



Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities

DG 17-048
Distribution Service Rate Case

Staff Data Requests - Set 2

Date Request Received: 6/16/17
Request No. Staff 2-38

Date of Response: 6/30/17
Respondent: Paul Normand

REQUEST:

Reference testimony of Paul M. Normand, Attachment PMN-2, Bates Page 428:

- a) Please provide the database developed for the depreciation study presented in this case, both without and with any adjustments, as referenced on Bates 428, paragraph A. Please provide in Excel format. Please explain each adjustment made to the database.
- b) Please provide supports of curve selections (SPR) made for each account of the depreciation model including CI, RI values. Please provide supporting data in excel format).

RESPONSE:

- a) Please see the attachments for the depreciation study databases in Excel format:
Attachment Staff 2-38.a.1.xls – Actuarial database by FERC account @ 12/31/2016.
Attachment Staff 2-38.a.2.xlsx – SPR database by PUC account @ 12/31/2016.
Attachment Staff 2-38.a.3.xlsx – SPR update history by plant account for years 2007-2016.

The adjustments are in the SPR update, which is the history by plant account for the years 2007-2016. The adjustments are then reflected in the database in the additions or retirements depending on the type of adjustment.
- b) Please see Attachment Staff 2-38.b. The analyses are an output of the SPR Balance analysis program and are in text format.

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0 LIBERTY UTILITIES (ENERGY NORTH NAT. GAS) CORP.
 0 PROPERTY CLASSIFICATION - GAS
 ACCOUNT 1372.10 OFFICE EQUIPMENT
 NO. OF BALANCES 29 BAL. INTERVAL 1

CO. NO. 1
 DATA IN DOLLARS AS OF 12/31/2016
 LOCATION 1 TOTAL ACCOUNT
 ADDS/SURV TO 1955

TYPE	SUBTYPE	LIFE	CINDEX	RINDEX	SIGMA	RANK	CYCLE INDEX
L	0.0	14.55	6.51	100.000	.353444537E+13	24.	100.000 *
L	0.5	12.93	6.79	100.000	.325555110E+13	20.	100.000 *
L	1.0	11.53	7.18	100.000	.290870191E+13	13.	100.000 *
L	1.5	10.85	7.34	100.000	.278370748E+13	11.	100.000 *
L	2.0	10.20	7.49	100.000	.266963236E+13	6.	100.000 *
L	3.0	9.77	7.40	100.000	.274168629E+13	7.	100.000 *
L	4.0	9.68	7.15	100.000	.292988472E+13	14.	100.000 *
L	5.0	9.72	6.86	100.000	.319001126E+13	19.	100.000 *
SC		16.23	6.03	100.000	.413037675E+13	27.	100.000 *
S	-.5	13.53	6.41	100.000	.364938521E+13	25.	100.000 *
S	0.0	11.42	7.05	100.000	.301379683E+13	15.	100.000 *
S	0.5	10.72	7.37	100.000	.275736513E+13	10.	100.000 *
S	1.0	10.10	7.70	100.000	.253182972E+13	2.	100.000 *
S	1.5	9.86	7.72	100.000	.251890287E+13	1.	100.000 *
S	2.0	9.63	7.70	100.000	.253190265E+13	3.	100.000 *
S	3.0	9.58	7.39	100.000	.274688934E+13	8.	100.000 *
S	4.0	9.65	7.00	100.000	.306087253E+13	16.	100.000 *
S	5.0	9.75	6.73	100.000	.331235246E+13	21.	100.000 *
S	6.0	9.83	6.56	100.000	.348406140E+13	23.	100.000 *
R	0.5	14.04	6.22	100.000	.387237259E+13	26.	100.000 *
R	1.0	12.21	6.60	100.000	.344671399E+13	22.	100.000 *
R	1.5	11.21	6.99	100.000	.306617136E+13	17.	100.000 *
R	2.0	10.52	7.38	100.000	.275107689E+13	9.	100.000 *
R	2.5	10.15	7.53	100.000	.264745162E+13	5.	100.000 *
R	3.0	9.83	7.58	100.000	.260665609E+13	4.	100.000 *
R	4.0	9.70	7.32	100.000	.280026433E+13	12.	100.000 *
R	5.0	9.74	6.87	100.000	.318068441E+13	18.	100.000 *

RANGE OF LIVES	FREQUENCY
0-9	0
10-19	27
20-29	0
30-39	0
40-49	0
50-59	0
60-69	0
70-79	0
GREATER THAN 80	0

MEAN VALUE OF BEST FITTING LIVES IS 11.00 YEARS

LIBERTY UTILITIES (ENERGY NORTH NAT. GAS) CORP.
PROPERTY CLASSIFICATION - GAS
ACCOUNT 1372.10 OFFICE EQUIPMENT
NO. OF BALANCES 20 BAL. INTERVAL 1

CO. NO. 1
DATA IN DOLLARS AS OF 12/31/2016
LOCATION 1 TOTAL ACCOUNT
ADDS/SURV TO 1955

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TYPE	SUBTYPE	LIFE	CINDEX	RINDEX	SIGMA	RANK	CYCLE INDEX
L	0.0	14.56	7.67	100.000	.352865357E+13	24.	100.000 *
L	0.5	12.94	7.99	100.000	.324933955E+13	20.	100.000 *
L	1.0	11.54	8.45	100.000	.290191236E+13	13.	100.000 *
L	1.5	10.85	8.64	100.000	.277584922E+13	11.	100.000 *
L	2.0	10.21	8.83	100.000	.266034381E+13	6.	100.000 *
L	3.0	9.78	8.72	100.000	.272956309E+13	7.	100.000 *
L	4.0	9.68	8.43	100.000	.291559203E+13	14.	100.000 *
L	5.0	9.72	8.08	100.000	.317461861E+13	19.	100.000 *
SC		16.24	7.09	100.000	.412467155E+13	27.	100.000 *
S	-.5	13.53	7.54	100.000	.364352879E+13	25.	100.000 *
S	0.0	11.43	8.30	100.000	.300758036E+13	15.	100.000 *
S	0.5	10.72	8.68	100.000	.275027275E+13	10.	100.000 *
S	1.0	10.10	9.06	100.000	.252357823E+13	3.	100.000 *
S	1.5	9.86	9.09	100.000	.250935711E+13	1.	100.000 *
S	2.0	9.64	9.07	100.000	.252082351E+13	2.	100.000 *
S	3.0	9.59	8.71	100.000	.273334746E+13	8.	100.000 *
S	4.0	9.66	8.25	100.000	.304572252E+13	16.	100.000 *
S	5.0	9.75	7.93	100.000	.329677279E+13	21.	100.000 *
S	6.0	9.83	7.73	100.000	.346836117E+13	23.	100.000 *
R	0.5	14.05	7.32	100.000	.386670378E+13	26.	100.000 *
R	1.0	12.21	7.76	100.000	.344085725E+13	22.	100.000 *
R	1.5	11.22	8.23	100.000	.305951076E+13	17.	100.000 *
R	2.0	10.53	8.69	100.000	.274319014E+13	9.	100.000 *
R	2.5	10.15	8.87	100.000	.263821422E+13	5.	100.000 *
R	3.0	9.84	8.94	100.000	.259573834E+13	4.	100.000 *
R	4.0	9.70	8.63	100.000	.278665309E+13	12.	100.000 *
R	5.0	9.75	8.09	100.000	.316531455E+13	18.	100.000 *

RANGE OF LIVES	FREQUENCY
0-9	0
10-19	27
20-29	0
30-39	0
40-49	0
50-59	0
60-69	0
70-79	0
GREATER THAN 80	0

MEAN VALUE OF BEST FITTING LIVES IS 11.00 YEARS

LIBERTY UTILITIES (ENERGY NORTH NAT. GAS) CORP.
 PROPERTY CLASSIFICATION - GAS
 ACCOUNT 1372.10 OFFICE EQUIPMENT
 NO. OF BALANCES 10 BAL. INTERVAL 1

CO. NO. 1

DATA IN DOLLARS AS OF 12/31/2016

LOCATION 1 TOTAL ACCOUNT

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TYPE	SUBTYPE	LIFE	CINDEX	RINDEX	SIGMA	RANK	CYCLE INDEX
L	0.0	15.01	11.46	100.000	.272653795E+13	22.	100.000 *
L	0.5	13.30	11.95	100.000	.250745500E+13	17.	100.000 *
L	1.0	11.83	12.68	100.000	.223003082E+13	12.	100.000 *
L	1.5	11.12	12.91	100.000	.214906256E+13	9.	100.000 *
L	2.0	10.44	13.13	100.000	.207936284E+13	6.	100.000 *
L	3.0	9.97	12.80	100.000	.218702905E+13	10.	100.000 *
L	4.0	9.83	12.25	100.000	.238948388E+13	16.	100.000 *
L	5.0	9.84	11.64	100.000	.264284467E+13	20.	100.000 *
SC		16.79	10.53	100.000	.322944288E+13	27.	100.000 *
S	-.5	13.95	11.25	100.000	.282985160E+13	24.	100.000 *
S	0.0	11.75	12.46	100.000	.230626039E+13	14.	100.000 *
S	0.5	11.00	13.03	100.000	.210893454E+13	7.	100.000 *
S	1.0	10.34	13.58	100.000	.194243393E+13	1.	100.000 *
S	1.5	10.07	13.52	100.000	.195897727E+13	2.	100.000 *
S	2.0	9.82	13.39	100.000	.199906861E+13	3.	100.000 *
S	3.0	9.73	12.69	100.000	.222519300E+13	11.	100.000 *
S	4.0	9.76	11.90	100.000	.252890826E+13	18.	100.000 *
S	5.0	9.83	11.39	100.000	.276367527E+13	23.	100.000 *
S	6.0	9.91	11.08	100.000	.292041704E+13	25.	100.000 *
R	0.5	14.53	10.90	100.000	.301688619E+13	26.	100.000 *
R	1.0	12.60	11.58	100.000	.267323098E+13	21.	100.000 *
R	1.5	11.57	12.30	100.000	.236650238E+13	15.	100.000 *
R	2.0	10.81	12.98	100.000	.212752128E+13	8.	100.000 *
R	2.5	10.38	13.15	100.000	.207261868E+13	4.	100.000 *
R	3.0	10.00	13.15	100.000	.207268720E+13	5.	100.000 *
R	4.0	9.80	12.53	100.000	.228224579E+13	13.	100.000 *
R	5.0	9.82	11.64	100.000	.264260185E+13	19.	100.000 *

RANGE OF LIVES

FREQUENCY

0-9	0
10-19	27
20-29	0
30-39	0
40-49	0
50-59	0
60-69	0
70-79	0
GREATER THAN 80	0

MEAN VALUE OF BEST FITTING LIVES IS 11.25 YEARS

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LIBERTY UTILITIES (ENERGY NORTH NAT. GAS) CORP.

CO. NO. 1

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PROPERTY CLASSIFICATION - GAS

DATA IN DOLLARS AS OF 12/31/2016

ACCOUNT 1330.00 OTHER PRODUCTION EQUIPMENT

LOCATION 1 TOTAL ACCOUNT

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NO. OF BALANCES 30 BAL. INTERVAL 1

ADDS/SURV TO 1938

TYPE	SUBTYPE	LIFE	CINDEX	RINDEX	SIGMA	RANK	CYCLE INDEX
L	0.0	97.16	30.42	44.171	.212022060E+13	5.	21.261
L	0.5	82.96	27.64	51.451	.256882847E+13	7.	25.301
L	1.0	71.98	23.97	60.232	.341456918E+13	11.	35.991
L	1.5	64.68	21.93	69.646	.408122618E+13	12.	40.453
L	2.0	58.96	19.14	78.438	.535800902E+13	16.	48.949
L	3.0	51.98	16.33	91.317	.735976473E+13	19.	65.091
L	4.0	47.38	14.68	99.324	.910741147E+13	22.	81.211
L	5.0	45.22	13.55	99.995	.106926411E+14	24.	95.389
SC		112.25	36.13	34.966	.150343289E+13	1.	34.966
S	-.5	87.45	31.97	43.891	.191977778E+13	3.	44.881
S	0.0	71.17	26.63	57.146	.276606705E+13	8.	55.153
S	0.5	63.86	24.04	67.940	.339618563E+13	10.	61.460
S	1.0	58.09	21.08	79.580	.441680112E+13	14.	67.909
S	1.5	54.58	19.35	88.484	.523974989E+13	15.	72.273
S	2.0	51.63	17.40	95.340	.647799935E+13	18.	77.964
S	3.0	48.27	15.20	99.713	.848735504E+13	21.	87.908
S	4.0	45.81	13.71	100.000	.104378991E+14	23.	100.000 *
S	5.0	44.24	13.20	100.000	.112528865E+14	27.	100.000 *
S	6.0	43.27	13.21	100.000	.112360452E+14	26.	100.000 *
R	0.5	92.17	34.69	39.636	.162997151E+13	2.	42.375
R	1.0	75.54	31.93	50.037	.192469646E+13	4.	51.701
R	1.5	65.28	28.55	65.234	.240654478E+13	6.	59.831
R	2.0	57.70	24.38	83.116	.330134068E+13	9.	73.545
R	2.5	53.28	21.49	94.488	.424780762E+13	13.	79.639
R	3.0	49.96	18.58	99.666	.568574673E+13	17.	93.529
R	4.0	46.66	15.39	100.000	.828408411E+13	20.	100.000 *
R	5.0	44.55	13.52	100.000	.107324229E+14	25.	100.000 *

RANGE OF LIVES

FREQUENCY

0-9	0
10-19	0
20-29	0
30-39	0
40-49	8
50-59	8
60-69	3
70-79	3
GREATER THAN 80	5

OMEAN VALUE OF BEST FITTING LIVES IS 62.45 YEARS

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LIBERTY UTILITIES (ENERGY NORTH NAT. GAS) CORP.
PROPERTY CLASSIFICATION - GAS
ACCOUNT 1330.00 OTHER PRODUCTION EQUIPMENT
NO. OF BALANCES 20 BAL. INTERVAL 1

CO. NO. 1
DATA IN DOLLARS AS OF 12/31/2016
LOCATION 1 TOTAL ACCOUNT
ADDS/SURV TO 1938

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TYPE	SUBTYPE	LIFE	CINDEX	RINDEX	SIGMA	RANK	CYCLE INDEX
L	0.0	100.69	35.58	42.482	.135383335E+13	5.	20.517
L	0.5	85.57	32.68	49.638	.160453634E+13	7.	24.530
L	1.0	74.04	28.85	58.303	.205850743E+13	11.	34.993
L	1.5	66.20	26.45	67.946	.244847830E+13	12.	39.528
L	2.0	60.03	23.07	77.167	.321978722E+13	16.	48.075
L	3.0	52.59	19.47	90.688	.452037283E+13	19.	64.336
L	4.0	47.72	17.26	99.233	.575236036E+13	22.	80.643
L	5.0	45.41	15.67	99.994	.698172497E+13	24.	94.992
SC		116.67	40.69	33.642	.103471860E+13	1.	33.642
S	- .5	90.56	36.88	42.064	.125989715E+13	3.	43.343
S	0.0	73.35	31.79	54.870	.169508854E+13	8.	53.508
S	0.5	65.57	28.95	65.533	.204481505E+13	9.	59.861
S	1.0	59.38	25.67	77.431	.260118566E+13	13.	66.428
S	1.5	55.62	23.46	86.877	.311260910E+13	15.	70.928
S	2.0	52.39	21.01	94.481	.388250344E+13	18.	76.842
S	3.0	48.76	17.96	99.622	.530966911E+13	21.	87.031
S	4.0	46.04	15.85	100.000	.681726285E+13	23.	100.000 *
S	5.0	44.39	15.22	100.000	.739728327E+13	27.	100.000 *
S	6.0	43.34	15.38	100.000	.724202104E+13	26.	100.000 *
R	0.5	95.58	39.37	37.883	.110556726E+13	2.	40.860
R	1.0	78.00	36.73	47.584	.127049819E+13	4.	50.072
R	1.5	67.05	33.28	62.271	.154677632E+13	6.	58.248
R	2.0	58.94	28.87	80.617	.205647394E+13	10.	71.988
R	2.5	54.20	25.58	93.277	.261934900E+13	14.	78.283
R	3.0	50.66	22.18	99.432	.348335626E+13	17.	92.241
R	4.0	47.09	18.10	100.000	.522982505E+13	20.	100.000 *
R	5.0	44.73	15.61	100.000	.703404053E+13	25.	100.000 *

RANGE OF LIVES	FREQUENCY
0-9	0
10-19	0
20-29	0
30-39	0
40-49	8
50-59	7
60-69	4
70-79	3
GREATER THAN 80	5

OMEAN VALUE OF BEST FITTING LIVES IS 63.87 YEARS

LIBERTY UTILITIES (ENERGY NORTH NAT. GAS) CORP.
 PROPERTY CLASSIFICATION - GAS
 ACCOUNT 1330.00 OTHER PRODUCTION EQUIPMENT
 NO. OF BALANCES 10 BAL. INTERVAL 1

CO. NO. 1
 DATA IN DOLLARS AS OF 12/31/2016
 LOCATION 1 TOTAL ACCOUNT
 ADDS/SURV TO 1938

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TYPE	SUBTYPE	LIFE	CINDEX	RINDEX	SIGMA	RANK	CYCLE INDEX
L	0.0	111.98	79.92	37.722	.172936530E+12	5.	18.448
L	0.5	94.01	73.08	44.335	.206789360E+12	7.	22.327
L	1.0	80.60	64.02	52.594	.269457094E+12	10.	32.141
L	1.5	71.31	57.79	62.371	.330723358E+12	12.	36.693
L	2.0	64.12	49.18	72.310	.456617858E+12	16.	45.007
L	3.0	55.40	39.88	87.660	.694369569E+12	19.	61.080
L	4.0	49.91	34.77	98.426	.913355948E+12	22.	77.100
L	5.0	46.92	29.99	99.977	.122760979E+13	25.	91.932
SC		132.26	92.88	29.677	.128030622E+12	1.	29.677
S	-.5	100.99	83.49	36.790	.158434688E+12	3.	38.867
S	0.0	80.48	70.83	48.288	.220170226E+12	8.	48.768
S	0.5	71.15	64.05	58.237	.269239949E+12	9.	55.163
S	1.0	64.01	56.24	69.913	.349228118E+12	13.	61.622
S	1.5	59.38	50.70	80.632	.429598182E+12	15.	66.427
S	2.0	55.66	44.71	90.024	.552599294E+12	18.	72.331
S	3.0	51.07	36.41	98.881	.832950429E+12	20.	83.091
S	4.0	47.78	30.07	99.999	.122139087E+13	24.	98.972
S	5.0	45.79	28.43	100.000	.136644292E+13	27.	100.000 *
S	6.0	44.72	30.16	100.000	.121405997E+13	23.	100.000 *
R	0.5	107.56	89.76	32.792	.137098685E+12	2.	36.309
R	1.0	86.51	83.36	40.455	.158942528E+12	4.	45.143
R	1.5	73.24	74.82	53.034	.197269694E+12	6.	53.324
R	2.0	63.56	63.70	71.197	.272193127E+12	11.	66.763
R	2.5	57.64	55.30	87.742	.361128077E+12	14.	73.613
R	3.0	53.45	46.75	97.646	.505283971E+12	17.	87.414
R	4.0	49.15	36.31	100.000	.837592040E+12	21.	100.000 *
R	5.0	46.22	29.94	100.000	.123218079E+13	26.	100.000 *

RANGE OF LIVES

FREQUENCY

0-9	0
10-19	0
20-29	0
30-39	0
40-49	6
50-59	7
60-69	3
70-79	3
GREATER THAN 80	8

OMEAN VALUE OF BEST FITTING LIVES IS 69.07 YEARS

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0 PROPERTY CLASSIFICATION - GAS

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ACCOUNT 1356.00 DISTR MAINS

LOCATION 1 TOTAL ACCOUNT

NO. OF BALANCES 30 BAL. INTERVAL 1

ADDS/SURV TO 1883

TYPE	SUBTYPE	LIFE	CINDEX	RINDEX	SIGMA	RANK	CYCLE INDEX
L	0.0	194.29	135.68	36.870	.195408657E+14	5.	18.082
L	0.5	153.64	131.53	46.534	.207956312E+14	7.	23.233
L	1.0	116.94	123.59	63.395	.235503660E+14	10.	37.677
L	1.5	99.22	116.37	76.957	.265669176E+14	12.	44.850
L	2.0	82.41	106.07	90.372	.319777126E+14	15.	59.560
L	3.0	67.09	91.61	99.599	.428647169E+14	19.	85.764
L	4.0	57.52	81.96	100.000	.535505758E+14	21.	100.000 *
L	5.0	52.17	80.63	100.000	.553303958E+14	23.	100.000 *
SC		306.39	139.17	21.786	.185751604E+14	1.	21.786
S	-.5	198.01	136.75	30.834	.192371859E+14	4.	33.711
S	0.0	123.43	130.19	55.662	.212244293E+14	8.	54.079
S	0.5	103.18	123.55	72.645	.235678620E+14	11.	64.692
S	1.0	85.71	113.29	91.789	.280307329E+14	14.	78.273
S	1.5	78.05	104.57	98.301	.328967010E+14	16.	85.949
S	2.0	69.91	94.97	99.997	.398896333E+14	18.	97.934
S	3.0	60.78	84.12	100.000	.508383644E+14	20.	100.000 *
S	4.0	53.49	80.23	100.000	.558932492E+14	25.	100.000 *
S	5.0	50.36	80.62	100.000	.553482269E+14	24.	100.000 *
S	6.0	49.09	80.93	100.000	.549251374E+14	22.	100.000 *
R	0.5	238.71	138.59	24.016	.187305393E+14	2.	27.824
R	1.0	176.33	137.06	30.710	.191494490E+14	3.	37.666
R	1.5	135.95	133.85	44.961	.200785448E+14	6.	48.854
R	2.0	104.05	125.16	76.039	.229661136E+14	9.	69.352
R	2.5	89.07	113.94	95.556	.277110865E+14	13.	81.020
R	3.0	75.77	96.28	100.000	.388122102E+14	17.	100.000 *
R	4.0	61.05	79.02	100.000	.576101735E+14	26.	100.000 *
R	5.0	51.23	78.75	100.000	.580053377E+14	27.	100.000 *

RANGE OF LIVES

FREQUENCY

0-9	0
10-19	0
20-29	0
30-39	0
40-49	1
50-59	5
60-69	3
70-79	3
GREATER THAN 80	15

0MEAN VALUE OF BEST FITTING LIVES IS108.66 YEARS

LIBERTY UTILITIES (ENERGY NORTH NAT. GAS) CORP.
 PROPERTY CLASSIFICATION - GAS
 ACCOUNT 1356.00 DISTR MAINS
 NO. OF BALANCES 20 BAL. INTERVAL 1

CO. NO. 1
 DATA IN DOLLARS AS OF 12/31/2016
 LOCATION 1 TOTAL ACCOUNT
 ADDS/SURV TO 1883

03/13/17

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TYPE	SUBTYPE	LIFE	CINDEX	RINDEX	SIGMA	RANK	CYCLE INDEX
L	0.0	189.29	177.16	37.980	.125006486E+14	5.	18.560
L	0.5	149.76	172.88	47.984	.131267023E+14	7.	23.836
L	1.0	114.12	165.48	65.089	.143264678E+14	9.	38.607
L	1.5	96.66	157.72	78.723	.157721308E+14	12.	46.039
L	2.0	80.33	148.35	91.617	.178267086E+14	15.	61.097
L	3.0	65.18	135.32	99.791	.214247942E+14	21.	88.279
L	4.0	56.28	128.63	100.000	.237107909E+14	25.	100.000 *
L	5.0	51.72	135.41	100.000	.213960312E+14	19.	100.000 *
SC		296.69	180.11	22.498	.120942433E+14	1.	22.498
S	-.5	192.58	177.81	31.919	.124094891E+14	4.	34.660
S	0.0	120.38	171.74	57.553	.133009446E+14	8.	55.449
S	0.5	100.80	164.77	74.787	.144513950E+14	10.	66.221
S	1.0	83.69	154.35	93.418	.164678152E+14	13.	80.160
S	1.5	75.83	144.58	99.020	.187675933E+14	16.	88.471
S	2.0	67.71	135.34	100.000	.214193579E+14	20.	100.000 *
S	3.0	58.72	127.42	100.000	.241642325E+14	26.	100.000 *
S	4.0	52.75	131.55	100.000	.226708726E+14	23.	100.000 *
S	5.0	49.96	140.96	100.000	.197434275E+14	18.	100.000 *
S	6.0	49.00	144.34	100.000	.188296593E+14	17.	100.000 *
R	0.5	231.17	179.52	24.913	.121738747E+14	2.	28.731
R	1.0	171.11	177.94	32.115	.123913329E+14	3.	38.816
R	1.5	132.09	174.36	47.482	.129048524E+14	6.	50.281
R	2.0	101.21	164.51	79.465	.144956749E+14	11.	71.302
R	2.5	86.25	150.73	97.174	.172689957E+14	14.	83.662
R	3.0	72.28	131.31	100.000	.227529665E+14	24.	100.000 *
R	4.0	57.52	119.17	100.000	.276266610E+14	27.	100.000 *
R	5.0	50.79	133.48	100.000	.220203465E+14	22.	100.000 *

RANGE OF LIVES	FREQUENCY
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0-9	0
10-19	0
20-29	0
30-39	0
40-49	1
50-59	7
60-69	2
70-79	2
GREATER THAN 80	15

OMEAN VALUE OF BEST FITTING LIVES IS 105.70 YEARS

0 LIBERTY UTILITIES (ENERGY NORTH NAT. GAS) CORP.

CO. NO. 1

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0 PROPERTY CLASSIFICATION - GAS

DATA IN DOLLARS AS OF 12/31/2016

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ACCOUNT 1356.00 DISTR MAINS

LOCATION 1 TOTAL ACCOUNT

NO. OF BALANCES 10 BAL. INTERVAL 1

ADDS/SURV TO 1883

TYPE	SUBTYPE	LIFE	CINDEX	RINDEX	SIGMA	RANK	CYCLE INDEX
L	0.0	177.78	698.69	40.755	.675610030E+12	9.	19.762
L	0.5	140.79	701.34	51.575	.670519843E+12	8.	25.354
L	1.0	108.13	686.55	68.839	.699723918E+12	10.	40.746
L	1.5	91.69	683.77	82.150	.705415796E+12	11.	48.534
L	2.0	76.53	660.85	93.751	.755193818E+12	17.	64.135
L	3.0	62.67	641.49	99.934	.801476760E+12	19.	91.815
L	4.0	54.64	578.52	100.000	.985432188E+12	22.	100.000 *
L	5.0	50.99	497.75	100.000	.133121751E+13	24.	100.000 *
SC		272.39	750.29	24.505	.585882746E+12	1.	24.505
S	-.5	178.63	733.48	35.043	.613041288E+12	5.	37.369
S	0.0	114.12	677.09	61.718	.719411094E+12	13.	58.489
S	0.5	95.62	680.58	79.555	.712047696E+12	12.	69.806
S	1.0	79.53	669.01	96.348	.736887084E+12	15.	84.356
S	1.5	71.96	673.35	99.766	.727416489E+12	14.	93.226
S	2.0	64.47	660.30	100.000	.756471386E+12	18.	100.000 *
S	3.0	56.53	629.35	100.000	.832702552E+12	20.	100.000 *
S	4.0	51.60	557.48	100.000	.106124788E+13	23.	100.000 *
S	5.0	49.57	444.35	100.000	.167038207E+13	26.	100.000 *
S	6.0	48.69	338.62	100.000	.287632830E+13	27.	100.000 *
R	0.5	212.74	747.91	27.422	.589627156E+12	2.	31.221
R	1.0	158.31	742.44	36.128	.598346966E+12	3.	41.955
R	1.5	122.97	739.40	54.308	.603277774E+12	4.	54.010
R	2.0	94.71	732.51	86.968	.614679838E+12	6.	76.193
R	2.5	80.46	718.79	99.225	.638357614E+12	7.	89.690
R	3.0	66.92	666.52	100.000	.742407903E+12	16.	100.000 *
R	4.0	55.17	617.22	100.000	.865757605E+12	21.	100.000 *
R	5.0	50.02	475.29	100.000	.145998348E+13	25.	100.000 *

RANGE OF LIVES

FREQUENCY

0	0-9	0
	10-19	0
	20-29	0
	30-39	0
	40-49	1
	50-59	7
	60-69	3
	70-79	2
	GREATER THAN 80	14

OMEAN VALUE OF BEST FITTING LIVES IS 99.54 YEARS

1MANAGEMENT RESOURCES INTERNATIONAL, INC. SPR BALANCES PROGRAM

PAGE 1

LIBERTY UTILITIES (ENERGY NORTH NAT. GAS) CORP.
PROPERTY CLASSIFICATION - GAS
ACCOUNT 1360.00 CUSTOMER'S METERS & INSTALL.
NO. OF BALANCES 30 BAL. INTERVAL 1

CO. NO. 1

DATA IN DOLLARS AS OF 12/31/2016
LOCATION 1 TOTAL ACCOUNT
ADDS/SURV TO 1965

03/13/17

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TYPE	SUBTYPE	LIFE	CINDEX	RINDEX	SIGMA	RANK	CYCLE INDEX
L	0.0	66.95	88.93	41.857	.112159532E+13	11.	20.243
L	0.5	56.72	100.60	49.040	.876568497E+12	7.	24.278
L	1.0	48.94	111.94	57.782	.707928705E+12	2.	34.726
L	1.5	43.88	108.14	67.187	.758528774E+12	4.	39.124
L	2.0	39.75	90.38	76.513	.108605026E+13	10.	47.638
L	3.0	35.07	69.24	89.776	.185059705E+13	18.	63.292
L	4.0	32.19	57.97	98.780	.263936472E+13	22.	78.414
L	5.0	30.86	52.15	99.974	.326230618E+13	25.	91.694
SC		78.56	68.01	32.778	.191778371E+13	19.	32.778
S	-.5	60.45	81.60	41.179	.133240185E+13	14.	42.596
S	0.0	48.64	106.24	54.079	.785989352E+12	5.	52.937
S	0.5	43.56	111.62	64.399	.712010457E+12	3.	59.118
S	1.0	39.48	100.26	76.119	.882467480E+12	8.	65.551
S	1.5	37.11	88.25	85.356	.113910120E+13	12.	69.740
S	2.0	34.99	73.81	93.317	.162831607E+13	16.	75.490
S	3.0	32.69	60.59	99.345	.241598348E+13	21.	85.151
S	4.0	31.06	53.39	100.000	.311209854E+13	23.	99.877
S	5.0	30.34	49.78	100.000	.357934510E+13	26.	100.000 *
S	6.0	29.96	47.95	100.000	.385790517E+13	27.	100.000 *
R	0.5	64.04	72.07	36.911	.170798336E+13	17.	40.009
R	1.0	52.17	82.06	46.156	.131723284E+13	13.	49.111
R	1.5	44.87	97.72	60.127	.928873572E+12	9.	57.108
R	2.0	39.58	113.35	77.780	.690400462E+12	1.	70.327
R	2.5	36.60	103.81	90.923	.823202967E+12	6.	76.065
R	3.0	34.26	81.10	98.609	.134862601E+13	15.	89.488
R	4.0	31.86	61.45	100.000	.234887295E+13	20.	100.000 *
R	5.0	30.47	52.48	100.000	.322051567E+13	24.	100.000 *

RANGE OF LIVES

FREQUENCY

0-9	0
10-19	0
20-29	0
30-39	14
40-49	7
50-59	2
60-69	3
70-79	1
GREATER THAN 80	0

OMEAN VALUE OF BEST FITTING LIVES IS 42.78 YEARS

LIBERTY UTILITIES (ENERGY NORTH NAT. GAS) CORP.
 PROPERTY CLASSIFICATION - GAS
 ACCOUNT 1360.00 CUSTOMER'S METERS & INSTALL.
 NO. OF BALANCES 20 BAL. INTERVAL 1

CO. NO. 1
 DATA IN DOLLARS AS OF 12/31/2016
 LOCATION 1 TOTAL ACCOUNT
 ADDS/SURV TO 1965

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TYPE	SUBTYPE	LIFE	CINDEX	RINDEX	SIGMA	RANK	CYCLE INDEX
L	0.0	66.62	102.78	42.087	.888530479E+12	10.	20.344
L	0.5	56.61	115.29	49.151	.706103351E+12	6.	24.325
L	1.0	48.92	124.56	57.819	.604948018E+12	2.	34.745
L	1.5	43.88	118.13	67.177	.672641400E+12	5.	39.119
L	2.0	39.78	97.70	76.457	.983317662E+12	11.	47.600
L	3.0	35.11	75.18	89.711	.166085820E+13	19.	63.221
L	4.0	32.23	63.43	98.756	.233298174E+13	22.	78.319
L	5.0	30.90	57.36	99.973	.285294978E+13	25.	91.574
SC		77.79	80.20	33.102	.145938130E+13	17.	33.102
S	- .5	60.17	95.78	41.411	.102318960E+13	13.	42.792
S	0.0	48.59	119.86	54.159	.653358243E+12	4.	52.994
S	0.5	43.54	123.39	64.431	.616486142E+12	3.	59.139
S	1.0	39.50	108.78	76.064	.793227961E+12	9.	65.514
S	1.5	37.14	95.55	85.288	.102801398E+13	14.	69.689
S	2.0	35.02	80.09	93.249	.146340950E+13	18.	75.415
S	3.0	32.73	65.98	99.328	.215586949E+13	21.	85.052
S	4.0	31.10	58.50	100.000	.274288532E+13	23.	99.752
S	5.0	30.38	54.98	100.000	.310502161E+13	26.	100.000 *
S	6.0	30.01	53.41	100.000	.329088181E+13	27.	100.000 *
R	0.5	63.62	85.10	37.209	.129612067E+13	16.	40.271
R	1.0	51.95	96.96	46.473	.998288890E+12	12.	49.325
R	1.5	44.77	114.84	60.364	.711637913E+12	7.	57.234
R	2.0	39.57	127.94	77.833	.573438374E+12	1.	70.357
R	2.5	36.61	113.34	90.901	.730623527E+12	8.	76.046
R	3.0	34.28	87.90	98.583	.121479666E+13	15.	89.420
R	4.0	31.89	67.39	100.000	.206691787E+13	20.	100.000 *
R	5.0	30.50	58.08	100.000	.278239016E+13	24.	100.000 *

RANGE OF LIVES

FREQUENCY

0-9	0
10-19	0
20-29	0
30-39	13
40-49	8
50-59	2
60-69	3
70-79	1
GREATER THAN 80	0

OMEAN VALUE OF BEST FITTING LIVES IS 42.71 YEARS

0 LIBERTY UTILITIES (ENERGY NORTH NAT. GAS) CORP.

CO. NO. 1

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0 PROPERTY CLASSIFICATION - GAS

DATA IN DOLLARS AS OF 12/31/2016

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ACCOUNT 1360.00 CUSTOMER'S METERS & INSTALL.

LOCATION 1 TOTAL ACCOUNT

NO. OF BALANCES 10 BAL. INTERVAL 1

ADDS/SURV TO 1965

TYPE	SUBTYPE	LIFE	CINDEX	RINDEX	SIGMA	RANK	CYCLE INDEX
L	0.0	66.33	94.98	42.288	.718332890E+12	21.	20.432
L	0.5	56.64	110.62	49.115	.529572386E+12	17.	24.310
L	1.0	49.12	146.60	57.539	.301508483E+12	13.	34.603
L	1.5	44.26	183.38	66.535	.192702283E+12	8.	38.783
L	2.0	40.23	239.85	75.638	.112640902E+12	3.	47.064
L	3.0	35.55	207.68	88.994	.150233941E+12	6.	62.445
L	4.0	32.63	144.11	98.507	.312024935E+12	14.	77.378
L	5.0	31.25	109.13	99.959	.544146274E+12	19.	90.540
SC		76.14	75.73	33.819	.112977908E+13	27.	33.819
S	-.5	59.62	88.56	41.880	.826136384E+12	24.	43.188
S	0.0	48.78	121.28	53.875	.440567349E+12	16.	52.790
S	0.5	43.83	152.31	63.831	.279330970E+12	11.	58.748
S	1.0	39.91	212.50	75.046	.143495423E+12	5.	64.847
S	1.5	37.55	243.92	84.259	.108916137E+12	1.	68.924
S	2.0	35.45	231.76	92.379	.120644875E+12	4.	74.507
S	3.0	33.15	174.87	99.102	.211909502E+12	10.	83.964
S	4.0	31.48	125.15	99.999	.413731232E+12	15.	98.539
S	5.0	30.70	91.86	100.000	.767901391E+12	22.	100.000 *
S	6.0	30.27	77.62	100.000	.107553718E+13	26.	100.000 *
R	0.5	62.59	79.79	37.973	.101776212E+13	25.	40.939
R	1.0	51.50	89.95	47.107	.800899753E+12	23.	49.753
R	1.5	44.70	108.53	60.534	.550101814E+12	20.	57.325
R	2.0	39.77	151.18	77.200	.283532600E+12	12.	70.000
R	2.5	36.90	204.27	90.168	.155302078E+12	7.	75.438
R	3.0	34.65	242.42	98.171	.110261761E+12	2.	88.458
R	4.0	32.30	179.40	100.000	.201339374E+12	9.	100.000 *
R	5.0	30.86	110.04	100.000	.535096961E+12	18.	100.000 *

RANGE OF LIVES

FREQUENCY

0	0-9	0
	10-19	0
	20-29	0
	30-39	13
	40-49	8
	50-59	2
	60-69	3
	70-79	1
	GREATER THAN 80	0

OMEAN VALUE OF BEST FITTING LIVES IS 42.82 YEARS