things differently with Florida

4 Power & Light and with Gulf in the last one because I think

5 using the revenue as a measurement rather than ROE, it puts the

6 customers in a position to benefit from the funds while putting

7 the company, of revenues, while putting the company in a

8 position to go ahead and take advantage of whatever

9 efficiencies that they can. And even though they do that,

10 where in the past we might have had an argument about ROE, we

11 don't have that argument because we're dealing with revenues.

12   Some of the reasons that we're able to get the

13 decrease in the last case was because of the write down of the

14 assets which you had going on for several years. We were able

15 to take advantage of that and that's the reason we were able, a

16 large part of the reason we were able to get the decreases we

17 were last time.

18   I think that the settlement last time where we

19 received all the benefits on a revenue basis put the company in

20 a position to better manage, to be more efficient, while not

21 taking away any of the service oversight that you have, they

22 still have to tow the mark on that and everyone expects that,

23 but they had to be more efficient, cut costs. And by tailoring

24 the agreement the way we did, we now are able to take advantage

25 again at this point of those same efficiencies that were caused

1 by the last agreement. And I would look forward to this

2 happening in the future.

3 The Commission does not have the authority to order

4 refunds except in a situation where we have an interim rate

5 decrease, we come in and put the order in and get the stake in

6 the grounds. If you could come in here and order that the

7 company refund everything above the top of the range, I would

8 accept it in a minute and it would be great, but you don't have

9 that.

10 In this situation we have what I consider a very

11 large justified rate cut. The company's filing after 9/11,

12 which really impacted this case and Florida Power's case, we

13 had to take that into consideration because revenues dropped

14 and their estimates dropped by over $100 million. We had to

15 take that into consideration.

16 Now what we've done is got a large increase here with

17 a safety net for the customers because if the, if we've left

18 money on the table, those sales come back, then we are going to

19 share in that two-thirds or a certain part of it and then get

20 everything back above that. This is one reason to tailor

21 agreements because you don't have that authority, and we can do

22 that, give the company some comfort and certainly give the

23 customers and all of our parties some comfort there. And

24 that's one of the reasons that I feel to go forward with a

25 settlement because we're in a position to go ahead and work

1 things both ways, where in your situation you could come out,

2 have a rate cut ordered, we'd have a bottom of the range, top

3 of the range, and the only way we'd get any money out of them

4 later is to bring them back in, bring them down to the top of

5 the range with another rate case. This way we're going to be

6 able to participate in that so that the rate cut is not the end

7 of it. If it is the end of it, then it means we probably got

8 as much as we possibly could have gotten under the

9 circumstances and they didn't bring anything else, didn't have

10 anything else fall out on the table and we didn't leave

11 anything there.

12　　　　CHAIRMAN JABER: Mr. Shreve, also just on that point,

13 in terms of the rate case expense to go forward with a

14 proceeding, what was the company asking for in terms of

15 recovery for rate case expense? Do you recall?

16　　　　MR. SHREVE: I don't recall and it had not been

17 completed, as I understand it.

18　　　　CHAIRMAN JABER: FP&L, can you give me a number?

19　　　　MR. SHREVE: $10 to $11 million, which --

20　　　　CHAIRMAN JABER: $10 to $11 million in rate case

21 expense.

22　　　　MR. SHREVE: Yes. Right.

23　　　　CHAIRMAN JABER: So in terms of going forward with a

24 proceeding, it's the retail customers that pay the cost of

25 litigation.

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1   MR. SHREVE: That's correct in all of the cases, not

2 just the power case. But that's right. And that would have

3 continued to increase. And, of course, that's something the

4 company is going to have to eat at this point.

5   So like I say, I understand Mr. Wiseman's positions.

6 We had positions that would be comparable, not less in any

7 situation. Some of the other parties accepted our position,

8 some of the other parties came in actually with lower than we

9 have in the final settlement.

10   So I'm very pleased with the settlement. I

11 understand where Mr. Wiseman is coming from. I don't think he

12 is precluded from bringing any actions in the future, as

13 certainly the Public Service Commission is not precluded and

14 you can do whatever you feel is necessary at any time. And we

15 feel -- I feel that this is a good result.

16   CHAIRMAN JABER: Staff, I want to ask you the same

17 question I asked Mr. Shreve. Is there anything you heard today

18 that changes your recommendation?

19   MR. MAILHOT: No, there's not.

20   CHAIRMAN JABER: Okay. Thank you. Commissioner

21 Bradley, did you have a question?

22   COMMISSIONER BRADLEY: I'd like to make a motion.

23   CHAIRMAN JABER: Okay. Let me set the stage for the

24 motion, if you don't mind.

25   COMMISSIONER BRADLEY: Okay.

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1   CHAIRMAN JABER: Commissioners, I don't know what the

2   motion will be and I certainly don't know what the vote will be

3   at the end of the day, but I want to bring us back to how we

4   started this proceeding and have that be part of your

5   consideration and just sort of make a bare statement before we

6   conclude.

7   When we initiated the proceeding, I want to take you

8   back to what the circumstances had been, there was an interim

9   report coming out of the Energy Commission that made certain

10   recommendations and asked the Commission certain questions

11   that, frankly, we could not answer because it had been a number

12   of years since anyone looked at FPL's base rates and their

13   earnings levels. That's one factor.

14   There was the discussion of a Transco, original

15   transmission organization, but a broader RTO, and we couldn't

16   with comfort understand what the cost of transmission would be

17   and the impact on the retail ratepayers. There was the

18   discussion of a merger that subsequently failed, but we wanted

19   to understand where the efficiencies were to be gained by the

20   retail ratepayers and what benefits should be flowed through to

21   the retail ratepayers.

22   And finally I know as one Commissioner I had heard

23   many, many complaints and received many, many E-mails related

24   to what FP&L's rates were. And you may recall, we just felt

25   like that had gone on too long and it was time for the PSC to

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1 take action and we did. And we set the course of initiating a

2 proceeding and our Staff has done a tremendous job in gathering

3 the data and giving me personally a comfort level that we have

4 thoroughly reviewed where the base rates are now and are

5 comfortable with the settlement.

6 The merger has failed and I know that we've looked at

7 where those efficiencies are and where the benefits to the

8 retail ratepayers belong and how incentive-based approaches can

9 accomplish what we were trying to accomplish from day one.

10 That's sort of the historical perspective that I've had to come

11 back to in analyzing this settlement. It's easy to get excited

12 about a settlement because it closes out a proceeding. It's

13 very, very easy for me to get excited about a good settlement

14 that I know benefits Florida citizens at the end of the day

15 because not only does it put money back in their pocket,

16 especially after September 11th and tough economic times, but

17 it gives us comfort in answering their questions, it gives us

18 comfort in saying to them quality of service at FP&L is good,

19 and it gives me comfort in saying all the parties, but for one,

20 and that's okay, have come to the table, the consumer advocates

21 have come to the table and represented that this is a good

22 settlement on the behalf of the citizens of the State of

23 Florida.

24 Commissioner, you have a motion?

25 COMMISSIONER DEASON: Madam Chairman, if you could

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1 indulge me for just a moment before the motion and, please,
2 Commissioner Bradley, if I may.

3 I'm not going to make a motion but I just want to say
4 something. And I, I think that -- and like you, Madam
5 Chairman, I don't know what the motion is going to be or what
6 the vote is going to be at the end of today. But I think
7 that -- I think this Commission -- to some extent, the
8 Commission and obviously the Staff should recognize that in
9 order for a settlement to be brought forward, regardless of
10 whether this is voted up or down, but for a settlement to be
11 brought forward, I think it speaks volumes on the effectiveness
12 of regulation in this state because I do not think that unless
13 regulation is strong and effective, yet fair, you've got to
14 have those, that's a prerequisite for the parties to feel
15 comfortable coming forward with even proposing a stipulation.
16 And if this Commission was predisposed to favor one side or
17 another, I don't think we would ever see a settlement. We'd
18 always be in a hearing mode and we'd be making decisions that
19 way. And that's not a bad thing, but I think settlements offer
20 a lot. I think they offer parties the ability to be
21 innovative, look at things in a different light and provide
22 flexibilities that in a very strict regulatory role sometimes
23 we're prohibited from doing.
24 So I think the fact that the parties have brought
25 forth a settlement is a very positive thing. I think it speaks

1 well of the regulation that exists in this state and has

2 existed for a period of time, for a long period of time. I

3 think this Commission has been cognizant of the changes that

4 have been happening in the industry. We have tried to be

5 forward looking.

6   Florida Power & Light approached this Commission

7 years ago with the idea that there were a number of assets on

8 their books which really did not belong there as we approached

9 a more competitive environment, and I think this Commission

10 took action to try to recognize that and eliminate those

11 regulatory assets off the books. We also looked at their,

12 their depreciation levels and determined that the amount of

13 depreciation and the reserves needed to be looked at and to be

14 more reflective of companies that may be entering into a

15 competitive environment.

16   To some extent I'm comforted by the fact that

17 apparently we've reached our goals because the company now is

18 saying that, if anything, they may be in an overly depreciated

19 state, and I guess that's where the flexibility comes in to, to

20 address that.

21   I think Mr. Shreve has indicated that we certainly

22 retain our full ability to, to maintain our jurisdiction over

23 the quality of service of this company. And I, I recognize

24 the, the improvements that have been made, that Mr. Evanson

25 identified, and that we as a Commission, I think, would expect

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1   that that high quality of service continue. And I think we've

2   gotten an indication from the management that it is their

3   desire to not only maintain but to constantly strive to improve

4   the quality of service that's provided to their customers.

5   So I, I also want to reiterate something that you

6   said, Madam Chairman, and it's something that is identified in

7   the, in the "whereases" to the stipulation, and that is the

8   fact that there has been a full set of minimum filing

9   requirements filed in this proceeding, there has been

10   comprehensive testimony filed, there's been extensive

11   discovery. I think that this, if this settlement is approved,

12   that it is consistent with the idea that we have conducted a

13   thorough rate review for this company. And I think it would be

14   unfair to say that this Commission has not conducted a thorough

15   rate review for this company because we would have. I think

16   that all of the information is there.

17   There's one other thing that I would like to mention,

18   too, and that is that parties, when they present their, their

19   positions to the Commission, I think that they, they take firm

20   positions and they do a very credible job advocating for their

21   particular clients and their positions, but it's advocacy. And

22   I don't think anyone really fully expects that when they file

23   testimony, that they're going to win on 100 percent of every

24   position that they filed. And that goes for intervenors as

25   well as the company. And I think that what we as a Commission

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1   need to do, we need to balance what we have here in front of

2   us, the certainty that it brings and the immediate benefits

3   that it brings with the uncertainty that may be the result of a

4   full, a full hearing. So those are my comments.

5   CHAIRMAN JABER: I think we better take statements

6   before we take up the motion. So, Commissioner Baez, let me

7   defer to you for the next statement. But let me also recognize

8   that you are the prehearing officer on this case and, absent

9   your leadership, not to take away from the efforts of the

10 parties, the tremendous efforts of all the parties, but if it

11 wasn't for your leadership in bringing this case forward in the

12 time scheduling that you have and with the insistence that you

13 have that the issues be clearly defined and that all parties

14 have an opportunity to present their prefiled testimony in the

15 fashion that they did, I don't think we would have gotten that

16 far. So I'd take an opportunity to commend you and also

17 recognize you for comments.

18 COMMISSIONER BAEZ: Thank you, Madam Chairman. On

19 time and under budget, I guess.

20 CHAIRMAN JABER: Overworked and underpaid.

21 COMMISSIONER BAEZ: Overworked and underpaid. We

22 don't even have to talk about that.

23 You know, last night I was thinking about, you know,

24 how all this was going to happen and what I might have to say

25 about it. And I think when we opened the docket, I guess it

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1 was back in July, June or July, I, I thought I might have

2 detected a tinge of nostalgia over the opening of some kind of

3 rate review. And I realized that that was just a cold chill

4 that -- I think back about Scrooge, you know, the ghosts of

5 rate cases past and so on.

6 　　　　Going back to something that Commissioner Deason had

7 said, which I think really expresses how I feel about this, I

8 think, you know, he makes the point that we do have a complete

9 record, and I think that in and of itself sort of expresses

10 what, what kind of role this Commission, this new Commission,

11 as the Chairman likes to say, has tried to carve out for

12 itself. And I think that's, that's a shining example of it.

13 　　　　And at this point I want to compliment the Staff.

14 I'm not given to do this, I'm not given to doing this publicly,

15 but I have a lot of residual guilt, so I want to, I want to say

16 it out loud.

17 　　　　Y'all have been terrific with this. Whatever nice

18 things the Chairman said about me I owe all to you because

19 you've kind of, you've always been there to answer my questions

20 and, and to tell me, tell me your, your reason, thoughts on, on

21 certain issues, and I think that in large part has been a

22 reason why this thing, you know, this, we've gotten to this

23 point today.

24 　　　　Again, going back to what Commissioner Deason said,

25 we don't get negotiated agreements if we don't have complete

1 records, if our Staff and the Commission hasn't sought out to

2 let's lay the issues bare and let's give everyone a, a

3 well-leveraged position to negotiate with. I think that's, I

4 think that's crucial to this, to this part. And what it really

5 all adds up to is a light touch of, of regulation, and I

6 commend the Staff and I commend the rest of the Commissioners

7 for that as well.

8 Let's not forget this lesson. Let's not forget this

9 feeling, because I think it can do us all some good. This is

10 the way, certainly from my perspective this is the way that I

11 would like things to proceed. And obviously nothing --

12 everything didn't go perfectly and there's always some, some

13 aspects of processes and aspects of dockets and how, how the

14 parties work together that we can always look to improve, but I

15 think we can all be proud of ourselves to this result. And I

16 guess everybody has been disclaiming the result of a vote and

17 so on, and I'll join them in that as well. But I think the

18 fact that we have a product that certainly a majority of the

19 participants have stood up and said they're proud of, that they

20 think is a good result certainly comforts me.

21 For one, I know how hard Mr. Shreve goes at it, so,

22 so the fact that, that his -- simply put, his opinion means a

23 lot on this because he does such a good job of representing the

24 ratepayers. And certainly the company coming forward in a

25 reasonable manner and also endorsing this agreement gives great

1   comfort as well. And I'd like to get a motion on the floor to

2   join. I want to thank you all.

3   CHAIRMAN JABER: I think Commissioner Palecki wanted

4   to make a statement.

5   COMMISSIONER PALECKI: I have just a very brief

6   statement. First, I'd like to thank all of the parties and our

7   Staff for the hard work that they've done in this docket. This

8   has been a very thorough, comprehensive and exhaustive review

9   of Florida Power & Light's operations. And I believe as a

10   result of the thoroughness of the discovery that was done in

11   this docket the parties were able to negotiate from a position

12   of strength. And I believe that's why we're here today with

13   what I think is a very favorable settlement.

14   I'd like to reiterate something that Chairman Jaber

15   pointed out earlier. We went to seven customer service

16   hearings in seven different communities and heard from the

17   customers of Florida Power & Light in those communities, and we

18   heard very few negative comments. Most customers who attended

19   those customer service hearings testified as to the high

20   quality of service they were receiving from Florida Power &

21   Light. I know that what we heard at the customer service

22   hearings is also borne out in the level of customer complaints

23   that we receive from Florida Power & Light. They have been

24   very low. And this is something that hasn't always been the

25   case. Five, seven years ago the quality of service was not

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1 what we see today, and Florida Power & Light is to be commended

2 for showing tremendous improvements in the quality of service

3 in their territory. I know our own data that we collect from

4 the utility shows that the level of outages and interruptions

5 to Florida Power & Light's customers have decreased over the

6 last five years.

7 I believe that Florida Power & Light has shown that

8 they are an efficient, well-run company providing low cost,

9 high quality service, and I believe that the ratepayers of the

10 State of Florida will benefit from this settlement.

11 CHAIRMAN JABER: Thank you, Commissioner Palecki.

12 Commissioner Bradley, we're going to let you make the

13 motion. I hope you make the right one.

14 MR. LITCHFIELD: Madam Chairman, if I might before

15 that happens.

16 CHAIRMAN JABER: Go ahead, Mr. Litchfield.

17 MR. LITCHFIELD: For purposes of clarification, we

18 have two requests before the Commission today. One, to ask

19 that you accept and approve the, the stipulation and settlement

20 agreement, and the other, to implement the midcourse correction

21 in the fuel adjustment clause.

22 CHAIRMAN JABER: Right. Those are Issue 1 and

23 Issue 2 respectively, if I'm not mistaken. Yes.

24 MR. LITCHFIELD: Yes. Thank you.

25 CHAIRMAN JABER: We're voting out the recommendation.

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1   Commissioner Palecki, would you like to make a motion on each
2   issue or do you want to do it in one?

3   COMMISSIONER DEASON: Commissioner Bradley.

4   CHAIRMAN JABER: What did I say?

5   COMMISSIONER DEASON: Palecki.

6   CHAIRMAN JABER: Okay. Commissioner Bradley, do you
7   want to make a motion on everything?

8   COMMISSIONER BRADLEY: I'd like to make a motion on
9   everything in block.

10   But, first of all, let me say this, with all due
11 respect to the Florida Hospital Association, it's very unusual
12 to have nine parties come together and to have everyone agree.
13 It's exceptional when you have eight of nine agree to the
14 proposed stipulation and agreement and to come in here today
15 and to be willing to sign that document.

16   Having served in the Florida Legislature for many
17 years and having dealt with many issues that were very, very
18 contentious and in some instances debated for long periods of
19 time, I grew to have a vast amount of respect for Mr. Paschall
20 and, and Mike Twomey. And believe you me, if they agree to the
21 settlement, it must be good for, for the ratepayers and the
22 consumers of Florida because I don't think I've ever had them
23 agree to, to anything that I've listened to debate about
24 because they were dead set against some things that were
25 involved in the process and they let it be known. So that in

1 itself sends a strong message to me.

2 Mr. Shreve, I can tell you that your reputation

3 preceded my first meeting with you and me getting acquainted

4 with you. You have a reputation for working to ensure that the

5 ratepayers of Florida get a fair shake in every proceeding.

6 That's, these -- just to have these three people here

7 today saying that this is a good agreement or a good situation

8 for the ratepayers of Florida sends a strong message to me and

9 hopefully it sends the same message to my counterparts on this

10 Commission.

11 Therefore, what I would like to do is this. I would

12 like to support Staff's recommendation, and that is to have the

13 Commission enter a final order today in block taking in both

14 issues. And I would urge my fellow Commissioners to vote with

15 me to, to, in support of that final order.

16 CHAIRMAN JABER: Thank you, Commissioner Bradley. We

17 have a motion to accept Staff's recommendation to approve the

18 proposed stipulation and settlement in Issue 1, and a motion to

19 accept Staff's recommendation to approve FP&L's petition for

20 adjustment to its fuel adjustment factors as contained in Issue

21 2, and a motion to close this docket by final agency action in

22 Issue 3. Need a second.

23 COMMISSIONER PALECKI: I would second the motion.

24 CHAIRMAN JABER: The motion and a second. All those

25 in favor, say aye.

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1   (Simultaneous affirmative vote.)

2   CHAIRMAN JABER: Show Item 12A, Staff, approved

3   unanimously. That concludes this agenda conference.

4   MR. ELIAS: There is a fourth issue with respect to

5   --

6   CHAIRMAN JABER: Oh. After close the docket?

7   MR. ELIAS: It's a fuel docket.

8   CHAIRMAN JABER: And, Commissioner Bradley, your

9   motion included keeping the fuel docket open?

10   COMMISSIONER BRADLEY: Yes.

11   CHAIRMAN JABER: And we had a second to that and we

12   voted unanimously, Mr. Elias. Thank you.

13   I want to take an opportunity to congratulate all the

14   parties and to thank you for your cooperation in bringing this

15   all together.

16   Mr. Shreve, I wanted to close in particular with you

17   by telling you you are far too humble in your efforts. You are

18   an outstanding public servant and I congratulate you in

19   particular.

20   FP&L, I hope other companies take your lead. And,

21   also, now that I know that you are capable of coming to the

22   table, guess what? I'll expect it over and over again. Mr.

23   Shreve?

24   MR. SHREVE: Commissioners, if I may, and now that

25   the vote has been taken, this certainly can't be intended to

1 sway anyone. I wanted to tell you that I think this

2 Commission, all of you, thank you for your remarks, Mr. Bradley

3 and everyone, this result is in large, large part to your

4 credit. And the Staff of the Public Service Commission has

5 worked very hard on this. All of the parties without exception

6 have been a pleasure to work with and worked diligently. Paul

7 Evanson, Bill Walker and Bill Feaster (PHONETIC) have been

8 great to try and, although we didn't always agree, negotiate a

9 settlement with.

10 And I would like to last, we have a relatively small

11 staff, but Roger Howell and Billy Dee Smith, you couldn't

12 believe the work they put in and what they accomplished. Thank

13 you.

14 MR. EVANSON: Could I add my -- could I echo Mr.

15 Shreve's comments? I think it was, this is a fair settlement,

16 give and take on all sides, but I'm especially pleased that it

17 continues incentive-based regulation in the state that Jack and

18 FPL and the Commission and the Staff have really supported. I

19 think it makes Florida a model for how states ought to regulate

20 wires companies and I think it's a giant step forward. And I

21 thank the Commission and I thank the Staff for all its

22 constructive work and being part of this process, and we really

23 have enjoyed working with you, with all of you. Thank you.

24 CHAIRMAN JABER: Thank you, Mr. Evanson.

25 MR. SHREVE: And although I would like to have had

1   him have the last word --

2   CHAIRMAN JABER: I think Mr. Twomey should have the

3   last word.

4   MR. SHREVE: He usually does.

5   I would like to say that -- one thing I had wanted to

6   mention. This is a $600 million rate reduction since '99 with

7   hundreds of millions of dollars of refunds and more to come,

8   and I don't know of any utility in the country that has

9   accomplished this and I don't know of any Public Service

10 Commission in the country that has accomplished this and you're

11 to be congratulated.

12 CHAIRMAN JABER: Thank you, sir. We're done. Go

13 home.

14 (Concluded at 10:05 a.m.)

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FLORIDA PUBLIC SERVICE COMMISSION

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 1   STATE OF FLORIDA        )

 2                           :          CERTIFICATE OF REPORTER

 3   COUNTY OF LEON          )

 4

 5           I, LINDA BOLES, RPR, Official Commission
     Reporter, do hereby certify that the foregoing proceeding was
 6   heard at the time and place herein stated.

 7           IT IS FURTHER CERTIFIED that I stenographically
     reported the said proceedings; that the same has been
 8   transcribed under my direct supervision; and that this
     transcript, constitutes a true transcription of my notes of
 9   said proceedings.

10           I FURTHER CERTIFY that I am not a relative, employee,
     attorney or counsel of any of the parties, nor am I a relative
11   or employee of any of the parties' attorneys or counsel
     connected with the action, nor am I financially interested in
12   the action.

13           DATED THIS 27TH DAY OF MARCH, 2002.

14

15                   _____
                             LINDA BOLES, RPR
16                   FPSC Official Commissioner Reporter
                              (850) 413-6734
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                        FLORIDA PUBLIC SERVICE COMMISSION
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EXAMPLES OF COMMISSION FLEXIBILITY IN DEALING WITH RESERVE SURPLUSES AND DEFICIENCIES

1.   **Docket No. 820449**
      Order No. 12290
      Date: July 22, 1983
      Company: Southern Bell

In this docket, the Commission noted that Southern Bell's reserve deficit was $265.6 million on a composite basis. The Commission order stated:

> "We are ordering two amortization schedules for use in recovering the reserve deficit. That portion of the deficit that is attributable to changes in prospective life and salvage values is to be amortized over the composite remaining life of the embedded plant, which is estimated to be 16 years. That portion of the deficit that is attributable to past incorrect estimates of life and salvage factors and historic technological change and growth should be recovered over a shorter period. Therefore, we are ordering a 5 year amortization period for this portion of the deficit."

2.   **Docket No. 810210**
      Order No. 12147
      Date: June 17, 1983
      Company: Florida Telephone

In this Florida Telephone docket, the Commission, instead of ordering a refund to customers for attrition, ordered the company to book the excess revenues to the depreciation reserve for central office equipment. During this same time period, the Commission ordered the same action in Docket No. 810211, United Telephone and Docket No. 810252, Orange City Telephone.

3.   **Docket No. 830268**
      Order No. 12866
      Date: January 12, 1984
      Company: Indiantown Telephone Company

The Commission used the same language used in its other telephone depreciation dockets in that era:

> "Because we have determined that new depreciation rates are appropriate, we must also provide for the recovery of the difference between the current

reserve levels and what the reserve levels should be using the new depreciation rates. We have calculated the net reserve deficit to be $126,460 on a composite basis."

The Commission ordered a 15 year amortization of $104,475 and a five year amortization of $21,985.

4.   Docket No. 830344
         Order No. 12873
         Date: January 12, 1984
         Company: Vista-United
         In this docket, the Commission noted that it had observed, in the Vista-United proposal, the first telephone depreciation surplus. It ordered Vista, which exclusively served the Disney complex, to amortize the surplus over the composite remaining life of the associated investment.

5.   Docket No. 830370
         Order No. 12587
         Date: January 10, 1984
         Company: United Telephone
The Commission ordered elimination of a $36 million reserve deficit by ordering two amortization schedules. The first amortization amounted to $3.7 million over a 13 year period to recover "that portion of the deficit that is attributable to changes in prospective life and salvage values." The second amortization period was set at five years to recover $32.4 million, which was "that portion of the deficit that is attributable to past incorrect estimates of life and salvage factors and historic technological change and growth."

6.   Docket No. 820545
         Order No. 12654
         Date: November 3, 1983
         Company: Central Telephone
 The Commission ordered Centel to amortize over 5 years the historic reserve deficit of $9.1 million and ordered a new reserve deficit of $2.1 million to be recovered over 13 years.

7.   Docket No. 820477
         Order No. 12864
         Date: January 12, 1984
         Company: North Florida Telephone
The Commission used the same approach and language as it used in the Indiantown, Vista-United, United, Centel and Southern Bell depreciation cases by restating the reserves and ordering two separate amortization schedules. The Commission order a 13 year amortization of $608,002 and a 5 year amortization of $3,721,295.

8.   Docket No.: 840086

Order No.: 13494
Date: July 9, 1984
Company: Gulf Telephone Company

Consistent with its 1980's treatment of reserve surpluses and deficiencies among telephone companies,The Commission ordered Gulf Telephone in this docket to separate its $115,874 reserve surplus into the historical component amounting to $43,543 to be amortized over 5 years and a future reserve surplus component to be amortized over 14 years in the amount of $72,321. The Commission stated in this order:

> "By allowing the Company to separately amortize the reserve surplus, we are bringing the booked reserves for the accounts up to the theoretical reserve. Therefore, the rates for the embedded plant are the same as the rates for new plant.

9.   Docket No.: 830582
      Order No.: 13528
      Date: July 19, 1984
      Company: Miller Gas Company

In this 1984 gas docket, the Commission again calculated the historic reserve deficiency for Miller Gas amounting to $3,143 and order a 5-year amortization of $3,143, while ordering a 20-year amortization of future changes in prospective life and salvage values amounting to $15,881. The Commission noted in this order:

> "By allowing the Company to separately recover the reserve deficit, we are bringing the booked reserves for the accounts up to the theoretical reserve. Therefore, the rates for the embedded plant are the same as the rates for new plant."

10.   Docket No. 810100
      Order No. 12356
      Date: August 12, 1983
      Companies: Florida Power and Light & Florida Power Corporation

The Commission, in this docket, separated nuclear decommissioning expense that was previously recovered via the negative salvage component of nuclear plant depreciation rates by ordering new nuclear decommissioning accruals for both FPL and FPC effective October 1, 1983. In refusing to consider Public Counsel's proposal to not change the accrual rates until each of the Companies' next rate case, the Commission stated:

> "We intend to adhere to our earlier finding that continuing rates at their present levels simply exacerbates the inequity involved in allowing current customers to share in the benefits of nuclear power without bearing their fair share of the costs."

The Commission ordered both companies to include reserve deficiencies due to prior underaccrual of decommissioning expense through the 1983 fuel clause

3

docket, until the next rate case could increase the accruals to their appropriate levels.

11.   Docket No. 810100
          Order No. 13427
          Date: June 15, 1984
          Companies: Florida Power and Light & Florida Power Corp.

The Office of Public Counsel moved for reconsideration of Order No. 12502, dated September 14, 1983. In this 1984 order the Commission rejected OPC's motion that was based on the presumption that (1) the Commission may not adjust rates absent evidence and a finding regarding a utility's ROE, (2) that the Commission had engaged in retroactive ratemaking, and (3) the Commission allowed the utilities to bill too soon.

The Commission order includes the following quotes:

> "This was a dollar for dollar recovery, such as the fuel adjustment. We simply sought to adjust rates for a specified identifieable expense, just as it is done in the fuel adjustment."

>> "Establishing a funded reserve and revising the accrual created a proper recovery of decommissioning expense on the utilities' books, but it didn't by itself match cost-causers with the costs they cause. Fairness dictates that those receiving services and imposing costs be obliged to pay those costs, instead of placing the risk of recovery on other ratepayers who may not get service from the nuclear uniots. Changing rates paid for service is necessary to place the cost on the cost-causer."

>> "We made references to revenue deficiencies in our order, not to identify the revenues to which the utilities were entitled, but to identify the costs for which current ratepayers are responsible."

>> "We determined that a further delay in changing rates to recognize the responsibility of current ratepayers to pay the full cost of operating the nuclear generators simply continued on already unfair situation.

>> "We determined that it was unfair that current ratepayers were not paying their full share.

>> "We choose to allow the utilities to recover their revenue shortfall over a six month period.

12.   Docket No. 840045

OPC-LFE-LAWTON-000068

Order No. 13538
Date: July 24, 1984
Company: City Gas Company of Florida

The Commission, in this docket, used its same principles as stated in the Miller Gas case by ordering a 5-year amortization of the historic reserve deficit amounting to $239,669 and a 24-year amortization of $675, 987.

13.   Docket No. 8400158
       Order No. 13624
       Date: August 27, 1984
       Company: United Telephone of Florida

This docket was initiated on the Commission's own motion in order to consider overearnings by United Telephone. The docket was settled by a stipulation that required the company to book $8.65 million of additional depreciation accruals to the digital central office equipment account.

14.   Docket No. 830585
       Order No. 13681
       Date: September 17, 1984
       Company: Gulf Power Company

In this docket, the Commission determined that the Transmission, Distribution and General Plant accounts had a reserve deficit of $7,589,000 that the company was required to amortize over a 19 year period as a separate subaccount and the company was required to restate the reserves on each account.

15.   Docket No. 840052
       Order No. 13918
       Date: December 14, 1984
       Company: St. Joseph Telephone

The Commission ordered St. Joseph Telephone to amortize the historic reserve deficit of $529,002 over a one year period, stating, "Although we have in recent represcription cases allowed the amortization of the historic deficit over a five-year period, we agree with the staff that in this case a one-year write-off period for the $529,002 is appropriate. Based on an analysis of the Company's projected 1984 earnings....it appears that the company will be able to absorb this additional expense..." The Commission ordered an eleven-year amortization of the prospective reserve deficit. The Commission required the company to crease a separate subaccount in the Accumulated Depreciation Reserve to reflect the amortization of the prospective deficit. The order states:

"Because we have determined that new depreciation rates are appropriate, we must also provide for the recovery of the difference between the current reserve levels and what the reserve levels should be using the new depreciation rates. The theoretical reserves we have calculated are the reserves to be brought forward on the Company books as of January 1, 1984. The book reserve total is not changed by the restatement of account reserves and netting of the reserve imbalance. By

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allowing the Company to separately amortize the reserve deficit, we are bringing the booked reserves, by individual account, up to the theoretical reserve – with the exception of the accounts excluded per the footnote to Attachment 2. Therefore, the rates for the embedded plant are the same as the rates for new plant.

16. Docket No. 840168
    Order No. 13951
    Date: December 31, 1984
    Company: Central Telephone Company

This docket dealt with the earnings of Central Telephone and the Commission required Central to book additional depreciation expenses of $16, 233,000 in 1984 in order to resolve an overearnings dispute between the Commission, OPC and the company.

17. Docket No. 840049
    Order No. 14929
    Date: September 11, 1985
    Company: General Telephone

In this docket, the Commission abandoned its previous policy of calculating historical and future reserve deficiencies separately. The Commission found that General Telephone had a net reserve deficiency of $32 million and ordered a restatement of the reserve for each account to its theoretical amount. The company was then ordered to amortize the net reserve imbalance of $32 million over a five year period. In its order, the Commission stated:

"We believe that it is in the interest of both Gentel's customers and its stockholders that the Company's $32,138,000 deficit be written off in as short a time as practicable. In this case we find that a five-year period is appropriate. The Company shall create a separate subaccount in the accumulated depreciation reserve to reflect the amortization of this deficit.

18. Docket No. 850662
    Order No. 15652
    Date: February 10, 1986
    Company: United Telephone Company of Florida

The Commission issued this order on February 10, 1986 based on a company petition filed on October 1, 1985, with new depreciation rates effective January 1, 1985. In this order, the Commission ordered several short term recovery schedules in order to resolve reserve deficiencies in retiring plant items. In its order relating to Digital Circuit subject to early retirement, the Commission stated:
    "Accordingly, we hereby approve the retroactive application of depreciation rate schedules effective January 1, 1985 to be continued through December 31, 1988."

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19. Docket No. 810035, 820294, 810095, 81020, 810211, 810251, 810252 850064, 820007, 830012, 850050, 820097, 830465, 820100, 830470, 820150, 840086
Order No. 15798
Date: March 10, 1986
Company: FPL, FPC, Gulf, TECO and Seven Telephone Companies

The Commission, in response to a motion by Public Counsel, ordered refunds of JDIC revenues based on "interest synchronization" for eleven telephone and electric companies. The Commission ordered one-time depreciation reserve adjustments by each of the companies, instead of requiring a refund to customers.

20. Docket No. 850845
Order No. 15842
Date: March 13, 1986
Company: FPUC

In this 1986 decision, the Commission stated: "On initial implementation of reserve-sensitive rates, the book reserve often reflects a substantial deficit or surplus. As a corrective measure, a "historic" portion of this imbalance is sometimes written off over five years or less." The Commission, noted a small reserve imbalance that it ordered to be recovered over the future remaining life rates.

21. Docket No. 860756
Order No. 16877
Date: November 21, 1986
Company: FPUC

The Commission ordered corrective reserve transfers between accounts in order to bring the affected account's reserves in line with their respective theoretical positions. In addition, the company was ordered to implement a four-year recovery schedule to cure a reserve deficit in the Other Production Plant account.

22. Docket No. 850662
Order No. 16879
Date: November 21, 1986
Company: United Telephone

In this docket, the Commission fine-tuned its credits to depreciation resulting from overearnings and interest synchronization and, in addition, ordered $633,732 from Bill and Keep proceeds to be booked as a credit to the inside wire reserve deficiency.

23. Docket No. 851110
Order No. 16963
Date: December 16, 1986
Company: Central Telephone Company

In this docket, the Commission ordered restatement of reserves in order to eliminate reserve deficiencies in eight accounts and ordered separate amortization for five accounts ranging from 1 year to four year amortizations.

24. **Docket No. 860525**
    Order No. 17022
    Date: December 24, 1986
    Centel

The Commission denied the Public Counsel proposal that $10,672,000 of 1985 revenues from Bill and Keep Surplus and other revenues be refunded in its entirety to customers. The Commission accepted the staff and Centel proposal to book $4.8 million of these excess 1985 revenues to the company's equal access expenses and depreciation reserve deficiencies.

25. **Docket No. 861139, 861362, 860674**
    Order No. 17040
    Date: December 31, 1986
    Company: Southern Bell

This order approved an agreement between staff, OPC and the company to book calendar year 1987 tax savings up to $54 million to offset capital recovery. In addition, Southern Bell was required to book an additional $73 million in depreciation expense for 1987.

26. **Docket No. 860050**
    Order No. 17061
    Date: January 6, 1987
    Company: Northeast Telephone Company

In this depreciation docket, the Commission stated that "We have identified those accounts that have significant surpluses and transferred the surpluses into those accounts with large deficits in order to more closely align the booked reserves with the theoretical reserves for eight separate accounts ranging from tools and vehicles to circuit equipment.

27. **Docket No. 850250**
    Order No. 17132
    Date: January 26, 1987
    Company: Quincy Telephone Company

This order implemented specific depreciation account reserve adjustments resulting from 1984 overearnings, Bill and Keep revenues and interest synchronization. The Commission approved two one-year recovery schedules, four three-year recovery schedules and one five-year recovery schedule.

28. **Docket No. 861151**
    Order No. 17134
    Date: January 26, 1987
    Company: Florala Telephone Company

The Commission ordered reserve transfers between six accounts in order to achieve book reserves equal to theoretical reserves for each account. The Commission also ordered three four-year recovery schedules and two three-year recovery schedules.

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29.   Docket No. 861199
        Order No. 17214
        Date: February 23, 1987
        Company: Southland Telephone Company
The Commission ordered new depreciation rates, effective January 1, 1986, for Southland, and also ordered three short-term recovery schedules.

30.   Docket No. 870085
        Order No. 17903
        Date: July 24, 1987
        Company: Florida Power and Light
The Commission approved revised depreciation rates based on staff analysis that were higher than those proposed by the Company. In ordering corrective reserve transfers, the Commission stated:

"The goal of reserve-sensitive rate design is to reconcile the asset investment not yet recovered through depreciation expenses to the time remaining in which to collect it....The cumulative effect of prior rates and allocations has resulted in surpluses in some accounts and deficits in others....we find that reserve transfers should be used to correct deficits in the accounts with relatively short remaining lives. The reserve imbalances outlined above can be corrected using reserve adjustments related to the interest synchronization of Job Development Investment Tax Credits. The Commission also ordered two short term recovery schedules due to early plant retirements.

31.   Docket No. 861512
        Order No. 17564
        Date: May 20, 1987
        Company: Gainesville Gas Company
The Commission ordered new depreciation rates for Gainesville Gas and a restatement of reserves in order to eliminate one deficiency.

32.   Docket No. 861618
        Order No. 18029
        Date: August 24, 1987
        Company: Southern Bell
The Commission authorized new depreciation rates as recommended by Staff for Southern Bell in this docket, including $536 million in amortizations to cure reserve deficiencies that were ordered to be booked over various time periods ranging up to a maximum of 3 years. The most significant of the amortizations ordered by the Commission was a three year amortization for cable asset reserve deficiencies that were amortized over three years starting in 1987.

33.   Docket No. 870108
        Order No. 18202

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Date: September 23, 1987
Company: Central Florida Gas Company

The Commission ordered new depreciation rates as proposed by Staff, including surplus reserve transfers from Cars & Light Trucks, Heavy Trucks and Communications Equipment into the Mains Account 376 that reflected a reserve deficiency.

34.　Docket No. 870964
Order No. 18642
Date: January 4, 1988
Company: Gulf Telephone

The Commission approved short term amortization schedules for a number of retiring assets and noted that the historic reserve imbalances would be eliminated in 1988. Referring to its previous depreciation order, the Commission stated, "Initially, the prospective reserve imbalance was to be amortized over a 14-year term; however, we now believe its entire balance should be written off over the period 1987-1989."

35.　Docket No. 871269
Order No. 18736
Date: January 26, 1988
Company: United Telephone

The Company requested a 1997 one-time charge to depreciation of $14.6 million due to strong earnings posture. The Commission approved the expensing of $12.3 million to eliminate all existing amortization schedules and record the remaining $2.6 to an unspecified depreciation account. The order stated, "This action will comply with our policies of correcting reserve imbalances as rapidly as possible and of accelerating the writ-off of plant identified for retirement earlier than projected when these goals can be achieved without adversely affecting rates."

36.　Docket No. 870763
Order No. 19138
Date: April 13, 1988
Company: Florida Power Corporation

The Commission ordered the Company to record $11,727,906 from interest synchronization of investment tax credits to its Fossil Fuel Dismantlement Reserve.

37.　Docket No. 870964
Order No. 18642
Date: January 4, 1988
Company: Gulf Telephone

The Commission restated the reserves of Gulf Telphone in order to reduce reserve deficits with surpluses and excess salvage from other accounts.

38.　Docket No. 870763

Order No. 19138
Date: April 13, 1988
Company: Florida Power Corporation

The Commission order the JDIC interest synchronization revenue credits amounting to $11,727,906 to be booked to the Fossil Fuel Plant Dismantlement Reserve.

39.   Docket No. 871301
        Order No. 19783
        Date: August 9, 1988
        Company: Plant City Natural Gas

The Commission ordered reserve transfers to cure various deficits and surpluses in the company's depreciation accounts.

40.   Docket No. 871266
        Order No. 19815
        Date: August 17, 1986
        Company: People's Gas System, Inc.

The Commission ordered reserve transfers of seven accounts in order to bring the actual reserve to the theoretical reserve level for six accounts and reduce the reserve deficit on the seventh.

41.   Docket No. 880053
        Order No. 19901
        Date: August 30, 1988
        Company: Gulf Power

The Commission approved reserve transfers for five plant accounts resulting in a book reserve equal to the amount of the theoretical reserve. In addition, the commission ordered the JDIC interest synchronization credit to be applied to the reserve deficit for the Transmission, Distribution and General Plant accounts.

42.   Docket No. 880860
        Order No. 20330
        Date: November 18, 1988
        Company: United Telephone Company

The Commission approved interim booking of three bottom-line reserve adjustments. The first adjustment was to take $10,000,000 of 1988 overearnings and book it to reserve deficiencies. The second adjustment was to book an additional $14,589,704 of 1987 overearnings to reserve deficiencies and the third adjustment booked $560,000 of tax savings from the Tax Reform Act of 1986 to offset the cable reserve deficiency. The order also approved the staff recommendation to book $16,125,182 in additional depreciation expense to 1988 operations in order to eliminate the reserve deficiency in the cable account and it approved a three-year amortization of a digital switching account reserve deficit.

The Commission rejected United's proposed depreciation rates because they did not reflect the restated reserve positions.

43.   Docket No. 880868
        Order No. 19438
        Date: June 6, 1988
        Company: Tampa Electric Company
The Commission ordered that the company should book $5,820,294 to the depreciation reserve and an annual true-up of $360,000 attributable to interest synchronization "in lieu of a reduction of customer rates."

44.   Docket No. 871397
        Order No. 19450
        Date: June 6, 1988
        Company: Florida Natural Gas
The Commission ordered seven reserve account transfers to align the theoretical reserves with the book reserve.

45.   Docket No. 871413
        Order No. 20432
        Date: December 8, 1988
        Company: St. Joe Natural Gas
The Commission ordered the company to restate seven account reserves in order to align the book reserves with the theoretical reserves.

46.   Docket No. 870460
        Order No. 20509
        Date: December 23, 1988
        Company: AT&T
The Commission accepted a stipulation between AT&T and OPC to book $11 million in additional intrastate depreciation expense and reduce MTS and WATS rates by $1,801,744 annually in order to settle the docket that was initiated because of AT&T's 1986 overearnings.

47.   Docket No. 871420
        Order No. 20560
        Date: January 6, 1989
        Company: Southern Gas
The Commission ordered rebalancing of reserves that reflected surpluses and deficiencies in order to bring account reserves in line with their respective theoretical positions.

48.   Docket No. 990860
        Order No. 21598
        Date: July 21, 1989

Company: United Telephone

In addition to confirming the Commission's prior order to book $16.1 million to a three year amortization to eliminate reserve deficiencies, the Commission approved a two year amortization to transfer reserve surpluses from digital switching to offset deficiencies associated with electromechanical equipment, radio equipment and circuit equipment.

49.   Docket No. 880203
       Order No. 22115
       Date: October 31, 1989
       Company: City Gas

In this order, the Commission authorized new depreciation rates for Southern States and in its order, the Commission noted that the amortization of reserve deficiencies based on the "prospective reserve deficit" should be continued at its current rate in order to eliminate the deficiency within 7 years, rather than the 19 years that was previously authorized.

50.   Docket No. 890725
       Order No. 22316
       Date: December 18, 1989
       Company: Florida Public Utilities Company

The Commission authorized new depreciation rates and approved a transfer of a reserve surplus from Station Equipment to eliminate a negative reserve in Structures and Improvements.

51.   Docket No. 890788
       Order No. 22414
       Date: January 11, 1990
       Company: Northeast Florida Telephone Company

The Commission approved an amortization schedule in order to eliminate a reserve deficiency in the circuit equipment account.

52.   Docket No. 890225
       Order No. 22585
       Date: February 21, 1990
       Company: Quincy Telephone Company

The Commission approved a reserve transfer of a surplus in the Inside Wire account into the negative reserve of the Aerial Wire account. In this order, the Commission authorized the company to book $459,560 of depreciation expense from the Bill and Keep surplus and the interest synchronization adjustment to the approved amortization schedules for the 1989. The Commission approved 11 one year amortization schedules to correct reserve deficiencies. In so doing, the Commission stated,

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"The remaining schedules relate to correcting reserve deficiencies associated with inadequate past recovery; therefore, in our opinion, the associated write-off should be as fast as practicable."

53.   Docket No. 891050
        Order No. 23146
        Date: July 3, 1990
        Company: Florala Telephone Company
The Commission ordered a transfer of a reserve surplus from the analog carrier account to the Digital Carrier account in order to bring the Digital Carrier reserve close to its theoretical reserve.

54.   Docket No. 891026
        Order No. 23833
        Date: December 4, 1990
        Company: Alltel
This FPSC PAA order changed the depreciation rates for Alltel Florida Inc. by permitting the write-off of reserve deficiencies for inside wire "to permit full recovery within three years." In its order, the Commission noted that a bottom line reserve deficiency imbalance was calculated in the 1983 and "has since been amortized." The Commission modified the company proposals for retirement amortizations because "This more closely matches recovery with consumption than the Company's proposal." The Commission also stated, "Ideally, recovery patterns and their expenses should be adjusted immediately upon perceiving the need for change. Implementation as of the January 1, 1990 date will permit the recognition of more appropriate expenses for the fiscal year." The order was issued December 4, 1990.

55.   . Docket No. 891115
        Order No. 23835
        Date: December 4, 1990
        Company: Southland Telephone Company
The Commission authorized reserve transfers in order to eliminate reserve deficiencies.

56.   Docket No. 900162
        Order No. 23922
        Date: December 21, 1990
        Company: Vista-United
The Commission ordered new depreciation rates for Vista-United Telecommunications that included reserve adjustments of $36,000 and $24,000 that came from "Interlata Bill and Keep winnings" in order to partially satisfy a reserve deficiency in the Prototype Optic Circuit equipment, in addition to transferring $99,859 surplus from the company's prior depreciation filing to satisfy the same deficiency.

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57.   Docket No. 900599
        Order No. 24004
        Date: January 22, 1991
        Company: Gulf Telephone Company
The FPSC ordered new depreciation lives for Gulf Telephone Company and
ordered implementation of a two year amortization schedule to correct "a reserve
imbalance of $244,593 associated with the Metallic Filled Buried Cable Account."

In ordering the two-year amortization for the Metallic Filled Buried Cable Account,
the Commission stated: "This imbalance is based on our present expectation for
the replacement of copper cable by fiber and should be written off as fast as
practicable. We find a two year period to be appropriate for the write-off of this
deficiency." It is interesting to note that in the body of the order the Metallic Filled
account analysis indicated that this investment would be replaced by fiber "by
about 2017."

The effective date of the new depreciation rates was January 1, 1990.

58.   Docket No. 891373
        Order No. 24005
        Date: January 22, 1991
        Company: Indiantown Telephone System, Inc.
In order to initially adjust existing reserves to the theoretical reserves, the
Commission ordered one transfer of a reserve surplus and a three-year write-off of
the net reserve deficiencies.

59.   Docket No. 890216
        Order No. 24098
        Date: February 8, 1991
        Company: GTE Florida Inc.
The Commission ordered GTE Florida, Inc. to apply $1,169,396 plus $81,603 in
interest from unclaimed refunds to be placed in an intrastate unclassified
depreciation reserve account, effective December 31, 1990, to be made account
specific in GTE's next depreciation case.

60.   Docket No. 910461
        Order No. 24940
        Date: August 20, 1991
        Company: Quincy Telephone Company
The Commission ordered the company to book $150,000 of 1991 overearnings to an
unspecified depreciation reserve account in order to reduce depreciation reserve
deficiencies.

61.   Docket No. 900605
        Order No. 25378
        Date: November 25, 1991

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Company: GTE Florida

The Commission ordered the $12.1 million reserve surplus from Bill and Keep and Interest Synchronization of JDIC to be applied to eliminate the Inside Wire amortization and withheld setting of comprehensive new depreciation rates until the company filed a new study.

62. Docket No. 910686
     Order No. 25619
     Date: January 21, 1992
     Company: Tampa Electric

The Commission rebalanced the reserves of nine accounts in order to eliminate reserve deficiencies.

63. Docket No. 91098
     Order No. 25587
     Date: January 9, 1992
     Company: GTE Florida

The Commission approved, retroactively, the amortization of $21 million for switching assets retired in 1991 with reserve deficiencies, effective 1-1-91.

64. Docket No. 910565
     Order No. 25679
     Date: February 3, 1992
     Company: Quincy Telephone Company

The Commission ordered the transfer of reserve surpluses and the booking of $410,091 from 1990 and 1991 overearnings in order to move all accounts to their theoretical reserve. The Commission also ordered a two-year amortization of $140,000 in buried cable account to recover a reserve deficiency for 1992 retirements.

65. Docket No. 911108
     Order No. 920028
     Date: March 10, 1992
     Company: ALLTEL

The Commission, in dealing with prospective overearnings by ALLTEL in 1992, ordered the company to record additional amortization expense of $218,124 to eliminate the cable reserve deficit.

66. Docket No. 910731
     Order No. 920368
     Date: May 14, 1992
     Company: Northeast Florida Telephone and GTE Florida

In this docket that dealt with the elimination of toll subsidy payments from Southern Bell and GTE, the Commission ordered GTE to book the amount of its subsidy payments that were eliminated to an unspecified depreciation reserve account.

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67.   Docket No. 910725
        Order No. 920604
        Date: July 6, 1992
        Company: United Telephone

This order revised the depreciation rates for United Telephone. In its preliminary statement, the Commission stated, "In our view, the purpose of depreciation is to match depreciation expenses as closely as possible to the time period that the equipment is serving the public. The Commission approved five reserve transfers relating to reserve surpluses/deficiencies and 13 amortization schedules ranging from one year to five years for the total recovery.

68.   Docket No. 920589
        Order No. 930007
        Date: January 4, 1993
        Company: Northeast Florida Telephone

The Commission, in ordering new depreciation rates for Northeast, rebalanced existing reserves for five accounts in order to eliminate reserve surpluses and deficiencies. The Commission also ordered a three year amortization of a reserve deficiency for the aerial cable account.

69.   Docket No. 920385
        Order No. 930462
        Date: March 25, 1993
        Company: BellSouth

In establishing new depreciation rates for BellSouth, the Commission ordered one reserve transfer to eliminate a reserve deficiency and authorized four short term capital recovery schedules

70.   Docket No. 920823
        Order No. 930505
        Date: April 5, 1993
        Company: Florala Telephone Company

The Commission approved new depreciation rates for Florala, included a reserve transfer to eliminate a reserve surplus in one account and a deficiency in another account.

71.   Docket No. 920729
        Order No. 930520
        Date: April 6, 1993
        Company: Chesapeake Utilities

The Commission, noting that the Company had already made a significant refund to its customers, approved booking $110,000 of 1991 overearnings to depreciation expense.

72.   Docket No. 920795
        Order NO. 930801

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Date: May 25, 1993
Company: Southland Telephone Company

The Commission approved reserve transfers between eight accounts in order to eliminate reserve surpluses and reserve deficiencies.

73.   Docket No. 920755
       Order No. 930897
       Date: June 14, 1993
       Company: ALLTEL

In this order, the Commission established new depreciation rates for ALLTEL, and ordered the company to utilize unclaimed refunds from excess 1991 overearnings in order to eliminate reserve deficiencies in two accounts. In addition, the Commission approved three year recovery schedules for the digital switching account.

74.   Docket No. 921270
       Order No. 931392
       Date: September 23, 1993
       Company: St. Joseph Telephone

The Commission ordered the transfer of $55,647 in the Circuit-Analog account to the switching account in order to eliminate a reserve deficiency due to early retirements.

75.   Docket No. 921278
       Order No. 931554
       Date: October 25, 1993
       Company: Indiantown Telephone

In this docket, the Commission found that there was a perceived reserve deficiency of $213,455 in the buried cable account and a deficiency of $29,536 in the aerial metallic cable account. The Commission first transferred a reserve surplus from the construction equipment account and required the company to eliminate the remaining deficiency as a result of overearnings from 1993 operations.

76.   Docket No. 930170
       Order No. 931572
       Date: October 27, 1993
       Company: Gulf Telephone

In this docket, the Commission applied $104,038 in 1992 overearnings in order to eliminate reserve deficiencies for several asset accounts. In addition, the Commissioned ordered a three-year recovery schedule for retiring central office assets.

77.   Docket No. 931101
       Order No. 931773
       Date: December 10, 1993
       Company: Peoples Gas System

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The Commission ordered the company to book $2,496,000 in 1993 overearnings to eliminate an amortization that was established for environmental cleanup.

78.   Docket No. 930221
        Order No. 930108
        Date: December 20 1993
        Company: Gulf Power

The FPSC, on December 20, 1993, noted that it had twice issued depreciation orders, first Order No. 24741 and, second, PSC-93-0771, deferring the accruals for dismantlement in return for Gulf reducing its authorized ROE to 12% and also for the Company not filing a rate case in 1993. In this order, the Commission ordered an allocation of $615,677 to the Plant Crist Precipitator reserve that was attributable to interest synchronization from the Job Development Investment Credit (JDIC).

In this order, the Commission stated: "Our Staff's review indicates that there (are) a number of reserve imbalances existing which result primarily from differences in current and past projections. According to our staff, such deficiencies should be recovered as fast as possible, unless such recovery prevents the Company from earning a fair and reasonable return on its investments."

In its order, the FPSC stated its "general guidelines we use for corrective reserve transfers are the following:

- No account should be reduced below its theoretical level;
- Accounts with short remaining lives showing inadequate reserves (as compared to its theoretical level) caused by prudent acceleration of retirement plans, should be corrected to the degree possible;
- Because of the uncertainty involved in determining service life estimates, correction of apparent reserve deficits becomes less critical as the expected life increases. That is, onlyu large apparent imbalances should be addressed as the expected life reaches twenty or more years; otherwise, we are fin-tuning a figure which is inherently somewhat uncertain; and
- Relatively minor imbalances are not generally corrected, unless associated with short remaining lives, due to the inherent frailty of life and salvage estimates.

The Commission also stated in this order:
        "The intent is that customers benefiting from the plant at any point of time will be bearing their appropriate share of the depreciation expense. The matching of expenses to consumption is the goal."

79.   Docket No. 930453
        Order No. 931839

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Date: December 27, 1993
Company: FPUC

The Commission ordered corrective reserve transfers from the reserve surplus in Poles, Towers and Fixtures to resolve negative reserve balances for the Power Operated Account and Tools, Shop & Garage accounts. The FPSC stated in its order, "...deficiencies should be recovered as fast as possible, unless such recovery prevents the Company from earning a fair and reasonable return on its investments."

80.   Docket No. 920195
        Order No. 940119
        Date: February 1, 1994
        Company: Quincy Telephone

The Commission ordered the company to refund $446,845 to customers as a result of 1992 overearnings. In addition, the Commission ordered the company to record $880,532 to depreciation in 1993 to dispose of 1993 overearnings and to amortize $$427,768 over 15 months to recover the capital investment in retiring plant.

81.   Docket No. 921337
        Order No. 940150
        Date: February 7, 1994
        Company: St. Joe Natural Gas Co.

The Commission ordered a one year amortization of $9,790 in order to bring the Tools and Garage Equipment to its theoretical reserve level.

82.   Docket No. 920260
        Order No. 940172
        Date: February 11, 2004
        Company: Southern Bell

This docket reflects the December 1993 settlement between Southern Bell and OPC, along with other intervenors, that resolved an extended investigation into Southern Bell's service and rates. The settlement included refunds and rate reductions of $1.6 billion over a five year period. In addition, the stipulation required the company to expense $60 million in Hurricane Andrew costs in 1993 and to book $19 million of Hurricane Andrew capital costs in 1993 as well.

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83. Docket No. 940165
    Order No. 940326
    Date: March 23, 1994
    Company: Northeast Florida Telephone

On February 4, 1994, the company filed a petition with the FPSC to amortize $85,000 of depreciation expense to 1993 operations in order to cure a reserve deficiency. The Commission stated, "We find this requested action appropriate since it corrects the resultant reserve deficiency in the year incurred and closely approximates the matching of recovery to the using-up of the associated equipment."

84. Docket No. 940621
    Order No. 940852
    Date: July 13, 1994
    Company: Florida Power Corporation

The Commission ordered the company to cap its 1994 earnings at 12.5% and to apply any excess of that level to the Sebring going concern amortization/storm damage expense and to permanently increase its storm damage accrual to $6 million.

85. Docket No. 940663
    Order No. 940872
    Date: July 18, 1994
    Company: Tampa Electric

The Commission ordered the company to cap its 1994 earnings at 1245 ROE and to apply any 1994 overearnings to its storm damage accrual. Should the overearnings exceed the storm damage reserve target, the balance would be refunded to customers.

86. Docket No. 931231
    Order No. 941199
    Date: September 30, 1994
    Company: Florida Power and Light

In its depreciation order, the Commission stated its philosophy regarding the balancing of reserve deficiencies between accounts:

> "One aspect of a depreciation study is the review of the reserve status of all production sites and all transmission, distribution and general plant accounts to determine the need for corrective reserve transfers. Due to the effect reserve transfers may have on jurisdictional separations, purchase power agreements, or other lease arrangements, our approach to reserve reallocations is that they should, ideally, be made between accounts of a given unit or function. The allocations discussed and approved below (Shown in detail on Attachment C) address major imbalances generally brought about by transfers associated with the utilization of certain production plants and previously unanticipated final dismantlement costs of certain units."

The Commission also included meaningful comments regarding the handling of the overall $3.2 million surplus at Ft. Myers:

"In fact, the Ft. Myers site has an overall perceived surplus of about $3.2 million. As discussed previously, due to concerns reserve transfers may have on jurisdictional separations, purchase power agreements, or other lease arrangements, reallocations are ideally made between accounts of a given unit. In this case, however, Unit 1 has an overall perceived surplus. For this reason, we find that this surplus shall be transferred to also help offset the remaining unrecovered costs associated with the pre-1994 major overhaul and asbestos abatement projects."

The Commission approved corrective reserve transfers between 10 accounts and ordered five recovery schedules ranging from one year to eight years.

87.   Docket No. 931142
        Order No. 941331
        Date: October 27, 1994
        Company: Florida Power Corporation
The Commission ordered a one year amortization for Avon Park, a 4.5 year amortization for Higgins and a 5.5 year amortization for Turner consistent with planned retirements at those generating sites.

88.   Docket No. 931231
        Order No. 950340
        Date: March 13, 1995
        Company: Florida Power & Light
In this depreciation docket, the Commission noted that the company and the staff had agreed that $46 million in asbestos abatement costs had been incurred on construction projects between 1988 and 1993, that the costs were associated with plant no longer in service and that these costs should be written off as soon as possible. The company originally wanted recovery over four years, but eventually agreed with staff for a one year write off in 1994. The impact of this one year amortization was to reduce FPL 1994 earnings to 12.5%, within its authorized range. Had it not been for the $46 million write-off in 1994, the company would have been subject to a refund to its customers for overearnings.

89.   Docket No. 940607
        Order No. 950400
        Date: March 23, 1995
        Company: Quincy Telephone
In authorizing new depreciation rates for Quincy, the Commission approved 12 reserve corrections and six recovery schedules ranging from 1 to 3 years.

90.   Docket No. 940826
        Order No. 950427
        Date: March 29, 1995

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Company: Indiantown Telephone System, Inc.

The Commission, in this special docket, was asked by the company to implement a two year amortization relating to capital recovery requirements for the scheduled 1996 retirement of an Indiantown central office switch. The Commission ordered the company to apply $72,252 in 1993 overearnings to reduce the projected $169,968 underrecovery in the depreciation reserve for this asset. Had the Commission not ordered the $72,252 writeoff, it would have been subject to refund to Indiantown customers. The Commission ordered that the balance of the reserve deficiency be recorded in 1994.

91.   Docket No. 950213
       Order No. 950475
       Date: April 12, 1995
       Company: TECO

In this docket, the Commission authorized a one year amortization of $5 million in depreciation expense to be book 1-1-95 in order to bring the account reserve for the existing EMS system in line with it's theoretical reserve. The EMS system was scheduled for retirement in 2000.

This order was appealed by OPC and a settlement was reached with the company providing for a five year amortization of the $5 million. (Order No. 950893 issued July 20, 1995)

92.   Docket No. 950359
       Order No. 950672
       Date: May 31, 1995
       Company: Florida Power and Light

In this order, the Commission granted a request by the company that it book additional depreciation for its nuclear generating units to address the potential for stranded investment. The company requested approval to book an additional $30 million as a permanent annual amortization expense. In addition, the company requested that additional depreciation be allowed for booking in 1995 and 1996 based on revenue forecasts. The combined total additional depreciation bookings proposed by the company amounted to $91 million in 1995 and $148 million in 1996.

93.   Docket No. 950283
       Order No. 951239
       Date: October 6, 1995
       Company: United Telephone

The Commission order approved a reallocation of 11 accounts in order to eliminate reserve deficiencies. In addition the order required 18 new amortization schedules ranging from one to three years in order to resolve reserve deficiencies for retiring plant. The order also deferred $1.4 million of 1994 overearnings for future disposition by the Commission. In its order, the Commission noted that it had previously issued Order No. 940730 in Docket No. 940201, dated June 14, 1994 that

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required the company to book an additional $2,051,000 in depreciation expense in order to account for the merger and integration costs of the merger with Centel on a cash basis and to implement $17 million in rate reductions.

94. **Docket No. 950359**
    Order No. 960461
    Date: April 2, 1996
    Company: Florida Power and Light
The Commission finalized its previous order relating to the need for additional nuclear generating depreciation expense. The order required the booking of approximately $126 million to be booked "to the reserve deficiency in nuclear production, which was calculated to be $175,304,010 as of January 1, 1994." In addition, the Commission also ordered, "Commencing in 1996, FPL shall record an annual $30 million in nuclear amortization. The expense amount is final, however, the account to which it is booked remains subject to determination by the Commission in a future proceeding such as a generic stranded cost docket."

In addition, this order required the company to book additional expense in 1996 and 1997 subject to a revenue formula, to be booked first to the remaining nuclear reserve deficiency.

95. **Docket No. 950887**
    Order No. 960680
    Date: May 23, 1996
    Company: ALLTEL
The Commission ordered the transfer of a $137,598 reserve surplus from general support accounts to the Metallic Buried Cable Account. In addition, recovery schedules were established for two accounts due to near term retirements ranging from one to two years.

96. **Docket No. 960794**
    Order No. 970118
    Date: January 31, 1997
    Company: Quincy Telephone
The Commission approved new depreciation rates for the company and ordered a transfer of the negative investment and reserve balances from its Aerial Wire account to its Cable investment and reserve accounts.

97. **Docket No. 970410**
    Order No. 970499
    Date: April 29, 1997
    Company: Florida Power & Light
The Commission extended and modified the previously approved FPL plan for 1996 and 1997 concerning the recording of certain additional expenses for the years 1998 and 1999. This plan was based on booking additional expenses during a specific year based on retail sales levels. In establishing the priority for booking such

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expenses, the Commission ordered that the first priority would be the "Correction of any depreciation reserve deficiency resulting from an approved depreciation study order."

Following are significant quotes from this decision:

"First, the appropriate benchmark should allow the Company to write-off the remaining underrecoveries as expeditiously as possible.

"Witness Gower further testified that correction of the nuclear decommissioning and fossil dismantlement reserve deficiencies over a time period shorter than the remaining life of the associated plants is consistent with this Commission's prior actions."

"Because the reserve deficiencies represent costs that should have been recovered in prior years, intergenerational equite suggests that these deficiencies be recovered quickly so that future ratepayers are not burdened with an unfair share. This correction is not an acceleration of expenses appropriately attributable to future periods but, in fact, is remedial because it addresses expenses appropriately attributable to prior years and therefore corrects intergenerational inequities. The intergeneration inequite has already occurred and, if not corrected by the proposed Plan, will only be exacerbated."

"The record evidence demonstrates that the tenet of intergenerational equity dictates that, in this docket, correcting reserve deficiencies over a shorter period of time is more reasonable or fair than correcting the reserve deficiency over the remaining life."

In addition to the issue of eliminating reserve deficiencies over the remaining life as opposed a shorter period, the Commission also considered the transfer of reserve surpluses in order to resolve reserve deficiencies. In this regard, the Commission stated, "This Order (Order No. 931231 dated September 30, 1994) clearly shows that our approach to reserve transfers is to make them between accounts within the same function and not between accounts across functions."

The Commission added, "in conclusion, we will not consider reserve transfers between functions because they may result in pricing issues."

98.   Docket No. 970428
      Order No. 980379
      Date: March 9, 1998
      Company: Chesapeake Utilities
The Commission order reserve transfers between four accounts in order to resolve reserve deficiencies and reserve surpluses. The accounts involved were Autos, VAX equipment, Data Processing Equipment and Services-Steel.

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99. Docket No. 980700
    Order No. 981763
    Date: December 30, 1998
    Company: South Florida Natural Gas

In authorizing new depreciation rates for the company, the Commission noted that there were reserve surpluses in Distribution Structures & Improvements and Mearsuring & Regulating Industrial Equipment. In ordering the transfer of these surpluses to help correct the existing reserve deficiency in the Steel Services account, the Commission stated:

"Our approach to reserve transfers is where significant surpluses and deficits exist, corrective reserve transfers between accounts should be considered. Significant imbalances are those that result in abnormal depreciation rates for the ongoing account."

100. Docket No. 980845
     Order No. 990048
     Date: January 5, 1999
     Company: Indiantown Gas

The Commission order rebalancing reserves for three accounts and one three-year amortization schedule.

101. Docket No. 971600
     Order No. 990073
     Date: January 8, 1999
     Company: Florida Power & Light

This order approved new depreciation rates for FP&L effective January 1, 1998. This order included the elimination of significant reserve deficiencies. The order states that the allocations relate to the additional depreciation expense recorded in accordance with Order No. PSC-96-04610FOF-EI, issued April 2, 1996, the accumulated reserve adjustments attributable to interest synchronization related to ITCs and the additional depreciation expense recorded in accordance with order No. 980027. The order rebalanced the generation reserves by booking $322 million additional expense on an account specific basis to eliminate all deficiencies except $91 million. The order also noted that the company had already recorded an additional $90 million in additional Nuclear generation expense, however, the Commission deferred the request of the company to apply the $90 million on an account specific basis. Therefore, as of January 1, 1999, the company's total generation reserves were equal to their theoretical reserves based on the most recent study by the company.

102. Docket No. 990067
     Order No. 990519
     Date: March 17, 1999
     Company: Florida Power & Light

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This order approved a stipulation between FP&L, FIPUG and the Coalition for Equitable Rates that included a $350 million annual rate reduction and revenue sharing. In addition, the stipulation authorized FP&L to record up to $100 million in additional depreciation expense at the discretion of the company per year during each of the three years covered by the term of the agreement and also provided that existing depreciation rates should continue to apply. The continued amortization and booking of expenses as described in Dockets 950359 and 970410 were terminated on the day before the implementation date of the new agreement.

The stipulation included the following language:

> "The amortization shall be separate and apart from normal depreciation, and existing depreciation practices and resulting depreciation rates will not be adjusted, either before, during or after the term hereof to eliminate the effect of the additional amortization amount.recorded."

> "During the term of this Stipulation and Settlement, accruals for nuclear decommissioning and fossil dismantlement expense shall be capped at the level previously approved by the commission......"

103. **Docket No. 981166**
     Order No. 000293
     Date: February 14, 2000
     Company: Florida Power & Light
This revised the fossil dismantlement reserves and accruals for the Company based on a new study. The Commission approved the booking by FPL of additional expense to eliminate the dismantlement reserve deficiency of $38 million. In rebalancing the reserves for Steam Production, the Commission transferred reserve surpluses and deficiencies between 14 Steam Production plants. The Commission also rebalanced the reserve surpluses and deficiencies for Other Production between six locations.

104. **Docket No. 990529**
     Order No. 000603
     Date: March 29, 2000
     Company: Tampa Electric
Based on a 1999 company study, the Commission authorized new depreciation rates, ordered two short term recovery schedules and rebalanced the reserves on a site by site basis, and did not require any transfer of surpluses or deficiencies between locations.

105. **Docket No. 010669**
     Order NO. 012270
     Date: November 19, 2001
     Company: FPUC

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This order implemented new depreciation rates for FPUC, including rebalancing of five account reserves in Distribution and six account reserves in General Plant. The order includes the following statements:

> "Reserve imbalances are primarily a matter of differences in current and past projections. Such deficiencies should be recovered as fast as possible, unless such recovery prohibits the company from earning a fair and reasonable return on its investments."

> "Each of the General Plant accounts have either a perceived surplus or deficit in the reserve position. The existence of reserve surpluses and deficiencies in these accounts can cause abnormalities in the resulting depreciation rates. For this reason, the reserve transfers shown on Attachment A shall be made to bring each account's reserve more in line with its calculated theoretical level."

106.   Docket No. 010031
        Order No. 012386
        Date: December 10, 2001
        Company: Florida Power Corporation

The order revised the company accruals and reserves for fossil fuel dismantlement. In its order, the Commission approved transfers between 11 different plant locations in order to offset the dismantlement costs at other plants.

107.   Docket No. 020001
        Order No. 020501`
        Date: April 11, 2002
        Company: Florida Power & Light

This order approved the 2002 stipulated settlement between FPL and the interveners that included a $250 million rate reduction and continuation of the revenue cap and sharing plan through 2005. Included in the Stipulation and Settlement as approved by the Commission are the following statements regarding depreciation:

"Starting with the effective date of this Stipulation and Settlement, FPL may, at its option, amortize up to $125,000,000 annually as a credit to depreciation expense and debit to the bottom line depreciation reserve over the term of this Stipulation and Settlement. The amounts so recorded will first go to offset the $170,250,000 bottom line amortization amount that has previously been recorded, with any additional amounts recorded to a bottom line negative depreciation reserve during the term of this Stipulation and Settlement. Any such reserve amount will be applied first to reduce any reserve excesses by account, as determined in FPL's depreciation studies filed after the term of this stipulation and Settlement, and thereafter will result in reserve deficiencies. Any such reserve deficiencies will be allocated to individual reserve balances based on the ratio of the net book value of each plant account to total net book value of all plant. The amounts allocated to the reserves will be

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included in the remaining life depreciation rate and recovered over the remaining lives of the various assets. Additionally, the depreciation rates as addressed in Order Nos. PSC 99-0073-FOF-EI, PSC 00-2434-PAA-EI and PSC 01-1337-PAA-EI will not be changed for the term of this Stipulation and Settlement.

108.   Docket No. 010383
         Order No. 021492
         Date: October 31, 2002
         Company: Peoples Gas

This order approved new depreciation rates for Peoples Gas. In discussing reserve allocations between accounts, the Commission stated:

"Reserve imbalances are primarily a matter of differences in current and past projections. Such deficiencies should be recovered as fast as possible, unless such recovery prevents Peoples from earning a fair and reasonable return on its investments. The Commission eliminated the surpluses in six accounts to bring each account to its theoretical reserve and applied the resulting amount three accounts that were reflecting reserve deficiencies. The total theoretical reserve was $20.2 million and the restates reserve was $18.6 million.

109. LATE FILED ADDITION RELATIING TO FPC DOCKET 891335
Docket No. 891335
Order No. 23957
Date: January 4, 1991
Company: Florida Power Corporation

In this docket, the Commission ordered new depreciation rates for FPC that represented a $36 million increase, which included the distribution of $10,947,840 of interest synchronization tax credits (JDITC) to fossil dismantlement. In its order, the Commission stated:

"The goal of reserve sensitive rate design is to reconcile the asset investment not yet recovered through depreciation expenses to the time remaining in which to collect it....The cumulative effect of prior rates and allocations have resulted in surpluses in some accounts and deficits in others. We have traditionally offset these imbalances by corrective reserve transfers. The corrective transfers will bring the affected account's reserves nearly in line with their respective theoretical positions."

The reserve transfers approved in this order changed the reserve for every depreciation account and every generating location included in the study. Following is a summary of impacts due to reserve transfers by general category:

Account	Net Impact of transfers
Production Plant	$29,076,073
Transmission	($4,757,718)
Distribution	$4,068,725
General Plant	($21,616,376
Occidental Stipulation	$6,770,704

This was, apparently, FPL's first use of the Remaining Life methodology in establishing depreciation rates. While the Commission, in other orders, has stated its preference to not make reserve transfers between major categories of expense due to the impact on rates, the Commission clearly chose to ignore that concept in this order. The Commission also moved unrelated dollars that might just as well been refunded to customers from the JDIC ($10 million) and a stipulation ($6.7 million) into depreciation expense in order to move depreciation reserves closer to their theoretical level.

**REBALANCING OF RESERVE SURPLUSES AND RESERVE DEFICIENCES
TO EQUALIZE BOOK RESERVE AND THEORETICAL RESERVE**

AMORTIZATION OF RESERVE DEFICIENCIES

EXAMPLES OF HISTORIC VS. FUTURE REMAINING LIFE RECOVERY:

During the early to mid 1980's, the FPSC's policy regarding reserve imbalances was to separately treat historic imbalances caused by inaccurate depreciation rates as opposed to changes in prospective life and salvage values due to such causes as technological displacement. Historic imbalances were typically recovered over a near-term 3-5 year amortization schedule, while prospective imbalances were recovered via the remaining life of the asset, in a separate schedule. The Commission's goal was to equalize book vs. theoretical reserves, in order to justify the establishment of a single depreciation rate for both embedded plant and future investment. This policy was abandoned in the September 11, 1985 GTE Order No. 14929 when the FPSC ordered GTE to eliminate imbalances between its book and theoretical reserves. GTE was required to amortize a $32 million reserve deficiency over five years. In several later dockets in the late 1980's, the FPSC ordered accelerated recovery of reserve deficiencies that had been previously amortized over the remaining life of the assets in prior dockets. The dockets involving historic vs. remaining life discovery are:

1. Docket N. 820449, Order No. 12290, July 21, 1983, Southern Bell. FPSC ordered 5 yr. amortization for historic deficit and 16 yr. RL amortization for the prospective reserve deficiency. Later, in Docket No. 861618, Order No. 18029 dated August 24, 1987, the Commission ordered recovery of all reserve deficits, including the remaining amounts from the 1983 order over a three year period ending in 1989.

4. Docket No. 830344, Order No. 12873, January 12, 1984, Vista-United. In the first case that the FPSC had encountered a reserve surplus, the Commission accepted the company proposal that a reserve surplus be amortized over the RL of the investment. This company was formed to serve the Disney complex in Orlando.

5. Docket No. 830370, Order No. 12587, January 10, 1984, United Telephone. FPSC ordered 5 yr. amortization for historic deficit and a 13 yr. RL amortization of the prospective reserve deficiency. In Docket No. 871269, Order No. 18736, dated January 26, 1988, the FPSC used United overearnings to eliminate all amortization schedules.

6. Docket No. 820545, Order No. 12654, November 3, 1983, Central Telephone. FPSC ordered a 5 yr. amortization of historic deficit and 13 yr. RL deficit of prospective reserve deficiency.

7. Docket No. 820477, Order No. 12864, January 12, 1984, North Florida Tel. FPSC ordered 5 yr. amortization of historic deficit and 13 yr. amortization of prospective deficit.

8. Docket No. 840086, Order No. 13494, July 9, 1984, Gulf Telephone. FPSC ORDERED GULF TEL. TO SEPARATE RESERVE SURPLUS INTO HISTORIC VERSUS FUTURE AND AMORTIZE HISTORIC SURPLUS OVER 5 YRS. AND THE FUTURE RESERVE SURPLUS OVER RL 14 YEARS. THE LANGUAGE OF THE ORDER (ATTACHMENT 1) SPECIFICALLY EXPLAINS THE COMMISSION'S GOALS AT THAT TIME REGARDING THIS ISSUE. In Docket No. 870964, Order No. 18642, dated January 4, 1988, the Commission shortened this amortization from 14 to 5 years and eliminated the imbalance in 1989.

9. Docket No. 830582, Order No. 13528, July 19, 1984, Miller Gas.   FPSC ordered Miller to amortize historic deficit over 5 yrs. and future deficit over RL 20 yrs.

12. Docket No. 840045, Order No. 13538, July 24, 1984, City Gas. FPSC ordered amortization of historic deficit over 5 yrs., and future RL deficit over 24 yrs. The 24 year recovery was subsequently reduced to 7 years in 1989, (Docket No. 880203, Order No. 22115).

14. Docket No. 830585, Order No. 13681, December 14, 1984, Gulf Power. FPSC ordered Gulf to amortize deficit over 19 years for Transmission, Distribution and General Plant. Recovery was accelerated in 1988 by Order No. 19901 on August 30, 1988 (Item No. 41) and DEFICIENCY WAS ELIMINATED IN 1989.

15. Docket No. 840052, Order No. 13918, December 14, 1984, St. Joseph Tel. FPSC ordered 1 year amortization of historic deficit and 11 yr. amortization of prospective deficit.

20. Docket No. 850845, Order No. 15842, March 13, 1986, FPUC. FPSC stated historic reserve imbalance sometimes written off over 5 yrs. or less and order small imbalance to be recovered over the future remaining life rates. Later that year in Docket No. 860756, the FPSC ordered a 4 yr. amortization of the reserve deficit.

EXAMPLES OF ACCELERATED RECOVERY OF RESERVE DEFICITS

Following the 1980-1988 era where the Commission attempted to separate future and historic reserve imbalances, the Commission's new policy regarding the recovery of reserve imbalances was stated in Docket No. 871269, Order No. 18736, January 26, 1988, United Telephone, as follows:

> "This action will comply with our policies of correcting reserve imbalances as rapidly as possible and of accelerating the write-off of plant identified for retirement earlier than projected when these goals can be achieved without adversely affecting rates."

Likewise, in September 11, 1985, in Docket No. 840049, Order No. 14929, September, GTE, the FPSC stated:

> "We believe that it is in the interest of both Gentel's customers and its stockholders that the .... Deficit be written off in as short a time as practable."

Also, in August 24, 1987, in Docket No. 861618, Order No. 18029, the FPSC ordered Southern Bell to amortize all of its $536 million in reserve deficits over three years ending in 1989, including prospective reserve deficits identified in 1983 that were originally ordered to be recovered over 16 years.

The Commission's policy was stated in the December 20, 1993 order, Docket No. 930221, Order No. 930108, Gulf Power, when the Commission agreed with it's staff review and stated:

> "Our Staff's review indicates that there are a number of reserve imbalances existing which result primarily from differences in current and past projections. According to our staff, such deficiencies should be recovered as fast as possible unless such recovery prevents the Company from earning a fair and reasonable return on its investments. The intent is that customers benefiting from the plant at any point of time will be bearing their appropriate share of the depreciation expense. The matching of expenses to consumption is the goal."

Following are the cases involving accelerated amortization of reserve imbalances:

32. Docket No. 861618, Order No. 18029, August 24, 1987, Southern Bell. FPSC ordered 3 yr. amortization of $536 M deficiency.

34. Docket No. 870964, Order No. 18642, January 4, 1988, Gulf Telephone. FPSC ordered 5 yr. amortization.

35. Docket No. 871269, Order No. 18736, January 26, 1988, United Telephone, FPSC ordered use of overearnings to eliminate reserve deficits.

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48. Docket No. 990860, Order No. 21598, July 21, 1989, United Telephone. FPSC ordered 3 yr. and 5 yr. amortization of reserve deficiencies.

49. Docket No. 880203, Order No. 22115, October 31, 1989, City Gas. FPSC ordered 7 year amortization of "prospective reserve deficit".

52. Docket No. 890225, Order No. 22585, February 1, 1990, Quincy Telephone. FPSC ordered eleven 1 year amortization schedules to correct reserve deficits.

57. Docket No. 900599, Order No. 24004, January 22, 1991, Gulf Telephone. FPSC ordered 2 yr. amortization of reserve deficit in Metallic Filled Buried Cable. In the body of this order, this account analysis indicated by fiber by 2017.

58. Docket No. 891373, Order No. 24005, January 22, 1991, Indiantown Telephone. FPSC ordered a 3 yr. amortization of reserve deficit.

68. Docket No. 920589, Order No. 930007, January 4, 1983, Northeast Telephone. FPSC ordered 3 yr. amortization of reserve deficit.

78. Docket No. 930221, Order No. 930108, December 20, 1993, Gulf Power. FPSC stated its intent to recover reserve deficiencies as fast as possible. On December 27, 1993, the Commission reiterated its intent to recover deficiencies "as fast as possible" in Docket No. 930453, Order No. 931839, FPUC.

91. Docket No. 950213, Order No. 950475, April 12, 1995, TECO. FPSC amortized the EMS reserve deficiency over 1 year in order to equalize book reserve and theoretical reserve. EMS system was not scheduled for retirement until yr. 2000.

92. Docket No. 950359, Order No. 950672, May 31, 1995, FPL. FPSC ordered company to book $239 in depreciation expense for 1995 and 1996 that increased nuclear booked reserve to address the potential for stranded investment.

94. Docket No. 950461, Order No. 960461, April 2, 1996, FPL. FPSC finalized its previous order to book $126 M to nuclear reserve deficiency plus another $30 million to nuclear amortization, plus additional expense in 1996 and 1997.

97. Docket No. 970410, Order No. 970499, April 29, 1997, FPL. FPSC extended its 1996 order to book additional expense in 1998 and 1999 to correct reserve deficiencies, supported by FPL witness testimony supporting recovery of reserve deficiencies "as expeditiously as possible."

101. Docket No. 971600, Order No. 990073, January 8, 1999, FPL. FPSC order eliminated reserve deficiencies and stated:

"Therefore, as of January 1, 1999, the company's total generation reserves were equal to their theoretical reserves based on the most recent study by the company."

103. Docket No. 981166, Order No. 000293, February 14, 2000, FPL. FPSC ordered booking of $38 million to eliminate dismantlement reserve deficiency.

USE OF DEPRECIATION RESERVE DEFICIENCIES FOR BOOKING OF OVEREARNINGS, INTEREST SYNCHRONIZATION, BILL & KEEP IN LIEU OF REFUNDS TO CUSTOMERS

In addition to amortization schedules that the Commission has used in past dockets in order to accelerate the elimination of reserve surpluses as quickly as possible, the Commission has consistently looked outside the depreciation process to capture overearnings, revenues from JDIC credits, excess revenues from the telephone Bill and Keep decisions, etc. in order to address reserve deficiencies. In one case, the Commission order actually stated that they had already ordered one customer refund due to overearnings and, therefore, they would book the earnings at issue in the following case to depreciation expense. While these cases were not directly involved in increased rates for customers, the booking of overearnings and other excess revenues to depreciation reserve deficiencies denied customers the opportunity to receive refunds. These cases are as follows:

2. Docket No. 810210, Order No. 12147, June 17, 1983, Florida Telephone. Overearnings.

13. Docket No. 840158, Order No. 13624, August 27, 1984, United Telephone. Overearnings.

15. Docket No. 840052, Order No. 13918, December 14, 1984, St. Joe Telephone. Overearnings.

16. Docket No. 840168, Order No. 13951, December 31, 1984, Central Telephone. Overearnings.

19. Dockets 810035, 820294, 810095, 810211, 810251, 810252, 850064, 820007, 830012, 850050, 820097, 830470, 820150, 840086, FPL, FPC, GULF, TECO, and seven telephone companies. FPSC ordered refunds of JDIC revenues based on interest synchronization for 11 electric and telephone companies through booking of one time depreciation reserve adjustments, instead of requiring customer refunds.

22. Docket No. 850662, Order No. 16879, November 21, 1986, United Telephone. Overearnings, JDIC and Bill & Keep proceeds.

24. Docket No. 860525, Order No. 17022, December 24, 1986. Central Telephone. Bill & Keep proceeds.

25. Docket No. 861139, 861362, 860674, Order No. 17040, December 31, 1986, Southern Bell. Overearnings, Tax recovery.

27. Docket No. 850250, Order No. 17132, January 26, 1987, Quincy Telephone. Overearnings, Bill & Keep proceeds.

35. Docket No. 871269, Order No. 18736, January 26, 1988, United Telephone. Overearnings.

36. Docket No. 870763, Order No. 19138, April 13, 1988, Florida Power. JDIC interest synchronization.

41. Docket No. 880053, Order No. 19901, August 30, 1988, Gulf Power. JDIC interest synchronization.

42. Docket No. 880860, Order No. 20330, November 18, 1988, United Telephone. Overearnings, Tax Reform Act.

43. Docket No. 880868, Order No. 19438, June 6, 1988, Tampa Electric. JDIC Interest Synchronization.

46. Docket No. 870460, Order No. 20509, December 23, 1988, AT&T. Overearnings.

52. Docket No. 890225, Order No. 22414, January 11, 1990, Quincy Telephone. JDIC Interest Synchronization, Bill & Keep proceeds.

56. Docket No. 900162, Order No. 23922, December 21, 1990, Vista-United. Bill & Keep proceeds.

59. Docket No. 890216, Order No. 24098, February 8, 1991, GTE. Unclaimed refunds.

60. Docket No. 910461, Order No. 24940, August 20, 1991, Quincy Telephone. Overearnings.

61. Docket No. 900605, Order No. 25378, November 25, 1991, GTE. JDIC Interest Synchronization, Bill & Keep proceeds.

64. Docket No. 910565, Order No. 25679, February 3, 1992, Quincy Telephone. Overearnings.

65. Docket No. 911108, Order No. 920028, March 10, 1992, ALLTEL. Overearnings.

66. Docket No. 910731, Order No. 920368, May 14, 1992, Northeast Telephone. Toll Subsidy revenues.

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71. Docket No. 920729, Order No. 930520, April 6, 1993, Chesapeake Utilities. Overearnings.

73. Docket No. 920755, Order No. 930897, June 14, 1993, ALLTEL. Overearnings.

75. Docket No. 921278, Order No. 931554, October 25, 1993, Indiantown. Overearnings.

76. Docket No. 930170, Order No. 931572, October 27, 1993, Gulf Telephone. Overearnings.

77. Docket No. 931101, Order No. 931773, December 10, 1993, Peoples Gas. Overearnings.

80. Docket No. 920195, Order No. 940119, February 1, 1994, Quincy Telephone. Overearnings.

84. Docket No. 940621, Order No. 940852, July 13, 1994, Florida Power. Overearnings.

85. Docket No. 940663, Order No. 940872, July 18, 1994, TECO. Overearnings credited to Storm Account.

88. Docket No. 921231, Order No. 950340, March 13, 1995, Florida Power & Light. Overearnings used for asbestos abatement.

90. Docket No. 940826, Order No. 950427, March 29. 1995, Indiantown. Overearnings.

93. Docket No. 950283, Order No. 951239, October 6, 1995, United Telephone. Overearnings

94. Docket No. 950359, Order No. 960461, April 2, 1996, FPL. Overearnings.

97. Docket No. 970410, Order No. 970499, April 29, 1997, FPL. Excess Revenues.

109. Docket No. 891335, Order No. 23957, January 4, 1991, Florida Power, JDIC Interest Synchronization.

REBALANCING OF RESERVES TO EQUALIZE BOOK DEPRECIATION RESERVES AND THEORETICAL DEPRECIATION RESERVES

For the past 25 years, the Commission has followed a consistent procedure in its review of depreciation studies and approval of new depreciation rates to first eliminate the difference between the theoretical and book reserves of the company. In each of its orders during this period of time, the Commission has first dealt with the issue of rebalancing the reserves based on the new lives and salvage values that have been proposed in the new studies. Many of these cases involved significant corrective such as amortization of reserve deficiencies in combination with rebalancing of the reserves between account surpluses and deficiencies. In 32 additional cases, the Commission achieved its goal of rebalancing the reserves without the need for additional corrective actions. These cases are identified below:

23. Docket No. 851110, Centel
26. Docket No. 860050, Northeast Telephone
28. Docket No. 861151, Florala Telephone
30. Docket No. 870085, FPL
31. Docket No. 861512, Gainesville Gas
33. Docket No. 870108, Central Florida Gas
37. Docket No. 870964, Gulf Telephone
39. Docket No. 871301, Plant City Natural Gas
40. Docket No. 871266, People's Gas
44. Docket No. 871397, Florida Natural Gas
45. Docket No. 871413, St. Joe Natural Gas
47. Docket No. 871420, Southern Gas
50. Docket No. 890725, FPUC
53. Docket No. 891050, Florala Telephone
55. Docket No. 801115, Southland Telephone
62. Docket No. 910686, TECO
67. Docket No. 910725, United Telephone
69. Docket No. 920385, BellSouth
70. Docket No. 920823, Florala Telephone
72. Docket No. 920795, Southland Telephone
74. Docket No. 921270, St. Joe Telephone
81. Docket No. 921337, St. Joe Natural Gas
89. Docket No. 940607, Quincy Telephone
95. Docket No. 950887, ALLTEL
96. Docket No. 960794, Quincy Telephone
98. Docket No. 970428, Chesapeake Utilities
99. Docket No. 980700, South Florida Natural Gas
100. Docket No. 980845, Indiantown Gas
104. Docket No. 990529, TECO
105. Docket No. 010669, FPUC
106. Docket No. 010031, Florida Power Corp.
108. Docket No. 010383, Peoples Gas

EXPLANATION OF 72.19% ON HWS-1, C-3 AND $12,094,011

In determining how the $12,994,011 Long term incentive was arrived I took the total per company from OPC 127 and multiplied it by the 72.4% expense factor on OPC 128.

The 72.19% was a fall out calculation that can be found in excel files of the schedules under the payroll file on page 2 of that schedule. The cell has a formula in it.

Hewitt

Question NYECC4-47

U.S. Impact of Economic Conditions on 2008/2009 Compensation Spending—December Update
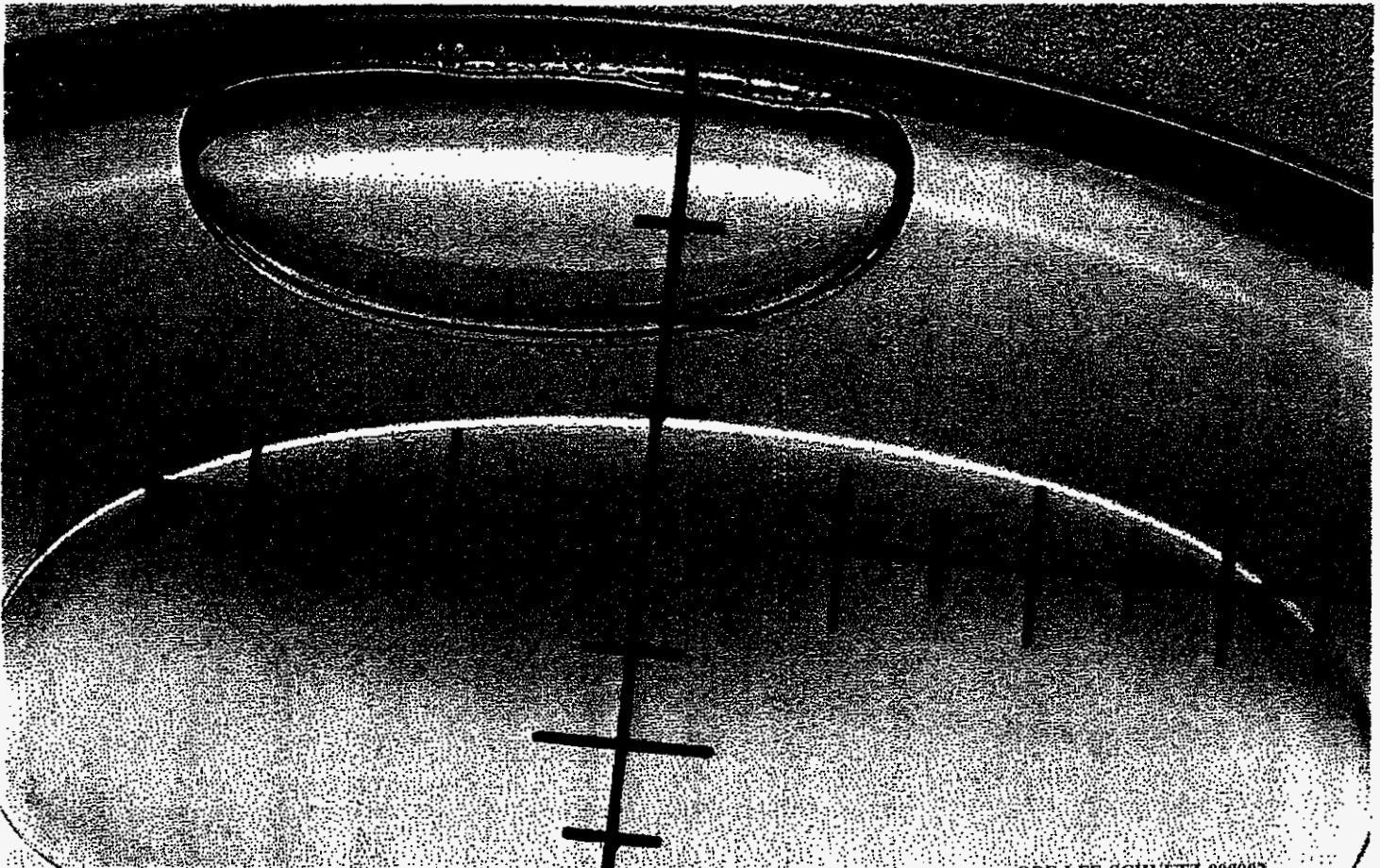
U.S.
Impact of Economic Conditions on 2008/2009 Compensation Spending— December Update

December 2008

Contents

Survey Highlights and Insights

This report presents the results of the Second Economic Impact Survey conducted by Hewitt Associates LLC (Hewitt). The first survey was conducted and results reported back in the month of October. This survey requested additional information on overall changes in employee compensation due to recent economic conditions for the calendar year 2008 and on current projections for 2009. Information was collected from 640 organizations. Participants include 351 service organizations, 281 manufacturing organizations, and 8 multi-industry organizations.

Where Things Stand—Overall

Effective Date			
Oct.	Nov.	Jan.	March
11%	24%	32%	14%

Decision Date			
Nov.	Dec.	Jan.	Feb.
19%	38%	28%	10%

Decision Date		
Dec.	Jan.	Feb.
36%	29%	16%
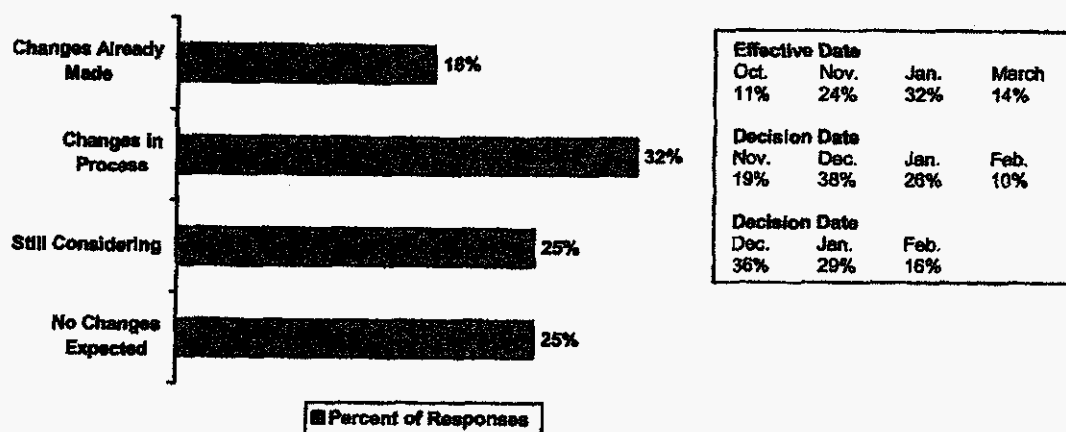
This U.S.-based pulse survey was conducted from November to December 2008 amidst the backdrop of the conclusion of the Presidential election, a country still waging war overseas, a highly volatile stock market, and debate over a second major economic bailout package. In light of all these factors, half (50%) of the 640 participants in this study told us they plan to change their position on salary increases or variable pay. The net effect of considering both those who have made changes and those who remain steadfast in their original position is a decrease of slightly less than 1 percent in salary increase spending—or a drop from 3.8 percent originally to 3.0 percent currently.

Organizations who have decided to revise their spending levels have significantly reduced their budgets—generally resulting in more than a 1 percent decrease from original projections set just a few months ago. Most appropriately, spending on variable pay is also being decreased significantly. Few companies are implementing salary freezes, and virtually none are cutting salaries. Holding the line on base salaries—one of the largest categories of fixed cost for most organizations—is not unexpected given today's economic conditions. The responses we are seeing to this economic downturn—with salary increase budgets dipping below the 3 percent level—are far more significant than the responses companies were pursuing in October 2001 just following the events of September 11.

Many organizations have no choice but to reduce their near-term fixed spending and to look for ways to reduce the future cost burdens associated with compensation expenses. These decisions should be entered into knowing that there could be longer-term consequences—especially with top performers and high potentials. Now is the time to find creative ways to send the right messages to the most critical and valued employees through monetary and non-monetary recognition vehicles. It is also the time to ensure that ongoing reward programs are calibrated to compensate when performance is strong and to avoid perpetuating an entitlement mentality when performance is lacking.

Clearly many organizations and even some industries are being strongly impacted by the economy and some short-term adjustments may be required to survive. The growth in variable pay arrangements adopted by nearly 90 percent of Corporate America will help organizations weather these difficult times as they allow employers to more effectively manage fixed costs, focus on key business objectives, and motivate and reward employees when they attain performance goals. The variable cost attributes of these plans should take some pressure off companies who are reluctant to reduce employees' salaries—especially given the current rate of inflation.

The complete report of survey results follow. Information appears in summary and detail based on industry and geographic location. A minimum of ten organizations responding was required to report any single data point.

Overview of Survey Results

Overview of Survey Results

Average Salary Increase Budgets—*Including* Zero Percents

	2009 Projected Overall Salary Increase Budgets				
	Executive	Salaried Exempt	Salaried Nonexempt	Nonunion Hourly	Union
Initial	3.8% (565)	3.8% (594)	3.7% (521)	3.6% (469)	3.2% (162)
Current	2.9% (625)	3.0% (650)	3.1% (484)	3.1% (439)	2.8% (166)

	2009 Projected Salary Structure Increases				
	Executive	Salaried Exempt	Salaried Nonexempt	Nonunion Hourly	Union
Initial	2.6% (322)	2.7% (376)	2.6% (327)	2.6% (279)	2.5% (91)
Current	2.2% (305)	2.3% (353)	2.3% (311)	2.3% (262)	2.2% (84)

Note: *Throughout this report, all numbers in parentheses indicate the number of organizations represented by each data point. Unless specifically indicated otherwise, averages represent all reported data, including zero percent increase budgets.*

Average Overall Salary Increase Budgets—*Including* Zero Percents

The tables below display results for organization that are ...

Planning Changes

	2009 Projected Overall Salary Increase Budgets							
	Executive		Salaried Exempt		Salaried Nonexempt		Nonunion Hourly	
Initial	3.8%	(184)	3.8%	(192)	3.7%	(171)	3.7%	(153)
Current	2.3%	(172)	2.7%	(178)	2.8%	(159)	2.7%	(143)

Changing

	2009 Projected Overall Salary Increase Budgets							
	Executive		Salaried Exempt		Salaried Nonexempt		Nonunion Hourly	
Initial	3.8%	(122)	3.8%	(131)	3.7%	(112)	3.7%	(99)
Current	2.4%	(121)	2.4%	(129)	2.4%	(110)	2.5%	(97)

Not Making Changes

	2009 Projected Overall Salary Increase Budgets							
	Executive		Salaried Exempt		Salaried Nonexempt		Nonunion Hourly	
Initial	3.8%	(148)	3.7%	(157)	3.7%	(135)	3.6%	(127)
Current	3.8%	(148)	3.7%	(157)	3.7%	(135)	3.6%	(127)

Still Deciding

	2009 Projected Overall Salary Increase Budgets							
	Executive		Salaried Exempt		Salaried Nonexempt		Nonunion Hourly	
Initial	3.8%	(111)	3.8%	(116)	3.8%	(103)	3.5%	(90)
Current	3.5%	(84)	3.6%	(88)	3.6%	(80)	3.4%	(72)

Note: *Throughout this report, all numbers in parentheses indicate the number of organizations represented by each data point. Unless specifically indicated otherwise, averages represent all reported data, including zero percent increase budgets.*

2009 Overall Salary Increase Budgets and Salary Structure Increases by Industry

Executive Group

2009 Projected Budgets

	Overall Salary Increase Budget				Salary Structure Movement			
	Initial		Current		Initial		Current	
Manufacturing								
Aerospace	3.9%	(9)	3.6%	(7)	3.2%	(5)	3.2%	(5)
Automotive/Vehicle Manufacturing	4.0%	(11)	1.3%	(8)	2.4%	(7)	1.7%	(5)
Chemicals (not Pharmaceutical)	3.8%	(24)	3.0%	(22)	2.4%	(20)	2.2%	(19)
Computers and Related Products	3.7%	(18)	2.5%	(13)	2.5%	(8)	2.0%	(6)
Consumer Products - Durable Goods	3.7%	(25)	3.0%	(26)	2.8%	(15)	2.5%	(16)
Consumer Products - Nondurable Goods	3.6%	(22)	2.6%	(20)	2.7%	(12)	2.5%	(11)
Electronics/Electrical	3.8%	(10)	3.2%	(7)	—	(2)	—	(2)
Energy (Oil/Gas)	4.9%	(20)	3.8%	(18)	3.4%	(10)	3.3%	(10)
Food/Beverage/Tobacco	3.7%	(27)	3.2%	(25)	2.4%	(15)	2.0%	(14)
Forest & Paper Products/Packaging	3.2%	(9)	2.0%	(9)	—	(4)	—	(4)
Pharmaceutical	4.0%	(15)	3.9%	(15)	2.9%	(9)	2.6%	(9)
Other Manufacturing	3.6%	(20)	2.6%	(18)	3.0%	(13)	2.5%	(13)
All Manufacturing	**3.8%**	**(243)**	**3.0%**	**(219)**	**2.7%**	**(138)**	**2.5%**	**(130)**
Service								
Banking/Finance	3.7%	(43)	2.4%	(44)	2.5%	(30)	1.8%	(28)
Business/Computer Services	4.4%	(15)	3.3%	(14)	2.7%	(9)	2.3%	(8)
Construction/Engineering	4.7%	(10)	4.1%	(10)	3.3%	(8)	2.6%	(9)
Education	3.8%	(13)	1.9%	(12)	—	(2)	—	(3)
Energy (Power/Gas)	3.8%	(38)	3.5%	(37)	2.9%	(22)	2.7%	(20)
Entertainment/Communications/Publication	3.8%	(7)	3.4%	(6)	2.7%	(5)	—	(4)
Health Care/Medical Services	3.8%	(29)	2.8%	(25)	2.6%	(22)	1.8%	(23)
Insurance - Life & Health	3.9%	(22)	3.0%	(20)	2.9%	(12)	2.3%	(12)
Insurance - Property & Casualty	3.8%	(18)	3.2%	(18)	2.9%	(7)	2.5%	(6)
Research/Development	4.0%	(11)	4.0%	(10)	2.8%	(7)	2.8%	(7)
Retail (incl. Wholesale & Distribution)	3.5%	(39)	2.1%	(37)	2.7%	(26)	2.1%	(24)
Telecommunications	3.7%	(12)	2.7%	(12)	—	(4)	—	(4)
Transportation Services	3.5%	(9)	2.7%	(8)	2.1%	(6)	2.5%	(5)
Other Service	3.5%	(14)	2.9%	(14)	—	(2)	—	(2)
All Service	**3.8%**	**(314)**	**2.8%**	**(300)**	**2.6%**	**(179)**	**2.1%**	**(173)**
All Companies	3.8%	(565)	2.9%	(525)	2.6%	(322)	2.2%	(305)

Salaried Exempt

2009 Projected Budgets

	Overall Salary Increase Budget				Salary Structure Movement			
	Initial		Current		Initial		Current	
Manufacturing								
Aerospace	3.9%	(10)	3.6%	(9)	3.0%	(5)	3.3%	(6)
Automotive/Vehicle Manufacturing	3.5%	(14)	1.4%	(11)	2.9%	(8)	1.8%	(6)
Chemicals (not Pharmaceutical)	3.8%	(24)	3.0%	(22)	2.5%	(20)	2.3%	(19)
Computers and Related Products	3.9%	(17)	2.9%	(12)	3.0%	(9)	2.3%	(7)
Consumer Products - Durable Goods	3.7%	(29)	3.1%	(29)	2.8%	(16)	2.4%	(17)
Consumer Products - Nondurable Goods	3.5%	(23)	2.8%	(21)	2.6%	(13)	2.4%	(11)
Electronics/Electrical	3.9%	(12)	3.6%	(9)	—	(3)	—	(3)
Energy (Oil/Gas)	4.7%	(21)	3.8%	(20)	3.4%	(14)	3.2%	(14)
Food/Beverage/Tobacco	3.7%	(28)	3.4%	(26)	3.0%	(17)	2.2%	(16)
Forest & Paper Products/Packaging	3.1%	(10)	2.0%	(10)	2.1%	(6)	2.1%	(6)
Pharmaceutical	4.1%	(16)	3.9%	(16)	2.4%	(10)	2.3%	(10)
Other Manufacturing	3.6%	(21)	2.8%	(19)	2.9%	(14)	2.4%	(14)
All Manufacturing	**3.8%**	**(260)**	**3.1%**	**(237)**	**2.8%**	**(159)**	**2.5%**	**(150)**
Service								
Banking/Finance	3.9%	(45)	2.9%	(45)	2.4%	(31)	2.0%	(29)
Business/Computer Services	4.4%	(15)	3.6%	(14)	2.6%	(9)	2.3%	(8)
Construction/Engineering	5.0%	(11)	4.2%	(11)	3.5%	(9)	3.0%	(10)
Education	3.5%	(14)	2.3%	(13)	2.5%	(7)	1.6%	(7)
Energy (Power/Gas)	3.8%	(40)	3.4%	(38)	2.9%	(26)	2.8%	(24)
Entertainment/Communications/Publication	3.8%	(8)	3.4%	(7)	2.5%	(6)	2.0%	(5)
Health Care/Medical Services	3.7%	(31)	3.2%	(27)	2.5%	(27)	1.9%	(26)
Insurance - Life & Health	3.8%	(21)	3.0%	(19)	2.7%	(13)	2.2%	(13)
Insurance - Property & Casualty	3.7%	(19)	3.2%	(18)	3.2%	(10)	2.6%	(9)
Research/Development	4.2%	(12)	4.0%	(11)	2.5%	(8)	2.3%	(8)
Retail (incl. Wholesale & Distribution)	3.4%	(40)	2.5%	(38)	2.6%	(29)	2.2%	(27)
Telecommunications	3.6%	(13)	2.8%	(12)	2.5%	(6)	2.0%	(5)
Transportation Services	3.5%	(9)	2.7%	(8)	2.1%	(8)	2.3%	(6)
Other Service	3.6%	(14)	3.0%	(13)	2.2%	(5)	2.0%	(5)
All Service	**3.8%**	**(326)**	**3.1%**	**(307)**	**2.6%**	**(212)**	**2.2%**	**(201)**
All Companies	3.8%	(594)	3.0%	(550)	2.7%	(376)	2.3%	(355)

Salaried Nonexempt

2009 Projected Budgets

	Overall Salary Increase Budget				Salary Structure Movement			
	Initial		Current		Initial		Current	
Manufacturing								
Aerospace	3.8%	(10)	3.6%	(9)	2.8%	(5)	3.1%	(6)
Automotive/Vehicle Manufacturing	3.5%	(14)	1.4%	(11)	2.6%	(8)	1.8%	(6)
Chemicals (not Pharmaceutical)	3.8%	(23)	3.2%	(20)	2.6%	(20)	2.5%	(19)
Computers and Related Products	3.9%	(16)	3.1%	(11)	3.1%	(8)	2.6%	(6)
Consumer Products - Durable Goods	3.6%	(28)	3.1%	(28)	2.8%	(16)	2.4%	(17)
Consumer Products - Nondurable Goods	3.6%	(21)	2.9%	(19)	2.6%	(12)	2.3%	(10)
Electronics/Electrical	3.7%	(9)	3.2%	(6)	—	(3)	—	(3)
Energy (Oil/Gas)	4.7%	(21)	3.8%	(20)	3.5%	(14)	3.3%	(14)
Food/Beverage/Tobacco	3.7%	(27)	3.5%	(25)	2.3%	(16)	1.9%	(15)
Forest & Paper Products/Packaging	3.1%	(10)	2.0%	(10)	2.1%	(6)	2.1%	(6)
Pharmaceutical	3.9%	(11)	3.6%	(11)	2.2%	(7)	2.1%	(7)
Other Manufacturing	3.6%	(19)	2.9%	(17)	2.8%	(12)	2.5%	(12)
All Manufacturing	*3.8%*	*(238)*	*3.1%*	*(215)*	*2.7%*	*(147)*	*2.5%*	*(139)*
Service								
Banking/Finance	3.9%	(41)	3.0%	(41)	2.3%	(27)	1.8%	(26)
Business/Computer Services	3.8%	(12)	3.3%	(11)	2.9%	(8)	2.6%	(7)
Construction/Engineering	5.0%	(10)	4.2%	(10)	3.5%	(8)	3.4%	(9)
Education	3.5%	(11)	2.9%	(11)	2.7%	(5)	1.8%	(6)
Energy (Power/Gas)	3.8%	(33)	3.4%	(32)	2.9%	(21)	2.8%	(18)
Entertainment/Communications/Publication	3.8%	(8)	3.4%	(7)	2.5%	(6)	2.0%	(5)
Health Care/Medical Services	3.6%	(21)	3.1%	(18)	2.5%	(17)	1.8%	(18)
Insurance - Life & Health	3.9%	(18)	3.2%	(17)	2.7%	(13)	2.4%	(13)
Insurance - Property & Casualty	3.6%	(15)	3.2%	(15)	3.3%	(7)	2.9%	(7)
Research/Development	4.2%	(10)	4.0%	(10)	2.2%	(7)	2.1%	(7)
Retail (incl. Wholesale & Distribution)	3.4%	(33)	2.6%	(31)	2.5%	(25)	2.1%	(23)
Telecommunications	3.6%	(12)	2.7%	(11)	2.2%	(5)	—	(4)
Transportation Services	3.5%	(8)	3.0%	(7)	2.0%	(7)	2.3%	(6)
Other Service	3.6%	(14)	3.0%	(13)	2.2%	(5)	2.0%	(5)
All Service	*3.7%*	*(276)*	*3.1%*	*(263)*	*2.6%*	*(176)*	*2.2%*	*(170)*
All Companies	3.7%	(520)	3.1%	(484)	2.6%	(327)	2.3%	(311)

Nonunion Hourly

2009 Projected Budgets

	Overall Salary Increase Budget				Salary Structure Movement			
	Initial		Current		Initial		Current	
Manufacturing								
Aerospace	3.8%	(7)	3.5%	(7)	—	(3)	—	(3)
Automotive/Vehicle Manufacturing	2.8%	(11)	1.1%	(9)	2.0%	(6)	1.4%	(5)
Chemicals (not Pharmaceutical)	3.6%	(19)	3.1%	(16)	2.4%	(14)	2.4%	(13)
Computers and Related Products	4.3%	(11)	2.7%	(8)	3.1%	(7)	2.4%	(5)
Consumer Products - Durable Goods	3.3%	(24)	2.9%	(24)	2.8%	(13)	2.4%	(14)
Consumer Products - Nondurable Goods	3.4%	(21)	2.7%	(19)	2.4%	(12)	2.2%	(10)
Electronics/Electrical	3.6%	(10)	3.5%	(8)	—	(2)	—	(2)
Energy (Oil/Gas)	4.6%	(19)	3.7%	(18)	3.4%	(12)	3.1%	(12)
Food/Beverage/Tobacco	3.5%	(21)	3.2%	(21)	1.9%	(7)	1.4%	(7)
Forest & Paper Products/Packaging	3.1%	(8)	2.0%	(8)	—	(3)	—	(3)
Pharmaceutical	4.1%	(14)	4.0%	(14)	2.5%	(8)	2.4%	(8)
Other Manufacturing	3.4%	(18)	2.9%	(16)	2.5%	(10)	2.3%	(10)
All Manufacturing	***3.6%***	***(210)***	***3.0%***	***(192)***	***2.7%***	***(113)***	***2.4%***	***(105)***
Service								
Banking/Finance	3.7%	(29)	3.0%	(30)	2.3%	(21)	2.1%	(20)
Business/Computer Services	3.8%	(11)	3.2%	(10)	2.8%	(9)	2.5%	(8)
Construction/Engineering	4.8%	(9)	4.0%	(9)	3.2%	(7)	3.2%	(8)
Education	3.6%	(12)	2.8%	(11)	2.5%	(6)	1.7%	(6)
Energy (Power/Gas)	3.7%	(33)	3.4%	(33)	2.9%	(22)	2.8%	(20)
Entertainment/Communications/Publication	3.7%	(6)	3.3%	(5)	2.7%	(5)	—	(4)
Health Care/Medical Services	3.7%	(29)	3.3%	(27)	2.4%	(25)	2.0%	(25)
Insurance - Life & Health	3.8%	(11)	3.3%	(9)	2.6%	(7)	2.1%	(7)
Insurance - Property & Casualty	3.7%	(12)	3.2%	(12)	2.8%	(7)	1.9%	(6)
Research/Development	4.2%	(7)	4.1%	(6)	2.5%	(5)	2.4%	(5)
Retail (incl. Wholesale & Distribution)	3.4%	(37)	2.6%	(36)	2.6%	(28)	2.1%	(26)
Telecommunications	3.5%	(11)	2.8%	(11)	—	(4)	—	(4)
Transportation Services	3.2%	(7)	2.8%	(6)	1.6%	(5)	—	(4)
Other Service	3.5%	(13)	3.0%	(12)	—	(4)	—	(4)
All Service	***3.7%***	***(252)***	***3.1%***	***(242)***	***2.5%***	***(163)***	***2.2%***	***(156)***
All Companies	3.6%	(469)	3.1%	(439)	2.6%	(279)	2.3%	(262)

Salary Increase Budgets and Salary Structure Increases by Geographic Region

All Organizations

2009 Projected Budgets

Geographic Region	Overall Salary Increase Budget				Salary Structure Movement			
	Initial		Current		Initial		Current	
East								
Executive Group	3.7%	(160)	2.8%	(150)	2.7%	(77)	2.3%	(75)
Salaried Exempt	3.8%	(170)	3.1%	(157)	2.7%	(97)	2.4%	(91)
Salaried Nonexempt	3.7%	(151)	3.1%	(142)	2.7%	(87)	2.4%	(83)
Nonunion Hourly	3.7%	(129)	3.1%	(120)	2.6%	(72)	2.3%	(67)
Union	3.2%	(43)	2.8%	(44)	2.4%	(20)	2.3%	(19)
Midwest								
Executive Group	3.8%	(191)	2.9%	(180)	2.6%	(124)	2.1%	(116)
Salaried Exempt	3.7%	(205)	3.0%	(192)	2.6%	(140)	2.2%	(130)
Salaried Nonexempt	3.7%	(174)	3.0%	(163)	2.6%	(116)	2.2%	(109)
Nonunion Hourly	3.6%	(167)	3.1%	(158)	2.5%	(103)	2.1%	(95)
Union	3.1%	(68)	2.8%	(65)	2.5%	(34)	1.9%	(31)
South								
Executive Group	3.8%	(106)	2.9%	(98)	2.7%	(58)	2.4%	(55)
Salaried Exempt	3.8%	(108)	3.1%	(100)	2.9%	(66)	2.7%	(62)
Salaried Nonexempt	3.9%	(100)	3.2%	(92)	2.8%	(59)	2.7%	(57)
Nonunion Hourly	3.7%	(87)	3.0%	(83)	2.7%	(52)	2.7%	(52)
Union	3.2%	(28)	2.9%	(29)	2.4%	(19)	2.2%	(18)
West								
Executive Group	3.8%	(74)	2.9%	(66)	2.8%	(38)	2.4%	(35)
Salaried Exempt	3.8%	(76)	3.1%	(67)	2.7%	(45)	2.3%	(42)
Salaried Nonexempt	3.7%	(65)	3.1%	(57)	2.6%	(39)	2.1%	(36)
Nonunion Hourly	3.7%	(56)	3.1%	(49)	2.8%	(33)	2.4%	(30)
Union	3.3%	(12)	3.1%	(10)	3.1%	(9)	3.0%	(8)

Broad-Based Rewards

Broad-Based Rewards

Prevalence of Broad-Based Rewards

With Program[1]
69%

No Program
31%

(n=581)
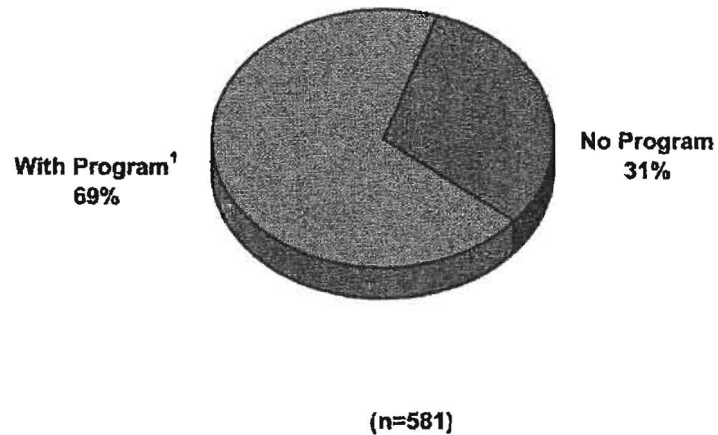
Of those organizations currently with no program, 24 percent plan to introduce a program in 2009.

Don't
Know/Unsure
7%

No
69%

Yes
24%

(n=169)

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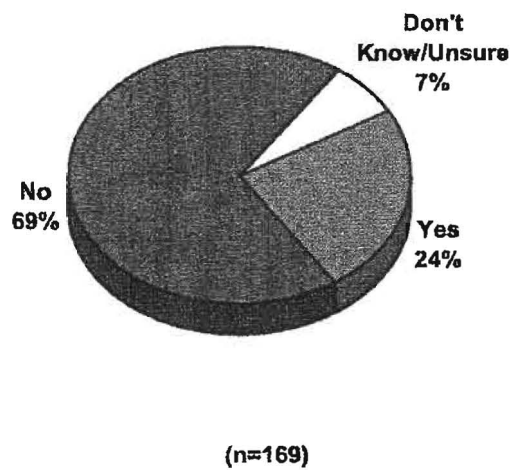
[1] Where eligibility extends beyond executive level and sales employees.

Organization Spending on Broad-Based Variable Pay Awards

Spending is calculated by the amount of all variable pay awards divided by the amount of payroll (total cash compensation) of the eligible employee group.

2008 Average Spending as a Percent of Payroll

Employee Group	Initial		Current	
Salaried exempt	12.2%	(251)	11.5%	(251)
Salaried nonexempt	6.3%	(189)	6.0%	(189)
Nonunion hourly	4.9%	(150)	4.5%	(150)
Union	2.6%	(71)	2.3%	(71)

2009 Projected Average Spending as a Percent of Payroll

Employee Group	Initial		Current	
Salaried exempt	12.1%	(246)	11.1%	(232)
Salaried nonexempt	6.1%	(183)	5.7%	(174)
Nonunion hourly	4.7%	(144)	4.1%	(141)
Union	2.2%	(67)	2.2%	(67)

2008 Business Performance Goals/Typical Award Payout

Over half (54%) of the responding organizations indicated that their organization will not meet 100 percent of business performance goals.

■ Business performance goals   ■ Award payout
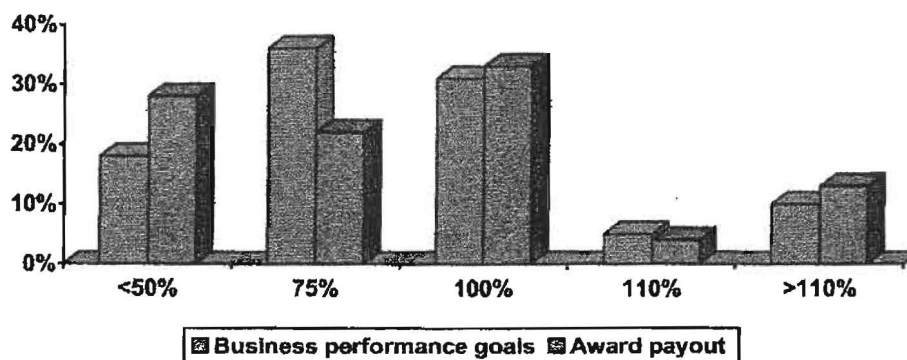
Expected Changes to 2009 Variable Pay Plans

	Decrease	Maintain	Increase
Performance goals	7%	78%	15%
Funding	15%	81%	4%
Eligibility	3%	94%	3%
Payout targets	8%	87%	5%
Individual performance component	6%	87%	7%

Changes to Largest Plan Design Type

Less than 10 percent of the organizations plan to make changes to their variable pay plans going forward.

No
78%

Don't
Know/Unsure
15%

Changed
2%

Planning
5%
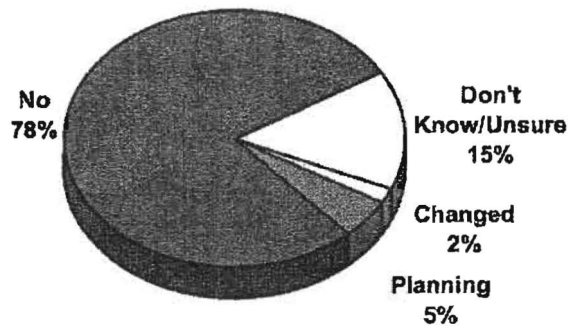
(n=503)

The tables following display variable pay spending for 2008 and 2009 projections broken out by industry.

Salaried Exempt

Variable Pay Spending

	2008				2009 Projected			
	Initial		Current		Initial		Current	
Manufacturing								
Aerospace	—	(4)	—	(4)	—	(4)	—	(3)
Automotive/Vehicle Manufacturing	10.6%	(7)	8.4%	(8)	9.1%	(7)	6.0%	(7)
Chemicals (not Pharmaceutical)	12.0%	(13)	12.5%	(12)	12.8%	(11)	13.8%	(9)
Computers and Related Products	9.5%	(8)	8.6%	(6)	9.6%	(8)	8.8%	(6)
Consumer Products - Durable Goods	12.3%	(15)	10.4%	(15)	12.3%	(15)	10.9%	(14)
Consumer Products - Nondurable Goods	15.1%	(5)	13.6%	(6)	14.5%	(5)	13.5%	(5)
Electronics/Electrical	9.6%	(7)	9.7%	(7)	10.4%	(6)	10.2%	(6)
Energy (Oil/Gas)	14.8%	(9)	15.5%	(9)	14.8%	(8)	15.2%	(8)
Food/Beverage/Tobacco	17.9%	(16)	17.9%	(15)	18.8%	(16)	17.5%	(15)
Forest & Paper Products/Packaging	10.7%	(5)	8.1%	(5)	11.6%	(5)	11.6%	(5)
Pharmaceutical	18.3%	(8)	17.3%	(9)	16.9%	(9)	15.8%	(10)
Other Manufacturing	10.4%	(8)	10.2%	(8)	9.8%	(8)	8.4%	(8)
All Manufacturing	*12.9%*	*(118)*	*12.2%*	*(117)*	*13.0%*	*(115)*	*12.1%*	*(110)*
Service								
Banking/Finance	11.7%	(19)	10.7%	(20)	11.3%	(17)	10.4%	(15)
Business/Computer Services	10.6%	(6)	9.6%	(5)	10.1%	(6)	8.9%	(5)
Construction/Engineering	15.2%	(6)	14.7%	(6)	10.6%	(5)	10.6%	(5)
Education	—	(1)	—	(1)	—	(1)	—	(1)
Energy (Power/Gas)	11.9%	(21)	11.2%	(20)	12.1%	(19)	12.3%	(17)
Entertainment/Communications/Publication	—	(4)	—	(4)	—	(4)	—	(3)
Health Care/Medical Services	7.9%	(8)	6.6%	(8)	7.5%	(8)	6.3%	(7)
Insurance - Life & Health	8.1%	(10)	8.9%	(10)	8.5%	(10)	7.0%	(10)
Insurance - Property & Casualty	17.3%	(9)	15.3%	(9)	16.7%	(10)	15.9%	(10)
Research/Development	4.0%	(7)	4.1%	(7)	4.2%	(7)	6.2%	(7)
Retail (incl. Wholesale & Distribution)	11.1%	(15)	10.1%	(16)	10.8%	(17)	8.4%	(17)
Telecommunications	7.8%	(5)	—	(4)	—	(4)	—	(4)
Transportation Services	13.2%	(5)	13.7%	(5)	12.9%	(5)	—	(4)
Other Service	—	(2)	—	(2)	—	(2)	—	(2)
All Service	*11.6%*	*(130)*	*10.8%*	*(131)*	*11.4%*	*(128)*	*10.1%*	*(119)*
All Companies	12.2%	(251)	11.5%	(251)	12.1%	(246)	11.1%	(232)

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Salaried Nonexempt

Variable Pay Spending

	2008				2009 Projected			
	Initial		Current		Initial		Current	
Manufacturing								
Aerospace	—	(3)	—	(3)	—	(3)	—	(3)
Automotive/Vehicle Manufacturing	3.9%	(7)	1.9%	(7)	2.6%	(7)	1.3%	(6)
Chemicals (not Pharmaceutical)	5.0%	(12)	4.8%	(11)	5.0%	(11)	4.6%	(9)
Computers and Related Products	5.6%	(5)	—	(4)	4.7%	(5)	4.6%	(5)
Consumer Products - Durable Goods	7.7%	(10)	6.0%	(10)	7.6%	(10)	5.3%	(9)
Consumer Products - Nondurable Goods	6.4%	(5)	4.2%	(6)	—	(4)	—	(4)
Electronics/Electrical	5.4%	(5)	5.6%	(5)	5.4%	(5)	5.2%	(5)
Energy (Oil/Gas)	5.9%	(8)	6.3%	(8)	5.6%	(7)	5.9%	(7)
Food/Beverage/Tobacco	10.7%	(10)	12.0%	(10)	10.6%	(10)	9.6%	(10)
Forest & Paper Products/Packaging	6.0%	(5)	4.8%	(5)	7.5%	(5)	7.5%	(5)
Pharmaceutical	6.8%	(5)	6.8%	(5)	6.5%	(6)	6.5%	(6)
Other Manufacturing	6.3%	(6)	6.3%	(6)	7.0%	(6)	7.0%	(6)
All Manufacturing	*6.3%*	*(91)*	*5.9%*	*(89)*	*6.2%*	*(87)*	*5.7%*	*(83)*
Service								
Banking/Finance	7.3%	(14)	6.7%	(15)	7.0%	(13)	6.9%	(12)
Business/Computer Services	—	(2)	—	(2)	—	(3)	—	(2)
Construction/Engineering	—	(3)	—	(3)	—	(3)	—	(3)
Education	—	(1)	—	(1)	—	(1)	—	(1)
Energy (Power/Gas)	8.3%	(18)	8.0%	(17)	8.5%	(16)	8.8%	(14)
Entertainment/Communications/Publication	—	(4)	—	(4)	—	(4)	—	(3)
Health Care/Medical Services	3.7%	(8)	2.7%	(8)	3.4%	(8)	3.1%	(7)
Insurance - Life & Health	4.5%	(7)	4.9%	(7)	4.5%	(7)	3.8%	(7)
Insurance - Property & Casualty	10.8%	(6)	10.5%	(6)	9.6%	(7)	9.1%	(7)
Research/Development	2.7%	(6)	2.7%	(6)	2.9%	(6)	2.8%	(6)
Retail (Incl. Wholesale & Distribution)	4.3%	(9)	5.9%	(10)	3.2%	(9)	5.2%	(11)
Telecommunications	—	(4)	—	(3)	—	(3)	—	(3)
Transportation Services	—	(4)	—	(4)	—	(4)	—	(3)
Other Service	—	(1)	—	(1)	—	(1)	—	(1)
All Service	*6.3%*	*(97)*	*6.0%*	*(99)*	*6.1%*	*(95)*	*5.6%*	*(90)*
All Companies	**6.3% (189)**		**6.0% (189)**		**6.1% (183)**		**5.7% (174)**	

Nonunion Hourly

Variable Pay Spending

	2008				2009 Projected			
	Initial		Current		Initial		Current	
Manufacturing								
Aerospace	—	(2)	—	(2)	—	(2)	—	(2)
Automotive/Vehicle Manufacturing	0.6%	(5)	0.6%	(5)	—	(4)	—	(4)
Chemicals (not Pharmaceutical)	4.7%	(10)	4.5%	(9)	4.7%	(9)	4.2%	(7)
Computers and Related Products	—	(3)	—	(3)	—	(2)	—	(2)
Consumer Products - Durable Goods	5.4%	(8)	2.8%	(8)	5.4%	(8)	3.8%	(8)
Consumer Products - Nondurable Goods	—	(4)	3.0%	(5)	—	(3)	—	(3)
Electronics/Electrical	—	(4)	—	(4)	—	(3)	—	(3)
Energy (Oil/Gas)	5.6%	(8)	5.6%	(8)	5.1%	(7)	4.9%	(7)
Food/Beverage/Tobacco	4.6%	(7)	5.2%	(7)	3.8%	(6)	3.8%	(6)
Forest & Paper Products/Packaging	—	(2)	—	(2)	—	(2)	—	(2)
Pharmaceutical	6.7%	(6)	7.0%	(6)	6.2%	(6)	6.2%	(6)
Other Manufacturing	6.7%	(8)	6.7%	(8)	7.2%	(8)	5.8%	(8)
All Manufacturing	*4.7%*	*(75)*	*4.3%*	*(75)*	*4.6%*	*(68)*	*4.0%*	*(66)*
Service								
Banking/Finance	7.5%	(9)	7.4%	(10)	6.9%	(9)	5.9%	(10)
Business/Computer Services	—	(2)	—	(2)	—	(3)	—	(2)
Construction/Engineering	—	(3)	—	(3)	—	(3)	—	(3)
Education	—	(1)	—	(1)	—	(1)	—	(1)
Energy (Power/Gas)	7.3%	(19)	6.6%	(18)	7.3%	(17)	7.5%	(16)
Entertainment/Communications/Publication	—	(1)	—	(1)	—	(1)	—	(1)
Health Care/Medical Services	3.8%	(7)	2.7%	(7)	3.4%	(7)	3.2%	(6)
Insurance - Life & Health	—	(3)	—	(3)	—	(3)	—	(3)
Insurance - Property & Casualty	5.1%	(5)	4.9%	(5)	5.6%	(5)	4.9%	(5)
Research/Development	—	(3)	—	(3)	—	(4)	—	(4)
Retail (incl. Wholesale & Distribution)	0.3%	(7)	0.7%	(8)	0.6%	(8)	0.7%	(9)
Telecommunications	—	(3)	—	(3)	—	(3)	—	(3)
Transportation Services	—	(3)	—	(3)	—	(3)	—	(3)
Other Service	—	(1)	—	(1)	—	(1)	—	(1)
All Service	*5.1%*	*(73)*	*4.8%*	*(75)*	*4.8%*	*(74)*	*4.2%*	*(73)*
All Companies	4.9%	(150)	4.5%	(152)	4.7%	(142)	4.1%	(141)

Additional Insights

Additional Insights

Organizations Planning Changes to Overall 2009 Base Salary Budgets

Over half (52%) of the responding organizations are either planning or in the process of making changes to overall base salary budgets.

No
26%

Don't
Know/Unsure
22%

Changed
20%
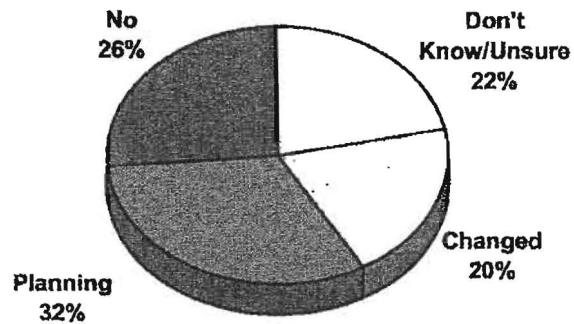
Planning
32%

(n=640)

Extending Timing of Salary Increases

Only 10 percent of the survey organizations are planning/considering extending timing of salary increases for employees. Of those, the most prevalent extension period planned is for three to four months.

	Percentage of Organizations
3-4 months	49%
6 months	26%
9 months	3%
Other (e.g., 1 month)	23%
	(n=73)

Organizations Planning Changes to Overall 2009 Salary Structure Movements
Less than half (32%) of the responding organizations have changed or are planning to change their salary structures.
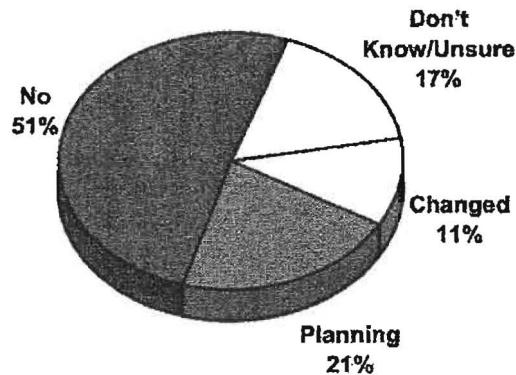
(n=622)

Reward and Retention of High-Performing Employees
The majority of responding organizations have existing approaches in place for retention of high-performing employees.

	Percentage of Organizations
None	27%
Reserve portion of salary increase budget	33%
Provide additional learning and development opportunities	28%
Grant discretionary restricted stock and/or stock options	21%
Create supplemental, discretionary incentive pool	20%
Offer retention bonuses for specified period of employment	18%
Other	12%

(n=603)

Note: Percentage will total more than 100 percent since more than one response was provided by some participants. Any bonus or incentive plans intended only for executive, management and/or sales populations have been excluded from these calculations.

Other Economic Impacts

Other economic impacts planned by the responding organizations are displayed in the following tables.

Hiring Freeze

No 61%   Yes 39%

(n=486)

Pay Freeze

No 90%   Yes 10%

(n=500)
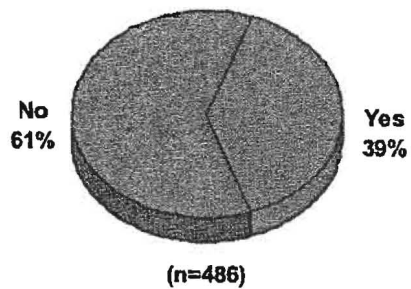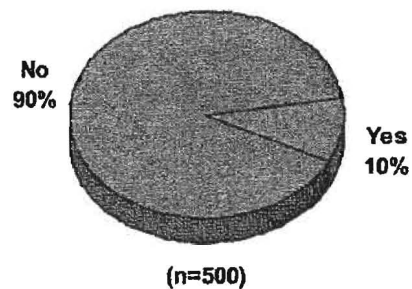
Layoffs/Reduction in Staff

No 65%   Yes[1] 35%
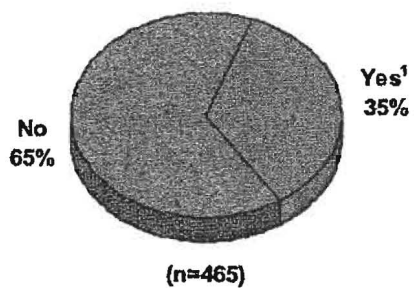
(n=465)
[1] On average, 7.5% of U.S. workforce

Reducing Promotions

No 83%   Yes 17%

(n=488)
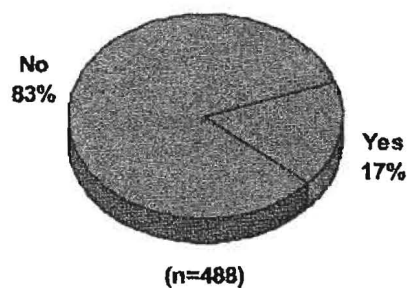
Salary Cuts for Executives

Yes 1%   No 99%

(n=577)
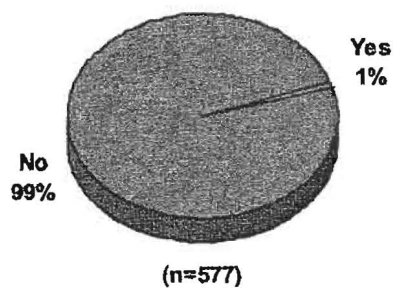
Salary Cuts for All Employees

No 99%   Yes <1%

(n=589)
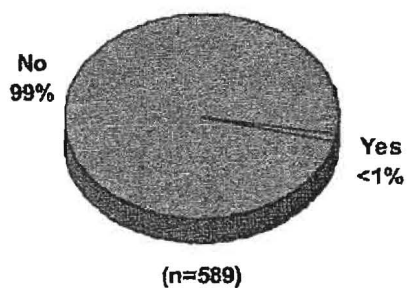
Employee Communication

Only 39 percent of the responding organizations plan to communicate changes to base salary budgets or variable pay programs to employees.
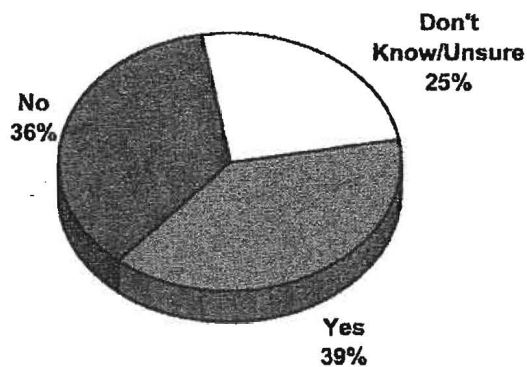
(n=613)

Methods

The two most prevalent methods of communication for changes are written message from leadership and/or leadership presentation.

Methods	% of Organizations
Written message from leadership	73%
Leadership presentation	50%
Group meetings	42%
E-mail	41%
Individual meetings	27%
Letter	14%
Other (e.g., intranet)	7%

(n=243)

Note: Percentage will total more than 100 percent since more than one response was provided by some participants. Any bonus or incentive plans intended only for executive, management and/or sales populations have been excluded from these calculations.

Primary Reasons

The most prevalent primary reason shared with employees is changes are needed due to business results.

	% of Organizations
Change needed due to business results	73%
Competitive practice within industry	32%
Change will save jobs	26%
Other (e.g., overall economic conditions)	22%
	(n=244)

Note: Percentage will total more than 100 percent since more than one response was provided by some participants. Any bonus or incentive plans intended only for executive, management and/or sales populations have been excluded from these calculations.

Expectation of Employee Feedback

The majority of organizations responded employees will understand due to the present economy.

	% of Organizations
None at the moment, employees are too worried and the job market is not good, but might increase turnover in the longer term	53%
None, employees will understand given the business condition organization faces	46%
Turnover is expected as a result in the short-term	6%
Other	7%
	(n=237)

Participant Information

Participant Information

Participant Demographics by Industry

Manufacturing

Aerospace	15
Agriculture	5
Automotive/Vehicle Manufacturing	15
Building Materials	7
Chemicals (not Pharmaceutical)	26
Computers and Related Products	20
Consumer Products-Durable Goods	30
Consumer Products-Nondurable Goods	23
Electronics/Electrical	12
Energy (Oil/Gas)	24
Food/Beverage/Tobacco	30
Forest and Paper Products/Packaging	10
Industrial Machinery/Equipment	6
Medical Devices/Products	6
Metal Fabrication	2
Metals	5
Mining/Milling/Smelting	2
Pharmaceutical	18
Printing	1
Rubber/Plastics/Glass	2
Manufacturing-Other	22

Service

Accounting/Consulting/Legal	5
Banking/Finance	46
Business/Computer Services	16
Construction/Engineering	13
Education	16
Energy (Power/Gas)	43
Entertainment/Communications/Publication	10
Government	3
Health Care/Medical Services	33
Hospitality/Restaurants	8
Insurance-Life & Health	22
Insurance-Property & Casualty	19
Insurance-Other	9
Not-for-profit	7
Real Estate	5
Research/Development	12
Retail (incl. Wholesale & Distribution)	45
Telecommunications	14
Transportation Services	10
Services-Other	15

Multi-Industry

Diversified/Multi-Company	8

Participant Demographics by Geographic Region

East		South	
Connecticut	19	Alabama	1
Delaware	4	Arkansas	2
District of Columbia	12	Florida	11
Maine	4	Georgia	18
Maryland	7	Kentucky	3
Massachusetts	31	Louisiana	1
New Jersey	24	Mississippi	2
New York	41	North Carolina	15
Pennsylvania	28	Oklahoma	2
Rhode Island	1	South Carolina	1
Virginia	15	Tennessee	11
		Texas	47
West			
Alaska	1	**Midwest**	
Arizona	4	Illinois	56
California	44	Indiana	10
Colorado	10	Iowa	8
Hawaii	2	Kansas	4
Idaho	1	Michigan	21
Nevada	1	Minnesota	33
Oregon	6	Missouri	18
Utah	4	Nebraska	5
Washington	10	Ohio	28
		South Dakota	1
		Wisconsin	32

Participant Demographics by Organization Size

All Organizations	Median
Revenue	$2.6 billion
Number of FTEs (U.S.)	5,500

Participants List by Company Name

3Com
3M Company
A. O. Smith Corporation
AAA Mid-Atlantic Inc.
AAA Northern California, Nevada, Utah
ABB Inc.
Abbott
Abercrombie and Fitch
ACCO Brands Corporation
Ace Hardware
Acushnet Company
Acxiom Corporation
Adecco
ADP
AEGON Financial Partners
AEP
Aera Energy Services Company
Aerojet—GenCorp
AGL Resources
AgriBank
Air Products and Chemicals, Inc.
AK Steel Corp.
Aker Solutions
Alaska Airlines
Alcoa
Aleris International, Inc.
Allegheny Energy
Alliance Pipeline
Alliant Techsystems Inc.
Allstate Insurance Company
Alltel Corporation
Alpharma
Alstom Power
Altera Corporation
Alyeska Pipeline Service Company
AMC Entertainment Inc.
AMCORE Bank
American Chemical Society
American Eagle Outfitters, Inc.
American Family Insurance
American Greetings Corporation
American Honda Motor Company
American International Group
American Water Works Association
The AmeriHealth Mercy Family of Companies
Anadarko Petroleum Corporation
Analog Devices

Andersen Corporation
The Andersons, Inc.
Anheuser-Busch Companies, Inc.
AOL LLC
Aon
Apache Corporation
APL Limited
Apogee Enterprises, Inc.
Apple
Applebee's Services, Inc.—DineEquity
Applied Biosystems
Applied HR Strategies, Inc.
ArcelorMittal USA
Argonne National Laboratory
Arkema
Armstrong World Industries
Arrowpoint Capital
Ash Grove Cement Company
Ashland Inc.
ASME
Aspirus
AstraZeneca Pharmaceuticals LP
AT&T
Aurora Health Care
Ausra, Inc.
AutoNation, Inc.
AutoZone, Inc.
Avant Energy, Inc.
Avista Corporation
Aviva USA
Avon Products, Inc.
Bacardi
BAE Systems, Inc.
Ball Aerospace & Technologies Corp.
The Bank of New York Mellon Corporation
Banner Health
Baptist Health System
Barnes Group Inc.
BASF Corporation
Baxter International
Bayer Corporation
BB&T
BearingPoint
Bechtel Corporation
Beckman Coulter, Inc.
Belk, Inc.
Bemis Co, Inc.

Best Buy Co., Inc.
Big Lots
Biogen Idec
Black & Veatch Corporation
BloodCenter of Wisconsin
Blue Cross and Blue Shield of Massachusetts
Blue Cross Blue Shield of Michigan
Blue Cross Blue Shield of Nebraska
BMC Software
BMW Financial Services
BNSF Railway Company
The Boeing Company
Bon Ton Stores Inc.
Booz Allen Hamilton
Brady Corporation
Brandeis University
Bremer Financial
Brightpoint
Broadcast Music Inc. (BMI)
Broadridge Financial Solutions
Brookhaven Laboratory
Br... any, Inc.
...ty
...ge Limited
CA, Inc.
Cadence Design Systems
Callaway Golf Company
Campbell Soup Company
Canadian Company Limited
Cancer Treatment Centers of America, Inc.
Canon US... Inc.
The Capital Companies
Capital One Financial Corporation
Cargill Inc.
Carlson Companies
Carrier Corporation
Cash America International, Inc.
Caterpillar Financial Services Corporation
Caterpillar, Inc.
CB&I
CDI Corp.
CDM
Celanese
Celgene
Centene
CenterPoint Energy, Inc.
Cerner Corporation
CGGVERITAS

CGI Technologies and Solutions Inc.
Chemtura Corporation
Chicago Board Options Exchange
Children's Hospital—Omaha
Children's Hospital & Health System
Chiquita Brands International Inc.
Choice Hotels International
Chrysler LLC
Chubb Insurance Company
Cisco Systems
CIT Group, Inc.
Citrix systems
City of Austin
City of Charlotte
Clarian Health Partners
Clarins USA
Classic Residence by Hyatt
The Clorox Company
CNA Financial
The Coca-Cola Company
Colgate-Palmolive Company
Columbia St. Marys
CommScope
ConAgra Foods
Conseco Services, LLC
Constellation Brands Inc.
Constellation Energy
Cooper Industries
Cooper Standard Automotive
Copano Energy
Corn Products International
Coty Inc.
Covance, Inc.
Covanta Energy
Coventry Health Care, Inc.
Crosstex Energy
CSC
Cummins
CUNA Mutual Group
Daiichi Sankyo
Daimler Financial Services
Daimler Trucks North America
Dal-Tile
Dawn Food Products
DCP Midstream
Deere & Company
Deloitte & Touche
Devon Energy

DFS Group LP
Diageo
DIRECTV
DMV USA LP
Dollar General Corporation
The Dow Chemical Company
Downey Savings & Loan Association
DRS Technologies
DST Systems, Inc.
DTE Energy
DTS, Inc.
Duke Energy
Duke Realty Corporation
DuPont
E & J Gallo Winery
E.ON U.S.
Eastman Chemical Company
Eastman Kodak Company
Eaton Corporation
Ecolab Inc.
Edison Mission Group
Edward Jones
El Paso Corporation
Electric Power Research Institute
Elsevier, Inc.
Embarq Corporation
Enbridge Energy
EnCana Oil & Gas (USA) Inc.
EnerTech
Entergy Corporation
Enterprise Products (EPCO, Inc.)
EPCO, Inc.
Epson America, Inc.
Equity Office Management, L.L.C.
ERCOT, Inc.
Erie Insurance Group
Essilor of America
Eugene Water & Electric Board
Exterran
FANUC Robotics
Farmer Mac
Federal Reserve Bank of Atlanta
Federal Reserve Bank of Cleveland
Federal-Mogul Corporation
FedEx Corporation
Fellowes Inc.
Fermi National Accelerator Laboratory
FHLB Boston

Fidelity Investments
Financial Industry Regulatory Authority (FINRA)
First Citizens Bank
FirstEnergy Corp.
Fiserv
Fiskars Brands, Inc.
Flowserve Corporation
Fluor Corporation
Ford Motor Company
Foresters
Fortune Brands, Inc.
FPL Group
Fraser Papers Inc.
Fresenius Medical Care North America
Gap, Inc.
GATX Corporation
GDF SUEZ North America
GE Rail Services
GEICO
General Atomics
General Dynamics Land Systems
General Dynamics-Advanced Information Systems
General Mills
General Motors Corporation
General Reinsurance
Genworth Financial
Genzyme Corp
Georgetown University
Getty Images
Gevity HR
Giant Food Stores, LLC
GlaxoSmithKline
Global Crossing
Goodman Mfg Company L.P.
The Goodyear Tire & Rubber Co
Graco Inc.
Grange Mutual Casualty Company
Graphic Packaging International, Inc.
The Great Atlantic & Pacific Tea Company, Inc.
Great River Energy
Green Tree Servicing
Greyhound Lines, Inc.
Guidestone Financial Resources of the Southern Baptist Convention
Gundersen Lutheran Medical Center
H&R Block
H.B. Fuller Company

Hallmark Cards
The Hanover Insurance Group, Inc.
Hanesbrands Inc.
The Hartford
Harvard University
Harvard Vanguard Medical Associates
Hastings Mutual Insurance Company
HD Supply, Inc.
Health Care Service Corp
HealthONE
HealthPartners
Herman Miller, Inc.
The Hershey Company
Hess Corporate
Hewlett Packard (excluding EDS)
Hexion Specialty Chemicals
Hilcorp Energy Company
The Hillman Company
Hines
Hitachi America, Ltd.
HJ Heinz
The Home Depot
Hormel Foods Corp
Hospira, Inc.
HP Hood LLC
HPC Healthcare, Inc.
HSBC-North America
Hughes Network Systems
HydraForce, Inc.
IBM Corp.
Idaho National Laboratory
IDG
IMS Health
InfoPrint Solutions Company, LLC
Information Resources, Inc.
ING Americas
Ingersoll Rand Co, Ltd
Integrys Energy Services, Inc.
Intel
InterContinental Hotels Group
Intermountain Healthcare
International Asset Systems
International Paper
International Rescue Committee
Intertek
Invensys Controls
Iroquois Pipeline Operating Company
ISO New England

Itochu International Inc.
J. Paul Getty Trust
J.R. Simplot Company
James Campbell Company LLC
James Hardie Building Products
John Hancock
The Johns Hopkins University/Applied Physics Laboratory
John Wiley & Sons, Inc.
Johnson & Johnson
Johnson Controls Inc.
JohnsonDiversey, Inc.
Jordan's Furniture
Kaiser Foundation Health Plan, Inc.
Kaiser Permanente—Northern California Region
Kaman Corporation
Kaman Industrial Technologies
KBR
Kellogg Company
Kerry Ingredients & Flavors
Kimberly-Clark Corporation
Kinder Morgan
Knolls Atomic Power Laboratory
Kohler Co.
Kraft Foods, Inc.
Kronos Incorporated
L.L.Bean
Larson Juhl
LeapFrog Enterprises
Lehigh Hanson
Liberty Mutual Group
Life Technologies (formerly Invitrogen)
Lifetouch Inc.
Limited Brands
The Linde Group
Link-Belt Construction Equipment
Lockheed Martin Corporation
LORD Corporation
L'Oreal USA, Inc.
The Lubrizol Corporation
Luxottica Retail
M&T Bank
Macy's, Inc.
Malcolm Pirnie
Manitwoc Company, Inc.
Maritz Holdings Inc.
Marquette Financial Companies
Marriott International

Mars North America
Marshall & Ilsley Corporation
Mary Free Bed Rehabilitation Hospital
Masco Corporation
MassMutual Financial Group
MassMutual Life Insurance Company
MasterCard
McCormick & Co., Inc.
McDermott International
The McGraw-Hill Companies
McKesson Corporation
MeadWestvaco
Medco Health Solutions, Inc.
Medical Mutual of Ohio
Medtronic, Inc.
Memorial Health System, Inc.
Merrill Corporation
Metal One America, Inc.
Methanex Corporation
Michaels Stores Inc.
Microsoft
MidAmerican Energy Holdings Company
The Midland Company
Midwest ISO
MILLERCOORS
Millipore Corp
Mirant Corporation
MITRE Corporation
Mitsubishi Motors North America
Mohawk Industries
Molson Coors
Montefiore Medical Center
Moog Inc.
Morrison & Foerster, LLP
Mphasis an EDS Company
Mutual Trust Financial Group
MWV Corporation
Nalco
The NASDAQ Stock Market
National Grid
National Semiconductor
Navistar Inc.
Navy Federal Credit Union
NCCI Holdings, Inc.
NCH Corporation
NCR Corporation
Neenah Paper Inc.
Nestle USA

NewPage Corp
The New York Public Library
Nicor Gas
The Nielsen Company
Nike, Inc.
NiSource
NJR Service Corporation
Nordstrom
Nortel
Northrop Grumman Corporation
Northrop Grumman Shipbuilding-Gulf Coast
Northwestern Mutual
Northwestern University
Novo Nordisk, Inc.
NRG Energy, Inc.
NRUCFC
Nycomed US Inc.
Oak Ridge National Laboratory
Oce North America
Ocean Spray Cranberries, Inc.
The Ohio State University
Olympus Corporation of the Americas
Omaha Public Power District
OneAmerica Financial Partners, Inc.
ONEOK, Inc.
Orbitz Worldwide
OSG Tap & Die, Inc.
Owens Corning
Oxford Industries Inc.
Pacific Life Insurance Company
Pactiv
The Pampered Chef
Panasonic Automotive Systems Company of America
Panasonic of North America
Parker Hannifin Corporation
Pella Corporation
People's United Bank
Pepco Holdings, Inc.
Pepsico Inc.
Perot Systems
PetSmart
Pinnacle West Capital Corporation
Pioneer Hi-Bred International, Inc., A DuPont Company
Pioneer Natural Resources
Pitney Bowes, Inc.
PJM Interconnection

PMC Sierra
Polaris Industries
PotashCorp
PPG Industries Inc.
Pratt & Whitney
Praxair Inc.
PreVisor
Principal Financial Group
The Progressive Corporation
Prudential Financial
Public Service Enterprise Group Inc.
Qualcomm
QVC, Inc.
Qwest Communications
Raley's
Ray Associates, Inc.
Rayonier
Realogy
Recreational Equipment, Inc.
Reebok International, Ltd.
Regal Beloit Corporation
RehabCare Group Inc.
Rexel, Inc.
Rexnord Industries
Reynolds American Inc.
Rich Products Corporation
Ricoh Electronics, Inc.
Rio Tinto
Robert Bosch LLC
Robert Bosch Tool Corporation
Roche Molecular Systems, Inc.
Rochester Institute of Technology
Rockwell Collins Inc.
Rollins, Inc.
RR Donnelley
Ryerson Inc.
S. C. Johnson & Son, Inc.
Sabre Holdings
Safety-Kleen Systems, Inc.
SAIF Corporation
Saint Thomas Health Services
Saks Fifth Avenue
Sallie Mae
Sappi Fine Paper North America
Sara Lee Corporation
Sauer-Danfoss
SCA Americas Inc.
SCANA Corporation

Schering-Plough Corporation
Schneider Electric
Schreiber Foods
Schwan Food Company
Schweitzer-Mauduit International, Inc.
SCL Health System, Inc.
Scottsdale Healthcare
Scripps Networks Interactive, Inc.
Sears Holdings Corporation
Securian Financial Group
Sentara Healthcare
Severn Trent Services
Shaughnessy
The Sherwin-Williams Company
Shure Incorporated
Simpson Investment Company
Sisters of Mercy Health System
Snapon Incorporated
Solutia Inc.
Southern Company
Southern States Coop
Sovereign Bank
Spectra Energy
Spectrum Health
Speedway SuperAmerica LLC
SRA International
St. Cloud Hospital
Starbucks Coffee Company
Starwood Hotels & Resorts Worldwide, Inc.
State of Colorado
Stepan Company
STERIS Corporation
Sterling Chemicals, Inc.
STIHL In.c
Sub-Zero Wolf, Inc.
Sunoco, Inc.
SUPERVALU
Swiss Re
Symantec Corporation
Syngenta
Synovus Financial Services
Takeda Pharmaceuticals North America, Inc.
Target
Target Corporation
TCF Financial Corp.
TD AMERITRADE
Tech Data Corporation
Tecumseh Products Company

Texas Industries, Inc.
Texas Mutual Insurance Company
The Timberland Company
The Timken Company
The TJX Companies
The Trustmark Companies
Thomson Reuters
TIAA-CREF
T-Mobile USA
Toshiba America Information Systems, Inc.
Toyota Motor Sales, U.S.A., Inc.
Travelers Insurance Company
TRW Automotive
TTX Company
Tufts University
Tupperware Brands
Tyco Electronics
U.S. Foodservice
ULTA Salon, Cosmetics & Fragrances, Inc.
Underwriters Laboratories
Unilever
Union Tank Car Company
Unisys Corp
United Airlines
United Stationers
United Technologies Corporation
UnitedHealth Group
University of Georgia
University of Pennsylvania
University of Rochester
University of Southern California
US Oncology
USG Corporation
USIS
USU Space Dynamics Laboratory

Utica National Insurance Group
Valassis Communications Inc.
Vanderbilt University and Medical Center
Vectren Corporation
The Venetian/The Palazzo
Verizon Communications
Verizon Wireless
Vermeer Corporation
Vestas American Wind Technology
VF Corporation
VisionShare Inc.
Visteon Corporation
Volvo Group North America
Vulcan Materials Company
W. R. Grace & Co.
W.W. Grainger Inc.
Walgreens
Washington Division of URS Corporation
Washington University
Waters Corporation
Weil, Gotshal & Manges, LLP
The Weitz Company
WellPoint, Inc.
West Marine
Western Union
Westinghouse Electric Company LLC
Wheaton Franciscan Healthcare
White Castle
Wisconsin Lift Truck Corp.
WL Gore & Associates
Wm. Wrigley Jr. Company
Wright Express Corp.
Yale University
Yum! Brands
Zebra Technologies Corp

Appendix

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Definition of Terms

The following are brief definitions of some of the concepts that are used throughout this report.

Salary Increases
Overall Salary Increase Budget
The total amount of all increases merit increases plus general salary increases. This amount excludes any separate promotional and/or any special adjustments budgets.

Structure Movement
The amount by which the established midpoints of a formal salary range/band (or wage rate) are adjusted to reflect movements in the marketplace.

Employee Groups
Executive Group
Individuals considered top and/or senior management.

Salaried Exempt
All nonexecutive salaried employees for whom overtime pay is not required by the Fair Labor Standards Act (FLSA).

Salaried Nonexempt
Salaried employees for whom overtime pay is required by the FLSA.

Nonunion Hourly
Nonunion employees who are paid on an hourly basis (e.g., skilled trades, production employees).

Union
Employees who are a part of a labor union.

High Potentials
An elite group of employees who are seen as being capable of contributing to the organization in a role with greater complexity, impact, scope, and scale than their current roles. They have the versatility to play a number of roles in the organization, demonstrate the ability to see things from new perspectives, quickly adapts, consistently delivers strong results, and would be difficult to replace due to the value that they bring to the organization.

Top Performers
A group of employees who clearly and consistently demonstrate extraordinary and exceptional accomplishments in all major areas of responsibility. Performance of this caliber is rarely equaled by others who hold positions of comparable responsibility. *Note: A top performer is not automatically a high potential.*

Broad-Based Rewards

Variable compensation plans for employee groups beyond executives and the sales population. Broad-based plans may include executives or sales personnel, but plans that are exclusive to those constituencies are excluded from this analysis.

- These are performance-related awards that does not affect an employee's base pay and must be re-earned each year;

- Such awards cover a cross-section of employees below the executive level; and

- May be in cash, or for special recognition, or equity based awards.

Short-Term Incentive Programs
Business Incentives
Awards based on combined financial and/or operating measures for organization, business unit, department, plant, and/or individual performance.

Cash Profit Sharing Awards
Equal payment (as a flat dollar amount or percent of salary) to all or most employees based on a percent of organizational profitability.

Gain Sharing/Productivity Awards
Plans designed to share a percent of cost savings of a group, unit, or organization. The gains are typically shared uniformly among all participants.

Indiv... ...mance Awards
Payment based solely on individual performance criteria. Payout amount typically varies from one individual to another.

Team Awards
Provided to indi... ...als on a project or work team.

Special One-Time Awards
Special Recognition Awards
Recognition for individual or group achievements in the form of cash, merchandise, or travel.

Long-Term Incentive Programs
Nonexecutive Equity Awards
Grant of stock options as a reward (*not* for retirement) (e.g., stock options, restricted stock, phantom stock, performance shares/units).

QUANTIFICATION OF HOURS

Mr. Pous has identified 186.5 hours of his time through September 1, 2009.

OPC-LFE-POUS-000001

CALIFORNIA PUBLIC UTILITIES COMMISSION
UTILITIES DIVISION

DETERMINATION
OF
STRAIGHT-LINE REMAINING LIFE
DEPRECIATION ACCRUALS

STANDARD PRACTICE U-4

SAN FRANCISCO, CALIFORNIA
Revised January 3, 1961

OPC-LFE-POUS000002

MEMORANDUM

This standard practice U-4 has been prepared to assist engineers of the Utilities Division of the Commission staff and others in determining proper annual depreciation expense accruals. The present printed edition revises the issue of January 15, 1954, the supply of which has been exhausted. The practice was originally issued April 9, 1952 with revisions in 1953 and 1954. In this revision, minor changes have been made including an expansion on the interim retirement determination and an enlargement of the material relating to typical average service lives. All essential material necessary to determining depreciation expenses by the straight-line remaining life method has been carried forward from the former issues.

This revision has been prepared under Utilities Division Work Order S-1563.

January 3, 1961

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APPENDIX

* For list of standard forms illustrated in the tables, see Chapter 9, paragraph 9.

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CHAPTER 1

SCOPE OF PUBLIC UTILITY DEPRECIATION

Purpose of This Practice

1. This standard practice sets forth various factors influencing the determination of depreciation accruals and describes methods of calculating these accruals. Its purpose is to assist the Commission staff and others in analyzing utility depreciation practices, and in determining proper depreciation expenses when preparing results of operation reports of utilities for rate-making purposes. Particular attention is called to Chapters 3, 4, 5, and 8. These cover the details of the procedures which a staff engineer should be familiar with before undertaking a review of depreciation practices of a utility. Also Chapter 9 discusses general considerations and presents a suggested check list for the engineer.

Basic Depreciation Objectives

2. In the continuing duties of the California Public Utilities Commission in the fixing of rates and the supervision of accounts of utilities under its jurisdiction, *a basic depreciation objective is that of recovering the original cost of fixed capital (less estimated net salvage) over the useful life of the property by means of an equitable plan of charges to operating expenses or clearing accounts.* The straight-line remaining life method presented herein and used as standard procedure by the staff meets this objective. Other depreciation objectives which come before the Commission include determination of a proper deduction for depreciation in the rate base and determination of depreciation values for condemnation proceedings. Since the latter involves specialized considerations this aspect is not further considered in this practice. The matter of deduction for depreciation in the rate base is discussed briefly in Chapter 9.

Concepts of Depreciation

3. In its broad sense the term depreciation as applied to physical property may refer to one or more of the following concepts:

   a. Depreciation in its physical concept represents the consumption of property in terms of its physical ability to render service.

   b. Depreciation in its value concept represents the loss in market value of property as compared with either its original cost new or the reproduction cost new of equivalent property.

   c. Depreciation in its cost concept represents the amounts set aside under a predetermined plan of accounting to recover the cost of property due to its consumption or prospective retirement.

   As indicated in the basic objective given above, the cost concept is the one applicable to utility depreciation expenses for rate fixing purposes. This is the concept of depreciation assumed throughout this practice.

Accounting Transactions Relating to Depreciation

4. For complete details of the accounting transactions relating to depreciation reference should be made to the appropriate uniform system of accounts for the utility under study. As a reference in using this practice, the following tabulation presents in a broad way the essential transactions:

Transaction For	Debit Entry Made To	Credit Entry Made To
Original cost on placing plant in service.	Plant account (asset account).	Cash, materials and supplies, or accounts payable.
Depreciation accruals.	Operating expenses, clearing accounts, contributed plant.	Depreciation reserve account.
Historical cost on retirement from service.	Depreciation reserve account.	Plant account (reduces the asset balance).
Cost of removal on retirement from service.	Depreciation reserve account.	Cash, or accounts payable.
Gross salvage on retirement from service.	Cash, materials and supplies, or accounts receivable.	Depreciation reserve account.

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Definitions of Depreciation

5. The National Association of Railroad and Utilities Commissioners uses the following definition: (NARUC Depreciation Committee Report of 1943 and 1944.)

"(a) Depreciation is the expiration or consumption, in whole or in part, of the service life, capacity, or utility of property resulting from the action of one or more of the forces operating to bring about the retirement of such property from service;

"(b) The forces so operating include wear and tear, decay, action of the elements; inadequacy, obsolescence, and public requirements;

"(c) Depreciation results in a cost of service."

6. The Federal Communications Commission employs the following definition: (Uniform System of Accounts for Telephone Companies, June 19, 1935, p. 4.)

" 'Depreciation', as applied to depreciable telephone plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of telephone plant in the course of service from causes which are known to be in current operation, against which the company is not protected by insurance, and the effect of which can be forecast with a reasonable approach of accuracy. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities."

7. Depreciation has been defined by the Supreme Court of the United States as follows: (*Lindheimer* v. *Illinois Telephone Company*, 292 U. S. 151, 167 (1934).)

"Broadly speaking depreciation is the loss, not restored by current maintenance, which is due to all the factors causing the ultimate retirement of the property. These factors embrace wear and tear, decay, inadequacy and obsolescence. Annual depreciation is the loss which takes place in a year."

Sinking Fund Method

8. While this practice has been limited to the straight-line remaining life method, it may be applied in principle to other methods such as the sinking fund method. The sinking fund method defers heavy accruals until late years of service life. Particular care must be exercised in the utilization of the sinking fund method to determine proper accruals because of the interest feature. An equivalent remaining life which corrects for mortality dispersion must be determined. This equivalent remaining life will normally be shorter than the true remaining life in group accounts because of loss of interest on early retirements and because units of the group with longer lives have lower present worth weighting in providing for the interest factor. The interest feature also causes the sinking fund remaining life accrual to fluctuate more than the straight-line accrual where changes in life expectancy arise. Where the reserve has been over accrued, the interest component of the accrual may be more than sufficient to meet the required additions to the reserve. Under these conditions a red or debit annuity portion of the accrual may develop which, combined with the interest component, gives the correct total accrual to recover the original cost.

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CHAPTER 2

REMAINING LIFE AND TOTAL LIFE METHODS

The Two Methods

1. In depreciation determinations the life used for computing the accruals may be an estimated total life or an estimated remaining life of property in service. Where the total life plan has been used and original estimates prove inaccurate, excessive or deficient accumulations in the depreciation reserve frequently occur. To overcome this, the use of the remaining life principle has been adopted by many utilities. This practice describes the latter method. However, as a matter of information, a comparison between the two methods is presented in this chapter.

The Total Life Equation for Depreciation

2. The basic formula for total life straight-line depreciation is:

$$d = \frac{1 - c}{L}$$

where

d = total life straight-line depreciation rate
c = average net salvage ratio (gross salvage less cost of removal) during total service life
L = total service life of unit or average service life of group of units

3. Thus a steel transmission main for natural gas is constructed at a cost of $100,000. A total life of 20 years with 10% net salvage is estimated. The depreciation rate is:

$$d = \frac{1 - .10}{20} = .045 \text{ or } 4.5\% \text{ per annum}$$

The annual accrual is $100,000 × 4.5% or $4,500.

4. Assuming that no additions to gross plant have been made and that there have been no interim retirements, the depreciation reserve accumulated for this line would at the end of 10 years amount to 45% and at the end of 20 years would amount to 90%, just sufficient to retire the line if net salvage equaled 10%.

Reappraisals of Depreciation Charges

5. Depreciation charges even in the simplest projects should be re-examined from time to time. It is obvious that, until final retirement, depreciation charges involve estimates of future life and salvage. What steps are taken on reappraisal of these estimates?

6. Continuing with the example of the natural gas transmission line, several conditions can be visualized upon reappraisal after, say, 10 years' time has elapsed. One condition may be to reaffirm the view of 10 years ago that the line still has a total life of 20 years and net salvage of 10%, in which ideal case no change in rate is necessary.

7. It is conceivable that the gas line will have a remaining life of only five years, giving a total life of 15 years. On the total life basis, the new rate

$$d = \frac{1 - .10}{15} \text{ or } 6\%$$

Accruals thus will total $45,000 for the first 10 years and $30,000 for the final five years or a total of $75,000. The reserve will be $15,000 deficient, assuming the line to be retired at the end of the fifteenth year and salvage of $10,000.

8. On the other hand, the reappraisal may indicate a relatively longer life and that the line with suitable repairs or replacements may last 30 years. The new total life rate then becomes

$$d = \frac{1 - .10}{30} \text{ or } 3\%$$

Accruals in this case include the $45,000 for the first 10 years and $60,000 for the remaining 20 years or a total of $105,000. With the salvage of $10,000, an over accrual of $15,000 would exist in the reserve at time of final retirement.

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Total Life Theory Inadequate

9. Thus the reappraisals indicate that unless the original estimate of total life proves entirely accurate the total life concept fails to accomplish the solution of the basic problem of charging the cost of fixed capital (less estimated net salvage) to expense over its useful life, and deficits or excesses can arise by reason of changes in service life characteristics or changes in causes of retirement.

The Remaining Life Equation for Depreciation Rate

10. The remaining life straight-line depreciation method is designed to ratably recover the cost of plant, less net salvage and less depreciation reserve, over the remaining life of plant. The formula for this procedure is:

$$d' = \frac{(1 - c') - u'}{E}$$

where

d' = remaining life straight-line depreciation rate
c' = average net salvage ratio for remaining plant units
u' = ratio of depreciation reserve to original cost
E = future life expectancy of unit or average expectancy of group of units.

11. In the reappraisal in the case of the shorter (15-year) life, the rate becomes

$$d' = \frac{1 - .10 - .45}{5} = 0.9 \text{ or } 9\%$$

thus accumulating $45,000 in the remaining five years, or a total of the desired $90,000.

12. For the longer (30-year) life, the rate becomes

$$d' = \frac{1 - .10 - .45}{20} = .0225 \text{ or } 2.25\%$$

and again the accumulation of $45,000 in the remaining 20 years, or a total of the desired $90,000.

13. These conditions are illustrated in the following chart:

A. Original estimate proves correct.
B. Reappraisal indicates shorter life expectancy.
C. Reappraisal indicates longer life expectancy.

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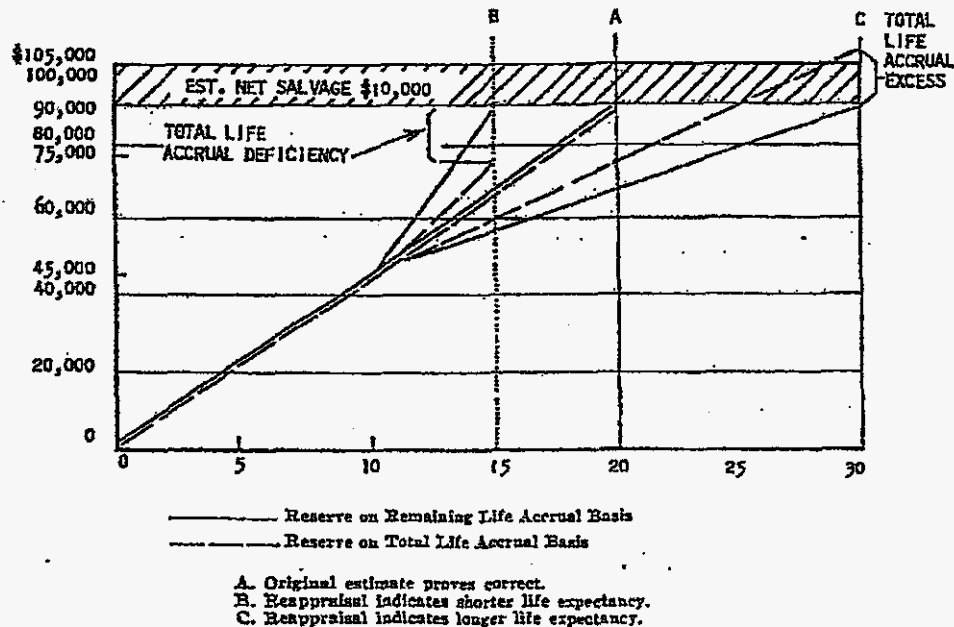
CHAPTER 3

FACTORS INFLUENCING DEPRECIATION ACCRUALS

General

1. Several factors influencing depreciation accruals will be reviewed before considering the actual depreciation accrual. These factors are pertinent to a complete review of depreciation practices of a utility and should be considered by the staff engineer in preparing a report.

Accounting for Plant Additions and Retirements

2. The depreciation computations are normally based on the cost of property recorded on the company's books. Proper accounting records of plant are therefore important. The following points should be checked:

   a. Are proper accounting entries, including charges to the depreciation reserve, made when plant is taken out of service?

   b. When replacements of units of property are made, is the old unit retired and the new unit recorded as an addition to capital?

   c. Have past service lives and salvage estimates been adjusted for changed conditions as new experience has been developed?

   d. If old equipment has been continued in service beyond its normal retirement date as a temporary expedient to meet growing service demands, have adjustments to the depreciation rates been applied?

3. Application of the remaining life principle consistently applied over a period of years in connection with a depreciated rate base will normally tend to produce equitable results in rate proceedings even if these points have been incorrectly determined. Nevertheless, it is desirable to stress the maintenance of proper basic plant records.

4. Where feasible, it is desirable that the utility record the dollars in major accounts by year of placement, and relate retirements to the year of placement. This information is necessary where actuarial studies are contemplated in determining estimates of service lives. Such studies are desirable for large groups of property or where the total investment in an account is large. This information will also afford an age distribution of the dollars of plant by year of placement which data permits more accurate determination of remaining lives. These items are discussed in more detail in Chapter 5.

Retirement Pricing and Unit Prices

5. In large group accounts where it is impractical to determine actual costs of each item retired, average unit costs are often used. Determination of unit costs is facilitated if age distribution data are available. Inaccuracies in estimating unit costs or inaccuracies from other causes in pricing retirements, result in distortion of the gross plant and depreciation reserve accounts. While the remaining life method will tend to correct these inaccuracies, it is nevertheless important to obtain reasonable accuracy in the unit retirement costs applied to group accounts.

Unit and Group Bases for Accounting

6. The manner in which the depreciable plant is divided to form the bases on which the accruals are computed is an important factor in the depreciation computation. Where individual property units comprise the base the method is spoken of as unit accounting. Where groups of property, such as an entire account, comprise the base, the method is spoken of as group accounting. The accrual computation presented in Chapter 4 may be used with either base, provided appropriate unit or composite group values for salvage and remaining life are selected. The differences between the two bases may be summarized as follows:

a. Unit accounting (sometimes called item accounting) requires a specific record, usually a card, for each individual item of property. A service life and salvage estimate are applied and an individual accrual for the unit is determined. The accruals are accumulated each year on the unit record and reappraisals using the remaining life principle may be made. If the unit is retired ahead of its expectancy, the deficiency in accruals is charged to depreciation expense that year. If the unit outlives its expectancy, the accruals are stopped when the accumulations equal the full original cost installed less estimated net salvage, and no further accruals are made for that unit.

b. In group accounting all units having like mortality characteristics or all units of an account are considered together. Accruals for the group are based on composite or weighted average values of salvage and service life expectancy. The resulting values are applied to the surviving plant balances each year or each accounting period. A deficiency due to early retirement of a particular unit is made up through greater accruals on a unit which outlives the average. As discussed in Chapter 8, periodic reappraisals of the life expectancy and salvage estimates are required with group accounting. Because of greater simplicity in maintaining records, the group basis is more feasible for most classes of utility property where large numbers of units are involved. It is the more generally used base among electric, gas, telephone and water utilities.

Subaccounts of Plant, Classes of Property and Age Groups

7. To facilitate service life estimates in group accounting or to distinguish between certain recognized parts of a large account, subsidiary data showing subdivisions of an account are often maintained. These include the following:

a. *Subaccounts* are generally used to separate geographic portions, or where an account is large, to separate certain classes of property. For example, a telephone utility may separate Ac. 264, Vehicle and Other Work Equipment, into Ac. 264-1, Vehicles, and Ac. 264-2, Work Equipment. Where subaccounts have been established they are usually carried separately on the company's books and are thus treated as separate accounts in computing depreciation expenses and in recording reserves.

b. *Classes of property* are portions of an account having different physical or mortality characteristics. For example, a water utility may maintain data to show the portion under Ac. 343 Transmission and Distribution Mains, consisting of asbestos-cement mains, cast-iron mains and steel mains. To the separate classes of property, different service life and salvage estimates may be applied and a composite value for the account may then be derived as discussed in Chapter 5. Separation by classes of property also facilitates determination of average unit costs. The classes of property considered separately are often varied from year to year. Extensive use of classes of property within accounts tends to nullify the advantages of group accounting. The presence of distinct mortality characteristics and the dollar values of plant are criteria which should be considered in deciding whether to maintain separate data for particular classes of property. As a general guide, accounts of less than $25,000 of plant for Class B and C utilities and accounts of less than $100,000 of plant for Class A utilities, need rarely be subdivided by classes of property merely for group depreciation calculations. Above these amounts the presence of distinct mortality characteristics or other factors should govern, where separation into classes of property is contemplated.

c. *Age groups* (also called generations or vintages) represent the survivors of all units of an account or a class of property installed during the same year or span of years. Maintenance of age group or age distribution data permits more accurate determination of service lives and aids in applying unit retirement costs. For most types of mortality studies age group data are essential. Where large growth in an account has occurred and an initial subdivision is proposed, subdivision by age groups is usually preferred over subdivision by classes of property. Class A utilities may find both subdivisions desirable for major accounts.

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Inventories and Appraisals

8. Where an inventory and appraisal of the property of a utility has been made, it may be desirable to adjust the books to record the appraisal and related depreciation reserve or to reach some agreed upon restatement in the light of existing facts as a preliminary step in adopting the remaining life method. In such cases appropriate authority of the Commission is needed, and any recommendation to adjust a reserve must be very carefully considered. As discussed in Chapter 4, the book reserve is ordinarily used, but if a restatement of the plant accounts has been approved, the corresponding restated reserve should be used. Once a reserve has been adopted for remaining life method, it should never again be adjusted except to correct accounting errors.

Historical Development of Depreciation Reserve

9. In preparing a report of depreciation practices of a utility, a historical review of past methods of determining credits to the reserve is often helpful. Where initial application of the remaining life method is being made, the considerations of Paragraphs 8 and 9 of Chapter 4 apply. It will be noted that ordinarily the book reserve should be retained and carried forward.

Maintenance Practices and Depreciation

10. In determining the service life of utility plant there is an inherent relationship between maintenance practices and depreciation. By increasing maintenance expenses the service life may often be prolonged, thereby permitting reduced annual depreciation expense. While no exact measure of this relationship is, of course, possible, it is well to inquire into the general level of maintenance when reviewing a utility's depreciation practices. Large maintenance programs will indicate longer service lives are more appropriate while the lack of a maintenance program will tend to indicate that lives somewhat shorter than those for otherwise comparable properties would be appropriate. Maintenance practices also affect depreciation when replacement of smaller parts of a major plant unit are made. In a particular account as between two utilities, different service lives for otherwise comparable property will be indicated, if one charges all such replacements to maintenance while the other uses great refinement in retirement units and treats replacements of many smaller units as capital replacements. The latter condition tends to produce shorter service lives for the account, all other factors being equal.

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THE REMAINING LIFE DEPRECIATION ACCRUAL DETERMINATION

General

1. This chapter presents the basic steps in determining the straight-line remaining life accrual as of a given date, usually the first of the year, and discusses the source of each element in the accrual equation. Detailed information pertaining to methods of obtaining the element of remaining life expectancy is presented in Chapter 5. Procedures for advancing the determination through the year to cover additions and retirements and for applying the determination in succeeding years are presented in Chapter 8.

The Accrual Equation

2. The basic equation for the straight-line remaining life accrual is:

$$D' = \frac{B - C' - U'}{E}$$

where: D' = the annual accrual in dollars
B = the beginning-of-year plant balance
C' = the estimated future net salvage in dollars
U' = the beginning-of-year book depreciation reserve
E = the estimated remaining life expectancy of the plant in years as of the beginning of the year.

It will be noted that the element B and U' are normally obtainable from the utility's books while the element C' and E require estimates of future conditions. These estimates should be reviewed periodically as discussed in Chapter 8.

The Standard Form for the Accrual Determination

3. The standard form for the accrual determination is illustrated in Tables 4-A to 4-E which show the complete determinations for typical utilities. This form is available with ruled lines (Form D-1) for work sheet purposes or in the plain style (Form D-2) for finished typing. The form is designated as an annual determination since the results represent an annual accrual or rate.

4. The numbered columns on the form show the elements B, C', and U' of the basic accrual equation in Columns 1, 2, and 3. Column 4 headed "Net Balance" shows the numerator of the equation, Column 5 shows the remaining life expectancy E. The accrual is then computed and shown in Column 6. The lettered columns on the form give supporting information sometimes used in developing the estimated values. Under group accounting a separate line is used for each account or subaccount. Under unit accounting a separate line is used for each unit or group of similar units. Ordinarily the accuracy of estimates in the accrual determination is such that the entries may be rounded to the nearest dollar.

Plant in Service

5. The dollars of all depreciable plant in service at the beginning of the year as taken from the utilities' books are used in the accrual determination and entered under the heading "gross plant" in Column 1 of the standard form.

Future Net Salvage

6. Future net salvage as included in the accrual equation represents an estimate of the dollars which will be realized from the future retirement of all units now in service. Net salvage is gross salvage realized from resale, re-use or scrap disposal of the retired units less cost of removal. It is customary to arrive at the net salvage in dollars by applying an estimated percentage to gross plant. Column A of the standard form provides space for entering the estimated per cent. The amount in dollars in Column 2 is then the product of the percent in Column A times the plant in Column 1.

7. In estimating the percent net salvage, past experience, when available from the accounting records, should be determined before arriving at a final estimate. However, future conditions often change materially from the past experience because of reduced salvage value of older units or changed conditions in the salvage market or in costs of removal. Also, the past retirement experience of most utility plant is based on but a small portion of today's existing plant. For estimating purposes it is often desirable to consider gross salvage and cost of removal separately. As a rule, gross salvage fluctuates with changes in material costs.

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whereas cost of removal fluctuates with changes in labor expense. Where cost of removal is high, it may be economical, if practicable, to merely abandon plant, which consideration should be reflected in the estimates. It is the usual practice to develop one estimated percent net salvage value for all like units of property. If, however, there is a difference in characteristics or different market demand for units of different ages, the possibility of separate salvage estimates for different age groups should also be considered. When separate estimates are developed for different classes of property or different age groups, the composite estimate for the account should be determined by direct weighting. That is, by multiplying each percent estimate times its related dollars of plant, totaling these products and dividing by the total plant dollars. This gives the composite net salvage expressed as a ratio or a percent. Further detail on procedures used to assist in making salvage estimates is presented in Chapter 7.

Book Depreciation Reserve

8. The dollar balance in the depreciation reserve at the beginning of the year as taken from the company's records should, except in unusual cases, be entered in Column 3 of the standard form and be used in the accrual determination. This book reserve should be retained and carried forward each year by accounts on the remaining life basis. For companies having generally more than $100,000 of gross plant, where the reserve has not been maintained by accounts, the initial application of the remaining life method will require an allocation of the reserve by primary accounts. Companies with less than $100,000 of plant may, as an alternative, compute an over-all composite accrual as described in Paragraph 12 below.

9. An allocation of the reserve by accounts if required should be based on prorating the book reserve according to the reserve requirement or upon a historical reconstruction of the reserve for each account where records are available. If the reserve has previously been kept by groups of accounts or by departments, the allocation to accounts should be made within the group or department without disturbing these subtotals. It will be noted that a reserve requirement study is not required once the remaining life method is started and carried forward. Reserve requirement studies will not be made by the staff, except for the initial allocation to primary accounts, or except in special cases recommended by the Branch Engineer and approved by the Director or Assistant Director of the Utilities Division. Details of procedure when a requirement study is to be made should be reviewed with the Staff Advisory Section.

Remaining Life Expectancy

10. The remaining life in years to be entered in Column 5 of the standard form represents the composite remaining life expectancy for all units, age groups, and classes of property of the account at the beginning of the year. A determination of this value may be made by any one of several methods. The choice of method depends on a number of factors, particularly upon the data available from accounting and engineering records and upon the practical aspects of time and work economy. Details of the various methods and their applicability are discussed in the next chapter. Where the remaining life is determined directly, no entries need be made in Columns B, C or D on the standard form. Where the remaining life is determined from estimates of other service elements the latter should be entered in the appropriate column.

Depreciation Accruals

11. Having completed entries in Columns 1, 2, and 3 and 5 of the standard form, the annual accrual for conditions as of the first of the year may be computed as indicated on the form. It may be used directly as the total accrual for the year or may be adjusted for plant additions as discussed in Chapter 8.

Alternate Accrual Determination for Small Utilities

12. Utilities having generally less than $100,000 of total plant, who elect not to separate the reserve by accounts as discussed in Paragraph 8 above, will have but one total entry in Column 3. Under these conditions, it is appropriate to develop a composite value for remaining life for the entire plant. The total accrual is then obtainable by completing the determination across the totals line only on the standard form. The two alternate examples of Tables 4-D and 4-E illustrate the solution.

13. To develop a composite value of the remaining life from separate estimates by accounts, reciprocal weighting may be used as an approximation as follows:
   a. For each account divide the plant in Column 1 by the remaining life in Column 5.
   b. Total these quotients for all accounts and divide into the total of Column 1. This is the weighted composite remaining life.

14. Further simplification for utilities having generally less than $25,000 of plant may be made by omitting estimates for each account and developing by direct judgment a remaining life estimate for the entire plant.

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UTILITY __Alpha Water Company__

LOCATION __Northern Area__

SUMMARY OF
ANNUAL DEPRECIATION ACCRUAL AND RATE DETERMINATION
STRAIGHT LINE REMAINING LIFE METHOD
YEAR OF __1960__

FILE NO. ____

ACCOUNT NO.	DESCRIPTION	(1) GROSS PLANT (BEG. YEAR)	(A) EST. FUTURE NET SALVAGE (EST. GROSS SALVAGE LESS COST OF REMOVAL) %	(2) AMOUNT	(3) DEPRECIATION RESERVE (BEG. YEAR)	(4) NET BALANCE (1)−(2)−(3)	(B) TOTAL SERV. LIFE ORIG. GROUP (YRS.)	(C) SUR-VIVORS (YRS.)	(D) AVERAGE AGE (YRS.)	(5) REMAIN-ING LIFE (YRS.)	(6) ANNUAL ACCRUAL (4)÷(5)	(E) % OF GROSS PLANT (RATE)
311	Structures & Improvements	$19,540	5.0	$977	$8,014	$10,549	—	†	—	18	$586	3.0%
315	Wells	13,786	0.0	—	9,618	4,168	—	†	—	16	261	1.9
314	Springs and Tunnels	165	0.0	—	49	116	—	†	—	18	6	3.6
324	Pumping Equipment	22,028	2.0	440	8,294	13,294	25	#	—	15	886	4.0
332	Water Treatment Equipment	1,813	5.0	91	531	1,191	18	#	—	13	92	5.1
343	Trans. & Distr. Mains	170,096	0.0	—	61,743	108,353	30	#	—	18	6,016	3.8
342	Reservoirs and Tanks	21,103	0.0	—	6,805	14,298	33	#	—	17	841	4.0
348	Hydrants	4,105	3.0	123	315	3,667	25	#	—	21	175	4.3
345	Services	29,993	0.0	—	12,344	17,649	25	§	—	15	1,103	3.7
346	Motors	34,865	15.0	5,230	6,974	22,661	30	#	—	22	1,030	2.9
349	Other Trans.& Distr. Plant	931	0.0	—	120	811	18	22¶	13	9	90	9.7
372	Office Furniture & Equip.	657	0.0	—	214	443	11	12¶	5	7	63	9.6
	* Subtotal (Chargeable to Expense)	319,082		6,861	115,021	197,200					11,149	3.49
374	Stores Equipment	2,471	5.0	124	451	1,896	12	13	3	10	190	7.7
378	Tools, Shop & Garage Equip.	6,579	15.0	987	2,283	3,309	7	8	4	4	571	8.7
	* Subtotal (Chargeable to Clearing	9,050		1,111	2,734	5,205					761	8.41
	Totals	328,132		7,972	117,755	202,405					11,910	3.63

* Estimated Net Additions 1960 .... $32,400
* Estimated Average Net Additions (one half) ... 16,200
* Composite Rate (multiply) ... 3.63%
* Additional Accrual ... $588
* Total Accruals for Year ... 12,498

Notes: * Optional Items Applicable In Conformance With The Practice Of The Utility Under Study.
† Remaining Life Determined By Forecast Method. (See paragraph 15, Chapter 5.)
# Remaining Life Determined By Selecting A Type Curve and Applying Direct Weighting. (See paragraph 13, Chapter 5)
‡ Remaining Life Determined By Actuarial Means. (See paragraph 12, Chapter 5.)
§ Remaining Life Determined By Computation From Accounting Data. (See paragraph 16, Chapter 5.)
¶ Remaining Life Determined By Judgment. (See paragraph 17, Chapter 5.)

TABLE 4-A
Example of standard accrual determination for a typical large utility

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SUMMARY OF
ANNUAL DEPRECIATION ACCRUAL AND RATE DETERMINATION
STRAIGHT LINE REMAINING LIFE METHOD
YEAR OF 1960.

Utility __Midtown Water Company__   Location __Albany District__   File No. ___

ACCOUNT NO.	DESCRIPTION	GROSS PLANT (BEG. YEAR) (1)	EST. FUTURE NET SALVAGE % (y)	EST. FUTURE NET SALVAGE (EST. GROSS SALVAGE LESS COST OF REMOVAL) AMOUNT (2)	DEPRECIATION RESERVE (BEG. YEAR) (3)	NET BALANCE (1)-(2)-(3) (4)	TOTAL SERV. LIFE GROUP (YRS.) (a)	ORIG. SURVIVORS (YRS.) (b)	AVERAGE AGE (YRS.) (c)	REMAIN-ING LIFE (YRS.) (d)	ANNUAL ACCRUAL $ (4)÷(d) (e)	% OF GROSS PLANT (RATE) (f)
311	Structures & Improvements	$2,860	8	$135	$1,021	$1,696	—	—	—	32	$63	1.9%
315	Wells	9,291	—	—	3,187	6,104	—	—	—	20	306	3.3
312	Coll. & Impounding Resrvs.	702	—	—	610	92	—	—	—	8	12	1.7
324	Pumping Equipment	3,687	5	176	1,084	2,267	25	27	17	10	227	6.4
326	Other Pumping Plant	568	—	—	283	346	25	26	8	18	14	2.5
343	Trans. & Distr. Mains	49,874	—	—	19,220	30,354	45	46	16	31	972	2.0
342	Reservoirs and Tanks	2,949	—	—	1,498	1,451	32	33	7	26	56	1.9
348	Hydrants	80	—	—	56	24	40	—	—	28	1	1.3
345	Services	7,128	—	—	2,611	4,517	35	—	—	27	167	2.3
346	Meters	3,602	10	360	1,076	2,166	38	—	—	30	72	2.0
348	Other Trans. & Distr. Plant	1,977	—	—	847	1,130	20	21	8	13	87	4.4
372	Office Furniture & Equip.	3,356	—	—	1,086	2,270	12	12	2	10	227	6.8
	Total Depr. Capital	85,603	—	669	32,618	52,316	—	—	—	—	2,194	2.56

* Estimated Net Additions 1960 $9,126
* Estimated Average Net Additions (one half)   4,563
* Composite Rate (Multiply)   2.56%
     Additional Accrual $117
* Total Accruals for year (Debit to Ac. 503)   2,311

ACCOUNT NO.	DESCRIPTION	GROSS PLANT	%	AMOUNT	DEPRECIATION RESERVE	NET BALANCE				REMAIN-ING LIFE	ANNUAL ACCRUAL	RATE
	Contributed Plant (Not Included Above)											
315	Wells	$1,050	—	—	$500	$550	—	—	—	20	28	2.7
343	Trans. & Distr. Mains	3,500	—	—	875	2,625	—	—	—	36	73	2.1
345	Services	425	—	—	100	325	—	—	—	30	11	2.6
346	Meters	275	—	—	75	200	—	—	—	35	9	2.2
	Total Contr. Plant (Debit Accrual to Ac. 265)	5,250	—	—	1,550	3,700	—	—	Credit to Ac. 265	—	118	2.2
											2,429	

* Optional items applicable in conformance with the practice of the utility under study.

TABLE 4-3 Example of standard accrual determination for a typical utility.

UTILITY __Community Telephone Co.__

LOCATION __Western Exchange__

SUMMARY OF
ANNUAL DEPRECIATION ACCRUAL AND RATE DETERMINATION
STRAIGHT LINE REMAINING LIFE METHOD
YEAR OF 1960

FILE NO.

ACCOUNT NO.	DESCRIPTION	(1) GROSS PLANT (BEG. YEAR)	(A) EST. FUTURE NET SALVAGE (EST. GROSS SALVAGE LESS COST OF REMOVAL) %	(2) AMOUNT	(3) DEPRECIATION RESERVE (BEG. YEAR)	(4) NET BALANCE (1)—(2)—(3)	(B) TOTAL SERV. LIFE ORIG. GROUP (YRS.)	(C) SUR-VIVORS (YRS.)	(D) AVERAGE AGE (YRS.)	(5) REMAIN-ING LIFE (YRS.)	(6) ANNUAL ACCRUAL (4)÷(5) $	(E) % OF GROSS PLANT (RATE)
212	Buildings	$7,272	5	$364	$1,944	$4,964	—	—	—	25	$199	2.7%
221	Central Office Equipment	32,188	5	1,609	5,277	25,302	—	—	—	27	937	2.9
231	Station Apparatus	12,164	65	7,740	2,476	1,948	—	—	—	4	455	3.7
234	Private Branch Exchanges	433	20	87	97	249	20	21	7	14	18	4.2
241	Pole Lines	32,018	5	1,601	6,577	23,840	—	—	—	17	1,402	4.4
242.1	Aerial Cable	5,299	4	212	856	4,231	21	22	2	20	212	4.0
242.2	Underground Cable	1,102	10	110	202	790	30	31	8	23	34	3.1
242.3	Buried Cable	146	—	—	—	146	30	30	4	26	6	4.1
242.4	Submarine Cable	2,064	—	—	210	1,854	20	21	8	13	143	6.9
243	Aerial Wire	25,821	4	1,073	9,817	15,931	—	—	—	17	957	3.6
244	Underground Conduit	687	—	—	59	628	60	60	8	52	12	1.7
261	Furniture & Office Eq.	1,070	10	107	491	472	20	21	9	12	39	3.6
264	Vehicles & Other Work Eq.	3,507	10	351	1,453	1,703	—	—	—	4	426	12.1
	Total Depreciable Capital	124,771		13,254	29,459	82,058					4,816	3.86

```
* Estimated Net Additions 1960            $8,342
* Estimated Avg. Net Additions (one half)  4,171
*              Composite Rate (Multiply)    3.86%
*              Additional Accrual           $161
* Total Accruals for Year
```

                                                        161
                                                      4,979

* (Use for monthly accrual # 415)

* Optional items applicable in conformance with the practice of the utility under study.

Class A and B telephone utilities in conformance with the Uniform System of Accounts are required
  to calculate the monthly accrual by applying 1/12 the rates in Column (E) to the beginning of
  month or average monthly plant balances for each account. Value shown here is 1/12 the annual
  accrual rounded to nearest dollar.

TABLE 4-C
Example of standard accrual
determination for a typical
telephone utility.

FORM D-2

SUMMARY OF
ANNUAL DEPRECIATION ACCRUAL AND RATE DETERMINATION
STRAIGHT LINE REMAINING LIFE METHOD

UTILITY Upland Telephone Co.

LOCATION Total Company Area

YEAR OF 1960

FILE NO.

ACCOUNT NO.	DESCRIPTION	(1) GROSS PLANT (BEG. YEAR)	(A) %	(2) AMOUNT	(3) DEPRECIATION RESERVE (BEG. YEAR)	(4) NET BALANCE (1)-(2)-(3)	(B) ORIG. GROUP (YRS.)	(C) SUR-VIVORS (YRS.)	(D) AVERAGE AGE (YRS.)	(5) REMAIN-ING LIFE (YRS.)	(6) ANNUAL ACCRUAL (4)÷(5) $	(E) % OF GROSS PLANT (RATE)
			EST. FUTURE NET SALVAGE (EST. GROSS SALVAGE LESS COST OF REMOVAL)				TOTAL SERV. LIFE					
211	Land and Rights of way	$698		—	$	$	—	—	—	40	$	
212	Buildings	8,350	8.0	$668			—	—	—	34		
221	Central Office Equipment	12,192	12.0	1,463			—	—	—	29		
231	Station Apparatus	6,725	5.0	336			18	19	6	12		
241	Pole Lines	9,891		—			25	25	4	22		
242	Cable	4,946		—			25	25	4	22		
261	Furniture & Office Equip.	1,274		—			20	21	8	13		
264	Vehicles & Other Work Eq.	3,493	10.0	349			—	—	—	4		
	Total Depreciable Capital	47,569		2,816	18,465	26,288				16.5†	1,593	3.35%

(Use for monthly accrual # 133)

* Estimated Net Additions 1960 3,170
* Estimated Avg. Net Additions (one half) ... 1,585
*   Composite Rate (Multiply) 3.35%
*   Additional Accrual $53   53
* Total Accruals for Year $1,646

* (Use for monthly accrual # 137)

† Composite Remaining Life Developed as follows:

Notes:

	Ac.	Plant (1)	Rem. Life (2)	Weight (3)=(1)/(2)
* Optional items applicable in conformance with practice of the utility under study.	211	$698	40	17
	212	8,350	34	246
	221	12,192	29	420
	231	6,725	12	560
# 1/12 of annual accrual rounded to nearest dollar	241	9,891	22	449
	242	4,946	22	225
	261	1,274	13	98
	264	3,493	4	873
		47,569		2,888

Rem. Life = $\frac{47,569}{2,888}$ = 16.5

TABLE 4-D

Example for a utility with less than $100,000 total plant using alternate determination not separating determination reserve by accounts.

For ⌐

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SUMMARY OF
ANNUAL DEPRECIATION ACCRUAL AND RATE DETERMINATION
STRAIGHT LINE REMAINING LIFE METHOD
YEAR OF 1960

UTILITY Five Corners Water Co.

LOCATION Total Company Area

FILE NO.

ACCOUNT NO.	DESCRIPTION	(1) GROSS PLANT (BEG. YEAR)	(A) EST. FUTURE NET SALVAGE (EST. GROSS SALVAGE LESS COST OF REMOVAL) %	(2) AMOUNT	(3) DEPRECIATION RESERVE (BEG. YEAR)	(4) NET BALANCE (1)-(2)-(3)	(B) TOTAL SERV. LIFE ORIG. GROUP (YRS.)	(C) SUR-VIVORS (YRS.)	(D) AVERAGE AGE (YRS.)	(5) REMAIN-ING LIFE (YRS.)	(6) ANNUAL ACCRUAL (4)÷(5) $	(E) % OF GROSS PLANT (RATE)
312	Coll. & Impounding Resvrs.	1,742	$	$	$	$					$	
315	Wells	300										
343	Trans. & Distr. Mains	11,355										
342	Reservoirs and Tanks	990										
345	Services	1,027										
372	Office Furniture & Equip.	767										
	Total Depr. Plant	16,181	1.0	1.62	5,471	10,548	—	—	—	22	479	2.96
	* Estimated Net Additions 1960					$836						
	* Estimated Avg. Net Additions (one half)					418						
	* Composite Rate (Multiply)					2.96%						
	* Additional Accrual					$12					12	
	* Total Accruals for Year										$491	
	Contributed Plant (Not Included Above)											
343	Trans. & Distr. Mains	$300										
345	Services	150										
348	Hydrants	100										
	Total Contr. Plant (Debit Accrual to Ac. 265)	550		$20	$280	$250				15	$17	3.1%
								Credit to Ac. 250			508	

* Optional items applicable according to the practice of the utility.

CHAPTER 5
METHODS OF ESTIMATING THE REMAINING LIFE EXPECTANCY

General

1. There is presented in this chapter: first, material on the general nature of remaining life estimates and plant mortality; second, the types of data available from which remaining life estimates may be developed; third, methods of weighting and a discussion of the factors governing the selection of a method; fourth, a brief presentation of the available methods of estimating remaining life; and, finally, a discussion of the governing factors and procedures in the selection of a method. Each of these items comprises a separate section of the chapter. Those familiar with depreciation practices, or those interested in an over-all picture, only, may wish to turn directly to the final section commencing at Paragraph 18.

A—REMAINING LIFE AND PLANT MORTALITY

Basic Nature of the Remaining Life Estimate

2. Determination of the remaining life basically involves the judgment estimate of the engineer as to the future effect of wear and tear, decay, action of the elements, inadequacy, obsolescence, and public requirements. In special cases other factors may be important, such as anticipated changeovers to new or improved major units of plant, and other specific plans of management. To arrive at a satisfactory estimate of future conditions, the past experience generally gives indications which may be used as a major element in the remaining life estimate. The weight to be given past experience depends upon the extent to which conditions affecting service life in the future are expected to be similar to or different from those in the past. However, substantial weight is generally given to results of past experience in the same or comparable properties.

Plant Mortality Experience

3. From the numerous studies of utility properties made by many individuals and organizations under widely varying circumstances, it is known that large groups of like plant generally follow a mortality pattern. This pattern is such that the portion of an original group surviving at a time may be statistically predicted as a function of age. A graph or curve illustrating this relationship is known as a survivor curve. Chart 5-A illustrates a survivor curve together with various related curves and service life elements. The more important service life elements include the following:

a. *Average service life* is the average expected life of all units when new. It is also spoken of as the total service life of an original group as used in Column B of the standard calculation form D-2. It is equal to the area under the survivor curve and is illustrated by the vertical dotted line in Chart 5-A.

b. *Probable life* is the total expected service life of survivors at a given age. On the standard calculation form it may be entered in Column C. At any age beyond zero it is longer than the average service life by reason of retirements of shorter lived units which have already taken place.

c. *Remaining life expectancy* is the future expected service in years of a survivor at a given age. For single units or single age groups of property the age of the survivors plus the remaining life equals the probable life. Using this relationship the probable life curve is drawn so that for any age along the survivor curve the horizontal distance to the probable life curve represents the remaining life. For groups of different ages or different classes of property a weighted average expectancy is required.

d. *Average age* is the weighted average age of all units of plant in service at the beginning of the year. It may be entered in Column D on the standard calculation form. Use of this element to obtain the remaining life of group accounts involves an approximation which should only be used when other means are not available.

e. *A stub survivor curve* represents the observed experience for a particular account or class of property. A curve developed by statistical analysis or selected as a mean of observed experience is spoken of as a "smoothed" curve. Often observed experience does not extend to older lived units. Under these conditions the predicted experience for older lived units is spoken of as an "extended" curve. Generally a curve developed or selected for estimating purposes is a curve which has been both "smoothed and extended."

A SURVIVOR CURVE AND RELATED CURVES

CHART 5-A
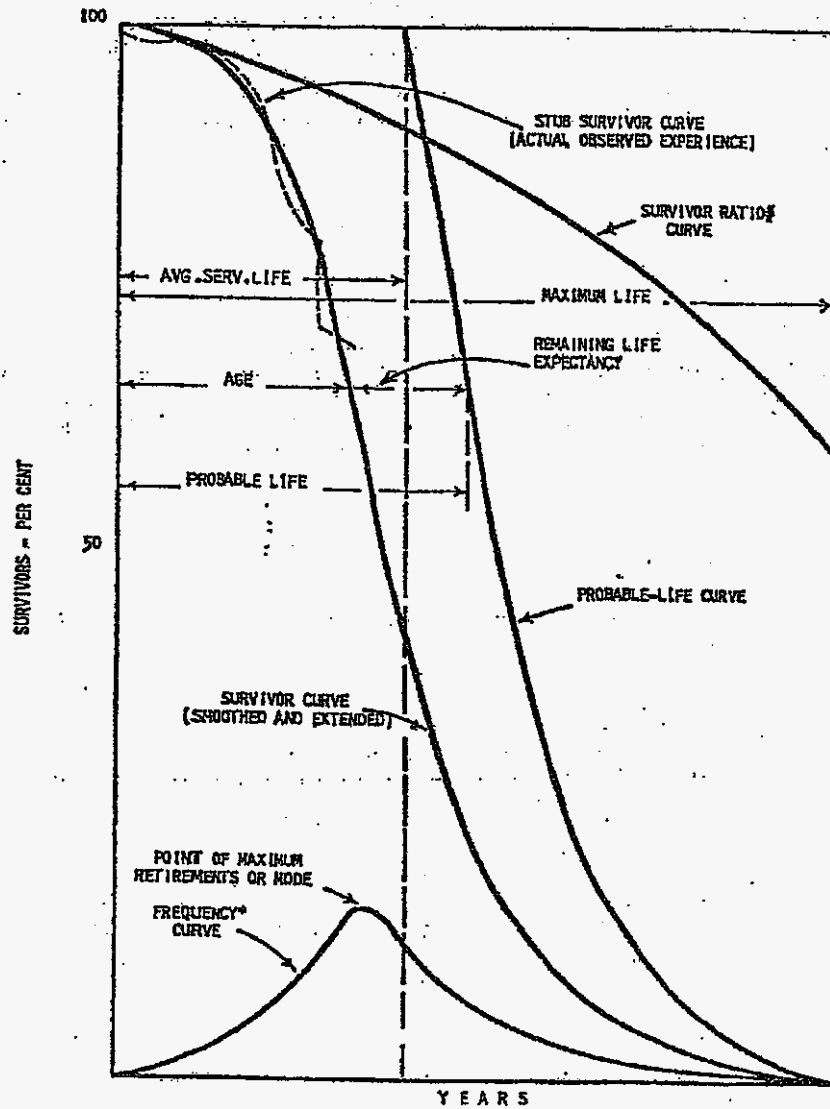
* THE FREQUENCY CURVE IS NOT REQUIRED IN THE USUAL DEPRECIATION COMPUTATIONS.
# THE SURVIVOR RATIOS (SURVIVORS AT END OF PERIOD ÷ PLANT EXPOSED AT BEGINNING OF PERIOD) ARE USED IN COMPUTING THE SURVIVOR CURVE.

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B—DATA AVAILABLE FROM UTILITY RECORDS

Sources of Data

4. Data available from utility records affording information on which to base estimates may be found among the following sources:

    a. Accounting records in compliance with the "Uniform Systems of Accounts."
    b. Parcel or card records of lands, buildings, structures, and other plant units.
    c. Construction work orders and voucher records.
    d. Engineering or operating maps, diagrams, and field records.
    e. Data compiled to determine average unit costs.
    f. Subsidiary depreciation records including mortality summaries, age and dollar distribution data, and retirement data.

Each of these sources should be checked with a view toward arriving at all available pertinent information. The more important types of information to be assembled as a basis for estimating lives are discussed in the next five paragraphs.

Mortality Summary Data

5. A mortality summary of an account or class of property provides the most reliable source for developing past results and statistically predicting future experience. Such a summary sets forth the dollars or units of plant placed each year and shows the related retirements by age at retirement. This information, when not maintained directly, may frequently be developed by study from those sources listed under Items b, c, d, and e in the preceding paragraph. In order to maintain this information it is necessary to record the dollars in each account by year of placement and relate retirements to year of placement. Where the group comprises many small units, this is sometimes accomplished by studies of representative samples. For accounts or single classes of property with over approximately $100,000 in plant, the accumulation of this data when at all feasible is recommended.

6. From the mortality summary, using actuarial methods, smoothed and extended survivor curves applicable to the plant in question may be developed. Available alternate methods of solution of the data include smoothing the stub survivor curve directly, selecting a type curve by matching with the stub curve, smoothing the observed survivor ratios or retirement ratios, and smoothing the observed frequency curve. These various elements are illustrated in Chart 5-A. Complete details for using these methods are beyond the scope of this practice. Where data are available and the staff is to determine a solution, assistance of the Staff Advisory Section should be obtained. Where review of a utility's solution is made, the reasonableness of the band of years of past experience selected as representative of future conditions should be checked.

Age Distribution Data

7. Age distribution data, when available, permits accurate development of remaining life from a selected survivor curve. These data show the dollars of plant surviving separated by age groups. Where mortality summaries are maintained, these data may be taken direct from the summary. In other cases, although mortality summary data are not available, age distribution data may be developed. This can be done by study from accounting records based on known placements or retirements of major units coupled with a first-in first-out treatment of unidentified additions and retirements. The first-in first-out treatment of additions and retirements is to be used with caution, particularly if applied to an entire account, for it distorts the mortality dispersion experience. An alternate and perhaps more accurate means of initially developing age distribution data is to select an applicable survivor curve and apply the portion surviving for each age to the known gross additions each year. The first four columns of standard form D3 provide for this calculation as illustrated in Table 5-A. When an age distribution study has been made, it is desirable if feasible, that the information thereafter be carried forward annually, particularly for accounts exceeding $100,000 in plant.

8. Age distribution data is sometimes used to determine age dollar and average age information. Determination of the remaining life of a group account by subtracting average age from an estimated average probable life is an approximation subject to possible wide error in results. Whenever a survivor curve believed reasonably representative of future condition may be selected, even if a type curve is selected on a judgment basis, the remaining life result, obtained by direct weighting as described below, is to be preferred over determining average age and applying the group approximation.

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UTILITY **Alpha Water Company**

AREA/DEPT. **Northern Area**

AC 346 **Meters**

TABLE 5-A

REMAINING LIFE OF PLANT

COMPUTED FROM A SURVIVOR CURVE

AS OF 1/1/60

YEAR PLACED	AGE 1/1/60	GROSS ADDITIONS	PORTION SURVIVING	PLANT SURVIVING 1/1/60	REMAINING LIFE (YRS.)	FUTURE DOLLAR YEARS
(0)	(1)	(2) NOTE A	(3) NOTE B	(4) NOTE C	(5) NOTE B	(6)=(4)×(5)
1959	0.5	$ 3,600	1.000	$ 3,600	29.5	$ 106,200
58	1.5	3,451	.999	3,448	28.5	98,268
57	2.5	3,302	.998	3,295	27.6	90,942
56	3.5	3,081	.997	3,072	26.6	81,715
55	4.5	2,743	.996	2,732	25.6	69,939
1954	5.5	2,393	.994	2,379	24.7	58,761
53	6.5	1,890	.992	1,875	23.7	44,438
52	7.5	1,184	.989	1,171	22.8	26,699
51	8.5	650	.986	641	21.8	13,974
50	9.5	529	.982	519	20.9	10,847
1949	10.5	555	.978	543	20.0	10,860
48	11.5	798	.972	776	19.1	14,822
47	12.5	1,250	.966	1,208	18.3	22,106
46	13.5	1,092	.958	1,046	17.4	18,200
45	14.5	941	.949	893	16.6	14,824
1944	15.5	833	.940	783	15.7	12,293
43	16.5	643	.928	597	14.9	8,895
42	17.5	506	.915	463	14.1	6,528
41	18.5	418	.900	376	13.3	5,001
40	19.5	331	.884	293	12.6	3,692
1939	20.5	277	.865	240	11.8	2,832
38	21.5	210	.844	177	11.1	1,965
37	22.5	189	.821	155	10.4	1,612
36	23.5	987	.794	784	9.8	7,683
35	24.5	1,176	.765	900	9.1	8,190
1934	25.5	1,033	.733	757	8.5	6,434
33	26.5	838	.697	584	7.9	4,614
32	27.5	615	.659	405	7.3	2,956
31	28.5	490	.616	302	6.8	2,054
30	29.5	461	.571	263	6.3	1,657
1929	30.5	379	.523	198	5.8	1,148
PRIOR		1,308	.320	419	4.3	1,802
TOTALS		38,153	—	34,894		761,951

NOTES:

A. Gross additions to be taken from accounting records. See Note C.

B. Portion surviving and remaining life taken from selected survivor curve of:

Solution #

Type Iowa R₃

Total service life of original group = A.S.L. = 30 Yrs.

C. If age data available omit Cols. (2) and (3) and enter directly in Col. (4). If age distribution data not available, Col. (4) may be taken as Col. (2) × Col. (3).

D. Composite remaining life

$$= \frac{\text{Total Col. (6)}}{\text{Total Col. (4)}} =$$

$$\frac{761,951}{34,894} =$$

21.84 Years.

E. Use 22 Yrs. (Rounded value)

F. Actual plant balance (if different from total of Col. (4)):

$34,865

* In this example Columns (3) and (5) taken from Appendix Table A-10.

TABLE 5-B

UTILITY __Alpha Water Company__
AREA/DEPT. __Northern Area__
AC __324__ __Pumping Equipment__

REMAINING LIFE OF PLANT

COMPUTED FROM A SURVIVOR CURVE

AS OF 1/1/__60__

YEAR PLACED	AGE 1/1/60	GROSS ADDITIONS	PORTION SURVIVING	PLANT SURVIVING 1/1/60	REMAINING LIFE (YRS.)	FUTURE DOLLAR YEARS
(0)	(1)	(2) NOTE A	(3) NOTE B	(4) NOTE C	(5) NOTE B	(6)=(4)×(5)
1959	0.5	s		s 1,403	24.6	s 34,514
58	1.5			1,131	23.9	27,031
57	2.5			998	23.2	23,154
56	3.5			1,092	22.4	24,461
55	4.5			981	21.7	21,288
1954	5.5			710	21.0	14,910
53	6.5	In this example		619	20.4	12,628
52	7.5	these two columns		402	19.7	7,919
51	8.5	not required		140	19.0	2,660
50	9.5	because age		84	18.3	1,537
1949	10.5	distribution data		--	17.6	--
48	11.5	available from avg.		409	17.0	6,953
47	12.5	unit cost data.		657	16.3	10,709
46	13.5	See Note C.		801	15.7	12,576
45	14.5			797	15.0	11,955
1944	15.5			738	14.4	10,627
43	16.5			780	13.8	10,764
42	17.5			505	13.2	6,666
41	18.5			664	12.6	8,366
40	19.5			536	12.1	6,486
1939	20.5			404	11.5	4,646
38	21.5			448	11.0	4,928
37	22.5			634	10.4	6,594
36	23.5			903	9.9	8,940
35	24.5			1,115	9.4	10,481
34	25.5			1,097	8.9	9,763
33	26.5			950	8.5	8,075
32	27.5			709	8.0	5,672
31	28.5			601	7.6	4,568
30	29.5			551	7.1	3,912
1929	30.5			367	6.7	2,459
PRIOR				802	5.1	4,090
TOTALS				22,028		329,332

NOTES:

A. Gross additions to be taken from accounting records. See Note C.

B. Portion surviving and remaining life taken from selected survivor curve of:*

Solution #

Type __Iowa R₁__

Total service life of original

group =A.S.L= __25__ Yrs.

C. If age data available omit Cols. (2) and (3) and enter directly in Col. (4). If age distribution data not available, Col. (4) may be taken as Col. (2) x Col. (3).

D. Composite remaining life

$$\frac{Total\ Col.\ (6)}{Total\ Col.\ (4)}=$$

$$\frac{329,332}{22,028}=$$

__14.95__ Years.

E. Use __15__ Yrs. (Rounded value)

F. Actual plant balance (if different from total of Col. (4)):

$____

* In this example Column (5) taken from Appendix Table A-8

Accounting Records of Gross Additions and Plant Balances

9. Where mortality summary data and age distribution data are not developed, considerable information on which to base estimates may be developed from the plant accounting records maintained in conformance with the uniform systems of accounts. Some caution must be exercised, however, to eliminate the distortion caused by transfers and adjustments to accounts, by changes in accounting classification, and by abnormally large retirements or replacements of units. Use of these data yields more reliable results in accounts with stable plant or plant with uniform growth where no noticeable trend toward longer or shorter service lives is evident. With these precautions in mind the following may be developed:

 a. A representative survivor curve is obtainable by simulated plant balance methods.
 b. Indications of average service life may be obtained by turnover methods.
 c. From a selected applicable average service life indications of the remaining life may be calculated.

Details of procedure to accomplish items a and b are beyond the scope of this practice. Where a utility has used these methods, the staff engineer in his review should check the period of years used in relation to anticipated future conditions. He should also check to insure reasonable adjustment of the accounting data for transfers, changes in classification and other abnormal experience when applicable. Details of procedure to accomplish Item c are presented in Paragraph 16 below.

C—METHODS OF WEIGHTING

Types of Weighting

10. Before considering the methods for obtaining remaining life it is well to consider the means by which estimates for separate classes of property or separate age groups may be weighted to afford a composite value. Three types of weighting are used as follows:

 a. *Direct weighting* or weighting by future dollar years. This calculation requires that the book dollars for each age group or class of property be multiplied by the remaining life applicable to those dollars. The composite remaining life is then obtained by dividing the total of the products by the total plant dollars. The products under this method of weighting are spoken of as future dollar years. The last three columns of standard form D8 may be used for this calculation as illustrated in Tables 5-A and 5-B.

 b. *Reciprocal weighting.* This is accomplished by dividing the book dollars by the remaining life for each age group or class of property, totalling these quotients and dividing the total into the total book dollars.

 c. *Average service life weighting.* In this method the book cost for each class of property is divided by the average service life and the result is multiplied by the remaining life. The composite remaining life for all classes then equals the sum of these products divided by the sum of these quotients.

Selecting a Method of Weighting

11. In selecting a method of weighting, several considerations apply. First, it is desired that the method of weighting used shall produce the same results as though the book reserve had been prorated to the various age groups or classes of property on the basis of the applicable reserve requirement. Secondly, it is desirable that the result obtained by weighting be in conformance with the provisions of certain of the uniform systems of accounts, that the accrual computed for an account as a whole shall be the same as if separate accruals had been computed for each class of property and the total obtained. Under these considerations, direct weighting produces proper results if the average service life of each age group or class of property weighted is approximately the same. Reciprocal weighting produces proper results if the reserve for the various classes of property or groups weighted is distributed in proportion to the plant dollars, a condition which is more likely in stable plant with slow growth. Average service life weighting produces proper results if the book reserve and the reserve requirement are closely the same. From these considerations it is concluded that direct or future dollar weighting is the proper method to use between age groups, whereas either reciprocal weighting or average service life weighting will usually yield the better approximation between classes of property. In very large accounts where individual classes of property exceed $100,000 of plant, occasionally a utility may prefer to prorate the book reserve within the account according to a reserve requirement between each class of property rather than to attempt any of the other weighting methods. Such a proration is used only infrequently, is made only at the time of a periodic review for weighting purposes within a very large account, and is normally not carried forward from the date of the calculation.

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D—AVAILABLE METHODS OF ESTIMATING REMAINING LIFE

Survivor Curve Methods

12. If a survivor curve believed representative of future conditions can be developed or a type survivor curve is selected on a judgment basis, the determination of the remaining life is greatly facilitated. Standard form D4 provides for computing the elements of a survivor curve as illustrated in Table 5-C. Where mortality summary data are available, the curve should be developed from these data. Care should be exercised to select data from a band of years reasonably representative of the anticipated future conditions. In determining the shape of the extended portion of the curve, it is helpful to ascertain a reasonable maximum life or cutoff point for the curve. Other factors such as the operation of uniform chance retirement which produces a flat curve and the possibility of high early mortality which produces an early drop in the curve, or similar factors should be kept in mind. Usually it will be evident from the summary data that certain of these factors are operating in the plant and the calculated results will reflect these conditions.

13. When mortality summary data are not available the selection of a general type survivor curve is desirable. In selecting type curves the considerations enumerated in the preceding paragraph are applicable. Type curves may be obtained from actuarial analyses made of mortality data of comparable classes of property in comparable utilities or they may be obtained from general studies. One widely accepted study of this latter type is that conducted at the Iowa State College Engineering Experiment Station as described in their Bulletins Nos. 125 and 155. These curves are referred to in this practice as Iowa type curves. Tabulations of remaining lives by ages for each Iowa curve are given in the appendix. It will be noted that a particular type curve is identified by two elements. One is the average service life and the other is the type designator. The latter designates the general shape of the curve. When selecting the survivor curve on a judgment basis, the average service life must be estimated and an appropriate survivor curve shape selected. Turnover studies or related experience in other properties offer a guide to selecting an average service life. As a guide in selecting Iowa type curves, "L" types designate curves indicating high early mortality, "S" types designate curves with maximum retirements occurring about the mid-span of years, and "R" types designate curves with few early retirements and heavy retirements near the end portion of the curve. For each of these groups the higher subscripts indicate progressively greater concentration of retirements at one period.

14. Another method of developing a survivor curve is the simulated plant balance approach which involves a mathematical selection of that survivor curve which applied to the gross addition year by year will match the recorded year by year balances of the plant account. This method is applicable only where it is determined that past mortality experience has been consistent between generations and is reasonably indicative of the future. It is not applicable to plant accounts where substantial technical changes in the facilities have occurred. Two procedures have been advanced for developing the "simulated" balance solution. One procedure involves the successive trial of a number of curve patterns applied to the known additions to select the curve which most closely matches the actual plant balances. A complete discussion of this procedure using a set of precalculated tables based on the Iowa type curves is found in the paper entitled "Life Analysis of Utility Plant and Depreciation Accounting Purposes by the Simulated Plant Record Method" by A. E. Bauhan. The second procedure involves the use of the actual plant balances in the development of an equation for an approximate survivor curve of a predetermined generic type. A complete discussion of this procedure is set forth in a paper entitled "Mortality Curves for Physical Plant" by J. F. Brennan. Copies of these papers are in the Commission staff files (Staff Advisory Section).

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ELEMENTS OF A SURVIVOR CURVE

TABLE 5-C

SOLUTION # 15-1 2 SHEET 1 OF 2

COMPANY Community Tel. Co.
Western Exchange
AREA/DEPT. Station Apparatus

TYPE/CLASSIF.

A.S.L. 4.65 YRS. (FROM 1ST VALUE COL (5)) AC 231 (Location Life)

AGE (0)	SURVIVOR RATIO Y (1) *	SURVIVOR CURVE Y(X) (2) *	RETIREMENT FREQUENCY F(X) (3) *	REALIZED LIFE $\frac{1}{2}Y_{0.5} + S(Y_{1.5} \text{ to } Y_x)$ (4) *	FUTURE SURVIVORS $S(Y_{(x+1)} \text{ to } Y_{\omega})$ (5)	REMAINING LIFE E (X) $(6) = \frac{(5)}{(2)} + 0.5$	PROBABLE LIFE T (X) $(7) = (0) + (6)$ *	AGE (0)
0.0	.8696	1.0000	--	--	4.6487	←	←	0.0
0.5	.7576	.8696	13.0%	0.5	3.7791	4.8	5.3	0.5
1.5	.7756	.6588	21.1	1.2	3.1203	5.2	6.7	1.5
2.5	.7922	.5110	14.8	1.8	2.6093	5.6	8.1	2.5
3.5	.8074	.4048	10.6	2.3	2.2045	5.9	9.4	3.5
4.5	.8212	.3268	7.8	2.6	1.8777	6.2	10.7	4.5
5.5	.8337	.2684	5.8	2.9	1.6093	6.5	12.0	5.5
6.5	.8447	.2238	4.5	3.2	1.3855	6.7	13.2	6.5
7.5	.8543	.1890	3.5	3.4	1.1965	6.8	14.3	7.5
8.5	.8626	.1615	2.8	3.6	1.0350	6.9	15.4	8.5
9.5	.8694	.1393	2.2	3.7	.8957	6.9	16.4	9.5
10.5	.8749	.1211	1.8	3.8	.7746	6.9	17.4	0.5
11.5	.8790	.1060	1.5	4.0	.6686	6.8	18.3	1.5
12.5	.8816	.0932	1.3	4.1	.5754	6.7	19.2	2.5
13.5	.8829	.0822	1.1	4.1	.4932	6.5	20.0	3.5
14.5	.8828	.0726	1.0	4.2	.4206	6.3	20.8	4.5
15.5	.8813	.0641	.9	4.3	.3565	6.1	21.6	5.5
16.5	.8784	.0565	.8	4.4	.3000	5.8	22.3	6.5
17.5	.8684	.0496	.7	4.4	.2504	5.5	23.0	7.5
18.5	.8613	.0434	.6	4.5	.2070	5.3	23.8	8.5
19.5	.8528	.0377	.6	4.5	.1693	5.0	24.5	9.5
20.5	.8430	.0325	.5	4.5	.1368	4.7	25.2	0.5
21.5	.8317	.0277	.5	4.6	.1091	4.4	25.9	1.5
22.5	.8190	.0234	.4	4.6	.0857	4.2	26.7	2.5
23.5	.8050	.0195	.4	4.6	.0662	3.9	27.4	3.5
24.5	.7895	.0160	.4	4.6	.0502	3.6	28.1	4.5
25.5	.7727	.0129	.3	4.6	.0373	3.4	28.9	5.5
26.5	.7545	.0102	.3	4.6	.0271	3.2	29.7	6.5
27.5	.7348	.0079	.2	4.6	.0192	2.9	30.4	7.5
28.5	.7163	.0060	.2	4.6	.0132	2.7	31.2	8.5
29.5	.6914	.0044	.2	4.6	.0088	2.5	32.0	9.5
30.5	.6676	.0031	.1	4.6	.0057	2.4	32.9	0.5

26 # See notes on Sheet 2.

FORM D-4

ELEMENTS OF A SURVIVOR CURVE

TABLE 5-C

SOLUTION # 15-1.2   SHEET 2 OF 2

COMPANY Community Tel. Co. Western Exchange

TYPE/CLASSIF. -

AREA/DEPT. Station Apparatus

A.S.I. ____ YRS. (FROM 1ST VALUE COL (5))   AC 231   (Location Life)

AGE	SURVIVOR RATIO Y	SURVIVOR CURVE Y(X)	RETIREMENT FREQUENCY F(X)	REALIZED LIFE $\frac{1}{2}Y_{x.x} + S(Y_{1.x} \text{ to } Y_x)$	FUTURE SURVIVORS $S(Y_{(x+1)} \text{ to } Y_\omega)$	REMAINING LIFE E (X)	PROBABLE LIFE T (X)	AGE
(0)	(1) *	(2) *	(3) *	(4) *	(5)	$(6) = \frac{(5)}{(2)} + 0.5$	$(7) = (0) \div (6)$ *	(0)
0.0		1.0000	-	-		←	←	0.0
0.5								0.5
31.5	.6424	.0021	.1%	4.6	.0036	2.2	33.7	1.5
32.5	.6158	.0014	-	4.6	.0022	2.1	34.6	2.5
33.5	.5878	.0009	-	4.6	.0013	1.9	35.4	3.5
34.5	.5584	.0006	-	4.6	.0007	1.7	36.2	4.5
35.5	.5276	.0004	-	4.6	.0003	1.3	36.8	5.5
36.5	.4955	.0002	-	4.6	.0001	1.0	37.5	6.5
37.5	-	.0001	-	4.6	-	-	37.5	7.5
8.5								8.5
9.5								9.5
0.5		* Notes: a. The survivor curve illustrated in this						0.5
1.5		table is typical of the mortality						1.5
2.5		characteristics of telephone station						2.5
3.5		apparatus. Unlike station apparatus,						3.5
4.5		however, most depreciable utility plant						4.5
5.5		accounts do not exhibit the heavy early						5.5
6.5		retirements illustrated by this curve.						6.5
7.5								7.5
8.5		b. Columns 1, 3, 4, and 7 are normally not						8.5
9.5		required in computing depreciation accruals						9.5
0.5		by the remaining life method except that						0.5
1.5		Columns 1 or 3 may be used in developing						1.5
2.5		the survivor curve.						2.5
3.5								3.5
4.5		c. Column 1 is determined as follows:						4.5
5.5		Survivor Ratio = Plant surviving at end of period / Plant exposed at beginning of period						5.5
6.5							-	6.5
7.5								7.5
8.5								8.5
9.5								9.5
0.5								0.5

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Forecast Method

15. In certain accounts such as buildings, structures, telephone central office, dams, reservoirs, generating plants and other classes of property comprised of major units which it is expected will be retired as a single unit at one time, the development of an appropriate remaining life is more readily accomplished by direct estimate. This method is referred to as the Forecast Method or in some cases, the Life Span Method. The tabulation below shows a sample calculation using this method. First step in the procedure is to list each major unit of property included in the account together with its relating plant dollars surviving today (Columns 1 and 3). Next, a direct judgment estimate is made of the remaining service span or the terminal date when each unit will be retired (Columns 4 and 5). To the remaining span a small correction is applied for so-called "interim retirements" of smaller units comprising part of the major unit. Interim retirements and additions include such items as changes within a building or changes at an electrical generation station not altering the basic structure, etc. As an approximation the assumption is made that future annual interim retirements will occur at a consistent ratio to the present plant balance (Column 6). The correction for interim retirements is then developed by picturing the resulting survivor curve shape. The major unit of property with its forecasted terminal date is represented by a square-shaped survivor curve. The interim retirements cause the top of this square to slope downward to the terminal date when the entire unit is retired. The correction for interim retirements is then the area of the triangle lost at the top of the square by reason of the interim retirements. The base of this triangle is the remaining span. The depth (height of this triangle) is the interim retirement rate times the number of years during which they will continue, namely, the interim retirement rate times the remaining span. The correction for interim retirements (Column 7) is then the area of this triangle, or one-half times the interim retirement rate times the remaining span squared. In more accurate applications, this correction may be developed from an actuarial analysis of mortality data for the interim retirements. After applying the correction to obtain the effective remaining life (Column 8), the composite remaining life for the account is obtained by direct weighting with the dollars for each unit (Column 9). However, average service life weighting is more appropriate where only a few items occur in an account and a long time interval exists between the extreme probable retirement dates.

Example of Determination of Remaining Life by Forecast Method

Alpha Water Company, Northern Area
Ac. 811, Structures and Improvements as of 1/1/60.

Unit (1)	Year Placed (2)	Plant 1/1/55 (3)	Probable Retirement Date (4)*	Remaining Span (5)	Interim Retirement Rate § (6)	Correction For Interim Retirements (7)	Remaining Life (8)=(5)−(7)	Future Dollar Years (9)=(3)×(8)
Office Building	1933	$10,420	1982	22.5	0.5	1.3	21.2	$220,904
Pump Station A	1928	1,290	1968	8.5	—	—	8.5	10,965
Pump Station B	1934	1,340	1974	14.5	0.25	0.3	14.2	19,028
Pump Station C	1954	1,770	1994	34.5	0.25	1.5	33.0	58,410
Garage Building	1946	4,720	1977	17.5	0.5	0.8	16.7	78,824
		$19,540						$388,131

Composite Remaining Life = $\frac{388,131}{19,540}$ = 19.86, use 20 years.

* Probable retirement date for buildings was selected directly and for pump stations was determined from an estimated total span of 40 years.
§ Annual percentage correction for interim retirements. These are judgment rates based on experience. Interim retirements estimated to be 0.5% per year for buildings and 0.25% per year for pump stations.
Example: For office buildings $\frac{0.5 \times 22.5}{2}$ = 5.6% and 5.6% of 22.5 gives a correction of 1.3 years.

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TABLE 5-D

FORM D-5				
UTILITY Alpha Water Company			REMAINING LIFE OF PLANT	
AREA/DEPT			COMPUTED FROM ACCOUNTING RECORDS	
AC 345 Services			AS OF 1/1/ 60	

YEAR	GROSS ADDITIONS		TRANSFERS IN AND (OUT)	PLANT BALANCES (END OF YEAR)	
	RECORDED	ADJUSTED			
19 59	$1,923	$1,923	—	$29,993	
58	2,705	2,705	—	28,518	
57	1,620	1,620	—	26,226	
56	1,278	1,278	—	24,998	
55	1,127	1,127	—	23,992	
19 54	1,431	1,431	—	23,083	
53	1,733	2,054	321*	21,901	
52	983	983	—	20,018	
51	308	308	—	19,114	
50	447	447	—	18,806	
19 49	959	959	—	18,309	
48	1,323	1,323	—	17,410	
47	1,076	1,076	—	16,154	
46	1,442	1,442	—	15,209	
45	1,193	1,193	—	13,873	
19 44	1,754	1,754	—	12,791	
43	1,893	1,893	—	11,110	
42	1,276	1,276	—	9,244	
41	521		—	8,048	
40	409		—	7,617	
19			* Originally devoted to public service in 1944.		
TOTALS	(1)	24,792	(2) 321	(3) 358,797	

TOTALS TAKEN FROM MOST RECENT YEAR BACK TO SELECTED BEGINNING YEAR OF ____ 1942

(4) Beginning Plt. Bal. _____ 8,048 _____   (5) ½ Beg. Plt. Balance _____ 4,024

(6) Plant Exposed = (1)+(4) _____ 32,840

(7) Plant Surviving _____ 29,993   (8) ½ Surviving Balance _____ 14,997

(9) Composite Portion Surviving = (7)/(6) _____ 0.9133

(10) $ Years = (3)−(5)−(8) _____ 339,776
(351321)

(11) Correction to Past Dollar Years for Transfers: _____ 2,889

(12) Estimated Av. Serv. Life _____ 25.00 _____ Yrs.   (13) Past Dollar Years _____ 342,665

(14) Realized Life = (13)/(6) _____ 10.43

(15) Difference (12)−(14) _____ 14.57   (16) Rem. Life = (15)/(9) _____ 15.95 _____ Yrs.

(17) Conclusion: (Use Rounded Value) Remaining Life _____ 16 _____ Yrs.

Approximation Method

16. Where survivor curves cannot be selected and the forecast method is not applicable, indications of remaining life may be obtained from the accounting records of gross additions and plant balances. Standard form D-5 provides for calculation by this method as illustrated in Table 5-D. The method is subject to the limitations discussed in Paragraph 9 above. However, indications may be obtained from a short span of years thereby avoiding some of the inconsistencies occasionally found in accounting data. Referring to Table 5-D, to apply the method, the starting plant balance, Item (4), plus the total gross additions (1) for a span of years is totaled to give plant exposed (6). The total of the plant balances (3) less one-half the beginning balance (5) and less one-half the ending balance (8) for the same span of years is likewise totaled (10) and a correction for past dollar years for transfers (11) is made to obtain Past Dollar Years (13). The quotient of these two totals [(13) divided by (6)] represents the realized life (14) of the plant during the span of years selected. The plant surviving at the end of the span (7) divided by the total of gross additions (6) indicates the portion of exposed plant surviving (9). The remaining life (16) has been obtained by selecting an appropriate average service life (12), subtracting from this the realized life (14) and dividing this difference (15) by the portion surviving (9).

When using this method where heavy additions to plant have been made in recent years, it is unnecessary to extend the span of years beyond the beginning of the heavy additions to derive reasonable indications of the remaining life. Where consistent accounting data is not available prior to a given year, this will determine the starting balance. If the starting balance under these circumstances is sizable, an estimated correction to the past dollar years for the prior life of this plant is required.

Direct Judgment Method

17. Where lack of appropriate data and other considerations make the application of any of the preceding methods unavailable, direct engineering judgment estimates of service life expectancies may be appropriate. It should be helpful to the engineer to study possible ranges of life estimates, setting down reasonable minimum and maximum expectancies before coming to final conclusions. Likewise, where the judgment method is being used, it may be desirable to consider the relationship of age plus remaining life which equals probable life. As previously noted at any age the probable life of survivors equals the age plus remaining life expectancy. This relationship is strictly true only for groups with all units of one age whose probable life is correctly estimated. However, the relationship is of value in determining a judgment estimate of remaining life. It should be noted that the average life of all units originally placed in the group, is less than the probable life of surviving units because of the prior retirement of short-lived units.

E—CHOOSING A METHOD OF ESTIMATING REMAINING LIFE

Steps in Choosing a Method

18. As can be seen from the foregoing, the methods available for estimating remaining life range in detail and accuracy from full actuarial analysis with age group weighting, through various approximation methods, to the simple direct judgment selection of a value for "E". In choosing a particular method best suited to the property in question the engineer should first have in mind the general nature of plant mortality characteristics and pertinent experience in similar properties; second, he should determine the type data available from the utilities' records; third, he should evaluate available methods in relation to the size of plant and the practical aspects of accuracy and work economy; and, finally, consistent with all the foregoing, he should select a method designed to yield the greatest accuracy practicable. Oftentimes it may be desirable to use different methods for different accounts and sometimes even for different classes of property within the same account. These steps are discussed in detail in the remaining paragraphs of this chapter.

Step One: "Have in mind the general nature of plant mortality characteristics and pertinent experiences in similar properties."

19. Paragraphs 2 and 3 of this chapter provide a basis for this information. Also the staff engineer should review recent depreciation studies of comparable utilities, and make a field inspection of the properties. For the larger utilities, experience in comparable accounts of the same utility should be noted. Other background information on mortality characteristics is covered in Chart 5-A and in Chapter 6.

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Step Two: "Determine the type of data available from the utilities' records."

20. Paragraph 4 enumerates some sources of data. Paragraphs 5 through 9 discuss types of data which may be assembled to aid in determining estimates. The various factors of Chapter 3 as applied to the utility in question are also pertinent. Particular attention should be given to the methods used in determining unit retirement costs or retirement charges. Often appropriate mortality summary or age distribution data may be assembled from the unit cost data. One further consideration should be undertaken in this step; namely, the base for individual estimates should be fixed. Thus the classes of property within each account should be considered and those to be treated separately in the estimates should be selected. The presence of distinct mortality characteristics and the availability of data to permit separate estimates are criteria to be considered in this selection.

Step Three: "Evaluate available methods in relation to the practical aspects of accuracy and work economy."

21. The available methods are described in Paragraphs 12 through 17 above. Certain methods, as indicated, require detailed technical knowledge for which qualified personnel may not be available to smaller utilities. Different degrees of approximation are involved in each method. Generally the more approximate methods are easier to apply but are subject to greater possibility of error. Considering the methods solely from the standpoint of accuracy, the preferable methods may be enumerated in the following order:

    a. Develop a survivor curve by actuarial analysis and apply direct weighting of age groups.

    b. Develop remaining life by forecast methods.

    c. Select a type survivor curve from actuarial analysis of comparable property and apply direct weighting.

    d. Select a survivor curve by simulated plant balance methods and apply direct weighting.

    e. Select a type curve on a judgment basis using turnover indications of average service life if available and apply direct weighting.

    f. Use the method of approximation from plant account records.

    g. Determine remaining life by judgment means.

For accounts exceeding $100,000 in plant, development of the remaining life using type curves and direct weighting of age groups or more accurate means is urged. The last two alternatives, while applicable to any size account, are more appropriate for accounts of less than $25,000.

Step Four: "Select a method designed to yield the greatest accuracy practicable."

22. The final selection of a method will be somewhat apparent from the foregoing steps. Limitations on available data will result in deletion of some methods; smaller utilities will lack qualified personnel to perform some of the more accurate methods, etc. As a general guide, it is desirable to apply a survivor curve wherever possible. From a survivor curve weighting by age groups may be applied as illustrated in Tables 5-A and 5-B. The standard form for this calculation is designated Form D-3. Space is provided on the form for deriving age distribution data from gross additions and a selected survivor curve. Where the survivor curve is determined by actuarial analysis, or where age distribution data are otherwise available, Columns 2 and 3 of the form need not be used. Where the Iowa type curves are selected the appropriate remaining life to be entered in Column 5 may be taken from the tabulations given in the Appendix. To aid in testing the reasonableness of final results, some typical average service lives are given in Chapter 6. These typical results may be helpful, but they are to be used with caution.

23. The final selected value of the remaining life as previously discussed should be entered in Column 5 of the standard determination form D-1 or D-2. Where estimates of average service life, probable life, or average age were used to develop the remaining life estimate, these values should be shown in Columns B, C, and D of the standard determination form.

Choosing a Method for Smaller Utilities

24. The preceding discussion of the steps in choosing a method to be used for estimating the remaining life expectancy is applicable to utilities of all sizes. However, smaller utilities having limited technical personnel available or having a minimum of records relating to plant additions and retirements, will find but one or two methods applicable. As a general rule, the utilities having less than $100,000 of plant must rely largely on the Judgment Method described in Paragraph 17. These utilities may also occasionally use the Forecast Method described in Paragraph 15.

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4—35024

TYPE CURVES AND TYPICAL EXAMPLES OF SERVICE LIFE ESTIMATES

Applicability of This Material

1. The material presented in this chapter is offered as an aid in formulating engineering estimates of service life expectancies. Application of these data to a particular group of properties must be based on knowledge of local conditions, company policy with regard to retirements and other factors influencing service life.

Ranges of Typical Average Service Lives

2. The following tabulations give ranges which have been selected as typical for values of straight-line average service lives used by utilities in California. Also shown is a suggested method for an average utility to use in estimating remaining lives of the indicated account.

Ac. No. Old	New ¢	Class of Plant	Total Service Life of an Original Group (Av. Service Life in Years) (See Notes 1, 2)	Suggested Method Estimating Rem. Life (See Note 2)
		A. Electric Utilities		
		Production Plant		
		Steam Production		
311	311	Structures and Improvements	40-60	Forecast
312	312	Boiler Plant Equipment	30-40	Forecast
314	314	Turbogenerator Unit	35-45	Forecast
315	315	Accessory Electric Equipment	25-45	Forecast
316	316	Miscellaneous Power Plant Equip.	15-30	Forecast
		Hydraulic Production		
321	331	Structures and Improve.	80-100	Forecast
322	332	Reservoirs, Dams and Waterways	75-100	Forecast
323	333	Water Wheels, Turbines, and Generators	35-50	Forecast
325	335	Miscellaneous Power Plant Equip.	35-60	Forecast
326	336	Roads, Railroads and Bridges	35-75	Forecast
		Other Production		
331	341	Structures and Improvements	35-60	Forecast
332	342	Fuel Holders, Producers and Acces.	15-25	Survivor Curve
333	343	Prime Movers	15-25	Survivor Curve
334	344	Generators	15-25	Survivor Curve
335	345	Accessory Electrical Equipment	15-25	Survivor Curve
336	346	Miscellaneous Power Plant Equip.	15-25	Survivor Curve
		Transmission Plant		
342	352	Structures and Improvements	35-50	Forecast
343	353	Station Equipment	25-50	Forecast
344	354	Towers and Fixtures	35-55	Survivor Curve
345	355	Poles and Fixtures	25-35	Survivor Curve
346	356	Overhead Conductors and Devices	35-50	Survivor Curve
347	357	Underground Conduit	40-50	Survivor Curve
348	358	Underground Conductors and Devices	25-35	Survivor Curve
349	359	Roads and Trails	50-75	Judgment
		Distribution Plant		
351	361	Structures and Improvements	35-50	Forecast
352	362	Station Equipment	25-35	Forecast
354	364	Poles, Towers, Fixtures	25-50	Survivor Curve
355	365	Overhead Conductors and Devices	25-35	Survivor Curve
356	366	Underground Conduit	40-50	Survivor Curve
357	367	Underground Conductors and Devices	25-35	Survivor Curve
358	368	Line Transformers	25-35	Survivor Curve
359	369	Services	20-35	Survivor Curve
360	370	Meters	25-35	Survivor Curve

Ac. No. Old	New §	Class of Plant	Total Service Life of an Original Group (Av. Service Life in Years) (See Notes 1, 2)	Suggested Method Estimating Rem. Life (See Note 3)
		A. Electric Utilities—Continued		
		Distribution Plant—Continued		
361	371	Installations on Customers Premises	25-30	Judgment
363	373	Street Light and Signal Systems	15-30	Survivor Curve
		General Plant		
371	390	Structures and Improvements	30-75	Forecast
372	391	Office Furniture and Equipment	15-25	Survivor Curve
373	392	Transportation Equipment	5-20	Judgment
374	393	Store Equipment	15-25	Judgment
375} 377}	394	Tools and Shop Equipment	10-30	Survivor Curve
376	395	Laboratory Equipment	15-30	Judgment
378	379	Communication Equipment	10-25	Judgment
379	398	Miscellaneous Equipment	15-25	Judgment

§ Effective January 1, 1961 by Decision No. 61160.

Notes: 1. Plant of a particular utility may justify a service life outside of above ranges.

2. Net salvage estimates are to be separately considered.

3. Larger utilities will find more accurate methods, such as selection of a type curve or actuarial solutions, desirable. Small utilities may find only the Approximation Method or the Judgment Method applicable. For further information, see Chapter 5, Section E.

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	Ac. No.		Class of Plant		Total Service Life of the Original Group (Av. Service Life in Years) (See Notes 1, 2)	Suggested Method Estimating Rem. Life (See Note 3)
	Old	New *				

B. Gas Utilities

Underground Storage

	Old	New	Class of Plant		Service Life	Method
	342	351	Structures and Improvements		25-60	Forecast
	343	352	Wells		25-40	Forecast
	343.3	353	Lines		25-50	Survivor Curve
	343.4	354	Compressor Station Equipment		25-30	Forecast
	343.5	355	Measuring and Lighting Equip.		25-30	Survivor Curve
	343.6	356	Purification Equipment		25-30	Survivor Curve
	343.7	357	Other Equipment		25-50	Judgment

Local Storage Plant

	346	361	Structures and Improvements		35-60	Forecast
	347	362	Gas Holders		40-50	Forecast
	348 } 349 }	363	Other Equipment		25-50	Judgment

Transmission Plant

	352	366	Structures and Improvements		25-35	Forecast
	353	367	Mains		25-45	Survivor Curve
	354.1	368	Compressor Station. Equipment		25-30	Forecast
	354.2	369	Measuring and Regulating Equip.		25-30	Survivor Curve
	355	371	Other Equipment		15-30	Judgment

Distribution Plant

	358	375	Structures and Improvements		30-50	Forecast
	359	376	Mains		35-60	Survivor Curve
	360.1	377	Compressor Station Equipment		15-35	Forecast
	360.2	378	Measuring and Regulating Equip.—General		15-25	Survivor Curve
	361	380	Services		25-45	Survivor Curve
	362	381	Meters		25-40	Survivor Curve
	363	382	Meter Installations		25-40	Survivor Curve
	364	383	House Regulators		25-35	Survivor Curve
	365	384	House Regulator Installations		30-35	Survivor Curve
	366.1	385	Industrial Meas. & Reg. Equip.		15-30	Survivor Curve
	366.2	386	Other Property on Customers' Premises		15-30	Judgment
	367	387	Other Equipment		15-40	Judgment

General Plant

	371	390	Structures and Improvements		30-75	Forecast
	372	391	Office Furniture & Equipment		15-25	Survivor Curve
	373	392	Transportation Equipment		5-20	Judgment
	374	393	Stores Equipment		15-25	Judgment
	375	394	Tools, Shop and Garage Equip.		10-30	Judgment
	376	395	Laboratory Equipment		15-30	Judgment
	378	397	Communication Equipment		10-25	Judgment
	379	398	Miscellaneous Equipment		15-25	Judgment

* Effective January 1, 1961 by Commission Resolution No. 302 dated September 20, 1960.

Notes: 1. Plant of a particular utility may justify a service life outside of above ranges.

2. Net salvage estimates are to be separately considered.

3. Larger utilities will find more accurate methods, such as selection of a type curve or actuarial solutions, desirable. Small utilities may find only the Approximation Method or the Judgment Method applicable. For further information, see Chapter 5, Section E.

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Ac. No.	Class of Plant	Total Service Life of an Original Group (Av. Service Life in Years) (See Notes 1, 2)	Suggested Method Estimating Rem. Life (See Note 3)
	C. Telephone Utilities		
207	Right of Way (when depreciable)	40-70	Judgment
212	Buildings	25-60	Forecast
221	Central Office Equipment	30-45	Forecast
231	Station Apparatus (fixed capital life basis)	15-25	(Various)
234	Large Private Branch Exchanges	15-40	Forecast
241	Pole Lines	20-40	Survivor Curve
242.1	Aerial Cable	20-35	Survivor Curve
242.2	Underground Cable	25-40	Judgment
243	Aerial Wire	10-25	Survivor Curve
244	Underground Conduit	50-75	Judgment
261	Furniture and Office Equipment	15-35	Judgment
264	Motor Vehicles and Other Work Equipment	5-20	Judgment
	D. Water Utilities		
	Source of Water Plant		
311	Structures and Improvements	20-60	Forecast
312	Collecting and Impounding Reservoirs	40-100	Forecast
313	Lake, River and Other Intakes	30-70	Forecast
315	Wells	20-40	Forecast
316	Supply Mains	25-100	Forecast
	Pumping Plant		
321	Structures and Improvements	20-60	Forecast
324	Pumping Equipment	15-35	Survivor Curve
325	Other Pumping Plant	15-25	Judgment
	Water Treatment Plant		
331	Structures and Improvements	20-60	Forecast
332	Water Treatment Equipment	15-40	Forecast
	Transmission and Distribution Plant		
341	Structures and Improvements	20-60	Forecast
342	Reservoirs and Tanks	25-100	Forecast
343	Transmission and Distribution Mains		
	Cast Iron and Asbestos Cement	50-100	Survivor Curve
	All Other Pipes	25-50	Survivor Curve
345	Services PLASTIC – 25 BRASS –40	20-40	Survivor Curve
346	Meters	25-40	Survivor Curve
347	Meter Installations	25-45	Survivor Curve
348	Hydrants	25-50	Survivor Curve
349	Other Transmission and Distribution Plant	15-40	Judgment
	General Plant		
371	Structures and Improvements	20-60	Forecast
372	Office Furniture and Equipment	5-20	Survivor Curve
373	Transportation	5-20	Judgment
374	Stores Equipment	5-25	Judgment
375	Laboratory Equipment	5-25	Judgment
377	Power Operated Equipment	5-25	Judgment
378	Tools, Shop and Garage Equipment	5-35	Survivor Curve

Notes: 1. Plant of a particular utility may justify a service life outside of above ranges.

2. Net salvage estimates are to be separately considered.

3. Larger utilities will find more accurate methods, such as selection of a type curve or actuarial solutions, desirable. Small utilities may find only the Approximation Method or the Judgment Method applicable. For further information, see Chapter 5, Section E.

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Iowa Type Survivor Curves

3. There are presented in the tables in the Appendix the portions surviving and remaining lives by ages for various average service lives for the 18 type curves developed at the Iowa State College Experiment Station. Remaining life expectancies have been computed from the data given in Bulletin 125, 155 and 156 issued by the Iowa college. These curves are referred to as "Iowa" type curves or as "Winfrey" type curves. The former designation is adopted in this practice. The latter designation refers to Professor Robley Winfrey, author of these Iowa bulletins.

4. A tabulation indicating curve types found applicable to certain classes of plant is also shown in the Appendix. The indicated applicability of these curves is, of course, only general in nature and is largely based on the experience of the Iowa studies. In particular instances, the engineer may determine other type curves to be more specifically applicable than these general studies.

5. The portions surviving shown in the Iowa tables may be used to develop age distribution data as illustrated in Table 5-A, and the remaining lives shown may be used to develop a composite remaining life from age distribution data as illustrated in Tables 5-A and 5-B.

6. A more complete set of Iowa type survivor and average remaining life tables has been compiled by Edison Electric Institute and American Gas Association. The tables give survivors of an original addition of 1,000 and corresponding average remaining lives to the nearest tenth of a year at half-year ages from 0.5 to 74.5, inclusive, for average lives from 5 to 100 years, inclusive. The tables were computed for the familiar mortality dispersion curves listed in the Iowa Bulletins, for dispersion intermediate to those in the bulletins, and for two other type curves, SC and SQ. The curve designated SC is the Patterson C type curve, having a uniform distribution of retirement from age zero to twice average life. The designation SQ is for the square type survivor curve which has no mortality dispersion, i.e., all retirements occur at average life (at terminal life).

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CHAPTER 7

DETERMINATION OF GROSS SALVAGE AND COST OF REMOVAL

1. The detailed procedures presented below are applicable to larger utilities or larger accounts where they may be used as an aid in arriving at estimates of proper future net salvage. This material supplements Paragraphs 6 and 7 of Chapter 4 which present the basic consideration. Net salvage is defined as gross salvage realized from resale, re-use or scrap disposal of the retired units less cost of removal.

Determining Recorded Salvage Experience

2. Where records are available recorded salvage experience for each account may be determined by analyzing the credits and debits to the reserve. To do this, total the retirements for each year and determine the corresponding totals of gross salvage and cost of removal. Dividing each of the latter by the retirements gives the percent gross salvage and percent cost of removal realized for each year. This calculation for a series of years is illustrated in the upper portion of the examples shown in Tables 7-A and 7-B using standard form D-6. In using this information for determining estimates it is often helpful to plot a graph of successive values each year. Where records do not show the recorded experience for each account, it may be desirable to make a determination for all accounts as a whole to test the over-all reasonableness of the various estimates.

Future Gross Salvage

3. In most classes of property the percent gross salvage realized on retirement varies with the age of the unit. Generally the older units yield lower values. Past experience is usually based on but a few retirements, probably of shorter-lived units; therefore, future gross salvage will usually be less than the recorded experience. For very accurate determinations predicted salvage values by ages should be weighted with predicted retirements by ages. As an approximation, however, reasonable results may be obtained by assuming a straight-line diminution from realized gross salvage of early retirements to the predicted ultimate gross salvage of oldest-lived units. The sample calculation shown in part 2 of Table 7-A illustrates an application of this assumption. The past experience for a recent span of years is noted. Anticipated ultimate gross salvage of the oldest surviving units is then estimated and an average of these two values is selected as the anticipated future gross salvage applicable to today's plant. In predicting ultimate gross salvage of older-lived units for certain classes of property such as cable, wire, buildings, motor vehicles and similar items, market conditions in the future may influence the results more than any other factor. The engineer should use reasonable market predictions for the immediate future as though applicable throughout the property life. Corrections for long-term changes in the market may be made, if necessary, at the time of periodic reviews under the remaining life plan.

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UTILITY __Alpha Water Company__

AREA/DEPT. __Northern Area__   Table 7-A

AC. __324__ __Pumping Equipment__

DETERMINATION OF SALVAGE VALUES

AS OF 1/1/ __60__

ESTIMATED BY _____

1. RECORDED EXPERIENCE (For a recent span of years)

YEAR	PLANT RETIRED	GROSS SALVAGE		COST OF REMOVAL		NET SALVAGE	
		AMOUNT	% OF RETIREMENT	AMOUNT	% OF RETIREMENT	AMOUNT	% OF RETIREMENT
19 59	$50	$12	24.0%	$3	6.0%	$	%
58	100	22	22.0	7	7.0		
57	70	11	15.7	5	7.1		
56	40	5	12.5	4	10.0		
55	30	7	23.3	5	16.7		
19 54	30	5	16.7	2	6.7		
53	50	2	4.0	7	14.0		
19							
TOTALS	370	64	17.2	33	8.9	31	8.4

PLANT 1/1/ __60__ $ __22,028__   RETIREMENTS AS % OF PLANT __1.68__ %

2. SELECTED VALUES (In per cent)

A. Gross Salvage Past Retirements . . . . __17.2__   (From 1. above)

B. Gross Salvage Last Survivors (Scrap Value) . . . . __5.0__   (Selected by judgment)

C. Gross Salvage Future Average=(A+B)/2= . . . . . . __11.1__

D. Cost of Removal Past Retirements . . . . __8.9__   (From 1. above)

E. Cost of Removal Future Retirements . . . . __9.0__   (Selected by judgment)

F. Future Net Salvage=C—E= . . . . __2.1__

3. WEIGHTED VALUES: (Not required this solution)

G. Average Net Salvage of Total Original Plant:

	% PLANT (1)	% NET SALV. (2)	WEIGHT (3)=(1)x(2)

H. Future Net Salvage (Weighted by Classes of Plant):

CLASS	AMT. (1)	% NET SALV. (2)	WEIGHT (3)=(1)x(2)

PAST RET. _____ (Use this space

FUT. RET. __100.0__ to get average salvage

TOTALS/AVG. for total life rate)

(Use this space when weighting

separate results for

TOTALS/AVG. separate classes of property)

4. CONCLUSION: FUTURE NET SALVAGE FOR THIS ACCOUNT (ROUNDED VALUE) __2.0__ %

UTILITY **Alpha Water Company**   TABLE 7-B   DETERMINATION OF SALVAGE VALUES

AREA/DEPT. **Northern Area**   AS OF 1/1/ 60

AC. **311   Structures & Improvements**   ESTIMATED BY _____

1. RECORDED EXPERIENCE (For a recent span of years)

YEAR	PLANT RETIRED	GROSS SALVAGE		COST OF REMOVAL		NET SALVAGE	
		AMOUNT	% OF RETIREMENT	AMOUNT	% OF RETIREMENT	AMOUNT	% OF RETIREMENT
19 59	$238	$115	48.3%	$34	14.3%		
58	451	200	44.3	47	10.4		
57	162	48	29.6	23	14.2		
56	195	44	22.6	12	6.2		
55	162	37	22.8	11	6.8		
19 54	124	32	25.8	—	—		
53	124	32	25.8	—	—		
19							
TOTALS	1,456	508	34.9%	127	8.7%	381	26.2%

PLANT 1/1/ 60 $19,540   RETIREMENTS AS % OF PLANT 7.45 %

2. SELECTED VALUES (In per cent)

		Interim Retirements	Final Retirements
A.	Gross Salvage Past Retirements	34.9	—
B.	Gross Salvage Last Survivors (Scrap Value)	25.0	—
C.	Gross Salvage Future Average=(A+B)/2=	29.9	6.5
D.	Cost of Removal Past Retirements	8.7	—
E.	Cost of Removal Future Retirements	14.3	3.0
F.	Future Net Salvage=C—E=	15.6	3.5

3. WEIGHTED VALUES:

G. Average Net Salvage of Total Original Plant:

	% PLANT (1)	% NET SALV. (2)	WEIGHT (3)=(1)×(2)
PAST RET.	7.5	26.2	197
FUT. RET.	100.0	5.1	510
TOTALS/AVG.	107.5	6.6%	707

H. Future Net Salvage (Weighted by Classes of Plant):

CLASS	AMT. (1)	% NET SALV. (2)	WEIGHT (3)=(1)×(2)
Fut. Int.	13%	15.6	203
Fut. Final	87	3.5	304
TOTALS/AVG.	100	5.1%	507

4. CONCLUSION: FUTURE NET SALVAGE FOR THIS ACCOUNT (ROUNDED VALUE) 5.0 %

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Future Cost of Removal

4. As pointed out in Chapter 4, cost of removal is essentially a labor cost. Predicted future cost of removal should be based on a reasonable projection of recent experience reflecting anticipated changes in labor cost for the immediate future. Possible abandonments of plant, or changes in cost of removal when resale of a plant item is not planned, are further factors to consider.

Accounts With High Turnover and Re-use of Plant

5. In certain accounts, notably the station apparatus account of telephone utilities, the placement and retirement of property units may be recorded on a location basis while the actual unit is retained and used successively at several locations during its "fixed capital" or physical life. Under these conditions the net salvage is a composite of the value for retirements where re-use occurs and the value at final retirement. The composite estimate of future net salvage may be arrived at by weighting separate service life and salvage estimates as illustrated in the following example:

a. Values selected by estimate:

Average Service Life (fixed capital) _____ 18.0 years
Average Service Life (location) _____ 4.6 years
Average Net Salvage Re-use Retirement _____ 94%
Average Net Salvage Final Retirement _____ 8%

b. Derived Data:

Average Recorded Net Salvage for past year or recent years _____ 84.3%
Portion which today's surviving plant represents of the original plant from which it was placed (location basis) _____ 52.7%

(This may be derived from the selected survivor curve applied to age distribution data or to recorded gross additions.)

c. Solution:

Average number retirements during capital life $= 18/4.6 = 3.9$
Average number re-use retirements $= 3.9 - 1 = 2.9$
Average net salvage during total life of original group

$$= \frac{(2.9)(94) + (1.0)(8)}{3.9} = 71.9\%$$

Whence:	Percent of Orig. Group (1)	Net Salvage (2)	Direct Weight (3) $= (1) \times (2)$
Past Retirements	47.3	84.3	3987
Present Surviving Plant	52.7	C'	C' × 52.7
Total Plant	100.0	71.9	7190

and future Net Salvage $= C' = \dfrac{7190 - 3987}{52.7} = 60.8\%$

Net Salvage Estimates

6. Where future gross salvage and future costs of removal have been estimated separately, the future net salvage applicable to the straight-line remaining life accrual determination is the difference between these values. When cost of removal is high the net salvage may be a red value. Where an average net salvage for all plant retired and surviving is desired, it may be obtained by weighting the past experience with the future net salvage. Where remaining life estimates are made by forecast method, salvage values may be considered separately and weighted for interim retirements and final retirements. These various considerations are illustrated in the sample calculation shown in Table 7-B.

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CARRYING FORWARD THE ACCRUAL DETERMINATION

Problems in Carrying Forward the Accrual

1. The depreciation accrual determined from standard form D-1 or D-2 is based on plant balance, book reserve and remaining life as of the beginning of the year. For each account where a complete study has been made in developing this determination three problems arise in applying it to the utilities' books and carrying it forward. First, the accrual to record for the study year is needed. Next, it is necessary to consider the means of determining accruals in the intervening years before another complete study of the account is made. Finally, the length of period between complete studies should be considered, it being inherent in the remaining life method that periodic reviews of estimates and reappraisals to correct for changing conditions will be made. These three problems are discussed under separate subheadings below. However, before turning to these, there is first presented material on accounting procedures for crediting the accruals and determination of the depreciation rates which are applicable to the problems.

Accounting Procedures for Crediting the Accruals

2. Several methods for recording the accrual on the books of a utility at the time of a study are used. These may be summarized as follows:

   a. Use the beginning-of-year accrual as determined on the standard form as the accrual for the year. This is the simplest and most straightforward means of recording the accrual. It may be done as a single entry for the year or in 12 equal entries by months.

   b. Compute the recorded accrual using the beginning-of-year determination plus a correction for estimated net additions to plant to be made during the year. It is assumed that one annual depreciation accrual figure will be determined and applied for the year either as one figure or in 12 equal portions monthly. The correction may be determined by applying a composite rate applicable to the entire plant, or if the estimated net additions have been developed separately by accounts, it may be determined by applying rates for each account to the estimates of additions. Normally Class A utilities should make the estimate by accounts or functional groups of accounts. The amount to which the rate is applied should represent average net additions. It will be noted that as an approximation net additions may be assumed to take place at the mid-point of the year; hence, one-half the total estimated net additions may be used as the average net additions. An illustration of the use of the composite rate applied to estimated net additions is shown in Table 4-A. Corrections for actual average net additions should be applied at the end of the year when final values are obtainable.

   c. Compute the accrual on plant balances other than the beginning of the year balance. This requires first determining a depreciation rate and then applying the rate to the appropriate plant balance. Variations of this procedure include: determining an accrual by applying rates to the average plant balance for the year, determining a monthly accrual for each six months on the January 1st and July 1st balances, determining accruals monthly by applying rates either to the average monthly balance or to the beginning of the month balance each month. In using these procedures, often estimates are made for the original entries and corrections are applied when final plant balances are known. Use of this method applying the rate to either monthly or average monthly balances is required of Class A and Class B telephone utilities.

   d. Adopt the determinations as of the beginning of a study year as a base, and during the interim until a complete new study is made, maintain separate records showing this plant base less retirements on the one hand and additions since the study date on the other hand. To the one base the remaining life rates are applied and to the other a total life rate for a selected average service life is applied. This method requires a double record for each account thereby tending to defeat the advantages of group accounting. Furthermore, while this method is theoretically more accurate, its practical advantage is questioned unless wide difference between the reserves has developed. If the reserves are reasonably close as between the book figure and the calculated reserve requirement, then the total life rate and the remaining life rate are close in value. The corrective factor inherent in the remaining life method will correct for the small differences as periodic reviews are made. The staff will not use this method in its estimates and reports except under unusual circumstances which should first be reviewed with the Staff Advisory Section.

3. During intervals between complete depreciation studies, the methods used to determine accruals include the above methods carried forward plus some additional methods involving partial redeterminations from the basic estimates. The various alternatives may be summarized as follows:

   a. Use the depreciation rates developed at the time of the study applying these to the new first of the year plant balances as in method a. above.

   b. Use the depreciation rates developed at the time of the study applying these to the new first of the year plant balances plus estimated average net additions as in method b. above.

   c. Use the depreciation rates developed at the time of the study applying these to plant balances as in method c. above.

   d. Continue the separate records of plant less retirements from the study date and additions since then, applying remaining life rates and total life rates to the two balances, respectively, as in method d. above. If carried forward more than a year or two, retirements from the additions must be considered. This method is not recommended for staff use.

   e. Using survivor curves selected in the study, derive new remaining life estimates by direct weighting from new age distribution data and recompute the accrual using standard forms D-1 or D-2 for new beginning-of-year plant and reserves.

   f. Using the service life estimates developed in the study, derive a new remaining life estimate by judgment method from new average ages of plant and recompute the accrual using standard forms D-1 or D-2 for new beginning-of-the-year plant and reserves.

Determining Depreciation Rates

4. The standard forms D1 or D2 for the accrual calculation provide space in Column E for computing the remaining life depreciation rate for each account. This rate is obtained by dividing the accrual in Column 6 by the plant in Column 1. It is usually expressed in percent, that is, as a percent of gross plant. The composite depreciation rate for the entire depreciable property is obtained by dividing the total of Column 6 by the total of Column 1.

Selecting a Method for Determining the Study Year Accrual

5. Ordinarily the staff engineer in reviewing depreciation practices of a utility will apply the accounting procedure currently used by the utility. However, where a procedure is being established or a change is indicated other considerations may apply. Briefly, method a in paragraph 3 above, is the simplest and is used by some large as well as some small utilities, methods b and c yield results based on average plant which conforms to the procedure used in determining rate base, while method d as noted above is not recommended. As between methods b and c, the latter is more applicable to larger utilities where monthly balances are available and greater accuracy may be desired. For smaller utilities, method b is recommended for staff use.

Selecting a Method for Determining the Accrual in Years Between Studies

6. When determining the accrual in the intervening years between complete studies of an account, methods a, b, and c of Paragraph 3 above, which use the depreciation rate developed at the time of the last study applied to new plant balances, yield reasonable results with a minimum of calculation. When selecting as between these three methods, the considerations discussed in the preceding paragraph apply. Where large changes in plant are taking place or where it is desired to extend the period before another complete study is made, methods e and f of Paragraph 3 involving partial re-estimates or recalculation are more appropriate. This is particularly true for larger utilities or for individual accounts exceeding $100,000 of plant.

Period Between Complete Studies

7. Depreciation charges even in the simplest project should be re-examined from time to time. It is obvious that, until final retirement, those charges involve estimates of future life and salvage. This is particularly true under group accounting where average and weighted values are used. The remaining life method requires reappraisals and reviews of the estimates used from time to time. Complete study of the basic data and new determinations of estimates should be made for each account at intervals depending upon the occurrence of changes in conditions which suggest change of characteristics of the account. Thus, wherever large additions or large retirements have been made, new studies in the subsequent year are indicated.

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Where uniform or nominal growth continues through a span of years, periodic study of each account, according to the following scale is suggested:

Where Accrual in Intervening Years Is Determined Each Year by:	*Recommended Maximum Interval Between Studies*		
	Accounts of over $100,000 of Plant	*Accounts of $25,000 to $100,000 of Plant*	*Accounts of Less than $25,000 of Plant*
Applying depreciation rates to new plant balances (Methods a, b, c, Paragraph 3)_____	2 years	3 years	4 years
Applying new age distribution data from derived survivor curves to give new remaining lives and applying this to new plant and reserve balances (Method e.)_____	4 years	5 years	5 years
Applying new judgment estimates of remaining lives to new plant and reserve balances (Method f.)_____	3 years	4 years	5 years

Annual Reviews and Schedules of Studies

8. Large utilities are, in general, required to review depreciation accruals annually and file with the Commission annual reports showing changes in estimates or rates which management feels should be made together with the resulting accruals. In connection with these reviews it is suggested that periodic studies of a number of accounts be made each year, according to a predetermined schedule, so that over a span of a few years detailed studies of the entire plant are made. Suggested material to include in the review reports is as follows:

   a. Preliminary report to be submitted by December 1st.

      (1) A list of the accounts on which the company has made studies of the basic estimates of service life expectancies and salvage during the past year and the results of these studies. These results should show changes where applicable by accounts, and likewise should show those accounts for which it was determined after study that no change in basic estimates is required.

      (2) Note any major additions or retirements which it is contemplated will be made during the ensuing year and which will result in sizable changes of the depreciation accruals.

      (3) An estimate of the dollar effects by accounts, of the changes indicated in items (1) and (2) above.

      (4) A statement that no substantial change is anticipated other than those indicated in items (1), (2) and (3) above.

      (5) A copy of the company's current program for studying accounts (if previous reports of the program have been made the changes only need be indicated).

   b. Final report to be submitted by April 15th. (Companies closing their books other than the first of the year may use a different date.)

      (1) The plant balances of all depreciable property by accounts and by study group subaccounts as of the first of the year.

      (2) The depreciation reserve balances as of the first of the year.

      (3) The applicable estimates of future net salvage and remaining life as of the first of the year or depreciation rates which will be applied to compute accruals during the current year.

      (4) The dollar accruals based on beginning of year plant or estimated average plant.

      (5) Items (1) to (4) above may be presented on the standard accrual determination form D-1 or D-2.

      (6) Where changes in the estimates presented in the preliminary report have been made these should be indicated.

9. Smaller utilities not filing annual review reports will more often combine their reviews with periodic studies of all accounts at one time. Such reviews should be made every three or four years, and in any event not longer than five years apart, depending on size and circumstances as indicated in paragraph 7 above. The results of these reviews shall be filed with the Commission.

CHAPTER 9
GENERAL CONSIDERATIONS AND STAFF PROCEDURES

Check List for the Staff Engineer

1. Chapters 3, 4, 5 and 8 of this practice have been arranged in the general order of approach of a staff engineer preparing the depreciation portion of a results of operation report for rate-making purposes. Some additional pertinent considerations are included in this chapter to assist the engineer. A brief check list of suggested staff procedure is as follows:

   a. Examine the utility's books with reference to the plant accounts and the depreciation reserve. This step is discussed below.

   b. Review the company's past and current practices affecting depreciation. This step is the subject of Chapter 3. Additional considerations are enumerated in Paragraphs 12 through 17 of Chapter 5 and also in Paragraphs 2 and 3 of Chapter 8.

   c. Review the availability of records other than the accounting records which will assist in making estimates. This step is discussed in Paragraphs 4 through 9 of Chapter 5.

   d. Set up the standard accrual form and enter the known book values. This step is the subject of Chapter 4.

   e. Make estimates of salvage for the various accounts and classes of property. This step is discussed in Paragraphs 6 and 7 of Chapter 4.

   f. Make estimates of the remaining life of each account. This step is the subject of Chapter 5.

   g. Make a field inspection of the properties with a view toward testing the reasonableness of estimates as evidenced by physical conditions which may be observed.

   h. Complete the accrual determinations as discussed in Paragraphs 11 to 14 of Chapter 4.

   i. Carry the accrual determination forward for the year(s) covered by the report. This step is the subject of Chapter 8.

   j. Prepare a report of depreciation reserve and expenses for inclusion as a chapter in the results of operation report. This step is discussed below.

Examination of a Utility's Books

2. In undertaking a depreciation study, the books of the utility with respect to the plant accounts and the depreciation reserve should be inspected and checked to assure that reasonable procedures have been used in arriving at the current values. The historical origin of the initial entries either on formation of the company, on outside appraisals, or on prior actions by the Commission should be checked and the accumulations since that date reviewed. If doubt as to the correctness of the original entries or if evidence of arbitrary write-ups or write-downs appears, the matter should be reviewed with the possibility of requesting the Finance and Accounts Division to undertake an audit. In connection with the depreciation reserve account, check for possible transfers to or from surplus. Where it appears that the accounting requires corrections, the accrual determinations should be deferred until these corrections have been determined. Approval of the Director or Assistant Director of the Utilities Division should be obtained if an appraisal and reserve requirement study for purposes of restating the books is contemplated. In recommending such a procedure specific reasons for doing so should be stated. All efforts to utilize recorded book figures (with adjustments if necessary) without appraisals should be explored.

Special Considerations for Smaller Utilities

3. As previously noted in Paragraph 12 of Chapter 4, utilities having generally less than $100,000 total plant may simplify the accrual determination by using composite values rather than attempting separate results by accounts. For these utilities it is essential that two minimum conditions be met. First, the accrual should be determined as described herein, and credited annually to the reserve. This may be based on judgment estimates for very small utilities applied as a single percent to gross plant. Second, the retirements of plant should be recorded and deducted from both the capital and the reserve accounts. The staff engineer in reviewing the depreciation practices with utility representatives should stress these two essentials in preference to presenting too much detail with regard to the depreciation determinations itself. Good engineering judgment in selecting over-all estimates to arrive at a composite rate may be the only practicable means of determining consistent depreciation charges for very small utilities.

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Depreciation Charged Through Clearing Accounts

4. In larger utilities it is common practice to charge depreciation on such items as vehicles and work equipment to a clearing account from which the portion assignable to construction and the portion assignable to maintenance is later determined. Where clearing accounts are used, the engineer must set out separately the depreciation accruals which are charged to clearing. These accruals are not part of the charges to the depreciation expense account.

Preparation of a Staff Report

5. In preparing the chapter on depreciation reserve and depreciation expenses for a standard results of operation report, certain pertinent items from the engineer's study should be included. The nature of the original entries should be recited and a tabulation of the historical growth of the depreciation reserve should be shown. A weighted average book depreciation reserve for the years under consideration should also be shown. This may be determined as the mean of the beginning- and end-of-year balances, or the mean of average monthly balances where these are available. The weighted average depreciation reserve is carried forward to the rate base chapter for the reserve deduction. The depreciation accruals as recorded for a recent year and determined for the current year should be shown. Where the company has not previously used the remaining life method, the following paragraph should be included:

> "Consistent with standard practice, the staff has adopted the remaining life basis for computing depreciation expenses. The remaining life method meets the basic objective of depreciation of recovering the original cost of fixed capital (less estimated net salvage) over the useful life of the plant by means of an equitable plan of charges to operating expense accounts. Periodic reviews inherent in the method give assurance of continuous reasonable depreciation accruals."

A complete determination as prepared on standard forms D-1 or D-2 should also be included. Additional material which may be presented in larger company reports includes: A tabulation of company and staff estimates, a tabulation of the depreciation reserve by accounts as of a recent date, and a tabulation showing methods of allocations between divisions or departments. Further information in preparation of a report is contained in Standard Practices U-2 and U-3.

Analysis of Reasonableness of Results

6. In the final analysis, a determination of depreciation accruals is based on engineering judgment of anticipated future conditions. It is therefore well to apply some test of reasonableness to the final results. Normally the composite accrual rates for a company should fall somewhere in the range from 2% to 4%. Where a composite rate exceeding 4% develops, it may be well to check the estimates or to analyze company policies with regard to placement of new plant and retirement of old units. As a further test of the reasonableness, it is well to compare the results determined for rate-fixing purposes with those reported for income tax purposes. In particular, the depreciation reserve carried on the books as compared with the depreciation reserve carried for income tax purposes should be noted.

Depreciation for Income Tax Purposes

7. In computing the depreciation allowance for income tax purposes it is often feasible, particularly for small companies, to apply the same determination for both tax and rate fixing purposes. However, differences in such factors as use of beginning of year versus weighted average plant, charges for interest during construction, past credits and debits to reserves, and other factors may cause differences in the two determinations. For information regarding depreciation requirements for income tax purposes "Bulletin F" of the U. S. Treasury Department, Internal Revenue Service should be consulted.

Extraordinary Obsolescence

8. Occasionally instances of extraordinary obsolescence such as the unexpected early retirement of a major unit of property may require some form of an adjustment. When instances of this type arise, application of the remaining life method will often provide a reasonable accrual. If, however, in the opinion of the staff engineer, special consideration is required he should refer his recommendation in the matter to the Director or Assistant Director of the Utilities Division.

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Standard Forms

9. To assist the staff engineers, standard forms have been prepared for recording data and calculating depreciation results. These forms as illustrated in this practice are as follows:

Form No.	Illustrated By	Subject
D-1	(not shown)	Annual Depreciation Accrual and Rate Determination (work sheet)
D-2	Tables 4A to 4E	Annual Depreciation Accrual and Rate Determination (form for typing)
D-3	Tables 5A and 5B	Remaining Life from a Survivor Curve
D-4	Table 5C	Elements of a Survivor Curve
D-5	Table 5D	Remaining Life from Accounting Records
D-6	Tables 7A and 7B	Determination of Salvage Values

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CHAPTER 10

COMPANIES USING THE REMAINING LIFE METHOD

General

1. Most of the large utilities in California determine depreciation accruals using the remaining life method. It is being employed as standard practice in small company rate proceedings, at which time provision is made for continuing the accrual on this basis. Thus over a period of time it is anticipated that most small utilities will determine accruals on the straight-line remaining life basis.

Larger Utilities

2. All large electric, gas, telephone and water utilities in California, with the exception of one, now utilize the remaining life basis for book depreciation accruals, as follows:

> California Electric Power Company
> California Interstate Telephone Company
> California-Oregon Power Company, The
> California-Pacific Utilities Company
> California Water and Telephone Company
> California Water Service Company
> Citizens Utilities Company of California
> Clear Lake Water Company
> Dominguez Water Corporation
> General Telephone Company of California
> Kern Mutual Telephone Company
> Pacific Gas and Electric Company
> Pacific Lighting Gas Supply Company
> Pacific Water Company
> San Diego Gas & Electric Company
> San Jose Water Works
> San Gabriel Valley Water Company
> Sierra Pacific Power Company
> Southern California Edison Company
> Southern California Gas Company
> Southern California Water Company
> Southern Counties Gas Company of California
> Suburban Water Systems
> Sunland-Tujunga Telephone Company
> Western California Telephone Company

3. Agreements have generally been reached with the larger utilities setting forth details of introducing the remaining life method. Where decisions have required the remaining life method, agreements have usually been reached as a basis for such decision. It is not possible to include a typical agreement since conditions differed to some extent in each case.

4. In general, the above companies submit annual statements of their depreciation accruals. Twenty-two of these companies use the straight-line method. Three use the sinking fund method with various interest rates.

Smaller Utilities

6. In general, agreements as such have not been entered with the smaller companies. The staff engineer as standard practice in rate proceedings in the "Results of Operation Report" generally determines the recommended depreciation accrual on a remaining life basis for rate-fixing purposes. If such allowance is approved by the Commission and allowed in the new rate level, the Commission normally includes a provision in the order as indicated below. At the present time over 300 smaller utilities are using the straight-line remaining life method.

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Typical Wording of Ordering Paragraphs

7. Where the remaining life depreciation method has been ordered by the Commission, typical ordering paragraphs have been substantially as follows:

a. For a Major Utility:

Applicant shall review annually the accruals to depreciation reserve which shall be determined for each primary plant account by dividing the original cost of depreciable utility plant less estimated future net salvage less depreciation reserve by the estimated remaining life of the surviving plant of the account; and the results of the reviews shall be submitted annually to this Commission.

b. For a Small Utility (Having more than $100,000 of plant):

Applicant shall determine the accruals for depreciation by dividing the original cost of depreciable utility plant less estimated future net salvage less depreciation reserve by the estimated remaining life of the plant; applicant shall review the accruals when major changes in depreciable utility plant composition occur and for each plant account at intervals of not more than _____* years. Results of these reviews shall be submitted to this Commission.

c. For a Small Utility (Having less than $100,000 of plant):

Beginning with the year _____, applicant shall determine depreciation expense by multiplying depreciable utility plant by a rate of _____ per cent. This rate shall be used until review indicates it should be revised. Applicant shall review the depreciation rate using the straight-line remaining life method when major changes in utility plant composition occur and at intervals of not more than _____* years, and shall revise the above rate in conformance with such reviews. Results of these reviews shall be submitted to this Commission.

d. For a Small Utility (Newly Certificated):

Applicant shall determine accruals for depreciation by dividing the original cost of the depreciable utility plant, less estimated future net salvage and less depreciation reserve, by the estimated remaining life of the depreciable plant. Applicant shall review the accruals as of January 1, following the date service is first furnished to the public under the rates and rules authorized herein and thereafter when major changes in depreciable utility plant composition occur, and at intervals of not more than _____* years. Results of these reviews shall be submitted to this Commission.

* For small companies, periods ranging from three to five years depending on size and composition of plant are used.

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APPENDIX

IOWA TYPE SURVIVOR CURVES

1. The following tabulation indicates Iowa curve types which have been found applicable to certain classes of plant, bearing in mind that the applicability is only general in nature and is largely based on the experience of the Iowa studies. In particular instances the engineer may determine other type curves to be more specifically applicable than these general studies.

Class of Plant	Type Curve	Appendix Table Number
Aerial, Telephone Cable	S_1	A- 2
Telephone Cable	S_2	A- 3
Telephone Cable	L_1	A-14
Apparatus, Telephone Station (Fixed Capital Life)	S_3	A- 4
Boilers, Water Works	S_2	A- 3
Buildings, Distribution Substations	R_3	A-10
Pump Stations	S_1	A- 2
Cable, Aerial Telephone	S_1	A- 2
Aerial Telephone	S_2	A- 3
Aerial Telephone	L_1	A-14
Submarine Telephone	R_1	A- 8
Underground Telephone	S_1	A- 2
Underground Telephone	R_1	A- 8
Underground Telephone	L_1	A-14
Underground Telephone	L_2	A-15
Central Office Equipment, Telephone	R_1	A- 8
Telephone	L_1	A-14
Coils, Telephone Loading	R_4	A-11
Conductors, Overhead Electric	R_4	A-11
Distribution, Mains, Gas	L_1	A-14
Mains, Water	R_3	A- 9
Substation Buildings	R_3	A-10
Transformers	S_0	A- 1
Transformers	S_1	A- 2
Transformers	S_3	A- 4
Transformers	R_3	A-10
Transformers	R_4	A-11
Transformers	L_0	A-13
Transformers	L_2	A-15
Electric, Lamps	S_0	A- 1
Meters	S_4	A- 5
Meters	R_1	A- 8
Meters	R_3	A-10
Meters	R_4	A-11
Meters	R_5	A-12
Overhead Conductors	R_4	A-11
Poles	R_4	A-11
Poles	L_2	A-15
Poles and Fixtures	R_3	A-10
Engine Equipment	L_4	A-17
Equipment, Central Office Telephone	R_1	A- 8
Central Office Telephone	L_1	A-14
Central Office Telephone	L_4	A-17
Engine	L_4	A-17
Office	S_3	A- 6
P.B.X. Telephone	L_0	A-12
Pumping	S_1	A- 2
Purification	S_1	A- 2
Work	L_6	A-18
Work and Motor Vehicle	S_4	A- 7

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TABLE A-1
IOWA TYPE S0 CURVE

PORTION SURVIVING *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	.997	.999	.999	.999	1.000	1.000
1.5	.977	.993	.995	.997	.998	.999
2.5	.944	.983	.988	.992	.995	.996
3.5	.902	.970	.979	.985	.991	.994
4.5	.858	.953	.968	.977	.986	.990
5.5	.797	.935	.955	.967	.980	.986
6.5	.736	.914	.941	.956	.973	.982
7.5	.671	.891	.925	.944	.966	.977
8.5	.604	.866	.907	.931	.958	.971
9.5	.535	.839	.888	.917	.949	.965
10.5	.465	.811	.868	.902	.940	.959
11.5	.396	.782	.847	.887	.930	.952
12.5	.329	.751	.825	.870	.919	.944
13.5	.264	.720	.803	.853	.908	.937
14.5	.203	.688	.779	.835	.897	.929
15.5	.147	.654	.755	.816	.885	.920
16.5	.098	.621	.729	.797	.872	.912
17.5	.056	.587	.704	.777	.859	.902
18.5	.023	.552	.678	.757	.846	.893
19.5	.004	.517	.651	.736	.832	.883
20.5		.483	.624	.715	.818	.873
21.5		.448	.597	.693	.804	.863
22.5		.413	.569	.671	.789	.853
23.5		.379	.542	.649	.774	.842
24.5		.346	.514	.626	.759	.831
25.5		.312	.486	.604	.744	.820
26.5		.280	.458	.581	.728	.808
27.5		.249	.431	.558	.712	.797
28.5		.218	.403	.535	.696	.785
29.5		.189	.376	.512	.679	.773
30.5		.161	.349	.488	.663	.761
31.5		.134	.322	.465	.646	.748
32.5		.109	.296	.442	.629	.736
33.5		.086	.271	.419	.612	.723
34.5		.065	.245	.396	.595	.710
35.5		.047	.221	.374	.578	.697
36.5		.030	.197	.351	.561	.684
37.5		.017	.175	.329	.543	.671
38.5		.007	.153	.307	.526	.658
39.5		.001	.132	.285	.509	.644
40.5			.112	.264	.491	.631

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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TABLE A-1—Continued
IOWA TYPE S₀ CURVE

REMAINING LIFE *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.7	18.6	23.6	28.6	38.6	48.5
2.5	8.0	17.8	22.8	27.7	37.7	47.7
3.5	7.4	17.1	22.0	26.9	36.8	46.8
4.5	6.7	16.3	21.2	26.1	36.0	46.0
5.5	6.2	15.7	20.5	25.4	35.2	45.0
6.5	5.7	15.0	19.8	24.7	34.5	44.3
7.5	5.2	14.4	19.1	24.0	33.7	43.6
8.5	4.7	13.8	18.5	23.3	33.0	42.8
9.5	4.2	13.2	17.9	22.7	32.3	42.1
10.5	3.8	12.6	17.3	22.0	31.6	41.4
11.5	3.3	12.1	16.7	21.4	31.0	40.7
12.5	2.9	11.6	16.2	20.8	30.3	40.0
13.5	2.5	11.0	15.6	20.2	29.7	39.3
14.5	2.1	10.5	15.0	19.6	29.1	38.6
15.5	1.7	10.1	14.5	19.1	28.4	38.0
16.5	1.3	9.6	14.0	18.5	27.9	37.3
17.5	1.0	9.1	13.5	18.0	27.3	36.7
18.5	0.7	8.6	13.0	17.5	26.7	36.1
19.5	0.5	8.2	12.5	16.9	26.1	35.5
20.5		7.7	12.0	16.4	25.6	34.9
21.5		7.3	11.5	15.9	25.0	34.3
22.5		6.9	11.1	15.4	24.5	33.7
23.5		6.4	10.6	14.9	23.9	33.1
24.5		6.0	10.2	14.5	23.4	32.6
25.5		5.6	9.7	14.0	22.8	32.0
26.5		5.2	9.3	13.5	22.3	31.5
27.5		4.8	8.8	13.1	21.8	30.9
28.5		4.4	8.4	12.6	21.3	30.4
29.5		4.0	8.0	12.1	20.8	29.8
30.5		3.6	7.6	11.7	20.3	29.3
31.5		3.2	7.2	11.3	19.9	28.8
32.5		2.8	6.7	10.8	19.4	28.2
33.5		2.4	6.3	10.4	18.9	27.7
34.5		2.1	5.9	10.0	18.4	27.2

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The S₀ curve has been found applicable to:
Electric Lamps
Distribution Transformers

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IOWA TYPE S₁ CURVE

PORTION SURVIVING *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	1.000	1.000	1.000	1.000	1.000	1.000
1.5	.995	.999	1.000	1.000	1.000	1.000
2.5	.981	.997	.998	.999	1.000	1.000
3.5	.955	.993	.996	.998	.999	.999
4.5	.914	.986	.992	.995	.998	.999
5.5	.861	.976	.987	.992	.996	.998
6.5	.795	.962	.979	.987	.994	.997
7.5	.718	.946	.969	.981	.991	.995
8.5	.634	.926	.958	.974	.988	.993
9.5	.545	.902	.944	.965	.983	.991
10.5	.455	.875	.928	.955	.978	.988
11.5	.366	.845	.910	.943	.973	.985
12.5	.282	.812	.889	.929	.966	.981
13.5	.205	.777	.867	.914	.959	.977
14.5	.139	.738	.842	.898	.950	.972
15.5	.086	.698	.816	.880	.941	.967
16.5	.046	.656	.788	.861	.931	.961
17.5	.019	.612	.758	.840	.920	.954
18.5	.005	.568	.727	.818	.908	.948
19.5		.523	.694	.795	.896	.940
20.5		.477	.660	.770	.882	.932
21.5		.432	.626	.745	.868	.923
22.5		.388	.590	.718	.853	.914
23.5		.344	.554	.691	.837	.905
24.5		.302	.518	.663	.821	.894
25.5		.262	.482	.634	.804	.884
26.5		.223	.448	.605	.786	.873
27.5		.188	.410	.575	.767	.861
28.5		.155	.374	.545	.748	.848
29.5		.125	.340	.515	.729	.836
30.5		.098	.306	.485	.708	.823
31.5		.074	.273	.455	.688	.809
32.5		.054	.242	.425	.667	.795
33.5		.038	.212	.395	.645	.780
34.5		.024	.184	.366	.623	.765
35.5		.014	.158	.337	.601	.750
36.5		.007	.133	.309	.579	.734
37.5		.003	.111	.282	.557	.718
38.5		.001	.090	.255	.534	.702
39.5			.072	.230	.511	.686
40.5			.056	.205	.489	.669

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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TABLE A-2—Continued
IOWA TYPE S₁ CURVE

REMAINING LIFE *

Age	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
			For Average Service Life			
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.5	18.5	23.5	28.5	38.5	48.5
2.5	7.7	17.6	22.5	27.5	37.5	47.5
3.5	6.9	16.6	21.6	26.6	36.5	46.5
4.5	6.1	15.7	20.7	25.6	35.6	45.5
5.5	5.5	14.9	19.8	24.7	34.6	44.6
6.5	4.9	14.1	18.9	23.8	33.7	43.6
7.5	4.4	13.3	18.1	23.0	32.8	42.7
8.5	3.9	12.6	17.3	22.1	31.9	41.8
9.5	3.4	11.9	16.6	21.3	31.1	40.9
10.5	3.0	11.3	15.9	20.6	30.2	40.0
11.5	2.6	10.7	15.2	19.8	29.4	39.1
12.5	2.3	10.1	14.5	19.1	28.6	38.3
13.5	1.9	9.5	13.9	18.4	27.8	37.4
14.5	1.6	9.0	13.3	17.7	27.1	36.6
15.5	1.3	8.5	12.7	17.1	26.3	35.8
16.5	1.0	8.0	12.1	16.4	25.6	35.0
17.5	0.8	7.5	11.6	15.8	24.9	34.3
18.5	0.5	7.1	11.0	15.3	24.2	33.5
19.5		6.6	10.5	14.7	23.5	32.8
20.5		6.2	10.0	14.1	22.9	32.1
21.5		5.8	9.6	13.6	22.3	31.4
22.5		5.4	9.1	13.1	21.6	30.7
23.5		5.1	8.7	12.6	21.0	80.0
24.5		4.7	8.2	12.1	20.4	29.3
25.5		4.3	7.8	11.6	19.9	28.7
26.5		4.0	7.4	11.2	19.3	28.0
27.5		3.7	7.0	10.7	18.8	27.4
28.5		3.3	6.6	10.3	18.2	26.8
29.5		3.0	6.3	9.9	17.7	26.2
30.5		2.7	5.9	9.4	17.2	25.6
31.5		2.4	5.6	9.0	16.7	25.0
32.5		2.1	5.2	8.6	16.2	24.5
33.5		1.8	4.9	8.2	15.7	23.9
34.5		1.5	4.5	7.8	15.3	23.4

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The S₁ curve has been found applicable to:
Telephone Aerial Cable
Telephone Underground Cable
Pumping Equipment
Distribution Transformers
Pump Station Buildings
Wells
Purification Equipment

TABLE A-3.
IOWA TYPE S₂ CURVE

PORTION SURVIVING *

Age	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
			For Average Service Life			
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	1.000	1.000	1.000	1.000	1.000	1.000
1.5	1.000	1.000	1.000	1.000	1.000	1.000
2.5	.997	1.000	1.000	1.000	1.000	1.000
3.5	.987	.999	1.000	1.000	1.000	1.000
4.5	.954	.998	.999	1.000	1.000	1.000
5.5	.922	.995	.998	.999	1.000	1.000
6.5	.860	.990	.996	.998	.999	1.000
7.5	.776	.982	.993	.997	.999	1.000
8.5	.674	.971	.988	.994	.998	.999
9.5	.559	.955	.981	.991	.997	.999
10.5	.441	.935	.972	.987	.996	.998
11.5	.326	.909	.960	.981	.994	.998
12.5	.224	.878	.945	.978	.992	.997
13.5	.140	.841	.927	.964	.988	.995
14.5	.078	.799	.906	.952	.985	.994
15.5	.036	.752	.881	.938	.980	.992
16.5	.013	.701	.852	.922	.974	.989
17.5	.003	.646	.820	.904	.967	.987
18.5		.589	.785	.888	.959	.988
19.5		.530	.747	.860	.950	.979
20.5		.470	.706	.834	.940	.975
21.5		.411	.663	.806	.929	.969
22.5		.354	.618	.776	.918	.964
23.5		.299	.571	.744	.901	.957
24.5		.248	.524	.710	.886	.949
25.5		.201	.476	.674	.869	.941
26.5		.159	.429	.637	.850	.932
27.5		.122	.382	.598	.831	.922
28.5		.091	.337	.559	.810	.912
29.5		.065	.294	.520	.788	.900
30.5		.045	.253	.480	.764	.887
31.5		.029	.215	.441	.740	.874
32.5		.018	.180	.402	.714	.860
33.5		.010	.148	.363	.687	.845
34.5		.005	.119	.326	.660	.829
35.5		.002	.094	.290	.632	.812
36.5		.001	.073	.256	.603	.794
37.5			.055	.224	.574	.776
38.5			.040	.194	.545	.757
39.5			.028	.166	.515	.737
40.5			.019	.140	.485	.717

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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IOWA TYPE S₂ CURVE

REMAINING LIFE *

For Average Service Life

Age	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.5	18.5	23.5	28.5	38.5	48.5
2.5	7.5	17.5	22.5	27.5	37.5	47.5
3.5	6.6	16.5	21.5	26.5	36.5	46.5
4.5	5.7	15.5	20.5	25.5	35.5	45.5
5.5	5.0	14.6	19.5	24.5	34.5	44.5
6.5	4.3	13.6	18.6	23.5	33.5	43.5
7.5	3.7	12.8	17.6	22.6	32.5	42.5
8.5	3.2	11.9	16.7	21.6	31.6	41.5
9.5	2.8	11.1	15.8	20.7	30.6	40.5
10.5	2.4	10.3	15.0	19.8	29.6	39.6
11.5	2.0	9.6	14.2	18.9	28.7	38.6
12.5	1.7	8.9	13.4	18.1	27.7	37.6
13.5	1.4	8.3	12.6	17.2	26.9	36.7
14.5	1.2	7.7	11.9	16.4	25.9	35.7
15.5	0.9	7.1	11.2	15.7	25.1	34.8
16.5	0.7	6.6	10.6	14.9	24.2	33.9
17.5	0.5	6.1	10.0	14.2	23.4	33.0
18.5		5.7	9.4	13.5	22.6	32.1
19.5		5.3	8.9	12.9	21.8	31.2
20.5		4.9	8.4	12.3	21.0	30.4
21.5		4.5	7.9	11.7	20.3	29.5
22.5		4.2	7.4	11.1	19.5	28.7
23.5		3.8	7.0	10.6	18.9	27.9
24.5		3.5	6.5	10.1	18.2	27.1
25.5		3.2	6.2	9.6	17.5	26.4
26.5		2.9	5.8	9.1	16.9	25.6
27.5		2.7	5.4	8.7	16.3	24.9
28.5		2.4	5.1	8.2	15.7	24.2
29.5		2.2	4.8	7.8	15.1	23.5
30.5		1.9	4.4	7.4	14.6	22.8
31.5		1.7	4.1	7.0	14.0	22.1
32.5		1.5	3.8	6.7	13.5	21.5
33.5		1.3	3.6	6.3	13.0	20.9
34.5		1.1	3.3	6.0	12.5	20.3

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The S₂ curve has been found applicable to:
Water Works Boilers
Telephone Aerial Cable
Gas Meters
Power Transformers

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TABLE A-4
IOWA TYPE S₃ CURVE

PORTION SURVIVING *
For Average Service Life

Age	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	1.000	1.000	1.000	1.000	1.000	1.000
1.5	1.000	1.000	1.000	1.000	1.000	1.000
2.5	1.000	1.000	1.000	1.000	1.000	1.000
3.5	.998	1.000	1.000	1.000	1.000	1.000
4.5	.991	1.000	1.000	1.000	1.000	1.000
5.5	.969	1.000	1.000	1.000	1.000	1.000
6.5	.921	.999	1.000	1.000	1.000	1.000
7.5	.840	.997	.999	1.000	1.000	1.000
8.5	.723	.993	.998	1.000	1.000	1.000
9.5	.578	.987	.997	.999	1.000	1.000
10.5	.422	.976	.994	.998	1.000	1.000
11.5	.277	.960	.989	.997	1.000	1.000
12.5	.160	.936	.982	.994	.999	1.000
13.5	.079	.904	.972	.991	.999	1.000
14.5	.031	.864	.958	.985	.998	.999
15.5	.009	.814	.939	.978	.996	.999
16.5	.002	.755	.915	.969	.995	.999
17.5		.688	.885	.956	.992	.998
18.5		.616	.850	.941	.989	.997
19.5		.589	.808	.921	.985	.996
20.5		.461	.761	.898	.979	.995
21.5		.384	.709	.871	.973	.993
22.5		.312	.653	.840	.964	.991
23.5		.245	.593	.805	.955	.988
24.5		.186	.531	.765	.943	.984
25.5		.136	.469	.723	.929	.980
26.5		.096	.407	.677	.918	.975
27.5		.064	.347	.628	.895	.969
28.5		.040	.291	.578	.875	.962
29.5		.024	.239	.526	.852	.953
30.5		.013	.192	.474	.827	.944
31.5		.007	.150	.422	.800	.933
32.5		.003	.115	.372	.770	.921
33.5		.001	.085	.323	.739	.908
34.5			.061	.277	.706	.893
35.5			.042	.235	.671	.877
36.5			.028	.195	.634	.859
37.5			.018	.160	.597	.840
38.5			.011	.129	.558	.819
39.5			.006	.102	.520	.797
40.5			.003	.079	.480	.773

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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TABLE A-4—Continued
IOWA TYPE S₁ CURVE

REMAINING LIFE *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	10.0	20.0	25.0	20.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.5	18.5	23.5	28.5	38.5	48.5
2.5	7.5	17.5	22.5	27.5	37.5	47.5
3.5	6.5	16.5	21.5	26.5	36.5	46.5
4.5	5.6	15.5	20.5	25.5	35.5	45.5
5.5	4.7	14.5	19.5	24.5	34.5	44.5
6.5	3.9	13.5	18.5	23.5	33.5	43.5
7.5	3.2	12.5	17.5	22.5	32.5	42.5
8.5	2.7	11.6	16.5	21.5	31.5	41.5
9.5	2.2	10.7	15.6	20.5	30.5	40.5
10.5	1.8	9.8	14.6	19.5	29.5	38.5
11.5	1.5	8.9	13.7	18.6	28.5	37.5
12.5	1.3	8.1	12.8	17.6	26.5	36.5
13.5	1.0	7.4	11.9	16.7	25.6	35.5
14.5	0.9	6.7	11.1	15.8	25.6	35.5
15.5	0.7	6.1	10.3	14.9	24.6	34.5
16.5	0.5	5.5	9.5	14.0	23.6	33.5
17.5		5.0	8.8	13.2	22.7	32.6
18.5		4.6	8.2	12.4	21.8	31.6
19.5		4.2	7.6	11.7	20.9	30.6
20.5		3.8	7.0	10.9	20.0	29.7
21.5		3.4	6.5	10.3	19.1	28.7
22.5		3.1	6.0	9.6	18.3	27.8
23.5		2.8	5.6	9.0	17.4	26.9
24.5		2.6	5.1	8.5	16.7	26.0
25.5		2.3	4.8	7.9	15.9	25.1
26.5		2.1	4.4	7.4	15.2	24.2
27.5		1.9	4.1	7.0	14.5	23.3
28.5		1.7	3.8	6.5	13.8	22.5
29.5		1.5	3.5	6.1	13.1	21.7
30.5		1.3	3.2	5.7	12.5	20.9
31.5		1.1	3.0	5.4	11.9	20.2
32.5		0.8	2.7	5.0	11.4	19.4
33.5		0.5	2.5	4.7	10.8	18.7
34.5			2.3	4.4	10.3	18.0

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The S₁ curve has been found applicable to:
Distribution Transformers
Telephone Station Apparatus
(Fixed Capital Life)

TABLE A-5
IOWA TYPE S₄ CURVE

PORTION SURVIVING *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	1.000	1.000	1.000	1.000	1.000	1.000
1.5	1.000	1.000	1.000	1.000	1.000	1.000
2.5	1.000	1.000	1.000	1.000	1.000	1.000
3.5	1.000	1.000	1.000	1.000	1.000	1.000
4.5	1.000	1.000	1.000	1.000	1.000	1.000
5.5	.997	1.000	1.000	1.000	1.000	1.000
6.5	.979	1.000	1.000	1.000	1.000	1.000
7.5	.923	1.000	1.000	1.000	1.000	1.000
8.5	.801	1.000	1.000	1.000	1.000	1.000
9.5	.610	.999	1.000	1.000	1.000	1.000
10.5	.390	.998	1.000	1.000	1.000	1.000
11.5	.199	.994	1.000	1.000	1.000	1.000
12.5	.077	.986	.999	1.000	1.000	1.000
13.5	.021	.970	.997	1.000	1.000	1.000
14.5	.003	.943	.994	.999	1.000	1.000
15.5		.900	.987	.998	1.000	1.000
16.5		.839	.976	.997	1.000	1.000
17.5		.759	.958	.993	1.000	1.000
18.5		.663	.932	.988	1.000	1.000
19.5		.556	.894	.979	.999	1.000
20.5		.444	.846	.967	.999	1.000
21.5		.337	.785	.948	.997	1.000
22.5		.241	.713	.923	.996	1.000
23.5		.161	.632	.891	.993	.999
24.5		.100	.545	.850	.989	.999
25.5		.057	.455	.801	.983	.999
26.5		.030	.368	.744	.975	.998
27.5		.014	.287	.680	.965	.997
28.5		.006	.215	.610	.951	.995
29.5		.002	.154	.537	.933	.992
30.5		.001	.106	.463	.912	.989
31.5			.068	.390	.886	.985
32.5			.042	.320	.856	.979
33.5			.024	.256	.820	.972
34.5			.013	.199	.781	.963
35.5			.006	.150	.736	.952
36.5			.003	.109	.688	.939
37.5			.001	.077	.637	.923
38.5				.052	.583	.905
39.5				.033	.528	.883
40.5				.021	.472	.859

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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TABLE A-5—Continued
IOWA TYPE S4 CURVE

REMAINING LIFE *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.5	18.5	23.5	28.5	38.5	48.5
2.5	7.5	17.5	22.5	27.5	37.5	47.5
3.5	6.5	16.5	21.5	26.5	36.5	46.5
4.5	5.5	15.5	20.5	25.5	35.5	45.5
5.5	4.5	14.5	19.5	24.5	34.5	44.5
6.5	3.6	13.5	18.5	23.5	33.5	43.5
7.5	2.8	12.5	17.5	22.5	32.5	42.5
8.5	2.1	11.5	16.5	21.5	31.5	41.5
9.5	1.6	10.5	15.5	20.5	30.5	40.5
10.5	1.3	9.5	14.5	19.5	29.5	39.5
11.5	1.0	8.6	13.5	18.5	28.5	38.5
12.5	0.8	7.6	12.5	17.5	27.5	37.5
13.5	0.6	6.7	11.5	16.5	26.5	36.5
14.5	0.5	5.9	10.6	15.5	25.5	35.5
15.5		5.2	9.6	14.5	24.5	34.5
16.5		4.5	8.7	13.5	23.5	33.5
17.5		3.9	7.9	12.6	22.5	32.5
18.5		3.4	7.1	11.7	21.5	31.5
19.5		3.0	6.4	10.8	20.5	30.5
20.5		2.6	5.7	9.9	19.5	29.5
21.5		2.3	5.1	9.1	18.6	28.5
22.5		2.0	4.6	8.3	17.6	27.5
23.5		1.8	4.1	7.6	16.6	26.5
24.5		1.6	3.7	6.9	15.7	25.5
25.5		1.4	3.3	6.3	14.8	24.5
26.5		1.3	3.0	5.8	13.9	23.6
27.5		1.1	2.7	5.3	13.0	22.6
28.5		1.0	2.4	4.8	12.2	21.6
29.5		1.0	2.2	4.4	11.5	20.7
30.5		0.5	2.0	4.0	10.7	19.7
31.5			1.8	3.7	10.0	18.8
32.5			1.6	3.4	9.3	17.9
33.5			1.5	3.1	8.7	17.1
34.5			1.3	2.8	8.1	16.2

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The S4 curve has been found applicable to:
Electric Meters

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IOWA TYPE S₂ CURVE

PORTION SURVIVING *

Age	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
			For Average Service Life			
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	1.000	1.000	1.000	1.000	1.000	1.000
1.5	1.000	1.000	1.000	1.000	1.000	1.000
2.5	1.000	1.000	1.000	1.000	1.000	1.000
3.5	1.000	1.000	1.000	1.000	1.000	1.000
4.5	1.000	1.000	1.000	1.000	1.000	1.000
5.5	1.000	1.000	1.000	1.000	1.000	1.000
6.5	.999	1.000	1.000	1.000	1.000	1.000
7.5	.984	1.000	1.000	1.000	1.000	1.000
8.5	.896	1.000	1.000	1.000	1.000	1.000
9.5	.662	1.000	1.000	1.000	1.000	1.000
10.5	.338	1.000	1.000	1.000	1.000	1.000
11.5	.104	1.000	1.000	1.000	1.000	1.000
12.5	.016	1.000	1.000	1.000	1.000	1.000
13.5	.001	.998	1.000	1.000	1.000	1.000
14.5		.991	1.000	1.000	1.000	1.000
15.5		.972	1.000	1.000	1.000	1.000
16.5		.930	.999	1.000	1.000	1.000
17.5		.853	.995	1.000	1.000	1.000
18.5		.734	.987	1.000	1.000	1.000
19.5		.582	.969	.999	1.000	1.000
20.5		.418	.936	.997	1.000	1.000
21.5		.266	.880	.993	1.000	1.000
22.5		.147	.798	.984	1.000	1.000
23.5		.070	.692	.967	1.000	1.000
24.5		.028	.566	.939	1.000	1.000
25.5		.009	.434	.896	.999	1.000
26.5		.002	.308	.886	.998	1.000
27.5			.202	.757	.997	1.000
28.5			.120	.662	.993	1.000
29.5			.064	.555	.988	1.000
30.5			.031	.445	.979	1.000
31.5			.013	.338	.964	.999
32.5			.005	.243	.943	.999
33.5			.001	.164	.914	.998
34.5				.104	.876	.996
35.5				.061	.827	.994
36.5				.033	.768	.990
37.5				.016	.699	.984
38.5				.007	.623	.975
39.5				.003	.541	.963
40.5				.001	.459	.946

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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IOWA TYPE S₅ CURVE

REMAINING LIFE *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.5	18.5	23.5	28.5	38.5	48.5
2.5	7.5	17.5	22.5	27.5	37.5	47.5
8.5	6.5	16.5	21.5	26.5	36.5	46.5
4.5	5.5	15.5	20.5	25.5	35.5	45.5
5.5	4.5	14.5	19.5	24.5	84.5	44.5
6.5	3.5	13.5	18.5	23.5	33.5	43.5
7.5	2.5	12.5	17.5	22.5	32.5	42.5
8.5	1.8	11.5	16.5	21.5	81.5	41.5
9.5	1.2	10.5	15.5	20.5	30.5	40.5
10.5	0.9	9.5	14.5	19.5	29.5	39.5
11.5	0.7	8.5	13.5	18.5	28.5	38.5
12.5	0.6	7.5	12.5	17.5	27.5	37.5
18.5	0.5	6.5	11.5	16.5	26.5	36.5
14.5		5.6	10.5	15.5	25.5	35.5
15.5		4.7	9.5	14.5	24.5	84.5
16.5		3.8	8.5	13.5	23.5	33.5
17.5		3.1	7.5	12.5	22.5	32.5
18.5		2.6	6.6	11.5	21.5	31.5
19.5		2.1	5.7	10.5	20.5	30.5
20.5		1.7	4.9	9.5	19.5	29.5
21.5		1.5	4.2	8.6	18.5	28.5
22.5		1.2	3.6	7.6	17.5	27.5
23.5		1.1	3.0	6.8	16.5	26.5
24.5		0.9	2.6	6.0	15.5	25.5
25.5		0.7	2.2	5.2	14.5	24.5
26.5		0.5	1.9	4.6	13.5	23.5
27.5			1.7	4.0	12.5	22.5
28.5			1.5	3.5	11.6	21.5
29.5			1.3	3.0	10.6	20.5
80.5			1.1	2.7	9.7	19.5
31.5			1.0	2.4	8.9	18.5
82.5			0.7	2.1	8.1	17.5
88.5			0.5	1.9	7.3	16.5
84.5				1.7	6.6	15.6

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The S₅ curve has been found applicable to:
Office Equipment

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IOWA TYPE S₄ CURVE

PORTION SURVIVING *

For Average Service Life

Age	10 Years	20 Years	25 Years	50 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	1.000	1.000	1.000	1.000	1.000	1.000
1.5	1.000	1.000	1.000	1.000	1.000	1.000
2.5	1.000	1.000	1.000	1.000	1.000	1.000
3.5	1.000	1.000	1.000	1.000	1.000	1.000
4.5	1.000	1.000	1.000	1.000	1.000	1.000
5.5	1.000	1.000	1.000	1.000	1.000	1.000
6.5	1.000	1.000	1.000	1.000	1.000	1.000
7.5	1.000	1.000	1.000	1.000	1.000	1.000
8.5	.977	1.000	1.000	1.000	1.000	1.000
9.5	.745	1.000	1.000	1.000	1.000	1.000
10.5	.255	1.000	1.000	1.000	1.000	1.000
11.5	.023	1.000	1.000	1.000	1.000	1.000
12.5		1.000	1.000	1.000	1.000	1.000
13.5		1.000	1.000	1.000	1.000	1.000
14.5		1.000	1.000	1.000	1.000	1.000
15.5		.999	1.000	1.000	1.000	1.000
16.5		.990	1.000	1.000	1.000	1.000
17.5		.951	1.000	1.000	1.000	1.000
18.5		.839	1.000	1.000	1.000	1.000
19.5		.629	.999	1.000	1.000	1.000
20.5		.371	.992	1.000	1.000	1.000
21.5		.161	.969	1.000	1.000	1.000
22.5		.049	.907	1.000	1.000	1.000
23.5		.010	.786	.998	1.000	1.000
24.5		.001	.604	.993	1.000	1.000
25.5			.396	.977	1.000	1.000
26.5			.214	.939	1.000	1.000
27.5			.093	.864	1.000	1.000
28.5			.031	.745	1.000	1.000
29.5			.008	.587	1.000	1.000
30.5			.001	.413	.999	1.000
31.5				.255	.998	1.000
32.5				.136	.994	1.000
33.5				.061	.985	1.000
34.5				.023	.966	1.000
35.5				.007	.932	1.000
36.5				.002	.876	1.000
37.5					.795	1.000
38.5					.689	.999
39.5					.565	.995
40.5					.435	.995

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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TABLE A-7—Continued
IOWA TYPE S₄ CURVE

REMAINING LIFE *

Age	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
			For Average Service Life			
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.5	18.5	23.5	28.5	38.5	48.5
2.5	7.5	17.5	22.5	27.5	37.5	47.5
3.5	6.5	16.5	21.5	26.5	36.5	46.5
4.5	5.5	15.5	20.5	25.5	35.5	45.5
5.5	4.5	14.5	19.5	24.5	34.5	44.5
6.5	3.5	13.5	18.5	23.5	33.5	43.5
7.5	2.5	12.5	17.5	22.5	32.5	42.5
8.5	1.5	11.5	16.5	21.5	31.5	41.5
9.5	0.9	10.5	15.5	20.5	30.5	40.5
10.5	0.6	9.5	14.5	19.5	29.5	39.5
11.5	0.5	8.5	13.5	18.5	28.5	38.5
12.5		7.5	12.5	17.5	27.5	37.5
13.5		6.5	11.5	16.5	26.5	36.5
14.5		5.5	10.5	15.5	25.5	35.5
15.5		4.5	9.5	14.5	24.5	34.5
16.5		3.5	8.5	13.5	23.5	33.5
17.5		2.7	7.5	12.5	22.5	32.5
18.5		2.0	6.5	11.5	21.5	31.5
19.5		1.4	5.5	10.5	20.5	30.5
20.5		1.1	4.5	9.5	19.5	29.5
21.5		0.9	3.6	8.5	18.5	28.5
22.5		0.7	2.9	7.5	17.5	27.5
23.5		0.6	2.2	6.5	16.5	26.5
24.5		0.5	1.7	5.5	15.5	25.5
25.5			1.4	4.6	14.5	24.5
26.5			1.1	3.8	13.5	23.5
27.5			0.9	3.1	12.5	22.5
28.5			0.8	2.5	11.5	21.5
29.5			0.6	2.0	10.5	20.5
30.5			0.5	1.7	9.5	19.5
31.5				1.4	8.5	18.5
32.5				1.2	7.6	17.5
33.5				1.0	6.6	16.5
34.5				0.9	5.7	15.5

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The S₄ curve has been found applicable to:
Motor Vehicles and Work Equipment
Large Gas Transmission Mains

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TABLE A-8
IOWA TYPE R₁ CURVE

PORTION SURVIVING *

Age	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	.987	.993	.995	.996	.997	.997
1.5	.957	.980	.984	.987	.990	.992
2.5	.925	.965	.973	.977	.983	.987
3.5	.888	.950	.961	.968	.976	.981
4.5	.848	.933	.948	.957	.969	.975
5.5	.804	.916	.935	.947	.961	.970
6.5	.754	.898	.921	.936	.954	.964
7.5	.697	.879	.907	.925	.946	.957
8.5	.634	.859	.892	.918	.937	.951
9.5	.565	.838	.877	.901	.929	.945
10.5	.491	.815	.861	.888	.920	.938
11.5	.414	.792	.844	.875	.911	.931
12.5	.336	.767	.827	.862	.902	.925
13.5	.260	.740	.808	.848	.893	.918
14.5	.188	.712	.789	.834	.884	.911
15.5	.125	.682	.769	.819	.874	.903
16.5	.074	.651	.748	.804	.864	.896
17.5	.036	.618	.726	.788	.854	.888
18.5	.013	.583	.703	.771	.843	.881
19.5	.002	.547	.679	.754	.832	.873
20.5		.510	.654	.735	.821	.865
21.5		.472	.628	.717	.810	.857
22.5		.434	.601	.697	.798	.848
23.5		.395	.573	.677	.786	.840
24.5		.355	.544	.656	.773	.831
25.5		.317	.514	.634	.760	.822
26.5		.278	.484	.612	.747	.813
27.5		.241	.453	.589	.733	.804
28.5		.205	.422	.565	.719	.794
29.5		.172	.391	.541	.705	.784
30.5		.140	.359	.517	.690	.774
31.5		.111	.328	.491	.674	.764
32.5		.086	.297	.466	.659	.754
33.5		.063	.267	.440	.643	.743
34.5		.044	.238	.414	.626	.732
35.5		.029	.209	.388	.609	.720
36.5		.017	.182	.362	.592	.709
37.5		.009	.156	.336	.574	.697
38.5		.004	.131	.310	.556	.685
39.5		.001	.109	.285	.538	.673
40.5		.000	.088	.260	.520	.660

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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TABLE A-8—Continued
IOWA TYPE R₁ CURVE

REMAINING LIFE *

For Average Service Life

Age	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.6	19.6	24.6	29.6	39.6	49.6
1.5	8.9	18.9	23.9	28.9	38.9	48.9
2.5	8.2	18.2	23.2	28.2	38.2	48.1
3.5	7.5	17.5	22.4	27.4	37.4	47.4
4.5	6.9	16.8	21.7	26.7	36.7	46.7
5.5	6.2	16.1	21.0	26.0	36.0	46.0
6.5	5.6	15.4	20.4	25.3	35.3	45.2
7.5	5.0	14.7	19.7	24.6	34.6	44.6
8.5	4.4	14.0	19.0	23.9	33.9	43.8
9.5	3.9	13.4	18.3	23.2	33.2	43.1
10.5	3.4	12.7	17.6	22.6	32.5	42.4
11.5	3.0	12.1	17.0	21.9	31.8	41.8
12.5	2.6	11.5	16.3	21.2	31.1	41.0
13.5	2.2	10.9	15.7	20.6	30.4	40.3
14.5	1.8	10.3	15.0	19.9	29.7	39.6
15.5	1.5	9.7	14.4	19.3	29.1	39.0
16.5	1.2	9.1	13.8	18.6	28.4	38.3
17.5	0.9	8.6	13.2	18.0	27.7	37.6
18.5	0.7	8.1	12.6	17.4	27.1	36.9
19.5	0.5	7.6	12.1	16.7	26.4	36.3
20.5		7.1	11.5	16.2	25.8	35.6
21.5		6.6	11.0	15.6	25.1	34.9
22.5		6.2	10.4	15.0	24.5	34.3
23.5		5.7	9.9	14.4	23.9	33.6
24.5		5.3	9.4	13.9	23.3	33.0
25.5		4.9	8.9	13.3	22.7	32.3
26.5		4.5	8.5	12.8	22.0	31.7
27.5		4.2	8.0	12.3	21.5	31.0
28.5		3.8	7.6	11.8	20.9	30.4
29.5		3.4	7.1	11.3	20.3	29.8
30.5		3.1	6.7	10.8	19.7	29.2
31.5		2.8	6.3	10.3	19.1	28.5
32.5		2.4	5.9	9.8	18.6	27.9
33.5		2.2	5.5	9.4	18.0	27.3
34.5		1.9	5.1	8.9	17.5	26.7

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The R₁ curve has been found applicable to:
Telephone Central Office Equipment
Telephone Submarine Cable
Telephone Underground Cable
Electric Meters
Hydraulic Pumps

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TABLE A-9
IOWA TYPE R₂ CURVE

PORTION SURVIVING *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	.995	.998	.998	.998	.999	.999
1.5	.982	.992	.994	.995	.996	.997
2.5	.964	.986	.989	.991	.994	.995
3.5	.941	.978	.983	.987	.991	.993
4.5	.910	.969	.977	.982	.987	.990
5.5	.870	.959	.970	.977	.984	.988
6.5	.820	.947	.962	.971	.980	.985
7.5	.757	.934	.953	.964	.976	.982
8.5	.681	.918	.943	.957	.971	.979
9.5	.590	.910	.932	.949	.967	.975
10.5	.488	.881	.920	.941	.962	.972
11.5	.379	.859	.906	.931	.956	.968
12.5	.273	.834	.891	.921	.950	.964
13.5	.178	.805	.875	.910	.944	.960
14.5	.103	.774	.856	.898	.937	.956
15.5	.050	.739	.836	.885	.930	.951
16.5	.017	.701	.814	.870	.922	.946
17.5	.003	.659	.790	.855	.914	.941
18.5		.614	.764	.838	.905	.935
19.5		.566	.786	.820	.896	.929
20.5		.514	.705	.800	.886	.923
21.5		.461	.672	.779	.876	.917
22.5		.407	.637	.757	.865	.910
23.5		.352	.600	.733	.853	.903
24.5		.299	.561	.708	.840	.895
25.5		.247	.520	.681	.827	.887
26.5		.200	.477	.652	.813	.879
27.5		.157	.434	.623	.798	.870
28.5		.119	.390	.590	.782	.861
29.5		.087	.347	.557	.766	.851
30.5		.061	.304	.523	.748	.841
31.5		.040	.262	.488	.730	.831
32.5		.024	.223	.452	.711	.820
33.5		.012	.187	.416	.691	.808
34.5		.005	.153	.379	.670	.796
35.5		.001	.123	.343	.648	.784
36.5			.096	.307	.626	.771
37.5			.073	.278	.602	.757
38.5			.054	.239	.578	.743
39.5			.038	.208	.553	.729
40.5			.025	.178	.527	.713

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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TABLE A-9—Continued
IOWA TYPE R₂ CURVE

REMAINING LIFE *

Age	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
			For Average Service Life			
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.6	19.5	24.5	29.6	39.5	49.6
1.5	8.7	18.7	23.6	28.6	38.7	48.6
2.5	7.8	17.8	22.8	27.8	37.7	47.7
3.5	7.0	16.9	21.9	26.9	36.8	46.8
4.5	6.2	16.1	21.0	26.0	36.0	46.0
5.5	5.5	15.2	20.2	25.1	35.1	45.1
6.5	4.8	14.4	19.3	24.3	34.2	44.2
7.5	4.1	13.6	18.5	23.5	33.4	43.3
8.5	3.6	12.8	17.7	22.6	32.6	42.5
9.5	3.0	12.1	16.9	21.8	31.7	41.6
10.5	2.6	11.3	16.1	21.0	30.8	40.8
11.5	2.1	10.6	15.4	20.2	30.0	39.9
12.5	1.8	9.9	14.6	19.4	29.2	39.1
13.5	1.5	9.2	13.9	18.7	28.4	38.3
14.5	1.2	8.6	13.2	17.9	27.6	37.4
15.5	0.9	8.0	12.5	17.2	26.8	36.6
16.5	0.7	7.4	11.8	16.4	26.0	35.8
17.5	0.5	6.8	11.1	15.7	25.3	35.0
18.5		6.3	10.5	15.0	24.5	34.2
19.5		5.8	9.9	14.4	23.8	33.4
20.5		5.3	9.3	13.7	23.0	32.6
21.5		4.9	8.7	13.1	22.3	31.9
22.5		4.4	8.2	12.4	21.6	31.1
23.5		4.1	7.7	11.8	20.9	30.3
24.5		3.7	7.2	11.2	20.2	29.6
25.5		3.4	6.7	10.6	19.5	28.9
26.5		3.0	6.2	10.1	18.8	28.1
27.5		2.7	5.8	9.5	18.1	27.4
28.5		2.4	5.4	9.0	17.5	26.7
29.5		2.1	5.0	8.5	16.9	26.0
30.5		1.8	4.7	8.1	16.3	25.3
31.5		1.6	4.3	7.6	15.6	24.6
32.5		1.3	4.0	7.2	15.1	23.9
33.5		1.0	3.7	6.8	14.5	23.3
34.5		0.7	3.4	6.4	13.9	22.6

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The R₂ curve has been found applicable to:
Water Transmission Mains
Water Distribution Mains
Water Services

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OPC-LFE-POUS000070

IOWA TYPE R₃ CURVE

PORTION SURVIVING *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	.999	1.000	1.000	1.000	1.000	1.000
1.5	.996	.998	.999	.999	.999	.999
2.5	.989	.997	.998	.998	.999	.999
3.5	.978	.994	.996	.997	.998	.999
4.5	.958	.991	.994	.996	.997	.998
5.5	.928	.987	.992	.994	.996	.997
6.5	.884	.981	.988	.992	.995	.997
7.5	.821	.973	.984	.989	.994	.996
8.5	.733	.964	.979	.986	.992	.995
9.5	.616	.952	.973	.982	.990	.994
10.5	.473	.937	.965	.978	.988	.992
11.5	.320	.919	.956	.972	.986	.991
12.5	.184	.896	.945	.966	.983	.989
13.5	.086	.870	.932	.958	.979	.967
14.5	.030	.839	.917	.949	.976	.985
15.5	.006	.801	.899	.940	.971	.983
16.5		.758	.878	.928	.966	.980
17.5		.707	.855	.915	.981	.978
18.5		.648	.823	.900	.955	.974
19.5		.583	.797	.884	.948	.971
20.5		.511	.762	.865	.941	.967
21.5		.435	.723	.844	.933	.963
22.5		.358	.678	.821	.923	.958
23.5		.283	.629	.794	.913	.953
24.5		.215	.576	.765	.902	.948
25.5		.155	.518	.733	.890	.942
26.5		.106	.458	.697	.877	.935
27.5		.068	.396	.659	.863	.928
28.5		.041	.335	.616	.847	.921
29.5		.021	.276	.571	.830	.912
30.5		.009	.221	.523	.811	.904
31.5		.003	.172	.473	.791	.894
32.5			.129	.422	.769	.884
33.5			.094	.370	.746	.873
34.5			.065	.320	.720	.861
35.5			.043	.271	.693	.849
36.5			.026	.225	.664	.835
37.5			.015	.184	.633	.821
38.5			.007	.146	.600	.805
39.5			.003	.114	.565	.789
40.5			.001	.086	.529	.771

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

IOWA TYPE R₃ CURVE

R_3

REMAINING LIFE *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.5	18.5	23.5	28.5	38.5	48.6
2.5	7.6	17.6	22.5	27.6	37.5	47.6
3.5	6.7	16.6	21.6	26.6	36.6	46.6
4.5	5.8	15.7	20.6	25.6	35.6	45.6
5.5	5.0	14.7	19.7	24.7	34.6	44.6
6.5	4.2	13.8	18.8	23.7	33.7	43.6
7.5	3.5	12.9	17.8	22.8	32.7	42.7
8.5	2.8	12.0	16.9	21.8	31.8	41.7
9.5	2.3	11.2	16.0	20.9	30.8	40.8
10.5	1.8	10.3	15.1	20.0	29.9	39.9
11.5	1.5	9.5	14.3	19.1	29.0	38.9
12.5	1.2	8.8	13.4	18.3	28.1	38.0
13.5	0.9	8.0	12.6	17.4	27.2	37.0
14.5	0.7	7.3	11.8	16.6	26.2	36.1
15.5	0.5	6.6	11.1	15.7	25.4	35.2
16.5		6.0	10.3	14.9	24.5	34.3
17.5		5.4	9.6	14.1	23.6	33.4
18.5		4.8	8.9	13.3	22.8	32.5
19.5		4.3	8.2	12.6	21.9	31.6
20.5		3.8	7.5	11.8	21.1	30.7
21.5		3.4	6.9	11.1	20.3	29.9
22.5		3.0	6.3	10.4	19.5	29.0
23.5		2.7	5.8	9.8	18.7	28.2
24.5		2.4	5.3	9.1	17.9	27.3
25.5		2.1	4.8	8.5	17.2	26.5
26.5		1.8	4.4	7.9	16.4	25.7
27.5		1.6	4.0	7.3	15.7	24.9
28.5		1.3	3.6	6.8	14.9	24.0
29.5		1.1	3.3	6.3	14.2	23.3
30.5		0.8	3.0	5.8	13.6	22.5
31.5		0.5	2.7	5.4	12.9	21.7
32.5			2.5	5.0	12.3	21.0
33.5			2.2	4.6	11.6	20.2
34.5			2.0	4.3	11.0	19.5

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The R₃ curve has been found applicable to:
Distribution Transformers
Electric Meters
Electric Poles and Fixtures
Distribution Substation Buildings
Water Meters

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IOWA TYPE R4 CURVE

PORTION SURVIVING *

| Age | For Average Service Life | | | | | |
---	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	1.000	1.000	1.000	1.000	1.000	1.000
1.5	1.000	1.000	1.000	1.000	1.000	1.000
2.5	.999	1.000	1.000	1.000	1.000	1.000
3.5	.995	.999	1.000	1.000	1.000	1.000
4.5	.987	.999	.999	1.000	1.000	1.000
5.5	.970	.998	.999	.999	1.000	1.000
6.5	.937	.996	.998	.999	1.000	1.000
7.5	.878	.994	.997	.999	.999	1.000
8.5	.786	.990	.996	.998	.999	.999
9.5	.648	.984	.994	.997	.999	.999
10.5	.448	.976	.991	.995	.998	.999
11.5	.240	.964	.986	.993	.998	.999
12.5	.093	.947	.980	.991	.997	.999
13.5	.020	.924	.973	.987	.996	.998
14.5	.001	.895	.962	.983	.995	.998
15.5		.858	.949	.977	.993	.997
16.5		.812	.932	.970	.991	.996
17.5		.756	.911	.961	.989	.995
18.5		.688	.885	.950	.986	.994
19.5		.603	.854	.937	.982	.993
20.5		.502	.817	.920	.978	.991
21.5		.393	.774	.901	.973	.990
22.5		.288	.724	.878	.967	.987
23.5		.196	.664	.851	.960	.985
24.5		.122	.598	.820	.952	.982
25.5		.068	.512	.786	.942	.979
26.5		.032	.426	.746	.931	.975
27.5		.012	.340	.701	.918	.970
28.5		.003	.259	.648	.903	.965
29.5			.188	.587	.887	.959
30.5			.129	.519	.868	.953
31.5			.082	.448	.847	.945
32.5			.048	.375	.824	.937
33.5			.025	.305	.799	.927
34.5			.010	.240	.771	.916
35.5			.003	.182	.741	.905
36.5				.133	.707	.892
37.5				.093	.668	.878
38.5				.061	.626	.862
39.5				.037	.579	.845
40.5				.020	.528	.827

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

IOWA TYPE R₄ CURVE

REMAINING LIFE *

	For Average Service Life					
Age	*10 Years*	*20 Years*	*25 Years*	*30 Years*	*40 Years*	*50 Years*
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.5	18.5	23.5	28.5	38.5	48.5
2.5	7.5	17.5	22.5	27.5	37.5	47.5
3.5	6.5	16.5	21.5	26.5	36.5	46.5
4.5	5.6	15.5	20.5	25.5	35.5	45.5
5.5	4.7	14.5	19.5	24.5	34.5	44.5
6.5	3.8	13.6	18.5	23.5	33.5	43.5
7.5	3.0	12.6	17.6	22.5	32.5	42.5
8.5	2.3	11.6	16.6	21.5	31.5	41.5
9.5	1.7	10.7	15.6	20.6	30.5	40.5
10.5	1.3	9.8	14.7	19.6	29.6	39.5
11.5	1.0	8.9	13.7	18.6	28.6	38.5
12.5	0.7	8.1	12.8	17.7	27.6	37.5
13.5	0.6	7.2	11.9	16.8	26.6	36.6
14.5	0.5	6.5	11.0	15.8	25.6	35.6
15.5		5.7	10.2	14.9	24.7	34.6
16.5		5.0	9.3	14.0	23.7	33.7
17.5		4.3	8.5	13.1	22.8	32.7
18.5		3.7	7.8	12.3	21.9	31.7
19.5		3.2	7.1	11.5	21.0	30.7
20.5		2.7	6.3	10.7	20.0	29.8
21.5		2.3	5.7	9.9	19.1	28.8
22.5		2.0	5.0	9.1	18.2	27.9
23.5		1.7	4.4	8.4	17.4	27.0
24.5		1.4	3.9	7.7	16.5	26.1
25.5		1.2	3.4	7.0	15.7	25.1
26.5		1.0	3.0	6.3	14.9	24.2
27.5		0.8	2.7	5.7	14.1	23.4
28.5		0.5	2.4	5.1	13.3	22.5
29.5			2.1	4.6	12.5	21.6
30.5			1.8	4.2	11.8	20.8
31.5			1.5	3.8	11.1	19.9
32.5			1.3	3.4	10.4	19.1
33.5			1.0	3.1	9.7	18.3
34.5			0.8	2.7	9.0	17.5

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The R₄ curve has been found applicable to:
Telephone Loading Coils
Electric Poles
Electric Meters
Distribution Transformers
Gas Meters
Electric O. H. Conductors

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TABLE A-12
IOWA TYPE R₂ CURVE

PORTION SURVIVING *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	1.000	1.000	1.000	1.000	1.000	1.000
1.5	1.000	1.000	1.000	1.000	1.000	1.000
2.5	1.000	1.000	1.000	1.000	1.000	1.000
3.5	1.000	1.000	1.000	1.000	1.000	1.000
4.5	1.000	1.000	1.000	1.000	1.000	1.000
5.5	.998	1.000	1.000	1.000	1.000	1.000
6.5	.988	1.000	1.000	1.000	1.000	1.000
7.5	.954	1.000	1.000	1.000	1.000	1.000
8.5	.866	1.000	1.000	1.000	1.000	1.000
9.5	.675	1.000	1.000	1.000	1.000	1.000
10.5	.383	.999	1.000	1.000	1.000	1.000
11.5	.121	.997	1.000	1.000	1.000	1.000
12.5	.016	.992	1.000	1.000	1.000	1.000
13.5		.983	.999	1.000	1.000	1.000
14.5		.966	.997	1.000	1.000	1.000
15.5		.939	.993	.999	1.000	1.000
16.5		.895	.986	.998	1.000	1.000
17.5		.829	.975	.996	1.000	1.000
18.5		.734	.959	.993	1.000	1.000
19.5		.608	.935	.988	1.000	1.000
20.5		.460	.901	.980	.999	1.000
21.5		.307	.852	.969	.999	1.000
22.5		.174	.785	.954	.998	1.000
23.5		.080	.699	.933	.996	1.000
24.5		.029	.594	.904	.994	1.000
25.5		.008	.476	.866	.990	.999
26.5		.001	.352	.815	.985	.999
27.5			.236	.752	.979	.998
28.5			.141	.675	.971	.997
29.5			.073	.585	.960	.996
30.5			.033	.486	.947	.994
31.5			.012	.383	.930	.991
32.5			.003	.283	.908	.988
33.5				.193	.881	.984
34.5				.121	.848	.978
35.5				.068	.808	.972
36.5				.035	.761	.964
37.5				.016	.705	.954
38.5				.006	.642	.942
39.5				.001	.573	.928
40.5					.498	.910

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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TABLE A-12—Continued
IOWA TYPE R5 CURVE

REMAINING LIFE *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.5	18.5	23.5	28.5	38.5	48.5
2.5	7.5	17.5	22.5	27.5	37.5	47.5
3.5	6.5	16.5	21.5	26.5	36.5	46.5
4.5	5.5	15.5	20.5	25.5	35.5	45.5
5.5	4.5	14.5	19.5	24.5	34.5	44.5
6.5	3.6	13.5	18.5	23.5	33.5	43.5
7.5	2.7	12.5	17.5	22.5	32.5	42.5
8.5	1.9	11.5	16.5	21.5	31.5	41.5
9.5	1.3	10.5	15.5	20.5	30.5	40.5
10.5	0.9	9.5	14.5	19.5	29.5	39.5
11.5	0.6	8.5	13.5	18.5	28.5	38.5
12.5	0.5	7.6	12.5	17.5	27.5	37.5
13.5		6.6	11.5	16.5	26.5	36.5
14.5		5.7	10.5	15.5	25.5	35.5
15.5		4.9	9.6	14.5	24.5	34.5
16.5		4.1	8.6	13.5	23.5	33.5
17.5		3.4	7.7	12.6	22.5	32.5
18.5		2.8	6.9	11.6	21.5	31.5
19.5		2.2	6.0	10.6	20.5	30.5
20.5		1.8	5.2	9.7	19.5	29.5
21.5		1.5	4.5	8.8	18.5	28.5
22.5		1.2	3.8	8.0	17.5	27.5
23.5		1.0	3.2	7.1	16.6	26.5
24.5		0.8	2.7	6.3	15.6	25.5
25.5		0.6	2.3	5.6	14.7	24.5
26.5		0.5	1.9	4.9	13.7	23.5
27.5			1.6	4.3	12.8	22.5
28.5			1.4	3.7	11.9	21.6
29.5			1.2	3.2	11.1	20.6
30.5			1.0	2.8	10.2	19.6
31.5			0.8	2.4	9.4	18.7
32.5			0.5	2.1	8.6	17.7
33.5				1.8	7.8	16.8
34.5				1.5	7.1	15.9

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The R5 curve has been found applicable to:
Electric Meters

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TABLE A-13
IOWA TYPE L₀ CURVE

PORTION SURVIVING *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	.989	.996	.997	.997	.998	.999
1.5	.949	.981	.986	.989	.993	.994
2.5	.898	.960	.971	.977	.985	.989
3.5	.840	.937	.954	.964	.976	.982
4.5	.779	.911	.935	.949	.966	.975
5.5	.716	.884	.914	.933	.955	.967
6.5	.654	.855	.892	.916	.943	.958
7.5	.593	.825	.869	.898	.931	.949
8.5	.533	.794	.846	.879	.918	.940
9.5	.476	.763	.822	.860	.905	.930
10.5	.421	.732	.797	.840	.891	.919
11.5	.369	.701	.772	.820	.877	.909
12.5	.321	.670	.747	.799	.862	.898
13.5	.276	.639	.722	.779	.847	.887
14.5	.234	.608	.698	.758	.832	.875
15.5	.197	.578	.673	.737	.817	.864
16.5	.164	.548	.648	.716	.802	.852
17.5	.135	.519	.623	.695	.786	.840
18.5	.109	.490	.599	.675	.771	.828
19.5	.087	.462	.575	.654	.755	.816
20.5	.068	.434	.551	.634	.740	.803
21.5	.053	.408	.528	.613	.724	.791
22.5	.040	.382	.504	.593	.708	.779
23.5	.030	.357	.482	.573	.693	.766
24.5	.022	.332	.459	.553	.677	.754
25.5	.016	.309	.437	.533	.662	.741
26.5	.011	.286	.416	.514	.646	.729
27.5	.007	.265	.395	.495	.631	.716
28.5	.005	.244	.374	.476	.616	.704
29.5	.003	.225	.354	.457	.601	.691
30.5	.002	.206	.335	.439	.585	.679
31.5	.001	.189	.316	.421	.570	.666
32.5	.001	.172	.298	.403	.556	.654
33.5		.156	.280	.386	.541	.642
34.5		.142	.263	.369	.526	.630
35.5		.128	.246	.353	.512	.617
36.5		.115	.231	.336	.497	.605
37.5		.103	.215	.321	.483	.593
38.5		.092	.201	.305	.469	.581
39.5		.082	.187	.290	.455	.569
40.5		.073	.174	.276	.441	.557

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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TABLE A-13—Continued
IOWA TYPE L₀ CURVE

REMAINING LIFE *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.6	19.6	24.6	29.6	39.6	49.5
1.5	9.0	18.9	23.8	28.8	38.8	48.8
2.5	8.5	18.3	23.2	28.2	38.1	48.0
3.5	8.0	17.7	22.6	27.5	37.4	47.4
4.5	7.6	17.2	22.1	27.0	36.8	46.7
5.5	7.2	16.7	21.6	26.4	36.2	46.1
6.5	6.9	16.3	21.1	25.9	35.7	45.5
7.5	6.5	15.8	20.6	25.4	35.1	44.9
8.5	6.2	15.4	20.2	25.0	34.6	44.4
9.5	5.9	15.0	19.7	24.5	34.1	43.8
10.5	5.6	14.7	19.3	24.1	33.6	43.4
11.5	5.3	14.3	19.0	23.6	33.2	42.8
12.5	5.1	13.9	18.6	23.2	32.7	42.4
13.5	4.8	13.6	18.2	22.8	32.3	41.9
14.5	4.6	13.2	17.8	22.4	31.9	41.4
15.5	4.3	12.9	17.4	22.1	31.5	41.0
16.5	4.1	12.6	17.1	21.7	31.0	40.5
17.5	3.9	12.2	16.8	21.3	30.7	40.1
18.5	3.7	11.9	16.4	21.0	30.3	39.7
19.5	3.5	11.6	16.1	20.6	29.9	39.3
20.5	3.3	11.4	15.8	20.3	29.5	38.9
21.5	3.1	11.0	15.4	19.9	29.1	38.5
22.5	3.0	10.8	15.1	19.6	28.8	38.1
23.5	2.8	10.5	14.8	19.3	28.4	37.7
24.5	2.6	10.2	14.5	18.9	28.0	37.3
25.5	2.4	10.0	14.2	18.6	27.7	36.9
26.5	2.2	9.7	13.9	18.3	27.3	36.5
27.5	2.2	9.5	13.6	18.0	27.0	36.2
28.5	1.9	9.2	13.4	17.7	26.6	35.8
29.5	1.8	9.0	13.1	17.4	26.3	35.5
30.5	1.6	8.7	12.8	17.1	26.0	35.1
31.5	1.5	8.5	12.6	16.8	25.6	34.7
32.5	0.5	8.3	12.3	16.5	25.3	34.4
33.5		8.1	12.0	16.2	25.0	34.0
34.5		7.8	11.8	16.0	24.7	33.6

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The L₀ curve has been found applicable to:
Distribution Transformers
Telephone PBX Equipment

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TABLE A-14
IOWA TYPE L₁ CURVE

PORTION SURVIVING *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
-0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	.996	.998	.999	.999	.999	.999
1.5	.982	.994	.995	.996	.997	.998
2.5	.954	.987	.991	.993	.995	.996
3.5	.910	.976	.984	.988	.992	.994
4.5	.851	.962	.975	.982	.989	.992
5.5	.781	.945	.964	.974	.984	.989
6.5	.707	.928	.950	.965	.979	.986
7.5	.633	.897	.934	.954	.973	.982
8.5	.560	.867	.915	.941	.966	.978
9.5	.490	.835	.894	.927	.958	.973
10.5	.424	.799	.870	.910	.950	.967
11.5	.361	.763	.845	.892	.940	.961
12.5	.303	.725	.817	.872	.929	.954
13.5	.250	.688	.788	.851	.917	.947
14.5	.203	.651	.759	.829	.904	.939
15.5	.162	.615	.729	.805	.890	.930
16.5	.126	.578	.699	.781	.875	.920
17.5	.096	.543	.670	.756	.859	.910
18.5	.071	.508	.640	.732	.843	.900
19.5	.051	.473	.611	.707	.826	.888
20.5	.035	.440	.582	.682	.808	.877
21.5	.023	.408	.553	.657	.790	.864
22.5	.015	.376	.525	.633	.772	.851
23.5	.009	.346	.497	.608	.753	.838
24.5	.005	.317	.470	.584	.735	.824
25.5	.002	.289	.443	.560	.716	.810
26.5	.001	.263	.417	.537	.697	.796
27.5		.238	.392	.513	.679	.781
28.5		.214	.367	.490	.660	.766
29.5		.192	.343	.468	.642	.751
30.5		.171	.320	.445	.624	.737
31.5		.152	.298	.424	.605	.722
32.5		.134	.276	.402	.587	.707
33.5		.118	.255	.381	.569	.692
34.5		.103	.236	.361	.551	.677
35.5		.089	.217	.341	.534	.662
36.5		.076	.199	.322	.516	.648
37.5		.065	.182	.303	.499	.633
38.5		.055	.165	.285	.482	.618
39.5		.046	.150	.267	.465	.604
40.5		.038	.136	.250	.448	.589

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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IOWA TYPE L₁ CURVE

REMAINING LIFE *

Age	For Average Service Life					
	10 Years	*20 Years*	*25 Years*	*80 Years*	*40 Years*	*50 Years*
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.6
1.5	8.7	18.6	23.6	28.6	38.6	48.6
2.5	7.9	17.7	22.7	27.7	37.7	47.7
3.5	7.8	16.9	21.9	26.8	36.8	46.8
4.5	6.7	16.2	21.1	26.0	35.9	45.9
5.5	6.3	15.5	20.3	25.2	85.1	45.0
6.5	5.9	14.8	19.6	24.4	34.3	44.2
7.5	5.5	14.2	18.9	23.7	33.5	43.3
8.5	5.2	13.7	18.3	23.0	32.7	42.5
9.5	4.9	13.2	17.7	22.4	32.0	41.7
10.5	4.5	12.8	17.2	21.8	31.3	41.0
11.5	4.2	12.4	16.7	21.2	30.6	40.2
12.5	4.0	12.0	16.2	20.7	29.9	39.5
13.5	8.7	11.6	15.8	20.2	29.3	88.8
14.5	3.4	11.2	15.4	19.7	28.7	88.1
15.5	8.2	10.9	15.0	19.3	28.2	37.5
16.5	2.9	10.5	14.6	18.9	27.7	36.9
17.5	2.7	10.2	14.3	18.5	27.2	36.3
18.5	2.5	9.8	13.9	18.1	26.7	35.7
19.5	2.3	9.5	13.5	17.7	26.2	35.2
20.5	2.1	9.2	13.2	17.3	25.8	84.6
21.5	1.9	8.9	12.9	16.9	25.4	34.1
22.5	1.6	8.6	12.5	16.6	24.9	33.6
23.5	1.4	8.3	12.2	16.2	24.6	33.2
24.5	1.1	8.0	11.9	15.9	24.1	32.7
25.5	1.0	7.8	11.6	15.5	23.8	32.3
26.5	0.5	7.5	11.2	15.2	23.4	31.8
27.5		7.2	10.9	14.9	23.0	31.4
28.5		7.0	10.6	14.5	22.7	31.0
29.5		6.7	10.4	14.2	22.3	80.6
30.5		6.5	10.1	13.9	21.9	30.2
31.5		6.2	9.8	13.6	21.6	29.8
32.5		6.0	9.5	13.3	21.2	29.5
33.5		5.7	9.2	13.0	20.9	29.1
34.5		5.5	9.0	12.7	20.5	28.7

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The L₁ curve has been found applicable to:
Water Works Sources
Telephone Central Office Equipment
Telephone Poles
Telephone Aerial Cable
Telephone Underground Cable
Gas Distribution Mains

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TABLE A-15
IOWA TYPE L₂ CURVE

PORTION SURVIVING *

Age	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	1.000	1.000	1.000	1.000	1.000	1.000
1.5	.996	1.000	1.000	1.000	1.000	1.000
2.5	.985	.998	.999	.999	1.000	1.000
3.5	.964	.995	.997	.998	.999	1.000
4.5	.928	.989	.994	.996	.998	.999
5.5	.867	.981	.990	.994	.997	.999
6.5	.783	.971	.984	.990	.996	.998
7.5	.685	.957	.976	.985	.993	.996
8.5	.584	.939	.967	.980	.991	.995
9.5	.487	.915	.955	.972	.987	.993
10.5	.401	.885	.941	.964	.983	.991
11.5	.326	.848	.923	.954	.979	.988
12.5	.261	.806	.901	.942	.973	.985
13.5	.206	.760	.874	.928	.967	.982
14.5	.159	.710	.844	.911	.961	.978
15.5	.120	.660	.811	.890	.953	.974
16.5	.087	.609	.774	.867	.944	.969
17.5	.061	.559	.735	.842	.934	.964
18.5	.041	.511	.695	.813	.922	.958
19.5	.026	.465	.655	.783	.908	.952
20.5	.016	.422	.614	.752	.893	.945
21.5	.009	.381	.574	.719	.876	.937
22.5	.004	.343	.534	.685	.858	.928
23.5	.002	.309	.497	.651	.838	.918
24.5	.001	.276	.460	.617	.817	.907
25.5		.247	.426	.584	.795	.895
26.5		.219	.393	.551	.772	.881
27.5		.194	.362	.519	.748	.867
28.5		.170	.333	.487	.723	.852
29.5		.149	.305	.457	.698	.836
30.5		.129	.279	.429	.672	.819
31.5		.111	.255	.401	.647	.802
32.5		.095	.233	.375	.621	.783
33.5		.080	.211	.350	.596	.765
34.5		.067	.191	.326	.571	.745
35.5		.056	.172	.303	.547	.725
36.5		.046	.155	.282	.522	.705
37.5		.037	.139	.261	.499	.685
38.5		.029	.123	.242	.476	.665
39.5		.023	.109	.223	.454	.644
40.5		.018	.096	.206	.432	.624

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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TABLE A-15—Continued
IOWA TYPE L₂ CURVE

REMAINING LIFE *

	For Average Service Life					
Age	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.5	18.5	23.5	28.5	38.5	48.5
2.5	7.6	17.5	22.5	27.5	37.5	47.5
3.5	6.8	16.6	21.6	26.6	36.5	46.5
4.5	6.0	15.7	20.6	25.5	35.6	45.5
5.5	5.4	14.8	19.7	24.7	34.6	44.5
6.5	4.9	14.0	18.8	23.8	33.6	43.6
7.5	4.6	13.2	18.0	22.9	32.7	42.7
8.5	4.3	12.4	17.1	22.0	31.8	41.7
9.5	4.0	11.7	16.4	21.2	30.9	40.8
10.5	3.8	11.1	15.6	20.3	30.1	39.9
11.5	3.5	10.6	14.9	19.5	29.2	39.0
12.5	3.3	10.1	14.2	18.8	28.4	38.1
13.5	3.1	9.7	13.7	18.1	27.5	37.2
14.5	2.8	9.3	13.1	17.4	26.7	36.4
15.5	2.6	9.0	12.6	16.8	25.9	35.5
16.5	2.3	8.7	12.2	16.2	25.2	34.7
17.5	2.1	8.4	11.8	15.7	24.4	33.9
18.5	1.9	8.2	11.5	15.2	23.7	33.1
19.5	1.7	7.9	11.2	14.8	23.1	32.3
20.5	1.5	7.7	10.9	14.4	22.5	31.5
21.5	1.3	7.4	10.6	14.0	21.9	30.8
22.5	1.3	7.2	10.4	13.7	21.4	30.1
23.5	1.0	6.9	10.1	13.4	20.9	29.4
24.5	0.5	6.7	9.9	13.1	20.4	28.8
25.5		6.4	9.6	12.8	19.9	28.2
26.5		6.2	9.4	12.5	19.5	27.6
27.5		5.9	9.1	12.3	19.1	27.0
28.5		5.7	8.9	12.1	18.8	26.5
29.5		5.4	8.7	11.8	18.4	26.0
30.5		5.2	8.4	11.5	18.1	25.5
31.5		5.0	8.2	11.3	17.8	25.1
32.5		4.7	7.9	11.1	17.5	24.6
33.5		4.5	7.6	10.8	17.2	24.2
34.5		4.3	7.4	10.6	17.0	23.9

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The L₂ curve has been found applicable to:
Water Works Stations
Water Works Pumps
Telephone Underground Cable
Telegraph Poles
Electric Poles
Power Transformers and Distribution Transformers

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TABLE A-16
IOWA TYPE L₄ CURVE

PORTION SURVIVING *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	1.000	1.000	1.000	1.000	1.000	1.000
1.5	1.000	1.000	1.000	1.000	1.000	1.000
2.5	.998	1.000	1.000	1.000	1.000	1.000
3.5	.990	1.000	1.000	1.000	1.000	1.000
4.5	.972	.999	1.000	1.000	1.000	1.000
5.5	.939	.996	.999	1.000	1.000	1.000
6.5	.876	.992	.997	.999	1.000	1.000
7.5	.773	.986	.994	.998	.999	1.000
8.5	.640	.978	.991	.996	.999	1.000
9.5	.502	.966	.986	.993	.998	.999
10.5	.381	.949	.979	.990	.997	.999
11.5	.285	.927	.970	.985	.995	.998
12.5	.212	.895	.958	.979	.993	.998
13.5	.155	.854	.943	.972	.991	.997
14.5	.110	.803	.924	.963	.988	.995
15.5	.074	.742	.899	.953	.984	.994
16.5	.046	.675	.868	.939	.980	.992
17.5	.027	.605	.830	.922	.975	.990
18.5	.014	.535	.785	.901	.969	.987
19.5	.006	.469	.736	.876	.962	.984
20.5	.002	.409	.682	.846	.954	.981
21.5		.354	.626	.812	.944	.977
22.5		.307	.570	.773	.933	.972
23.5		.265	.515	.731	.920	.967
24.5		.228	.463	.687	.904	.961
25.5		.196	.414	.640	.886	.955
26.5		.168	.370	.593	.865	.947
27.5		.143	.330	.547	.842	.939
28.5		.120	.293	.502	.816	.929
29.5		.100	.261	.459	.788	.918
30.5		.082	.232	.418	.758	.906
31.5		.066	.206	.381	.726	.892
32.5		.052	.182	.346	.692	.876
33.5		.041	.160	.314	.658	.859
34.5		.031	.140	.285	.623	.840
35.5		.023	.122	.259	.588	.819
36.5		.016	.106	.234	.553	.797
37.5		.011	.090	.212	.519	.773
38.5		.007	.077	.191	.485	.749
39.5		.005	.064	.173	.454	.723
40.5		.003	.054	.155	.423	.696

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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OPC-LFE-POUS000083

IOWA TYPE L₁ CURVE

REMAINING LIFE*

Age	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.5	18.5	23.5	28.5	38.5	48.5
2.5	7.5	17.5	22.5	27.5	37.5	47.5
3.5	6.6	16.5	21.5	26.5	36.5	46.5
4.5	5.7	15.5	20.5	25.5	35.5	45.5
5.5	4.9	14.6	19.5	24.5	34.5	44.5
6.5	4.2	13.6	18.6	23.5	33.5	43.5
7.5	3.7	12.7	17.6	22.6	32.5	42.5
8.5	3.3	11.8	16.7	21.6	31.5	41.5
9.5	3.1	10.9	15.7	20.7	30.6	40.5
10.5	2.9	10.1	14.9	19.7	29.6	39.5
11.5	2.8	9.4	14.0	18.8	28.7	38.6
12.5	2.5	8.7	13.2	17.9	27.7	37.6
13.5	2.3	8.1	12.4	17.1	26.8	36.6
14.5	2.0	7.5	11.6	16.2	25.8	35.7
15.5	1.8	7.1	10.9	15.4	24.9	34.7
16.5	1.6	6.8	10.3	14.6	24.0	33.8
17.5	1.3	6.5	9.7	13.9	23.2	32.9
18.5	1.1	6.3	9.3	13.2	22.3	32.0
19.5	0.8	6.1	8.8	12.5	21.5	31.1
20.5	0.5	5.9	8.5	12.0	20.6	30.2
21.5		5.8	8.2	11.4	19.9	29.3
22.5		5.6	8.0	11.0	19.1	28.4
23.5		5.4	7.8	10.6	18.3	27.6
24.5		5.2	7.6	10.2	17.7	26.7
25.5		4.9	7.4	10.0	17.0	25.9
26.5		4.7	7.3	9.7	16.4	25.1
27.5		4.4	7.1	9.5	15.8	24.3
28.5		4.2	6.9	9.3	15.3	23.6
29.5		3.9	6.7	9.1	14.9	22.9
30.5		3.6	6.5	8.9	14.4	22.2
31.5		3.4	6.2	8.8	14.0	21.5
32.5		3.2	6.0	8.6	13.7	20.9
33.5		2.9	5.7	8.4	13.4	20.3
34.5		2.7	5.5	8.2	13.1	19.7

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The L curve has been found applicable to:
Untreated Telegraph Poles

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TABLE A-17
IOWA TYPE L₄ CURVE

PORTION SURVIVING *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	1.000	1.000	1.000	1.000	1.000	1.000
1.5	1.000	1.000	1.000	1.000	1.000	1.000
2.5	1.000	1.000	1.000	1.000	1.000	1.000
3.5	1.000	1.000	1.000	1.000	1.000	1.000
4.5	.995	1.000	1.000	1.000	1.000	1.000
5.5	.979	1.000	1.000	1.000	1.000	1.000
6.5	.942	1.000	1.000	1.000	1.000	1.000
7.5	.876	.999	1.000	1.000	1.000	1.000
8.5	.752	.997	1.000	1.000	1.000	1.000
9.5	.560	.992	.999	1.000	1.000	1.000
10.5	.368	.984	.997	1.000	1.000	1.000
11.5	.231	.972	.994	.999	1.000	1.000
12.5	.142	.954	.989	.997	1.000	1.000
13.5	.082	.929	.981	.995	1.000	1.000
14.5	.043	.896	.970	.991	.999	1.000
15.5	.019	.852	.956	.986	.999	1.000
16.5	.007	.791	.937	.979	.998	1.000
17.5	.002	.709	.914	.969	.996	1.000
18.5		.612	.885	.957	.994	.999
19.5		.509	.847	.942	.991	.999
20.5		.412	.798	.924	.987	.998
21.5		.328	.736	.903	.982	.997
22.5		.260	.662	.876	.975	.995
23.5		.205	.581	.843	.968	.993
24.5		.161	.499	.802	.959	.990
25.5		.125	.421	.752	.948	.987
26.5		.095	.352	.694	.936	.983
27.5		.071	.292	.629	.922	.979
28.5		.051	.242	.560	.906	.973
29.5		.036	.200	.492	.887	.967
30.5		.024	.165	.428	.864	.960
31.5		.015	.135	.368	.838	.952
32.5		.009	.110	.316	.808	.942
33.5		.005	.087	.270	.772	.932
34.5		.003	.069	.231	.731	.920
35.5		.002	.053	.197	.686	.907
36.5		.001	.040	.168	.637	.893
37.5			.029	.142	.586	.876
38.5			.021	.120	.535	.857
39.5			.015	.100	.484	.835
40.5			.010	.082	.435	.811

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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IOWA TYPE L₄ CURVE

The L₄ curve has been written as IOWA TYPE L_4 CURVE

REMAINING LIFE *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.5	18.5	23.5	28.5	38.5	48.5
2.5	7.5	17.5	22.5	27.5	37.5	47.5
3.5	6.5	16.5	21.5	26.5	36.5	46.5
4.5	5.5	15.5	20.5	25.5	35.5	45.5
5.5	4.6	14.5	19.5	24.5	34.5	44.5
6.5	3.8	13.5	18.5	23.5	33.5	43.5
7.5	3.0	12.5	17.5	22.5	32.5	42.5
8.5	2.4	11.5	16.5	21.5	31.5	41.5
9.5	2.1	10.6	15.5	20.5	30.5	40.5
10.5	1.9	9.7	14.5	19.5	29.5	39.5
11.5	1.8	8.8	13.6	18.5	28.5	38.5
12.5	1.6	7.9	12.7	17.6	27.5	37.5
13.5	1.4	7.1	11.8	16.6	26.5	36.5
14.5	1.2	6.4	10.9	15.7	25.5	35.5
15.5	1.0	5.7	10.0	14.7	24.5	34.5
16.5	0.8	5.1	9.2	13.8	23.6	33.5
17.5	0.5	4.6	8.4	13.0	22.6	32.5
18.5		4.3	7.7	12.1	21.6	31.5
19.5		4.0	7.0	11.3	20.7	30.5
20.5		3.9	6.4	10.5	19.8	29.6
21.5		3.7	5.9	9.8	18.9	28.6
22.5		3.6	5.5	9.0	18.0	27.6
23.5		3.4	5.2	8.4	17.1	26.7
24.5		3.2	5.0	7.8	16.8	25.8
25.5		3.0	4.9	7.3	15.5	24.9
26.5		2.8	4.7	6.8	14.7	24.0
27.5		2.6	4.6	6.5	13.9	23.1
28.5		2.4	4.4	6.2	13.1	22.2
29.5		2.1	4.2	6.0	12.4	21.3
30.5		2.0	4.0	5.8	11.7	20.5
31.5		1.8	3.8	5.7	11.1	19.6
32.5		1.7	3.6	5.5	10.5	18.8
33.5		1.7	3.4	5.4	9.9	18.0
34.5		1.5	3.2	5.2	9.4	17.3

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The L_4 curve has been found applicable to: Engine Equipment

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IOWA TYPE L₁ CURVE

PORTION SURVIVING *

Age	For Average Service Life					
	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	1.000	1.000	1.000	1.000	1.000	1.000
0.5	1.000	1.000	1.000	1.000	1.000	1.000
1.5	1.000	1.000	1.000	1.000	1.000	1.000
2.5	1.000	1.000	1.000	1.000	1.000	1.000
3.5	1.000	1.000	1.000	1.000	1.000	1.000
4.5	1.000	1.000	1.000	1.000	1.000	1.000
5.5	.999	1.000	1.000	1.000	1.000	1.000
6.5	.988	1.000	1.000	1.000	1.000	1.000
7.5	.945	1.000	1.000	1.000	1.000	1.000
8.5	.840	1.000	1.000	1.000	1.000	1.000
9.5	.614	1.000	1.000	1.000	1.000	1.000
10.5	.386	1.000	1.000	1.000	1.000	1.000
11.5	.160	.998	1.000	1.000	1.000	1.000
12.5	.074	.993	1.000	1.000	1.000	1.000
13.5	.030	.981	.999	1.000	1.000	1.000
14.5	.010	.960	.998	1.000	1.000	1.000
15.5	.002	.928	.993	1.000	1.000	1.000
16.5		.875	.985	.999	1.000	1.000
17.5		.797	.972	.997	1.000	1.000
18.5		.683	.951	.994	1.000	1.000
19.5		.542	.922	.988	1.000	1.000
20.5		.400	.882	.978	1.000	1.000
21.5		.250	.824	.964	.999	1.000
22.5		.193	.744	.945	.999	1.000
23.5		.133	.642	.919	.997	1.000
24.5		.091	.527	.886	.995	1.000
25.5		.061	.413	.840	.990	1.000
26.5		.039	.313	.780	.985	1.000
27.5		.023	.233	.704	.976	.999
28.5		.013	.172	.614	.966	.998
29.5		.007	.128	.518	.953	.997
30.5		.004	.094	.422	.936	.995
31.5		.002	.069	.336	.916	.992
32.5		.001	.049	.263	.891	.988
33.5			.033	.205	.859	.982
34.5			.022	.160	.820	.976
35.5			.014	.125	.772	.967
36.5			.009	.097	.714	.957
37.5			.005	.074	.649	.945
38.5			.003	.056	.573	.930
39.5			.001	.042	.506	.914
40.5			.001	.030	.434	.893

* The above values are to be used only for the average service lives shown. Straight-line interpolation for average service lives between those shown will give inaccurate results.

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TABLE A-18—Continued
IOWA TYPE L5 CURVE

REMAINING LIFE *

Age	10 Years	20 Years	25 Years	30 Years	40 Years	50 Years
0	10.0	20.0	25.0	30.0	40.0	50.0
0.5	9.5	19.5	24.5	29.5	39.5	49.5
1.5	8.5	18.5	23.5	28.5	38.5	48.5
2.5	7.5	17.5	22.5	27.5	37.5	47.5
3.5	6.5	16.5	21.5	26.5	36.5	46.5
4.5	5.5	15.5	20.5	25.5	35.5	45.5
5.5	4.5	14.5	19.5	24.5	34.5	44.5
6.5	3.5	13.5	18.5	23.5	33.5	43.5
7.5	2.7	12.5	17.5	22.5	32.5	42.5
8.5	2.0	11.5	16.5	21.5	31.5	41.5
9.5	1.5	10.5	15.5	20.5	30.5	40.5
10.5	1.3	9.5	14.5	19.5	29.5	39.5
11.5	1.2	8.5	13.5	18.5	28.5	38.5
12.5	1.1	7.6	12.5	17.5	27.5	37.5
13.5	0.9	6.6	11.5	16.5	26.5	36.5
14.5	0.7	5.8	10.5	15.5	25.5	35.5
15.5	0.5	5.0	9.6	14.5	24.5	34.5
16.5		4.2	8.6	13.5	23.5	33.5
17.5		3.6	7.6	12.5	22.5	32.5
18.5		3.1	6.9	11.6	21.5	31.5
19.5		2.8	6.1	10.6	20.5	30.5
20.5		2.6	5.4	9.7	19.5	29.5
21.5		2.5	4.7	8.9	18.5	28.5
22.5		2.4	4.2	8.0	17.5	27.5
23.5		2.3	3.7	7.3	16.6	26.5
24.5		2.1	3.5	6.5	15.6	25.5
25.5		2.0	3.8	5.8	14.7	24.5
26.5		1.8	3.2	5.3	13.7	23.5
27.5		1.7	3.1	4.8	12.9	22.5
28.5		1.6	3.0	4.4	12.0	21.5
29.5		1.5	2.8	4.1	11.1	20.6
30.5		1.3	2.7	3.9	10.3	19.6
31.5		1.0	2.5	3.8	9.5	18.7
32.5		.5	2.3	3.7	8.8	17.7
33.5			2.2	3.6	8.1	16.8
34.5			2.0	3.5	7.5	15.9

* The remaining life for any A.S.L. between 10 and 50 years for the desired age may be obtained by interpolation of the listed amounts. Tests have shown that this method is sufficiently accurate for all practical purposes.

The L5 curve has been found applicable to:
Furniture
Work Equipment

INDEX

(Capitalized items indicate chapter or paragraph headings.)

INDEX—Continued

(Capitalized items indicate chapter or paragraph headings.)

INDEX—Continued

(Capitalized items indicate chapter or paragraph headings.)

OPC-LFE-POUS000091

FPSC ORDERS REQUIRING ELIMINATION OF A DEPRECIATION RESERVE IMBALANCE (SURPLUS/DEFICIENCY) THROUGH OTHER THAN REMAINING LIFE RECOVERY*

*Reserve imbalance determined by comparison of theoretical reserve to actual reserve

In addition PEF amortized $250 million of excess reserve over a 4-year period as part of Docket Nos. 020001-EI and 000824-EI.

DOCKET NO.	ORDER NO.	DATE	COMPANY	TAB
810100	12356	8-12-83	FPL/FPC	1
820449	12290	7-22-83	Southern Bell	2
830268	12866	1-12-84	Indiantown Telephone	3
830370	12857	1-10-84	United Telephone	4
820545	12654	11-3-83	Centel	5
820477	12864	1-12-84	North Florida Telephone	6
830577	13495	7-9-84	Gulf Telephone	7
830582	13528	7-19-84	Miller Gas	8
840045	13538	7-24-84	City Gas	9
840052	13918	12-14-84	St. Joe Telephone	10
840049	14929	9-11-85	General Telephone	11
851110	16963	12-16-86	Centel	12
861618	18029	8-24-87	Southern Bell	13
870964	18642	1-4-88	Gulf Telephone	14
871269	18736	1-26-88	United Telephone	15
880860	20330	11-18-88	United Telephone	16
890203	22115	10-31-89	City Gas	17
809225	22585	2-21-90	Quincy Telephone	18
900162	23922	12-21-90	Vista United Telephone	19
900599	24004	1-22-91	Gulf Telephone	20
891373	24005	1-22-91	Indiantown Telephone	21
910565	25679	2-3-92	Quincy Telephone	22
921278	931554	10-25-93	Indiantown Telephone	23
931231	941199	9-30-94	FPL	24
950213	950475	4-12-95	TECO	25
950359	960461	4-2-96	FPL	26
970410	970499	4-29-97	FPL	27
971660	990073	1-8-99	FPL	28
981166	000293	2-14-2000	FPL	29
020001	020501	4-11-02	FPL	30
050045	050902	9-14-05	FPL	31

NEVADA POWER COMPANY

BEFORE THE

PUBLIC UTILITIES COMMISSION OF NEVADA

IN THE MATTER of the Application of NEVADA
POWER COMPANY for Approval of New and
Revised Depreciation Rates

)
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)
)
)
)

Docket No. 06-11 *023*

Depreciation Study

Application

Testimony

Depreciation Study

Eric Witkoski   (5 Copies)
Bureau of Consumer Protection
555 E. Washington Street
Suite 3900
Las Vegas, NV 89101

Base Case

Unit	Prime Mover/ Primary Fuel	Commercial Operation Year	Retirement Date From 2003 Resource Plan & Amendments	Age at retirement
Clark 1	STG/Gas	1955	Shut Down 2005	50
Clark 2	STG/Gas	1957	Shut Down 2005	48
Clark 3	STG/Gas	1961	Shut Down 2005	44
Clark 4	GTG/Gas	1973	2010	37
Clark 5	GTG/Gas and HRSG	1979	2010	31
Clark 6	GTG/Gas and HRSG	1979	2010	31
Clark 7	GTG/Gas and HRSG	1980	2010	30
Clark 8	GT/Gas and HRSG	1982	2010	28
Clark 9 CC - (Ck 7,8 & 9)	CC/Steam	1993	2033	40
Clark 10 CC - (Ck 5,6 & 10)	CC/Steam	1994	2034	40
Sunrise 1	STG/Gas	1964	2014	50
Sunrise 2	GTG/Gas	1974	2010	36
Harry Allen 3	GTG/Gas	1995	2020	25
Harry Allen 4	GTG/Gas	2006	2031	25
Lenzie Combined Cycle 1	CTG/Steam - Gas	2006	2051	45
Lenzie Combined Cycle 2	CTG/Steam - Gas	2006	2051	45
Reid Gardner 1	STG/Coal	1965	2010	45
Reid Gardner 2	STG/Coal	1968	2010	42
Reid Gardner 3	STG/Coal	1976	2016	40
Reid Gardner 4	STG/Coal	1983	2023	40
Silverhawk Combined Cycle	CTG/Steam - Gas	2004	2039	35
Navajo 1	STG/Coal	1974	2011	37
Navajo 2	STG/Coal	1975	2011	36
Navajo 3	STG/Coal	1976	2011	35
Mohave 1&2	STG/Coal	1971	Shut Down 2005	Shut Down 2005

NEVADA POWER COMPANY
RESPONSE TO INFORMATION REQUEST

DOCKET NO.:   03-10002   **REQUEST DATE:**   December 9, 2003

REQUEST NO.:   BCP 5-10   **WITNESS:**

REQUESTER: **RESPONDER:**   John Spanos

REQUEST:

Production Life – Regarding the response to BCP 1-13, please identify the specific steam units owned by other electric utilities that are supplied by Heat Recovery Steam Generators and the corresponding life span for each such unit referenced. Further, provide the support documentation for the information provided.

RESPONSE:

The specific steam units owned by other electric utilities that are similarly supplied by Heat Recovery Steam Generators and utilized in comparing life spans to Clark 9 and 10 are set forth in the table below with their corresponding life span.

Company	Unit	Life Span
Duquesne Light	Brunot Island No. 4	40
Chugach Electric	Beluga Unit 8	40
Arizona Public Service	West Phoenix	40
Cinergy Corporation – PSI Energy	Noblesville	35
Cinergy Corporation – PSI Energy	Wabash River Unit 1	25
Houston Light & Power Company	T. H. Wharton	40

Support of these life spans resides with the utilities and is not readily available.

GEORGIA POWER COMPANY

Depreciation Rate Study

As of December 31, 2005

Prepared for

Georgia Power Company
Atlanta, Georgia
and
Troutman Sanders LLP
Atlanta, Georgia

American Appraisal Associates®

investment of McIntosh Combined Cycle ("McIntosh CC") has been added, which increased depreciable investment by more than $500,000,000, and, because McIntosh CC is almost new, significantly reduced the accumulated depreciation of this functional group as a percent of investment.

For this study, depreciation rates have been developed for individual generating facilities using the life span method, which was discussed previously in the report.

Life span is the time between the initial in-service date of a unit and its date of retirement, or removal from service. The basic combustion turbine peaking plant life span used in this analysis was 45 years, the same life span used in the last study. The average service life of McIntosh CC was 35 years, as approved in the last rate case. The composite average service life of this functional group, employing direct weighting, was 37.2 years, which is nearly the three years less than the weighted life in the last Georgia Power study, due to McIntosh CC.

Just as for Steam Production Plant, the remaining life of the Other Production Plant group was adjusted for future interim retirement activity, which precludes the total existing investment from remaining in service until the ultimate retirement date. As was the case in the last study, future interim retirements were calculated from an interim retirement mortality curve, and interim retirements were assumed to stop during the last five years of the unit's life.

The interim retirement curves concluded by account are as follows:

Account	Curve
341	R5 - 50
342	R5 - 50
343	S2 - 45
344	R5 - 50
345	S3 - 50
346	R2 - 35

These curves are similar to or longer than those of the last study.

The calculated composite average remaining life of this functional group was 31.04 years.

Let's turn the answers

2008

Integrated Resource Plan

Volume I

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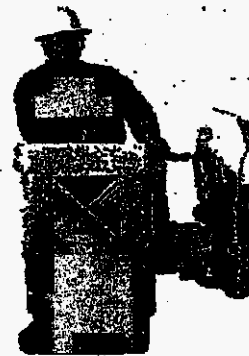
May 28, 2009

Pacific Power | Rocky Mountain Power | PacifiCorp Energy

Table 6.2 – East Side Supply-Side Resource Options

East Side Options (East)

Coal

Description														
Unit PC without Carbon Capture & Sequestration														
Unit PC with Carbon Capture & Sequestration														
Unit IGCC with Carbon Capture & Sequestration														
Wyoming PC without Carbon Capture & Sequestration														
Wyoming PC with Carbon Capture & Sequestration														
Wyoming IGCC with Carbon Capture & Sequestration														
Existing PC with Carbon Capture & Sequestration														

Natural Gas

Description														
Utility Generator														
Fuel Cell - Large														
SCCT Aero														
Intercooled Aero SCCT														
Industrial Aero SCCT														
Industrial Aero SCCT														
Internal Combustion Engine														
CCCT Frame G Series "F"														
CCCT Frame G Series "F"														
CCCT (Wet "F" 1x1)														
CCCT Duct Firing (Wet "F" 1x1)														
CCCT (Wet "F" 2x1)														
CCCT Duct Firing (Wet "F" 2x1)														
CCCT (Dry "F" 1x1)														
CCCT Duct Firing (Dry "F" 2x1)														
CCCT (Wet "G" 1x1)														
CCCT Duct Firing (Wet "F" 1x1)														
CCCT Advanced (Wet)														
CCCT Advanced Duct Firing (Wet)														

Other – Renewables

Description														
East (Wyoming) Wind														
East Side Geothermal														
East Side Geothermal														
Solar Thermal														
Forested Biomass														
Compressed Air Energy Storage (CAES)														
Reciprocal Steam Generation (CHP)														
Nuclear														
Solar Concentrating PV - NO UV														
Solar Concentrating thermal no imbed - 6hr solar														
Solar Concentrating thermal prepad - 6hr solar														

Table 6.3 — West Side Supply-Side Resource Options