

Austin Energy Distribution Infrastructure Investments

EUC Presentation

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Transmission and Distribution System Assets

Service Area	437 Miles
Distribution Lines	11,453 miles
Transmission Lines	624 miles
Distribution Substations	60
Transmission Substations	14
Overhead Distribution Transformers	43,467
Pad Mount Distribution Transformers	37,637
Power Poles	165,685



Distribution Planning Criteria

System Condition	Maximum Facility Loading	Maximum Voltage Drop	Restoration Time (Non-Faulted Sections)
Normal	Normal Equipment Ratings	6 Volts (5%) on a 120 volt basis	N/A
Level A	Emergency Equipment Ratings	10 Volts (8%) on a 120 volt basis	Two Hours
Level B	Emergency Equipment Ratings	10 Volts (8%) on a 120 volt basis	Twenty-four Hours
Level C	Emergency Equipment Ratings	10 Volts (8%) on a 120 volt basis	Exceeds Twenty-four Hours

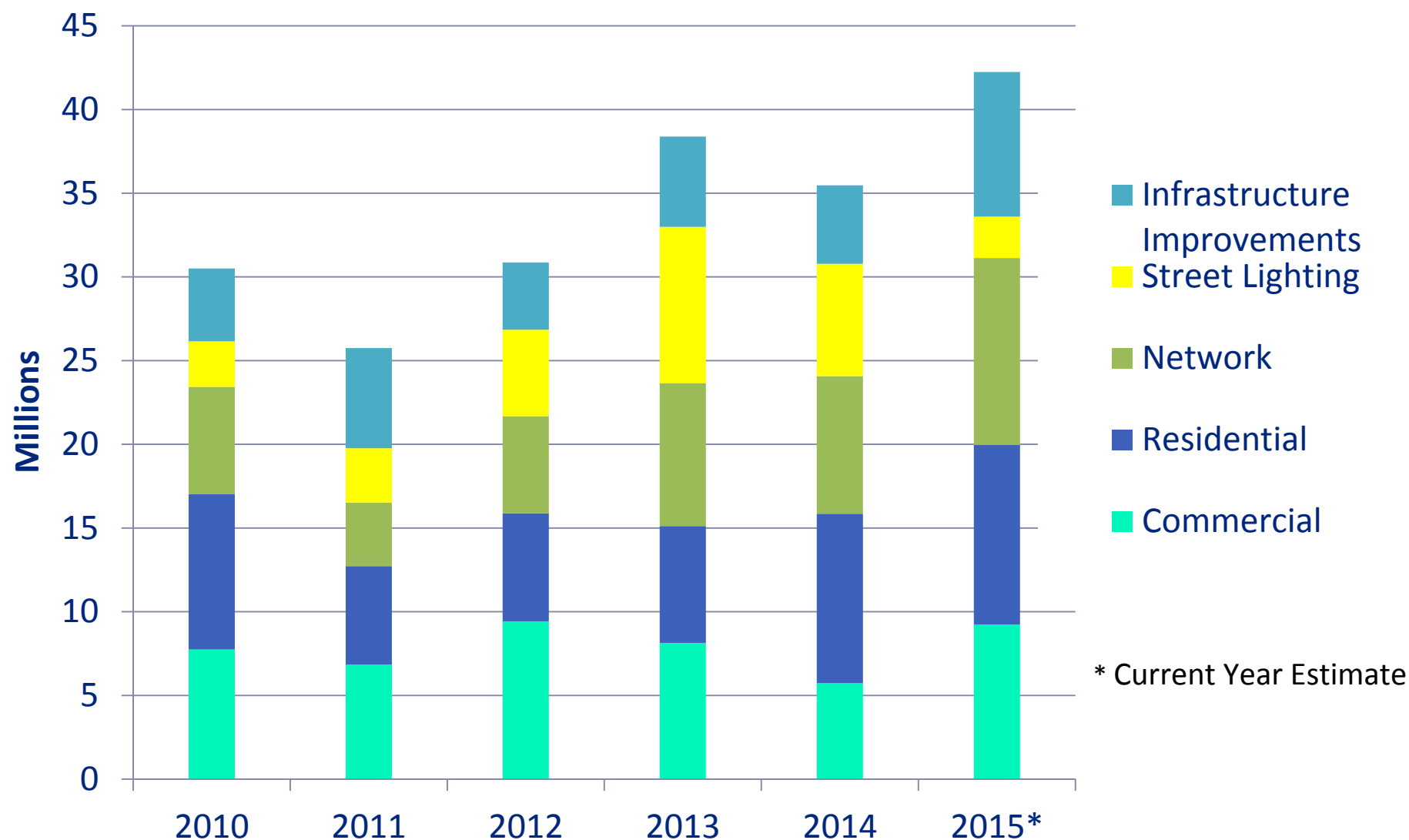
(Meets with ANCI C84.1 1989, red book page 69-70)

- A. Loss of Feeder
- B. Loss of Transformer
- C. Loss of Substation



Historical Investments

Key Infrastructure Categories



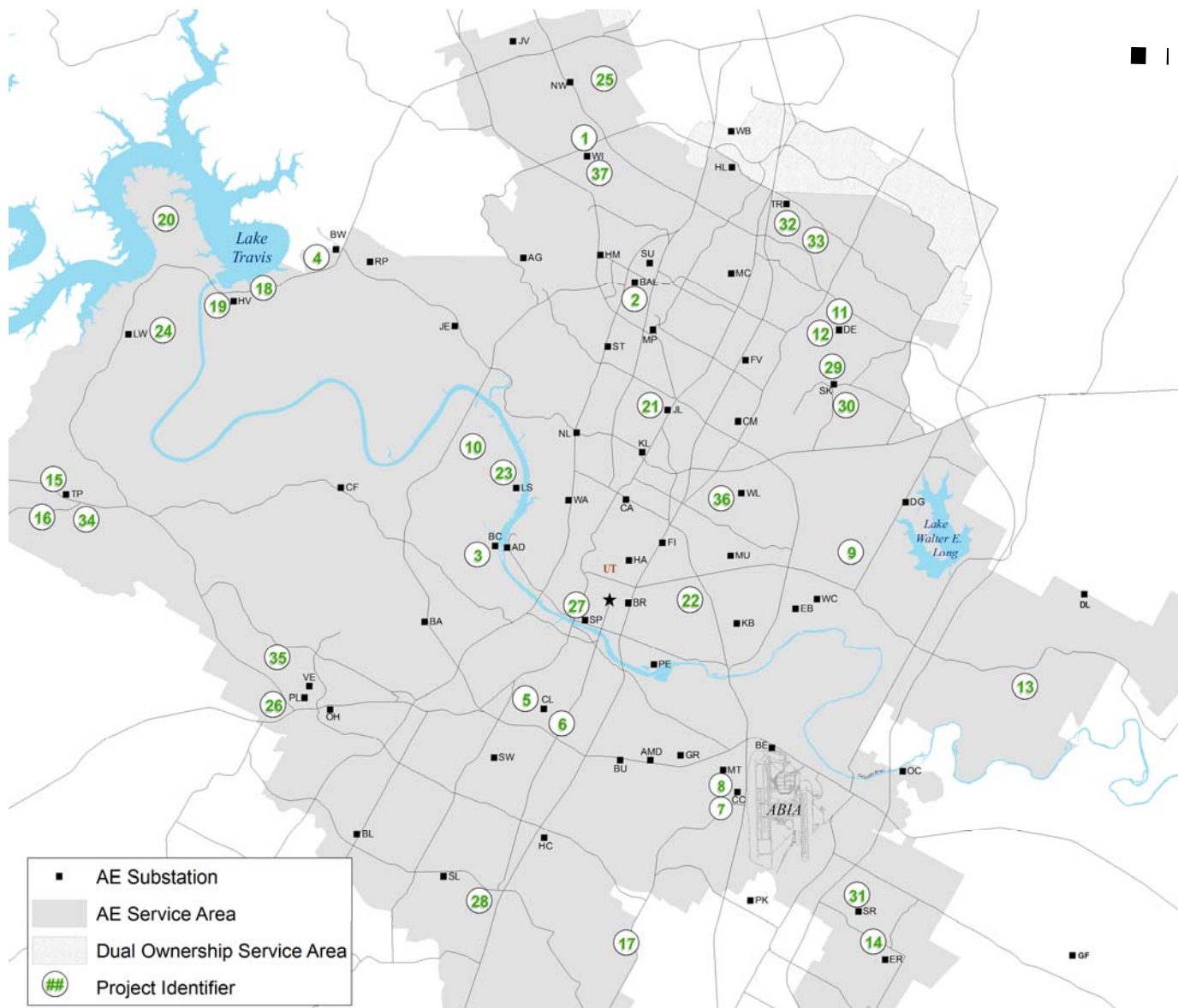


Distribution Historical

	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Actual 2013	Actual 2014	CYE 2015
Capital Outlay	1,685,816	1,736,489	1,967,321	1,717,459	1,568,939	606,000	779,190	
Closed	902,837	-210,594	1,947,283	1,289,099	-	-	-	-
Dual Feed	-36,778	183,784	-	1,016,022	2,099,409	563,177	2,584,980	4,170,918
Growth Commercial	14,196,653	15,331,079	7,744,529	6,834,510	9,425,093	8,135,716	5,737,820	9,231,988
Growth Residential	17,038,784	11,069,303	9,289,375	5,892,760	6,453,292	6,976,025	10,112,364	10,726,950
Transformer Inventory	-	-	-	10,793,523	11,631,587	12,028,247	10,668,726	
IT	-	-	-	-	1,744,411	3,739,066	9,351,532	8,591,204
Metering	-	-	-	-	-	744,059	10,280,701	13,229,248
Network	8,800,598	7,624,125	6,398,973	3,790,617	5,801,011	8,545,705	8,221,936	11,169,221
Other Improvements	7,124,349	4,165,534	6,984,296	6,725,159	4,103,886	3,413,894	5,998,623	5,600,010
Relocation	5,961,725	6,630,301	5,822,151	5,728,605	4,293,048	4,621,822	3,940,022	7,247,860
Street Lighting	4,635,112	3,589,831	2,723,175	3,246,463	5,165,455	9,331,824	6,714,660	2,475,000
System Improvement Growth	2,778,117	3,039,216	3,023,501	4,942,420	1,040,284	3,735,050	3,475,010	4,415,000
System Improvement Reliability	2,715,604	4,277,642	1,321,894	1,043,539	2,980,534	1,663,850	1,206,063	5,991,882
Distribution Totals	65,802,817	57,436,710	47,222,498	53,020,176	56,306,949	64,104,435	79,071,627	82,849,281



Completed Projects

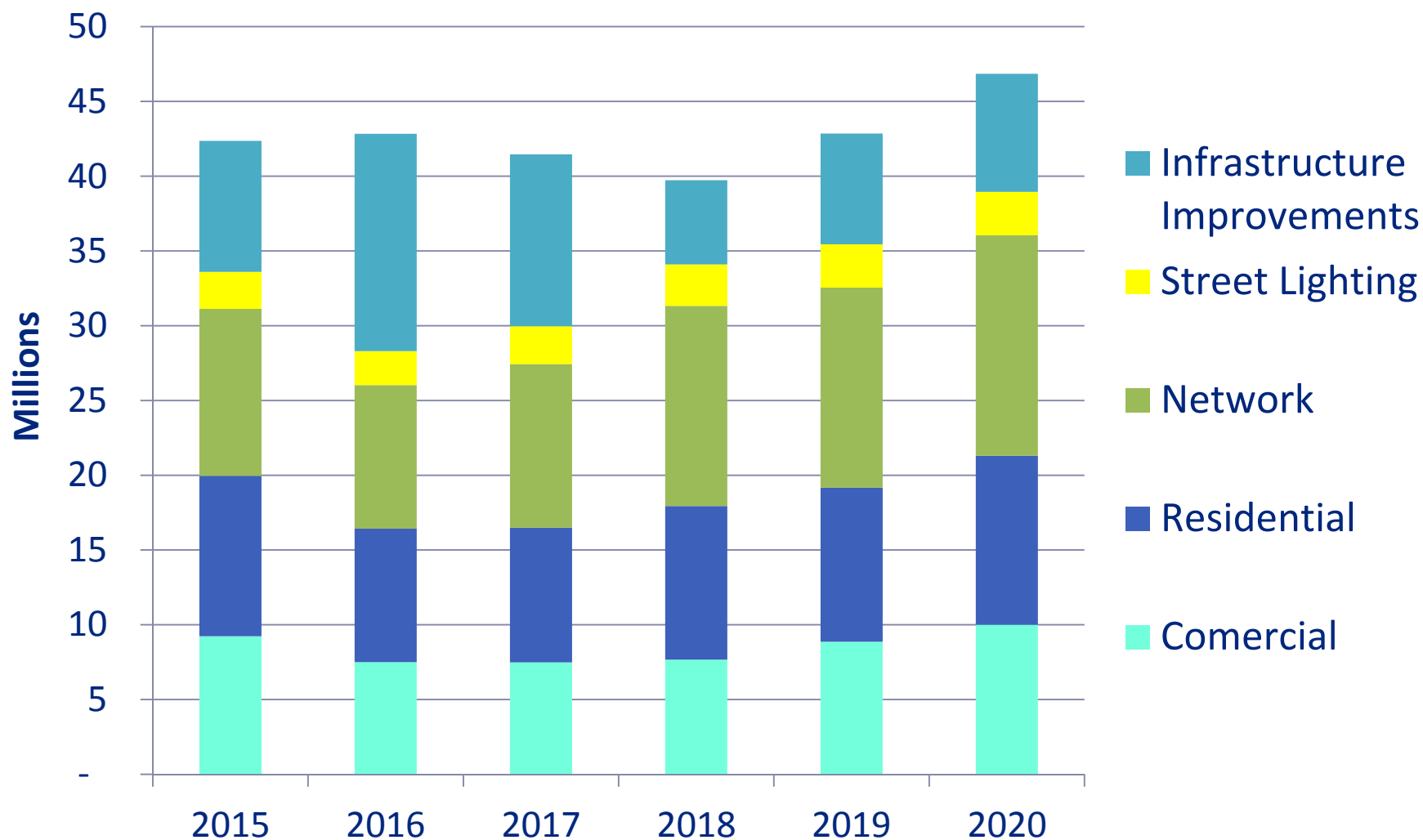


No.	Project
1	Apple Duel Feed:Williamson Ckt WI11 Extension
2	Balcones New Feeders
3	Bee Creek BC08 Reconnector
4	Bullick Hollow RWPS Feeder
5	Cardinal Lane Ckt CL11 Reconnector
6	Cardinal Lane New Feeder CL03
7	Carson Creek New Feeder
8	Cyrus 1 Dual Feed Service
9	Daffin Gin-Walnut Creek Tie
10	Davenport HDD Ductline
11	Dessau Ckt DE01 Reconnector
12	Dessau DE22 Feeder
13	Dunlap Road Reconnector
14	Elroy Road Reconnector
15	Falcon Head West Feeder Tie
16	Hamilton Pool Road Reconnector
17	Hicross: HC01 Reconnector
18	Hidden Valley: HV01/HV04 Tie
19	Hidden Valley: New HV06 Feeder
20	Hudson Bend Reconnector
21	Justin Lane Feeder JL04
22	Kingsbery: KB03 Reconnector
23	Lakeshore: LS02 Feeder Extension
24	Lakeway: LW02 Reconnector
25	Northwest New Feeder NW04
26	Patton Lane: PL02/PL03 Tie
27	Seaholm Plant Ckt SP12 Reconnector
28	Slaughter Lane: SL08 Cullen Lane Reconnector
29	Sprinkle New Feeder SK04
30	Sprinkle Substation: SK01 Reconnector/SK06 Tie
31	Stoney Ridge Feeders
32	Techridge-Dessau: TR02/DE03 Tie
33	Techridge: TR08 Reconnector
34	Trading Post New Feeder TP07
35	Travis Cook Rd Reconnector
36	Wheless Substation: WL05 Upgrade
37	Williamson New Feeder WI07



Future Investments

Key Infrastructure Categories



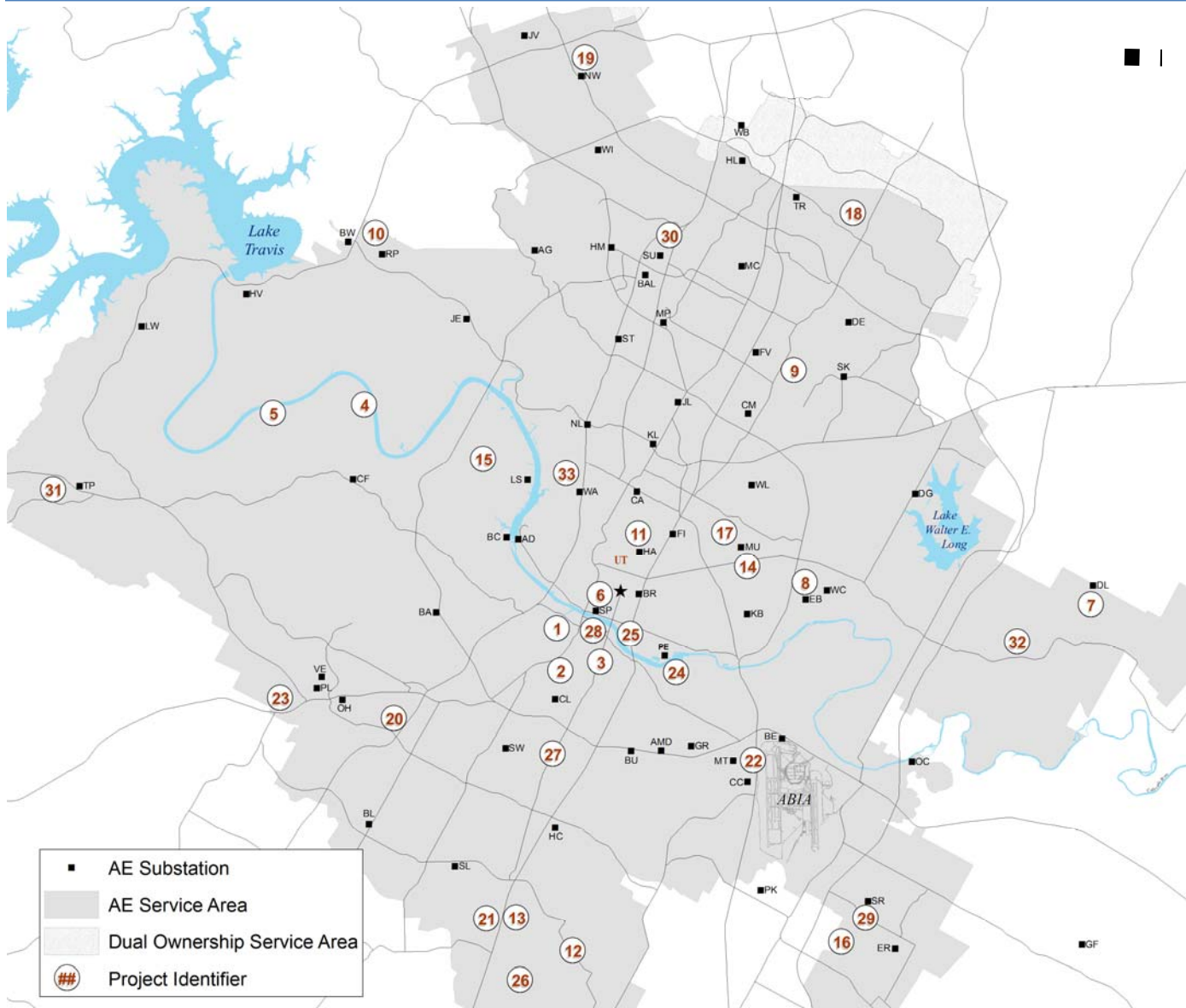


Distribution Forecast

	CYE 2015	Proposed 2016	Proposed 2017	Proposed 2018	Proposed 2019	Proposed 2020
Capital Outlay						
Dual Feed	4,170,918	1,500,000	-	-	-	-
Growth Commercial	9,231,988	7,500,850	7,487,265	7,671,812	8,866,862	10,000,000
Growth Residential	10,726,950	8,924,450	9,000,000	10,270,500	10,300,000	11,300,000
IT	8,591,204	6,220,000	4,985,000	11,366,423	9,751,873	4,750,000
Meter	13,229,248	8,350,000	11,350,000	11,350,000	9,850,000	9,850,000
Network	11,169,221	9,600,340	10,953,735	13,381,265	13,381,265	14,750,000
Other Improvements	5,600,010	5,545,000	4,650,000	4,450,000	4,450,000	4,950,000
Transformer Inventory						
Relocation	7,247,860	5,750,000	6,000,000	6,000,000	6,000,000	6,000,000
Street Lighting	2,475,000	2,275,000	2,525,000	2,775,000	2,900,000	2,900,000
System Improvement Growth	4,415,000	5,829,000	7,145,000	4,435,000	6,200,000	6,200,000
System Improvement Reliability	5,991,882	13,506,000	10,904,000	3,300,000	3,300,000	4,300,000
Distribution Totals	82,849,281	75,000,640	75,000,000	75,000,000	75,000,000	75,000,000



Future Projects



No	Project
1	Cardinal Lane-Seaholm Feeder Tie
2	Cardinal Lane Oltorf Reconductor
3	Congress Ductline Rehab
4	Commons Ford CF04/07 Tie
5	Commons Ford Park Reconductor
6	Distribution Back-up to Network Circuits
7	Dunlap New Feeder
8	Ed Bluestein EB01/07 Upgrades
9	Fiskville-Sprinkle FV05/SK01 Tie
10	Four Points Duct Bank
11	Harris New Feeders
12	Hicross HC11 Reconductor
13	Hicross HC06 Reconductor/Extension
14	Kingsbery KB01 Reconductor
15	Lakeshore LS02/06 Tie
16	McAngus Road Reconductor/Tie
17	Mueller New Feeders
18	Northeast Substation
19	Northwest Future Feeder
20	Oakhill OH05/07 Tie
21	Old San Antonio Road Reconductor/Extension
22	On Ramp Dual Feed
23	Patton Lane PL03/11 Tie
24	Pedernales PE04/06 Re-route/Reconductor
25	Rainey Street Duct Bank
26	Rinard Creek Substation
27	Salem Walk Reconductor
28	Seaholm Plant Reconductor
29	Stoney Ridge New Feeder
30	Summit SU09/12 Tie
31	Trading Post TP01 Tie
32	Walnut Creek Extension
33	Warren New Feeder



Top 10 - Transformer Loading*

Unit Name	MVA Rating	MVA Loading	% of Rating
HC123	30	28.06	93.5
HL456	30	24.58	81.9
GR789	30	24.06	80.2
JV123	30	23.97	79.9
SP789	30	23.97	79.9
TP123	30	23.81	79.4
SP012	30	23.74	79.1
BU789	30	23.62	78.7
SL123	30	23.53	78.4
SU456	30	23.40	78.0

* 36 Substation Transformers Loaded 70% or higher



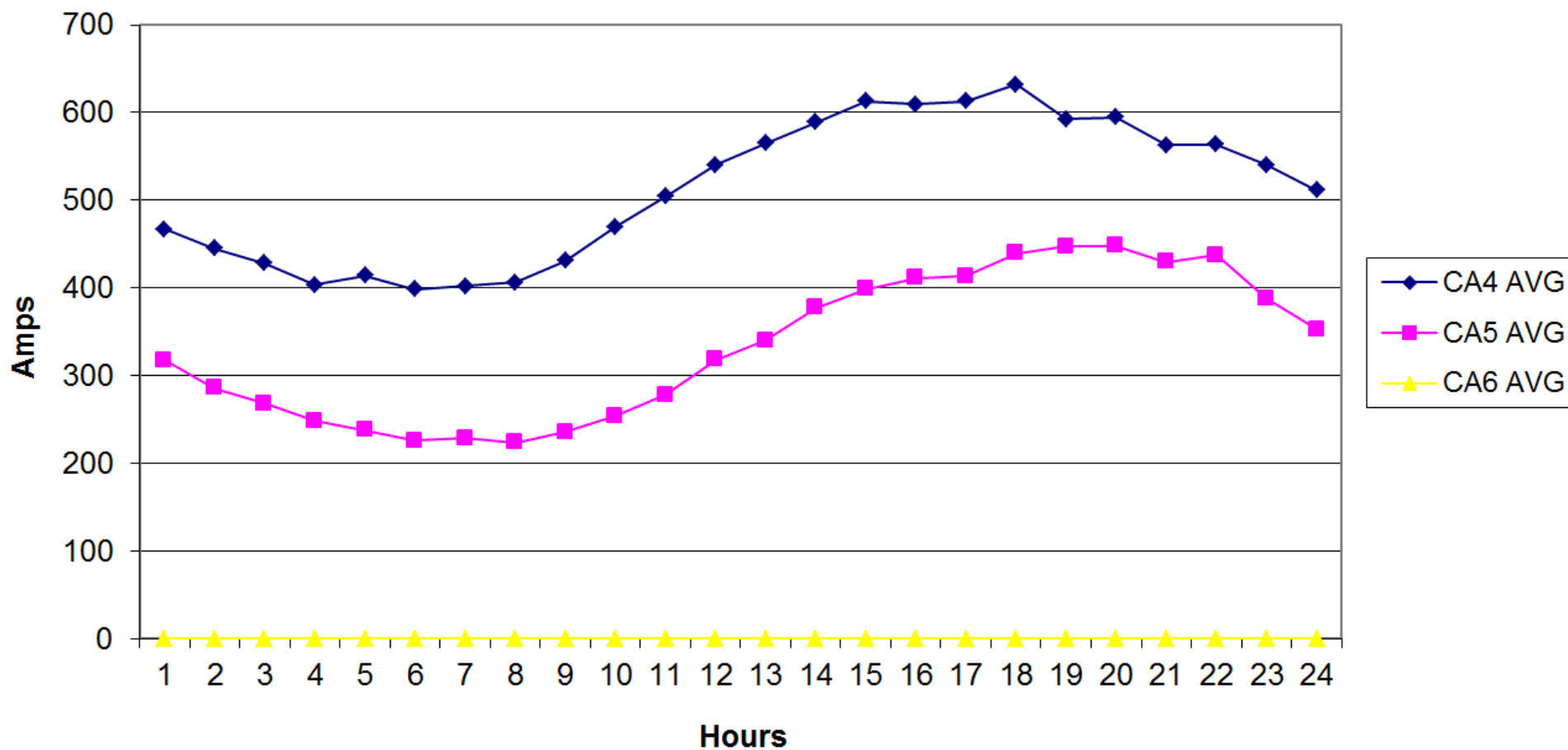
Top 10 - Circuit Loads*

	TOP 10	Circuits	
Circuit	Rating (Amps)	Loading (Amps)	% of Rating
LS01	550	592	112%
SP02	370	367	110%
SP01	400	416	107%
SL04	610	619	105%
JV01	580	583	102%
LS05	230	230	102%
HC07	630	607	102%
MC06	490	459	101%
HC01	670	645	99%
LW05	630	584	98%

* 32 Feeders Loaded 85% or higher



Typical Feeder Profiles





5 Most Recent Aging Transformer Replacements (138/12.5 kV, 30 MVA Units)

Substation	Position	Fiscal Year	Cost Estimate
Salem Walk	SW123	2015	\$2,062,000
Hamilton	HM123	2015	\$2,053,000
McNeil	MC123	2014	\$1,714,000
Wheless Lane	WL456	2013	\$2,149,000
Daffin Gin	DG123	2011	\$1,935,000

*SINCE 2005 (20) AGING SUBSTATION TRANSFORMERS HAVE BEEN REPLACED.



Austin Energy Capital Assets (Distribution) Infrastructure

Asset	Quantity	Linear Miles	AGE of ASSETS (%)						
			New to 5 Years	5-10 Years	11-20 Years	21-30 Years	31-40 Years	41-50 Years	Older than 50 Years
Overhead Poles - North	76,455		10	15	20	30	15	5	5
Overhead Poles - South	84,629		10	15	20	30	15	5	5
Streetlight Poles - N	19,404		20	25	30	15	10		
Streetlight Poles - S	19,215		20	25	30	15	10		
Underground Transformers - N	297			25	50	25			
Underground Transformers - S	312			25	50	25			
Underground Circuits - N		1,323	20	30	40	10			
Underground Circuits - S		1,729	20	30	40	10			
Overhead Transformers - N	16,851		10	30	40	20			
Overhead Transformers - S	17,364		10	30	40	20			
Pad Mount Transformers - N	16,655		20	30	40	10			
Pad Mount Transformers - S	19,516		20	30	40	10			
Substations Transformers	166		17	25	49	41	22	12	