

FLORIDA PUBLIC SERVICE COMMISSION  
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M E M O R A N D U M

MAY 7, 1998

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10:35  
FPSC - Records/Reporting

TO: DIRECTOR, DIVISION OF RECORDS AND REPORTING (BAYO)

FROM: DIVISION OF ELECTRIC & GAS (GOAD, BREMAN) <sup>pls</sup> *JPS*  
DIVISION OF LEGAL SERVICES (PAUGH) *JPP RJE* *JDS*

RE: DOCKET NO. 980436-EI - PETITIONS FOR APPROVAL OF UNDERGROUND RESIDENTIAL DISTRIBUTION TARIFF REVISIONS BY FLORIDA POWER & LIGHT COMPANY AND FLORIDA POWER CORPORATION.

AGENDA: MAY 19, 1998 - REGULAR AGENDA - TARIFF FILING - INTERESTED PERSONS MAY PARTICIPATE

CRITICAL DATES: 60-DAY SUSPENSION DATE: MAY 29, 1998

SPECIAL INSTRUCTIONS: S:\PSC\EAG\WP\980436EI.RCM - The attachments included with the recommendation are not in the electronically filed version.

CASE BACKGROUND

Rule 25-6.078, Florida Administrative Code, requires utilities to file updated underground residential distribution (URD) charges for Commission approval at least every three years or sooner if a utility's underground cost differential for the standard low-density subdivision varies from the last approved differential by 10 percent or more. The URD charges represent the additional costs to provide underground service in place of standard overhead service. In order to determine whether or not the utilities are within the 10 percent threshold, each company is required to file overhead and underground costs for its low-density subdivision on Schedule 1, Form PSC/EAG 13 by October 15 of each year. If a utility's cost differential between its overhead and underground costs exceed the 10 percent threshold, the utility is required to submit a complete filing on or before April 1 of the following year. All four major investor-owned utilities have filed their Schedule 1's showing their current URD low-density subdivision costs with the Division of Electric and Gas. Because Florida Power & Light Company's (FP&L) low-density subdivision differential decreased by more than 10%, FP&L submitted a complete filing on March 30, 1998. Gulf Power Company and Tampa Electric Company have

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chosen not to file updated URD charges for 1998 since each company's low-density subdivision differential only decreased by approximately 2.0%. Even though Florida Power Corporation's (FPC) low-density subdivision cost differential increased by 8.6% (less than the 10% threshold), FPC submitted a complete filing. FPC stated that it believed a filing was appropriate since URD cost differentials in two other categories increased by more than 10% representing a change in FPC's design and construction standards. Both FPC's and FP&L's proposed changes were accompanied by work papers explaining their derivation.

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ISSUE 1: Should the Commission approve Florida Power Corporation's and Florida Power & Light Company's updated tariff sheets and charges associated with the installation of underground electric distribution facilities?

RECOMMENDATION: Yes. The changes are appropriate and should be approved.

STAFF ANALYSIS: The underground residential distribution (URD) tariffs provide customers with standard charges for certain types of underground service. Each utility develops the basic charges based on the same three model subdivisions: a 210-lot low-density single-family home subdivision, a 176-lot high density subdivision served by individual meters, and a 176-lot high density mobile home subdivision served by ganged meters.

The differential rates for these subdivisions are developed by estimating the cost per unit of both underground service and overhead service. The difference between these numbers is the per unit charge that customers must pay when they request underground service in lieu of standard overhead service. The estimates are based on each company's standard engineering and design practices, and incorporate company-wide material costs and labor rates. Table 1 below shows the proposed 1998 differentials.

TABLE 1

1998 UNDERGROUND PER LOT DIFFERENTIAL COSTS

RESIDENTIAL SUBDIVISIONS	FPC	FPL
Low-density	\$264	\$268
High-Density Individual Meters	\$181	\$190
High-Density Ganged Meters	\$65	\$0

Tables 2, 3, and 4 show comparisons between the existing and proposed underground differentials for each subdivision type.

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TABLE 2

1998 OVERHEAD VS. UNDERGROUND PER LOT COST DIFFERENTIALS

210-Lot Low-Density Subdivision	1997 Existing	1998 Proposed	Percent (%) Change
FPC	\$243	\$264	8.64%
FPL	\$309	\$268	-13.27%

TABLE 3

1998 OVERHEAD VS. UNDERGROUND PER LOT COST DIFFERENTIALS

176-Lot High-Density Individual Meters	1997 Existing	1998 Proposed	Percent (%) Change
FPC	\$128	\$181	41.41%
FPL	\$224	\$190	-15.18%

TABLE 4

1998 OVERHEAD VS. UNDERGROUND PER LOT COST DIFFERENTIALS

176-Lot High-Density Ganged Meters	1997 Existing	1998 Proposed	Percent (%) Change
FPC	\$6	\$65	983.33%
FPL	\$22	\$0	-

FPC

FPC's cost differentials have increased from the prior year for all three types of subdivision. The increases are largely due to changes in its design and construction standards.

The 210-lot low-density subdivision cost differential increased, primarily as a result of an increase in the assumed loading requirements that were revised to improve reliability. The change requires more transformers to serve both the underground and overhead subdivisions and a larger cable for the service laterals used in the underground subdivision. Because underground transformers are more expensive than overhead transformers, increasing the number of transformers used for both applications caused the cost differential between the overhead and underground subdivisions to increase. The additional cost of using larger cable for the underground service laterals also increased the cost differential between overhead and underground service. The net effect was an 8.6% increase;

FPC also made changes to its 176-lot high-density individually metered and ganged metered underground subdivision designs in order to improve reliability. FPC increased the size of its secondary cable for the underground applications to reduce "flicker" at the customer's home. "Flicker" occurs when a large electrical appliance such as a central air condition turns on resulting in a voltage drop which slows or dims other electrical appliances. FPC indicated that larger air conditioners, specifically in the high-density subdivisions, are becoming more common which have caused a "flicker" problem in the underground application. Larger cable will reduce voltage loss on the secondary lines and reduce the "flicker" effect. The added expense for the larger cable represents the major change in the cost differential between the overhead and underground applications, but appears necessary to provide adequate reliability. In addition to reliability improvements, FPC changed its underground 176-lot individually metered subdivision design to reflect current installation practices. The new design provides for back-lot service laterals which require more service cable than used previously, thus increasing the cost differential between overhead and underground installation.

FP&L

FP&L's cost differentials decreased uniformly for all three subdivisions. The decrease resulted from lower underground labor rates and lower engineering expense. Engineering expense is determined as a percentage of material and labor costs. The

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percentage used for both overhead and underground, decreased from 17.64% in 1997 to 15.69% in 1998. Since total underground costs are higher than overhead costs, the nominal engineering expense decreased more for the underground subdivision, causing the cost differential to decrease. Note that the actual cost differential for FP&L's high-density ganged meter subdivision is \$4.22, however, since this amount is relatively small, FP&L has proposed to wave the URD charge.

In addition to the proposed changes for the three subdivisions, both companies revised their lateral and feeder installation charges and credits. These charges and credits were determined consistent with the above charges.

Staff has reviewed all the proposed changes and recommends that they be approved. The attached Schedules 1 through 3 are for informational purposes. Schedule 1 contains a comparison of present and proposed underground and overhead per unit costs segregated into labor and material costs. Schedule 2 contains a series of graphs which show the total underground and overhead costs for each subdivision type for years 1975 through 1998. Schedule 3 provides a detailed breakdown of the overhead and underground per lot costs which were used to arrive at the differential charges.

**ISSUE 2:** What are the appropriate effective dates for the revised tariffs?

**RECOMMENDATION:** The effective dates for the revised tariffs should be:

FPL: 30 days from date of the Commission vote.  
FPC: May 19, 1998.

**STAFF ANALYSIS:** If the Commission approves the revised tariffs, FPC's should become effective immediately. FPL requested that its tariffs become effective 30 days from the date of the Commission vote approving the tariffs.

**1997 AND 1998 PER LOST COSTS  
OVERHEAD, UNDERGROUND AND DIFFERENTIAL COSTS  
SINGLE FAMILY DWELLING (LOW DENSITY)**

SCHEDULE 1

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	FPC(a)			FPL			TECO(a)			GULF		
	1997	1998	% Increase	1997 (b)	1998 (c)	% Increase	1997	1998	% Increase	1997	1998	% Increase
<b>OVERHEAD COST</b>												
MATERIAL	\$317.82	\$333.66	4.98%	\$491.37	\$488.58	-0.57%						
LABOR	\$191.19	\$201.78	5.54%	\$421.73	\$427.89	1.46%	N/A			N/A		
<b>TOTAL</b>	<b>\$509.01</b>	<b>\$535.44</b>	<b>5.19%</b>	<b>\$913.10</b>	<b>\$916.47</b>	<b>0.37%</b>						
<b>UNDERGROUND</b>												
MATERIAL	\$390.96	\$441.78	13.00%	\$573.61	\$583.18	1.67%						
LABOR	\$361.44	\$358.39	-0.84%	\$648.21	\$600.92	-7.30%						
<b>TOTAL</b>	<b>\$752.40</b>	<b>\$800.17</b>	<b>6.35%</b>	<b>\$1,221.82</b>	<b>\$1,184.10</b>	<b>-3.09%</b>	N/A			N/A		
<b>DIFFERENTIAL COST</b>												
MATERIAL	\$73.14	\$108.12	47.83%	\$82.24	\$94.60	15.03%						
LABOR	\$170.25	\$156.61	-8.01%	\$226.48	\$173.03	-23.60%	N/A			N/A		
<b>NET</b>	<b>\$243.39</b>	<b>\$264.73</b>	<b>8.77%</b>	<b>\$308.72</b>	<b>\$267.63</b>	<b>-13.31%</b>						

**Notes:**

a) To subdivisions with a density of 1.0 but less than 6 dwelling units per acre.

(b) To subdivisions with a density of 0.5 to 6 units per acre (excludes multiple occupancy buildings).

(c) To subdivisions with a density of 0.5 to 6 units per acre (excludes multiple occupancy buildings greater than 4 units per service lateral).

**1997 AND 1998 PER LOST COSTS  
OVERHEAD, UNDERGROUND AND DIFFERENTIAL COSTS  
HIGH DENSITY - INDIVIDUAL METERS**

SCHEDULE 1  
Page 2 OF 3

	FPC(a)			FPL(b)			TECO(a)			GULF		
	1997	1998	% Increase	1997	1998	% Increase	1997	1998	% Increase	1997	1998	% Increase
<b>OVERHEAD COST</b>												
MATERIAL	\$247.13	\$245.04	-0.85%	\$322.47	\$310.80	-1.14%						
LABOR	\$153.03	\$158.53	3.59%	\$287.85	\$292.07	1.47%	N/A			N/A		
TOTAL	\$400.16	\$403.57	0.85%	\$610.32	\$610.87	0.09%						
<b>UNDERGROUND</b>												
MATERIAL	\$263.97	\$316.77	20.00%	\$410.38	\$412.42	0.50%						
LABOR	\$263.68	\$268.29	1.75%	\$424.12	\$388.16	-8.48%						
TOTAL	\$527.65	\$585.06	10.88%	\$834.50	\$800.58	-4.06%	N/A			N/A		
<b>DIFFERENTIAL COST</b>												
MATERIAL	\$16.84	\$71.73	325.95%	\$87.91	\$93.62	6.50%						
LABOR	\$110.65	\$109.76	-0.80%	\$136.27	\$96.09	-29.49%						
NET	\$127.49	\$181.49	42.36%	\$224.18	\$189.71	-15.38%	N/A			N/A		

Notes:

(a) To subdivisions with a density of 6 or more dwelling units per acre.

(b) To subdivisions with a density of 6 or more dwelling units per acre. (Excludes multiple occupancy buildings greater than 4 units per service lateral).



**1997 AND 1998 PER LOST COSTS  
OVERHEAD, UNDERGROUND AND DIFFERENTIAL COSTS  
HIGH DENSITY - GANGED METERS**

	FPC			FPL		
	1997 (a)	1998 (b)	% Increase	1997 (a)	1998 (c)	% Increase
<b>OVERHEAD COST</b>						
MATERIAL	\$209.41	\$198.66	-5.13%	\$279.70	\$277.05	-0.95%
LABOR	\$111.33	\$115.06	3.35%	\$235.88	\$239.34	1.47%
<b>TOTAL</b>	<b>\$320.74</b>	<b>\$313.72</b>	<b>-2.19%</b>	<b>\$515.58</b>	<b>\$516.39</b>	<b>0.16%</b>
<b>UNDERGROUND</b>						
MATERIAL	\$195.77	\$224.88	14.87%	\$308.91	\$310.86	0.63%
LABOR	\$130.28	\$154.24	18.39%	\$228.27	\$209.75	-8.11%
<b>TOTAL</b>	<b>\$326.05</b>	<b>\$379.12</b>	<b>16.28%</b>	<b>\$537.18</b>	<b>\$520.61</b>	<b>-3.08%</b>
<b>DIFFERENTIAL COST</b>						
MATERIAL	(\$13.64)	\$26.22	-292.23%	\$29.21	\$33.81	15.75%
LABOR	\$18.95	\$39.18	106.75%	(\$7.61)	(\$29.59)	288.83%
<b>NET</b>	<b>\$5.31</b>	<b>\$65.40</b>	<b>1131.64%</b>	<b>\$21.60</b>	<b>\$4.22</b>	<b>(d)</b>

- (a) To subdivisions with a density of 6 or more dwelling units per acre taking service from a multi-unit meter center.
- (b) To subdivisions with a density of 6 or more dwelling units per acre taking service at grouped meter pedestals on serving property line.
- (c) To subdivisions with a density of 6 or more dwelling units per acre taking service from a multi-unit meter center installed adjacent to the primary trench route.
- (d) Because differential is only \$4.22, FPL is proposing a tariff differential of \$0.

TOTAL OVERHEAD AND UNDERGROUND COST VS. TIME

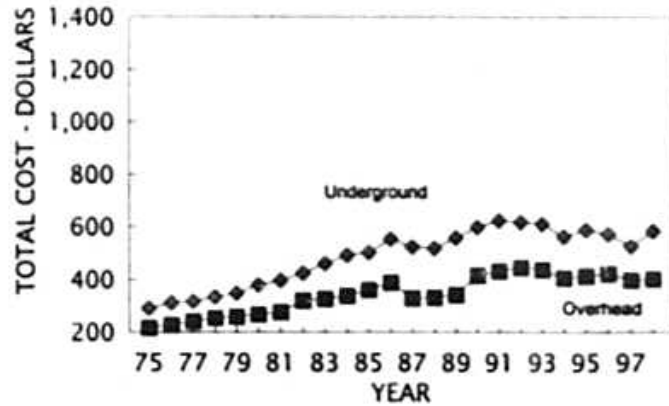
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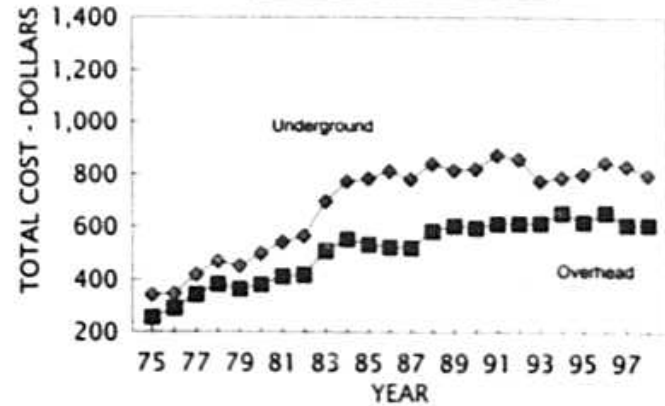
High Density - Individual Meters

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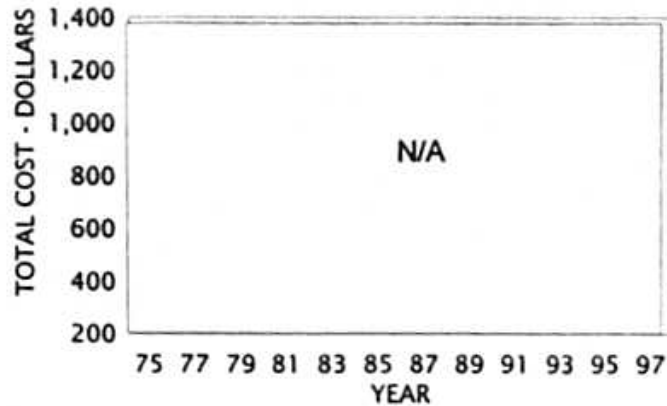
FPC INDIVIDUAL METERS



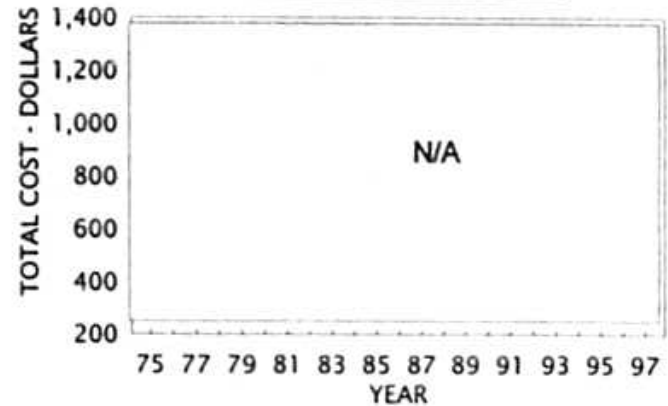
FPL INDIVIDUAL METERS



TECO INDIVIDUAL METERS



GULF INDIVIDUAL METERS



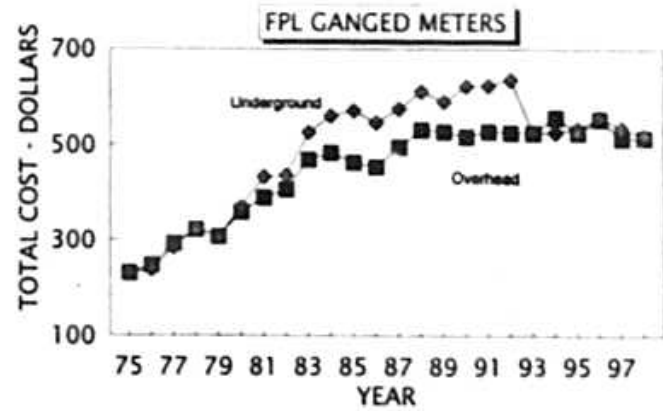
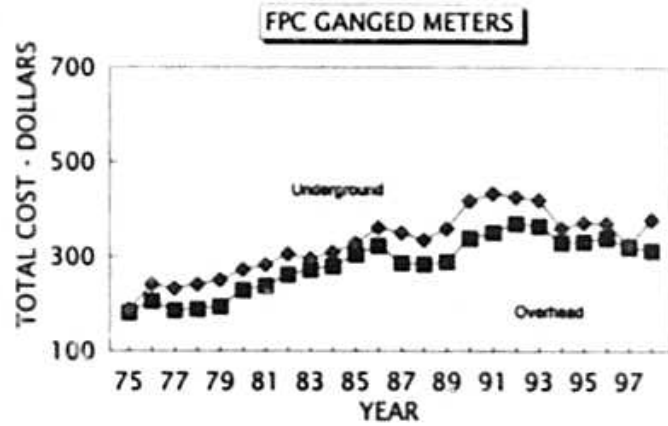
TOTAL OVERHEAD AND UNDERGROUND COST VS. TIME

High Density - Ganged Meters

SCHEDULE 2

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ELECTRIC UTILITIES  
OVERHEAD AND UNDERGROUND COSTS  
1998 TOTAL COSTS

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	1998				1998				1998			
	SINGLE FAMILY DWELLINGS (LOW DENSITY)				HIGH DENSITY INDIVIDUAL METERS				HIGH DENSITY GANGED METERS			
	FPC	EPL	TECO	GULE	FPC	EPL	TECO	GULE	FPC	EPL	TECO	GULE
<b>OVERHEAD</b>												
SERVICE (b)	\$101.97	\$148.57			\$103.14	\$129.27			\$54.51	\$59.63		
PRIMARY	49.08	88.08			30.34	57.28			30.41	55.90		
SECONDARY	55.13	126.04			38.63	90.36			28.61	87.78		
INITIAL TREE TRIM	16.24				16.10				15.48			
POLES	119.02	266.06			67.46	148.17			52.05	144.10		
TRANSFORMERS	114.10	130.78			89.75	81.97			90.62	80.85		
STORES HANDLING (c)	24.09	32.65			17.11	20.97			12.62	18.10		
ENGINEERING (e)	55.81	124.29			41.04	82.85			29.42	70.03		
<b>OVERHEAD TOTAL</b>	<b>\$535.44</b>	<b>\$916.47</b>			<b>\$403.57</b>	<b>\$610.87</b>			<b>\$313.72</b>	<b>\$516.39</b>		
<b>UNDERGROUND</b>												
SERVICE (b)	\$159.18	\$365.96			\$123.80	\$249.62			\$127.28	\$39.89		
PRIMARY	82.32	221.62			33.93	137.83			33.93	160.70		
SECONDARY	156.88	50.50			132.25	43.87				87.91		
TRANSFORMERS	136.01	119.12			105.29	91.54			102.67	79.09		
TRENCHING												
PRIMARY & SECONDARY	73.81	92.41			64.08	54.34			64.08	61.99		
SERVICES	69.30	134.74			38.50	87.40						
STORES HANDLING (c)	33.61	39.16			23.35	27.41			14.20	20.42		
ENGINEERING (e)	89.06	160.59			63.86	108.57			36.96	70.61		
<b>UNDERGROUND TOTAL</b>	<b>\$800.17</b>	<b>\$1,184.10</b>			<b>\$585.06</b>	<b>\$800.58</b>			<b>\$379.12</b>	<b>\$520.61</b>		
<b>UNDERGROUND DIFFERENTIAL</b>	<b>\$264.73</b>	<b>\$267.63</b>			<b>\$181.49</b>	<b>\$189.71</b>			<b>\$65.40</b>	<b>\$4.22</b>		

Notes: ALL NOTES ARE INDICATED ON PAGE 5 OF 5

ELECTRIC UTILITIES  
OVERHEAD AND UNDERGROUND COSTS  
SINGLE FAMILY DWELLINGS (LOW DENSITY)

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1998 TOTAL COSTS

	MATERIAL (a)				LABOR (d)				TOTAL			
	FPC	EPL	TECO	GULF	FPC	EPL	TECO	GULF	FPC	EPL	TECO	GULF
<b>OVERHEAD</b>												
SERVICE (b)	\$52.27	\$72.64			\$49.70	\$75.93			\$101.97	\$148.57		
PRIMARY	22.65	42.82			26.43	45.26			49.08	88.08		
SECONDARY	40.56	57.58			14.57	68.46			55.13	126.04		
INITIAL TREE TRIM					16.24				16.24			
POLES	91.44	108.17			27.58	157.89			119.02	266.06		
TRANSFORMERS	102.65	108.46			11.45	22.32			114.10	130.78		
STORES HANDLING (c)	24.09	32.65							24.09	32.65		
ENGINEERING (e)		66.26			55.81	58.03			55.81	124.29		
OVERHEAD TOTAL	\$333.66	\$488.58			\$201.78	\$427.89			\$535.44	\$916.47		
<b>UNDERGROUND</b>												
SERVICE (b)	\$93.00	\$179.89			\$66.18	\$186.07			\$159.18	\$365.96		
PRIMARY	64.19	138.03			18.13	83.59			82.32	221.62		
SECONDARY	129.24	34.51			27.64	15.99			156.88	50.50		
TRANSFORMERS	121.74	112.50			14.27	6.62			136.01	119.12		
TRENCHING												
PRIMARY & SECONDARY SERVICES					73.81	92.41			73.81	92.41		
STORES HANDLING (c)	33.61	39.16			69.30	134.74			69.30	134.74		
ENGINEERING (e)		79.09			89.06	81.50			89.06	160.59		
UNDERGROUND TOTAL	\$441.78	\$583.18			\$358.39	\$600.92			\$800.17	\$1,184.10		
UNDERGROUND DIFFERENTIAL	\$108.12	\$24.60			\$156.61	\$173.03			\$264.73	\$267.63		

Notes: ALL NOTES ARE INDICATED ON PAGE 5 OF 5



ELECTRIC UTILITIES  
OVERHEAD AND UNDERGROUND COSTS  
HIGH DENSITY  
GANGED METERS

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1998 TOTAL COSTS

	MATERIAL (a)				LABOR (d)				TOTAL			
	FPC	FPL	TECO	GULF	FPC	FPL	TECO	GULF	FPC	FPL	TECO	GULF
<b>OVERHEAD</b>												
SERVICE (b)	\$28.18	\$31.52			\$26.33	\$28.11			\$54.51	\$59.63		
PRIMARY	16.46	21.96			13.95	33.94			30.41	55.90		
SECONDARY	22.23	44.88			6.38	42.90			28.61	87.78		
INITIAL TREE TRIM					15.48				15.48			
POLES	40.19	57.21			11.86	86.89			52.05	144.10		
TRANSFORMERS	78.98	65.81			11.64	15.04			90.62	80.85		
STORES HANDLING (c)	12.62	18.10							12.62	18.10		
ENGINEERING (e)		37.57			29.42	32.46			29.42	70.03		
<b>OVERHEAD TOTAL</b>	<b>\$198.66</b>	<b>\$277.05</b>			<b>\$115.06</b>	<b>\$239.34</b>			<b>\$313.72</b>	<b>\$516.39</b>		
<b>UNDERGROUND</b>												
SERVICE (b)	\$90.91	\$26.31			\$36.37	\$13.58			\$127.28	\$39.89		
PRIMARY	27.59	88.74			6.34	71.96			33.93	160.70		
SECONDARY		58.53				29.38				87.91		
TRANSFORMERS	92.18	74.70			10.49	4.39			102.67	79.09		
TRENCHING												
PRIMARY & SECONDARY					64.08	61.99			64.08	61.99		
SERVICES												
STORES HANDLING (c)	14.20	20.42							14.20	20.42		
ENGINEERING (e)		42.16			36.96	28.45			36.96	70.61		
<b>UNDERGROUND TOTAL</b>	<b>\$224.88</b>	<b>\$310.86</b>			<b>\$154.24</b>	<b>\$209.75</b>			<b>\$379.12</b>	<b>\$520.61</b>		
<b>UNDERGROUND DIFFERENTIAL</b>	<b>\$26.22</b>	<b>\$33.81</b>			<b>\$39.18</b>	<b>(\$29.59)</b>			<b>\$65.40</b>	<b>\$4.22</b>		

Notes: ALL NOTES ARE INDICATED ON PAGE 5 OF 5

ELECTRIC UTILITIES  
OVERHEAD AND UNDERGROUND COSTS

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1998 NOTES

- (a) \*MATERIAL\* - INCLUDES SALES TAX.
- (b) \*SERVICE\* -  
INCLUDES METER
- (c) \*STORES HANDLING\* -  
FPC - 11% (1998, 1997, 1996), OF ALL MATERIAL EXCEPT TRANSFORMERS AND METERS.  
FPL - 8.65% (1998), 9.24% (1997), 11.51% (1996) OF ALL MATERIAL EXCEPT METERS.  
- 4.325% (1998), 4.62% (1997), 5.75% (1996) OF METERS.
- (d) \*LABOR\* - INCLUDES ADMINISTRATIVE EXPENSES, GENERAL EXPENSES AND TRANSPORTATION.
- (e) \*ENGINEERING\* -  
FPC - 15% (1998, 1997, 1996) OF ALL MATERIAL AND LABOR EXCEPT TRANSFORMERS AND METERS.  
FPL - 15.69% (1998), 17.64%, (1997), 23.11% (1996) OF ALL MATERIAL AND LABOR.