STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service.	Case 16-E-0060
Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Gas Service.	Case 16-G-0061
Proceeding on the Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service.	Case 15-E-0050
Tariff filing by Consolidated Edison Company of New York, Inc. to revise General Rule 20 Standby Service contained in its electric tariff schedules, P.S.C. Nos. 10 and 12.	Case 16-E-0196

EXHIBIT 6

OF

UIU ELECTRIC RATE PANEL ON THE JOINT PROPOSAL

Dated: October 13, 2016
Albany, New York

UTILITY INTERVENTION UNIT
DIVISION OF CONSUMER PROTECTION
NYS DEPARTMENT OF STATE
99 WASHINGTON AVENUE
SUITE 640
ALBANY, NY 12231-0001
www.dos.ny.gov

EXHIBIT____(UERP-JP-6)

UIU ELECTRIC RATE PANEL

APPENDIX OF DISCOVERY RESPONSES

City of New York ("City")

Set Number	Information Request Number	Exhibit Page Number
City Set 6	203 – Attachment included	1-11
City Set 6	204– Attachment included	12-24

Pace Energy and Climate Center ("Pace")

Set Number	Information Request Number	Exhibit Page Number
Pace Set 1	6-3	25-26

Utility Intervention Unit ("UIU")

Set Number	Information Request Number	Exhibit Page Number
UIU Set 2	2-9 Note: (Case 15-E-0050 13-E-0030)	27-31
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Department of Public Service ("DPS")

Set Number	Information Request Number	Exhibit Page Number
DPS Set 7	1 Note: (Case 15-E-0050 13-E-0030)	83-84

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to City of New York Interrogatories – Set City-6
Date of Response: 05/02/2016
Responding Witness: Demand Analysis & Cost of Service Panel

Question No. : 203

Referring to the Electric Work Papers for Exhibit (DAC-2) Schedule 1.xlsx file, tab labeled "2013 OH Conduct Min Sys" (page 47), provide the following information:

a. Identify the specific OH distribution equipment associated with each element contained in Column A.

b. Identify and provide the source for the quantities of the equipment identified in Column B.

c. Identify and provide the source for all of the cost data contained in Column C.

d. Provide the rationale for selecting the yellow highlighted subset of costs to represent the minimum size of the system.

Response

a. Secondary Wire is the OH distribution equipment associated with the development of the minimum size wire.

b. The source for the quantities of the equipment identified in Column B is from the Company's Property Records Department responsible for maintaining the Company's assets on the books of account. Please see the attached document, "NYC 6 – 203 Attachment". The tab entitled "raw data" was downloaded directly from our asset sub-ledger.

c. Please see response to NYC 6-203-b above. The quantity and cost data are from the same source.

d. The equipment which constitutes the minimum system is the result of a joint collaborative which stemmed from 04-E-0572. A Memorandum of Understanding ("MOU") agreed to and signed by the parties resulted in a minimum system methodology to be used in determining the customer component of low tension distribution plant. This MOU further determined that this minimum size will be calculated using the weighted average unit cost of installed wire sizes from 1 to 10.

Account	1365000
HT/LT Designation	Low tension
Voltage Level	Wire Secondary
Property Unit	10070

Row Labels	Sum of Qty	Sum of Cost	Total Quantity of Minimum Size	Total Cost of Minimum Size	Average Cost of Minimum Size
0000.00	137,557	$ 1,052,490.17			
0001.00	16,875	$ 1,350.67			
0002.00	20,619,333	$ 4,393,762.46			
0004.00	1,884,601	$ 1,294,642.79			
0006.00	745,880	$ 59,003.58			
0008.00	13,670	$ 1,782.09			
0010.00	11,753	$ 5,474.18	23,292,112	$ 5,756,015.77	0.247123
0044.00	300	$ 3.13			
0105.00	5,749,406	$ 12,125,623.79			
0133.00	25,569,912	$ 8,081,168.91			
0145.00	219	$ 113.06			
0167.00	17,518	$ 4,322.45			
0211.00	25,464,090	$ 105,466,669.16			
0250.00	5,300	$ 870.95			
0300.00	16,130	$ 23,922.49			
0350.00	4,590	$ 13,050.05			
0477.00	9,588	$ 57,570.99			
0500.00	16,162	$ 191,055.21			
0600.00	87	$ 254.31			
Grand Total	**80,282,971**	**$ 132,773,130.44**			

Customer Portion	Demand Portion
$ 19,839,765.80	$ 112,933,364.64
14.94%	85.06%

Account	1365000
HT/LT Designation	Low tension

Row Labels	Sum of Cost
A.C. Accessory Wire	**$ 483,484.31**
10110	$ 483,484.31
25050	$ -
Wire D.C.	**$ 1,192.67**
10027	$ 1,192.67
Wire Secondary	**$ 132,777,017.84**
10070	$ 132,773,130.44
25033	$ 3,887.40
Grand Total	**$ 133,261,694.82**

Company	Business Seg	Account	Property Unit	HT/LT Designation	Voltage Level	Size	Description	Qty	Cost
1	1	1365000	25050	Low tension	A.C. Accessory Wire	0105.00	S-A.C. Accessory	125	0
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0105.00	A.C. Accessory W	150	1089.12
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0004.00	A.C. Accessory W	320	2987.05
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0211.00	A.C. Accessory W	1112	3586.06
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0105.00	A.C. Accessory W	856	2629.26
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0211.00	A.C. Accessory W	184	1511.98
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0105.00	A.C. Accessory W	19345	172984.8
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0004.00	A.C. Accessory W	6191	53620.36
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0211.00	A.C. Accessory W	50	324.94
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0002.00	A.C. Accessory W	110	537.63
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0012.00	A.C. Accessory W	5544	89528.55
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0211.00	A.C. Accessory W	848	3432.31
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0105.00	A.C. Accessory W	483	5287
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0211.00	A.C. Accessory W	126	3223.95
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0105.00	A.C. Accessory W	1469	56173.68
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0004.00	A.C. Accessory W	1846	32110.78
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0002.00	A.C. Accessory W	17055	11230.08
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0250.00	A.C. Accessory W	1648	389.52
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0211.00	A.C. Accessory W	103	840.89
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0105.00	A.C. Accessory W	2588	32392.87
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0500.00	A.C. Accessory W	200	196.16
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0211.00	A.C. Accessory W	87	27.52
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0105.00	A.C. Accessory W	641	8184.64
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0004.00	A.C. Accessory W	707	864.11
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0133.00	A.C. Accessory W	261	55.27
1	1	1365000	10110	Low tension	A.C. Accessory Wire	0002.00	A.C. Accessory W	592	275.75
1	1	1365000	10027	Low tension	Wire D.C.	0350.00	Wire D.C., Bare &	2603	1119.17
1	1	1365000	10027	Low tension	Wire D.C.	0750.00	Wire D.C., Bare &	105	73.5
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	1951	38159.51
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	13417	6354.92
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1240	2350.42
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	559	255.58
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	2569	1162.99
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	230	171.31
1	1	1365000	10070	Low tension	Wire Secondary	0008.00	Wire Secondary,	911	185.08
1	1	1365000	10070	Low tension	Wire Secondary	0010.00	Wire Secondary,	510	434.96
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	2103	533.71
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	1210	8581.39
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	52392	38658.58
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	2335	950.29
1	1	1365000	25033	Low tension	Wire Secondary	0105.00	S-Wire Secondar	80	0
1	1	1365000	25033	Low tension	Wire Secondary	0211.00	S-Wire Secondar	1860	725.4
1	1	1365000	25033	Low tension	Wire Secondary	0002.00	S-Wire Secondar	653	0
1	1	1365000	25033	Low tension	Wire Secondary	0105.00	S-Wire Secondar	175	0
1	1	1365000	25033	Low tension	Wire Secondary	0004.00	S-Wire Secondar	71	0
1	1	1365000	25033	Low tension	Wire Secondary	0211.00	S-Wire Secondar	11634	0
1	1	1365000	25033	Low tension	Wire Secondary	0105.00	S-Wire Secondar	2293	0
1	1	1365000	25033	Low tension	Wire Secondary	0211.00	S-Wire Secondar	366	0
1	1	1365000	25033	Low tension	Wire Secondary	0002.00	S-Wire Secondar	560	0
1	1	1365000	25033	Low tension	Wire Secondary	0105.00	S-Wire Secondar	90	0
1	1	1365000	25033	Low tension	Wire Secondary	0211.00	S-Wire Secondar	1890	0
1	1	1365000	25033	Low tension	Wire Secondary	0211.00	S-Wire Secondar	21511	0
1	1	1365000	25033	Low tension	Wire Secondary	0133.00	S-Wire Secondar	628	0
1	1	1365000	25033	Low tension	Wire Secondary	0105.00	S-Wire Secondar	418	0
1	1	1365000	25033	Low tension	Wire Secondary	0105.00	S-Wire Secondar	256	0
1	1	1365000	25033	Low tension	Wire Secondary	0004.00	S-Wire Secondar	500	0
1	1	1365000	25033	Low tension	Wire Secondary	0211.00	S-Wire Secondar	1452	0
1	1	1365000	25033	Low tension	Wire Secondary	0211.00	S-Wire Secondar	16980	0
1	1	1365000	25033	Low tension	Wire Secondary	0105.00	S-Wire Secondar	1400	0
1	1	1365000	25033	Low tension	Wire Secondary	0211.00	S-Wire Secondar	160	0
1	1	1365000	25033	Low tension	Wire Secondary	0211.00	S-Wire Secondar	240	1898.4
1	1	1365000	25033	Low tension	Wire Secondary	0211.00	S-Wire Secondar	1280	0
1	1	1365000	25033	Low tension	Wire Secondary	0010.00	S-Wire Secondar	460	0
1	1	1365000	25033	Low tension	Wire Secondary	0211.00	S-Wire Secondar	10804	0
1	1	1365000	25033	Low tension	Wire Secondary	0105.00	S-Wire Secondar	4367	0

1	1	1365000	25033	Low tension	Wire Secondary	0105.00	S-Wire Secondar	150	0
1	1	1365000	25033	Low tension	Wire Secondary	0211.00	S-Wire Secondar	590	0
1	1	1365000	25033	Low tension	Wire Secondary	0004.00	S-Wire Secondar	50	0
1	1	1365000	25033	Low tension	Wire Secondary	0211.00	S-Wire Secondar	2052	1263.6
1	1	1365000	25033	Low tension	Wire Secondary	0105.00	S-Wire Secondar	1991	0
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	7999	81624.56
1	1	1365000	10070	Low tension	Wire Secondary	0500.00	Wire Secondary,	3200	66348.48
1	1	1365000	10070	Low tension	Wire Secondary	0600.00	Wire Secondary,	87	254.31
1	1	1365000	10070	Low tension	Wire Secondary	0001.00	Wire Secondary,	461	32.5
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	899	195.95
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	1093	95.89
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	220	17.08
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	5130	677.62
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	3538	1343.05
1	1	1365000	10070	Low tension	Wire Secondary	0001.00	Wire Secondary,	11222	822.58
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1089786	209045.9
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	89758	8411.88
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	41018	1908.24
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	510480	71004.54
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	2020000	697349.6
1	1	1365000	10070	Low tension	Wire Secondary	0500.00	Wire Secondary,	774	255.62
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	172	753.06
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	45	22.9
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1071	4252.82
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	1126	1443.2
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	1857	6235.24
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	7042	18261.6
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	18758	86302.01
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	40988	193808.4
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	16134	97056.86
1	1	1365000	10070	Low tension	Wire Secondary	0350.00	Wire Secondary,	1038	3699.3
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	464	100.46
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	285077	616991.6
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	1896157	5823569
1	1	1365000	10070	Low tension	Wire Secondary	0300.00	Wire Secondary,	6238	4470.57
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	173	366.69
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	2053	8823.02
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	68	24.12
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	212	81.11
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	244	99.38
1	1	1365000	10070	Low tension	Wire Secondary	0008.00	Wire Secondary,	277	45.7
1	1	1365000	10070	Low tension	Wire Secondary	0010.00	Wire Secondary,	47	13.1
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	1161	508.46
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	448	140.21
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	84707	10526.39
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	5355	410.21
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	10579	619.38
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	16665	2688.44
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	40660	8955.57
1	1	1365000	10070	Low tension	Wire Secondary	0500.00	Wire Secondary,	2436	802.77
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	822	916.42
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	4876	18300.3
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	13582	29184.32
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	53543	178696.9
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	49510	417136.3
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	595	2247.45
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	2419	11520.69
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	3778	2083.45
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	6734	37968.53
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	60	6845.29
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	1696	522.11
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	4859	1770.19
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	752	313.87
1	1	1365000	10070	Low tension	Wire Secondary	0008.00	Wire Secondary,	752	185.98
1	1	1365000	10070	Low tension	Wire Secondary	0010.00	Wire Secondary,	531	128.11
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	1695	193379.7

1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	80	9127.07
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	2019	145295.3
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	4906	58148.1
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	1424	162461.8
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	192408	660435.6
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	4984	568616.2
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	13044	178445.9
1	1	1365000	10070	Low tension	Wire Secondary	0500.00	Wire Secondary,	156	4832.49
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	10886	1364.35
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	613	201.44
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	163679	34888.13
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	4882	1433.54
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1082698	148756.4
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	23295	3577.48
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	1751	138.38
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	4522828	1529364
1	1	1365000	10070	Low tension	Wire Secondary	0500.00	Wire Secondary,	510	124.73
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	206	153.33
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	165	107.3
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	2070	31731.84
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1967	26677.68
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	2822	14185.45
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	488997	978783.4
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	228588	524293.5
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	474	124.25
1	1	1365000	10070	Low tension	Wire Secondary	0350.00	Wire Secondary,	210	248.05
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	3905	40918.89
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	40952	165927.7
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	20755	28181
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	80	312.8
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	4129	5894.26
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	946	379.55
1	1	1365000	10070	Low tension	Wire Secondary	0044.00	Wire Secondary,	300	3.13
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	3489	242.43
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	490866	221236
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	123030	11737.52
1	1	1365000	10070	Low tension	Wire Secondary	0008.00	Wire Secondary,	1143	45.65
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	150427	7821.71
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	203699	16349.77
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1317278	256358.6
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	314	23.85
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1273	45.39
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	73	34.12
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	120	57.31
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	371	157.58
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	710	452.91
1	1	1365000	10070	Low tension	Wire Secondary	0500.00	Wire Secondary,	195	1996.44
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	560	376.15
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	1888	1143.88
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	13257	7027.46
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	2441	4980.17
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	572	318.61
1	1	1365000	10070	Low tension	Wire Secondary	0010.00	Wire Secondary,	208	91.36
1	1	1365000	10070	Low tension	Wire Secondary	0008.00	Wire Secondary,	1337	153.45
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	248	215.39
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	3891	1242.62
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	143	19.49
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1110	4293.92
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1063	523.91
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	130	417.5
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	262	5942.67
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	86	396.05
1	1	1365000	10070	Low tension	Wire Secondary	0350.00	Wire Secondary,	532	1074.64
1	1	1365000	10070	Low tension	Wire Secondary	0477.00	Wire Secondary,	195	1281.15
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	3541	14812.3
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	11468	2863.5

1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	11385	5939.78
1	1	1365000	10070	Low tension	Wire Secondary	0300.00	Wire Secondary,	3175	1826.99
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	7330685	30492567
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	2223850	5687087
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	2280	589.64
1	1	1365000	10070	Low tension	Wire Secondary	0350.00	Wire Secondary,	1320	3933.68
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	110699	478173.2
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	174280	792695.1
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	188366	541340.2
1	1	1365000	10070	Low tension	Wire Secondary	0477.00	Wire Secondary,	387	2759.31
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	19225	45701.18
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	37728	94494.43
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	1835	2240.57
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	65	3458.16
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	837	4133.68
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	455	279.84
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	120	119.81
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	2202	10190.7
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	222	92.76
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	6193	515.76
1	1	1365000	10070	Low tension	Wire Secondary	0167.00	Wire Secondary,	1357	566.48
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	3819029	1584657
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	1380370	212541.1
1	1	1365000	10070	Low tension	Wire Secondary	0010.00	Wire Secondary,	505	108.94
1	1	1365000	10070	Low tension	Wire Secondary	0008.00	Wire Secondary,	3081	266.1
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	298948	17083.08
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	808380	85511.81
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	13056604	2456225
1	1	1365000	10070	Low tension	Wire Secondary	0001.00	Wire Secondary,	2356	331.91
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	372	54.24
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	4716	801.92
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	693	321.97
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	4614	3771.94
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	98	28.23
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	8514	3118.7
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	4419	2691.69
1	1	1365000	10070	Low tension	Wire Secondary	0500.00	Wire Secondary,	4416	47398.1
1	1	1365000	10070	Low tension	Wire Secondary	0350.00	Wire Secondary,	200	429.36
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	35014	543011.6
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	105	67024.43
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	8617	5905.75
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	163052	610747.4
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	6326	191906.9
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	3129	3614.23
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	360	187.91
1	1	1365000	10070	Low tension	Wire Secondary	0010.00	Wire Secondary,	7788	4382.42
1	1	1365000	10070	Low tension	Wire Secondary	0008.00	Wire Secondary,	3865	561.1
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	709	249.91
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	10415	3694.11
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	443	131.16
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	11826	251630.8
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1216	579.06
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	696	127944.4
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	2307	10096.99
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	2273	1952.2
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	220	965.09
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	8941	223756.5
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	138	25368.27
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	50695	210720.1
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	524	8129.24
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	2555	17394.59
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	230	1352.22
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	857	1911.16
1	1	1365000	10070	Low tension	Wire Secondary	0167.00	Wire Secondary,	725	144.51
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	17744	7095.92
1	1	1365000	10070	Low tension	Wire Secondary	0010.00	Wire Secondary,	190	3.17

1	1	1365000	10070	Low tension	Wire Secondary	0008.00	Wire Secondary,	450	7.97
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	2073	68.55
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	6238	844.47
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	17229	2829.52
1	1	1365000	10070	Low tension	Wire Secondary	0001.00	Wire Secondary,	1131	77.92
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	1542	7004.8
1	1	1365000	10070	Low tension	Wire Secondary	0010.00	Wire Secondary,	130	6.54
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	11421	73626.29
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	223	12823.51
1	1	1365000	10070	Low tension	Wire Secondary	0500.00	Wire Secondary,	186	7543.02
1	1	1365000	10070	Low tension	Wire Secondary	0300.00	Wire Secondary,	6717	17624.93
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	7232440	25071484
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	18689	39490.24
1	1	1365000	10070	Low tension	Wire Secondary	0350.00	Wire Secondary,	390	2312.27
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	56224	410010.8
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	25781	196544.4
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	9248	36918.06
1	1	1365000	10070	Low tension	Wire Secondary	0477.00	Wire Secondary,	1599	4894.73
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	33535	81785.63
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	800	970.97
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	618	3021.24
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	2490	21043.1
1	1	1365000	10070	Low tension	Wire Secondary	0167.00	Wire Secondary,	15436	3611.46
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	1547350	593493.1
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	47643	6090.24
1	1	1365000	10070	Low tension	Wire Secondary	0008.00	Wire Secondary,	140	2.48
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	111245	3871.79
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	281453	28643.32
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1826218	385819.6
1	1	1365000	10070	Low tension	Wire Secondary	0001.00	Wire Secondary,	1705	85.76
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	330	371.35
1	1	1365000	10070	Low tension	Wire Secondary	0500.00	Wire Secondary,	2024	23573.96
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	36441	242181.3
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	59018	414477.6
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	2550	568812.2
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	2037	12888.95
1	1	1365000	10070	Low tension	Wire Secondary	0010.00	Wire Secondary,	218	12.79
1	1	1365000	10070	Low tension	Wire Secondary	0008.00	Wire Secondary,	79	5.58
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	270	394.98
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	413	60.37
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	666	148560.4
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	3950	175825.8
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	194	813.68
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	69677	201595.4
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	10193	23530.58
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	384	8377.14
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	8549	70067.77
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	997	1529.03
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	1388	2748.24
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	101538	26073.27
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	6488	351.17
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	6556	526.98
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	58273	6954.05
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	309	52.31
1	1	1365000	10070	Low tension	Wire Secondary	0010.00	Wire Secondary,	232	40.55
1	1	1365000	10070	Low tension	Wire Secondary	0008.00	Wire Secondary,	44	6.99
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	1305	6816.47
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	1002	334.19
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	704	363.39
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	213	711.85
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	119	51.88
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	1167	11834.24
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	25031	107476.8
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	80	298.4
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	1190	931695.2
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	570	453.89

1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	4479372	20940718
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	224612	690256.6
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	2165	546.86
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	130	35.55
1	1	1365000	10070	Low tension	Wire Secondary	0350.00	Wire Secondary,	330	590.3
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	19589	120798.2
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	91816	552898.4
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	32855	201721.7
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	7867	33239.68
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	3669	7829.22
1	1	1365000	10070	Low tension	Wire Secondary	0145.00	Wire Secondary,	219	113.06
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	1012	2818.52
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	724	345.7
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	278	242.15
1	1	1365000	10070	Low tension	Wire Secondary	0250.00	Wire Secondary,	5300	870.95
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	12521985	2936259
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	75037	4637.75
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	117307	17571.88
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1941397	205072.9
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	4559	1879.7
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	112	14.57
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	277	89.38
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	740	314.49
1	1	1365000	10070	Low tension	Wire Secondary	0500.00	Wire Secondary,	1161	38170.62
1	1	1365000	10070	Low tension	Wire Secondary	0350.00	Wire Secondary,	110	196.77
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	3301	28859.45
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	21927	181088.7
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	8182	57756.45
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	3815	804.67
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	1	1018233
1	1	1365000	10070	Low tension	Wire Secondary	0010.00	Wire Secondary,	1050	145.67
1	1	1365000	10070	Low tension	Wire Secondary	0008.00	Wire Secondary,	993	135.77
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	108	41.99
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	5985	2019.8
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	84	10.17
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	2211	39355.16
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	7020	2641.72
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	414	1738.28
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	186	37.68
1	1	1365000	10070	Low tension	Wire Secondary	0500.00	Wire Secondary,	1104	8.98
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	3803	5255.81
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	92	255.16
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	494	83.2
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	368	28.65
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	411	60.64
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	509	131.81
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	4752	19333.26
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	136174	881110.5
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	14042	51211.72
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	849	14586.25
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	14196	67559.36
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	2323	1785.14
1	1	1365000	10070	Low tension	Wire Secondary	0477.00	Wire Secondary,	7407	48635.8
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	880	5703.23
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	254349	78435.16
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	862	60.3
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	30761	2639.86
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	53495	13531.47
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	1288	386.12
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	22043	5401.16
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1646	187.15
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	7260	3973.73
1	1	1365000	10070	Low tension	Wire Secondary	0133.00	Wire Secondary,	320	1591.08
1	1	1365000	10070	Low tension	Wire Secondary	0010.00	Wire Secondary,	344	106.57
1	1	1365000	10070	Low tension	Wire Secondary	0008.00	Wire Secondary,	598	180.24
1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	744	1584.05

1	1	1365000	10070	Low tension	Wire Secondary	0006.00	Wire Secondary,	1619	647.94
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	293	101.56
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	800	237.18
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	1540	862
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	150	664.27
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	7532	77383.76
1	1	1365000	10070	Low tension	Wire Secondary	0000.00	Wire Secondary,	27052	111030.5
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	700	1563.67
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	92	218.33
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	2751362	13575605
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	129551	469738
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	110	32.79
1	1	1365000	10070	Low tension	Wire Secondary	0002.00	Wire Secondary,	130	39.02
1	1	1365000	10070	Low tension	Wire Secondary	0350.00	Wire Secondary,	460	565.68
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	9594	65190.82
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	45086	257971.5
1	1	1365000	10070	Low tension	Wire Secondary	0004.00	Wire Secondary,	19686	69056.13
1	1	1365000	10070	Low tension	Wire Secondary	0211.00	Wire Secondary,	1305	7431.91
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	2113	15460.52
1	1	1365000	10070	Low tension	Wire Secondary	0105.00	Wire Secondary,	101	152.31

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to City of New York Interrogatories – Set City-6
Date of Response: 05/02/2016
Responding Witness: Demand Analysis & Cost of Service Panel

Question No. : 204

Referring to the Electric Work Papers for Exhibit __ (DAC-2) Schedule 1.xlsx file, tab labeled "2010 UG Conductor Min Sys" (page 48), provide the following information:

a. Identify the specific UG distribution equipment associated with each element contained in Column A.

b. Identify and provide the source for the quantities of the equipment identified in Column B.

c. Identify and provide the source for all of the cost data contained in Column C.

d. With respect to the Minimum System Cost of $464.2 million contained in cell C25, provide the following:

i. All calculations.

ii. Identify the specific UG equipment, quantities, and costs that constitute the minimum system.

iii. Rationale for selecting the equipment identified in (ii) above.

e. With respect to the Minimum System Unit Cost of $1.76 contained in cell B25, provide the following:

i. All calculations.

ii. Identify the specific UG equipment, quantities, and costs that constitute the minimum system.

iii. Rationale for selecting the equipment identified in (ii) above.

Response

a. The distribution equipment associated with the development of the customer component of underground conductors is as follows:

7001	Cable Secondary 110/240 Volt
7091	Cable Secondary 265/460 Volt
7092	Cable Secondary URD
7093	Cable Secondary Buried
7095	Cable Secondary in Duct – Buried

b. The source for the quantities of the equipment identified in Column B is from the Company's Property Records Department responsible for maintaining the Company's assets on the books of account. Please see the attached document, "NYC 6 – 204 Attachment". The tab entitled "NYC6-204-b&c" was downloaded directly from our asset sub-ledger.

c. Please see response to NYC 6-204-b above. The quantity and cost data is from the same source.

d. With respect to the Minimum System Cost of $464.2 million contained in cell C25:
   i. Please see the attached document, "NYC 6 – 204 Attachment". The tab entitled "NYC6-204-d-i" provides the calculation supporting the $464.2 million.

   ii. Please see the attached document, "NYC 6 – 204 Attachment". The tab entitled "NYC6-204-d-ii"identifies the specific equipment, quantities, and costs that constitute the minimum system.

   iii. Please see the Company's response to NYC 6 – 203 – d which states that, "The equipment which constitutes the minimum system is the result of a joint collaborative which stemmed from 04-E-0572. A Memorandum of Understanding ("MOU") agreed to and signed by the parties resulted in a minimum system methodology to be used in determining the customer component of low tension distribution plant. This MOU further determined that this minimum size will be calculated using the weighted average unit cost of installed wire sizes from 1 to 10.

e. With respect to the Minimum Size Unit Cost of $1.76 contained in cell B25:
   i. Please see the response to NYC6-204-d-ii above. The same tab referenced above provides the calculation supporting the $1.76 weighted average unit cost of the minimum sized wire.

   ii. Please see the response to NYC6-204-d-ii above. The same tab referenced above identifies the specific equipment, quantities, and costs that constitute the minimum system.

   iii. Please see the response to NYC6-204-d-iii above.

ACCT	1367000
HT / LT	Low Tension

Row Labels	Sum of SUM(QTY)	Sum of SUM(COST)
7001	261,386,265	$2,175,741,581
7091	732,507	$13,450,285
7092	1,241,089	$1,026,410
7093	669,312	$6,224,051
7095	63,177	$592,655
Grand Total	**264,092,350**	**$2,197,034,981**

Minimum Systei	$ 1.76	$464,172,554
% Customer	21.13%	
% Demand	78.87%	

BUS_SEG	ACCT	PROP_UNIT	Old RAMIS Account	SIZE#	HT / LT	DESCR	SUM(QTY)	SUM(COST)
1	1367000	10134	7092	350	Low Tension	Cable Secondary - Urd, Alum U.R.D. Cable, 350 Mcm, Diam	150	1018.31
1	1367000	10134	7092	211	Low Tension	Cable Secondary - Urd, Propylene Rubber, 211 Mcm, Diam	31911	247735.41
1	1367000	10164	7093	500	Low Tension	Cable Secondary - Buried, Rubber & Neoprene, 500 Mcm, Diam	1465	26900.95
1	1367000	10164	7093	350	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 350 Mcm, Diam	14485	135912.21
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 211 Mcm, Diam	8025	131159.98
1	1367000	10164	7093	167	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 167 Mcm, Diam	5001	40950
1	1367000	10164	7093	133	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 133 Mcm, Diam	9710	125183.72
1	1367000	10164	7093	105	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 105 Mcm, Diam	405	3204.69
1	1367000	10164	7093	2	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 2 Awg, Diam	2454	26150.06
1	1367000	10164	7093	600	Low Tension	Cable Secondary - Buried, Rubber & Neoprene, 600 Mcm, Diam	1280	3446.22
1	1367000	10164	7093	500	Low Tension	Cable Secondary - Buried, Rubber & Neoprene, 500 Mcm, Diam	12779	165059.03
1	1367000	10164	7093	350	Low Tension	Cable Secondary - Buried, Rubber & Neoprene, 350 Mcm, Diam	20	261.02
1	1367000	10164	7093	350	Low Tension	Cable Secondary - Buried, Propylene Rubber, 350 Mcm, Diam	11539	30893.44
1	1367000	10164	7093	350	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 350 Mcm, Diam	36786	231155.29
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Rubber & Neoprene, 211 Mcm, Diam	985	11522.56
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Propylene Rubber, 211 Mcm, Diam	531	1628.75
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 211 Mcm, Diam	24823	460719.58
1	1367000	10164	7093	167	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 167 Mcm, Diam	7146	50963.11
1	1367000	10164	7093	133	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 133 Mcm, Diam	17703	234587.37
1	1367000	10164	7093	105	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 105 Mcm, Diam	5313	38056.29
1	1367000	10164	7093	2	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 2 Awg, Diam	2890	50935.26
1	1367000	10164	7093	350	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 350 Mcm, Diam	1257	8591.26
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Propylene Rubber, 211 Mcm, Diam	7311	57802.43
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 211 Mcm, Diam	25173	177138.25
1	1367000	10164	7093	133	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 133 Mcm, Diam	1980	20054.18
1	1367000	10164	7093	500	Low Tension	Cable Secondary - Buried, Rubber & Neoprene, 500 Mcm, Diam	1259	20237.25
1	1367000	10164	7093	350	Low Tension	Cable Secondary - Buried, Rubber & Neoprene, 350 Mcm, Diam	333	1214.99
1	1367000	10164	7093	350	Low Tension	Cable Secondary - Buried, Propylene Rubber, 350 Mcm, Diam	7491	31814.4
1	1367000	10164	7093	350	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 350 Mcm, Diam	6287	41201.62
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Rubber & Neoprene, 211 Mcm, Diam	2433	32462.58
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Propylene Rubber, 211 Mcm, Diam	104304	668781.1
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 211 Mcm, Diam	259736	2573496.42
1	1367000	10164	7093	167	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 167 Mcm, Diam	1803	6887.11
1	1367000	10164	7093	133	Low Tension	Cable Secondary - Buried, Rubber & Neoprene, 133 Mcm, Diam	1287	7277.87
1	1367000	10164	7093	133	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 133 Mcm, Diam	59605	568988.82
1	1367000	10164	7093	105	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 105 Mcm, Diam	1491	6161.48
1	1367000	10164	7093	2	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 2 Awg, Diam	1562	16634.18
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Rubber & Neoprene, 211 Mcm, Diam	1278	10293.34
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Rubber & Neoprene, 211 Mcm, Diam	2655	20692.74
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 211 Mcm, Diam	303	2148.43
1	1367000	10164	7093	500	Low Tension	Cable Secondary - Buried, Rubber & Neoprene, 500 Mcm, Diam	5391	64211.33
1	1367000	10164	7093	350	Low Tension	Cable Secondary - Buried, Propylene Rubber, 350 Mcm, Diam	3054	26719.31
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Propylene Rubber, 211 Mcm, Diam	198	1138.17
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Bare & Bare, 211 Mcm, Diam	1210	3517.29
1	1367000	10164	7093	211	Low Tension	Cable Secondary - Buried, Alum U.R.D. Cable, 211 Mcm, Diam	7497	87230.34
1	1367000	10194	7001	1000	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 1000 Mcm, Diam	160	436.01
1	1367000	10194	7001	1000	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 1000 Mcm, Diam	51	56.41
1	1367000	10194	7001	600	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	1079	2873.13
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	37896	615105.2
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 500 Mcm, Diam	723	857.11
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 500 Mcm, Diam	840	25248.8
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 500 Mcm, Diam	851	1756.81
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	11280	18884.25
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	51543	161272.49
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Alum U.R.D. Cable, 350 Mcm, Diam	2007	11669.39
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 250 Mcm, Diam	1764	864.98
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	64241	111657.46
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 211 Mcm, Diam	5208	3238.67
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 211 Mcm, Diam	938	546.1
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	34911	88816.43
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Alum U.R.D. Cable, 211 Mcm, Diam	11247	176412.38
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	2671	4706.93
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 133 Mcm, Diam	18070	8229.93
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 133 Mcm, Diam	1794	1010.18
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Copper Urd Cable, 133 Mcm, Diam	3366	88340.37
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 133 Mcm, Diam	730	305.65
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 133 Mcm, Diam	3003	856.05
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 105 Mcm, Diam	3362	674.13
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 105 Mcm, Diam	879	2929.76
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 8 Awg, Diam	164	70.52
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Varni Cambr & Lead, 6 Awg, Diam	233	23.94
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 6 Awg, Diam	92	28.65
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 6 Awg, Diam	50	30.75
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 6 Awg, Diam	50	10.44
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 6 Awg, Diam	404	117.4
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Varni Cambr & Lead, 2 Awg, Diam	465	62.23
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	1090	1419.4
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 2 Awg, Diam	6336	1456.2
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 2 Awg, Diam	888	258.57
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Copper Urd Cable, 2 Awg, Diam	459	7044.39

1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 2 Awg, Diam	2577	527.4
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 2 Awg, Diam	1911	311.24
1	1367000	10194	7001	0	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, No Size,	2087	2356.77
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 750 Mcm, Diam	60010	2571768.99
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 750 Mcm, Diam	9336	54567.93
1	1367000	10194	7001	600	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	193026	893692.9
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	1357179	37172861.31
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 500 Mcm, Diam	70278	1800791.17
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 500 Mcm, Diam	3616	5801.14
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 500 Mcm, Diam	51090	1139803.9
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 500 Mcm, Diam	3586	2988.25
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 500 Mcm, Diam	2530	4245.14
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Sheath Prot, 350 Mcm, Diam	825	1503.76
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	140419	309609.37
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 350 Mcm, Diam	94882	55657.4
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 350 Mcm, Diam	3392	2166.06
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	2254672	10030420.26
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 350 Mcm, Diam	19987	13995.01
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Alum U.R.D. Cable, 350 Mcm, Diam	789	3455.04
1	1367000	10194	7001	300	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 300 Mcm, Diam	13	8.79
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 250 Mcm, Diam	39899	25665.15
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Tree, 211 Mcm, Diam	1747	960.43
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	992716	1795008.3
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 211 Mcm, Diam	137904	69261.84
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 211 Mcm, Diam	83014	67374.32
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 211 Mcm, Diam	55587	113905.28
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 211 Mcm, Diam	15558	145633.28
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 211 Mcm, Diam	459	221.17
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 211 Mcm, Diam	2062	943.8
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	1034253	4611401.87
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Alum U.R.D. Cable, 211 Mcm, Diam	23356	502803.71
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 200 Mcm, Diam	1212	696.14
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 200 Mcm, Diam	3541	2011.72
1	1367000	10194	7001	167	Low Tension	Cable Secondary 110/240 Volt, Alum U.R.D. Cable, 167 Mcm, Diam	1524	12126.94
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	19298	218208.18
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 133 Mcm, Diam	25827	11357.85
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 133 Mcm, Diam	3838	1589.12
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 133 Mcm, Diam	268	130.84
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Copper Urd Cable, 133 Mcm, Diam	16466	416360.89
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 133 Mcm, Diam	5657	1614.03
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 133 Mcm, Diam	43265	7254.83
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 105 Mcm, Diam	814	393.73
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 105 Mcm, Diam	30243	87169.55
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 105 Mcm, Diam	348	197.02
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 105 Mcm, Diam	63	10.96
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Alum U.R.D. Cable, 105 Mcm, Diam	3192	21989.84
1	1367000	10194	7001	40	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 40 Awg, Diam	910	465.89
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Varni Cambr & Lead, 8 Awg, Diam	87	34.77
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 8 Awg, Diam	713	460.65
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 8 Awg, Diam	231	147.41
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Tree, 6 Awg, Diam	43	4.64
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 6 Awg, Diam	7947	15350.85
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 6 Awg, Diam	2901	940.06
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 6 Awg, Diam	952	396.19
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 6 Awg, Diam	11367	633.6
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 6 Awg, Diam	1507	235.98
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 4 Awg, Diam	361	130.59
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 4 Awg, Diam	3003	5740.52
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 4 Awg, Diam	9507	716.05
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Sheath Prot, 2 Awg, Diam	300	679.63
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	16137	138540.05
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 2 Awg, Diam	8015	2650.98
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 2 Awg, Diam	2773	1029.03
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Copper Urd Cable, 2 Awg, Diam	5378	101513.91
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 2 Awg, Diam	2835	546.11
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 2 Awg, Diam	4218	895.52
1	1367000	10194	7001	1	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 1 Awg, Diam	302	176.93
1	1367000	10194	7001	0	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, No Size,	2946	12005.12
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	1042	40749.31
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	268	345.36
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	804	1100.94
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	3550	23880.25
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	409	179.67
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Alum U.R.D. Cable, 211 Mcm, Diam	5353	71034.93
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	1170	665.04
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Copper Urd Cable, 133 Mcm, Diam	732	9814.35
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 750 Mcm, Diam	5440	153089.95
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 750 Mcm, Diam	35256	273773.68
1	1367000	10194	7001	600	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	8391	50896.46
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	180220	3580679.31
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 500 Mcm, Diam	472	60689.76

1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 500 Mcm, Diam	2720	25983.81
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 500 Mcm, Diam	3096	5864
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	26732	54028.12
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	138550	438402.39
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	148652	439358.91
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 211 Mcm, Diam	29481	106822.16
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 211 Mcm, Diam	900	2215.05
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	55055	109542.14
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Alum U.R.D. Cable, 211 Mcm, Diam	256054	3749613.37
1	1367000	10194	7001	167	Low Tension	Cable Secondary 110/240 Volt, Alum U.R.D. Cable, 167 Mcm, Diam	600	1833.29
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	667	4116.84
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Copper Urd Cable, 133 Mcm, Diam	9470	155494.14
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Alum U.R.D. Cable, 105 Mcm, Diam	300	3170.94
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 6 Awg, Diam	240	283.12
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 4 Awg, Diam	240	380.87
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	4666	75667.8
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Copper Urd Cable, 2 Awg, Diam	10565	167003.48
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 2 Awg, Diam	86	23.65
1	1367000	10194	7001	600	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	3359	8459.53
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	73807	1349321.32
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 500 Mcm, Diam	2052	2298.84
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 500 Mcm, Diam	2688	1414.13
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 500 Mcm, Diam	180	116
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	4210	4031.53
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	57984	219132.19
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 250 Mcm, Diam	180	63.36
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 250 Mcm, Diam	759	267.22
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	60570	90168.27
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 211 Mcm, Diam	4334	2567.75
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 211 Mcm, Diam	3148	1332.65
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 211 Mcm, Diam	912	1607.08
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 211 Mcm, Diam	2952	10990.99
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 211 Mcm, Diam	732	296.86
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	65562	242510.94
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	11451	14686.7
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 133 Mcm, Diam	912	348.24
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 133 Mcm, Diam	3093	1072.08
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 133 Mcm, Diam	106	23.12
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 133 Mcm, Diam	835	172.87
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 105 Mcm, Diam	504	891.01
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 6 Awg, Diam	991	2439.61
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 6 Awg, Diam	101	11.32
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 6 Awg, Diam	536	65.81
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 4 Awg, Diam	202	28.93
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 4 Awg, Diam	208	29.79
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	2219	3410.09
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 2 Awg, Diam	195	60.67
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 2 Awg, Diam	3417	777.05
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 2 Awg, Diam	593	49.22
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 750 Mcm, Diam	101941	3002822.82
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 750 Mcm, Diam	1872	2062.01
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 750 Mcm, Diam	19356	147790.37
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 750 Mcm, Diam	2345	3797.36
1	1367000	10194	7001	600	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	1064073	3198386.99
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Sheath Prot, 500 Mcm, Diam	1717	21192.44
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	15506499	307006975.4
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 500 Mcm, Diam	164645	181088.91
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 500 Mcm, Diam	486143	260758.49
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Poly & Lead, 500 Mcm, Diam	2397	33497.56
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 500 Mcm, Diam	93136	1486644.84
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Pap & S.A. Submarine, 500 Mcm, Diam	751	4085.52
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 500 Mcm, Diam	44594	103051.64
1	1367000	10194	7001	450	Low Tension	Cable Secondary 110/240 Volt, Pap & S.A. Submarine, 450 Mcm, Diam	271	1897
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	1103434	1317449.62
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 350 Mcm, Diam	3816	8557.46
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 350 Mcm, Diam	501	189.92
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	13082416	37461163.87
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 350 Mcm, Diam	200	833.99
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Pap & S.A. Submarine, 350 Mcm, Diam	849	1468.77
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Aluminum - Bare Wire, 350 Mcm, Diam	100	49.2
1	1367000	10194	7001	300	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 300 Mcm, Diam	411	319.28
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 250 Mcm, Diam	17097	6467.22
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 250 Mcm, Diam	62658	21906.5
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 250 Mcm, Diam	186	156.26
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 250 Mcm, Diam	2215	503.63
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	23889601	23164331.18
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 211 Mcm, Diam	707841	424939.33
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 211 Mcm, Diam	461589	155304.65
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 211 Mcm, Diam	48241	147296.23
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 211 Mcm, Diam	22421	72912.65
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 211 Mcm, Diam	4259	1581.8

1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	17041721	58982191.55
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Alum & Bare Braid, 211 Mcm, Diam	1340	14071.11
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 200 Mcm, Diam	471	114.03
1	1367000	10194	7001	150	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 150 Mcm, Diam	909	390.87
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	280991	722941.05
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 133 Mcm, Diam	61587	32262.85
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 133 Mcm, Diam	85403	32404.8
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Poly & Lead, 133 Mcm, Diam	2807	16854.32
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Paper & Sheath Prot, 133 Mcm, Diam	924	3156.87
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 133 Mcm, Diam	17824	6078.78
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 133 Mcm, Diam	90680	17281.24
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 105 Mcm, Diam	40881	169670.93
1	1367000	10194	7001	80	Low Tension	Cable Secondary 110/240 Volt, Varni Cambr & Lead, 80 Awg, Diam	498	240.24
1	1367000	10194	7001	12	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 12 Awg, Diam	35	20.42
1	1367000	10194	7001	10	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 10 Awg, Diam	135	99.9
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 8 Awg, Diam	303	65.33
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 6 Awg, Diam	76195	51937.62
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 6 Awg, Diam	76302	27708.77
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 6 Awg, Diam	37354	6157.19
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 6 Awg, Diam	858	55.81
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 4 Awg, Diam	582	80.43
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 4 Awg, Diam	7363	8662.13
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 4 Awg, Diam	70	23.89
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	180195	546853.92
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 2 Awg, Diam	34615	11811.24
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 2 Awg, Diam	48588	10202.62
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 2 Awg, Diam	6721	807.91
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 750 Mcm, Diam	28328	991564.57
1	1367000	10194	7001	600	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	988	4553.77
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	92633	2873717.7
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 500 Mcm, Diam	1160	1270.44
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 500 Mcm, Diam	1924	1323.35
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 500 Mcm, Diam	600	842.4
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	1892	4129.1
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	11604	33578.72
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	42516	47339.12
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 211 Mcm, Diam	41857	27301.41
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 211 Mcm, Diam	4551	2028.14
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 211 Mcm, Diam	1884	6254.88
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Lead, 211 Mcm, Diam	3155	1706.73
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	66053	396541.35
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 200 Mcm, Diam	2520	1237.77
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 6 Awg, Diam	88	29.9
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	444	3562.82
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 750 Mcm, Diam	741194	34038273.2
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 750 Mcm, Diam	688	837.22
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 750 Mcm, Diam	9684	60222.02
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Poly & Lead, 750 Mcm, Diam	219	2646.24
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 750 Mcm, Diam	7938	14080.87
1	1367000	10194	7001	600	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	89868	371955.6
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	25301264	714255137
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 500 Mcm, Diam	573022	868000.33
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 500 Mcm, Diam	1872	1575.68
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 500 Mcm, Diam	7688	97560.04
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 500 Mcm, Diam	1847	1503.66
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Lead, 500 Mcm, Diam	832	753.68
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 500 Mcm, Diam	1882	1701.49
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	67990	167072.39
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 350 Mcm, Diam	38830	25634.93
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	763623	2315704.58
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 350 Mcm, Diam	9373	19966.91
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Lead, 350 Mcm, Diam	9906	7346.17
1	1367000	10194	7001	306	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 306 Mcm, Diam	0	0
1	1367000	10194	7001	300	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 300 Mcm, Diam	2415	1547.04
1	1367000	10194	7001	264	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 264 Mcm, Diam	266	225.14
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 250 Mcm, Diam	750	469.42
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 250 Mcm, Diam	72834	52644.29
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 250 Mcm, Diam	428	185.67
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	10138166	17211379.7
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 211 Mcm, Diam	11568311	22190414.39
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 211 Mcm, Diam	44882	20606.39
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 211 Mcm, Diam	3428	12773.57
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 211 Mcm, Diam	256	614.42
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 211 Mcm, Diam	8483	4226.42
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Lead, 211 Mcm, Diam	110789	73094.94
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 211 Mcm, Diam	4010	2256.11
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	18243430	99385353.08
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 200 Mcm, Diam	683320	290757
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 200 Mcm, Diam	54460	22607.05
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Lead, 200 Mcm, Diam	11532	4762.71
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 200 Mcm, Diam	495	169.92

1	1367000	10194	7001	167	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 167 Mcm, Diam	51	25.28
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	3900	24050.75
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 133 Mcm, Diam	10011	4494.52
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Poly & Sheath Prot, 133 Mcm, Diam	3855	112531.31
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Poly & Lead, 133 Mcm, Diam	420	2555.65
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 133 Mcm, Diam	61185	26608.72
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 133 Mcm, Diam	423	151.2
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 105 Mcm, Diam	1618	651.71
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 105 Mcm, Diam	1776	685.42
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 105 Mcm, Diam	40	6.8
1	1367000	10194	7001	80	Low Tension	Cable Secondary 110/240 Volt, Varni Cambr & Lead, 80 Awg, Diam	29	0
1	1367000	10194	7001	80	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 80 Awg, Diam	55740	15471.76
1	1367000	10194	7001	80	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 80 Awg, Diam	386	113.31
1	1367000	10194	7001	80	Low Tension	Cable Secondary 110/240 Volt, Lead, 80 Awg, Diam	393	115.92
1	1367000	10194	7001	40	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 40 Awg, Diam	702	199.23
1	1367000	10194	7001	40	Low Tension	Cable Secondary 110/240 Volt, Lead, 40 Awg, Diam	144	38.96
1	1367000	10194	7001	12	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 12 Awg, Diam	32	3.67
1	1367000	10194	7001	10	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 10 Awg, Diam	303	143.2
1	1367000	10194	7001	10	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 10 Awg, Diam	30	5.04
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 8 Awg, Diam	250	62.45
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 6 Awg, Diam	53621	58796.04
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 6 Awg, Diam	54502	28769.47
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 6 Awg, Diam	356	70.08
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 6 Awg, Diam	208	45.84
1	1367000	10194	7001	5	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 5 Awg, Diam	142	30.34
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 4 Awg, Diam	6779	10099.43
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 4 Awg, Diam	161	71
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 4 Awg, Diam	1471	176.34
1	1367000	10194	7001	3	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 3 Awg, Diam	8409	3252.65
1	1367000	10194	7001	3	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 3 Awg, Diam	342	114.63
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	6420	23747.94
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 2 Awg, Diam	9168	4489.32
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 2 Awg, Diam	189	103.51
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 2 Awg, Diam	2406	1244.19
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 750 Mcm, Diam	3232	2035.91
1	1367000	10194	7001	600	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	3899	11034.48
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	110094	1974588.25
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 500 Mcm, Diam	34315	20580.83
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 500 Mcm, Diam	4298	3697.92
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 500 Mcm, Diam	12726	8942.7
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 500 Mcm, Diam	1369	721.23
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	4255	6381.82
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	44067	95832.46
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 350 Mcm, Diam	772	2329.42
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 350 Mcm, Diam	0	0
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 250 Mcm, Diam	403	80.07
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	203282	346794.6
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 211 Mcm, Diam	8720	6315.02
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 211 Mcm, Diam	7472	5527.59
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 211 Mcm, Diam	940	3344.26
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 211 Mcm, Diam	94	17.92
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 211 Mcm, Diam	972	204.16
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	117472	325109.49
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 200 Mcm, Diam	2646	1222.08
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 200 Mcm, Diam	1173	432.5
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	17729	63500.84
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 133 Mcm, Diam	1988	1556.97
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 133 Mcm, Diam	943	735.51
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 133 Mcm, Diam	654	114.84
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 133 Mcm, Diam	1521	417.96
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 105 Mcm, Diam	105	221.17
1	1367000	10194	7001	80	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 80 Awg, Diam	6908	1635.79
1	1367000	10194	7001	41	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 41 Awg, Diam	1210	317.51
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Steel Armored, 8 Awg, Diam	150	78
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Rubber & St Armored, 8 Awg, Diam	30	13.5
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 8 Awg, Diam	458	88.11
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 8 Awg, Diam	280	130.68
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 6 Awg, Diam	908	1533.41
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 6 Awg, Diam	774	294.49
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 6 Awg, Diam	24	5.86
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 6 Awg, Diam	202	96.24
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 6 Awg, Diam	149	14.57
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Steel Armored, 4 Awg, Diam	164	98.4
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Rubber & St Armored, 4 Awg, Diam	450	211.5
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 4 Awg, Diam	617	117.27
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	2810	6899.46
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 2 Awg, Diam	91	17.27
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 2 Awg, Diam	360	164.4
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 2 Awg, Diam	97	7.78
1	1367000	10194	7001	1250	Low Tension	Cable Secondary 110/240 Volt, Varni Cambr & Lead, 1250 Mcm, Diam	164	213.85
1	1367000	10194	7001	1250	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 1250 Mcm, Diam	15	21.75

1	1367000	10194	7001	1000	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 1000 Mcm, Diam	4091	5009.39
1	1367000	10194	7001	1000	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 1000 Mcm, Diam	294	643.21
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 750 Mcm, Diam	102722	3689947.72
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 750 Mcm, Diam	2619	2677.82
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 750 Mcm, Diam	77220	655355.45
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 750 Mcm, Diam	488	871.29
1	1367000	10194	7001	600	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	855961	2758792.26
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	19369518	366819529.5
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 500 Mcm, Diam	4314185	2700217.33
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 500 Mcm, Diam	159527	138588.59
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Poly & Lead, 500 Mcm, Diam	834	10957.24
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 500 Mcm, Diam	9927	62498.68
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 500 Mcm, Diam	1951202	1321180.08
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 500 Mcm, Diam	43240	93483.7
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	835375	1083955.53
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 350 Mcm, Diam	39419	31347.79
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	9046268	23851161
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 350 Mcm, Diam	732	1919.1
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 350 Mcm, Diam	167806	103594.25
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 250 Mcm, Diam	102	58.2
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 250 Mcm, Diam	211343	41094.69
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Tree, 211 Mcm, Diam	265	71.5
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	15436857	18291407.65
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 211 Mcm, Diam	786306	485660.1
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 211 Mcm, Diam	137902	64115.01
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 211 Mcm, Diam	52302	153841.29
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 211 Mcm, Diam	7040	21912.49
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 211 Mcm, Diam	45302	11746.99
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	17127702	60539846.14
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Alum U.R.D. Cable, 211 Mcm, Diam	360	356.46
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 200 Mcm, Diam	100496	46209.23
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 200 Mcm, Diam	12291	4458.92
1	1367000	10194	7001	150	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 150 Mcm, Diam	1438	495.04
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	281878	1260370.12
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 133 Mcm, Diam	343801	95709.59
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 133 Mcm, Diam	26845	12670.38
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Poly & Lead, 133 Mcm, Diam	9096	55397.2
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Paper & Sheath Prot, 133 Mcm, Diam	1239	7136.19
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 133 Mcm, Diam	64	18.65
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 133 Mcm, Diam	16971	2852.59
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 133 Mcm, Diam	206214	34839.16
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 105 Mcm, Diam	33294	136801.68
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Alum U.R.D. Cable, 105 Mcm, Diam	2055	4780.55
1	1367000	10194	7001	80	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 80 Awg, Diam	169352	43712.79
1	1367000	10194	7001	41	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 41 Awg, Diam	50784	13289.57
1	1367000	10194	7001	41	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 41 Awg, Diam	242	50.7
1	1367000	10194	7001	12	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 12 Awg, Diam	312	143.74
1	1367000	10194	7001	12	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 12 Awg, Diam	117	36.27
1	1367000	10194	7001	10	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 10 Awg, Diam	858	263.09
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Steel Armored, 8 Awg, Diam	305	212.19
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Rubber & St Armored, 8 Awg, Diam	1244	839.98
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 8 Awg, Diam	28073	5645.4
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 8 Awg, Diam	75	35.25
1	1367000	10194	7001	8	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 8 Awg, Diam	8013	3637.16
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & St Armored, 6 Awg, Diam	315	204.1
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 6 Awg, Diam	57250	133195.16
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 6 Awg, Diam	85317	30850.56
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 6 Awg, Diam	11844	3801.1
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 6 Awg, Diam	19794	9135.31
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 6 Awg, Diam	1780	255.39
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Steel Armored, 4 Awg, Diam	72	36
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Rubber & St Armored, 4 Awg, Diam	365	221.16
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 4 Awg, Diam	2389	544.34
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 4 Awg, Diam	6122	7490.43
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 4 Awg, Diam	3270	1514.38
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 4 Awg, Diam	5706	464.64
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 4 Awg, Diam	27	1.89
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	122582	606475.1
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 2 Awg, Diam	69907	21362.8
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 2 Awg, Diam	9598	3314.15
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 2 Awg, Diam	625	149.31
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 2 Awg, Diam	19271	2261.32
1	1367000	10194	7001	1	Low Tension	Cable Secondary 110/240 Volt, Varni Cambr & Lead, 1 Awg, Diam	32	9.04
1	1367000	10194	7001	1	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 1 Awg, Diam	8529	2391.86
1	1367000	10194	7001	0	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, No Size,	399	858.19
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 750 Mcm, Diam	888	25799.98
1	1367000	10194	7001	600	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	444	1337.91
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	28205	557399.54
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 500 Mcm, Diam	2711	2359.51
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 500 Mcm, Diam	156	181.74
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	1658	2908.79

1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	13416	57085.97
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	43255	85137.2
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 211 Mcm, Diam	4931	2173.4
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	27511	78323.11
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 200 Mcm, Diam	1317	579.05
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	2577	16043.04
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 105 Mcm, Diam	246	1672.72
1	1367000	10194	7001	80	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 80 Awg, Diam	192	82.82
1	1367000	10194	7001	40	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 40 Awg, Diam	128	39.68
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 6 Awg, Diam	165	59.31
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 6 Awg, Diam	75	20.81
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 4 Awg, Diam	208	32.11
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	457	1173.64
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 750 Mcm, Diam	84153	3163194.23
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 750 Mcm, Diam	18432	96246.06
1	1367000	10194	7001	750	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 750 Mcm, Diam	930	1652.53
1	1367000	10194	7001	600	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	436310	1592096.98
1	1367000	10194	7001	550	Low Tension	Cable Secondary 110/240 Volt, Lead, 550 Mcm, Diam	244	248.88
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	7889042	208209125.5
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 500 Mcm, Diam	522350	2893952.08
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 500 Mcm, Diam	20035	15392.48
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 500 Mcm, Diam	16144	201513.82
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 500 Mcm, Diam	61008	50067.49
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Lead, 500 Mcm, Diam	5017	3836.28
1	1367000	10194	7001	500	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 500 Mcm, Diam	4120	4077.33
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	258159	485651.28
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 350 Mcm, Diam	172533	116729.1
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	4378803	14495239.92
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 350 Mcm, Diam	318067	214053.07
1	1367000	10194	7001	350	Low Tension	Cable Secondary 110/240 Volt, Lead, 350 Mcm, Diam	10450	6940.37
1	1367000	10194	7001	300	Low Tension	Cable Secondary 110/240 Volt, Poly & Lead, 300 Mcm, Diam	1023	10035.17
1	1367000	10194	7001	250	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 250 Mcm, Diam	0	0
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Sheath Prot, 211 Mcm, Diam	288	497422.6
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	6236244	7777519.13
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 211 Mcm, Diam	4128450	2097928.85
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 211 Mcm, Diam	234262	92612.37
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 211 Mcm, Diam	34317	108201.75
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Poly & Bare, 211 Mcm, Diam	676	5257.79
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 211 Mcm, Diam	1227	740.54
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Lead, 211 Mcm, Diam	1636	803.12
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 211 Mcm, Diam	1515	728.25
1	1367000	10194	7001	211	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	7012662	30198819.44
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 200 Mcm, Diam	31178	17015.22
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 200 Mcm, Diam	1100877	553766.67
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Lead, 200 Mcm, Diam	26176	13549.09
1	1367000	10194	7001	200	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 200 Mcm, Diam	23856	5739.96
1	1367000	10194	7001	167	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 167 Mcm, Diam	456	118.59
1	1367000	10194	7001	150	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 150 Mcm, Diam	1713	651.24
1	1367000	10194	7001	150	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 150 Mcm, Diam	950	340.21
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	80415	481354.61
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 133 Mcm, Diam	16553	9301.09
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 133 Mcm, Diam	5153	2580.21
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Poly & Lead, 133 Mcm, Diam	174	1661.2
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 133 Mcm, Diam	141	59.22
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Lead, 133 Mcm, Diam	195	115.94
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 133 Mcm, Diam	215	91.68
1	1367000	10194	7001	133	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 133 Mcm, Diam	1130	394.89
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 105 Mcm, Diam	18757	77351.02
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 105 Mcm, Diam	509	127.72
1	1367000	10194	7001	105	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 105 Mcm, Diam	505	85.19
1	1367000	10194	7001	80	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 80 Awg, Diam	9634	2708.1
1	1367000	10194	7001	80	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 80 Awg, Diam	63	18.9
1	1367000	10194	7001	80	Low Tension	Cable Secondary 110/240 Volt, Lead, 80 Awg, Diam	814	190.91
1	1367000	10194	7001	40	Low Tension	Cable Secondary 110/240 Volt, Varni Cambr & Lead, 40 Awg, Diam	3978	722.22
1	1367000	10194	7001	40	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 40 Awg, Diam	4456	1188.96
1	1367000	10194	7001	40	Low Tension	Cable Secondary 110/240 Volt, Paper & Lead, 40 Awg, Diam	101	25.35
1	1367000	10194	7001	40	Low Tension	Cable Secondary 110/240 Volt, Lead, 40 Awg, Diam	335	88.83
1	1367000	10194	7001	10	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 10 Awg, Diam	152	33.44
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 6 Awg, Diam	25459	23800.42
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 6 Awg, Diam	20294	8626.35
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 6 Awg, Diam	1108	392.42
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 6 Awg, Diam	261	61.54
1	1367000	10194	7001	6	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 6 Awg, Diam	278	44.19
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 4 Awg, Diam	162	51.84
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Propylene Rubber, 4 Awg, Diam	2566	6371.35
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 4 Awg, Diam	120	21.6
1	1367000	10194	7001	4	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 4 Awg, Diam	110248	13838.95
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	50057	296957.73
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Lead, 2 Awg, Diam	15839	5802.54
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, 2 Awg, Diam	3553	1194.42
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Lead, 2 Awg, Diam	86	27.65

1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Bare & Braid, 2 Awg, Diam	31	7.93
1	1367000	10194	7001	2	Low Tension	Cable Secondary 110/240 Volt, Bare & Bare, 2 Awg, Diam	3150	298.92
1	1367000	10194	7001	0	Low Tension	Cable Secondary 110/240 Volt, Rubber & Braid, No Size,	1185	2923.43
1	1367000	10195	7091	750	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 750 Mcm, Diam	23632	776942.17
1	1367000	10195	7091	500	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 500 Mcm, Diam	38112	1072518.27
1	1367000	10195	7091	350	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 350 Mcm, Diam	4048	6147.38
1	1367000	10195	7091	350	Low Tension	Cable Secondary 265/460 Volt, Propylene Rubber, 350 Mcm, Diam	12144	19646.96
1	1367000	10195	7091	750	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 750 Mcm, Diam	11744	202319.45
1	1367000	10195	7091	500	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 500 Mcm, Diam	2208	32214.44
1	1367000	10195	7091	211	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 211 Mcm, Diam	240	1585.2
1	1367000	10195	7091	750	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 750 Mcm, Diam	12508	288237.3
1	1367000	10195	7091	500	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 500 Mcm, Diam	15108	207297.69
1	1367000	10195	7091	211	Low Tension	Cable Secondary 265/460 Volt, Poly & Bare, 211 Mcm, Diam	3280	11102.82
1	1367000	10195	7091	211	Low Tension	Cable Secondary 265/460 Volt, Bare & Bare, 211 Mcm, Diam	344	1932.51
1	1367000	10195	7091	6	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 6 Awg, Diam	7284	20286.8
1	1367000	10195	7091	750	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 750 Mcm, Diam	125328	3073872.43
1	1367000	10195	7091	750	Low Tension	Cable Secondary 265/460 Volt, Propylene Rubber, 750 Mcm, Diam	6320	43842.36
1	1367000	10195	7091	500	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 500 Mcm, Diam	355339	7033937.74
1	1367000	10195	7091	350	Low Tension	Cable Secondary 265/460 Volt, Propylene Rubber, 350 Mcm, Diam	97	275.42
1	1367000	10195	7091	211	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 211 Mcm, Diam	21740	39127.03
1	1367000	10195	7091	211	Low Tension	Cable Secondary 265/460 Volt, Bare & Bare, 211 Mcm, Diam	10514	14833.37
1	1367000	10195	7091	6	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 6 Awg, Diam	1281	3267.1
1	1367000	10195	7091	4	Low Tension	Cable Secondary 265/460 Volt, Propylene Rubber, 4 Awg, Diam	160	200.25
1	1367000	10195	7091	750	Low Tension	Cable Secondary 265/460 Volt, Propylene Rubber, 750 Mcm, Diam	2912	11871.84
1	1367000	10195	7091	500	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 500 Mcm, Diam	20700	311429.11
1	1367000	10195	7091	211	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 211 Mcm, Diam	24269	23097.72
1	1367000	10195	7091	211	Low Tension	Cable Secondary 265/460 Volt, Bare & Bare, 211 Mcm, Diam	8238	4467.49
1	1367000	10195	7091	6	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 6 Awg, Diam	595	1171.3
1	1367000	10195	7091	750	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 750 Mcm, Diam	1080	37340.39
1	1367000	10195	7091	133	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 133 Mcm, Diam	1764	18045.85
1	1367000	10195	7091	500	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 500 Mcm, Diam	18396	192729.96
1	1367000	10195	7091	6	Low Tension	Cable Secondary 265/460 Volt, Rubber & Neoprene, 6 Awg, Diam	482	544.66
1	1367000	10210	7095	500	Low Tension	Cable Secondary In Duct - Buried, Rubber & Neoprene, 500 Mcm, Diam	420	5547.93
1	1367000	10210	7095	2	Low Tension	Cable Secondary In Duct - Buried, Alum U.R.D. Cable, 2 Mcm, Diam	150	2792.2
1	1367000	10210	7095	500	Low Tension	Cable Secondary In Duct - Buried, Rubber & Neoprene, 500 Mcm, Diam	2421	48648.09
1	1367000	10210	7095	211	Low Tension	Cable Secondary In Duct - Buried, Bare & Bare, 211 Mcm, Diam	840	12453.78
1	1367000	10210	7095	167	Low Tension	Cable Secondary In Duct - Buried, Alum U.R.D. Cable, 167 Mcm, Diam	390	3116.74
1	1367000	10210	7095	133	Low Tension	Cable Secondary In Duct - Buried, Alum U.R.D. Cable, 133 Mcm, Diam	126	1326.41
1	1367000	10210	7095	105	Low Tension	Cable Secondary In Duct - Buried, Alum U.R.D. Cable, 105 Mcm, Diam	210	1161.44
1	1367000	10210	7095	211	Low Tension	Cable Secondary In Duct - Buried, Propylene Rubber, 211 Mcm, Diam	1347	8274.01
1	1367000	10210	7095	211	Low Tension	Cable Secondary In Duct - Buried, Alum U.R.D. Cable, 211 Mcm, Diam	510	3142.58
1	1367000	10210	7095	500	Low Tension	Cable Secondary In Duct - Buried, Rubber & Neoprene, 500 Mcm, Diam	347	6132.04
1	1367000	10210	7095	350	Low Tension	Cable Secondary In Duct - Buried, Rubber & Neoprene, 350 Mcm, Diam	54	256.74
1	1367000	10210	7095	350	Low Tension	Cable Secondary In Duct - Buried, Propylene Rubber, 350 Mcm, Diam	699	4180.04
1	1367000	10210	7095	211	Low Tension	Cable Secondary In Duct - Buried, Propylene Rubber, 211 Mcm, Diam	45710	365216.13
1	1367000	10210	7095	211	Low Tension	Cable Secondary In Duct - Buried, Alum U.R.D. Cable, 211 Mcm, Diam	9203	122796.21
1	1367000	10210	7095	133	Low Tension	Cable Secondary In Duct - Buried, Alum U.R.D. Cable, 133 Mcm, Diam	585	5667.18
1	1367000	10210	7095	105	Low Tension	Cable Secondary In Duct - Buried, Alum U.R.D. Cable, 105 Mcm, Diam	165	1943.03
1	1367000	10214	7092	350	Low Tension	Cable Secondary -Urd 265/460 Volt, Propylene Rubber, 350 Awg, Diam	7800	6734.89
1	1367000	10214	7092	350	Low Tension	Cable Secondary -Urd 265/460 Volt, Alum U.R.D. Cable, 350 Awg, Diam	35460	26441.55
1	1367000	10214	7092	350	Low Tension	Cable Secondary -Urd 265/460 Volt, Rubber & Neoprene, 350 Awg, Diam	880	793.03
1	1367000	10214	7092	350	Low Tension	Cable Secondary -Urd 265/460 Volt, Propylene Rubber, 350 Awg, Diam	160725	97883.08
1	1367000	10214	7092	350	Low Tension	Cable Secondary -Urd 265/460 Volt, Alum U.R.D. Cable, 350 Awg, Diam	33630	18882.9
1	1367000	10214	7092	211	Low Tension	Cable Secondary -Urd 265/460 Volt, Rubber & Neoprene, 211 Awg, Diam	3300	2026.01
1	1367000	10214	7092	211	Low Tension	Cable Secondary -Urd 265/460 Volt, Propylene Rubber, 211 Awg, Diam	680070	480123.83
1	1367000	10214	7092	211	Low Tension	Cable Secondary -Urd 265/460 Volt, Alum U.R.D. Cable, 211 Awg, Diam	231078	122794.25
1	1367000	10214	7092	167	Low Tension	Cable Secondary -Urd 265/460 Volt, Alum U.R.D. Cable, 167 Awg, Diam	32790	11304.1
1	1367000	10214	7092	105	Low Tension	Cable Secondary -Urd 265/460 Volt, Alum U.R.D. Cable, 105 Awg, Diam	17730	7851.04
1	1367000	10214	7092	105	Low Tension	Cable Secondary -Urd 265/460 Volt, Propylene Rubber, 105 Awg, Diam	255	647.47
1	1367000	10214	7092	211	Low Tension	Cable Secondary -Urd 265/460 Volt, Rubber & Neoprene, 211 Awg, Diam	1710	1013.61
1	1367000	10214	7092	211	Low Tension	Cable Secondary -Urd 265/460 Volt, Propylene Rubber, 211 Awg, Diam	3000	973.08
1	1367000	10214	7092	105	Low Tension	Cable Secondary -Urd 265/460 Volt, Propylene Rubber, 105 Awg, Diam	600	187.33
1	1367000	25066	7093	2-0350.	Low Tension	S-Cable Secondary - Buried, Alum U.R.D. Cable, 350 Mcm, Diam	210	0
1	1367000	25066	7093	2-0350.	Low Tension	S-Cable Secondary - Buried, Alum U.R.D. Cable, 350 Mcm, Diam	90	0
1	1367000	25066	7093	2-0167.	Low Tension	S-Cable Secondary - Buried, Alum U.R.D. Cable, 167 Mcm, Diam	420	0
1	1367000	25066	7093	*-0133.	Low Tension	S-Cable Secondary - Buried, Alum U.R.D. Cable, 133 Mcm, Diam	354	666.95
1	1367000	25080	7001	600	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 600 Mcm, Diam	3540	22755.89
1	1367000	25080	7001	400	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 400 Mcm, Diam	660	4242.66
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 211 Mcm, Diam	1270	6247.14
1	1367000	25080	7001	105	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 105 Mcm, Diam	130	639.47
1	1367000	25080	7001	2	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	1098	0
1	1367000	25080	7001	350	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	3216	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Poly & Bare, 500 Mcm, Diam	312	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 500 Mcm, Diam	41	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	1144	3562.09
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	408	0
1	1367000	25080	7001	350	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	448	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	154	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	231	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	281535	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	445155	0

1	1367000	25080	7001	350	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	1176	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	2031	0
1	1367000	25080	7001	2	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	153	0
1	1367000	25080	7001	750	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 750 Mcm, Diam	160	0
1	1367000	25080	7001	350	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	164278	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 211 Mcm, Diam	236	0
1	1367000	25080	7001	105	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 105 Mcm, Diam	535	0
1	1367000	25080	7001	4	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 4 Awg, Diam	858	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	102871	0
1	1367000	25080	7001	750	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 750 Mcm, Diam	5968	0
1	1367000	25080	7001	600	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	1760	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	459632	0
1	1367000	25080	7001	350	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 350 Mcm, Diam	1326	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	4652	0
1	1367000	25080	7001	133	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	1083	2400
1	1367000	25080	7001	6	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 6 Awg, Diam	1080	0
1	1367000	25080	7001	2	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	562	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	974	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	3461	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	796	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	111405	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Lead, 500 Mcm, DIAM	132	0
1	1367000	25080	7001	750	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 750 Mcm, Diam	1536	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	192756	134707.19
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	7387	0
1	1367000	25080	7001	133	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	174	0
1	1367000	25080	7001	350	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	19026	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Poly & Bare, 500 Mcm, Diam	1052	26310.52
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	92953	144815.52
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Lead, 211 Mcm, Diam	9528	9322.3
1	1367000	25080	7001	750	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 750 Mcm, Diam	328	15074.88
1	1367000	25080	7001	600	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	203	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	154532	875427.38
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	4756	1102.86
1	1367000	25080	7001	6	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 6 Awg, Diam	479	0
1	1367000	25080	7001	2	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 2 Awg, Diam	117	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	610	8997.5
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	704	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	1056	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	8302	122454.5
1	1367000	25080	7001	750	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 750 Mcm, Diam	1392	69864.48
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	16868	693443.48
1	1367000	25080	7001	350	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	7914	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	12581	0
1	1367000	25080	7001	600	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 600 Mcm, Diam	161	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	17916	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	892	0
1	1367000	25080	7001	133	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	1122	0
1	1367000	25080	7001	6	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 6 Awg, Diam	242	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	702	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	1159	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	288	0
1	1367000	25080	7001	350	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 350 Mcm, Diam	708	0
1	1367000	25080	7001	105	Low Tension	S-Cable Secondary 110/240 Volt, Propylene Rubber, 105 Mcm, Diam	138	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Bare & Bare, 211 Mcm, Diam	4738	0
1	1367000	25080	7001	6	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Lead, 6 Awg, Diam	156	0
1	1367000	25080	7001	500	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 500 Mcm, Diam	8509	0
1	1367000	25080	7001	211	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 211 Mcm, Diam	819	0
1	1367000	25080	7001	133	Low Tension	S-Cable Secondary 110/240 Volt, Rubber & Neoprene, 133 Mcm, Diam	180	0
1	1367000	25081	7091	7-0500.	Low Tension	S-Cable Secondary 265/460 Volt, Rubber & Neoprene, 500 Mcm, Wire	2640	0

ACCT	1367000
HT / LT	Low Tension
Old RAMIS Account	7001

Row Labels	Sum of SUM(QTY)	Sum of SUM(COST)		
0	6,617	$ 18,143.51		
1	8,863	$ 2,577.83		
2	664,313	$ 2,052,864.51		
3	8,751	$ 3,367.28		
4	163,291	$ 57,155.83		
5	142	$ 30.34		
6	554,852	$ 406,534.31		
8	40,376	$ 11,521.40		
10	1,478	$ 544.67		
12	496	$ 204.10		
40	10,754	$ 2,769.12		
41	52,236	$ 13,657.78		
80	244,009	$ 64,290.54		
105	140,294	$ 510,121.32		
133	1,810,754	$ 3,997,052.17		
150	5,010	$ 1,877.36		
167	2,631	$ 14,104.10		
200	2,057,561	$ 965,329.06		
211	137,870,939	$ 356,383,265.34		
250	410,618	$ 150,426.66		
264	266	$ 225.14		
300	3,862	$ 11,910.28		
306	-	$ -		
350	33,392,750	$ 93,243,949.06		
400	660	$ 4,242.66		
450	271	$ 1,897.00		
500	79,942,715	$ 1,659,860,036.27		
550	244	$ 248.88		
600	2,663,062	$ 8,916,835.90		
750	1,323,675	$ 49,040,017.58		
1000	4,596	$ 6,145.02		
1250	179	$ 235.60		
Grand Total	**261,386,265**	**$ 2,175,741,580.62**		
Avg Cost of Minimum	1,442,066	$ 2,534,596.17	$	1.76

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to Pace Interrogatories – Set Pace-1
Date of Response: 05/02/2016
Responding Witness: Demand Analysis & Cost of Service Panel

Question No. : 6-3

Referencing page 18, line 13 of the DAC Panel testimony:

A. Please explain the concept and rate making theory behind "increased emphasis on fixed cost recovery."

B. What is the basis for the effort to increase recovery of fixed costs through customer charges?

C. What economic, regulatory, academic, professional, or other foundation is relied upon for the effort to increase recovery of fixed costs through customer charges?

D. How do the proposed incremental changes to costs recovered through customer fixed charges advance economic efficiency?

E. How do the proposed incremental changes to costs recovered through customer fixed charges advance the goals of REV?

Response

The DAC Panel's testimony on Page 18, line 13, references the Panel's rationale for introducing a Customer Component to High Tension Primary Distribution conductors. As part of this rationale, the Company recognizes the increased emphasis on fixed-cost recovery. The emphasis on fixed cost recovery is simply part of an overall emphasis on better aligning delivery rates with the underlying costs of delivery service. This is consistent with the "cost causation" principle proposed in the Staff White Paper on Ratemaking and Utility Business Models ("Staff White Paper"), issued July 28, 2015, in Case 14-M-0101 and originally articulated in James Bonbright's "Principles of Public Utility Rates." Better alignment between rates and costs also promotes economic efficiency. Economic efficiency is achieved by providing accurate, transparent and sustainable price signals to customers that reflect the costs of serving them. To achieve this, individual rate elements should reflect the nature of the cost to be recovered: costs that are fixed, such as customer-related costs, should be recovered in customer charges; costs attributable to customer demand should be recovered in demand (kW) charges and costs

attributable to energy usage should be recovered in energy (kWh) charges. Inefficient pricing of electric service can drive inefficient customer decisions to change their behavior and/or pursue technology alternatives, resulting in the shifting of costs to other customers.

In addition to advancing economic efficiency, better alignment of rates and costs is consistent with REV goals. In the Staff White Paper, Staff recognizes that "As part of the proposed transition to a three-part rate (volumetric charge, demand charge, and fixed customer charge), the fixed customer charges should be formulated to reflect only the costs of distribution that *do not vary with customer demand or energy consumption*." (Emphasis added).

UTILITY INTERVENTION UNIT OF THE
NEW YORK STATE DEPARTMENT OF STATE
SECOND SET OF INFORMATION REQUESTS TO CONSOLIDATED EDISON, INC.

Issue Date: 08/11/2016 Responses Due: 08/22/2016

2. The "Con Edison BCA Framework Matrix," filed by the Company on August 1, 2016 ("BCA Framework Matrix"), includes estimated Advanced Metering Infrastructure ("AMI") benefits of $835,942,562 (in 20-year net present value) characterized as "Other [Bad Debt, Meter Accuracy & Revenue Protection]". A Note in the BCA Framework Matrix reads, "As reviewed with PSC Staff - Benefits associated with 'Bad Debt', 'Meter Accuracy' and 'Revenue Protection' have been combined into a single benefit stream, labeled 'Other'".

a. Why did the Company combine these benefits into a single "Other" benefit stream? Please also explain when this chance was made, and which parties provided feedback/input regarding this change.

Response:
Because these benefit streams were included in the AMI Business Plan and original model filed with the PSC on November 16, 2015, and excluded in the Societal Cost Test (SCT), these benefits were categorized as an aggregated "Other" benefit stream in the BCA update.

b. Are there any other benefits besides Bad Debt, Meter Accuracy, and Revenue Protection contained within this "Other" benefit stream?

Response:
There are no additional benefit streams in the "Other" category other than the benefit streams listed above.

c. Please provide disaggregated estimated value for each benefit included within "Other" benefits (i.e., Bad Debt, Meter Accuracy, Revenue Protection, and any other benefits included in "Other").

Response:
Please refer to the Con Edison BCA Framework Summary PDF that shows the disaggregated benefit stream for Bad Debt, Meter Accuracy, and Revenue Protection that is included in the "Other" Benefits stream. Below is a summary of these 3 benefit streams:

Benefits	20 Year 6.91% NPV (millions)
Revenue Protection [Other]	$355
Meter Accuracy/Irregular Meter Conditions [Other]	449
Bad Debt [Other	31
Total "Other" Benefits	**$835**

3. Please provide a comparison of the value of each estimated AMI cost and benefit included in the BCA Framework Matrix (including each disaggregated "Other" benefit as discussed in Question #2 above) with the corresponding estimated value of each AMI cost/benefit on pages 50-51 of the Company's AMI Business Plan filed on November 16, 2015. Please identify any costs or benefits included in the BCA Framework Matrix that were not included in the AMI Business Plan (or vice versa).

Response:

Benefit	20 Year 6.91% NPV (millions)	20 Year 6.1% NPV (millions) [ORIGINAL]
A. Cost		
O&M Expense for AMI System	$ 507	$ 552
New Capital Investment for AMI System	$ 1,040	$ 1,074
Subtotal - Cost	**$ 1,547**	**$ 1,626**
B. Cost Reduction Benefits		
Meter Reading Labor	$ 417	$ 353
Field Services Labor	$ 217	$ 238
Meter Capital	$ 280	$ 300
Contractor and Company Outage Management Labor	$ 78	$ 86
Interval Metering	$ 43	$ 47
Gas Meters	$ 45	$ 47
Call Center Labor	$ 35	$ 39
Distribution Sytem Capital Expenditure Reductions	$ 33	$ 35
Billing Improvements	$ 14	$ 16
Meter Reading Support Systems	$ 14	$ 16
Distribution Transformers O&M Savings	$ 7	$ 8
Solar Support	$ 33	$ 36
System Retirement	$ 59	$ 61
Subtotal - Cost Reduction Benefits	**$ 1,276**	**$ 1,282**
C. Customer and Company Benefits		
Revenue Protection [Other]	$ 355	$ 388
Meter Accuracy/Irregular Meter Conditions [Other]	$ 449	$ 491
Conservation Voltage Optimization (CVO)	$ 533	$ 346
Bad Debt [Other]	$ 31	$ 34
Demand Side Management Expansion	$ 81	$ 90
Inactive Meter/Unoccupied Premises	$ 68	$ 75
Subtotal - Customer and Company Benefits	**$ 1,519**	**$ 1,424**
Total Benefits	**$ 2,795**	**$ 2,706**
Benefits less Cost	**$ 1,248**	**$ 1,080**

- There were no additional benefits added to the updated BCA filed on August 1, 2016
- Adjustments were made to the following benefit streams:
    - **Meter Reading Labor**

- Annual revenue related to No Access fees ($9.1M) was added as a societal benefit in the Meter Reading Benefit calculations
- The 'No Access' fees are considered a benefit to society because customers would no longer have to pay this fee due to manual meter reading, which will be eliminated due to AMI
- The 20-Year NPV stream for the 'No Access' fees is $94M additive to the $323M 20-Year NPV stream, resulting in a net 20-Year NPV benefit stream of $417M

- **CVO**
  - CVO benefit stream was updated following the BCA handbook. CVO enabled energy reductions were translated into avoided energy and avoided CO2 benefits.
  - CVO avoided energy benefit stream was valued at the 2016 NYISO CARIS Phase 2 annual average zonal LBMPs, as posted on the NYISO's Economic Planning web page under "CARIS Study Outputs"
  - CVO avoided CO2 benefits incremental to what is already accounted for in the avoided energy benefits were valued at the EPA's Societal Cost of Carbon. A carbon intensity of 0.53 tons per MWh was assumed.
  - Both the avoided energy and avoided CO2 benefit streams were discounted at the Company's weighted average cost of capital (WACC) – 6.91%
  - The differences in avoided costs associated to CVO between our original calculation represented in the approved November 2015 AMI Business Plan and this update stems from two factors:
    - Avoided energy cost based on fuel savings is less than avoided energy cost priced at LBMP. This is because fuel savings represent the average cost of energy and LBMP represents the marginal cost, which is higher
    - Our original calculation did not include the societal cost of carbon

4. For each of the projected benefits of AMI that are expected to accrue at least in part to customers (i.e., those benefits identified in the BCA Framework Matrix including the disaggregation of "Other" benefits as discussed in Question #2 above), please describe how customers will realize the benefit on their bills. For example: a benefit that yields avoided Company capital expenditures may be realized on a customer bill through a decrease in fixed and/or volumetric delivery rates; a benefit that helps a customer reduce its consumption may be realized on the customer's bill through decreases in delivery and supply charges; a benefit that allows the Company to decrease the amount and/or price of commodity it purchases may be realized on a customer bill through a decrease in supply charges; etc.

Response:
Please refer to the AMI Business Plan filed with the PSC on November 16, 2015, specifically, the Benefit Cost Analysis (BCA) section, for detailed information on the benefits attributable to AMI deployment. In addition, below is a summary of the benefits identified and how it may be realized in a customers' bill:

Benefit	How Benefit will affect Customers' Bills
Meter Reading Labor	Decrease in delivery rates
Field Services Labor	Decrease in delivery rates
Meter Capital	Decrease in delivery rates
Contractor and Company Outage Management Labor	Decrease in delivery rates
Interval Metering	Decrease in delivery rates
Gas Meters	Decrease in delivery rates
Call Center Labor	Decrease in delivery rates
Distribution System Capital Expenditure Reductions	Decrease in delivery rates

Billing Improvements	Decrease in delivery rates
Meter Reading Support Systems	Decrease in delivery rates
Distribution Transformers O&M Savings	Decrease in delivery rates
Solar Support	Decreases in delivery rates
System Retirement	Decrease in delivery rates
Revenue Protection [Other]	Decreases in supply charges
Meter Accuracy/Irregular Meter Conditions [Other]	Decreases in supply charges
Conservation Voltage Optimization (CVO)	Decreases in supply charges
Bad Debt [Other]	Decreases in both delivery rates and supply charges
Demand Side Management Expansion	Decreases in supply charges
Inactive Meter/Unoccupied Premises	Decreases in both delivery rates and supply charges

5. Page 51 of the Company's AMI Business Plan describes the Conservation Voltage Optimization ("CVO") benefit as "avoided cost due to energy savings, fuel, and CO2 reductions."

a. Why does the BCA Framework Matrix categorize the CVO benefit as "Avoided O&M"?

Response:
In the August BCA update for the CVO benefit stream, the Company aggregated this benefit stream under the broad category of avoided O&M to recognize that it would be a recurring and ongoing benefit and to differentiate it from avoided utility capital costs.

b. To what extent can CVO benefits be categorized as (i) Avoided Distribution Losses; (ii) Avoided Transmission Losses; (iii) Avoided Energy (LBMP); (iv) Avoided Transmission Capacity Infrastructure and related O&M; or (v) some other category (ies) of benefit identified in the BCA Framework Matrix?

Response:
Disaggregating the CVO benefit stream, we can categorize the energy savings as "Avoided LBMP" and CO2 savings as "Avoided GHG."

CVO Benefit Stream	20-Year NPV
Avoided LBMP	$401.3M
Avoided GHG	$131.7M
Total CVO Benefit	$533.0M

6. The "Con Edison BCA Framework Summary" filed August 1, 2016 ("BCA Framework Summary") includes two cost and benefit columns, "20 Year 6.91% NPV" and "SCT", with respect to AMI.

a. Does the "SCT" column illustrate the results of applying the Societal Cost Test? If no, which test(s) (i.e., Societal Cost, Utility Cost, Rate Impact Measure, other – please specify and describe) are represented in the "SCT" column?

Response:
The column labeled SCT on the Con Edison BCA Framework Summary page represents the benefit streams that are included in the Societal Cost Test.

b. Which test(s) (i.e., Societal Cost, Utility Cost, Rate Impact Measure, other – please specify and describe) are represented in the "20 Year 6.91% NPV" column?

Response:
The column labeled 20 Year 6.91% NPV on the Con Edison BCA Framework Summary page represents all benefits included in the AMI Business Plan and original model filed with the PSC on November 16, 2015, adjusted for the WACC at 6.91%.

7. Page 14 of the Company's Benefit Cost Analysis Handbook, filed along with its initial DSIP on June 30, 2016, reads in part:
The role of the UCT [Utility Cost Test] and RIM [Rate Impact Measure] is to assess the preliminary impact on utility costs and ratepayer bills from the benefits and costs that pass the SCT. The results of the UCT and RIM test are critical in identifying projects that may require a more detailed analysis of their impact to the utility and ratepayers. Some projects may not provide benefits to the utility and ratepayers, even if it is beneficial to society as a whole. It is important to note, however, that if a measure passes the SCT but its results do not satisfy the UCT and RIM tests, the measure would not be rejected unless a complete bill impact analysis determines that the impact is of a "magnitude that is unacceptable".
Please provide results of UCT and RIM tests with respect to the Company's AMI project.

Response:

The BCA Framework was used as a guide for evaluation of DSP platform projects (AMI categorized as such) and not every aspect of the framework is applicable to AMI, but instead more relevant to DER evaluations which have been the initial focus of the framework. In addition, the BCA handbooks had just recently been filed and going through public comment; there was no requirement to apply the UCT and RIM tests retroactively to the AMI analysis.

8. How does the Company recover Unaccounted-For Energy ("UFE") costs from customers? Please identify the extent to which UFE costs are recovered through (or otherwise included in) fixed delivery charges; volumetric delivery charges; supply charges; merchant function charges; and/or other charges.

Response to #8:
UFE costs are recovered through a variety of charges including delivery charges (including both fixed and volumetric), supply charges, Monthly Adjustment Charges, the Monthly Rate Adjustment, and Merchant Function Charges.

9. How does the Company recover Bad Debt costs from customers? Please identify the extent to which Bad Debt costs are recovered through (or otherwise included in) fixed delivery charges; volumetric delivery charges; supply charges; merchant function charges; and/or other charges.

Response to #9:

Uncollectibles are recovered through a variety of charges including delivery charges (including both fixed and volumetric), supply charges, Monthly Adjustment Charges, the Monthly Rate Adjustment, and Merchant Function Charges.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-2
Date of Response: 03/11/2016
Responding Witness: Demand Analysis & Cost of Service Panel

Question No. : 65

Please identify, in table format as illustrated below, the degree to which the Consolidated Edison Company of New York, Inc. ("Company") classified costs associated with the specified FERC accounts as "demand-related" or "customer-related" (at both primary and secondary voltage facilities) in each electric embedded cost of service (ECOS) study it filed in cases 04-E-0572, 07-E-0523, 08-E-0539, 09-E-0428, 13-E-0030, 15-E-0050, and 16-E-0060. For example, a cell might read, "100% demand/0% customer." If any electric ECOS study employed a different demand/customer classification between primary and secondary voltage facilities within the same FERC account, please include such separate demand/customer classifications for each voltage facility.

	FERC Acct.	FERC Acct.	FERC Acct.	FERC Acct.	FERC Acct.
04-E-0572					
07-E-0523					
08-E-0539					
09-E-0428					
13-E-0030					
15-E-0050					
16-E-0060					

Response:

Case 04-E-0572

PLANT ACCOUNT	PRIMARY DEMAND	PRIMARY CUSTOMER	SECONDARY DEMAND	SECONDARY CUSTOMER
364	100%	0%	14.84%	85.16%
365	100%	0%	34.68%	65.32%
366	100%	0%	89.18%	10.82%
367	100%	0%	89.83%	10.17%
368	0%	0%	100%	0%

Based on the 2002 Embedded Cost-of-Service Study

Case 07-E-0523

PLANT ACCOUNT	PRIMARY DEMAND	PRIMARY CUSTOMER	SECONDARY DEMAND	SECONDARY CUSTOMER
364	100%	0%	82.95%	17.05%
365	100%	0%	82.95%	17.05%
366	100%	0%	74.92%	25.08%
367	100%	0%	74.92%	25.08%
368	0%	0%	100%	0%

Based on the 2005 Embedded Cost-of-Service Study

Case 08-E-0539

PLANT ACCOUNT	PRIMARY DEMAND	PRIMARY CUSTOMER	SECONDARY DEMAND	SECONDARY CUSTOMER
364	100%	0%	82.95%	17.05%
365	100%	0%	82.95%	17.05%
366	100%	0%	74.92%	25.08%
367	100%	0%	74.92%	25.08%
368	0%	0%	100%	0%

Based on the 2005 Embedded Cost-of-Service Study

Case 09-E-0428

PLANT ACCOUNT	PRIMARY DEMAND	PRIMARY CUSTOMER	SECONDARY DEMAND	SECONDARY CUSTOMER
364	100%	0%	83.56%	16.44%
365	100%	0%	83.56%	16.44%
366	100%	0%	77..24%	22.76%
367	100%	0%	77.24%	22.76%
368	0%	0%	94.00%	6.00%

Based on the 2007 Embedded Cost-of-Service Study

Case 13-E-0030

PLANT ACCOUNT	PRIMARY DEMAND	PRIMARY CUSTOMER	SECONDARY DEMAND	SECONDARY CUSTOMER
364	100%	0%	84.61%	15.39%
365	100%	0%	84.61%	15.39%
366	100%	0%	78.87%	21.13%
367	100%	0%	78.87%	21.13%
368	0%	0%	93.24%	6.76%

Based on the 2010 Embedded Cost-of-Service Study

Case 15-E-0050

PLANT ACCOUNT	PRIMARY DEMAND	PRIMARY CUSTOMER	SECONDARY DEMAND	SECONDARY CUSTOMER
364	91.64%	8.36%	85.06%	14.94%
365	91.64%	8.36%	85.06%	14.94%
366	90.99%	9.01%	78.87%	21.13%
367	90.99%	9.01%	78.87%	21.13%
368	0%	0%	60.00%	40.00%

Based on the 2013 Embedded Cost-of-Service Study

Case 16-E-0060

PLANT ACCOUNT	PRIMARY DEMAND	PRIMARY CUSTOMER	SECONDARY DEMAND	SECONDARY CUSTOMER
364	91.64%	8.36%	85.06%	14.94%
365	91.64%	8.36%	85.06%	14.94%
366	90.99%	9.01%	78.87%	21.13%
367	90.99%	9.01%	78.87%	21.13%
368	0%	0%	60.00%	40.00%

Based on the 2013 Embedded Cost-of-Service Study

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-5
Date of Response: 05/09/2016
Responding Witness: Advanced Metering Infrastructure Panel

Question No. : 90

What portions of AMI costs included in the proposed revenue requirement in this case are respectively allocated to each electric and gas service classification? What is this allocation based on? Please be as specific as possible in the allocation methodology, providing functionalization, classification and allocation steps if applicable so that the reviewer can understand the rationale for the proposed allocation.

Response

Costs associated with the implementation of AMI contribute to the total revenue requirement sought by the Company. Individual project costs are not allocated to customer classes separately from other components of the revenue requirement.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-5
Date of Response: 05/09/2016
Responding Witness: Advanced Metering Infrastructure Panel

Question No. : 93

When all budgeted and approved AMI is included in an ECOS model in the future, please provide the Company's best estimate of what portion of AMI costs will be customer-related, demand-related, and energy-related. How does this compare to the breakdown of energy-, demand-, and customer-related costs derived from the ECOS model the Company used in this case?

Response

The Company objects to this question as requiring data that does not currently exist. An ECOS model that follows full implementation of AMI would be based on data no earlier than calendar year 2023.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-5
Date of Response: 05/09/2016
Responding Witness: Advanced Metering Infrastructure Panel

Question No. : 98

How will the Company's accountants handle AMI costs once AMI is fully implemented? What is the current best estimate of how many of the AMI dollars will be booked to what specific FERC accounts?

Response

The Company's accountants will treat AMI capital like any other capital and AMI O&M like any other O&M. There is no specific General Accounting Procedure for the AMI project.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-5
Date of Response: 05/09/2016
Responding Witness: Advanced Metering Infrastructure Panel

Question No. : 99

How have the Company's accountants handled AMI costs that have already been recorded in the Company's books of account? Please provide a table of these costs by FERC account and a description of what these dollars are for.

Response

The Company records all AMI costs in FERC 1070 - Construction Work in Progress. Once system components are placed into service, the costs will be transferred from Construction Work in Progress to Plant in Service. To date, there are no AMI-related costs in plant in service.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU Set 8
Date of Response: 05/12/2016
Responding Witness: Demand Analysis & Cost of Service Panel

Question No. : 147

ALLOCATED COST OF SERVICE STUDY (ECOS)

147. Please refer to the electric ECOS. Please explain the Company's rationale for utilizing the sum of customer maximum demands in the D08 allocator.

Response
The D08 allocator is used to allocate low tension system costs to customer classes in the ECOS. The low tension system is designed to reflect peak demands occurring on various parts of the low tension grid. The closer the grid equipment is to the customer, the greater the importance of the individual customer maximum demands ("ICMD") and the further the grid equipment is from the customer, the greater the importance of class diversified peak demand (non-coincident peak or "NCP" in the ECOS study). To reflect this design principle, for all classes other than residential (SC 1) the low tension allocation factor is equal to the average of the class NCP and the class ICMD. For the residential class the Company uses a weighting of 75% and 25% for the residential ICMD and NCP, respectively.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU Set 8
Date of Response: 05/11/2016
Responding Witness: Electric Infrastructure & Operations Panel

Question No. : 150

150. Please provide the portion of any Company technical electric distribution specifications that describe the sizing of transformers to meet residential loads.

Response

The Company does not "size" transformers to meet residential loads. The Company rates transformers and matches the transformer capacity to the demand in a load area, including in residential areas.

Factors included in the rating process include for both residential (radial) and residential/commercial (network) the following:

- Design Top Oil and Hot Spot limits (limits not to be exceeded).
- Transformers certified data (e.g., rated losses, thermal gradients and weights.)
- Vault conditions and design criteria.
- Daily load factor (shape of load curve).
- Modes of operation (normal or contingencies).
- Operating ambient temperature.

The Company installs additional transformers or replaces transformers when an existing transformer's connected load exceeds its rating.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU Set 8
Date of Response: 05/11/2016
Responding Witness: Electric Infrastructure & Operations Panel

Question No. : 152

152. Please describe with specificity why any portion of overhead lines, or underground lines, are sized to meet the sum of customer maximum demands.

Response

Similar to the Company's process for transformers, we do not "size" overhead and underground lines to meet the sum of customer demands. Each cable has a rated capacity, and the Company matches the cable capacity to the demand in a load area.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-10
Date of Response: 05/20/2016
Responding Witness: Advanced Metering Infrastructure Panel

Question No. : 194

Advanced Metering Infrastructure (AMI) -Does the Company think it is appropriate to allocate AMI costs on the basis of benefits received by different customer classes?

Response

The underlying assumption of the question—that AMI costs are allocated on the basis of benefits received by different customer classes—is erroneous as previously explained in prior responses to UIU-8, 145 and DPS-19, 485. Thus, the Company objects to the question as moot.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-10
Date of Response: 05/20/2016
Responding Witness: Advanced Metering Infrastructure Panel

Question No. : 197

Advanced Metering Infrastructure (AMI) -Pages 1 and 2 of the Supplemental AMI testimony list 7 metrics that are intended to track "certain" of the projected AMI benefits. Please provide a matrix that shows the relationship between the various Customer Benefits and REV Benefits listed in the AMI Program Notes and these 7 tracker metrics, including which of these metrics will measure providing more timely information; which will measure ability to enhance reliability; which will support behind-the-meter generation initiatives from NYISO, etc.

Response

The Supplemental AMI testimony sets out the benefits of each of the metrics as does the attached matrix. Please refer to the November Business Plan for details of the benefits discussed in those documents, as incorporated by and referred to in the Commission's March 17, 2016 AMI Order in Case 15-E-0050 approving full implementation of AMI.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-10
Date of Response: 05/19/2016
Responding Witness: EIOP / DAC Panel

Question No. : 205

Minimum System - Exhibit DAC-2 Schedule 1 (Confidential) - The following questions refer to Exhibit DAC-2 Schedule 1, tab 2013 OH Cond Min Sys:

a. Do the numbers 0.00 to 10,00 refer to the size of the conductor? If so, what is the meaning of each size from 0.00 to 10.00? If not, please explain in detail what each of these numbers mean.

b. Please describe the characteristics of areas that are primarily served by overhead conductors.

c. What is the minimum size overhead conductor currently being installed by ConEd?

d. Is that minimum size larger than the smallest conductor in use in the system? If so, why is the minimum size currently being installed larger than the smallest conductor in use?

e. Does "Amount" refer to a length measurement? If so, is this per foot or something else? Please describe in detail what "Amount" means for each conductor size.

f. If these numbers refer to the size of conductor, please explain the apparent variation in cost per length (calculated by dividing total cost by Amount) between:

Conductor Type	Apparent Cost per unit
1.00	$.080
2.00	$.213
4.00	$.687
6.00	$.079
8.00	$.130

Response

a. The meaning of each size from 0.00 to 10.00 is as follows:

Size	**Representing** American wire gauge **(**AWG**)**
0.00	No size specified on the Company's books
1.00	1 Awg Wire
2.00	2 Awg Wire
4.00	4 Awg Wire
6.00	6 Awg Wire
8.00	8 Awg Wire
10.00	10Awg Wire

b. The characteristics of areas served by overhead conductors include services to residential or commercial dwellings that are fed via an overhead point of attachment (POA) instead of an underground point of entry (POE). The facilities that would provide service are fed via poles, overhead transformers and overhead primary and secondary conductors. The Company's radial or non-network feeders are typically of overhead construction, whereas the network is predominantly of underground construction (underground manholes and vaults and underground primary and secondary conductors.

c. 4/0 Al on overhead

d. #6 is the smallest size cable found in the overhead as a secondary wire. The Company has consolidated its sizes of cable used to minimize the number of conductors carried and associated stock, and for capacity concerns to minimize the number of times a section of cable is changed. The currently installed 4/0 Al is larger than the smallest size cable in use. The Company does not use a smaller wire size for new installations.

e. The file represents the size of conductor (description), the footage installed (amount), and the total book cost (cost).

f. The average cost per foot of conductor is calculated by taking total cost expended for type of cable over the total footage installed on the system. This is a cumulative cost that varies due to cable installed may be different than the size of conductor removed from year to year. Also, the cost of construction varies by district and by year.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-10
Date of Response: 05/19/2016
Responding Witness: Electric Infrastructure & Operations Panel

Question No. : 207

Minimum System - Exhibit DAC-2 Schedule 1 (Confidential) - The following questions all refer to Overhead Transformers and data contained in Exhibit DAC-2 Schedule 1, tab 2013 OH Transformers:

a. What is the minimum size Kva rating 2400 Volt transformer currently being installed for single phase service?

b. What size load (in kw or kva) per residential customer does the Company assume in planning for transformer installation in areas that contain primarily single-family residences?

c. What is the typical number of customers that is served by the minimum size transformer in areas that contain primarily single-family residences?

d. Are transformer sizes normally chosen to meet the maximum demands of all customers to be served by the transformer or does the Company assume some load diversity?

e. What is the reason for installing 7600 Volt transformers rather than 2400 Volt transformers? Why are these transformers included in the calculation of minimum size for the calculation of the customer component of transformer plant? Please describe the configurations in which the 7600 Volt transformers are installed.

f. Do the 7600 Volt transformers serve higher loads or more customers than the 2400 volt transformers of the same Kva designation? If the answer is yes, please explain in detail.

g. There appear to be more than 400 transformers from sizes 10 Kva to 15 Kva. When these transformers require replacement, what size transformer is installed and if the replacement is a different size, what is the reason for the change?

Response

a) Three phase 45kVA and single phase 50kVA.

b) See response to UIU-8 150.

c) The typical number of customers served by the minimum size transformer is 6-10 customers on average.

d) See response to UIU-8 150.

e) Transformer selection is based upon primary non-network primary feeder voltage. A 7,600V transformer is used on the 13kV auto loops. A 2,400V transformer is used on 4kV feeders. The Company's distribution system is comprised of non-network feeders of both voltages. The configurations for 7,600V transformers can be single or three phase units. These transformers are included in the minimum system calculation because they are included in the up to and including 25KVA selection criteria. The primary side voltage (7600-vs-2400) is irrelevant.
f) The load a transformer can carry is based upon its size and not voltage of the primary side.
g) The size of the transformer selected to replace a 10kVA or 15kVA transformer is based upon a number of factors including the sum of the current demand, load factor of that demand and any known new additional load (i.e. customer requested additional load). The Company uses a population of specific size transformers with 45kva 3 phase or 50kva single phase as the minimum size when a transformer is needed.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-10
Date of Response: 05/19/2016
Responding Witness: Electric Infrastructure & Operations Panel

Question No. : 209

Minimum System - Exhibit DAC-2 Schedule 1 (Confidential) - The following questions all refer to Underground Transformers and data contained in Exhibit DAC-2 Schedule 1, tab 2013 UG Transformers.

a. What is the function of the pieces of equipment that are included in the minimum transformer calculation and designated as Regenerative Control? Where on the distribution system are they installed? Do the number and size of these vary with the number of customers or with load?

b. What is the function of the "rectifiers" that are included in the minimum transformer calculation? Where on the distribution system are they installed? Do the number of size of these vary with the number of customers or with load?

Response

a) The function of pieces of equipment designated as regenerative control is to absorb power flow being directed back in to the system that is caused by elevator motors when the elevators are descending. The number and size depend on the load specific to the elevator motor or motors used by a specific customer.

b) Rectifiers convert AC to DC power. They are installed where customers need DC power. The size is specific to the customer and depends on the specific customer's load.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-15
Date of Response: 08/17/2016
Responding Witness: Electric Infrastructure & Operations Panel

Question No. : 241

Please identify, with FERC account numbers, each component of secondary distribution delivery plant for which the Company uses the sum of the individual maximum loads of units (i.e., ICMD) in a typical multi-unit apartment building to determine the type, size, and amount of the component it installs to serve that building.

a. For each such component, please identify the extent to which ICMD factors into such determination(s).

b. For each such component, explain the extent to which diversity among individual units' affects the type, size, and amount of plant installed.

c. Please provide any distribution manuals or other documents the Company uses to instruct distribution personnel as to how to plan, size and install such delivery plant.

Response

The FERC account numbers are as follows:
364. Poles, Towers, and Fixtures
365. Overhead Conductors
366. Underground Conduit
367. Underground Conductors
368. Line Transformers.

a) and b)
Please see the responses to UIU 8-150 and UIU 8-151 for the Company's methodology for sizing transformers.
Please see the response to UIU 8-152 for the Company's methodology for sizing cables

c) Please see the following attachments submitted in the Company's response to UIU-14, question 241:

UIU-15 241 Attachment 1 EO-2002
UIU-15 241 Attachment 2 EO-2064,
UIU-15 241 Attachment 3 EO-2072
UIU-15 241 Attachment 4 EO-2133

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-18
Date of Response: 09/01/2016
Responding Witness: Demand Analysis & Cost of Service Panel

Question No. : 257

Embedded Cost of Service (Electric)

Page 24, lines 7-11 of the Company's Demand Analysis and Cost of Service Panel Rebuttal Testimony refer to a "survey conducted by Commonwealth Edison in 2011". Please provide a copy of this survey and its results.

Response
See UIU-257 Attachment 1.

SURVEY OF APPROACHES TO DISTRIBUTION COST ALLOCATION BY VOLTAGE

for

Commonwealth Edison Company

Bruce Chapman and Michael O'Sheasy

October 28, 2011

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Survey Report

Survey of Approaches to Distribution Cost Allocation by Voltage

for

Commonwealth Edison Company

October 28, 2011

Executive Summary

The Illinois Commerce Commission ("ICC" or "Commission") recently directed Commonwealth Edison Company ("ComEd") to investigate how other utilities allocate costs for primary and secondary voltage facilities ("primary/secondary") that provide retail service to electric utility customers.[1] In its Order concluding ComEd's 2010 rate case in Docket No. 10-0467 ("Order") the Commission further directed ComEd to confer with the ICC Staff ("Staff") in developing the approach to this investigation and in reviewing the results.

ComEd asked Christensen Associates Energy Consulting ("CA Energy Consulting") to undertake a survey of electric utilities to acquire the relevant information, including participating utilities' cost-of-service ("COS") studies, where available.

Costing Issues Investigated in the Survey

In response to the Order, and with input from the ICC Staff, the survey undertook to investigate several aspects of primary/secondary cost allocation. These included: 1) the incidence of such cost splitting, including whether primary distribution system costs are further segmented relative to what was provided in ComEd's primary/secondary analysis; 2) the reflection of voltage cost differences in retail tariffs; 3) the types of allocators used to yield costs by rate class; 4) the handling of costs that might be directly assigned to customers and the costing and pricing of special service requests by customers; 5) the treatment of costs in FERC account 364 (poles, towers and fixtures); 6) geographically-based costing; 7) the recognition of single-phase and three-phase service in COS; and 8) the degree to which cost separation between primary and secondary voltage generates controversy in regulatory proceedings.

Information on these topics can be used to inform future regulatory proceedings in Illinois and may offer information on costing approaches for other topics under review as directed by the ICC in ComEd's 2010 rate case.

Survey Approach

CA Energy Consulting solicited opinion from a diverse group of investor-owned utilities selected on the basis of size, as represented by number of customers and service territory density, measured by the number of customers per transmission-mile. A group of 120 utilities for which recent data are available was divided into nine "bins" based on two criteria: the number of customers served; and the density of customers in the service

[1] ICC Order for Docket No. 10-0467, May 24, 2011.

territory (measured by the number of customers per transmission mile). A survey size of 16 utilities was chosen as being sufficiently diverse, as well as appropriate for the nature of the questions under research. A disproportionate share of the sample was drawn from the groups of utilities most similar to the group to which ComEd belongs.

The survey administrators succeeded in acquiring responses for 16 utilities, matching closely the target diversity of the design. In particular, two utilities categorized in the same bin as ComEd provided responses. Respondents were geographically diverse as well, drawn primarily from the Midwest and Eastern United States although one Pacific Coast utility participated as well. Additionally CA Energy Consulting secured a survey from Ameren Illinois, the other large utility in the Illinois Commerce Commission's jurisdiction.

Survey Results

The survey's major findings are:

- Almost all utilities segment distribution costs between primary and secondary service facilities, and have done so for a decade or more. The trend, initiated in the 1970's, appears to have been predominantly utility-driven.
- Tariffs recognize this primary/secondary differentiation implicitly because energy delivery for the majority of customers in a class is often at a single voltage. Adjustments in charges related to transformer ownership assist in this differentiation. Some utilities formally distinguish prices by voltage, especially in rates for large load customers.
- The boundary line between primary and secondary voltage facilities varies across utilities, but is in the range of 2.4 to 4 kV. ComEd's lower bound of primary voltage is 4 kV, similar to that of other utilities.[2] Two respondents reported having two segments to their primary voltages, but neither split primary costs into segments for cost allocation purposes.
- The issue of single-phase vs. three-phase service is not investigated closely in most jurisdictions. Many utilities do not keep track of this factor for COS purposes.
- Direct assignment of costs to customers is common but does not amount to a significant share of overall costs.
- Similarly, utilities are flexible in the treatment of special customer needs. They typically recover full costs of special equipment and services from the customer requesting the special service. In COS practices are varied, chiefly due to the relative insignificance of the amounts involved.
- COS allocators of distribution charges follow NARUC guidelines but allocator usage varies fairly widely across utilities. Some allocate according to demand only, while others split distribution into demand and customer portions, using familiar, established methods (minimum system or zero intercept). Demand-related costs at the primary service level are allocated by a mix of coincident peak

[2] In the case of ComEd, the use of "4kV" refers to their 4.16 kV primary system operations.

(CP) and noncoincident peak (NCP) allocators. At the secondary level, NCP predominates, with use of both a "class NCP" and a "sum-of-the-customers" NCP. ComEd's use of CP allocators for electric service provided by primary voltage facilities is shared by several utilities, but not all.

- The costing practices of the surveyed utilities do not appear to generate controversy in regulatory proceedings. Few respondents reported methodology disputes of any consequence. Additionally, respondents' costing practices appear to be consistent with NARUC principles. All respondents reported this perception, and the allocators and primary/secondary splitting procedures reported can be found in the NARUC Cost of Service manual.[3]

Conclusions

The survey reveals that distribution cost allocation with respect to voltage is widespread and uses a variety of practices while remaining within the principles articulated by NARUC in its well known Cost of Service Manual. Additionally, it appears that ComEd's costing practices are well within the range of those reported in the survey. Specifically, the Company's practices of using CP allocators at the primary voltage level and NCP allocators at the secondary voltage level are consistent with practices elsewhere.

The methods that the surveyed utilities use to develop the data that underpin allocators are not uniform. A particular issue in ComEd's 2010 rate case pertained to FERC account 364, poles, towers and fixtures. Methods include the extension to account 364 totals of allocators applied to other FERC accounts, and the use of actual pole data to develop shares. However, direct use of recent data (as opposed to surveys, which tended to be of uncertain vintage) and the explicit treatment of shared poles are not widespread.

Regarding the extent to which single-phase and three-phase service information is used, most utilities do not appear to study the incidence of such wires. Costing to reflect such departures is typically not done (other than for meter costs and sometimes service drops).

The survey also investigates COS methods relating to direct assignment of costs for actual equipment and the treatment of requests for special service. Survey respondents uniformly charged customers for the full costs of special arrangements. However, the accounting treatment of revenues and costs is not consistent and usually does not involve recognition at the class level.

The survey also inquires into the incidence of geographic cost differentiation. Just one utility in our survey develops cost information by distribution costing area and their methods do not involve the use of embedded cost, but instead use marginal cost.

Lastly, costing practices surrounding the demarcation of primary and secondary voltages does not appear to be generating regular methodological disputes in regulatory proceedings.

[3] National Association of Regulatory Utility Commissioners, *Electric Utility Cost Allocation Manual*, January, 1992

1 Introduction & Background

1.1 Regulatory Context

In ComEd's 2010 rate case, Commonwealth Edison Company was directed by the Illinois Commerce Commission to work with ICC Staff to analyze other utilities' cost of service studies to determine how other utilities allocate cost for primary and secondary voltage facilities that provide retail service to electric utility customers.

This inquiry came about in part as a response to intervenors' and Staff's concerns regarding ComEd's distribution cost allocation methods and in part because the Commission wanted more extensive evidence of practices elsewhere.

In response to the Order, ComEd selected Christensen Associates Energy Consulting to conduct a survey of electric utilities on the topic of the methodology regarding separation and allocation of costs to secondary and primary voltage levels. CA Energy Consulting drafted a survey, obtained input on the survey from ComEd and Staff, and contacted a diverse set of utilities selected with the intent of identifying a broad range of industry practices.

The survey is just one component of CA Energy Consulting's research for ComEd growing out of the Order. Other research includes conducting sampling and direct observation to check the allocation methodology contained in ComEd's Primary/Secondary Cost Study; developing a statistically valid sample of circuits; identifying and deleting 4 kV distribution costs assigned to the Railroad customers; and undertaking a study of the assets serving the Extra Large Load Customer class, including whether Rider NS – Nonstandard Service and Facilities (Rider NS) costs and revenues are properly handled in ComEd's cost-of-service study.

1.2 Cost Allocation Issues

The rate case proceedings in Docket 10-0467 included testimony on several aspects of distribution cost allocation resulting from ComEd's primary/secondary analysis. A number of intervenors representing customers at the primary service level questioned ComEd's allocation of costs, chiefly stating that costs had been allocated to the primary voltage level that they felt belonged at the secondary voltage level, sometimes because ComEd, in their opinion, had failed to use sufficiently detailed allocation methods to arrive at an accurate allocation methodology. These intervenors included the Illinois Industrial Energy Consumers (IIEC), the Coalition to Request Equitable Allocation of Costs Together (REACT), the Chicago Transit Authority (CTA), and the Northeast Illinois Regional Commuter Railroad Corporation d/b/a Metra Corporation (METRA).[4]

More specifically, they questioned ComEd's methods or results on the following issues:

[4] The Commercial Group also appeared as an intervenor, but did not object to ComEd's allocation approach.

- Pole costs: how should pole costs be allocated between primary and secondary voltage and, in particular, what should be done regarding "shared poles" which carry both primary and secondary voltage lines?
- Single-phase vs. three-phase service: how detailed does analysis of the relationship between phase and voltage level of service need to be?
- Customer size: should separate analysis of the Extra Large Load class's costs be undertaken?

In addition, the Staff took issue with ComEd's documentation supporting a range of allocation rules. While recognizing that ComEd had investigated other utilities' tariffs regarding segmentation by voltage, the Staff wanted information regarding the cost allocation practices that underlie those tariffs. As well, the Staff wanted more extensive sampling of ComEd service territory assets to support its engineering estimates in FERC Accounts 364, 365, and 366. A survey of other utilities' asset sampling practices, they reasoned, might provide guidance on information to obtain in direct sampling of assets.

Subsequent to project initiation, ComEd and Staff suggested that the survey consider a broader range of topics, including:

- Separation of distribution cost and FERC accounts into primary and secondary voltages. Working definitions of primary and secondary. Further separation of primary into separate voltage levels.
- Recognition of single-phase and three-phase service in cost allocation.
- Geographical differentiation: cost differentiation between urban and rural service areas.
- Cost assignments in cost of service, and related analyses that develop inputs to cost of service, where certain costs are known on a specific customer basis.
- Treatment of non-standard equipment in cost of service.
- Tariff recognition of voltage.
- Types of allocators used to assign distribution costs to rate classes (e.g., coincident peak and non-coincident peak allocators).
- Treatment of pole costs, focusing on poles that share primary and secondary lines.
- Tendency for distribution cost allocation issues of interest in the survey to generate regulatory dispute.

CA Energy Consulting developed questions to inquire into each of these issues.

1.3 Report Structure

This report sets out the survey approach in Section 2 and describes the issues investigated in the survey. Section 3 presents the survey results, while Section 4 provides conclusions based on the results, and then makes recommendations as to how the results should influence ComEd's own cost allocation by voltage level. An appendix provides the survey document.

2 Survey Approach

2.1 Survey Design and Sampling

The survey set out to acquire information from utilities with a variety of characteristics, in order to maximize the likelihood that a broad range of industry practices in distribution cost allocation would be identified. CA Energy Consulting used FERC Form 1 data from 2010 to classify 120 investor-owned utilities according to their size and the density of their service territory. Number of customers served as a proxy for size and customers per mile of transmission line represented density.[5]

CA Energy Consulting subdivided the population into nine groups or "bins" based on combinations of size and density of service territory, selecting boundaries to meet two criteria. The first criterion involved setting boundaries such that the bin containing ComEd would consist of utilities fairly similar to the Company's characteristics. The second criterion was to make the remaining bins fairly similar in numbers of utilities. The utility size categories selected are: 1) less than 500 thousand customers, 2) 500 thousand to 2 million, 3) and over 2 million. The density categories are: A) under 250 customers per transmission-mile, B) 250 to 1,000, and C) over 1,000. The outcome of this segmentation appears in Table 1 below.

Table 1
Population of Utilities Eligible for Survey

	Density Category			
Size Category	A. under 250	B. 250 to 1,000	C. Over 1,000	Total
1. under 500k	32	21	9	62
2. 500k to 2m	18	20	9	47
3. Over 2m	1	7	3	11
Total	51	48	21	120

ComEd, with 3.8 million customers and 1,406 customers per transmission mile, resides in the bin containing the utilities with the largest number of customers and densest service territories. (The table labels bins by the convention (row number, column letter), with the bin containing ComEd designated (3,C)). Bins in the same row or column as ComEd's contain relatively small numbers of utilities as a result of the first criterion. Other bins contain larger numbers of utilities.

ComEd had previously acquired tariff sheets for 35 utilities to examine the degree to which utilities differentiate rates by voltage. CA Energy Consulting determined that a smaller survey would likely acquire a sufficient diversity of opinions on costing methods, permit fairly detailed questions, and be cost effective. Following review by ComEd and the Staff reviewers, CA Energy Consulting determined to strive for a sample of 17

[5] A better representation of density might have used miles of distribution line rather than transmission line. Unfortunately, the FERC Form 1 data do not provide such totals as readily as transmission line mileage. Constructing such an index would have involved a large effort that would not necessarily have provided any material difference to the analysis.

utilities, with segmentation based on proximity to ComEd's bin and diversity sufficient to cover all bins. The target sample appears in Table 2, below.

Table 2
Target Sample Size of Survey

	Density Category			
Size Category	A. under 250	B. 250 to 1,000	C. Over 1,000	Total
1. under 500k	3	1	1	5
2. 500k to 2m	1	2	3	6
3. Over 2m	1	3	2	6
Total	5	6	6	17

In developing the sample, CA Energy Consulting sought to contact all of the utilities in the bin that includes ComEd bin (3,C), a significant number in the nearby bins {(2,C), (3,B) and (2,B)}, and at least one utility in each of the other bins. CA Energy Consulting solicited three responses from bin (1,A) because it has more utilities than the other bins, because Ameren Illinois (a significant utility in the ICC's jurisdiction) is in that bin, and because it includes a utility, Mississippi Power, with an authority on cost of service, who had the potential to provide extra insight on the survey topics.[6]

CA Energy Consulting prepared a survey to administer by telephone in July 2011, covering the topics agreed upon by ComEd and the Staff reviewers. That survey appears in the appendix of this report. CA Energy Consulting anticipated soliciting responses in telephone interviews, and sent the surveys to contacted utilities in advance of the scheduled calls. Utilities largely preferred to return written responses, which usually produced more systematic responses and shortened the telephone interviews considerably. In a few cases, respondents were not available for telephone interviews but did respond to follow-up emailed questions, where needed.

Ultimately CA Energy Consulting solicited 19 responses and dispatched 18 surveys via email, having received no response from just one utility. Of the 18 surveys sent, just two were refused subsequently. Refusals were due to time constraints and lack of on-site expertise during the survey window. By the end of the survey period, respondents had completed and returned 16 surveys. CA Energy Consulting conducted telephone interviews with 13 respondents. Emails clarified questions for two more utilities. Survey solicitation was successful in that most bin targets were attained. The single setback was the failure to induce the one utility in bin (3,A), to participate. Table 3 summarizes completed responses.

[6] Mr. Larry Vogt of Mississippi Power is the author of a book about pricing and cost of service: Laurence J. Vogt, *Electricity Pricing: Engineering Principles and Methodologies*, CRC Press, Dec. 2009.

Table 3
Completed Surveys

	Density Category			
Size Category	A. under 250	B. 250 to 1,000	C. Over 1,000	Total
1. under 500k	3	1	1	5
2. 500k to 2m	1	2	3	6
3. Over 2m	0	3	2	5
Total	4	6	6	16

2.2 Survey Topics

The survey explored a range of cost allocation practices that utilities apply to the challenge of spreading distribution costs across voltages. The challenge arises from the complexity of service arrangements that utilities adopt to fit the circumstances in their service territories. Complications arise from customer diversity, proximity of customers to lines of varying voltages, the variety of voltage levels within the main levels of primary and secondary service, the use of underground and overhead connections and the presence of both single- and three-phase service. The subsections below summarize the topics and issues surrounding them.

2.2.1 Primary/secondary differentiation and primary level segmentation

CA Energy Consulting first asked respondents whether they differentiated distribution costs between primary and secondary voltages, and if so, for how long they had been doing so. Additionally, at the behest of Staff, the survey inquired as to the stimulus for introducing the practice, whether it was internal, due to regulatory influence, or arising from some other source.

2.2.2 Tariff specificity regarding voltage

ComEd surveyed a number of utilities in 2010 regarding the degree to which they recognize voltage in their tariff sheets. The survey included this question in its review in order to be able to compare pricing practices with costing approach for each surveyed utility.

2.2.3 Geographic diversity, urban-rural differentiation

ComEd and its customers face very different circumstances in the central business district of the City of Chicago when compared with suburban or agricultural areas of its service territory. Geographical segmentation in tariff design is rare. An exception lies in service territories that are the result of corporate mergers, where service territories within one state may remain distinct despite having been brought under one corporate entity. An example of this practice can be found at AEP Ohio, which has two service territories in Ohio – Ohio Power and Columbus Southern Power – each with its own tariff sheets.

An instance of geographical segmentation not related to corporate merger can be found in Pacific Gas & Electric's tariff sheets. For example, their E-1 Residential tariff is an

inclining block product whose blocks are defined as a percentage of a baseline quantity, expressed in kWh per day. Customers are segmented by 1) basic or all-electric service; and 2) by "baseline territory", of which there are ten. The baseline territories are defined by location and elevation, indicating that climate is a significant driver in baseline determination. The baseline is also defined for each of two seasons.

From the customer perspective, those in dense urban areas can bridle at geographically uniform costing methods. Thus, the issue merits inclusion in the survey.

2.2.4 Allocators to rate class used in COS

While the Staff is familiar with standard cost allocation practices for distribution assets and costs, it wanted to have the survey inquire into the actual allocators used by the survey respondents for various cost components. That is, the Staff wanted to know in what circumstances the participating utilities use coincident peak and non-coincident peak allocators for the various components of their distribution system.

2.2.5 Treatment of single-phase vs. three-phase service

Typically, single-phase service is found at the secondary level while three-phase service is found at the primary level. However, ComEd's service territory is not segmented sharply along these lines. The Staff were interested in learning to what extent utilities keep track of this segmentation and, more importantly, make provision for it in their cost allocation practices.

2.2.6 Direct assignment of customer-specific standard cost

An additional issue of interest for the survey involves the way utilities handle cases in which costs are known on a customer-specific basis. This inquiry has two components. First, standard costs can sometimes be assigned directly in cost of service to customers because the assets are clearly associated with service to a specific customer or well identified set of customers. To what extent do utilities in these circumstances actually assign those costs directly to customers?

2.2.7 Customer-specific charges for non-standard equipment

The second component regarding the handling of costs on a customer-specific basis involves cases when customers have special needs that result in non-standard equipment being installed by the utility. The concern is the extent to which utilities directly charge customers for such equipment and related services, what form the charges take, and then how the utility handles the cost and revenue impacts in cost allocation.

2.2.8 Treatment of poles

Staff maintains that direct observation of assets in the field could improve the accuracy of ComEd's engineering estimates. Regarding FERC account 364, ComEd stated it "does not have data readily available" to determine the exact number of poles in its system with primary and secondary voltage facilities, and thus to allocate costs by voltage based on direct evidence. As a result, the survey was designed to elicit information on how other utilities conduct cost allocation of poles by primary and secondary voltage facilities. One

aspect of this costing issue arises from the fact that typically a significant subset of poles carries both primary and secondary voltage facilities. Cost allocation thus involves deciding how much direct observation of pole and related information to undertake, and how to treat these "shared poles" for cost purposes.

2.2.9 Degree of regulatory controversy

ComEd and Staff also wanted to learn about whether cost allocation by voltage was a source of ongoing debate during regulatory proceedings elsewhere, because that might provide guidance as to the degree of scrutiny that Illinois should be giving the topic. Additionally, a related consideration is whether any aspect of a respondent's methodology raises concerns about compatibility with NARUC's standard distribution cost allocation approach(es) or, alternatively, is within the canon of standard practice.

2.3 Survey Respondents

Our requests to participate in the survey were met largely with prompt and thorough response. In some utilities, more than one costing analyst provided detailed responses to our inquiries. Table 4 lists the utilities participating, by bin.

Table 4
Survey Respondents

	Density Category			
Size Category	A. under 250	B. 250 to 1,000	C. Over 1,000	Total
1. under 500k	Ameren Illinois Company Cleco Power LLC Mississippi Power Company	Delmarva Power & Light Company	The United Illuminating Company	5
2. 500k to 2m	Oklahoma Gas and Electric Company	Kansas City Power & Light Company Xcel Energy (NSP)	Baltimore Gas and Electric Company PECO Energy Company Potomac Electric Power Company - MD	6
3. Over 2m	none	Duke Energy Carolinas, LLC Pacific Gas & Electric Company Dominion Virginia Power	Consolidated Edison Company of New York, Inc. Public Service Electric and Gas Company	5
Total	4	6	6	16

3 Survey Results

3.1 Major findings

This section reports respondents' views on the topics set out in Section 2. Since the topics are varied, a summary of the findings in advance of the reported detail is provided below.

- Almost all utilities segment distribution costs between primary and secondary voltage, and have done so for a decade or more. Methods for doing so vary with respect to account and subaccount detail, the extent to which data from geographic information systems ("GIS") are used, and the degree to which special

studies or field surveys are pursued to acquire data. The trend, initiated in the 1970's, appears to have been utility-driven predominantly.

- Tariffs recognize this primary/secondary differentiation implicitly because energy delivery for the majority of customers in a class is often at a single voltage. Adjustments in charges related to transformer ownership assist in this differentiation. Some utilities formally distinguish prices by voltage, especially in rates for large load customers.
- The boundary line between primary and secondary voltage service varies across utilities, but is in the range of 2.4 to 4 kV. ComEd's lower bound of primary voltage level is 4 kV, similar to that of other utilities. Two respondents reported having two segments to their primary voltages, but neither split primary costs into segments for cost allocation purposes.
- The issue of single-phase vs. three-phase service is not investigated closely in most jurisdictions. Many utilities do not keep track of this factor for COS purposes other than for meters and, sometimes, service drops.
- Direct assignment of costs to customers is common but does not amount to a significant share of overall costs.
- Poles which carry both primary and secondary distribution facilities are sometimes split to primary and secondary with various methods, and sometimes simply assigned to primary.
- Similarly, utilities are flexible in the treatment of special customer needs. They typically recover full costs of special equipment and services from the customer. COS practices are varied, chiefly due to the relative insignificance of the amounts involved.
- COS allocators of distribution charges follow NARUC guidelines but allocator usage varies fairly widely across utilities. Some allocate according to demand only, while others split distribution into demand and customer portions, using familiar, established methods (minimum system or zero intercept). Demand-related costs at the primary service level are allocated by a mix of coincident peak ("CP") and noncoincident peak ("NCP") allocators. At the secondary service level, NCP predominates, with use of both a "class NCP" and a "sum-of-the-customers" NCP. ComEd's use of CP allocators for electric service provided by primary voltage facilities is shared by several utilities, but not all.
- The costing practices of the surveyed utilities do not appear to generate controversy in regulatory proceedings. Few respondents reported methodology disputes of any consequence. Additionally, respondents' costing practices appear to be consistent with NARUC principles. All respondents reported this perception, and the allocators and primary/secondary splitting procedures reported can be found in the NARUC Cost of Service manual.

3.2 Results by Topic Area

Results of the survey appear below, summarized by topic. The specific questions from which responses are drawn are listed at the start of each topic write-up.

3.2.1 Primary/secondary differentiation and primary level segmentation

(Questions A, B, C, and D) All but two of the survey respondents differentiate in COS accounting between primary and secondary voltages. The practice of differentiation is well established, with a majority of utilities estimating that the split dates from the 1960s, 1970s or 1980s. Three utilities reported the conversion within the last decade or so. These utilities are all Midwestern, but the sample is small enough that it would be difficult to claim the existence of a geographic pattern.

When asked about the impetus for introducing the split, utilities for which the conversion was recent were better able to respond than utilities where the practice is long established. Seven respondents stated that the utility initiated the practice on its own, while one thought that the change had been jointly advanced by the utility and its regulator. The remainder could not say how the change came about. For those who made the change, it is often remote enough in time that the reasons for initiating the change are not recollected by current staff.

Survey respondents provided, in summary form, the range of voltages for each of the primary and secondary voltage levels. Figure 1 presents these ranges, with utility name excluded. Secondary service extends up to the voltage level at the right end of the black bar. Primary service extends up to the voltage level at the right end of the shaded bar. The bars highlight the full range of voltages, although distribution facilities are operated at discrete voltage levels only. Thus, the figure presents results in approximate form only. Discontinuities appear whenever there is a gap in the reported ranges. Additionally, the voltage boundaries are not drawn to scale, but distorted to reveal the voltages cited by respondents.

Utility 9's primary voltage range is not defined clearly, as indicated by the gray shading on the left side of the figure. This is because the utility defines its voltage levels by number of stages from transmission level. Secondary is defined as no more than two transformation stages from transmission level, while primary is no more than one stage away. The bottom end of the primary voltage is about 12 kV.

The only other anomaly is utility 6's definition of secondary as less than 7 kV. The figure perhaps misleads with respect to the difference due to the lack of fixed scaling.

Figure 1
Secondary and Primary Voltage Ranges of Survey Respondents

Only two respondents reported any differentiation in primary voltage for record keeping purposes. Utility 8 has two primary levels, the first consisting of 2.4 to 4 kV, and the second at 13.2 kV. They record equipment in these two ranges but no segmentation is done in accounting records for COS purposes. Utility 13 splits primary into two levels: 2.4 to 4 kV and 13.8 kV, but again they make no differentiation between levels in COS. Additionally, they are phasing out the lower segment, replacing lower voltage equipment with uniform 13.8 kV service. As a result, effectively no surveyed utilities can be said to split primary for COS accounting or cost allocation purposes.

The pattern of primary and secondary dividing lines suggests that, for many utilities, secondary covers voltages of 2.4 kV or less. A closer look indicates, though, that primary begins in several cases over 4 kV. For some utilities with 4 kV, the lower primary voltages of 2.4 and 4 kV are being eliminated, with replacement primary being at 13 kV. This is true of utilities 8 and 13. Utility 5, although officially drawing its dividing line at 2 kV, reports that most of its primary is at 9.9 and 34.5 kV. ComEd's own lower bound for primary is 4 kV, suggesting that its practice is in line with that of several other utilities, even some that ostensibly have lower boundaries.

3.2.2 Tariff specificity regarding voltage

(Question K) All survey respondents reported differentiating by voltage to some degree in their tariffs. This result parallels ComEd's previous research on tariffs, in which

virtually all of the 35 utilities surveyed have a primary and secondary split between voltages.

Our survey did not inquire into how voltage differentiation was expressed in the tariffs. To some degree, such differentiation is implicit in that residential and small commercial customers are almost invariably served at secondary voltage. (Those not served at secondary voltage are often classified under a non-mass market tariff.) Another well known device is to attach price discounts for service at higher voltage than that established for the rate. In some few cases there is explicit and systematic differentiation of the sort found in OGE Energy's tariffs, with separately quoted prices by voltage. As noted previously, though, this is one of the few utilities that does not use voltage differentiation in its COS cost allocation.

3.2.3 Geographic diversity, urban-rural differentiation

(Question E) Geographical segmentation of costs is rare. Just three respondents reported such differentiation. One respondent identifies costs with its distribution planning areas, which allows to the utility to differentiate to some extent with respect to urban density. A second utility uses information from its GIS to differentiate costs by region. In the case of the third utility, the answer simply reflected the fact that they have service territories in several states. Thus, the first two utilities' approaches suggest increasing capability, through GIS, to undertake geographical differentiation of costs, but the practice cannot be said to be in general use. Neither of these utilities differentiates tariffs geographically within a single service territory. As a footnote, several utilities mentioned use of GIS capability but this was used to keep track of, or inventory utility assets, not to set up geographical costing.

The case of PG&E is worth mentioning regarding pricing. Their geographic differentiation creates regional variation in its residential tariff blocks.[7] However, the price in the "nth" block is common to all regions. Regional costing, then, is expressed in pricing solely through block boundaries, as opposed to prices. Additionally, their Small General Service (A-1) tariff does not reference the ten geographical regions found in the residential tariff.

3.2.4 Allocators to rate class used in COS

(Question M) Respondents reported using customized versions of two general approaches to allocating distribution costs. The first involves allocating all costs by some form of demand allocator. The second begins with a demand- and customer-related split, and then uses some form of demand allocator for demand cost and customer allocator for customer cost. Under both systems, the use of coincident peak (CP) and non-coincident peak (NCP) allocators for demand cost vary in usage for primary only and secondary.

Four respondents reported splitting costs between demand- and customer-related categories, three via the minimum system method and one using the zero intercept

[7] PG&E's E-1 Residential tariff charges for generation and distribution with a multi-block tariff, where the blocks are a function of the customer's baseline usage, which is a function of season and geography. Ten geographic regions are identified in the tariff.

approach. For customer-related costs, number of customers was the standard allocator, although one used number of "services" (accounts).

Regarding demand allocators, just five utilities report using CP. This allocator is applied to primary service generally, and substations. NCP is used in some form by all respondents except one. Eight use NCP, computed on a class total basis, for at least some primary facilities. Two utilities report using hybrid allocators. One survey respondent uses a combination of NCP computed on a class basis with NCP computed as the sum of individual customers for secondary lines and transformer costs. Another respondent uses a combination of CP and sum-of-the-customers NCP for these two types of costs as well.

Two utilities provide examples of exceptions to the variety of arrangements described above. One respondent first divides its costs into "system" and "local" costs and then applies a CP allocator to system costs and a sum-of-the-customers NCP allocator to local costs. This produces a 50:50 system/local split at the primary level and, presumably results in all secondary costs being subject to the NCP allocator. (It also results in subtransmission costs being allocated on an 80:20 system/local basis, so that some of these costs are allocated via NCP as well.)[8]

The other exception is truly different from all others in the survey. A single respondent uses marginal distribution capacity cost and marginal customer cost (and no embedded cost) to allocate distribution costs in each of its distribution planning areas.

ComEd's recent rate case and rate design investigation proceedings focused to some degree on the treatment of primary lines and substations. The Commission determined that a CP allocator was appropriate for these components of the system. Several utilities in our survey use this same approach. Three survey respondents using conventional cost allocation apply this method, as does the utility that applies system vs. local splitting, but for its "system" assets alone. However, the use of NCP allocators is clearly accepted by the industry as well. Three utilities use a mix of CP and NCP allocators, and several utilities use NCP exclusively.

Table 5, below, summarizes cost allocation practices by voltage. The left-hand panel indicates that nine respondents report some use of customer allocators. In four cases, these allocators are applied in specific accounts. In five cases one or more accounts are split using either the minimum size method or the zero intercept method.[9] As noted above, one utility uses marginal capacity and customer costs.

The right-hand panel summarizes the use of demand allocators. Five utilities use the simple approach of a single NCP allocator for all demand-related costs. Three use the class NCP approach and two use the "sum of the customers" NCP. The bottom half of the panel shows how respondents apply allocators at various levels. The familiar tendency to use CP allocators for higher voltage and NCP for lower voltage is evident.

[8] Subtransmission voltage is loosely defined as the part of a transmission system that runs at low voltages but at voltages typically found at distribution level. This voltage level is typically included in the transmission function for cost-of-service purposes.

[9] NARUC describes these two methods and their application to FERC accounts 364-369 in its *Electric Utility Cost Allocation Manual*, January 1992, pp. 90-95.

Cost allocation practices, then, are varied. The survey documented an array of practices that adhere to the well-known tenets of cost causation in distribution. This suggests that ComEd's practices are well within the range displayed by the industry.

Table 5
Summary of Cost Allocation Methodologies

Customer-Related		Demand-Related			
	D/C split?		CP	NCP	
				Class	Sum
By Account	4	All Demand-Related		3	2
Account Splitting		By Account			
Minimum Size	3	Primary	3	4	
Zero Intercept	1	Substations	4	1	
Marginal Cost	1	Secondary		2	3

3.2.5 Treatment of single-phase vs. three-phase service

(Questions F and G) Distinction between single-phase and three-phase service is not much of a costing issue for the survey respondents. For some respondents, the distinction does not appear in COS analysis, although implicitly all, or most three-phase service occurs at the primary level while all, or almost all single-phase service is at secondary. At the primary level, four respondents stated that they had three-phase service only, four stated that they had both types and three indicated that their utility didn't make the distinction. The remainder did not know the exact situation, an indicator that the distinction is not important in their case.

With relatively little information available on the splits at primary and secondary based on the number of phases, it is not surprising that most utilities do not distinguish in COS analysis between single-phase and three-phase, other than the implicit distinction inherent in voltage. With single-phase and three-phase costs bundled by voltage, the share of three-phase service at secondary, for example, is generally not known.

3.2.6 Direct assignment of customer-specific standard cost

(Question H) Survey respondents were asked about the degree to which they used the actual equipment serving a customer in developing COS, as opposed to just average cost. Some respondents indicated that they utilize direct assignment to specific customers of the actual costs incurred for certain specific equipment such as dedicated substations. Alternatively, when the allocation of common equipment is performed, utilities tend to use average cost of equipment. This average cost of equipment would be based upon all equipment found at all the various voltage levels within a given voltage. For example, consider a utility having three voltage levels of *primary lines*: 34.5 kV, 12 kV, and 4 kV. The utility averages the costs of all these various primary lines for allocation purposes without distinguishing between which specific lines are actually delivering electricity to

specific customers. For all survey respondents, there is no segmentation of primary voltage costs by voltage level within the primary voltage classification.

Regarding the issue of broad use of direct assignment, one utility offered street lighting as being directly assigned, but that is as close as any respondent came to direct assignment to large groups of customers. Treatment of specific and directly associated cost to known customers is close in theme to the topic of non-standard equipment, discussed immediately below.

3.2.7 Customer-specific charges for non-standard equipment

(Questions I and L) Survey respondents were asked about the degree to which customers can choose their level of service. The utilities indicated varying degrees of flexibility in this regard. However, respondents' answers, in whatever manner expressed, appeared to mean that customers could request a level of service that differs from what they would normally receive, and this request would be granted provided that the customer paid the incremental amount of the upgrade.

This perspective is confirmed by a related question regarding payment for non-standard services, the answers to which indicate that utilities are prepared for upgrade requests. Customers are generally expected to pay the full cost of the incremental cost of the upgrade. Payment is predominantly in the form of a facilities charge or fee, paid at the time of installation. Two utilities explicitly make provision for a monthly fee or carrying charge, while another offers an "accommodation bill rate" (a bill premium).

Utility treatment of the revenues and the extra costs associated with these upgrades varies widely in terms of the degree to which revenues and costs are allocated to classes. To some extent, the issue is not considered very important, as the amounts involved are small, justifying nonspecific treatment. Several respondents were not sure how costs or revenues were handled. Several, but not all utilities recognize revenues as contributions in aid of construction. One utility allocates revenues to its miscellaneous revenues account. Another treats revenues as a cost offset, but it is not clear whether the offset is made to a specific class.

Only one survey respondent stated that revenues were assigned to the class of the paying customer. This specificity is not repeated on the cost side, though. A single utility achieves symmetry, socializing all revenues and costs.

Another comparison is worth making. One survey respondent requires that special transformers be paid for by customers, and the customer owns the transformer. (As a result, this utility has no special costs requiring treatment in COS.) In contrast, another utility charges a fee, retains ownership of the transformer, and records the asset at zero cost on its books.

The diversity of responses, and the common view that these revenues and costs are relatively insignificant, suggests that ComEd and the ICC have room for discretion, and can select an approach that is cost effective for accounting purposes, provided that the COS impact of its choices is small. However, it is recommended that wherever possible and practical in cost of service, revenue should follow cost and equate to it.

3.2.8 Treatment of poles

(Question J) Most respondents stated that they have "shared" poles, in which both primary and secondary lines are carried by the same pole. There is no uniform standard in use to resolve this costing issue. In some cases, the costs of the entire FERC account 364 – poles, towers and fixtures – is apportioned on the basis of cost shares in other accounts. In this approach, shared poles are not an issue because the split does not take account of actual data for that account. In most cases, some form of split based on a range of criteria is undertaken. Criteria include: length of high and low tension lines[10], information from GIS data on various pole characteristics, and pole height. Another respondent uses special studies based on the number of conductors to allocate shared pole costs. Sometimes the shared pole values can be identified and the method is applied to just these values. In other cases the splits are based on the total account value.

In one case the split is based on current expenditures on poles designed to support specific voltage levels. Still another utility bases its shares on survey work that directly observed types of poles and made apportionment based on field observation.

The diversity of approaches used by these utilities, and the discretion in formulating common-sense rules, suggests that there is no common practice against which ComEd can benchmark its own practices.

3.2.9 Degree of regulatory controversy

(Question O) Just three utilities reported primary/secondary split issues in recent memory with their regulator. One of these observed differences arose in a recent regulatory proceeding, with differing interpretations between the Public Service Commission ("PSC") and its Staff with respect to wires plant cost allocation. The PSC preferred an all-demand approach while the PSC Staff advocated a demand-customer split using the conventional statistical methods (minimum system or zero-intercept) but this difference of opinion does not bear on the primary/secondary voltage topic. Similarly, one other utility's commission favored peak-and-average allocators while the utility favored its current (NCP-based) cost allocation approach. Since peak-and-average shifts costs away from secondary (residential) customers, this has an indirect effect on the secondary/primary split.

No survey respondent reported any discrepancies between their practices and established NARUC standards. One utility reported that the use of CP demand allocators for some costs (substations and primary lines) at the distribution level was being considered by their regulator, a practice that would be somewhat at variance with industry methods. One respondent stated that he wasn't qualified to make that determination. All others affirmed that they were in compliance with NARUC practices.

It may be that NARUC standards are broad enough that utilities have sufficient discretion to select cost allocation methods by voltage that suit their practices. The NARUC Cost Allocation Manual does not dwell on voltage issues for distribution cost allocation,

[10] This utility defines "low tension" as service below 2 kV, and "high tension" as service between 2 kV and 69 kV. Transmission service is defined as operating at 69 kV. They equate low tension with secondary voltage and high tension with primary voltage.

focusing instead on the issue of compartmentalizing by cost causation: demand- vs. customer-related costs.[11]

On page 89, the manual states that "distribution line costs must be separated into overhead and underground, and primary and secondary voltage classifications". A subsequent table indicates that typical practice involves differentiation of distribution line-related costs into four groups – overhead primary, overhead secondary, underground primary and underground secondary – and, within each group, splitting costs into demand-related and customer-related components. However, the manual does not then prescribe methods for determining how such differentiation should occur.

4. Conclusions and Recommendations

This survey of distribution costing methods, focused on cost allocation into primary and secondary components, reveals that industry practices are variable across service territories, and yet within the range of proper COS practices identified by NARUC. Additionally, it appears that ComEd's costing practices are well within the range of those reported in the survey.

Specifically, CA Energy Consulting finds that almost all utilities conduct COS analysis that formally recognizes costs at separate primary and secondary distribution levels. None differentiated primary into different voltage levels of service within the primary function for COS purposes. Some, but not all, utilities classify costs at each voltage into customer-related and demand-related components, while others classify all costs as demand-related. Regardless of the classification approach, almost all utilities in the survey use well established methods in selecting allocators to spread embedded costs to customer classes and rates. (One exception uses marginal cost for cost allocation.) Again, ComEd's practices of using CP allocators at the primary voltage level and NCP allocators at the secondary voltage level are consistent with practices elsewhere.

The methods that the surveyed utilities use to develop the data that underpin allocators are not uniform. A particular issue in ComEd's 2010 rate case pertained to FERC Account 364, poles, towers and fixtures. With respect to the ways in which the surveyed utilities develop allocators for this account, a wide range of practices is evident. Some utilities apply cost shares from related accounts to total Account 364 costs. Others make use of pole count data, either from traditional company records of assets or from more contemporary GIS sources, surveys, and use engineering judgment to apportion/allocate total costs to the applicable voltages. Some, but not all, investigate "shared poles" with both primary and secondary lines attached and allocate costs associated with these poles based on a sharing rule of some sort.

Regarding the extent to which single-phase and three-phase service information is considered in preparing a COS study, most utilities assume that primary service is delivered via three-phase wiring while secondary service is provided by single-phase wiring. Most utilities do not appear to study the incidence of such wires at other than their assumed voltages to be able to say more than whether this occurs, and to confirm

[11] National Association of Regulatory Utility Commissioners, *Electric Utility Cost Allocation Manual*, January 1992. Chapter 6 focuses on Distribution.

that the incidence of this practice is low. Costing to reflect wiring differences within voltage levels is typically not done. This does not imply that single-phase costs associated with primary service should be excluded from cost allocation to primary customers, especially if it is costly to disentangle such costs. No respondents report undertaking such efforts. For most, recognition of single-phase vs. three-phase service is not an issue.

The survey also investigates COS methods relating to direct assignment of costs for actual equipment and the treatment of requests for special service. These topics are linked to some degree. All respondents find ways to undertake direct assignment of costs, but on a limited basis in cost of service. It turns out that such assignment for customer billing often occurs when special requests for non-standard service are made. Survey respondents uniformly charged customers for the full costs of special arrangements. However, the accounting treatment of revenues and costs is not consistent and usually does not involve recognition at the class level in cost of service. The explanation for this treatment for this treatment is that the small amounts of money involved do not warrant detailed attention.

The survey also inquired into the incidence of geographic cost differentiation. While the ability to document the location of assets has grown considerably with the arrival of GIS systems, costing practice has not sought to take advantage of this information as yet. Just one utility in our survey develops cost information by distribution costing area and their methods do not involve the use of embedded cost.

Lastly, costing practices surrounding the demarcation of primary and secondary voltages does not appear to be generating regular methodological disputes in regulatory proceedings. All but two of the survey respondents reported virtually no contention in recent regulatory proceedings between their regulator and the utility on COS methodology in this area. Those who reported methodological issues did not suggest that the sources of difference of opinion were major, or likely to delay a rate case. As well, all respondents regarded their methods as within the bounds of industry practice as defined by the NARUC Cost Allocation manual.

Implications for work on this project. CA Energy Consulting, on behalf of ComEd, has three upcoming tasks required to complete its analysis of its costing methods in this proceeding. These are: 1) treatment of poles, weather-resistant wire and underground conduit, and the evidentiary requirements for its approach; 2) the handling of costs for its railroad customers (4 kV asset allocation); and 3) cost allocation as it pertains to its Extra Large Load customers.

Regarding research on poles, the survey reveals that utilities approach the data underpinning and cost allocation in a number of ways. The survey found that using cost shares from related accounts suffices in some jurisdictions, and there may be indications from other respondents as to how sampled data may be used. Regarding the issue of 4 kV asset allocation, it appears that utilities do not make a practice of splitting primary into two sub-levels, based either on a defined voltage level or on what types of customers are served by the primary line. The 4 kV level is a common lower bound for primary. However, this boundary may be moving upward for some utilities as old low voltage equipment is replaced with new higher voltage assets.

As for treatment of Extra Large Load customers, other utilities conduct costing by function and voltage. They perform load research which identifies the voltage at which customer groups (or possibly an entire rate class) are served and their resultant contribution to the allocators for these voltages. Allocators are then applied to the voltages' costs such that customers who are served at higher voltages are not allocated cost from lower voltages.

Appendix: Survey Document

UTILITY TELEPHONE SURVEY

Questions Re Cost Treatment of Distribution Service Levels For Commonwealth Edison Project

By Christensen Associates Energy Consulting
July, 2011

A. In your cost of service (COS) studies, do you have separate service levels commonly called "Primary" and "Secondary"?

   a. If the answer to A is no, is the distribution function allocated to rate groups or customer classes in aggregate or do you still split distribution somehow (such as by voltage levels) and then allocate to rate groups or customer classes? *Now, please proceed to Item L in this survey.*

   b. If the answer to A is yes, *i.e.* you do separate service levels into Primary and Secondary, can you estimate the year when you first began separating into "Primary" and Secondary?

   c. If the answer to A is yes, *i.e.* you do separate service levels into Primary and Secondary, do you remember whose idea it was to make that division between primary and secondary?

      i. The utility?
      ii. Customers?
      iii. The Commission?
      iv. Other interested parties?

B. Do you split distribution FERC accounts into primary and secondary?

   a. If yes, how do you do so?

      i. Established process or special analysis?
      ii. Sampling circuits?
      iii. Size of equipment?
      iv. Long-standing tradition?
      v. Other?

   b. If you do not split distribution FERC accounts into primary and secondary, is the distribution function allocated to rate groups or customer classes in aggregate?

C. If you split into primary and secondary, what is your "working definition" of primary and secondary? *E.g. Primary is between 4 kV and 33 kV (inclusive), transmission and subtransmission are > 33 kV, and secondary is < 4 kV.*

D. If you split into primary and secondary, do you further subdivide primary into more than one voltage level of service for COS? *e.g.* 4 kV, 12 kV, and >12kV.

   a. If yes, do you know accounting detail by size of equipment? If no, how do you split into these voltage service levels:

i. Established process or special analysis?
ii. Sampling?
iii. Size of equipment?
iv. Long-standing tradition?
v. Other?
vi. If you have a primary / secondary study, could you please provide it in electronic form?

E. Do you perform geographic cost segregation? If so, how?

F. Do you allocate the costs for single-phase circuits and three-phase circuits differently such that one class of customers is responsible for the costs of a major portion of such single-phase or three-phase circuits?

a. If yes, are these single-phase circuits and related equipment allocated only to secondary voltage customers?

b. If the secondary voltage customers are allocated the majority of the costs for single-phase circuits, are the three-phase circuits also allocated to the secondary voltage customers and in what manner?

G. For the primary voltage level of service, do you have circuits with single-phase load or just three-phase load?

a. If you have single-phase circuits at primary, do you have:

i. **Single-phase primary customers** being served from these **single-phase primary circuits**,
ii. **Three-phase customers** being served from these **single-phase primary circuits** with appropriate necessary **equipment to enable three-phase service**, and/or
iii. **Single-phase secondary customers** served from these **single-phase primary circuits**?

b. For COS allocation purposes do you place the costs of these single-phase primary circuits as part of your primary voltage level of service or do you place these single-phase primary circuits into your secondary voltage level of service?

H. Do you consider actual equipment serving a rate group or simply consider the average cost of equipment necessary to serve a rate group for COS purposes?

a. If actual, does your accounting system keep this separate?

I. Is the decision of voltage level of service a customer choice or a utility choice?

J. In the primary system (or specific voltage level of service), do poles (FERC Account 364) sometimes support both primary and secondary lines?

a. If so, do you split this cost between primary and secondary, and, if so, how do you split it?

K. Do your tariff charges differentiate between primary and secondary voltage?

L. If applicable, how do you charge individual customers for non-standard service like requests for dual feeds, oversized transformers for interfering load, multiple points of service, etc. and how do you account in the COS for the cost of the equipment and the revenues collected for the non-standard service?

M. How do you allocate distribution costs (*i.e.*, primary distribution lines, transformers, secondary lines, service drops, and substations) to rate group or classes? Do you use a CP- or an NCP-based allocator?

   a. If you use an NCP allocator, is it based upon peak loads at the customer-class level, the individual customer level, or a combination of the two?

N. Is your most recent cost-of-service study available in pdf form?

O. Does the PUC or their staff have any issues with these approaches? Do you feel your approach matches NARUC standards? Why/why not?

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-19
Date of Response: 09/13/2016
Responding Witness: Electric Infrastructure & Operations Panel

Question No. : 260

Please describe the conditions under which the Company replaces 1.0 Awg OH conductor.

Response

In general, the conditions that would result in 1.0 Awg OH cable being replaced are upon failure, system expansion when it is necessary to upgrade the cable due to increased system load and a lack of capacity on that specific cable. In addition, when interference work requires pole relocation, the secondary wire will be retired and replaced with cable to meet current load. If current load can be satisfied with 1 Awg cable, it will be replaced with new 1 Awg cable.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-19
Date of Response: 09/13/2016
Responding Witness: Electric Infrastructure & Operations Panel

Question No. : 261

For each service classification, please identify the proportion of customers to which the Company delivers direct current (DC) power.

Response

The Company no longer provides DC power. Any customers that need DC power for their own purposes convert the Company's delivered AC power to DC power via rectifiers owned by the customer and located on customer premises.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-19
Date of Response: 09/16/2016
Responding Witness: Demand Analysis & Cost of Service Panel

Question No. : 263

Under what circumstances do SC1 customers with minimum load require DC power? If minimum loads for SC1 customers do not require DC power, why should regenerative control devices be included in the minimum system calculation for UG transformers?

Response

The Company no longer provides DC service. Notwithstanding, regenerative control devices and rectifiers are included in the minimum system calculation for the following reasons.

The minimum system calculation is not performed based on a definition of "minimum load." The minimum system represents the cost of the smallest secondary system theoretically needed to physically connect all of the existing service points if the system was not required to supply any load.

For accounting purposes, both regenerative control devices and rectifiers are considered transformers, which transform electricity to the voltage used by customers. Costs for transformers, including costs for transformers that are moved to the corresponding depreciation reserve account, are allocated among all classes in the Embedded Cost of Service study.

Company Name: Con Edison
Case Description: 2016 - Con Edison Electric and Gas Rate Filings
Case: 16-E-0060; 16-G-0061

Response to UIU Interrogatories – Set UIU-19
Date of Response: 09/13/2016
Responding Witness: Electric Infrastructure & Operations Panel

Question No. : 268

In the instance where a "typical" transformer serves 6 customers, is there then normally a secondary line which serves those customers and the service lines to those customers?

Response

Yes.

Cases 15-E-0050 and 13-E-0030

Consolidated Edison Company of New York, Inc.

AMI BUSINESS PLAN

Staff of the Department of Public Service

Interrogatory/Document Request

Request No.:	DPS-7
Requested By:	DPS Staff
Date of Request:	November 19, 2015
Reply Date:	November 30, 2015
Subject:	AMI Preliminary Business Plan

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1. Provide updated IR responses, if applicable, to all previous IR responses based on the latest version of the AMI Business Plan.

   Response:

   Updated responses (in intalics) to the following questions from IR No. DPS-4 are provided below. There are no further changes to any of the Company's responses in DPS-4 nor any other IR at this time.

   A. Provide all documentation and assumptions used in preparing the estimated benefits and costs reflected in the Company's AMI Business Plan (dated November 16, 2015). Be sure to include all workpapers in Excel format supporting the data.

      Please see attached file labeled "ConEd AMI Business Case Model 11162015" for all supporting documentation related to the AMI Business Plan submitted to the PSC on November 16, 2015.

   B. From Con Edison's previously submitted AMI business plan (dated October 15, 2015) to the Company's latest AMI Business Plan (dated November 16, 2015) operating and maintenance expense for the AMI system, on a 20 year net present value (NPV) basis, decreased from $634 million to $552 million. Explain this decrease.

      The overall drivers for the decrease in the 20-Year O&M NPV from $634 million to $552 million are attributable to a decrease in O&M cost estimates required to maintain the electric meters, gas modules and AMI network equipment. The

original estimates were benchmarked from other utilities in the October filing, and have since been updated with more detailed information from our pre-bid vendors. Con Edison applied these reductions to its estimates of expenses following a further review of failure rates of the meters, modules and network equipment. The table below highlights the O&M changes between the two business plans:

Failure Rate O&M Category Factors	10/15/2015	11/16/2015
Meter/Module Replacement Labor	1%	0.25%
Network Equipment Replacement Labor	2%	1%
Electric Meters	1%	0.25%
Gas Modules	1%	0.5%
Network Equipment	2%	1%

C. Provide the estimated impact (i.e. projected costs and savings) of Con Edison's AMI Business Plan on the Company's electric and gas revenue requirement, by rate year, for the period 2017 through 2037.

Please see the two files attached labeled "DPS7-1 Att-1, AMI Revenue Requirement Impact 2017 – 2035 - Electric," and "DPS7-1 Att-2, AMI Revenue Requirement Impact 2017 – 2035 – Gas," for all supporting documentation related to the estimated impact of AMI for both electric and gas. Please note that the annual revenue requirements are provided for 2017-2035, which coincides with the time scope of the business case data.