BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NOS. 070231-EI & 080244-EI, FPL'S CHARGES FOR UNDERGROUND INSTALLATIONS

EXHIBITS OF PETER J. RANT, P.E.

SUBMITTED ON BEHALF OF

**MUNICIPAL UNDERGROUND UTILITIES CONSORTIUM,
CITY OF COCONUT CREEK, FLORIDA,
TOWN OF JUPITER INLET COLONY, FLORIDA,
AND
TOWN OF PALM BEACH, FLORIDA**

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PETER J. RANT, PE
VICE PRESIDENT

PROFESSIONAL EDUCATION:

CLARKSON UNIVERSITY, Potsdam, NY
BS - Electrical & Computer Engineering, 1990
Concentration in Power Systems

REGISTRATION:

Professional Engineer: North Carolina, Virginia, Maryland, Tennessee, Florida, Ohio, Pennsylvania, Arizona, District of Columbia, Mississippi, Council Record with National Council of Examiners for Engineering and Surveying

EXPERIENCE:

2005-Present

Vice President
POWERSERVICES, INC.
UTILITYENGINEERING, INC.
Raleigh, North Carolina

Responsible for leadership and direction of staff completing design and management of power delivery projects. Develops projects from concept through completion. Responsible for staffing, budgeting, scheduling, and contractual agreements related to design and construction.

Allocates resources, develops partnering and subcontracting relationships, and directs bidding and other procurement methods to complete projects. Maintains professional engineering responsibilities over designs, studies, and reports, consistent with the work listed below.

Project experience includes major system studies for federal facilities, overhead to underground distribution conversion projects, outdoor lighting, utility privatization, 115 kV electric transmission. Other work completed includes arc flash studies, system protective coordination, system planning and analysis, and regulatory testimony.

2005

Operations Manager-Transmission & Distribution and Geographic Information & Technology
BOOTH & ASSOCIATES, INC., Consulting Engineers
Raleigh, North Carolina

Responsible for the daily operations and resource allocation for the largest division at Booth & Associates, Inc. Worked with Division Vice Presidents developing annual division budget and performance goals. Tracked project budgets and directed department and project managers to meet fiscal targets and project schedules.

PETER J. RANT, PE (Continued)

Maintained relationships with diverse base of clients and vendors to develop engineering and design/build (EPC) projects. Developed studies and cost proposals supporting clients' technical and fiscal requirements. Designed, bid, and managed multiple construction projects.

Continuing professional engineering responsibilities for an array of projects. Project experience includes: design of 18 miles of static overhead ground wire replacement on a 69 kV Transmission System with Optical Ground Wire (OPGW), successful completion of a 3-year FEMA funded hurricane hazard mitigation project converting 88 miles of overhead distribution line to underground (approximate value of 15 million dollars), complete replacement and upgrade of a university medium voltage electric system, including station breakers, in two phases with a total project cost of 3.5 million dollars, and complete update of the TVPPA Design Guidelines for Transmission and Distribution.

1999-2005

Manager of Distribution Design
BOOTH & ASSOCIATES, INC., Consulting Engineers
Raleigh, North Carolina

Managed Electric Distribution Department for a seventy person electric utility engineering consulting firm; Responsible for distribution design standards and quality control of engineered solutions. Engineer of Record and Senior Project Manager for multiple projects. Directed engineers and technicians completing all design and management activities required for construction of multimillion-dollar capital projects. Developed new business through client contact, marketing efforts, and preparation of engineering proposals. Negotiated design and construction contracts.

Designed overhead and underground electric transmission and distribution facilities; Responsible for project scheduling and coordination, design calculations, field staking, right-of-way acquisition, permitting, and construction management of multiple projects. Prepared specifications, bid documents, labor and material contracts, construction cost estimates, various permit applications, construction drawings, design data books, design and construction standards manuals, Federal and State forms and reports, and system studies for municipalities, Investor Owned Utilities, Rural Electric Cooperatives, schools and universities, military bases and other owners of high and medium voltage electric systems.

PETER J. RANT, PE
(Continued)

Experience includes: major system improvement and revenue projects, voltage conversions, installation of metering, DOT relocations, roadway and decorative lighting, overhead and underground 69 kV transmission, substation upgrades, military base system privatizations, GPS/GIS mapping, system valuations, infrared inspections, and alternative materials specifications.

Specialized in complex underground construction projects for aesthetics and reliability including downtown streetscape enhancement and university campus electric and telecommunication systems.

Other Positions:	Project Manager	1997-1999
	Junior Engineer	1994-1997

1994-1999 — **BOOTH & ASSOCIATES, INC.**, Consulting Engineers
Raleigh, North Carolina

Design and project management activities consistent with the experience listed above.

1990-1994 — **UNITED STATES ARMY**, Fort Bragg, North Carolina.
First Lieutenant; Signal Operations Officer

Responsible for communications and site power for deployed Special Forces and major Joint Special Operations headquarters. Designed and supervised installation of communications networks and remote mobile power generation and distribution systems and serving base camps in Central America and the United States. Supervised up to 100 people installing and maintaining radio, telephone, and satellite communications systems during exercises and missions worldwide. Communications systems included single and multichannel HF, UHF, and SHF radios in point to point and point to multipoint secure voice and data networks as well as wireline systems. Employed technologies including spread spectrum radio, automatic link establishment (ALE), and Microsoft Windows based LAN's and WAN's.

Design of communications networks included selection and assignment of frequencies and antennas for wireless connections based on propagation analysis. Responsibilities also included allocation of bandwidth for trunked and dedicated channels, and assignment of individual subscriber priorities and privileges. Directed installation and troubleshooting of multiple layered networks.

**PETER J. RANT, PE
(Continued)**

Led individual and group training resulting in unit's 100% mission accomplishment in numerous deployments despite high personnel turnover. Responsible for maintenance and accountability of up to 5 million dollars worth of vehicles, generators, and communications equipment as well as control of classified documents and cryptographic materials.

Positions Held:	Signal Detachment Commander	1992 to 1994
	Platoon Leader	1991 to 1992
	(Military Training Schools)	1990 to 1991

MILITARY ACHIEVEMENTS:

Excelled academically graduating second in a class of eighty-four officers in the Signal Officer Basic Course, and in the top five at the Battalion/Brigade Signal Officer Course. These courses comprise nine months of training covering design, installation, and maintenance of military communications and power systems. Military training certifications include Parachutist, Senior Parachutist, Jumpmaster, Battalion/Brigade Signal Officer, Airlift Loadplanner, Range Operations and Ammunition Handling, and Substance Abuse Prevention and Control. Awarded Army Commendation Medal with Oak Leaf Cluster for meritorious service in the 7th Special Forces Group (Airborne) and the 112th Signal Battalion (Special Operations)(Airborne).

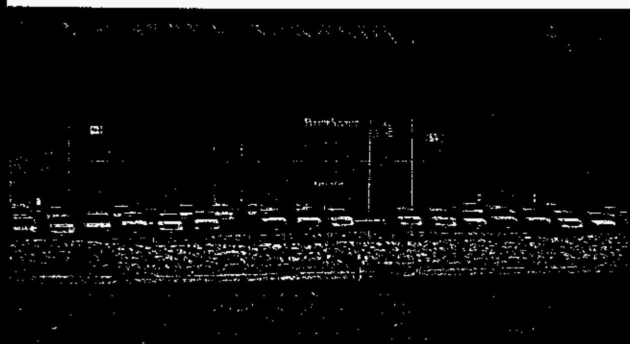
PROFESSIONAL AFFILIATIONS:

Institute of Electrical and Electronic Engineers (IEEE)
National Society of Professional Engineers (NSPE/PENC)
Society of American Military Engineers (SAME)

COST-EFFECTIVENESS OF UNDERGROUNDING ELECTRIC DISTRIBUTION FACILITIES IN FLORIDA

Prepared By: PowerServices, Inc.
For: Municipal Underground Utilities Consortium

November 2006



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SECTION 1

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Introduction and Background

From 1960 until 2000, Florida experienced relatively few significant strikes by named hurricanes and tropical storms. The most notable exception was Hurricane Andrew in 1992. However, in 2004 and 2005 Florida experienced unprecedented hurricane and tropical storm impacts. Ten named storms - Arlene, Bonnie, Charley, Frances, Jeanne, Ivan, Dennis, Katrina, Rita, and Wilma - struck Florida in those two storm seasons. The impacts on human lives and property were extensive and severe. Extended power outages disrupted life and economic activity for days, and even weeks. Many experts believe that the 1960-2000 period was a low cycle of hurricane activity, and that the state is now entering a period where more storms, and likely more severe storms, are expected.

Following the 2004 storm season, the Florida Public Service Commission ("PSC") published an updated report on undergrounding distribution facilities, which consisted mainly of updating cost information from a report done 13 years earlier Florida Public Service Commission, Preliminary Analysis of Placing Investor-Owned Electric Transmission and Distribution Facilities UNDERGROUND in Florida - March 2005. However, following the 2005 storm season, the PSC began a series of activities to examine ways of strengthening or "hardening" Florida's electric distribution infrastructure to be more resistant to the damages of storms in order to reduce the storms' consequences on Floridians. The PSC's activities began with workshops and quickly evolved into rulemaking dockets that are still in progress as of the date of publication of this report. The 2005 Florida Legislature enacted comprehensive energy legislation, which required, among other things, that the PSC conduct a review to determine what should be done to enhance the reliability

reliability of Florida's transmission and distribution grids during extreme weather events, including the strengthening of distribution and transmission facilities. Considerations may include:

(a) Recommendations for promoting and encouraging underground electric distribution for new service or construction provided by public utilities.

(b) Recommendations for promoting and encouraging the conversion of existing overhead distribution facilities to underground facilities, including any recommended incentives to local governments for local-government-sponsored conversions.

(c) Recommendations as to whether incentives for local-government-sponsored conversions should include participation by a public utility in the conversion costs as an investment in the reliability of the grid in total, with such investment recognized as a new plant in service for regulatory purposes.

(d) Recommendations for promoting and encouraging the use of road rights-of-way for the location of underground facilities in any local-government-sponsored conversion project, provided the customers of the public utility do not incur increased liability and future relocation costs.

Section 19, subparagraph (2), Senate Bill 888 (2006). The PSC's report is to be submitted to the Governor, the President of the Senate, and the Speaker of the House of Representatives by July 1, 2007.

Contemporaneously, Florida Power & Light Company ("FPL"), the largest electric utility in Florida, initiated its "Storm Secure" Plan, in which FPL proposed certain "infrastructure hardening" initiatives and modifications to its tariffs that govern conversions from existing overhead ("OH") distribution facilities to underground ("UG") facilities, and in which FPL also proposed certain related amendments to the PSC's rules applicable to electric service.

In the course of these proceedings and activities, a group of Florida cities and towns came together to form the Municipal Underground Utilities Consortium ("Consortium" or "MUUC"), with its primary purpose being to support a substantial study of the cost-effectiveness of undergrounding electric distribution facilities considered on a life-cycle basis. PowerServices, Inc. was engaged by Young van Assenderp, P.A. ("YVA"), as special counsel on behalf of the Consortium, to perform the desired cost-effectiveness analyses. Thus, the analyses in this report, Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida, address the total costs and benefits – not only the initial installation costs of UG vs. OH facilities, but also the differences in operating and maintenance costs - associated with UG and OH facilities.

In Florida's regulatory framework the costs of OH service, which has been and continues to be the utilities' "standard of service", are borne by all customers. (Since approximately 70 percent or all new distribution facilities in Florida are being installed underground, it is apparent that customers prefer UG as their "standard of service.") The additional costs of UG facilities are apportioned between the utility and its "general body of ratepayers" (i.e., all customers of the utility) pursuant to tariffs that require customers who desire UG service to bear part of the additional installation (or capital investment) costs by paying a Contribution In Aid of Construction ("CIAC"). Under present rules and tariffs, the required CIAC is effectively equal to the difference in the installed cost of the UG facilities minus the estimated installed cost of OH facilities. (In actual CIAC calculations, removal costs, the net book value of removed facilities, and salvage values are also taken into account.) Under proposals advanced by FPL in its "Storm Secure" filings and also under proposals embodied in rules that have been proposed by the PSC, the CIACs would be adjusted to reflect differences in the long-term operating and maintenance costs of UG vs. OH distribution facilities. This report provides analyses of all relevant costs and benefits of undergrounding, and is intended to be used, both directly and as a pattern or template, for calculating and determining appropriate CIACs for OH-to-UG conversion projects in Florida.

It is undisputed that underground power lines cost more to construct (in most but not all cases) than comparable overhead power lines. This report addresses the direct, quantifiable costs and benefits of installing, operating, and maintaining underground power lines in lieu of overhead power lines in the context of electric infrastructure life cycles and environmental conditions in Florida. However, the social and long-term economic benefits of underground power lines are well known. The report also addresses non-quantifiable benefits to utility customers and general economic benefits to Florida as a whole.

The destruction wreaked by hurricanes and tropical storms in Florida is all too well known to every Floridian. The impacts of hurricanes and tropical storms, as well as the impacts of severe summer thunderstorms and unnamed storm systems (like the "Perfect Storm" of 1991) are also well documented and a "fact of life" that Florida utilities will continue to encounter. A utility can choose to continue to do business as it has always done and reconstruct its OH system with each storm at enormous cost to the utility, its ratepayers, and the citizens and communities its serves. Conversely, a utility and the communities it serves can take a proactive role in mitigating the adverse impacts associated with massive storm related outages and the economic costs imposed on the utility and the communities. Overhead power lines can be hardened by applying the latest National Electrical Safety Code (NESC) standards and other known and accepted practices to reduce the vulnerability of the power lines to storms. Even though OH systems can be hardened to withstand wind speeds of Category 3 and higher storms, they generally will be disabled in such storms due to damage from windblown vegetation and other flying debris. Alternatively, OH power lines can be placed underground, thus providing maximum mitigation of storm (hurricane) damage and associated outages.

For the cost of UG conversions to be appropriately shared among the interested and benefiting parties, and for municipalities and other customer groups to be given proper incentives to undertake UG conversions, an appropriate methodology reflecting all costs and benefits of UG conversions must be developed and implemented. An adjustment in the customary CIAC methodology is the appropriate mechanism in which to reflect the benefits of placing electric utilities underground.

Description of Analysis

The study of the relative costs and benefits of UG vs. OH facilities, and the development of the appropriate adjustment methodology and CIAC levels, was approached from an average overall system basis. It is recognized that additional adjustments on a site-specific basis will be required in many cases. These site-specific adjustments do not need to take the form of numerically specified charges, but may be recognized conceptually in utility tariffs for inclusion in CIAC calculations where they are warranted. These adjustments and the methods used to develop them are summarized in this Executive Summary, addressed in more detail in the body of the report, and further detailed in the Appendices.

The initial phase of the analysis included the development of an extensive data request submitted to FPL, the review and utilization of FPL's responses, review of other industry information, and site visits to five (5) municipalities in Florida that represented a cross section of the types of municipal environments and varied overhead to underground conversion issues, which would be encountered by FPL and other Florida utilities. This includes such items as demographics, location, types of construction, physical constraints, and overall electric system differences. Additionally, a site visit was made to Brunswick Electric Membership Corporation ("BEMC"), a cooperative utility serving the barrier island region of southeastern North Carolina with topography similar to coastal Florida. BEMC has completed an extensive OH to UG conversion project based on an approved and funded Federal Emergency Management Administration (FEMA) hurricane hazard mitigation project and has had an ongoing undergrounding effort since the early 1990s. This region has experienced major storms and hurricanes since the undergrounding effort was undertaken with a near 100% success rate with regard to improved storm restoration and reliability improvement. A more detailed discussion of these visits is contained later in the report.

Upon completion of the site visits and review of FPL's data responses and other industry information, a CIAC calculation methodology and model were developed. The construction cost estimates were prepared based on multiple scenarios to represent the average electric system conditions encountered in a municipal environment. These included:

1. three-phase large and small conductor construction;
2. single-phase line construction;
3. single- and three-phase transformers/transformer banks;
4. service conductors estimated for typical load size;
5. sectionalizing and switching; and
6. street lighting.

The removal of existing overhead facilities was also considered as part of converting existing OH facilities to hardened OH or to UG facilities. (The "hardening" standards used were the NESC extreme wind criteria applicable for coastal Florida.) Cost estimates for UG construction, OH construction, and OH removal per mile were prepared for three-phase high-density (100 services per mile) areas, three-phase low-density (50 services per mile) areas, single-phase high-density areas, single-phase low-density areas, high- and low-density street lighting, three- and single-phase overhead removals, and services installations based on different conductor sizes.

A detailed cost estimate associated with each type of construction was developed for both a hurricane-hardened overhead line and its equivalent underground line on a per mile basis. To determine a representative mix of the different areas or densities involved for a typical construction area, costs per mile for the different construction types were added together along with associated services, street lighting, and existing overhead removals. These were then divided by the total mileage to obtain an average cost for UG and for OH construction.

The average installed cost differential per mile for the UG and OH construction scenarios establishes the base "average system" conversion cost to be used as the starting point for calculating CIACs. In the methodology developed herein, which is effectively the same as that reflected in the PSC's proposed rules addressing these matters (see Order Number PSC-06-0556-NOR-EU, issued on June 28, 2006), the cost of hardened OH facilities is first subtracted from the cost of UG facilities; without any further adjustments this amount would be the CIAC. This difference is then adjusted by additional, quantifiable differentials between the costs of operating and maintaining UG vs. OH systems. Where the operating and maintenance (O & M) costs for UG facilities are less than the comparable costs for OH facilities, e.g., storm restoration and tree-trimming costs, these cost differences represent savings that a utility's general body of customers will realize from UG conversions, and accordingly, these differences are subtracted from the "starting point" to arrive at an appropriate "net" CIAC that fairly reflects the value to the utility and its general body of customers of having the UG conversion projects done. Thus, the average installed cost differential may also be used as the denominator for the development of a CIAC percentage adjustment to reflect the long-term economic benefits of converting overhead power lines to underground. The cost estimates reflect the utilization of data from FPL, other prior studies, and the PowerServices team's extensive experience not only in developing project cost estimates but also, and even more importantly, with actually designing and providing construction management on many comparable projects which have been successfully completed.

First, a detailed list of benefits was prepared. The benefits were then divided into three categories:

1. quantifiable average system benefits;
2. project and site specific benefits; and
3. qualitative (non-quantifiable) benefits

Category 1 was used to develop the benefit adjustments to CIACs – based on and reflecting the cost savings to the utility and its general body of customers that are realized through UG conversions - that are recommended in this report. Category 2 is a list of issues and benefits that must be addressed as part of any utility's UG vs. OH cost estimate development for each specific project area. In some cases, site-specific conditions will cause there to be greater benefits from UG conversions, and in some instances, these benefits will eliminate all or most of the CIAC required for a specific UG conversion project. Category 3 consists of items that are benefits to the community (such as enhanced reliability of healthcare, traffic control and other utilities, aesthetics, and environmental amenities), which make it worthwhile for the municipality to expend dollars for CIAC.

Quantifiable direct benefits include:

1. reduction in restoration costs following hurricanes, tropical storms, and other weather events;
2. reduction in O & M expenses;
3. reduction in accident litigation and award costs; and
4. reduction in lost revenues (which corresponds to increased sales and thus reduced rates in the long run).

Project site-specific conditions and benefits from UG conversions may include the following.

1. Undergrounding is the only solution for NESC hazard violation remediation.
2. Undergrounding is the least expensive and most effective NESC hazard-violation mitigation.

3. Due to rear-lot-line and other construction area constraints, underground conversion or overhead relocation at much higher cost are the only alternatives.
4. Three-phase commercial or industrial area service and conversion is more economically accomplished with UG facilities.
5. An array of combinations and iterations of the four above cost differential issues.

Conditions producing these benefits will, from time to time, be encountered in the OH line upgrade, maintenance, and hardening construction. When cost and CIAC estimates are prepared, the impact of these OH line costs and construction constraints will substantially lower the OH to UG cost differential. In some cases, it may bring the differential cost to zero, indicating that no CIAC should be charged.

As used in this report, the term "qualitative benefits" means real, tangible benefits realized from UG conversions that are not directly captured or reflected in the costs borne, or in the benefits realized by, the utility and its general body of customers. These qualitative benefits include the following.

1. Improved health and safety during and after storms due to fewer power outages and more rapid power restoration. Emergency management personnel recognize the level of an emergency is substantially reduced when utilities, particularly power, are restored quickly or never interrupted. These benefits may include: maintaining service to critical care facilities and health care equipment, traffic control devices, fire suppression systems, public area lighting (especially important for nighttime restoration efforts), and other utilities, such as water, wastewater, and telecommunications services; reduced perishable food and other product losses; enhanced security and

protection from crime and looting; and enhanced public perception of safety and security.

2. Life safety.
3. Aesthetics.
4. Reliability.
5. Enhanced Economic Development and Reduced Economic Disruptions Due to Storms.
6. Environmental Benefits (trees/land).
7. General Community Enhancement.

The quantifiable benefits have been computed for each item. Section 2 discusses this in greater detail, and Appendices A through J provide the supporting calculations and data. The approach has been to utilize, to the maximum extent possible, FPL data and other data commonly available in the industry. The analysis has been done conservatively and balanced to reflect a real system average CIAC adjustment that could be fairly incorporated in a tariff. The site-specific issues and calculation adjustments can be easily handled as part of the development of the overhead to underground cost estimates and differential that is applicable before the CIAC adjustment percentage. The following table summarizes the results of this report and its analysis.

OVERHEAD to UNDERGROUND CONVERSION CIAC CALCULATION
(Costs and adjustments on a per mile of conversion basis)

New Underground Cost			$1,192,172
New Hardened Overhead Cost			$356,858
(Minus Book Value Plus Salvage, if Applicable)			-
Base Conversion Cost Differential			$835,314.00

Conversion Benefit Adjustments to CIAC		Fixed Percentage Adjustment (%)	Fixed Cost Adjustment (dollars)
Outage Restoration Reduction	- Non-major events	5.60%	$46,775.42
	- Major Events	23.68%	$197,791.32
Reduced Revenue Losses	- Non-major events	0.13%	$1,109.25
	- Major events	2.45%	$20,443.99
Reduced O&M Costs	- Vegetation Management	8.96%	$74,808.42
	- Other O&M**	1.19%	$9,960.00
Cost of UG Locates		-0.78%	($6,540.00)
Loss of Pole Attachment Revenue		-1.11%	($9,300.00)
Reduced Accident Litigation & Award Payments		10.43%	$87,109.28
Non-Participant Benefit (Qualitative Others)		-	
Elimination of NESC (Code) Violations		-	
Elimination of Overhead Routing Problems		-	
Fixed Adjustments		50.54%	$422,157.68

** Other O&M From FPL Data Responses Reflects Higher O&M for Underground / Mile
PowerServices Inc. Estimates Reflect Improved O&M Cost for Underground Based on Improved Technology and other utility experience

Therefore, this report recommends an appropriate "base" CIAC adjustment (i.e., based on typical or average conditions and without taking site-specific conditions into account) percentage to be 50.54%. Thus, a $1,000,000 OH to UG cost differential would be reduced to $494,600 using the CIAC adjustment factor [CIAC x (1 - adjustment factor) = payment]. For site specific conditions, the CIAC calculations should include additional benefits realized due to elimination of NESC violations, elimination of OH routing problems, and additional savings realized where the project involves an above average percentage of rear-lot-line OH construction.

There are also additional qualitative benefits that will accrue to the citizens and utility customers served by substantial UG conversion projects; these will likely not be captured in the utility's accounts and directly reflected in the utility's rates, but they are real nonetheless.

Finally, this report provides estimates, based on the conventional utility reliability analysis methodology known as Expected Unserved Energy ("EUE") analysis, of the real economic value that may be realized by Florida's residents and businesses from reduced outages. Using reasonable assumptions based on FPL's outage experiences from 2001 through 2005, and extrapolating for other utilities that were impacted by named storms in 2004 and 2005, and also using values reported in the literature of utility economics and utility engineering economics, it is not unreasonable to estimate that the economic value that would have been realized, just in 2004 and 2005, had Florida's electric infrastructure been largely underground, would have been on the order of $50 billion.

Team Experience

The PowerServices, Inc. team that prepared this report includes professionals with nationwide electric utility experience and comprises services to over 300 utility industry clients in 40 states, including investor-owned utilities, municipal and cooperative utilities, state regulatory commissions, and statewide, regional, and national utility organizations. The team includes a member of the IEEE Distribution System Reliability Subcommittee on IEEE Standard 1366-2003, former electric utility managers, a former city manager, utility system directors, and statewide power agency board members.

The primary team members assembled to conduct the various tasks on the project include:

Team Member	Years of Electric Utility Experience
Gregory L. Booth, PE	40
R.L. Willoughby, MBA	40
D. Steven Hodgin	37
Harry G. Buckner	36
Dr. William Watson, Ph.D.	31
H. Michael Taylor, PE	30
Peter J. Rant, PE	16

SECTION 2

ELECTRIC INFRASTRUCTURE REVIEW (EXISTING CONDITIONS)

ELECTRIC INFRASTRUCTURE REVIEW (EXISTING CONDITIONS)

Site Review

On July 17, 18, and 19, 2006, PowerServices staff visited and observed electric distribution facilities in five (5) municipalities in Florida that are interested in having their electric utilities placed underground. They were the Town of Palm Beach, Town of Jupiter Island, City of Melbourne, City of Plantation, and City of Naples. These cities represented a reasonable characterization of the demographics, location, and distribution design of the cities and towns interested in placing their facilities underground. They all had one central theme, which was to place their overhead lines underground, but each one's approach to doing that would be significantly different. Following are discussions regarding the unique characteristics for each city and town, how they might go about placing their facilities underground, and some of the issues associated with such. All the city and town representatives expressed an interest in putting their facilities underground over a scheduled, planned time frame. Some cities and towns already had a program in place to put areas underground, and others had pilot projects they were considering in the near future. Since the July site visits, Jupiter Island has proceeded with the installation of a 15-home pilot underground conversion project.

Town of Palm Beach, Florida

On July 17, PowerServices staff met with representatives of Palm Beach, Florida and toured and visually observed the distribution facilities serving the Town. Based on information from Town staff, Palm Beach has approximately 39 miles of distribution lines in the Town. According to FPL data, Palm Beach has 9,440 electric customers (meters), of which 2,455 are single-family residences. In 1982, the Town passed an ordinance requiring all new electric services, or any upgrade of a dwelling that is a 50% improvement or better to be placed underground. In 2003, Palm Beach had a study done to evaluate the cost of placing existing utility lines underground, and the estimate at that time was $50,000,000 to place all utilities in the Town, including electric, telephone, and cable television, underground. Palm Beach has five sub-aquatic distribution feeders coming into the city to serve the area. Approximately 40% - 50% of the Town was observed during this visit. Since many of the facilities were in rear lots, we estimate approximately 50% of the area surveyed was visible, therefore, about 20% - 25% of the system was observed. All of the lines in Palm Beach are distribution lines. No transmission lines were observed.

Town of Jupiter Island, Florida

After finishing at Palm Beach, PowerServices staff met with representatives of Jupiter Island on July 17, 2006, and toured and visually observed the electric distribution facilities there. Jupiter Island has two primary sub-aquatic feeds to the island. There is one additional feed coming from the south end of the island in a community called Tequesta that may also be used as a possible feed. There were four locations on the island where the property owners had already paid to place lines underground. Jupiter Island is in the process of installing a 15-home UG conversion pilot project. One of the concerns of Jupiter Island staff was that the feeders serving the Town, especially from the north end of the island, are not reliable. These lines would need to be part of any project that places the lines underground including the sub-aquatic feeder, and the overhead lines served from a regulator and autotransformer step-down that FPL furnishes from the mainland. The island is approximately 9 miles long, with approximately 534 electric customers (meters) at present; this will likely increase to approximately 625 residences when the Island is fully built-out. It appears to be a typical barrier island. Jupiter Island, based on our observations, would be a good candidate for placing all the lines underground with adequately sized underground cables with very limited problems relative to major feeds and lateral lines. However, we concur that the feeder lines serving the island need to be evaluated and possibly upgraded at the same time as the facilities on the island are placed underground.

City of Melbourne, Florida

On July 18, 2006, PowerServices staff met with representatives of Melbourne, Florida. Melbourne has approximately 41,000 electric customers (meters), 80% of those are residential. Melbourne also has a Community Redevelopment Agency that is a taxing body for neighborhood improvements. One of the issues that Melbourne has that the other communities visited do not is a significant number of transmission lines. These transmission lines not only serve the residents of Melbourne, but they appear to be part of FPL's statewide transmission grid system. Some of the transmission is new, and some is under construction as of this report. Melbourne would probably be a good location to start with conversion of rear lot OH facilities, beginning with removal and placing the lines underground, then work towards putting the main distribution feeders underground following that, unless there are specific project areas to which the City wants to assign higher priorities.

City of Plantation, Florida

Later in the day of July 18, 2006, PowerServices staff met with representatives of Plantation, Florida. Plantation, Florida has about 84,000 residents, with approximately

40,000 electric customers (meters). Of those, around 36,400 are residential. Most of the distribution lines in Plantation are overhead. There is a small area where there appeared to be some transmission lines, but this was near the edge of the community. Also, in Plantation there are three target areas identified by city representatives that they wanted to consider initially for underground conversion projects. We would recommend phasing of the underground, because there are certain areas where there is a lot of rear-lot construction that was not on main feeder lines. These lines would be much easier to address and work on first, then address the main feeder rear-lot construction afterwards, unless the main feeders were in a target area.

City of Naples, Florida

On July 19, 2006, PowerServices staff met with representatives of the City of Naples staff. The land area of Naples is approximately 16 square miles, and FPL reports that Naples has approximately 22,000 electric customers. Based on the City of Naples staff's estimate, around 30% of Naples is currently underground. Naples has some transmission lines through the city. The areas of the community that have OH rear-lot distribution lines could be transitioned to underground over a planned and coordinated schedule.

Summary of Florida Site Visits

In summary, the areas visited are a good reflection of the variety of existing OH distribution systems in Florida. Some are older and some newer, and the municipalities visited reflected a mix of front-lot and rear-lot construction. Although all of these communities have the same central interest of converting overhead lines to underground, some of the potential conversion projects would be more easily accomplished. However, all of the municipalities could benefit by undergrounding a portion of their existing OH facilities, resulting in improved reliability, aesthetics, and many other public benefits within their community.

Review of Hurricane Experience of Brunswick Electric Membership Corporation (BEMC)

On July 25, 2006, PowerServices staff met with the General Manager of BEMC, the Manager of Operations of BEMC, and the Manager of Engineering of BEMC at the BEMC offices in coastal North Carolina to review specific experiences related to the utility's major underground conversion efforts on four barrier islands which they serve. The cooperative obtained local and FEMA funding to convert approximately 88 miles of overhead 12.47/7.2 kV distribution lines to underground after experiencing several major and minor hurricanes in the early and mid-1990s. The major portion of the project was completed in late 2004, and took about 3 years, with follow-up work in other areas.

While the area has not suffered a major hurricane strike since the FEMA funded UG conversion project was completed in 2004, it has been exposed to many storms similar to those frequently encountered in Florida, and it sustained a direct hit from Tropical Storm Ernesto in 2006. In qualitative terms, BEMC senior management reported the following results:

- reduced number and duration of outages due to lightning, animals, and other contacts;
- elimination of problems associated with salt spray, e.g., transformer and hardware corrosion and short circuiting due to salt accumulation;
- significant reduction in restoration times and costs;
- improved restoration of OH facilities elsewhere on the system following storms due to re-allocation of resources to inland overhead areas of the system;
- elimination of nearly all right-of-way tree-trimming and clearing costs in the areas converted from OH to UG; and

- elimination of all clearance and maintenance problems that had been associated with overhead rear lot line construction (the lines were moved to the street frontage when they were placed UG)

Based on these results, BEMC senior management also reported realizing some savings not even accounted for in the original projections.

SECTION 3

COSTS AND BENEFITS OF UNDERGROUNDING DISTRIBUTION FACILITIES

COSTS AND BENEFITS OF UNDERGROUNDING DISTRIBUTION FACILITIES

This section addresses the costs and benefits of installing, operating, and maintaining UG facilities and OH facilities on a life-cycle cost basis. The analysis addresses initial installation costs for both UG and OH distribution facilities and also quantifies, to the extent practicable, the differences in operating and maintenance ("O&M") costs between UG and OH systems. This section also addresses additional economic benefits of undergrounding that (a) are best quantified on a case-by-case, site-specific or project-specific basis, and (b) are real but difficult or impossible to quantify. Finally, the section addresses, and provides quantitative estimates of, real economic benefits accruing to the general public through outage reductions that can reasonably be expected to result from substantial, wide-area undergrounding projects such as those contemplated by a number of the MUUC's members. (These are addressed in a separate section because they are benefits that accrue to the public generally but are not directly captured or reflected in a utility's accounts.)

In summary, all agree that the initial installation cost of UG distribution facilities is greater (in most, but not all cases) than that of OH facilities. Correspondingly, nearly all engineers and other analysts agree that the long-run O&M costs of UG systems are less than the corresponding costs for OH facilities. This discussion quantifies estimates of the differences in initial UG vs. OH construction costs and of the differences in several categories of O&M costs, including:

a. storm restoration costs;
b. non-storm-related O&M costs;
c. reduced litigation costs and damages awards and settlements; and

d. reductions in lost revenues that accrue to the utility's and its general body of customers' benefit through higher sales and thus lower rates in the long run.

There are additional "qualitative" benefits that are identified and discussed, but which are more difficult to quantify. Also, site-specific conditions that may increase the benefits of undergrounding are identified, but because they are site-specific by their very nature, they are simply identified as factors that need to be considered in any specific CIAC calculation.

Considering only the direct costs reflected in utility accounts and rates, CIACs are appropriately equal to the difference between the life-cycle costs of UG vs. OH facilities, including the differences between the initial installation costs and any additional O&M cost differences between UG and OH facilities. Where certain O&M cost components, e.g., storm restoration costs and tree-trimming costs, are less for UG than for OH facilities, that difference is properly applied to reduce the CIAC that should be paid for a UG installation (whether conversion or new installation). This treatment will result in the general body of customers paying the same, on a life-cycle cost basis, whether the facilities are underground or overhead, and the UG-served customers paying the difference in the form of a net CIAC. It is particularly important to incorporate these benefits into the CIAC calculations, because otherwise, customers who pay CIACs will subsidize the utilities' other customers.

Additionally, of course, under this "strict" treatment that includes <u>only</u> direct utility costs, considering that the general body of utility customers corresponds virtually 100% to the general public, all of the additional, non-quantifiable benefits that are provided to the general public or the Florida economy at large are realized and enjoyed by all without paying any more than the equivalent cost of installing and operating overhead facilities.

Thus, PowerServices, Inc. evaluated initial construction costs for UG and OH systems and also calculated appropriate CIAC credits for differential O & M costs and revenue impacts to be applied to the construction cost difference between installing UG electric distribution facilities and OH "hardened" facilities. These credits should apply in every situation that electric facilities are installed underground.

For some site-specific situations, there will be circumstances that substantially increase the cost of OH construction that would reduce the cost difference between UG and OH systems prior to applying a CIAC credit. For example, if a section of utility line does not meet the requirements of the NESC or other regulatory requirements, then the utility should receive no consideration for remaining life of the overhead lines when calculating the base cost differential in underground versus overhead or for the cost of removing such facilities. This is because the facilities, being in violation of the NESC, would have to be removed and replaced anyway. In addition, if it is determined that overhead lines cannot be reasonably rebuilt in place because of development, vegetation problems, or other issues that have evolved since the initial installation, and underground is the best reasonable option, the cost difference between underground and overhead – thus any CIAC - should be zero.

The information used to calculate the CIAC credits included responses by FPL to interrogatories and requests for production of documents in PSC Docket No. 060150 - EI (in which FPL has proposed a generic 25% CIAC credit for government-sponsored UG conversions), 2005 FERC Form 1 data, other industry information and the PowerServices team's experience in designing, estimating, operating, and managing electric systems.

A. Direct Costs and Benefits to Utilities and Their Customers

Direct costs and benefits to utilities and their customers are those that are reflected in the utility's accounts and that ultimately have an impact on the utility's earnings and rates. Obviously, the costs of constructing OH and UG facilities are reflected in the utility's plant accounts, and are thus reflected in normal utility ratemaking. Also obviously, where the utility incurs reduced storm restoration costs or reduced tree-trimming costs from a UG project, the utility's costs will be reduced with corresponding direct benefits to the utility and its customers. This section addresses all of the direct utility costs that should be considered in evaluating cost-effectiveness of UG installations (whether conversions or new installations) and in calculating appropriate CIACs.

1. Construction Cost Estimates

To determine a representative per mile cost for underground and overhead conversion construction, the PowerServices team was tasked with assimilating a "typical" FPL system wide estimate of new construction cost, existing facilities removal, street lighting, and services which would be required. Realizing that no one type of construction would be a "typical" construction, i.e. three-phase or single-phase, it was determined that a combination of types averaged would represent the best scenario for a one mile area or section of line. To this end, PowerServices first established a high-density area as averaging 100 services per mile and low density (as used by FPL) at 50 services per mile. Construction types were then determined for each density area. The following is a listing and description of construction and density types (per mile) used for these cost estimates.

- Three-phase high density main feeder underground area utilizes 1000 kcmil Aluminum 25 kV cable for 60% of the feeder length with 1/0 AWG Aluminum 25 kV cable for the remaining 40% of the feeder length. Estimate includes trench, conduit (direct buried), switches, single-phase and three-phase transformers, and miscellaneous materials.
- Three-phase high density local feeder underground area utilizes 1/0 AWG Aluminum 25 kV cable. Estimates include trench, conduit (direct buried), junction cabinets, single-phase and three-phase transformers, and miscellaneous materials.
- Three-phase low density local feeder underground area utilizes 1/0 AWG Aluminum 25 kV cable. Estimates include trench, conduit (direct buried), junction cabinets, single-phase and three-phase transformers, and miscellaneous materials.
- Single-phase high density local feeder underground area utilizes 1/0 AWG Aluminum 25 kV cable. Estimate includes trench, conduit (direct buried), junction cabinets, single-phase transformers, and miscellaneous materials
- Single-phase low density local feeder underground area utilizes 1/0 AWG Aluminum 25 kV cable. Estimates include trench, conduit (direct buried), junction cabinets, single-phase transformers, and miscellaneous materials.
- Three-phase high density main feeder overhead area utilizes 556.6 kcmil ACSR conductor for 60% of the feeder length and 1/0 AWG ACSR for the remaining 40% of the feeder length. Estimate

includes 36 poles per mile, single-phase and three-phase transformer banks, guying and miscellaneous materials.

- Three-phase high density local feeder overhead area utilizes 1/0 AWG ACSR conductor. Estimate includes 36 poles per mile, single-phase and three-phase transformer banks, guying and miscellaneous materials.
- Three-phase low density local feeder overhead area utilizes 1/0 AWG ACSR conductor. Estimate includes 25 poles per mile, single-phase and three-phase transformer banks, guying and miscellaneous materials.
- Single-phase high density overhead area utilizes 1/0 AWG ACSR conductor, 36 poles per mile, single-phase transformers, guying and miscellaneous materials.
- Single-phase low density overhead area utilizes 1/0 AWG ACSR conductor, 25 poles per mile, single-phase transformers, guying and miscellaneous materials.
- Three-phase high density removals of existing overhead facilities utilizes 36 poles per mile, 556.6 kcmil ACSR overhead conductor for 60% of feeder and 1/0 AWG ACSR for 40% of feeder length, pole top assemblies, transformers, and miscellaneous materials.
- Three-phase low density removals of existing overhead facilities utilizes 25 poles per mile, 1/0 AWG ACSR overhead conductor, 25 poles per mile, single-phase and three-phase transformer banks, guying, and miscellaneous materials.
- Single-phase high density removals of existing overhead facilities utilizes 36 poles per mile, 1/0 AWG ACSR conductor, pole top assemblies, transformers and miscellaneous materials.
- Single-phase low density removals.

- Single-phase low density removals of existing overhead facilities utilizes a 25 poles per mile, 1/0 AWG ACSR conductor, pole top assemblies, transformers, and miscellaneous materials.
- Street lighting underground feed utilizes 35 lights per mile. Estimate includes lights on new wood poles, mast arms, 250W HPS lights, hand holes, conduit and conductor.
- Street lighting overhead feed utilizes 35 poles per mile, including mast arms with 250W HPS lights attached to existing overhead pole line and service conductor.
- Underground services utilizes 4/0 triplex, 4/0 quadraplex, and 350 triplex conductors, including direct burial trench. Services are based on 100 feet each, and are calculated per density area on the typical construction summary.
- Overhead services utilizes 2/0 triplex, 4/0 triplex, 4/0 quadraplex, and 350 quadraplex conductors and include a lift pole. Services are based on 100 feet each and are calculated per density area on the typical construction summary.

All estimates were based on the following assumptions or limitations.

- No right-of-way acquisition costs were included for either hardened OH or UG.
- No right-of-way clearing costs were included.
- All underground construction is to be installed per the open trench method. No directional boring costs are included. No special roadway, driveway, or railroad crossings are involved.
- All overhead construction is hardened for NESC extreme wind conditions and standards, including wind gust factors.

- All underground construction cost estimates utilize stainless steel transformers and switch enclosures that are designed for storm surge water intrusion prevention.

In addition to the above, costs were included to serve 400 services (based on density type and service wire size) and removal of existing facilities (based on density and line type). The analysis took into account that one transformer or transformer bank could serve more than one customer. For example, one three-phase transformer could serve condominiums with multiple customers. Street lighting costs were also included. All costs were then added together and divided by 5 (miles) to get an average cost per mile.

To determine a representative "typical" system wide average estimated cost per mile, PowerServices combined each of the high and low density construction types for a total of five (5) miles, as reflected on the Construction Cost Estimates Summary. Table A-3 in Appendix A shows the construction and removal costs for each of the above scenarios. Tables A-1 and A-2 summarize the calculation of UG vs. OH construction cost differences.

PowerServices recognizes that some areas may, in fact, be more expensive and other areas less expensive to convert due to factors specific to the area. Therefore, actual conversion costs may vary from those shown in our estimates. Estimated costs are also in 2006 dollars and will need to be adjusted for time and construction duration, and actual project timing. Following is a summary of these estimates.

Average Overhead Underground Differential Per Mile

Average Cost per Mile for Typical Underground Construction	**$ 1,192,172**
Average Cost per Mile for Typical Hardened Overhead Construction	**$ 356,858**
Average Cost Differential	**$ 835,314**

2. O & M Cost Differences

The CIAC credits were calculated by identifying the impacts on the following O&M expense categories that would result if electric facilities are placed underground.

- Outage Restoration Cost Reductions
  1. Non-Major Events (e.g., severe thunderstorms, tornadoes, and unnamed tropical systems)
  2. Major Events (named hurricanes and tropical storms)
- Reduced Operations and Maintenance (O & M) Costs
  1. Vegetation Management
  2. Other Operations and Maintenance Costs
- Reduced Accident Litigation and Awards Payments
- Revenue Losses
  1. Non-Major Events
  2. Major Storm Events

The CIAC credit calculations also include the loss of revenue by FPL for pole attachment fees and increased expenses for costs of underground locates. Table A-4 in Appendix A (reproduced as Table C-1 in Appendix C) shows the total non-site specific adjustments recommended by this report in both dollars per mile and in percentage terms.

a. CIAC Credit for Reduced Storm Outage Restoration Costs

The significant damage caused by hurricanes to exposed poles and various aerial utilities, including electric, telephone, CATV, and other communications infrastructure is well documented throughout the southeastern United States. Many of the areas now being served by underground power lines receive service originating from overhead feeders, and thus they experience outages resulting from overhead feeder outages. Major storms, such as hurricanes, cause damage to overhead lines by impacts from flying debris, storm surge, a combination of wind and rain saturated ground around poles, and direct impact of falling trees. Additionally, the winds not only topple poles, but also break poles and wires. Underground electric lines are sometimes affected by storm surge and flooding, erosion around equipment or covering it with sand and debris, as well as debris either falling on equipment or being carried into it by floodwaters. However, due to the very significant difference in overall exposure to storm factors, underground electric lines are substantially less susceptible to hurricane or major storm damage.

Furthermore, if feeders are placed completely underground back to the substation, overall reliability improves because outages resulting from exposed overhead construction are virtually completely eliminated. The results of less overall damage, combined with accessibility, reduces the number of utility crews required to respond, and reduces the time to restore electric service to most customers, resulting in substantial savings to the utility. In addition, an often-overlooked aspect of restoration costs by utilities is the effect of immediate repairs to restore service and the need to perform subsequent reconstruction of overhead lines. When underground equipment is placed back in service, since it is at ground level, it must be completely restored to a condition safe for the public. In other words, after the storm response, the work is essentially complete. Overhead lines are often placed back in service in a temporary condition with "cleanup" work remaining to be done in the weeks and months following a major storm.

Underground facilities are, on average, far less vulnerable to storm damage than OH facilities. The result of this fact is that storm restoration costs for distribution system outages are substantially less for UG systems than for OH systems, so that UG installations (conversions and new) will provide real benefits to utilities and their general body of customers through reduced storm restoration costs. Thus, this difference in storm/outage restoration costs must be reflected in CIAC calculations. PowerServices calculated appropriate credits for reduced outage restoration costs for non-major storm events and also for named storm events.

1. Non-Major Events (see Appendix C, Table C-2)
   This credit was calculated based on Outage Restoration Costs from 2001-2005. These were provided by FPL in response to Interrogatory No. 15 and Feeder Customer Interruptions responses to Interrogatory No. 52. The average restoration cost per year from 2001-2005 was $95,500,000. The Overhead Customer Interruptions per mile was 86.95, and the Underground Customer Interruptions per mile was 12.03. PowerServices, Inc. used the Customer Interruptions per mile ratio to allocate the restoration costs for underground and overhead. The difference between underground and overhead restoration costs was then used to establish the benefit reduction for restoration costs for every mile of overhead lines converted to underground.

2. Major Events (see Appendix C, Table C-3)
   Calculated based on the same methodology as with non-major events, except instead of using all the categories from the Customer Interruption data to calculate the ratio, only those categories applicable to both underground and overhead (weather, equipment, vegetation) were used to allocate the ratio to apply to hurricane restoration costs.

b. CIAC Credit for Operations and Maintenance Expense

1. Vegetation/Tree Trimming (see Appendix C, Tables C-4 & C-5)

   CIACs should also reflect differences in the life cycle costs for vegetation management and other O & M costs for UG versus OH facilities.

   PowerServices, Inc. calculated the tree trimming CIAC credit using data from PSC Order No. 06-0781-PAA-EI. In response to the Order, FPL stated the annual costs to meet the PSC's three-year trim cycle would be $102,500,000. This would result in a CIAC credit of $74,808 on average for converting overhead lines to underground lines. If the PSC accepts FPL's alternative trim cycle of 3 years for feeders and 6 years for laterals, then the annual tree trimming costs would be $71,900,000. This would result in a CIAC credit of $52,475 for tree trimming. PowerServices used the 3 year cycle for CIAC credit, since that was the PSC's initial recommendation (in Order No. PSC-06-0351-PAA-EI) and FPL had to prove that the three year / six year cycle would be adequate to meet the initiatives set forth by the PSC.

2. Other Operations and Maintenance (see Appendix C, Tables C-6 & C-7)

   PowerServices, Inc. used data from FPL's response to Interrogatory No. 9 and data from other utilities to determine the CIAC credit for other O & M expenses (i.e., O&M

expenses other than those accounted for in storm restoration costs and tree-trimming or vegetation management costs).

Excluding the tree trimming cost from the O & M cost data reported in FPL's response to Interrogatory No. 9 resulted in FPL's reported underground O & M expense being more than the overhead O & M expense per mile. Based on PowerServices experience working with other utilities, this is inconsistent with most utilities. Utilities that PowerServices works with are actually showing lower O & M costs per mile of underground than for overhead O & M per mile. This discrepancy is due partly to improved technology and the current emphasis by FPL to upgrade underground equipment, such as switchgear, that would not be reflected in ongoing expenses.

FPL's 2005 O & M expense differential between underground and overhead, minus tree trimming expenses, would reflect a $11,980 deduction to the CIAC credit (see Table C-6). Utilizing data from other utilities and recognizing that data provided by FPL identified accelerated maintenance for UG equipment that should not continue for the life of the assets, the CIAC credit used in the PowerServices analysis is $9,960 per line-mile (see Table C-7).

c. CIAC Credit for Reduced Accident Litigation Costs, Damage Awards, and Settlement Payments (See Appendix C, Table C-8)

The number of accidents was determined from historical information from the PSC (see Appendix G). FPL has a history of electric system contact fatalities and serious accidents involving the general public and contractor employees. Appendix G is a bar chart of the accident history since 1990. There have been 116 fatalities and 328 accidents from 1990 to June 2006, as reported to the PSC. This large number represents a significant concern and cost that can be meaningfully mitigated by placing overhead lines underground. The value of human life and suffering is nearly immeasurable in real terms; the loss of a mother, father, or child, is sometimes referred to as "damage beyond price."

To help place a value on the significant mitigation of these accidents, the analysis utilized representative historical settlement and damage awards in electrical accident cases as a benchmark. Appendix H contains a summary of the cases considered in developing the costs associated with both litigation and awards paid out to the injured parties. Since most cases are settled and contain confidentiality agreements, no specifics are provided. Our experience has shown that injury cases typically result in higher awards and settlements than deaths due primarily to the ongoing health care issues and expenses. Furthermore, the awards and settlement amounts have been rapidly increasing over recent years. We believe our analysis is conservative and excludes any value associated with the human factors element of saving lives and injuries.

Our resulting analysis detailed in Appendix C is $87,109.00 per mile of overhead line converted to underground.

The direct economic benefits of the accident mitigation flows to FPL and its joint use partners. The joint use agreements often require the parties to share, sometimes up to 50%, in the cost of awards associated with accidents. Even more importantly, the public, the communities, and the state will benefit from the mitigation of the loss of life and the suffering, including ongoing health care costs, worker compensation costs, and many other intangible costs.

d. <u>CIAC Credits for Reduced Revenue Losses</u>

Customer outages will be reduced by UG installations, whether conversions or new. It is obvious that, as electric service is maintained to customers served by UG systems, their "meters will keep spinning" and the utility will realize additional base revenues that it would not realize if the customers are unable to receive electric service due to outages on the distribution system. In the short run, these additional base revenues will accrue to the utility's bottom line returns, and in the long run, greater sales will result in lower rates for any given level of authorized base revenue requirement and, if the utility is operating under a revenue sharing plan, the increased revenues may result in refunds to customers. Thus, it is appropriate to credit CIACs for such reductions in revenue losses.

1. Non-Major Events (see Appendix C, Table C-9)

   Calculated based on data provided by FPL Interrogatory No. 15, FPL response to Interrogatory No. 52, and FPL 2005 FERC Form 1. The revenue loss from non-major events was calculated as shown in Table C-9 of Appendix C.

2. Major Events (see Appendix C, Table C-10)

   Calculated based on data provided by FPL, as shown. The methodology is shown in Table C-10.

3. Identifiable and Quantifiable Site-Specific or Project-Specific Benefits

Identifiable and quantifiable project-specific benefits from undergrounding can include: cost savings realized by not otherwise having to remove and replace facilities to remedy NESC clearance violations; additional cost savings realized from an OH-to-UG conversion project where the project eliminates complicated overhead routing problems; and elimination of the additional costs associated with accessing difficult-to-access overhead lines for replacement or maintenance. For example, if a section of utility line does not meet the requirements of the National Electrical Safety Code (NESC) or other regulatory requirements, then the utility should receive no consideration for remaining life of the overhead lines when calculating the base cost differential in underground versus overhead, nor for the cost of removing such facilities. This is because the facilities, being in violation of the NESC, would have to be removed and replaced anyway. In addition, if it is determined that overhead lines cannot be reasonably rebuilt in place because of development, vegetation problems, or other issues that have evolved since the initial installation, and underground is the best reasonable option, the cost difference between underground and overhead – and thus any CIAC - should be zero.

These benefits are not typical, and PowerServices therefore did not include any value for them in its calculation of appropriate CIAC credits for "typical" or general UG conversion projects. However, where they exist, they should be factored into the CIAC calculation for the particular project.

4. Calculation of CIACs

For a specific UG conversion project (or a specific new UG installation), the cost information described above can be used to calculate the CIAC that should be paid by the applicant for UG service in order to properly apportion the costs of the UG job fairly. Starting with the difference in UG minus OH construction costs, the various net benefits (and net additional costs, e.g., lost pole attachment revenue) from undergrounding are deducted. This will include not only the general benefits applicable to all UG projects, but also any site-specific benefits (or costs). These are illustrated for FPL (although no values are included for site specific benefits) data in Table C-1. The estimated installed cost for representative UG construction (conversion application, including the costs to remove existing OH facilities) is $1,192,172 per mile. Subtracting the cost of "equivalent" hardened OH facilities from this amount produces the initial construction cost differential: $835,314. (The calculations of the initial construction costs and this differential are shown in Table A-1 of

Appendix A.) Then, the benefits (O&M cost savings and reduced revenue losses) of UG are subtracted, and the additional costs of UG are added to this value. This yields the approximate CIAC for a "typical" UG conversion project, i.e., a project where there no site-specific or project-specific conditions and cost impacts that warrant further adjustments. As shown in Table A-4 (and Table C-1), PowerServices estimates that this credit would be approximately $422,158 per mile, or approximately 50.54% of the installed cost differential.

If any part of a utility's existing OH system would have to be replaced anyway due to NESC code violations or other conditions requiring the OH facilities to either be moved or replaced, then the removal costs associated with those facilities should be set to zero, as should any allowance for the net book value of the facilities to be removed. If only UG facilities would solve the problem, then the CIAC for that portion of the system to be converted would be set to zero.

Net Present Value Considerations

The CIAC adjustment calculations have been analyzed on the basis of the benefits (and costs) of undergrounding on an average system mile. The annual benefit is then evaluated for the present value over 30 years. This has been done in two ways. One method is simplistic and conservative, which assumes the annual increase in benefits due to inflation (escalation in benefits) in the specific electric utility sectors equals the present worth factor (discount rate). The other method is to assume an annual escalation rate for each benefit, then evaluate that for thirty years and calculate the present worth for each year based on an appropriate discount rate. Both methods require the use of historical and forward trends to predict annual escalation of each benefit. Also, each method must be premised on a given discount rate.

Appendix I contains Producer Price Indices ("PPI") curves for components that affect electric utility construction operation and maintenance and other costs. The electric utility industry has encountered more rapid escalation in O & M and construction than the general economy as a whole for numerous factors. These include:

1. Rapidly rising cost of distillate fuels.
2. Rapidly rising cost of raw materials, such as metals and metal products.
3. A decline in available construction personnel in the electric utility field (trained line personnel).
4. An increase in the need to use contractors for utility activities, including construction and O & M.
5. A decline in available engineers and other technically educated and trained personnel for the electric utility industry. As an example, electrical engineers are taking the higher paying jobs in the software and computer industry, among other industries.

Our experience has indicated cost escalation far in excess of discount rates and interest rates over the past four to five years. Annual increases of 20% to 30% per year in some sectors has been common. The forward trend associated with the electric utility industry is expected to continue at a rate in excess of interest rates and discount rates. This means that the simplistic approach, in which the calculated or estimated annual cost adjustment factor is multiplied by 30 years to arrive at a 30 year present value is, in fact, conservative. As discussed above, this simplistic approach produces total cost adjustments of $422,158.00 per mile, and is shown in Table C-1 in Appendix C. The detailed, cost-factor-specific present value methodology is shown in Appendix I (Table I-8). This methodology embodies specific escalation rates for each cost component, and each cost component is present-valued using FPL's current discount rate (8.37%). This approach indicates that the appropriate CIAC credit would be $429,387.00 per mile.

B. <u>Qualitative and Non-Quantifiable Benefits of Undergrounding</u>

As used in this report, the term "qualitative benefits" means real, tangible benefits realized from UG conversions that are not directly captured or reflected in the costs borne, or in the benefits realized by, the utility and its general body of customers. These qualitative benefits include the following.

1. <u>Improved Health and Safety In Storms.</u> The general public health and safety are significantly enhanced by UG facilities during and after storms due to fewer power outages and more rapid power restoration. Emergency management personnel recognize the level of an emergency is substantially reduced when utilities, particularly power, are restored quickly or never interrupted. These benefits may include: maintaining service to critical care facilities and health care equipment, traffic control devices, fire suppression systems, public area lighting (especially important for nighttime restoration efforts), and other utilities, such as water, wastewater, and telecommunications services; reduced perishable food and other product losses; enhanced security and protection from crime and looting; and enhanced public perception of safety and security.

2. Life, Personal, and Property Safety. Continuity of electric service can be critical not only to the health and safety of the general population, as described above in terms of maintaining critical infrastructure, it can also be critical to individuals who require home health equipment that operates on electricity. Additionally, personal and property safety, even around the house or at the workplace, are obviously enhanced by having lighting and other electrically-powered equipment facilities working properly.
3. Aesthetics. Underground utility facilities, including not only electric, but also telephone and cable television lines, generally add to the aesthetic quality of homes and neighborhoods, and this in turn reflects in enhanced property values.
4. Reliability. In addition to the already calculated benefits reflected in direct utility cost savings, UG conversions will provide additional reliability benefits to electric customers in the form of reduced and avoided losses and inconvenience due to outages.
5. Enhanced Economic Development and Reduced Economic Disruptions Due to Storms. It is obvious that commercial and industrial businesses will have a greater opportunity to maintain operations following storm events if electricity is available. In some instances, of course, these benefits will be offset by transportation obstructions such as debris and downed trees blocking roads, but these are generally removed more quickly than OH power lines are restored and when people can get to work, they can work if their employers' electricity is on. Thus, undergrounding can reasonably be expected to reduce economic disruptions due to storms. Similarly, for the same basic reasons, the availability of underground utilities can be a significant selling point for businesses making location decisions.

6. <u>Environmental Benefits.</u> Although closely related to aesthetics, UG facilities will generally permit greater tree cover and will generally involve less intrusion onto surface plants and habitats than overhead facilities. These environmental values can be particularly meaningful for the many Florida communities that prize their environmental amenities.

7. <u>General Community Enhancement.</u> Property values, both for individual residences, individual commercial buildings, and for general communities at large, are also enhanced by the greater reliability of underground utilities.

C. Overview of Other Representative Hurricane Experience With UG versus OH Lines

Subsequent to PowerServices' site visit with BEMC regarding their major undergrounding program, follow-up data was obtained from BEMC personnel as follows:

- The east end of Oak Island (North Carolina), which had been placed underground, maintained power during Hurricane Floyd in 1999 despite some facilities being completely submerged. This area also performed well during Hurricanes Bertha (1996), Fran (1996), and Bonnie (1998). All were direct strikes.
- Portions of Oak Island served by overhead electric lines when the abovementioned storms hit had significant outages due to wind blown debris causing lines to break, poles to lean, and facilities to become entangled with vegetation.
- Oak Island was predominantly an overhead electric system prior to the FEMA funded project, which was completed between 2001 and 2004.

- Oak Island and the adjacent islands of Ocean Isle, Holden Beach, and Sunset Beach have been hit by storms since the undergrounding project, and have all experienced reduced outages and restoration time.
- During Tropical Storm Ernesto (2006), Oak Island experienced no outages due to its new underground facilities. BEMC experienced 4000 outages, all on inland overhead portions of their system.
- BEMC personnel have indicated a reduced number of crews needed for maintenance of underground areas, as well as for storm restoration.
- According to Mr. Lewis Shaw, BEMC's Manager of Engineering, "To this point we have not experienced any real negatives from the underground conversion philosophy. I think it is safe to say that we all agree it was the right direction to take."
- Mr. Shaw also praises the benefits of underground electric utilities on their barrier island service territory during BEMC's most recent storm experience. He quotes: "As far as Ernesto goes, we probably had as many as 4,000 consumers out, all of which were associated with sections of our overhead system. To my knowledge we didn't have any problems on any of the islands, nothing major anyway. If we did, it would have just been an isolated service here or there, but I don't recall any. The overhead portions that I recall really pertained to either trees or limbs that were blown over into or onto the line. But our underground fared extremely well. I don't recall very many operations on any of those circuits. So underground in that situation paid off. We ended up working about 48 hours, with the bulk of it cleaned up 12 hours after the storm, then had some loose ends to take care of. It was not a major blow, but was heavy enough for us to know that underground paid off in that storm."

North Carolina has also experienced an increased number of hurricane strikes since 1996, including Bertha (1996), Fran (1996), Bonnie (1998), Floyd (1999), Isabel (2003), Alex (2004), Charley (2004), as well as other less powerful tropical storms and hurricanes. Examples of how OH and UG utilities have fared in various conditions are documented throughout the state. Hurricane Fran pummeled North Carolina in 1996.

The outage situations in Wake County, North Carolina are an excellent example of the benefits of underground distribution systems. Many parts of Wake County were without power for a week or more, while sections such as the MacGregor Downs area of Cary, North Carolina in southern Wake County did not lose power because they were served by all underground distribution utilities with a secure wide right-of-way 230 kV transmission line feeding the substation that served the MacGregor Downs distribution system. The high winds and preceding rains resulted in massive tree damage and associated downed power lines. Wake County is substantially inland from the coast, yet the benefits of underground power lines were significant.

D. Economic Benefits to the Florida Economy and the General Public - Expected Unserved Energy Analysis

As discussed above, many additional benefits accrue to the general public and to the economy at large where electric service is maintained, especially where service is maintained in post-storm conditions. The benefits identified above include: maintaining service to critical care facilities and health care equipment, traffic control devices, fire suppression systems, public area lighting (especially important for nighttime restoration efforts), and other utilities, such as water, wastewater, and telecommunications services; reduced perishable food and other product losses; enhanced security and protection from crime and looting; and enhanced public perception of safety and security.

Additionally, individuals and businesses realize significant benefits from having electric service maintained, and these benefits have value that is much greater than the price of electricity. Some benefits include avoidance of lost perishable food, enhanced safety and comfort, being able to stay in their homes, being able to go to work (in the case of individuals), and being able to keep commercial and industrial facilities in operation (in the case of businesses). A recognized electric system reliability technique or methodology, known as Expected Unserved Energy ("EUE") analysis, is used to estimate how much of customers' demand for electricity can be served with a given improvement to the electric system, e.g., a new generation plant, a new transmission line, or here, additional underground distribution facilities, as compared to the system without the improvement being considered. This methodology can also be and is used to incorporate the value of the electricity to customers. See Appendix J for a bibliography of selected articles and reports in which the EUE technique is used.

In the context of undergrounding distribution facilities, EUE analysis can be applied to measure the amount of electricity (kilowatt-hours or megawatt-hours) that can be served during and following storms with undergrounded facilities as opposed to the amount served with overhead facilities only. The analysis begins by looking at the sales not made due to storms, and then estimating the amount of sales that could reasonably be expected to be made if facilities were underground. This amount naturally must estimate the difference between sales with UG facilities in place and sales with OH facilities in place, not simply the total sales not made in storm events. The analysis then proceeds to assign a value to the differential kWh or MWH not served to arrive at an estimate of the value of undergrounding.

In Florida, reasonable estimates of energy sales not made by FPL in 2004 and 2005 are available from, or derivable from, information furnished by FPL in its storm cost recovery proceedings. FPL's value for 2005 storms was approximately 1.56 billion kWh not served. Assuming conservatively that a net of 90 percent of those kWh would have been served if FPL's entire distribution system were underground (it is presently approximately 37 percent underground), indicates that FPL would likely have sold about 1.38 billion more kWh in 2005. Extrapolating this to 2004 and 2005 based on known customer outage and duration values indicates that something on the order of 2.8 billion kWh could have been served by FPL from an all-UG system. Making a further conservative extrapolation of this figure to the entire state (excluding the 10 percent of the state that is served by rural electric cooperatives, in view of their relatively lower population densities), at 1.5 times the FPL value, the amount of electricity sales that could have been made with UG distribution systems would be on the order of 4.2 billion kWh over the same period.[1]

Applying a value of $10 per kWh not served, which is well within the range of values reported in the utility literature, indicates a total value that could have been realized from undergrounding over this 2-year period of $42 billion. Even at a more conservative value of $5 per kWh, the total value that could have been realized would be about $21 billion. Obviously, at

[1] Since FPL's sales represent close to half of the non-coop sales for Florida, it would be tempting to simply double the FPL figure, but the 1.5 times value was, as stated above, chosen to be conservative.

greater values for unserved energy[2], benefits would be correspondingly greater. The actual value that persons assign to not being blacked out can be argued by economists and others, but the point is that there is real value to the general public and to the Florida economy at large from maintaining electric service that is not captured in utility accounts, and as stewards of the public interest, both utilities and the Public Service Commission should consider this value in making their policies regarding undergrounding.

[2] Two EPRI studies cited in Appendix J used values of $24/kWh and $100/kWh, respectively, and a PacifiCorp presentation cited to an EPRI study with EUE values between $5/kWh and $44/kWh.

SECTION 4

CONCLUSION

CONCLUSION

Although undergrounding has been advocated and studied periodically for nearly 20 years in Florida, it was the unprecedented hurricane seasons of 2004 and 2005 that brought many Floridians and Florida utilities around to appreciating the substantial and significant value that undergrounding distribution facilities provides in terms of electric reliability, cost savings, and community benefits. The Florida Public Service Commission is moving forward with rulemaking proceedings to enhance electric distribution reliability, including considering means of encouraging undergrounding. These efforts have necessarily included further analysis and consideration aimed at encouraging the maximum amount of cost-effective underground installations, both new and conversions. In order to achieve this goal, the utilities' computations of Contributions in Aid of Construction must recognize at least all direct utility costs and benefits.

This report identifies and quantifies those direct utility costs and benefits – where the benefits of undergrounding are primarily the savings of storm restoration costs, tree-trimming costs, reduced revenue losses, and other costs that would be incurred on the utilities' overhead distribution systems. The report proceeds to estimate an appropriate percentage reduction of the otherwise-applicable CIACs to reflect these benefits.

The analyses performed by PowerServices and reported here indicate that, for typical OH to UG conversion projects, a credit of approximately 50% of the difference between UG construction costs and hardened OH construction costs should be applied in computing CIACs. This report and its analysis recommend this

CIAC adjustment percentage, as applicable to all overhead to underground conversion projects, as a minimum:

OVERHEAD to UNDERGROUND CONVERSION CIAC CALCULATION
(Costs and adjustments on a per mile of conversion basis)

Conversion Benefit Adjustments to CIAC		Fixed Percentage Adjustments (%)	Fixed Cost Adjustments (Dollars)
Base Conversion Cost Differential			$835,314.00
Outage Restoration Reduction	- Non-major events	5.60%	$46,775.42
	- Major Events	23.68%	$197,791.32
Reduced Revenue Losses	- Non-major events	0.13%	$1,109.25
	- Major events	2.45%	$20,443.99
Reduced O&M Costs	- Vegetation Management	8.96%	$74,808.42
	- Other O&M**	1.19%	$9,960.00
Cost of UG Locates		-0.78%	($6,540.00)
Loss of Pole Attachment Revenue		-1.11%	($9,300.00)
Reduced Accident Litigation & Award Payments		10.43%	$87,109.28
Non-Participant Benefit (Qualitative Others)		-	-
Elimination of NESC (Code) Violations		-	-
Elimination of Overhead Routing Problems		-	-
Fixed Adjustments		50.54%	$422,157.68

** Other O&M From FPL Data Responses Reflects Higher O&M for Underground / Mile
PowerServices Inc. Estimates Reflect Improved O&M Cost for Underground Based on Improved Technology and other utility experience

In addition, this report indicates that project-specific conditions may warrant additional credits. For example, where NESC clearance violations can only be remedied by substantial relocations of OH facilities or by undergrounding, it may be that either a substantially lower CIAC or no CIAC at all should be paid for such conversion projects.

SECTION 5

APPENDICES

APPENDIX A

SUMMARY OF CONSTRUCTION COST ESTIMATES AND CIAC CALCULATIONS

Table A - 1

PowerServices, Inc.

Construction Cost Estimate: Overhead / Underground Average Cost Differential per Mile

Owner:		**Date:**	11/3/06 3:00 PM
Facility:		**Est. By:**	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		**Project No.:**	

Description: Typical Underground Contstruction				
1 Mile(s) Three Phase High Density	@	$1,259,691.03		$1,259,691.03
1 Mile(s) Three Phase High Density 1/0	@	$1,027,488.69		$1,027,488.69
1 Mile(s) Three Phase Low Density	@	$892,548.24		$892,548.24
1 Mile(s) One Phase High Density	@	$370,352.19		$370,352.19
1 Mile(s) One Phase Low Density	@	$332,236.07		$332,236.07
			5 Miles - Subtotal	**$3,882,316.22**
310 Customers One Phase 4/0 TPX	@	$2,410.05		$747,116.00
60 Customers Three Phase 4/0 QUAD	@	$2,628.70		$157,722.05
30 Customers One Phase 350 TPX	@	$2,698.67		$80,960.22
			400 Customers - Subtotal	**$985,798.26**
Street Lights	@	$185,967.76	**Subtotal**	**$743,871.04**
2 Miles Three Phase High Density Removal	@	$103,269.80		$206,539.61
1 Miles Three Phase Low Density Removal	@	$57,734.03		$57,734.03
1 Miles One Phase High Density Removal	@	$46,171.40		$46,171.40
1 Miles One Phase Low Density Removal	@	$38,430.70		$38,430.70
			5 Miles Removals - Subtotal	**$348,875.74**
			5 Miles - Total	**$5,960,861.26**
			Average Cost per Mile for Typical Underground Construction	**$1,192,172.25**

Description: Typical Overhead Contstruction				
1 Mile(s) Three Phase High Density	@	$284,638.43		$284,638.43
1 Mile(s) Three Phase High Density 1/0	@	$224,137.12		$224,137.12
1 Mile(s) Three Phase Low Density	@	$155,707.69		$155,707.69
1 Mile(s) One Phase High Density	@	$107,243.41		$107,243.41
1 Mile(s) One Phase Low Density	@	$93,544.76		$93,544.76
			5 Miles - Subtotal	**$865,271.40**
200 Customers One Phase 2/0 TPX	@	$795.80		$159,159.70
140 Customers One Phase 4/0 TPX	@	$940.25		$131,634.46
30 Customers Three Phase 4/0 QUAD	@	$1,129.13		$33,873.99
30 Customers Three Phase 350 QUAD	@	$1,569.92		$47,097.69
			400 Customers - Subtotal	**$371,765.84**
Street Lights	@	$49,595.04	**Subtotal**	**$198,380.16**
2 Miles Three Phase High Density Removal	@	$103,269.80		$206,539.61
1 Miles Three Phase Low Density Removal	@	$57,734.03		$57,734.03
1 Miles One Phase High Density Removal	@	$46,171.40		$46,171.40
1 Miles One Phase Low Density Removal	@	$38,430.70		$38,430.70
			5 Miles Removals - Subtotal	**$348,875.74**
			5 Miles - Total	**$1,784,293.14**
			Average Cost per Mile for Typical OverHead Construction	**$356,858.63**

Average Cost Differential per Mile	**$835,313.62**

Table A - 2

Average Construction Cost Differential per Mile

Average Cost per Mile for Typical Underground Construction	$1,192,172
Average Cost per Mile for Typical Overhead Construction	$356,858
Average Cost Differential	$835,314

Table A - 3

PowerServices, Inc.

Average Construction Cost Per Mile

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description: Summary			

Page	Projects	Project Cost
1.	3 Phase High Density Underground - Main Feeder - One Mile	$1,259,691.03
2.	3 Phase High Density Underground 1/0 ACSR - Local Feeder - One Mile	$1,027,488.69
3.	3 Phase Low Density Underground 1/0 ACSR - Local Feeder - One Mile	$892,548.24
4.	1 Phase High Density Underground 1/0 ACSR - Local Feeder - One Mile	$370,352.19
5.	1 Phase Low Density Underground 1/0 ACSR - Local Feeder - One Mile	$332,236.07
6.	3 Phase High Density Overhead - Main Feeder - One Mile	$284,638.43
7.	3 Phase High Density Overhead 1/0 ACSR - Local Feeder - One Mile	$224,137.12
8.	3 Phase Low Density Overhead 1/0 ACSR - Local Feeder - One Mile	$155,707.69
9.	1 Phase High Density Overhead 1/0 ACSR - Local Feeder - One Mile	$107,243.41
10.	1 Phase Low Density Overhead 1/0 ACSR - Local Feeder - One Mile	$93,544.76
11.	3 Phase High Density Removals - One Mile	$103,269.80
12.	3 Phase Low Density Removals - One Mile	$57,734.03
13.	1 Phase High Density Removals - One Mile	$46,171.40
14.	1 Phase Low Density Removals - One Mile	$38,430.70
15.	High Density Street Lights Underground Feed - One Mile	$185,967.76
16.	High Density Street Lights Overhead Feed - One Mile	$49,595.04
17.	Underground Services 4/0 TPX - Per Service	$2,410.05
18.	Underground Services 4/0 QUAD - Per Service	$2,628.70
19.	Underground Services 350 TPX - Per Service	$2,698.67
20.	Overhead Services 2/0 TPX - Per Service	$795.80
21.	Overhead Services 4/0 TPX - Per Service	$940.25
22.	Overhead Services 4/0 QUAD - Per Service	$1,129.13
23.	Overhead Services 350 QUAD - Per Service	$1,569.92

Table A - 4 OVERHEAD to UNDERGROUND CONVERSION ADJUSTMENTS to CIAC
(Costs and adjustments on a per mile of conversion basis)

Conversion Benefit Adjustments to CIAC		Fixed Percentage Adjustments (%)	Fixed Cost Adjustments (dollars)
Base Conversion Cost Differential			$835,314.00
Outage Restoration Reduction	- Non-major events	5.60%	$46,775.42
	- Major Events	23.68%	$197,791.32
Reduced Revenue Losses	- Non-major events	0.13%	$1,109.25
	- Major events	2.45%	$20,443.99
Reduced O&M Costs	- Vegetation Management	8.96%	$74,808.42
	- Other O&M**	1.19%	$9,960.00
Cost of UG Locates		-0.78%	($6,540.00)
Loss of Pole Attachment Revenue		-1.11%	($9,300.00)
Reduced Accident Litigation & Award Payments		10.43%	$87,109.28
Non-Participant Benefit (Qualitative Others)		-	-
Elimination of NESC (Code) Violations		-	-
Elimination of Overhead Routing Problems		-	-
Fixed Adjustments		50.54%	$422,157.68

** Other O&M From FPL Data Responses Reflects Higher O&M for Underground / Mile
PowerServices Inc. Estimates Reflect Improved O&M Cost for Underground Based on Improved Technology and other utility experience

Power Services
Management Services For Utilities

APPENDIX B

UNDERGROUND AND HARDENED OVERHEAD SYSTEM COST ESTIMATES

Table B - 1

PowerServices, Inc.

Construction Cost Estimate: 3 Phase High Density Overhead - Main Feeder

Owner:		**Date:**	**11/3/06 3:00 PM**
Facility:		**Est. By:**	**DSH HGB**
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		**Project No.:**	
Description:	**3 Phase High Density Overhead - Main Feeder - One Mile**		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	50/1 Pole	36	Each	$798.00	$540.00	$1,338.00	$48,168.00
2.	C1	28	Each	$322.80	$278.40	$601.20	$16,833.60
3.	C2-1	4	Each	$352.80	$325.20	$678.00	$2,712.00
4.	C7	4	Each	$375.60	$350.40	$726.00	$2,904.00
5.	E1-2	20	Each	$69.60	$63.60	$133.20	$2,664.00
6.	F1-3S	20	Each	$163.20	$30.00	$193.20	$3,864.00
7.	G136-10	10	Each	$477.00	$579.60	$1,056.60	$10,566.00
8.	G312-37.5	15	Each	$1,774.00	$2,400.00	$4,174.00	$62,610.00
9.	556.5 ACSR	10.8	k Feet	$1,600.00	$1,600.00	$3,200.00	$34,560.00
10.	336.4 ACSR	4	k Feet	$1,020.00	$600.00	$1,620.00	$6,480.00
11.	1/0 ACSR	8.5	k Feet	$897.60	$240.00	$1,137.60	$9,669.60
12.	M2-11	35	Each	$84.00	$60.00	$144.00	$5,040.00
13.	M5-6	12	Each	$97.00	$47.00	$144.00	$1,728.00
14.	3 Ph COLA BKT	4	Each	$120.00	$100.00	$220.00	$880.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
					Subtotal - Construction w/o Contingencies		$208,679.20
			10%		Contingencies		$20,867.92
					Subtotal		$229,547.12
			24%		Engineering, General and Administrative		$55,091.31
					Project Total		$284,638.43

Table B - 2

PowerServices, Inc.

Construction Cost Estimate: 3 Phase High Density Overhead 1/0 ACSR - Local Feeder

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description:	3 Phase High Density Overhead 1/0 ACSR - Local Feeder - One Mile		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	50/1 Pole	36	Each	$798.00	$540.00	$1,338.00	$48,168.00
2.	C1	28	Each	$322.80	$278.40	$601.20	$16,833.60
3.	C2-1	4	Each	$352.80	$325.20	$678.00	$2,712.00
4.	C7	4	Each	$375.60	$350.40	$726.00	$2,904.00
5.	E1-2	20	Each	$69.60	$63.60	$133.20	$2,664.00
6.	F1-3S	20	Each	$163.20	$30.00	$193.20	$3,864.00
7.	G136-10	15	Each	$477.00	$579.60	$1,056.60	$15,849.00
8.	G312-37.5	10	Each	$1,774.00	$2,400.00	$4,174.00	$41,740.00
9.	1/0 ACSR	18	k Feet	$897.60	$240.00	$1,137.60	$20,476.80
10.	M2-11	36	Each	$84.00	$60.00	$144.00	$5,184.00
11.	M5-6	12	Each	$97.00	$47.00	$144.00	$1,728.00
12.	3 Ph COLA BKT	10	Each	$120.00	$100.00	$220.00	$2,200.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
				Subtotal - Construction w/o Contingencies			$164,323.40
			10%	Contingencies			$16,432.34
				Subtotal			$180,755.74
			24%	Engineering, General and Administrative			$43,381.38
				Project Total			$224,137.12

Table B - 3

PowerServices, Inc.

Construction Cost Estimate: 3 Phase Low Density Overhead 1/0 ACSR - Local Feeder

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description:	3 Phase Low Density Overhead 1/0 ACSR - Local Feeder - One Mile		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	50/1 Pole	25	Each	$798.00	$540.00	$1,338.00	$33,450.00
2.	C1	17	Each	$322.80	$278.40	$601.20	$10,220.40
3.	C2-1	4	Each	$352.80	$325.20	$678.00	$2,712.00
4.	C7	4	Each	$375.60	$350.40	$726.00	$2,904.00
5.	E1-2	20	Each	$69.60	$63.60	$133.20	$2,664.00
6.	F1-3S	20	Each	$163.20	$30.00	$193.20	$3,864.00
7.	G136-10	10	Each	$477.00	$579.60	$1,056.60	$10,566.00
8.	G312-37.5	5	Each	$1,774.00	$2,400.00	$4,174.00	$20,870.00
9.	1/0 ACSR	18	k Feet	$897.60	$240.00	$1,137.60	$20,476.80
10.	M2-11	25	Each	$84.00	$60.00	$144.00	$3,600.00
11.	M5-6	12	Each	$97.00	$47.00	$144.00	$1,728.00
12.	3 Ph COLA BKT	5	Each	$120.00	$100.00	$220.00	$1,100.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
				Subtotal - Construction w/o Contingencies			$114,155.20
			10%	Contingencies			$11,415.52
				Subtotal			$125,570.72
			24%	Engineering, General and Administrative			$30,136.97
				Project Total			$155,707.69

Table B - 4

PowerServices, Inc.

Construction Cost Estimate: 1 Phase High Density Overhead 1/0 ACSR - Local Feeder

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description:	1 Phase High Density Overhead 1/0 ACSR - Local Feeder - One Mile		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	50/1 Pole	36	Each	$798.00	$450.00	$1,248.00	$44,928.00
2.	A1	29	Each	$40.00	$25.00	$65.00	$1,885.00
3.	A2-1	4	Each	$40.00	$40.00	$80.00	$320.00
4.	A-4	1	Each	$50.00	$50.00	$100.00	$100.00
5.	A-5	2	Each	$25.00	$25.00	$50.00	$100.00
6.	E1-2	16	Each	$69.60	$63.60	$133.20	$2,131.20
7.	F1-3S	4	Each	$163.20	$30.00	$193.20	$772.80
8.	G-105-25	18	Each	$477.00		$477.00	$8,586.00
9.	1/0 ACSR	12	k Feet	$897.60	$240.00	$1,137.60	$13,651.20
10.	M2-11	35	Each	$84.00	$60.00	$144.00	$5,040.00
11.	M5-9LB	3	Each	$76.00	$114.00	$190.00	$570.00
12.	M5-6	4	Each	$98.00	$37.00	$135.00	$540.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
					Subtotal - Construction w/o Contingencies		$78,624.20
			10%		Contingencies		$7,862.42
					Subtotal		$86,486.62
			24%		Engineering, General and Administrative		$20,756.79
					Project Total		$107,243.41

Table B - 5

PowerServices, Inc.

Construction Cost Estimate: 1 Phase Low Density Overhead 1/0 ACSR - Local Feeder

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description:	1 Phase Low Density Overhead 1/0 ACSR - Local Feeder - One Mile		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	50/1 Pole	25	Each	$798.00	$450.00	$1,248.00	$31,200.00
2.	A1	14	Each	$40.00	$25.00	$65.00	$910.00
3.	A2-1	4	Each	$40.00	$40.00	$80.00	$320.00
4.	A-4	1	Each	$50.00	$50.00	$100.00	$100.00
5.	A-5	4	Each	$25.00	$25.00	$50.00	$200.00
6.	E1-2	16	Each	$69.60	$63.60	$133.20	$2,131.20
7.	F1-3S	4	Each	$163.20	$30.00	$193.20	$772.80
8.	G-105-25	15	Each	$400.00	$582.00	$982.00	$14,730.00
9.	1/0 ACSR	12	k Feet	$897.60	$240.00	$1,137.60	$13,651.20
10.	M2-11	24	Each	$84.00	$60.00	$144.00	$3,456.00
11.	M5-9LB	3	Each	$76.00	$114.00	$190.00	$570.00
12.	M5-6	4	Each	$98.00	$37.00	$135.00	$540.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
				Subtotal - Construction w/o Contingencies			$68,581.20
				10%		Contingencies	$6,858.12
						Subtotal	$75,439.32
				24%		Engineering, General and Administrative	$18,105.44
						Project Total	$93,544.76

Table B - 6

PowerServices, Inc.

Construction Cost Estimate: 3 Phase High Density Removals

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description: 3 Phase High Density Removals - One Mile			

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	50' Pole	36	Each	$360.00		$360.00	$12,960.00
2.	C1	28	Each	$246.00		$246.00	$6,888.00
3.	C2-1	4	Each	$360.00		$360.00	$1,440.00
4.	C-7	4	Each	$264.00		$264.00	$1,056.00
5.	E1-2	10	Each	$84.00		$84.00	$840.00
6.	F1-3S	10	Each	$120.00		$120.00	$1,200.00
7.	556 AAC	10.8	k Feet	$800.00		$800.00	$8,640.00
8.	1/0 AAC	6	k Feet	$400.00		$400.00	$2,400.00
9.	336.4 AAC	4	k Feet	$500.00		$500.00	$2,000.00
10.	M5-6	12	Each	$50.00		$50.00	$600.00
11.	3 Ph COLA BKT	20	Each	$50.00		$50.00	$1,000.00
12.	G136-10	5	Each	$246.40		$246.40	$1,232.00
13.	G312-37.5	20	Each	$1,638.00		$1,638.00	$32,760.00
14.	M26-5L	35	Each	$77.00		$77.00	$2,695.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
			Subtotal - Construction w/o Contingencies				$75,711.00
			10%		Contingencies		$7,571.10
					Subtotal		$83,282.10
			24%		Engineering, General and Administrative		$19,987.70
					Project Total		$103,269.80

Table B - 7

PowerServices, Inc.

Construction Cost Estimate: 3 Phase Low Density Removals

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description:	3 Phase Low Density Removals - One Mile		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	50' Pole	29	Each	$360.00		$360.00	$10,440.00
2.	C1	17	Each	$246.00		$246.00	$4,182.00
3.	C2-1	4	Each	$360.00		$360.00	$1,440.00
4.	C-7	4	Each	$264.00		$264.00	$1,056.00
5.	E1-2	20	Each	$84.00		$84.00	$1,680.00
6.	F1-3S	20	Each	$120.00		$120.00	$2,400.00
7.	1/0 AAC	18	k Feet	$400.00		$400.00	$7,200.00
8.	M5-6	12	Each	$50.00		$50.00	$600.00
9.	3 Ph COLA BKT	5	Each	$50.00		$50.00	$250.00
10.	G136-10	10	Each	$246.40		$246.40	$2,464.00
11.	G312-37.5	5	Each	$1,638.00		$1,638.00	$8,190.00
12.	M26-5L	25	Each	$77.00		$77.00	$1,925.00
13.	M2-11	25	Each	$20.00		$20.00	$500.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
					Subtotal - Construction w/o Contingencies		$42,327.00
			10%		Contingencies		$4,232.70
					Subtotal		$46,559.70
			24%		Engineering, General and Administrative		$11,174.33
					Project Total		$57,734.03

Table B - 8

PowerServices, Inc.

Construction Cost Estimate: 1 Phase High Density Removals

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description: 1 Phase High Density Removals - One Mile			

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	50' Pole	35	Each	$360.00		$360.00	$12,600.00
2.	A1	29	Each	$25.00		$25.00	$725.00
3.	A2-1	4	Each	$25.00		$25.00	$100.00
4.	A5	2	Each	$50.00		$50.00	$100.00
5.	E1-2	16	Each	$84.00		$84.00	$1,344.00
6.	F1-3S	4	Each	$120.00		$120.00	$480.00
7.	G105-25	18	Each	$360.00		$360.00	$6,480.00
8.	1/0 ACSR	12	k Feet	$748.00		$748.00	$8,976.00
9.	M5-9LB	3	Each	$50.00		$50.00	$150.00
10.	M5-6	4	Each	$50.00		$50.00	$200.00
11.	M26-5L	35	Each	$77.00		$77.00	$2,695.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
			Subtotal - Construction w/o Contingencies				$33,850.00
			10%			Contingencies	$3,385.00
						Subtotal	$37,235.00
			24%			Engineering, General and Administrative	$8,936.40
						Project Total	$46,171.40

Table B - 9

PowerServices, Inc.

Construction Cost Estimate: 1 Phase Low Density Removals

Owner:		**Date:**	**11/3/06 3:00 PM**
Facility:		**Est. By:**	**DSH HGB**
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		**Project No.:**	
Description:	**1 Phase Low Density Removals - One Mile**		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	50' Pole	25	Each	$360.00		$360.00	$9,000.00
2.	A1	14	Each	$25.00		$25.00	$350.00
3.	A2-1	4	Each	$25.00		$25.00	$100.00
4.	A4	1	Each	$50.00		$50.00	$50.00
5.	A5	4	Each	$50.00		$50.00	$200.00
5.	E1-2	16	Each	$84.00		$84.00	$1,344.00
6.	F1-3S	4	Each	$120.00		$120.00	$480.00
7.	G105-25	15	Each	$360.00		$360.00	$5,400.00
8.	1/0 ACSR	12	k Feet	$748.00		$748.00	$8,976.00
9.	M5-9LB	3	Each	$50.00		$50.00	$150.00
10.	M5-6	4	Each	$50.00		$50.00	$200.00
11.	M26-5L	25	Each	$77.00		$77.00	$1,925.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00

	Subtotal - Construction w/o Contingencies	$28,175.00
10%	Contingencies	$2,817.50
	Subtotal	$30,992.50
24%	Engineering, General and Administrative	$7,438.20
	Project Total	$38,430.70

Table B - 10

PowerServices, Inc.

Construction Cost Estimate: High Density Street Lights Overhead Feed

Owner:	**Date:** 11/3/06 3:00 PM
Facility:	**Est. By:** DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida	**Project No.:**
Description: Street Lights Overhead Feed - One Mile	

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	Heads and Arms	35	Each	$192.00	$312.00	$504.00	$17,640.00
2.	K-14	35	Each	$30.00	$18.00	$48.00	$1,680.00
3.	#2 TPX	6000	Feet	$1.24	$1.60	$2.84	$17,040.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00

	Subtotal - Construction w/o Contingencies	$36,360.00
10%	Contingencies	$3,636.00
	Subtotal	$39,996.00
24%	Engineering, General and Administrative	$9,599.04
	Project Total	$49,595.04

Table B - 11

PowerServices, Inc.

Construction Cost Estimate: Overhead Services 2|0 TPX

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description:	Overhead Services 2/0 TPX - Per Service		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	2/0 TPX	115	Feet	$0.90	$1.20	$2.10	$241.50
2.	COMP 2/0 TPX	6	Each	$1.20	$3.96	$5.16	$30.96
3.	Bolt - eye 5/8"	1	Each	$1.20	$2.76	$3.96	$3.96
4.	WG	2	Each	$1.44	$2.40	$3.84	$7.68
5.	Pole 30/5	1	Each	$144.00	$150.00	$294.00	$294.00
6.	Pole GND	1	Each	$2.40	$2.93	$5.33	$5.33
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00

	Subtotal - Construction w/o Contingencies	$583.43
10%	Contingencies	$58.34
	Subtotal	$641.77
24%	Engineering, General and Administrative	$154.03
	Project Total	$795.80

Table B - 12

PowerServices, Inc.

Construction Cost Estimate: Overhead Services 4/0 TPX

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description:	Overhead Services 4/0 TPX - Per Service		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	4/0 TPX	115	Feet	$1.32	$1.68	$3.00	$345.00
2.	COMP 4/0 TPX	6	Each	$1.44	$4.02	$5.46	$32.76
3.	Bolt - eye 5/8"	1	Each	$1.20	$2.76	$3.96	$3.96
4.	WG 4/0	2	Each	$1.44	$2.70	$4.14	$8.28
5.	Pole 30/5	1	Each	$144.00	$150.00	$294.00	$294.00
6.	Pole GND	1	Each	$2.40	$2.93	$5.33	$5.33
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00

	Subtotal - Construction w/o Contingencies	$689.33
10%	Contingencies	$68.93
	Subtotal	$758.26
24%	Engineering, General and Administrative	$181.98
	Project Total	$940.25

Table B - 13

PowerServices, Inc.

Construction Cost Estimate: Overhead Services 4/0 QUAD

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description: Overhead Services 4/0 QUAD - Per Service			

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	4/0 QUAD	115	Feet	$1.80	$2.28	$4.08	$469.20
2.	COMP 4/0 QUAD	8	Each	$1.80	$4.08	$5.88	$47.04
3.	Bolt - eye 5/8"	1	Each	$1.20	$2.76	$3.96	$3.96
4.	WG 4/0	2	Each	$1.44	$2.70	$4.14	$8.28
5.	Pole 30/5	1	Each	$144.00	$150.00	$294.00	$294.00
6.	Pole GND	1	Each	$2.40	$2.93	$5.33	$5.33
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00

	Subtotal - Construction w/o Contingencies	$827.81
10%	Contingencies	$82.78
	Subtotal	$910.59
24%	Engineering, General and Administrative	$218.54
	Project Total	$1,129.13

Table B - 14

PowerServices, Inc.

Construction Cost Estimate: Overhead Services 350 QUAD

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description:	Overhead Services 350 QUAD - Per Service		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	350 QUAD	115	Feet	$2.40	$4.44	$6.84	$786.60
2.	COMP 350 QUAD	8	Each	$2.40	$4.20	$6.60	$52.80
3.	Bolt - eye 5/8"	1	Each	$1.20	$2.76	$3.96	$3.96
4.	WG 4/0	2	Each	$1.44	$2.70	$4.14	$8.28
5.	Pole 30/5	1	Each	$144.00	$150.00	$294.00	$294.00
6.	Pole GND	1	Each	$2.40	$2.93	$5.33	$5.33
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00

	Subtotal - Construction w/o Contingencies	$1,150.97
10%	Contingencies	$115.10
	Subtotal	$1,266.07
24%	Engineering, General and Administrative	$303.86
	Project Total	$1,569.92

Table B - 15

PowerServices, Inc.

Construction Cost Estimate: 3 Phase High Density Underground - Main Feeder

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description:	3 Phase High Density Underground - Main Feeder - One Mile		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	UC1	1	Each	$564.00	$588.00	$1,152.00	$1,152.00
2.	UR1-S (12 x 46)	6000	Feet	$10.80		$10.80	$64,800.00
3.	1000 MCM	10800	Feet	$4.20	$12.49	$16.69	$180,252.00
4.	1/0 UG	7200	Feet	$2.40	$3.30	$5.70	$41,040.00
5.	UM3E-9 (PME-9)	3	Each	$1,980.00	$19,446.00	$21,426.00	$64,278.00
6.	UM33 (PJE)	4	Each	$759.60	$1,670.00	$2,429.60	$9,718.40
7.	UM1-5C	5	Each	$198.00	$114.00	$312.00	$1,560.00
8.	UM1-6C	20	Each	$600.00	$363.00	$963.00	$19,260.00
9.	UM1-7C	27	Each	$448.00	$342.00	$790.00	$21,330.00
10.	UM48-1	9	Each	$48.00	$67.20	$115.20	$1,036.80
11.	UM48-2	20	Each	$63.60	$73.20	$136.80	$2,736.00
12.	UG7B (50kVA)	10	Each	$499.20	$2,460.00	$2,959.20	$29,592.00
13.	UG17-3B (150kVA)	10	Each	$936.00	$6,489.60	$7,425.60	$74,256.00
14.	UG17-3B (300kVA)	5	Each	$1,062.00	$8,794.80	$9,856.80	$49,284.00
15	UM6-34	6	Each	$43.20	$108.00	$151.20	$907.20
16.	UM6-28 (1000 MCM)	9	Each	$144.00	$216.00	$360.00	$3,240.00
17.	UM6-1	142	Each	$120.00	$216.00	$336.00	$47,712.00
18.	UM6-4	65	Each	$48.00	$384.00	$432.00	$28,080.00
19.	UM6-6	59	Each	$32.40	$15.60	$48.00	$2,832.00
20.	UM6-28 (1/0)	6	Each	$108.00	$84.00	$192.00	$1,152.00
21.	UM6-13	25	Each	$21.60	$32.40	$54.00	$1,350.00
22.	UM6-22	4	Each	$90.00	$158.40	$248.40	$993.60
23.	3-Pipes (4")	10800	Feet	$7.44	$11.04	$18.48	$199,584.00
24.	3-Pipes (2")	7200	Feet	$5.28	$4.32	$9.60	$69,120.00
25.	UJ1-4	15	Each	$23.76	$85.01	$108.77	$1,631.55
26.	UJ2-4	80	Each	$19.80	$63.07	$82.87	$6,629.60
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						Subtotal - Construction w/o Contingencies	$923,527.15
			10%			Contingencies	$92,352.72
						Subtotal	$1,015,879.87
			24%			Engineering, General and Administrative	$243,811.17
						Project Total	$1,259,691.03

Table B - 16

PowerServices, Inc.

Construction Cost Estimate: 3 Phase High Density Underground 1/0 ACSR - Local Feeder

Owner:		**Date:**	**11/3/06 3:00 PM**
Facility:		**Est. By:**	**DSH HGB**
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		**Project No.:**	
Description:	**3 Phase High Density Underground 1/0 ACSR - Local Feeder - One Mile**		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	UC1	1	Each	$564.00	$588.00	$1,152.00	$1,152.00
2.	UR1-S (12 x 46)	6000	Feet	$10.80		$10.80	$64,800.00
3.	1/0 UG	18000	Feet	$2.40	$3.30	$5.70	$102,600.00
4.	UM33 (PJE)	5	Each	$759.60	$1,670.00	$2,429.60	$12,148.00
5.	UM1-5C	15	Each	$198.00	$114.00	$312.00	$4,680.00
6.	UM1-6C	10	Each	$600.00	$363.00	$963.00	$9,630.00
7.	UM1-7C	30	Each	$448.00	$342.00	$790.00	$23,700.00
8.	UM48-1	15	Each	$48.00	$67.20	$115.20	$1,728.00
9.	UM48-2	10	Each	$63.60	$73.20	$136.80	$1,368.00
10.	UG7B (50kVA)	15	Each	$499.20	$2,460.00	$2,959.20	$44,388.00
11.	UG17-3B (150kVA)	5	Each	$936.00	$6,489.60	$7,425.60	$37,128.00
12.	UG17-3B (300kVA)	5	Each	$1,062.00	$8,794.80	$9,856.80	$49,284.00
13.	UM6-34	6	Each	$43.20	$108.00	$151.20	$907.20
14.	UM6-28 (1/0)	9	Each	$120.00	$55.22	$175.22	$1,576.98
15.	UM6-1	170	Each	$92.00	$49.76	$141.76	$24,099.20
16.	UM6-4	59	Each	$48.00	$384.00	$432.00	$25,488.00
17.	UM6-6	56	Each	$32.40	$15.60	$48.00	$2,688.00
18.	UM6-13	25	Each	$21.60	$32.40	$54.00	$1,350.00
19.	UM6-22	15	Each	$90.00	$158.40	$248.40	$3,726.00
20.	3-Pipes (4")	18000	Feet	$7.44	$11.04	$18.48	$332,640.00
21.	UJ1-3	45	Each	$23.76	$85.01	$108.77	$4,894.65
22.	UJ2-4	40	Each	$19.80	$63.07	$82.87	$3,314.80
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
				Subtotal - Construction w/o Contingencies			$753,290.83
			10%	Contingencies			$75,329.08
				Subtotal			$828,619.91
			24%	Engineering, General and Administrative			$198,868.78
				Project Total			$1,027,488.69

Table B - 17

PowerServices, Inc.

Construction Cost Estimate: 3 Phase Low Density Underground 1/0 ACSR - Local Feeder

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description:	3 Phase Low Density Underground 1/0 ACSR - Local Feeder - One Mile		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	UC1	1	Each	$564.00	$588.00	$1,152.00	$1,152.00
2.	UR1-S (12 x 46)	6000	Feet	$10.80		$10.80	$64,800.00
3.	1/0 UG	18000	Feet	$2.40	$3.30	$5.70	$102,600.00
4.	UM33 (PJE)	5	Each	$759.60	$1,670.00	$2,429.60	$12,148.00
5.	UM1-5C	10	Each	$198.00	$114.00	$312.00	$3,120.00
6.	UM1-6C	5	Each	$600.00	$363.00	$963.00	$4,815.00
7.	UM1-7C	20	Each	$448.00	$342.00	$790.00	$15,800.00
8.	UM48-1	10	Each	$48.00	$67.20	$115.20	$1,152.00
9.	UM48-2	10	Each	$63.60	$73.20	$136.80	$1,368.00
10.	UG7B (50kVA)	10	Each	$499.20	$2,460.00	$2,959.20	$29,592.00
11.	UG17-3B (150kVA)	5	Each	$936.00	$6,489.60	$7,425.60	$37,128.00
12.	UM6-34	10	Each	$43.20	$108.00	$151.20	$1,512.00
13.	UM6-28	9	Each	$120.00	$55.22	$175.22	$1,576.98
14.	UM6-1	65	Each	$92.00	$49.76	$141.76	$9,214.40
15.	UM6-4	60	Each	$48.00	$384.00	$432.00	$25,920.00
16.	UM6-6	20	Each	$32.40	$15.60	$48.00	$960.00
17.	UM6-13	50	Each	$21.60	$32.40	$54.00	$2,700.00
18.	UM6-22	5	Each	$90.00	$158.40	$248.40	$1,242.00
19.	3-Pipes (4")	18000	Feet	$7.44	$11.04	$18.48	$332,640.00
20.	UJ1-4	30	Each	$23.76	$85.01	$108.77	$3,263.10
21.	UJ2-4	20	Each	$19.80	$63.07	$82.87	$1,657.40
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
			Subtotal - Construction w/o Contingencies				$654,360.88
			10%		Contingencies		$65,436.09
					Subtotal		$719,796.97
			24%		Engineering, General and Administrative		$172,751.27
					Project Total		$892,548.24

Table B - 18

PowerServices, Inc.

Construction Cost Estimate: 1 Phase High Density Underground 1/0 ACSR - Local Feeder

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description:	1 Phase High Density Underground 1/0 ACSR - Local Feeder - One Mile		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	UA1	0	Each	$564.00	$588.00	$1,152.00	$0.00
2.	UR1-S (12 x 46)	6000	Feet	$10.80		$10.80	$64,800.00
3.	1/0 AWG 220mil	6000	Feet	$3.50	$2.10	$5.60	$33,600.00
4.	UM33 (PJE)	6	Each	$759.60	$1,670.40	$2,430.00	$14,580.00
5.	UM1-5C	25	Each	$198.00	$114.00	$312.00	$7,800.00
6.	UM1-7C	6	Each	$448.80	$342.00	$790.80	$4,744.80
7.	UM48-1	24	Each	$48.00	$67.20	$115.20	$2,764.80
8.	UG7B-50	25	Each	$499.20	$2,460.00	$2,959.20	$73,980.00
9.	UM6-34	3	Each	$43.20	$108.00	$151.20	$453.60
10.	UM6-28 (1/0)	6	Each	$180.00	$36.00	$216.00	$1,296.00
11.	UM6-1	54	Each	$92.40	$50.40	$142.80	$7,711.20
12.	UM6-4	24	Each	$48.00	$384.00	$432.00	$10,368.00
13.	UM6-6	24	Each	$32.40	$15.60	$48.00	$1,152.00
14.	UM6-7	36	Each	$24.00	$36.00	$60.00	$2,160.00
15.	UM6-13	36	Each	$21.60	$32.40	$54.00	$1,944.00
16.	UM6-21	6	Each	$68.40	$129.60	$198.00	$1,188.00
17.	UJ1-4	54	Each	$24.00	$85.20	$109.20	$5,896.80
18.	1 Pipe (4")	6000	Feet	$2.48	$3.70	$6.18	$37,080.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00

	Subtotal - Construction w/o Contingencies	$271,519.20
10%	Contingencies	$27,151.92
	Subtotal	$298,671.12
24%	Engineering, General and Administrative	$71,681.07
	Project Total	$370,352.19

Table B - 19

PowerServices, Inc.

Construction Cost Estimate: 1 Phase Low Density Underground 1/0 ACSR - Local Feeder

Owner:		**Date:**	11/3/06 3:00 PM
Facility:		**Est. By:**	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		**Project No.:**	
Description: 1 Phase Low Density Underground 1/0 ACSR - Local Feeder - One Mile			

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	UA1	0	Each	$564.00	$588.00	$1,152.00	$0.00
2.	UR1-S (12 x 46)	6000	Feet	$10.80		$10.80	$64,800.00
3.	1/0 UG	6000	Feet	$3.50	$2.10	$5.60	$33,600.00
4.	UM33 (PJE)	5	Each	$759.60	$1,670.40	$2,430.00	$12,150.00
5.	UM1-5C	10	Each	$198.00	$114.00	$312.00	$3,120.00
6.	UM1-6C	0	Each	$600.00	$363.00	$963.00	$0.00
7.	UM1-7C	20	Each	$448.80	$342.00	$790.80	$15,816.00
8.	UM48-1	10	Each	$48.00	$67.20	$115.20	$1,152.00
9.	UM48-2	0	Each	$63.60	$73.20	$136.80	$0.00
10.	UG7B-50	15	Each	$499.20	$2,460.00	$2,959.20	$44,388.00
11.	UM6-34	5	Each	$43.20	$108.00	$151.20	$756.00
12.	UM6-28	9	Each	$120.00	$55.22	$175.22	$1,576.98
13.	UM6-1	45	Each	$92.00	$49.76	$141.76	$6,379.20
14.	UM6-4	30	Each	$48.00	$384.00	$432.00	$12,960.00
15.	UM6-6	20	Each	$32.40	$15.60	$48.00	$960.00
16.	UM6-13	50	Each	$21.60	$32.40	$54.00	$2,700.00
17.	UM6-22	5	Each	$90.00	$158.40	$248.40	$1,242.00
18	UJ1-4	45	Each	$23.76	$85.01	$108.77	$4,894.65
19.	1 Pipe (4")	6000	Feet	$2.48	$3.70	$6.18	$37,080.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						Subtotal - Construction w/o Contingencies	$243,574.83
				10%		Contingencies	$24,357.48
						Subtotal	$267,932.31
				24%		Engineering, General and Administrative	$64,303.76
						Project Total	$332,236.07

Table B - 20

PowerServices, Inc.

Construction Cost Estimate: High Density Street Lights Underground Feed

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description:	Street Lights Underground Feed - One Mile		

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	Street Light Poles, Arms and Heads	35	Each	$990.00	$666.00	$1,656.00	$57,960.00
2.	Hand Holes	35	Each	$216.00	$840.00	$1,056.00	$36,960.00
3.	Conduit	5300	Feet	$1.70	$2.90	$4.60	$24,380.00
4.	#2 TPX	6000	Feet	$1.24	$1.60	$2.84	$17,040.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00

	Subtotal - Construction w/o Contingencies	$136,340.00
10%	Contingencies	$13,634.00
	Subtotal	$149,974.00
24%	Engineering, General and Administrative	$35,993.76
	Project Total	$185,967.76

Table B - 21

PowerServices, Inc.

Construction Cost Estimate: Underground Services 4/0 TPX

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description: Underground Services 4/0 TPX - Per Service			

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	4/0 TPX	115	Feet	$1.40	$4.26	$5.66	$650.90
2.	TR 6 x 24	115	Feet	$7.20		$7.20	$828.00
3.	Z-BAR Sec. Conn	3	Each	$18.00	$78.00	$96.00	$288.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
				Subtotal - Construction w/o Contingencies			$1,766.90
			10%	Contingencies			$176.69
				Subtotal			$1,943.59
			24%	Engineering, General and Administrative			$466.46
				Project Total			$2,410.05

Table B - 22

PowerServices, Inc.

Construction Cost Estimate: Underground Services 4/0 QUAD

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description: Underground Services 4/0 QUAD - Per Service			

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	4/0 QUAD	115	Feet	$1.44	$4.32	$5.76	$662.40
2.	TR 6 x 24	115	Feet	$7.20		$7.20	$828.00
3.	Z-BAR Sec. Conn	4	Each	$24.00	$85.20	$109.20	$436.80
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
				Subtotal - Construction w/o Contingencies			$1,927.20
			10%	Contingencies			$192.72
				Subtotal			$2,119.92
			24%	Engineering, General and Administrative			$508.78
				Project Total			$2,628.70

Table B - 23

PowerServices, Inc.

Construction Cost Estimate: Underground Services 350 TPX

Owner:		Date:	11/3/06 3:00 PM
Facility:		Est. By:	DSH HGB
Project: Cost-Effectiveness of Undergrounding Electric Distribution Facilities in Florida		Project No.:	
Description: Underground Services 350 TPX - Per Service			

Line Item	Item or Construction Unit	Quantity	Unit of Measure	Labor Cost	Material Cost	Labor & Materials	Extended Cost
1.	350 TPX	115	Feet	$3.00	$4.50	$7.50	$862.50
2.	TR 6 x 24	115	Feet	$7.20		$7.20	$828.00
3.	Z-BAR Sec. Conn	3	Each	$18.00	$78.00	$96.00	$288.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
						$0.00	$0.00
			Subtotal - Construction w/o Contingencies				$1,978.50
			10%	Contingencies			$197.85
						Subtotal	$2,176.35
			24%	Engineering, General and Administrative			$522.32
						Project Total	$2,698.67

APPENDIX C

CIAC CALCULATIONS

Table C - 1

OVERHEAD to UNDERGROUND CONVERSION ADJUSTMENTS to CIAC
(Costs and adjustments on a per mile of conversion basis)

Conversion Benefit Adjustments to CIAC		Fixed Percentage Adjustments (%)	Fixed Cost Adjustments (dollars)
Base Conversion Cost Differential			$835,314.00
Outage Restoration Reduction	- Non-major events	5.60%	$46,775.42
	- Major Events	23.68%	$197,791.32
Reduced Revenue Losses	- Non-major events	0.13%	$1,109.25
	- Major events	2.45%	$20,443.99
Reduced O&M Costs	- Vegetation Management	8.96%	$74,808.42
	- Other O&M**	1.19%	$9,960.00
Cost of UG Locates		-0.78%	($6,540.00)
Loss of Pole Attachment Revenue		-1.11%	($9,300.00)
Reduced Accident Litigation & Award Payments		10.43%	$87,109.28
Non-Participant Benefit (Qualitative Others)		-	-
Elimination of NESC (Code) Violations		-	-
Elimination of Overhead Routing Problems		-	-
Fixed Adjustments		50.54%	$422,157.68

** Other O&M From FPL Data Responses Reflects Higher O&M for Underground / Mile
PowerServices Inc. Estimates Reflect Improved O&M Cost for Underground Based on Improved Technology and other utility experience

Power Services
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Table C - 2 FPL Restoration Costs 5 Year Historical Analysis (Non-Major Event)

Year	Cost
2001	$86,700,000
2002	$95,900,000
2003	$105,900,000
2004	$87,800,000
2005	$101,200,000
Total	$477,500,000
Avg.$/ Yr.	$95,500,000

2004 Customer Interruptions OH	3574053
OH Miles	41105
OH Interruptions / mile	86.95
2004 Customer Interruptions UG	290127
UG Miles	24107
UG Interruptions / mile	12.03
OH Ratio	87.84%
UG Ratio	12.16%

Avg.$/ Yr.	$95,500,000	$95,500,000	**Avg.$/Yr**
OH Ratio	87.84%	12.16%	**UG Ratio**
	$83,888,670	$11,611,330	
OH Miles	41105	24107	**UG Miles**
	$2,041	$482	
Term	30	30	**Term**
CIAC Credit	**$46,775**		

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Docket Nos. 080244-EI & 070231-EI
PowerServices 2006 UG Study
Exhibit ___ (PJR-2) Page 90 of 158

Table C - 3

FPL Hurricane Restoration Costs

5 Year Historical Analysis

Year	Storm	Cost	Distribution	Total
2001	Gabrielle	30,600,000	82.5%	$25,245,000
2004	Charley			
2004	Francis			
2004	Jeanne	877,800,000	82.5%	$724,185,000
2005	Dennis			
2005	Katrina			
2005	Rita			
2005	Wilma	853,200,000	82.5%	$703,890,000
			Total	$1,453,320,000

Years	5
Avg $/year	$290,664,000
OH Factor	0.975
	$283,397,400
Miles line	41105
$/Mile/Yr.	$6,894
Term	30

Years	5
Avg $/year	$290,664,000
UG Factor	0.025
	$7,266,600
Miles line	24107
$/Mile/Yr.	$301
Term	30

CIAC Credit	$197,791

Power Services

Management Services For Utilities

Table C - 4 Tree Trimming Based on 3 / 6 Year Cycle

Annual Cost per Order # PSC-06-0781-PAA-EI	$71,900,000
Trimming Cycle Years*	3/6
Miles Overhead Lines	41105
Annual Costs/Mile	$1,749
Term / Years	30
CIAC Credit	**$52,475**

* Reflects cost of trimming mains on 3 year cycle and laterals on 6 year cycle

Power Services
Management Services For Utilities

Table C - 5 Tree Trimming Based on 3 Year Cycle

Annual Cost per Order # PSC-06-0781-PAA-EI	$102,500,000
Trimming Cycle Years (all main feeders and laterals)	3
Miles Overhead Lines	41105
Annual Costs/Mile	$2,494
Term / Years	30
CIAC Credit	$74,808

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Table C - 6

O&M Expenses (FPL)

	2005
Overhead	
583 Operations Expense (excludes tree trimming)	$6,863,327
593 Maintenance Expense (excludes tree trimming)	$40,327,273
Total	$47,190,600
OH Miles	41105
O&M Expense / Mile	$1,148
Underground	
584 Operations Expense	$9,010,982
594 Maintenance Expense	$28,291,659
Total	$37,302,641
UG Miles	24107
UG Expense/ Mile	$1,547
OH/ UG Difference	-$399
Term	30
CIAC Credit	**-$11,980**

Power Services
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Table C - 7 O&M Expenses (Other Utilities)

2005 Utilities With Recent Underground Conversion	
Overhead (excludes tree trimming)	
583/593	$1,202
583/593	$517
O&M Expense / Mile	$860
Underground	
584/594	$714
584/594	$341
UG Expense/ Mile	$528
OH/ UG Difference	$332
Term	30
CIAC Credit	**$9,960**

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Table C - 8

FPL Accidents

Year	Injuries	Fatalities
1990	24	8
1991	20	12
1992	26	8
1993	17	7
1994	26	5
1995	17	7
1996	19	4
1997	20	10
1998	23	7
1999	16	11
2000	22	4
2001	17	9
2002	31	6
2003	12	2
2004	26	9
2005	9	6
2006	3	1
Total	328	116
Non Electric		3
		113
Avg/yr	19.29	6.65

Injuries	$ Costs Per	Years	Miles OH	$ Per Mile
19.29	$5,000,000	30	41105	$70,408

Fatalities	$ Costs Per	Years	Miles OH	$ Per Mile
6.65	$2,500,000	30	41105	$12,128

	Annual Legal	Years	Miles OH	$ Per Mile
	$6,266,000	30	41105	$4,573

CIAC Credit	**$87,109**

Power Services

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Table C - 9

FPL Outage 5 Year Historical Analysis
Revenue Loss (Non-Major Events)

Year	Customers w/o Power	Duration/Minutes	Hours	Avg kWh/ hour	Total
2001	4,734,645	154	2.6	2.70	32,835,179
2002	5,171,697	150	2.5	2.70	34,934,584
2003	5,543,996	152	2.5	2.70	37,948,773
2004	5,091,226	179	3.0	2.70	41,039,934
2005	4,961,431	204	3.4	2.70	45,579,375

Total	192,337,845

FERC Form 1 Data	
2005 kWh Sales	102,296,438,000
Annual Hours	8,760
Avg. Sales / hour	11677675.57
# Customers	4321892
Avg. kWh/hour	2.70

Years	5
Hours/year	38467569
OH Factor	0.878
	33774526
PC- Fuel	0.045
	1519854
Miles line	41105
$/ Mile	$37
Term	30
CIAC Credit	**$1,109**

PowerServices
Management Services For Utilities

Table C - 10

FPL Hurricane Outage 5 Year Historical Analysis
Revenue Loss (Major Events)

Year	Storm	Customers	Duration/Days	Hours	Avg kWh/hour	Factor	Total kWh
2001	TS Barry	51,000	2	24	2.7	0.2683	1,773,356
2001	TS Gabrielle	812,000	7	24	2.7	0.2683	98,821,115
2001	TS Michelle	48,000	2	24	2.7	0.2683	1,669,041
2002	TS Edward	4,000	1	24	2.7	0.2683	69,543
2003	TS Henri	56,000	2	24	2.7	0.2683	1,947,214
2004	H Charley	900,000	16	24	2.7	0.2683	250,356,096
2004	H Frances	2,800,000	16	24	2.7	0.2683	778,885,632
2004	H Jeanne	1,700,000	17	24	2.7	0.2683	502,450,776
2005	TS Arlene	52,000	3	24	2.7	0.2683	2,712,191
2005	H Dennis	509,000	4	24	2.7	0.2683	35,397,570
2005	H Katrina	1,500,000	11	24	2.7	0.2683	286,866,360
2005	H Rita	140,000	3	24	2.7	0.2683	7,302,053
2005	H Wilma	3,200,000	22	24	2.7	0.2683	1,223,963,136
						Total	3,192,214,082

FERC Form 1 Data	
2005 kWh Sales	102,296,438,000
Annual Hours	8,760
Avg. Sales / hour	11677675.57
# Customers	4321892
Avg. kWh/hour	2.70

Years	5
Hours/year	638442816
OH Factor	0.975
	622481746
PC- Fuel	0.045
	28011679
Miles line	41105
$/ Mile	$681
Term	30
CIAC Credit	**$20,444**

Power Services

Management Services For Utilities®

APPENDIX D

FPL DATA RESPONSES (EXCERPTS)

Florida Power & Light Company
Towns' First Set of Interrogatories
Interrogatory No. 9
Page 1 of 1

Q.
For FPL's system, please provide operations and maintenance ("O&M") costs for overhead and underground distribution lines.

A.

	FLORIDA POWER & LIGHT COMPANY	
	DISTRIBUTION LINE EXPENSES - OPERATIONS & MAINTENANCE	
	OVERHEAD VS. UNDERGROUND	
		December 31,
FERC		2005
	OVERHEAD	
583	OPERATIONS EXPENSES	$7,288,327
593	MAINTENANCE EXPENSES	78,413,273
	TOTAL OVERHEAD O&M EXPENSES	$85,701,600
	UNDERGROUND	
584	OPERATIONS EXPENSES	$9,010,982
594	MAINTENANCE EXPENSES	28,291,859
	TOTAL UNDERGROUND O&M EXPENSES	$37,302,841
	TOTAL DISTRIBUTION LINE EXPENSES - O&M EXPENSES	$123,004,241

Florida Power & Light Company
Towns' First Set of Interrogatories
Interrogatory No. 10
Page 1 of 1

Q.
Please provide Florida Power & Light's (FPL) system right-of-way (including easements) clearing and re-clearing policies and practices.

A.
FPL's current policy is to clear vegetation from feeders on a cycle that averages approximately 3 years. Line clearing of laterals is prioritized based on performance. FPL's Customer Trim Request (CTR) policy defers to regular maintenance those conditions that are not potentially hazardous and do not require immediate attention. When such conditions are identified, FPL will provide the customer with a list of qualified tree trimming contractors to conduct the job if they desire. FPL does inspect those potentially hazardous conditions reported by customers and, if necessary, takes immediate action to remediate. During restoration FPL will trim and clear lines of the debris that directly affects electric facilities, service lines or prevent access of FPL equipment so that work can be performed safely.

All work is performed in accordance with the current ANSI-A-300 for Tree Care Operations. The trimmer shall determine appropriate clearance by considering the tree species, re-growth rate, proximity to conductor, and combined movement of the tree and conductor in severe weather. FPL's vegetation maintenance policies and practices address vegetation that is or may become in conflict with our facilities and do not differentiate between right-of-ways and easements.

Q.

Please provide FPL system right-of-way tree trimming and re-clearing costs, including, separately if available, the costs for:

a. tree-trimming;
b. clearing and re-clearing;
c. danger tree removal;
d. mowing;
e. chemical treatment; and
f. side trimming.

A.

2005 distribution system vegetation expenses were $40.9 million. FPL does not track or account for vegetation expense in the detail requested.

Florida Power & Light Company
Towns' First Set of Interrogatories
Interrogatory No. 13
Page 1 of 1

Q.

For each of the 5 municipalities, please identify and provide local right of way tree trimming and re-clearing costs for each of the past 3 years, or such shorter period as may be avilable.

A.

FPL does not track distribution vegetation costs at the Municipality level. FPL does track these costs at a regional level.

- The City of Plantation is included within the South region.
- The Towns of Jupiter Island and Palm Beach are included within the East region.
- The City of Melbourne is included within the North region.
- The City of Naples is included within the West region.

Region	2005	2004	2003
East	12,488,949	13,004,405	13,449,309
North	10,967,177	10,477,469	13,544,362
South	11,694,581	10,126,751	9,628,692
West	5,724,097	8,181,045	6,939,393
Grand Total	**40,874,804**	**41,789,669**	**43,561,756**

Q.

For FPL's system, please provide the following outage data, including:

a. Summary tables for annual outages for each year of the most recent 10-year period, which include data showing:

(1) cause of outages;
(2) number of customers without power;
(3) length of outages; and
(4) cost to restore power.

b. For major storms (named tropical storms and hurricanes), please provide by storm for the most recent 10-years:

(1) name of storm;
(2) number of customers without power;
(3) length of outage; and
(4) cost to restore power.

A.

See attached.

QUESTION 15 ANSWERS

a.(1-3) 1996-2005 Outage Causes, Customer Outages, Outage Durations

Primary Causes of Outage Events. Distribution Report for FPSC.

FPL — Year 2005

Cause (a.1)	Number of Outage Events(N) (a.1)	Number of Customers without power (CI) (a.2)	Average Duration (L-Bar) (a.3)
Equipment Failure	26,752	1,714,721	249
Unknown	16,970	642,967	181
Vegetation	10,571	461,045	199
Other	8,865	320,890	184
Animal	8,711	174,185	113
Other Weather	7,250	348,222	144
Lightning	4,682	446,225	289
Equipment Connection	2,288	18,641	217
Vehicle	1,905	484,040	236
Remaining Causes	5,842	350,495	223
System Total	93,836	4,961,431	204

Primary Causes of Outage Events. Distribution Report for FPSC.

FPL — Year 2004

Cause (a.1)	Number of Outage Events(N) (a.1)	Number of Customers without power (CI) (a.2)	Average Duration (L-Bar) (a.3)
Equipment Failure	21,633	1,627,190	217
Vegetation	15,225	726,865	174
Unknown	13,811	624,029	149
Animal	10,153	211,286	79
Other Weather	7,413	407,578	132
Other	6,575	245,029	178
Lightning	4,212	474,035	262
Equipment Connection	1,932	18,224	171
Vehicle	1,751	399,126	204
Remaining Causes	6,261	357,864	287
System Total	88,966	5,091,226	179

Primary Causes of Outage Events. Distribution Report for FPSC.

FPL — Year 2003

Cause (a.1)	Number of Outage Events(N) (a.1)	Number of Customers without power (CI) (a.2)	Average Duration (L-Bar) (a.3)
Equipment Failure	22,728	1,709,617	200

Vegetation	19,307	826,750	155
Unknown	14,469	822,407	128
Animal	11,445	207,007	74
Other Weather	9,083	445,626	106
Lightning	5,074	473,454	233
Other	4,956	85,364	155
Equipment-Connection	2,339	25,212	163
Vehicle	1,791	544,049	194
All Remaining Causes	5,063	404,510	158
System Total	96,255	5,543,996	152

Primary Causes of Outage Events. Distribution Report for FPSC.

FPL		Year	2002
	Number	Number of Customers	Average
	of Outage	without power	Duration
Cause	Events(N)	(CI)	(L-Bar)
(a.1)	(a.1)	(a.2)	(a.3)
Vegetation	16,906	679,954	149
Equipment Failure	14,696	1,642,659	203
Unknown	13,678	488,400	126
Animal	10,490	206,743	74
Other Weather	8,281	289,014	108
Lightning	4,625	454,292	227
Other	3,077	397,483	141
Equipment-Connection	1,875	26,474	160
Vehicle	1,645	539,354	191
All Remaining Causes	19,286	447,324	40
System Total	94,559	5,171,697	150

Primary Causes of Outage Events. Distribution Report for FPSC.

FPL		Year	2001
	Number	Number of Customers	Average
	of Outage	without power	Duration
Cause	Events(N)	(CI)	(L-Bar)
(a.1)	(a.1)	(a.2)	(a.3)
Equipment Failure	25,989	1,645,098	199
Vegetation	13,408	641,304	159
Unknown	12,500	365,741	128
Animal	8,753	155,121	74
Other Weather	8,586	280,933	109
Lightning	5,008	432,933	229
Other	2,993	260,080	140
Equipment-Connection	1,712	25,954	161
Vehicle	1,569	454,501	202
All Remaining Causes	7,355	472,980	120
System Total	87,873	4,734,645	154

Primary Causes of Outage Events. Distribution Report for FPSC.

FPL		Year	2000
	Number	Number of Customers	Average
	of Outage	without power	Duration
Cause	Events(N)	(CI)	(L-Bar)
(a.1)	(a.1)	(a.2)	(a.3)
Equipment Failure	25,772	1,516,035	196
Vegetation	12,274	537,434	149
Unknown	13,233	438,251	123
Animal	9,480	179,734	74
Other Weather	7,536	285,194	112
Lightning	5,105	470,783	235
Other	3,008	243,127	141
Equipment-Connection	1,749	38,693	154
Vehicle	1,553	429,439	196
All Remaining Causes	5,953	457,281	122
System Total	85,663	4,595,971	152

Primary Causes of Outage Events. Distribution Report for FPSC.			
FPL		Year	1999
	Number	Number of Customers	Average
	of Outage	without power	Duration
Cause	Events(N)	(CI)	(L-Bar)
(a.1)	(a.1)	(a.2)	(a.3)
Equipment Failure	24,243	1,497,381	190
Vegetation	12,301	580,015	140
Unknown	16,003	579,385	125
Animal	9,678	170,423	71
Other Weather	8,099	376,281	104
Lightning	4,580	512,669	214
Other	3,013	213,146	112
Equipment-Connection	1,428	26,230	136
Vehicle	1,474	344,952	182
All Remaining Causes	5,787	355,969	125
System Total	86,606	4,656,451	143

Primary Causes of Outage Events. Distribution Report for FPSC.			
FPL		Year	1998
	Number	Number of Customers	Average
	of Outage	without power	Duration
Cause	Events(N)	(CI)	(L-Bar)
(a.1)	(a.1)	(a.2)	(a.3)
Equipment Failure	23,915	1,756,405	185
Vegetation	12,165	563,293	149
Unknown	24,150	938,664	147
Animal	7,910	162,840	75
Other Weather	8,502	505,621	121
Lightning	4,542	678,699	248
Other	2,338	260,323	107
Equipment-Connection	1,398	20,581	126

Vehicle	1,259	280,241	226
All Remaining Causes	3,958	477,612	132
System Total	90,137	5,644,279	153

Primary Causes of Outage Events. Distribution Report for FPSC.			
FPL		Year	1997
	Number	Number of Customers	Average
	of Outage	without power	Duration
Cause	Events(N)	(CI)	(L-Bar)
(a.1)	(a.1)	(a.2)	(a.3)
Equipment Failure	23,217	2,115,144	209
Vegetation	11,969	696,012	158
Unknown	29,357	1,024,317	155
Animal	9,032	200,067	81
Other Weather	10,028	533,015	135
Lightning	5,083	617,522	262
Other	1,279	228,315	114
Equipment-Connection	1,164	23,323	143
Vehicle	1,199	316,024	211
All Remaining Causes	2,952	257,254	139
System Total	95,280	6,010,993	165

Primary Causes of Outage Events. Distribution Report for FPSC.			
FPL		Year	1996
	Number	Number of Customers	Average
	of Outage	without power	Duration
Cause	Events(N)	(CI)	(L-Bar)
(a.1)	(a.1)	(a.2)	(a.3)
Equipment Failure	23,000	2,110,398	206
Vegetation	11,027	570,303	157
Unknown	28,348	1,118,849	158
Animal	7,272	123,288	80
Other Weather	6,799	312,916	129
Lightning	3,947	366,495	258
Other	1,730	253,624	143
Equipment-Connection	1,155	21,295	154
Vehicle	1,187	344,977	205
All Remaining Causes	3,359	323,184	144
System Total	87,824	5,545,329	166

a. (4) Restoration Costs

2005	$101.2M
2004	$87.8M
2003	$105.9M
2002	$95.9M
2001	$86.7M
2000	$79.9M
1999	$86.2M
1998	$86.5M

1997	Not Available
1996	Not Available

[redacted]

b. (1-3) Major Storms Table for the most recent 10- year period (1996-2005):

[illegible]	[illegible]	[illegible]	[illegible]
1996	TS Josephine	Not Available	2
1998	TS Earl	30K	2
1998	Hurricane George	192K	3
1998	TS Mitch	216K	3
1999	Hurricane Floyd	182K	5
1999	TS Harvey	33K	1
1999	Hurricane Irene	1.7 Million	7
2000	Hurricane Gordon	141K	2
2001	TS Barry	51K	2
2001	TS Gabrielle	812K	7
2001	TS Michelle	48K	2
2002	TS Edouard	4K	1
2003	TS Henri	56K	2
2004	Hurricane Charley	900K	16
2004	Hurricane Frances	2.8 Million	16
2004	Hurricane Jeanne	1.7 Million	17
2005	TS Arlene	52K	3
2005	Hurricane Dennis	509K	4
2005	Hurricane Katrina	1.5 Million	11
2005	Hurricane Rita	140K	3
2005	Hurricane Wilma	3.2 Million	22

The duration of outages is number of days from the first customer interrupted to the last customer restored.

b.(4) Restoration Costs

1998 Georges	$12.3M
1999 Floyd	$21.0M
1999 Harvey	$2.5M
1999 Irene	$61.1M
2001Gabrielle	$30.6M
2004 Charley/Francis/Jeanne	$877.8M
2005 Dennis/Katrina/Rita/Wilma	$853.2M

Notes:

(1) FPL maintains only those storm costs charged to FPL's Storm and Property Damage Reserve

(2) Amounts are net of insurance recoveries, 3rd party reimbursements and include amounts charged to capital

(3) Amounts include costs determined by FPSC to be charged to normal operating costs

Q.
What are FPL's underground construction standards for different types of lines? For example, what type cable; is it in conduit; is it encased? What, if any, other applicable standards exist?

A.

The Power Systems Distribution Construction Standards, December 2005 edition, contains the current standards of distribution construction for FPL . See FPL's response to the Towns' First Request for Production of Documents, No. 17. The second page from the front cover indicates the different sections within the book. The standard cables used at the present time are Aluminum, 25 KV insulation, 3-1/c XPE (crosslinked polyethelene); 1000 KCMIL for feeders (main circuits) and 1/0 for laterals (branch circuits). All cables installed are in conduit, direct buried in earth, and it is not encased in concrete.

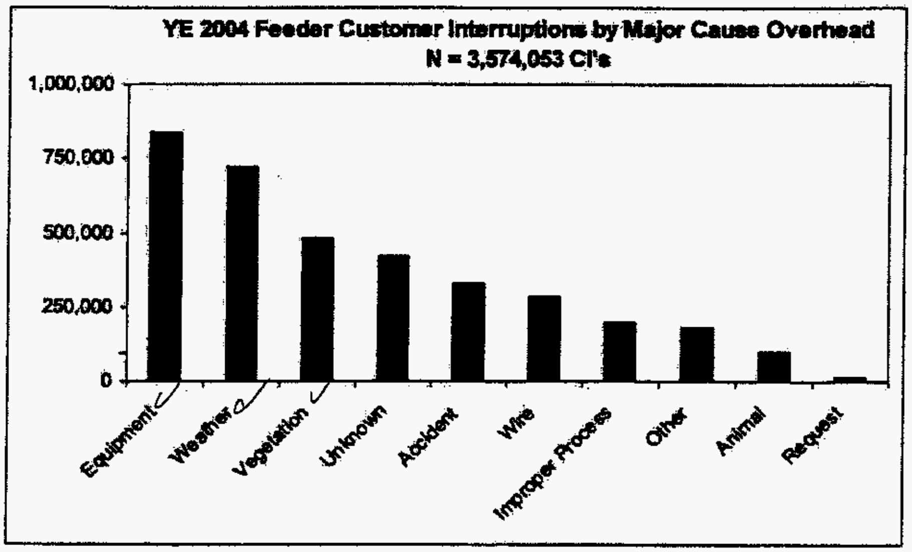
There are no other applicable standards.

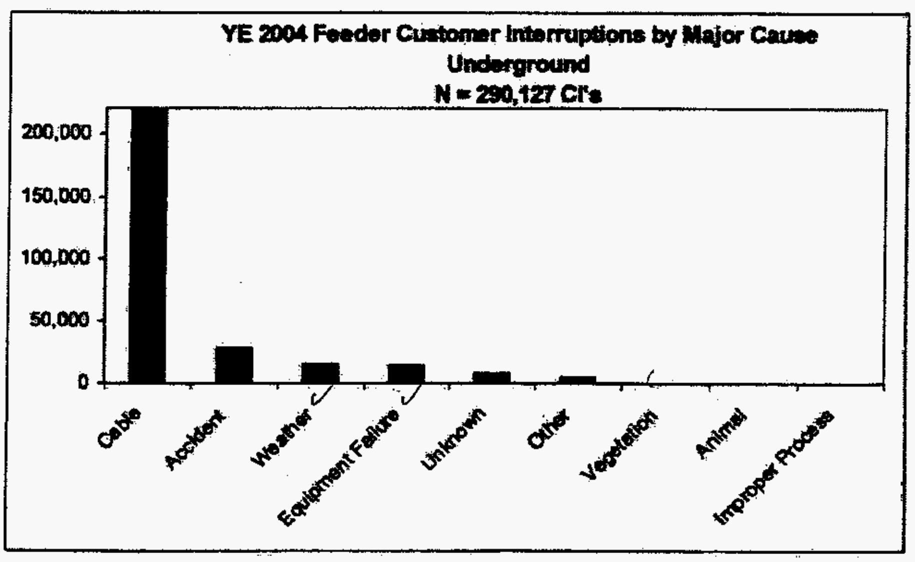
Florida Power & Light Company
Towns' Second Set of Interrogatories
Request No. 52
Page 1 of 1

Q.

With reference to page 3 of the 2005 Thermovision Review, for each Major Cause shown in the graph on this page, please identify the number of Feeder Customer Interruptions that were experienced due to the respective cause's impact on OH and on UG facilities.

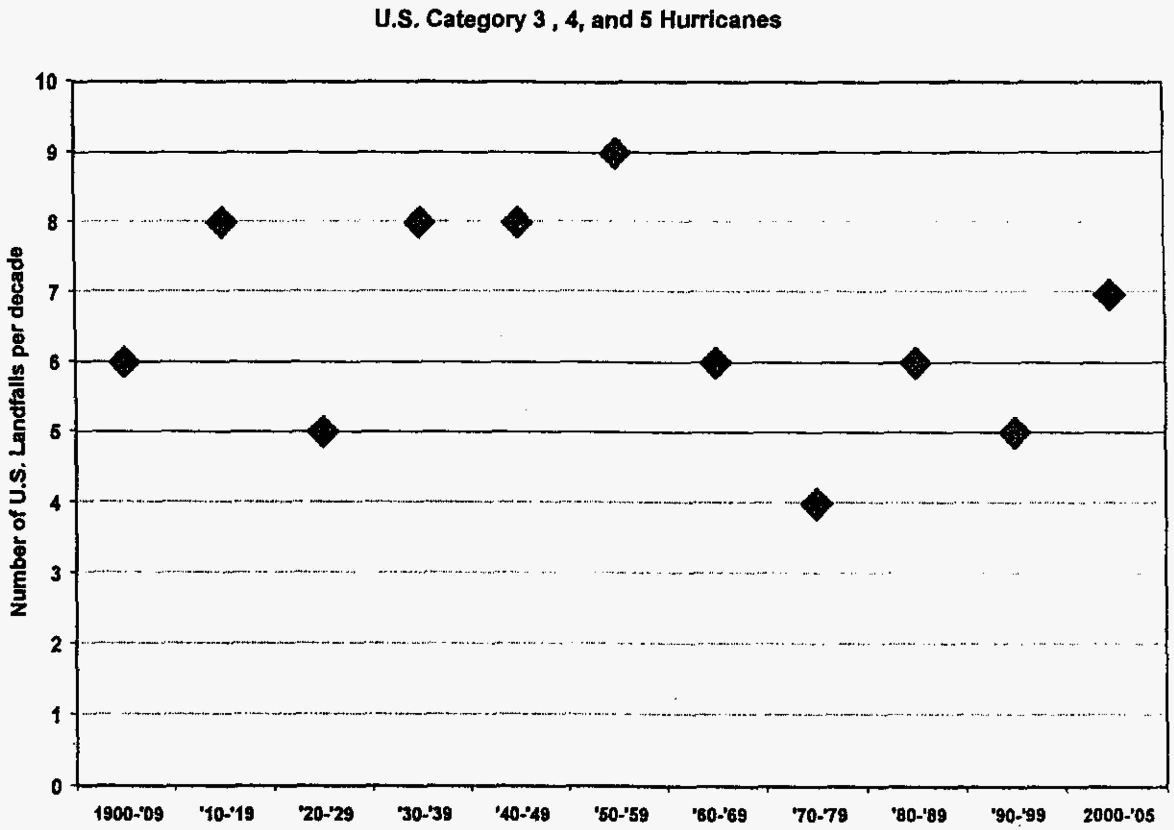
A.





Partial Response to Request No. 44

Plan For Heightened Hurricane Activity
Hurricane Cycles

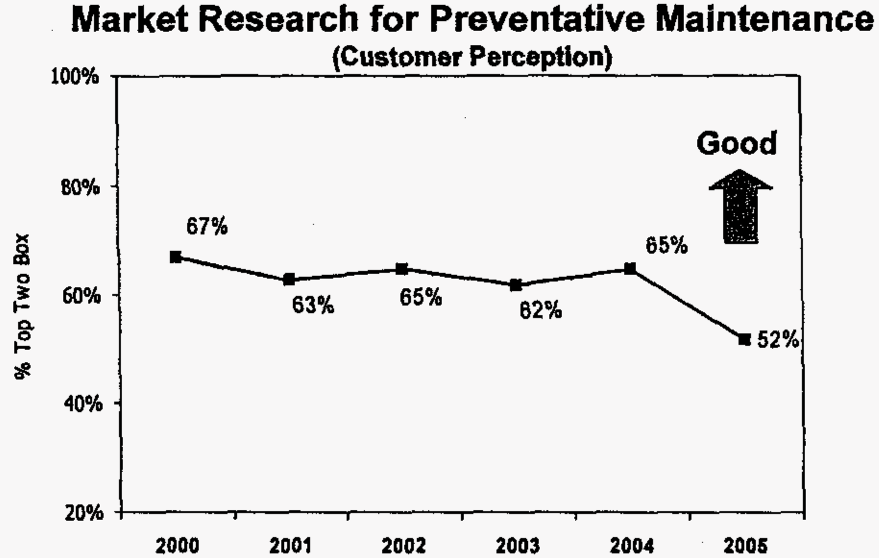


SOURCE: Dr. Jay Apt, Carnegie Mellon University

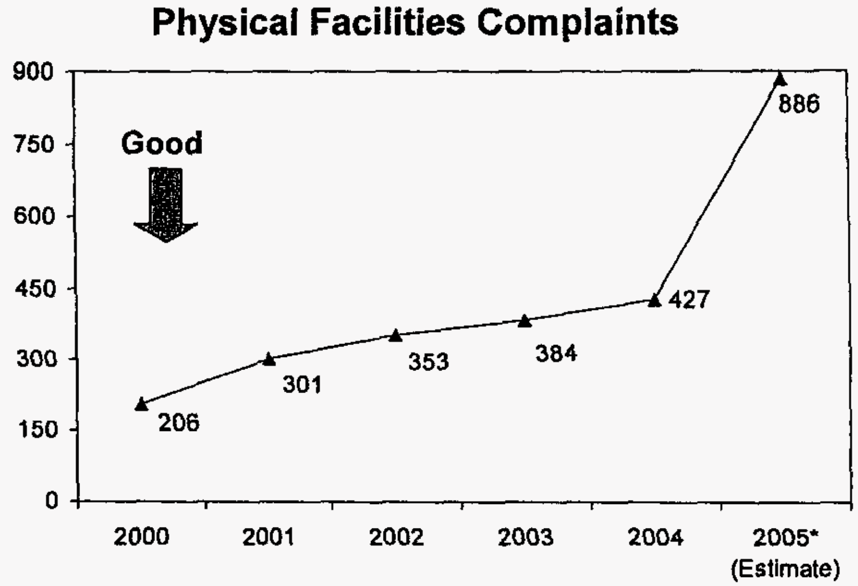
"We believe this heightened period of hurricane activity will continue due to multi-decadal variance...The current period of heightened activity could last another 10-20 years." – Max Mayfield, Director Tropical Prediction Center, Senate Subcommittee Oversight Hearing Testimony, September 20, 2005.

Plan For Heightened Hurricane Activity

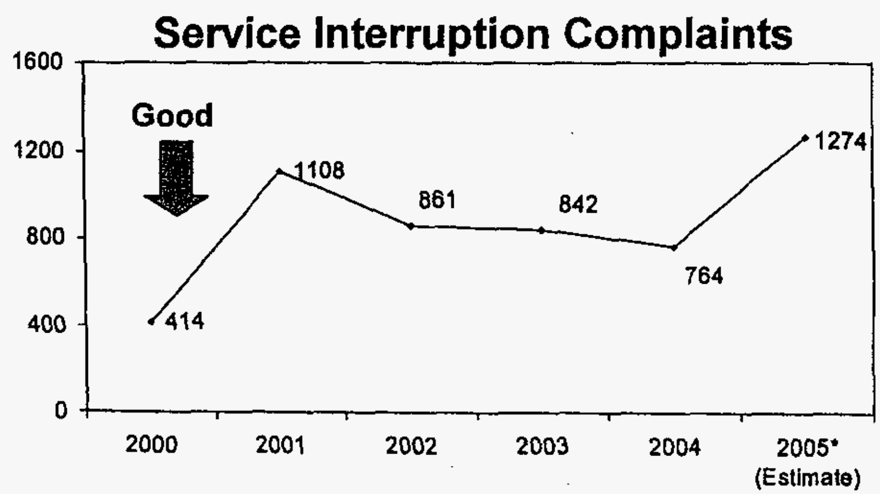
Increased Customer Dissatisfaction



Source: 2000-2004 Residential Loyalty, 2005: Indicator Study, 2000-2003 included both spring and fall waves, 2004-2005 only included spring waves



- Customer perception of preventative maintenance has had a dramatic decline since the 2004 hurricane season
- In the Hurricane Dennis post-storm survey, *Keeping Trees Trimmed* was the worst rated preventative maintenance attribute
- Customers believe that their outages during category 1 and tropical storms are directly related to a lack of line clearing
- In 2005, physical facilities and service interruption complaints increasing significantly



Docket No. 060150-EI
FPL Response - Towns Discovery
FPL 01111

Docket Nos. 080244-EI & 070231-EI
PowerServices 2006 UG Study
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APPENDIX E

FPL FERC FORM NO. 1
DATED 2005/Q4 (EXCERPTS)

Name of Respondent	This Report Is:	Date of Report (Mo, Da, Yr)	Year/Period of Report
Florida Power & Light Company	(1) [X] An Original (2) [ ] A Resubmission	/ /	End of 2005/Q4

ELECTRIC OPERATING REVENUES (Account 400)

1. The following instructions generally apply to the annual version of these pages. Do not report quarterly data in columns (c), (e), (f), and (g). Unbilled revenues and MWH related to unbilled revenues need not be reported separately as required in the annual version of these pages.
2. Report below operating revenues for each prescribed account, and manufactured gas revenues in total.
3. Report number of customers, columns (f) and (g), on the basis of meters, in addition to the number of flat rate accounts; except that where separate meter readings are added for billing purposes, one customer should be counted for each group of meters added. The -average number of customers means the average of twelve figures at the close of each month.
4. If increases or decreases from previous period (columns (c),(e), and (g)), are not derived from previously reported figures, explain any inconsistencies in a footnote.

Line No.	Title of Account (a)	Operating Revenues Year to Date Quarterly/Annual (b)	Operating Revenues Previous year (no Quarterly) (c)
1	Sales of Electricity		
2	(440) Residential Sales	5,222,943,013	4,755,319,423
3	(442) Commercial and Industrial Sales		
4	Small (or Comm.) (See Instr. 4)	3,566,226,680	3,265,390,614
5	Large (or Ind.) (See Instr. 4)	264,170,187	250,922,909
6	(444) Public Street and Highway Lighting	63,077,411	58,284,323
7	(445) Other Sales to Public Authorities	4,095,482	4,512,703
8	(446) Sales to Railroads and Railways	7,664,912	7,051,418
9	(448) Interdepartmental Sales		
10	TOTAL Sales to Ultimate Consumers	9,128,177,685	8,341,481,390
11	(447) Sales for Resale	206,593,202	194,030,555
12	TOTAL Sales of Electricity	9,334,770,887	8,535,511,945
13	(Less) (449.1) Provision for Rate Refunds	-7,412,993	-176,466
14	TOTAL Revenues Net of Prov. for Refunds	9,342,183,880	8,535,688,411
15	Other Operating Revenues		
16	(450) Forfeited Discounts	16,169,501	15,469,299
17	(451) Miscellaneous Service Revenues	28,418,901	28,836,315
18	(453) Sales of Water and Water Power		
19	(454) Rent from Electric Property	29,698,830	32,125,701
20	(455) Interdepartmental Rents		
21	(456) Other Electric Revenues	31,110,789	70,315,371
22			
23			
24			
25			
26	TOTAL Other Operating Revenues	105,398,021	146,746,686
27	TOTAL Electric Operating Revenues	9,447,581,901	8,682,435,097

Name of Respondent	This Report Is:	Date of Report (Mo, Da, Yr)	Year/Period of Report
Florida Power & Light Company	(1) [X] An Original (2) [ ] A Resubmission	/ /	End of 2005/Q4

ELECTRIC OPERATING REVENUES (Account 400)

5. Commercial and Industrial Sales, Account 442, may be classified according to the basis of classification (Small or Commercial, and Large or Industrial) regularly used by the respondent if such basis of classification is not generally greater than 1000 Kw of demand. (See Account 442 of the Uniform System of Accounts. Explain basis of classification in a footnote.)
6. See pages 108-109, Important Changes During Period, for important new territory added and important rate increase or decreases.
7. For Lines 2,4,5,and 6, see Page 304 for amounts relating to unbilled revenue by accounts.
8. Include unmetered sales. Provide details of such Sales in a footnote.

MEGAWATT HOURS SOLD		AVG.NO. CUSTOMERS PER MONTH		Line No.
Year to Date Quarterly/Annual (d)	Amount Previous year (no Quarterly) (e)	Current Year (no Quarterly) (f)	Previous Year (no Quarterly) (g)	
				1
54,348,188	52,502,422	3,828,375	3,744,920	2
				3
43,467,783	42,063,955	469,976	458,057	4
3,912,708	3,964,149	20,391	18,516	5
424,164	413,075	2,895	2,768	6
49,073	58,048	232	236	7
94,522	93,223	23	23	8
				9
102,296,438	99,094,872	4,321,892	4,224,520	10
3,659,653	4,481,870	4	4	11
105,956,091	103,576,742	4,321,896	4,224,524	12
				13
105,956,091	103,576,742	4,321,896	4,224,524	14

Line 12, column (b) includes $ 0 of unbilled revenues.
Line 12, column (d) includes 0 MWH relating to unbilled revenues

Name of Respondent	This Report is:	Date of Report (Mo, Da, Yr)	Year/Period of Report
Florida Power & Light Company	(1) X An Original (2) __ A Resubmission	/ /	2005/Q4

FOOTNOTE DATA

Schedule Page: 300 Line No.: 14 Column: d

Does not include the decrease in energy delivered to customers but not billed of 308,487 MWH for 2005.

Schedule Page: 300 Line No.: 14 Column: e

Does not include the increase in energy delivered to customers but not billed of 58,757 MWH for 2004.

Schedule Page: 300 Line No.: 21 Column: b

Includes ($11,442,883) net change in unbilled revenues for 2005.

Schedule Page: 300 Line No.: 21 Column: c

Includes $965,508 net change in unbilled revenues for 2004.

Name of Respondent	This Report Is:	Date of Report (Mo, Da, Yr)	Year/Period of Report
Florida Power & Light Company	(1) [X] An Original (2) [ ] A Resubmission	/ /	End of 2005/Q4

SALES OF ELECTRICITY BY RATE SCHEDULES

1. Report below for each rate schedule in effect during the year the MWH of electricity sold, revenue, average number of customer, average Kwh per customer, and average revenue per Kwh, excluding date for Sales for Resale which is reported on Pages 310-311.
2. Provide a subheading and total for each prescribed operating revenue account in the sequence followed in "Electric Operating Revenues," Page 300-301. If the sales under any rate schedule are classified in more than one revenue account, List the rate schedule and sales data under each applicable revenue account subheading.
3. Where the same customers are served under more than one rate schedule in the same revenue account classification (such as a general residential schedule and an off peak water heating schedule), the entries in column (d) for the special schedule should denote the duplication in number of reported customers.
4. The average number of customers should be the number of bills rendered during the year divided by the number of billing periods during the year (12 if all billings are made monthly).
5. For any rate schedule having a fuel adjustment clause state in a footnote the estimated additional revenue billed pursuant thereto.
6. Report amount of unbilled revenue as of end of year for each applicable revenue account subheading.

Line No.	Number and Title of Rate schedule (a)	MWh Sold (b)	Revenue (c)	Average Number of Customers (d)	KWh of Sales Per Customer (e)	Revenue Per KWh Sold (f)
1	Residential:					
2	011-012	36,730	7,008,927	4,314	8,514	0.1908
3	044, 047, 048	54,305,198	5,215,358,444	3,823,849	14,202	0.0960
4	045	6,260	575,642	212	29,528	0.0920
5	Subtotal	54,348,188	5,222,943,013	3,828,375	14,196	0.0961
6	Commercial:					
7	011-012	70,792	9,938,877	2,985	23,716	0.1404
8	054-056	2,536,816	167,638,320	371	6,837,779	0.0661
9	062	6,442,550	500,628,828	1,922	3,352,003	0.0777
10	063	611,553	46,332,229	40	15,288,825	0.0758
11	064	3,730,937	269,334,043	882	4,230,087	0.0722
12	065	893,683	64,206,678	54	16,549,685	0.0718
13	067-068	5,882,494	585,859,109	365,781	16,082	0.0996
14	069	4,550	428,242	247	18,421	0.0941
15	070	397,011	34,569,639	1,563	254,006	0.0871
16	071	13,703	1,038,695	2	6,851,500	0.0758
17	072	22,518,428	1,846,883,431	90,949	247,594	0.0820
18	073	134,298	9,882,165	33	4,069,636	0.0736
19	074	74,552	4,703,735	10	7,455,200	0.0631
20	075	60,398	4,317,710	3	20,132,667	0.0715
21	078	18	4,442	76	237	0.2468
22	085	14,957	1,389,209	4	3,739,250	0.0929
23	086	19	1,647	6	3,167	0.0867
24	087	81,017	19,061,098	5,047	16,053	0.2353
25	851-853	7	8,583	1	7,000	1.2261
26	Subtotal	43,467,783	3,566,226,680	469,976	92,489	0.0820
27	Industrial:					
28	011	601	79,114	32	18,781	0.1316
29	054	909,587	59,424,644	88	10,336,216	0.0653
30	055	1,469,623	82,791,321	16	91,851,438	0.0563
31	056	32,267	2,385,248	20	1,613,350	0.0739
32	062	232,961	18,707,383	73	3,191,247	0.0803
33	063	43,439	3,482,871	3	14,479,667	0.0802
34	064	172,082	12,347,126	29	5,933,862	0.0718
35	065	132,500	9,478,439	9	14,722,222	0.0715
36	067-068	112,355	12,323,236	18,316	6,134	0.1097
37	069	278	28,196	32	8,688	0.1014
38	070	11,997	1,157,665	77	155,805	0.0965
39	071	51,349	3,618,894	2	25,674,500	0.0705
40	072	342,215	29,971,835	1,656	206,652	0.0876
41	TOTAL Billed	0	0	0	0	0.0000
42	Total Unbilled Rev.(See Instr. 6)	0	0	0	0	0.0000
43	TOTAL	0	0	0	0	0.0000

Name of Respondent	This Report Is:	Date of Report (Mo, Da, Yr)	Year/Period of Report
Florida Power & Light Company	(1) [X] An Original (2) [ ] A Resubmission	/ /	End of 2005/Q4

SALES OF ELECTRICITY BY RATE SCHEDULES

1. Report below for each rate schedule in effect during the year the MWH of electricity sold, revenue, average number of customer, average Kwh per customer, and average revenue per Kwh, excluding date for Sales for Resale which is reported on Pages 310-311.
2. Provide a subheading and total for each prescribed operating revenue account in the sequence followed in "Electric Operating Revenues," Page 300-301. If the sales under any rate schedule are classified in more than one revenue account, List the rate schedule and sales data under each applicable revenue account subheading.
3. Where the same customers are served under more than one rate schedule in the same revenue account classification (such as a general residential schedule and an off peak water heating schedule), the entries in column (d) for the special schedule should denote the duplication in number of reported customers.
4. The average number of customers should be the number of bills rendered during the year divided by the number of billing periods during the year (12 if all billings are made monthly).
5. For any rate schedule having a fuel adjustment clause state in a footnote the estimated additional revenue billed pursuant thereto.
6. Report amount of unbilled revenue as of end of year for each applicable revenue account subheading.

Line No.	Number and Title of Rate schedule (a)	MWh Sold (b)	Revenue (c)	Average Number of Customers (d)	KWh of Sales Per Customer (e)	Revenue Per KWh Sold (f)
1	073	37,934	3,037,790	13	2,918,000	0.0801
2	074	28,929	2,005,891	5	5,785,800	0.0693
3	075	38,178	2,727,860	3	12,726,000	0.0715
4	082	16,618	1,211,503	1	16,618,000	0.0729
5	085	87,134	6,663,925	9	9,681,556	0.0765
6	090	153,080	9,745,639	3	51,026,667	0.0637
7	091	28,902	2,041,147	2	14,451,000	0.0706
8	852-853	10,679	940,460	2	5,339,500	0.0881
9	Subtotal	3,912,708	264,170,187	20,391	191,884	0.0675
10	Public Street & Highway Lighting:					
11	086	59,164	5,079,767	770	76,836	0.0859
12	087	365,000	57,997,644	2,125	171,765	0.1589
13	Subtotal	424,164	63,077,411	2,895	146,516	0.1487
14	Other Sales to Public Authorities					
15	019	18,506	2,118,769	231	80,113	0.1145
16	090	30,567	1,976,713	1	30,567,000	0.0647
17	Subtotal	49,073	4,095,482	232	211,522	0.0835
18	Railroads and Railways:					
19	080	94,522	7,664,912	23	4,109,652	0.0811
20	Subtotal	94,522	7,664,912	23	4,109,652	0.0811
21						
22						
23	Total	102,296,438	9,128,177,685	4,321,892	23,669	0.0892
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41	TOTAL Billed	0	0	0	0	0.0000
42	Total Unbilled Rev.(See Instr. 6)	0	0	0	0	0.0000
43	TOTAL	0	0	0	0	0.0000

Name of Respondent	This Report is:	Date of Report	Year/Period of Report
Florida Power & Light Company	(1) X An Original (2) _ A Resubmission	(Mo, Da, Yr) / /	2005/Q4

FOOTNOTE DATA

Schedule Page: 304 Line No.: 2 Column: d

Average Class Code 11 Users is 4,314.

Schedule Page: 304 Line No.: 7 Column: d

Average Class Code 11 Users is 2,985.

Schedule Page: 304 Line No.: 28 Column: d

Average Class Code 11 Users is 32.

Schedule Page: 304.1 Line No.: 23 Column: c

Fuel Adjustment included in Revenues: $4,144,471,929.

Schedule Page: 304 Line No.: 42 Column: b

Includes $0 of Unbilled Revenues.

Schedule Page: 304 Line No.: 42 Column: c

Includes $0 of Unbilled Revenues.

APPENDIX F

EXAMPLES OF SITE SPECIFIC DISTRIBUTION CONDITIONS TO BE ACCOUNTED FOR IN CIAC CALCULATIONS PHOTOGRAPHS

F - 1

EXAMPLES OF SITE SPECIFIC DISTRIBUTION CONDITIONS TO BE ACCOUNTED FOR IN CIAC CALCULATIONS

PAGE NUMBER	DESCRIPTION OF OBSERVATION
F - 2	Heavy vegetation; difficult access
F - 3	Difficult access; NESC clearance issues
F - 4	Heavy vegetation; difficult access, possible NESC clearance issues
F - 5	Heavy vegetation; difficult access, possible NESC clearance issues
F - 6	Difficult access; NESC clearance issues
F - 7	NESC clearance issues
F - 8	Heavy vegetation; difficult access, possible NESC clearance issues
F - 9	Heavy vegetation; difficult access, possible NESC clearance issues
F - 10	Heavy vegetation; difficult access, possible NESC clearance issues
F - 11	Heavy vegetation; difficult access
F - 12	Heavy vegetation; difficult access
F - 13	Pole is completely deteriorated and requires replacement
F - 14	NESC clearance issues

F - 2

Nos. 080244-EI & 070231-EI
ervices 2006 UG Study
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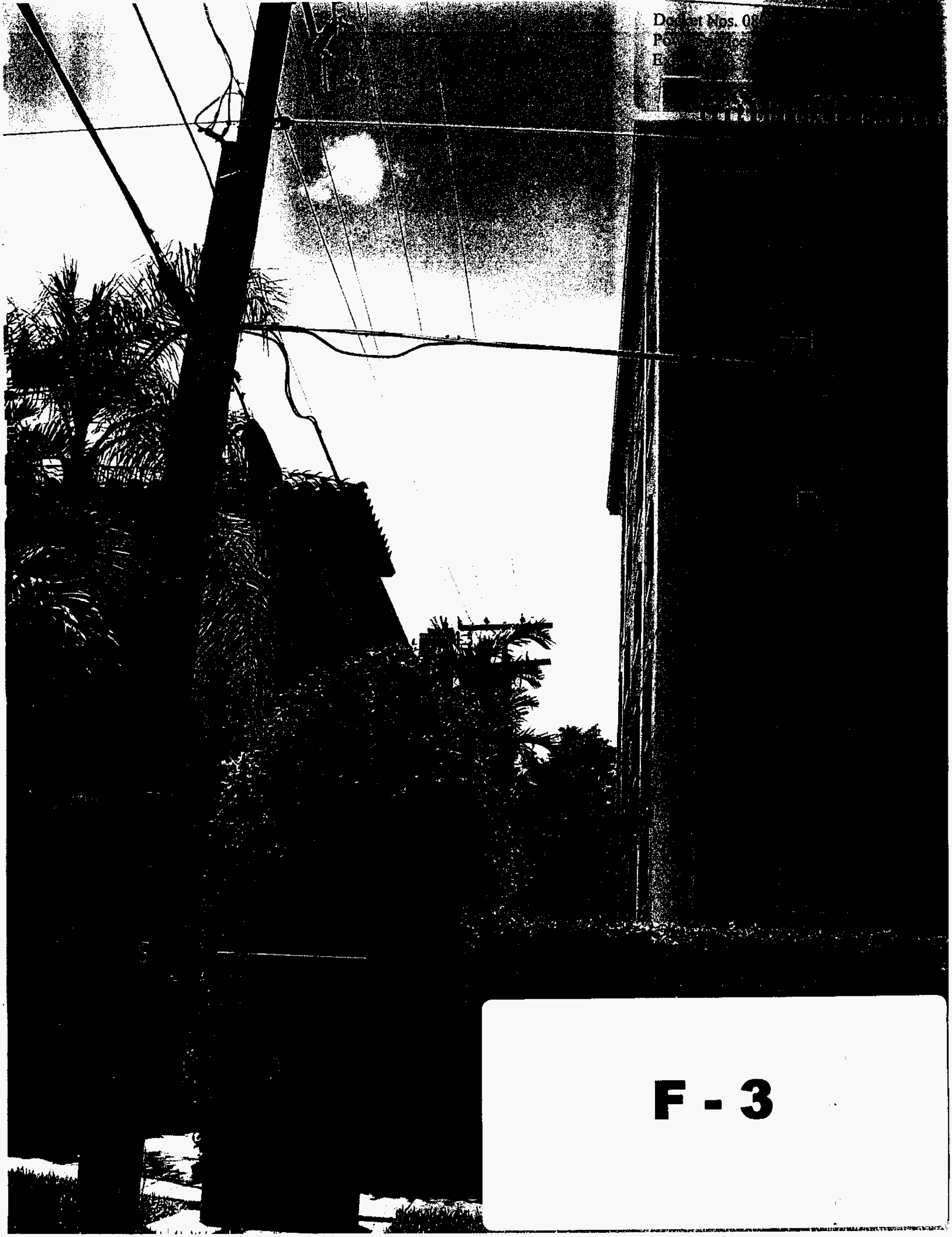
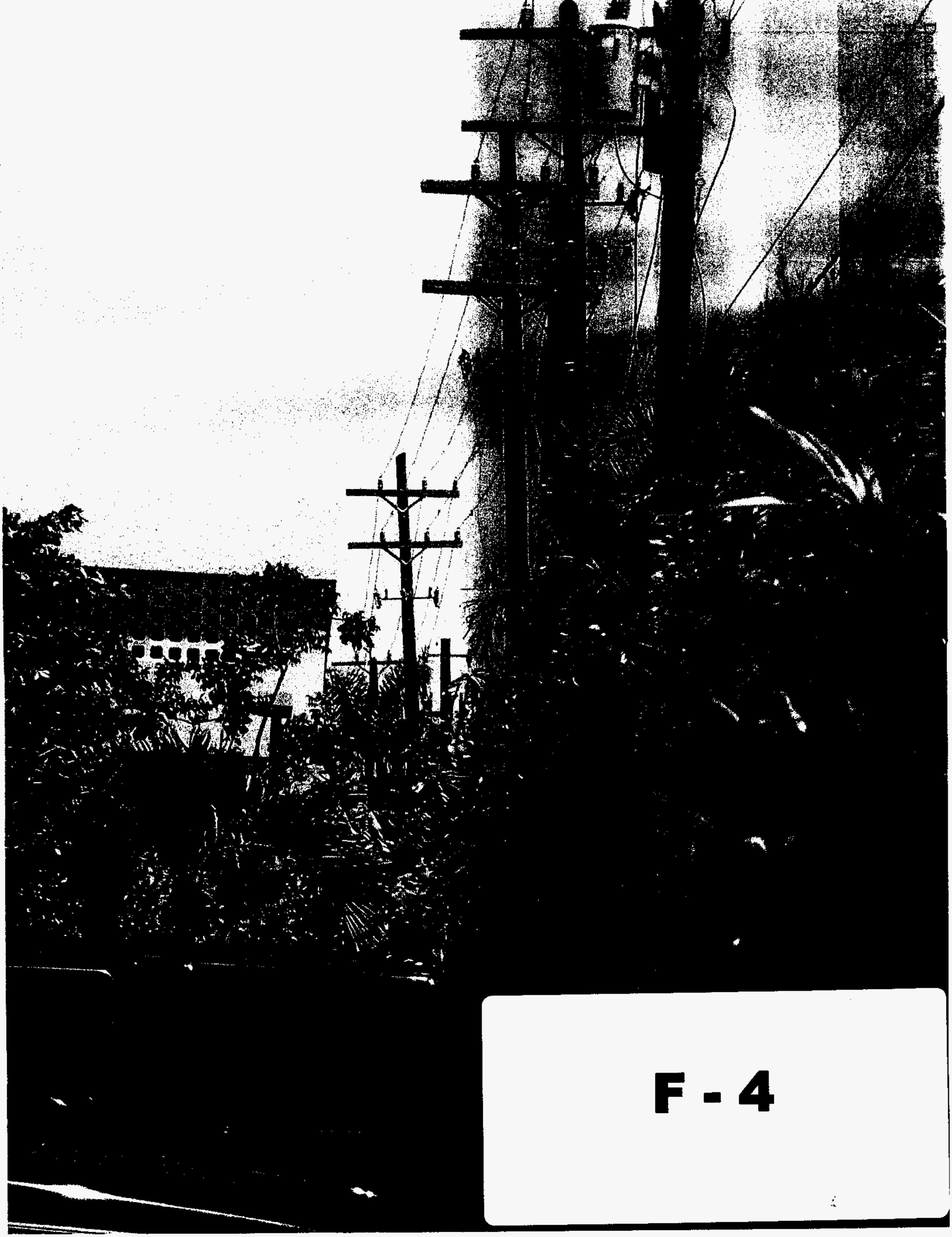
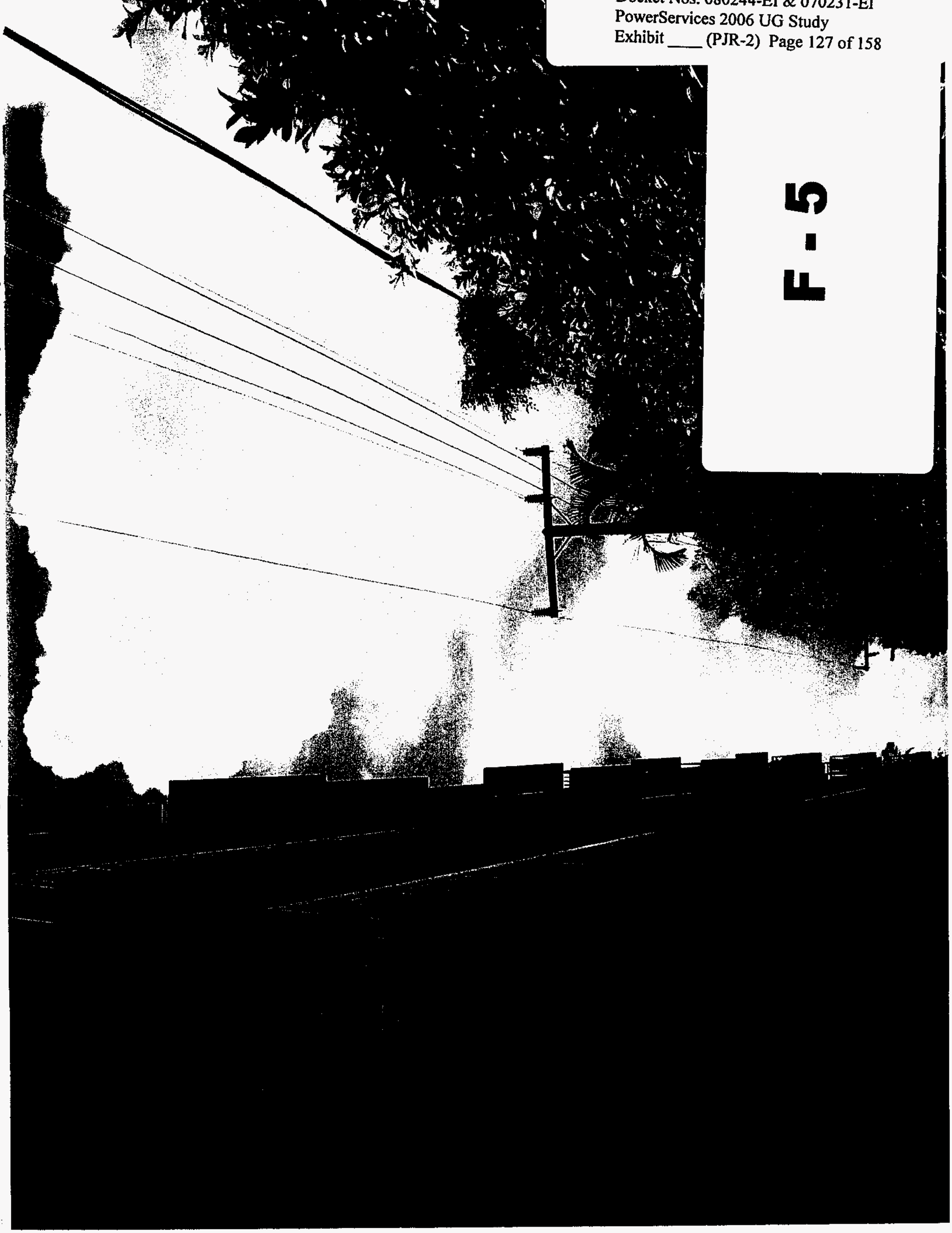

Docket Nos. 08
F - 3



F - 4



F - 5

F - 6

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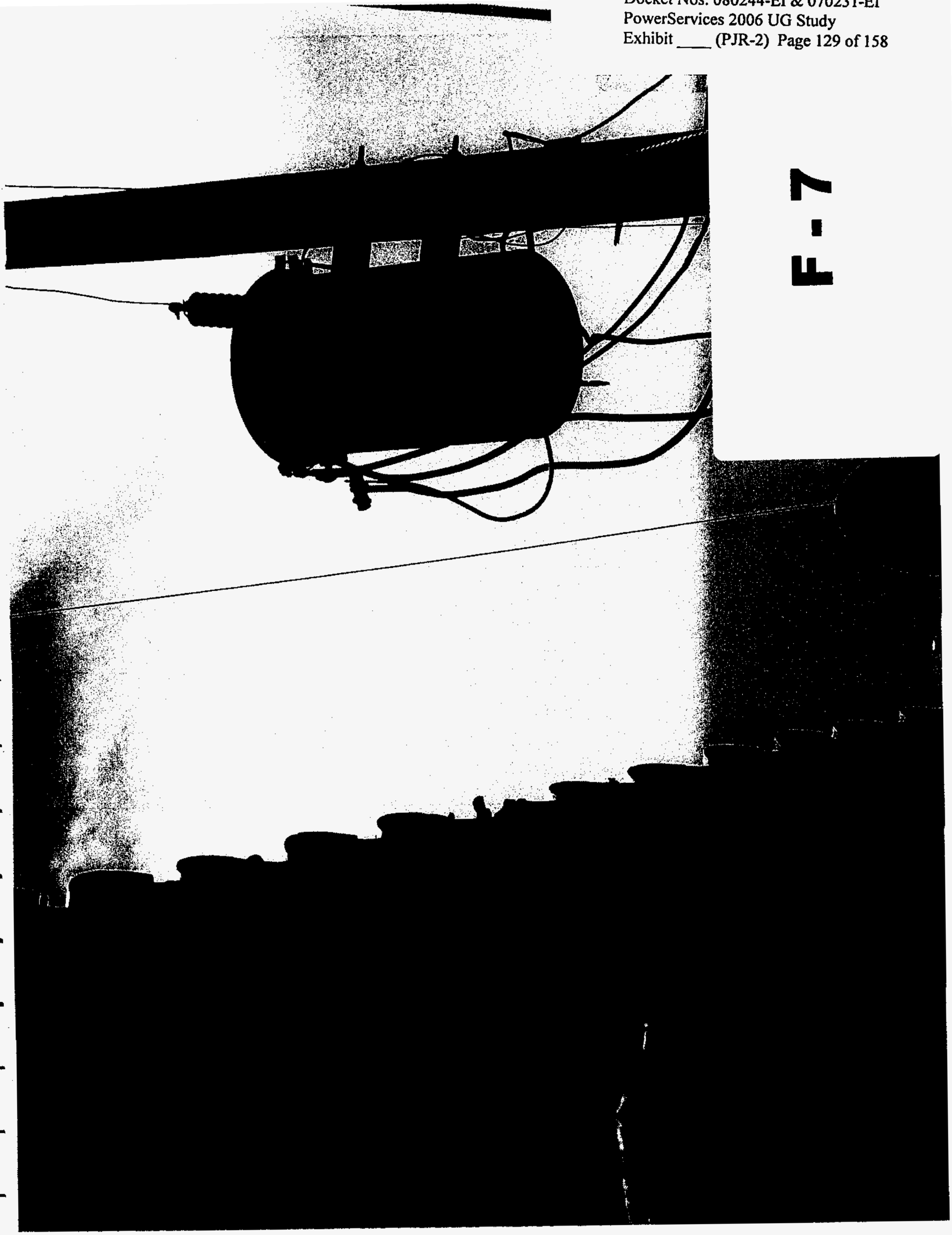

F - 7

F - 8

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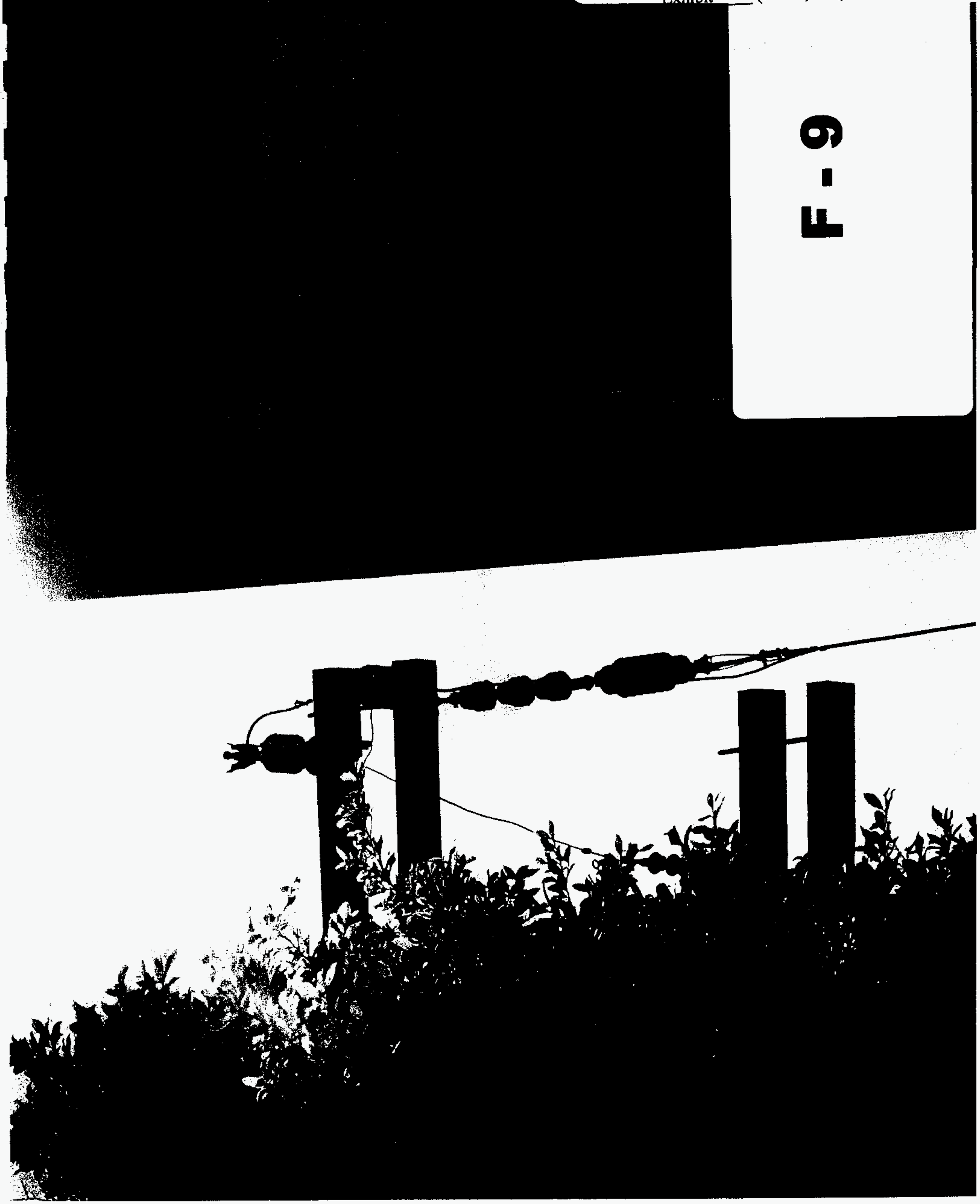
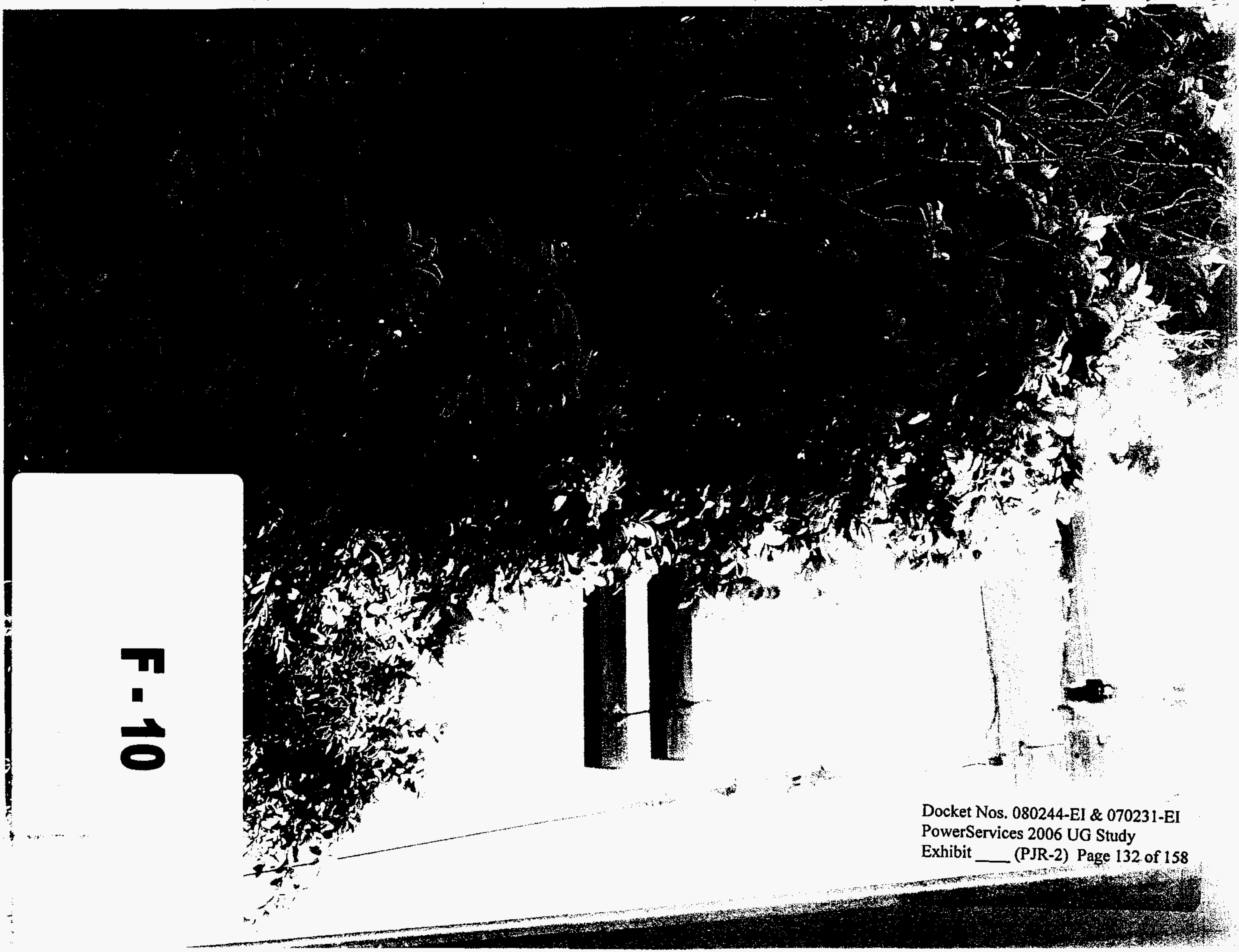

F-9



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F - 11

F - 12

F - 13

F - 14

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APPENDIX G

FATALITIES / ACCIDENTS - FPL

Table G - 1

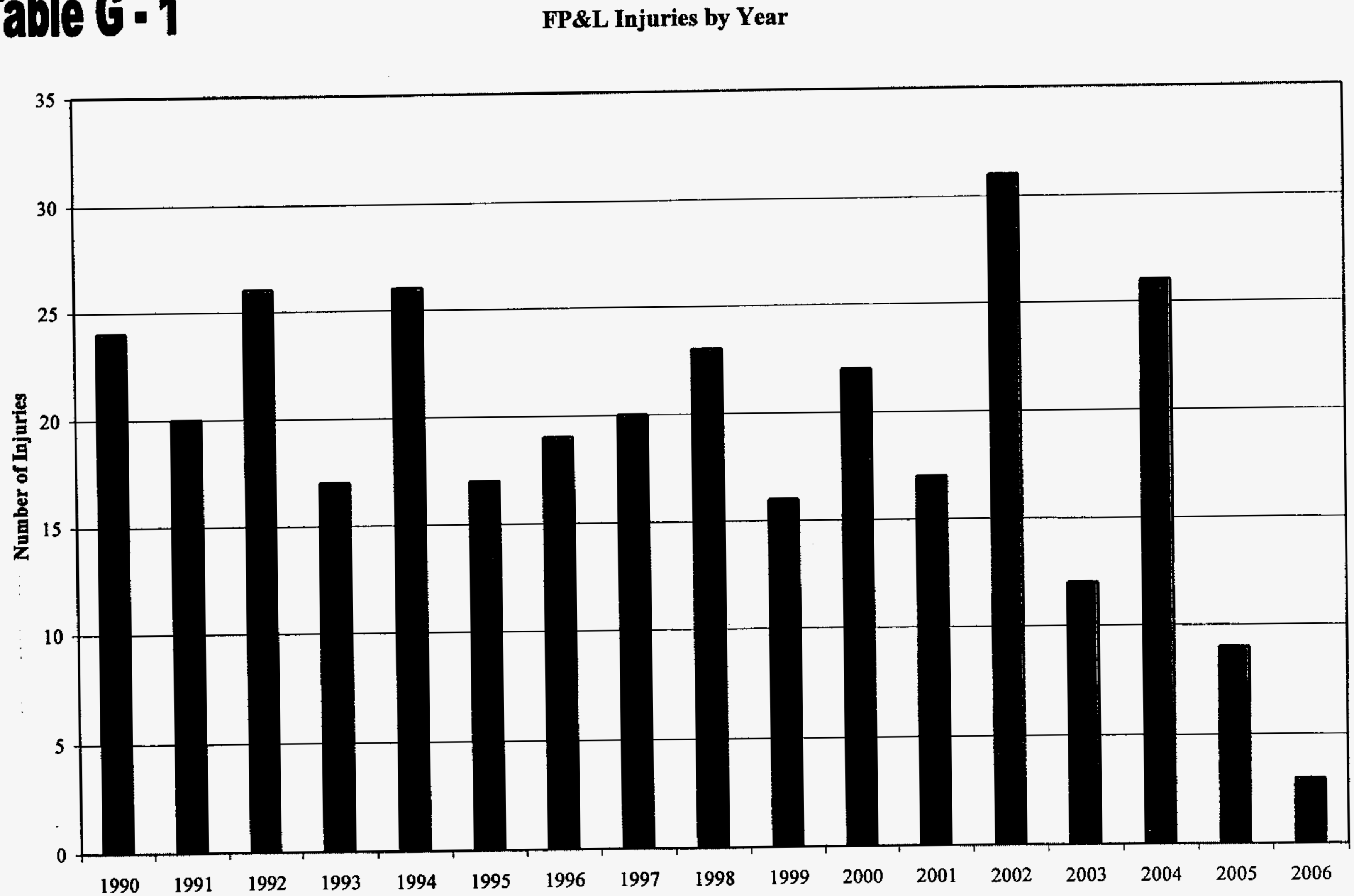
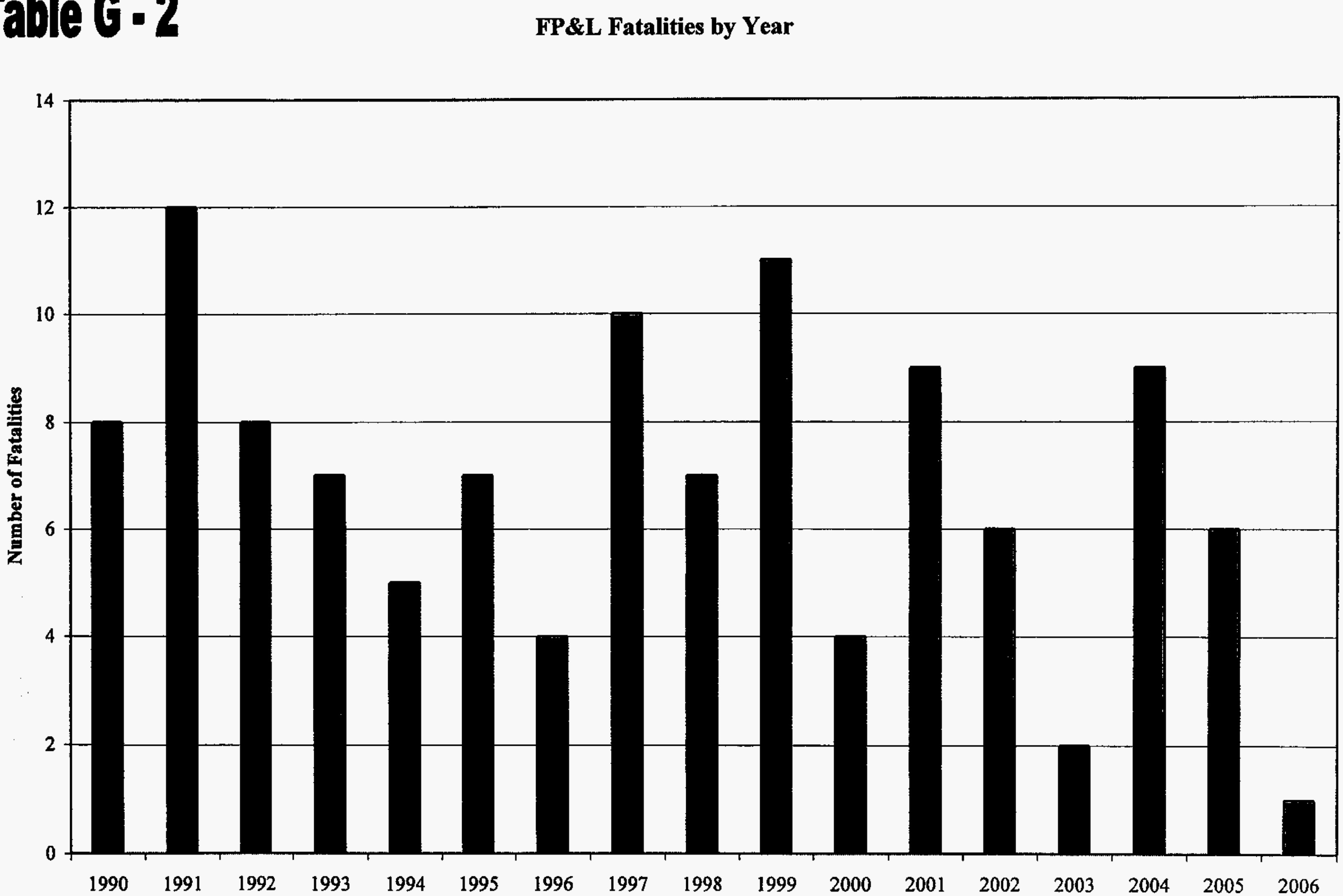
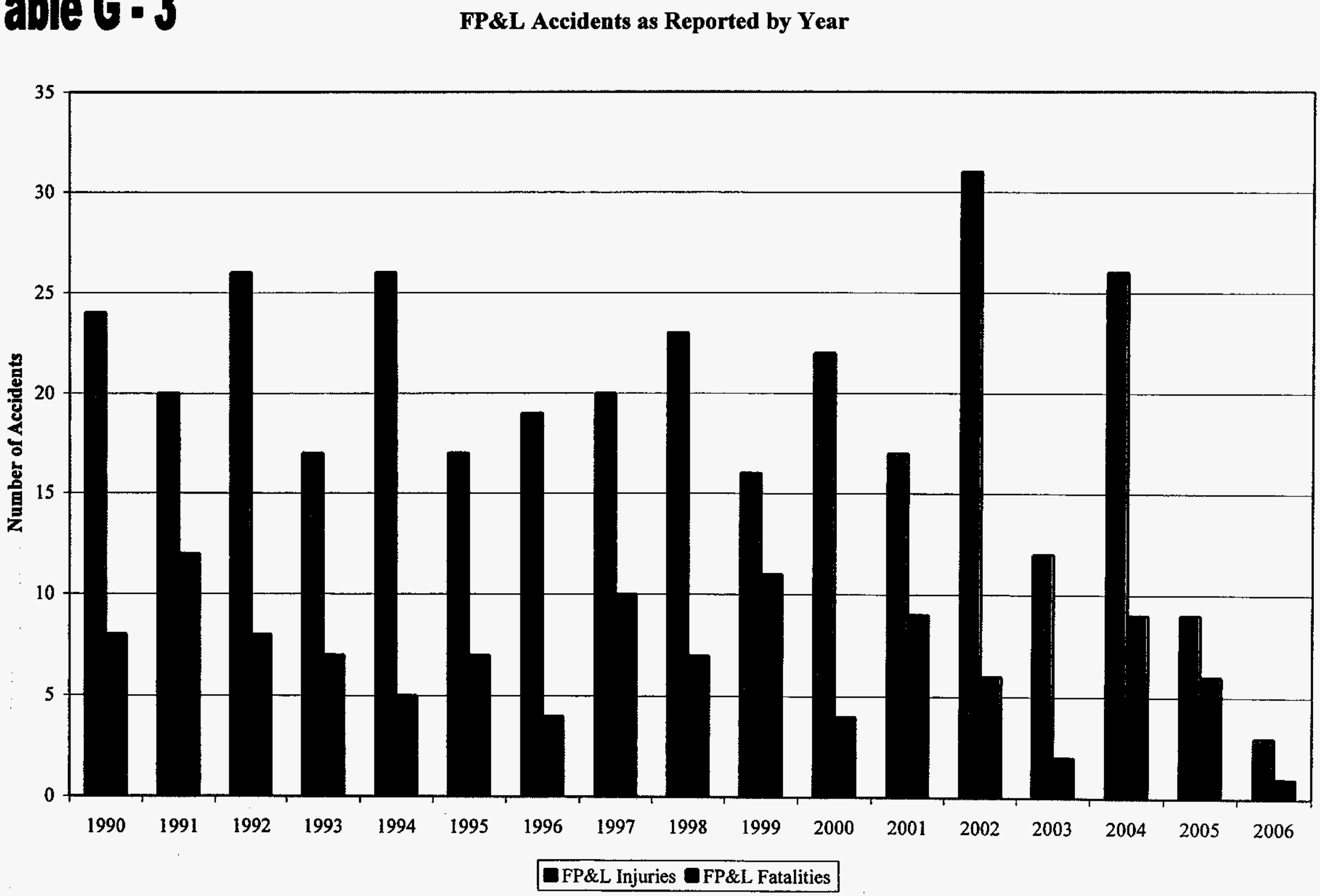

FP&L Injuries by Year
Number of Injuries
35
30
25
20
15
10
5
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006

Table G - 2



FP&L Fatalities by Year
Number of Fatalities
14
12
10
8
6
4
2
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006

Table G - 3



FP&L Accidents as Reported by Year
35
30
25
20
15
10
5
0
Number of Accidents
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
FP&L Injuries
FP&L Fatalities

APPENDIX H

REPRESENTATIVE SETTLEMENTS OR AWARDS / ACCIDENT CASES

Table H - 1

REPRESENTATIVE SETTLEMENTS OR AWARDS / ACCIDENT CASES

CASE NUMBER*	YEAR	SETTLEMENT OR AWARD AMOUNTS
1	1998	$ 2,200,000
2	2000	$ 3,500,000
3	2000	$ 3,500,000
4	2000	$ 5,000,000
5	2001	$ 3,500,000
6	2001	$ 4,000,000
7	2003	$ 5,000,000
8	2003	$ 500,000
9	2003	$ 1,200,000
10	2003	$ 20,000,000
11	2004	$ 2,000,000
12	2004	$ 2,100,000
13	2004	$ 3,500,000
14	2005	$ 1,500,000
15	2005	$ 3,100,000
16	2005	$ 6,000,000
17	2005	$ 8,000,000

* Cases in which Gregory L. Booth, PE worked as an expert.

APPENDIX I

PPI INDICES
PRESENT VALUE ANALYSIS

Table I - 1

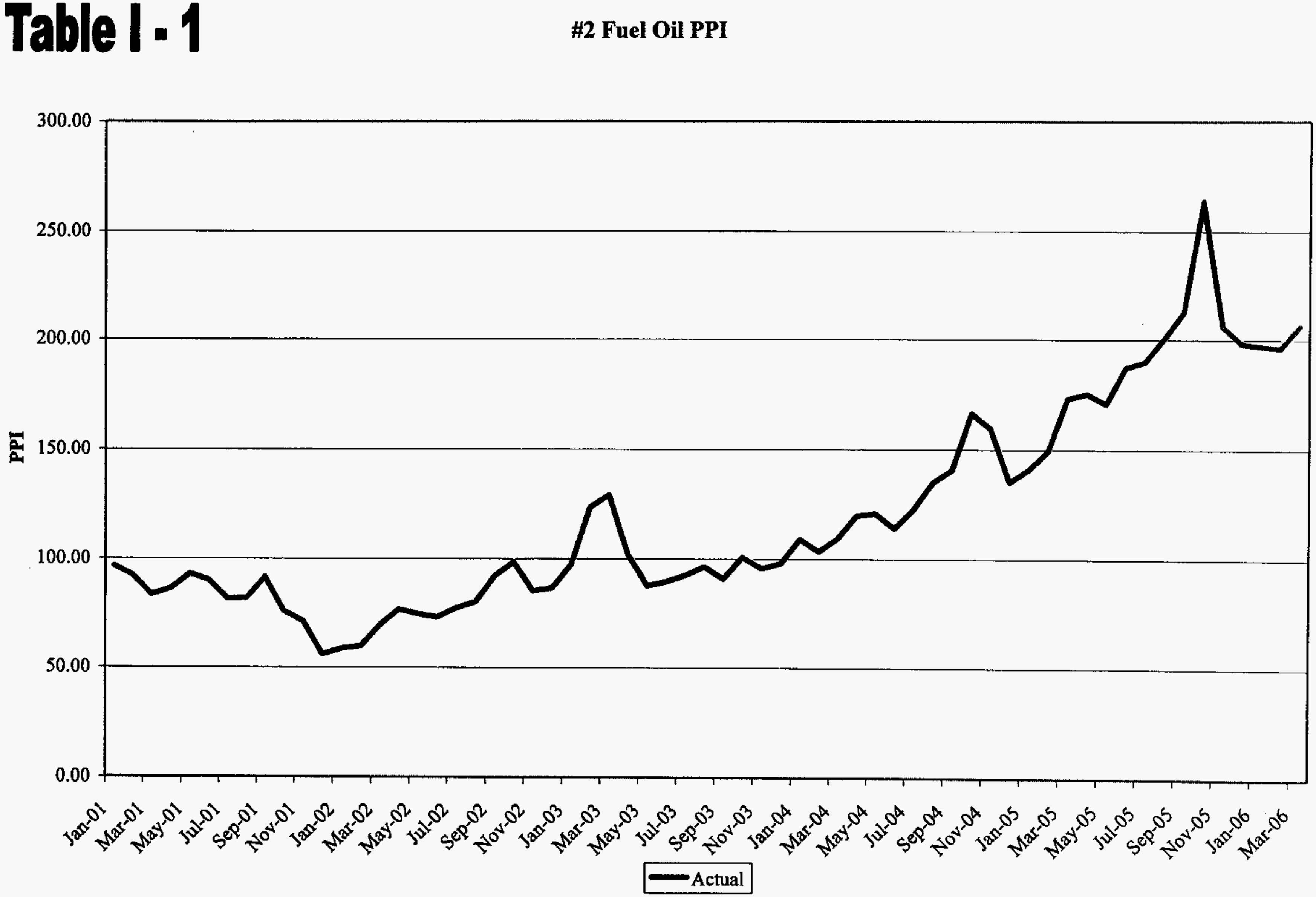
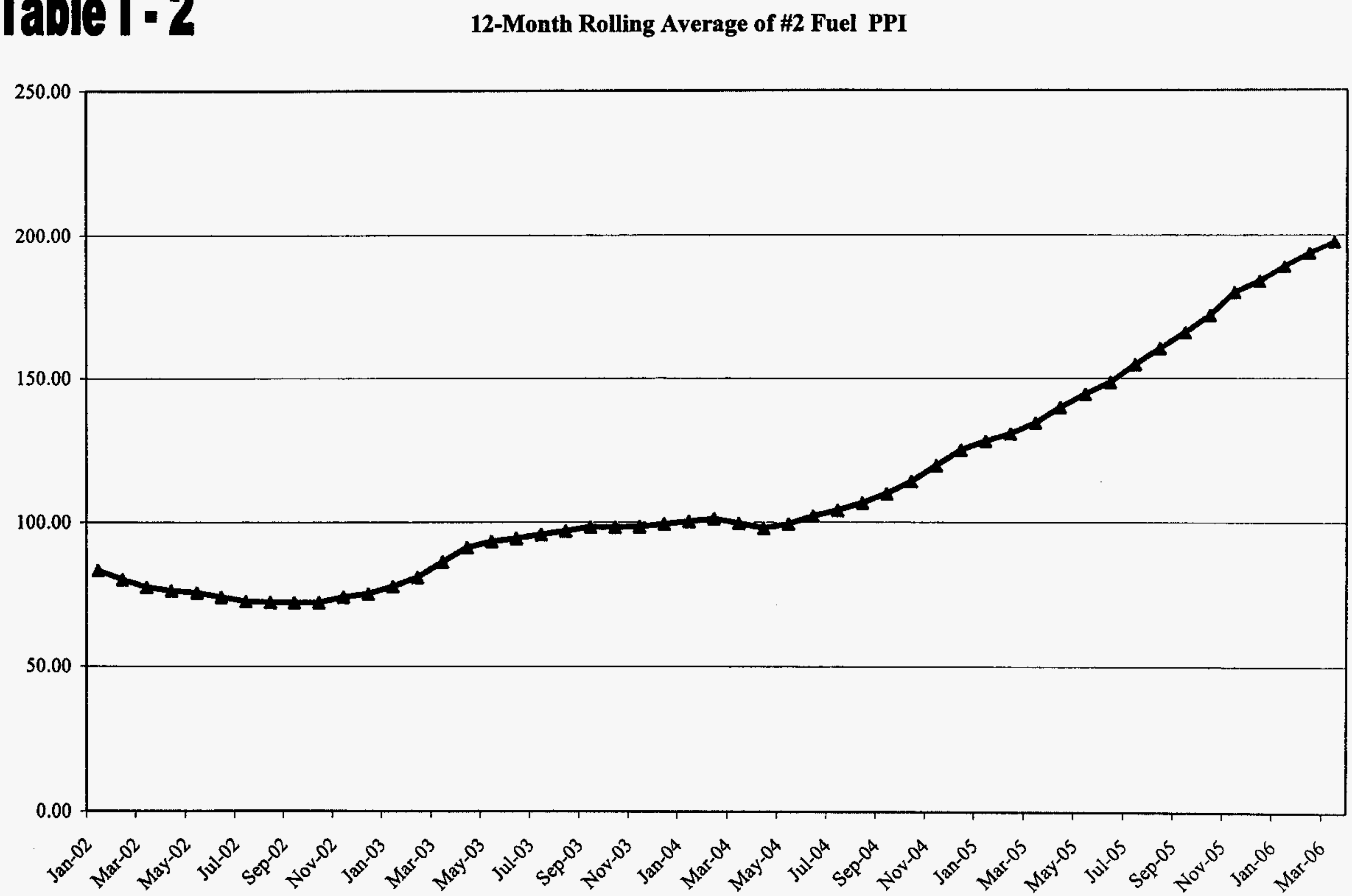

#2 Fuel Oil PPI
PPI
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Jan-01
Mar-01
May-01
Jul-01
Sep-01
Nov-01
Jan-02
Mar-02
May-02
Jul-02
Sep-02
Nov-02
Jan-03
Mar-03
May-03
Jul-03
Sep-03
Nov-03
Jan-04
Mar-04
May-04
Jul-04
Sep-04
Nov-04
Jan-05
Mar-05
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
Actual

Table I - 2



12-Month Rolling Average of #2 Fuel PPI
250.00
200.00
150.00
100.00
50.00
0.00
Jan-02
Mar-02
May-02
Jul-02
Sep-02
Nov-02
Jan-03
Mar-03
May-03
Jul-03
Sep-03
Nov-03
Jan-04
Mar-04
May-04
Jul-04
Sep-04
Nov-04
Jan-05
Mar-05
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06

Table I - 3

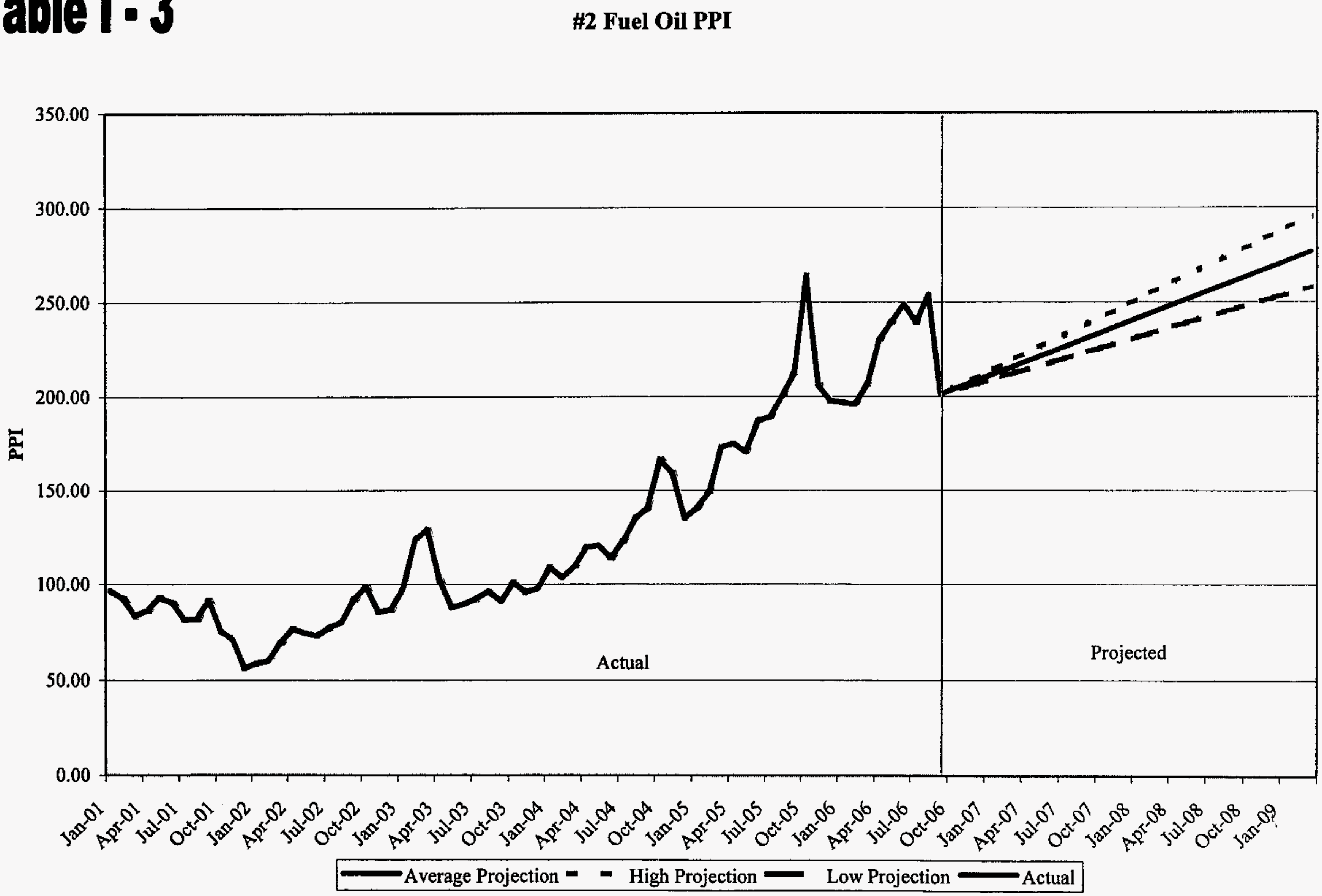


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Table I - 4

General Price Indices

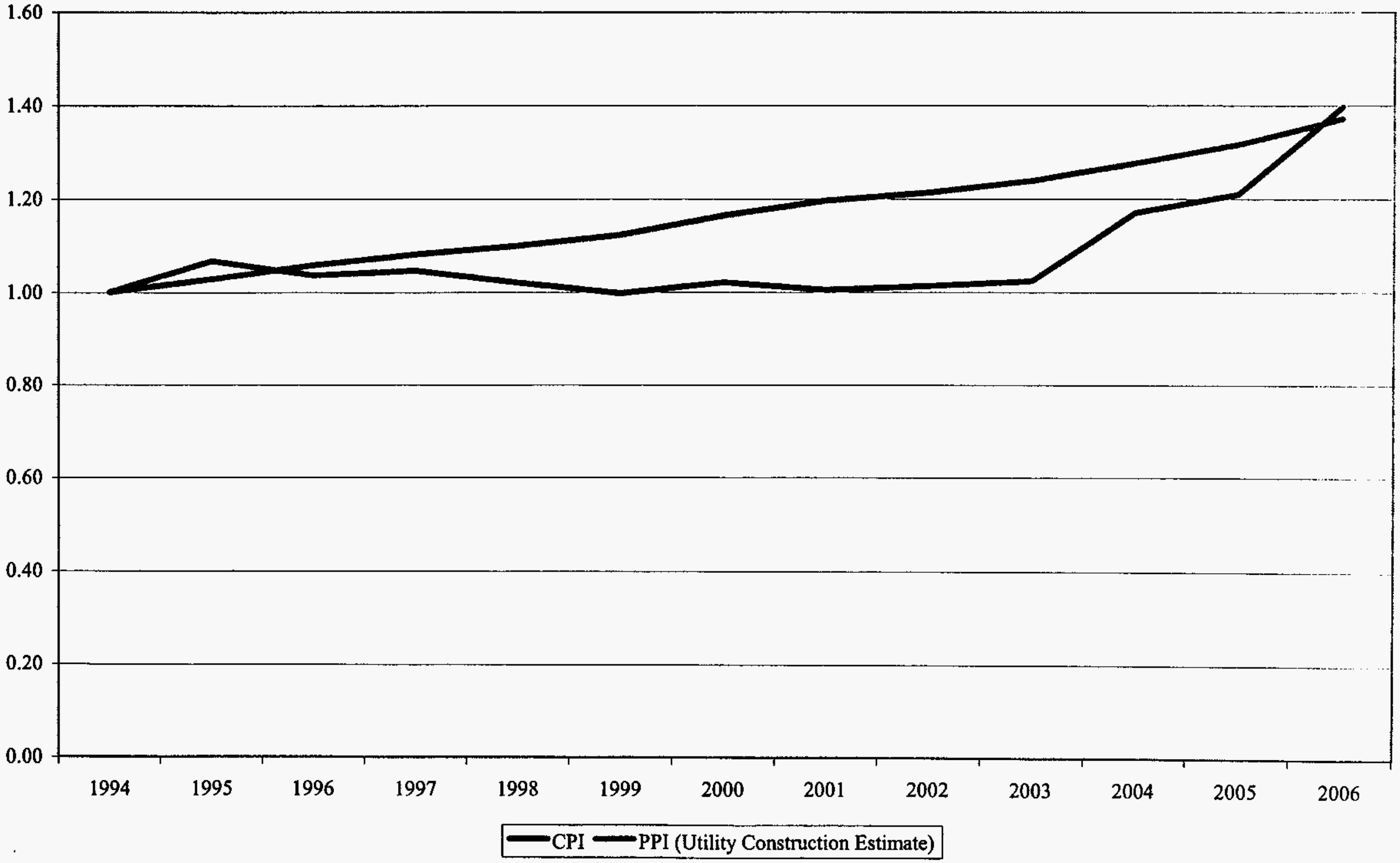

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Table I - 5

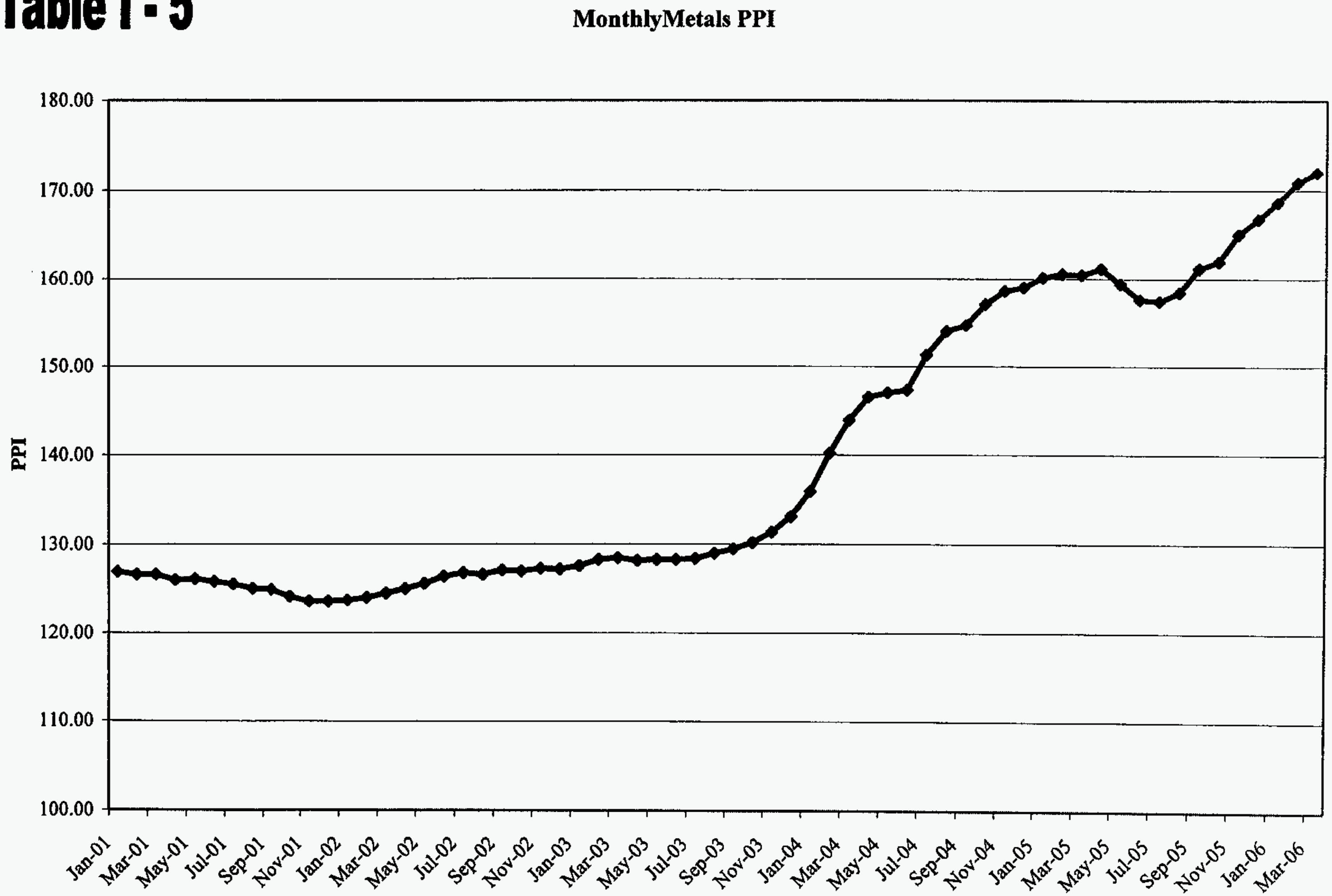

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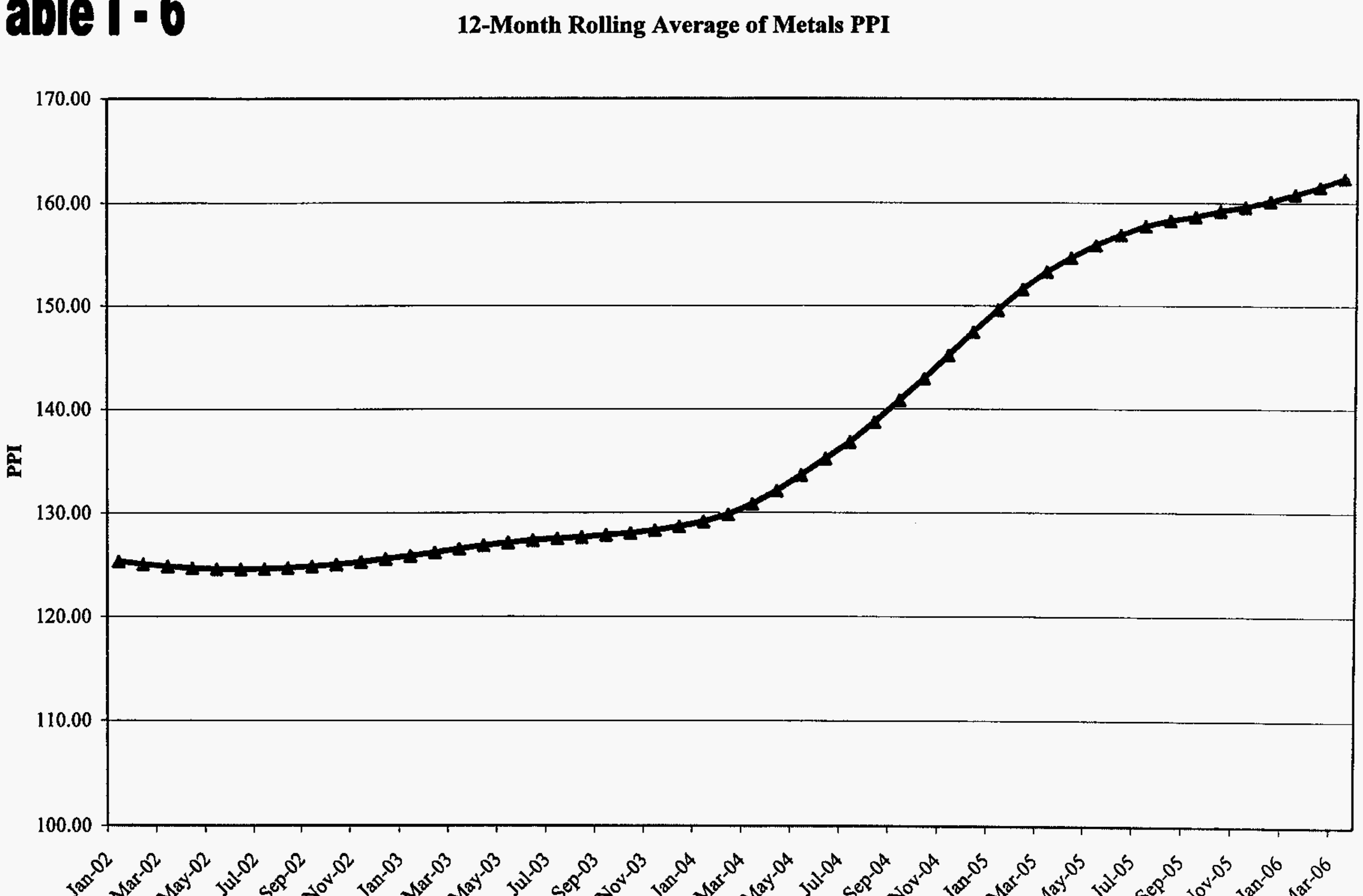
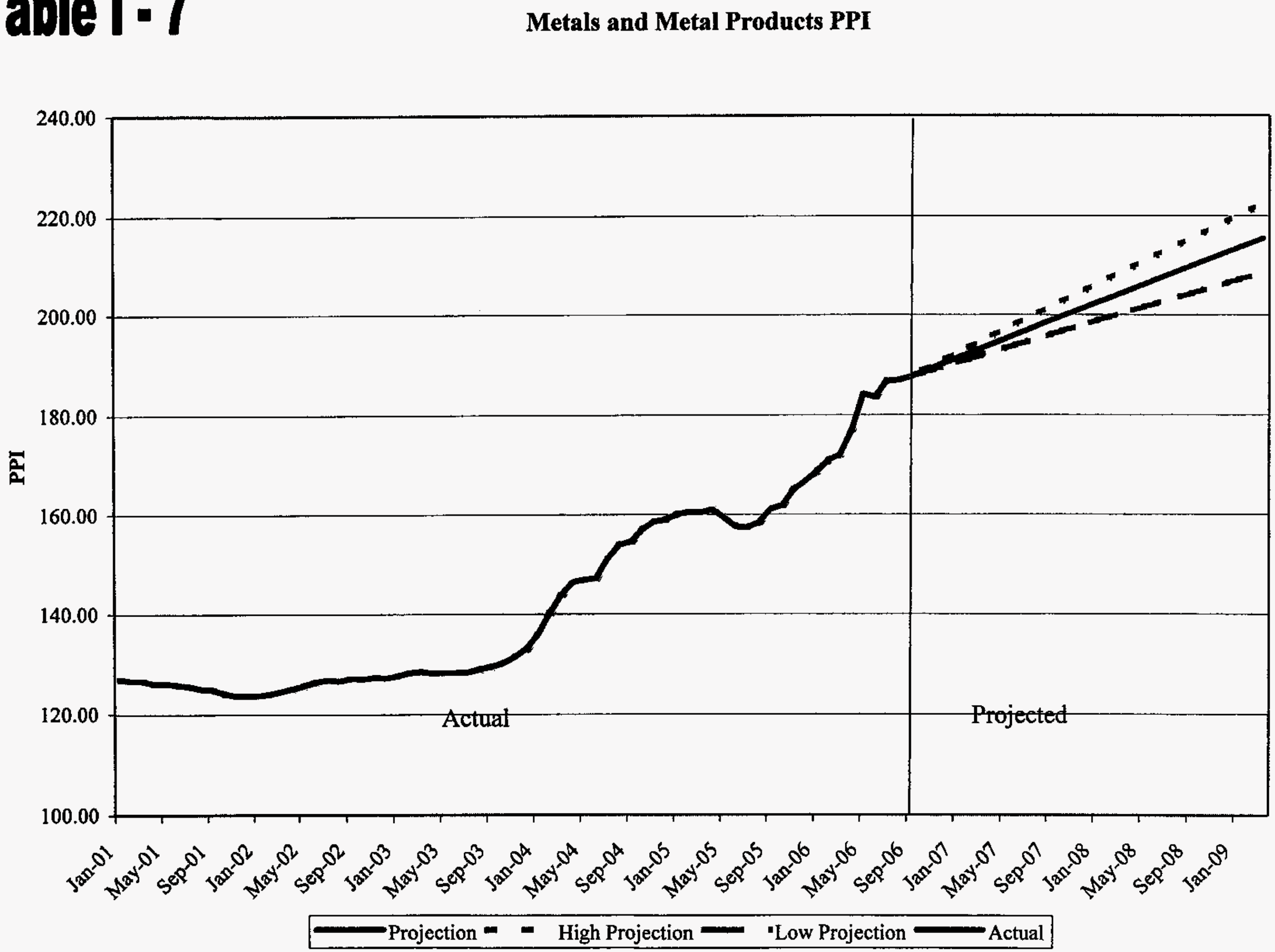
Table I - 6



12-Month Rolling Average of Metals PPI
170.00
160.00
150.00
140.00
130.00
120.00
110.00
100.00
PPI
Jan-02
Mar-02
May-02
Jul-02
Sep-02
Nov-02
Jan-03
Mar-03
May-03
Jul-03
Sep-03
Nov-03
Jan-04
Mar-04
May-04
Jul-04
Sep-04
Nov-04
Jan-05
Mar-05
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06

Table I - 7



Metals and Metal Products PPI
240.00
220.00
200.00
180.00
160.00
140.00
120.00
100.00
PPI
Actual
Projected
Jan-01
May-01
Sep-01
Jan-02
May-02
Sep-02
Jan-03
May-03
Sep-03
Jan-04
May-04
Sep-04
Jan-05
May-05
Sep-05
Jan-06
May-06
Sep-06
Jan-07
May-07
Sep-07
Jan-08
May-08
Sep-08
Jan-09
Projection
High Projection
Low Projection
Actual

Table I - 8

Present Value Analysis
Overhead to Underground Conversion Adjustments to CIAC

Event	Annual $/mile estimate	Escalation Rate	Discount Rate	Discounted Escalation Multiplier (30 Years)	Discounted PV
Outage Restoration Reduction -- Major Events	$6,593	8.40%	8.37%	30.94	$203,987
Outage Restoration Reduction -- Non-major events	$1,559	6.45%	8.37%	24.34	$37,946
Reduced Revenue Loss -- Major Events	$681	2.30%	8.37%	14.69	$10,004
Reduced Revenue Loss -- Non-major events	$37	2.30%	8.37%	14.69	$544
Reduced O&M Costs -- Vegetation Management	$2,494	7.60%	8.37%	27.59	$68,809
Reduced O&M Cost -- Other O&M	$332	6.45%	8.37%	24.34	$8,081
Cost of UG Locates	($218)	2.30%	8.37%	20.49	($4,467)
Loss of Pole Attachment Revenue	($310)	2.30%	8.37%	14.69	($4,554)
Litigation	$2,903	10.00%	8.37%	37.56	$109,037
				Total	$429,387

Discounted Escalation Multiplier
Applies to Annual $/Mile to Yield 30 Year PV

Power Services
Management Services For Utilities

2004, 2005 & 2006 Assumption Comparisons

2004	2005	2006	Basic assumptions:
0	300	300	System line miles increase
4,026,744	4,124,608	4,251,300	Customer base
			Constant current year dollars
0%	5%	5%	Contract labor rate adjustment for corrective maintenance
0%	7%	5%	Contract labor rate adjustment for preventative maintenance
0%	80%	80%	Percentage of overall rate increase attributable to labor

2004	2005	2006	Reliability assumptions:
75%	75%	75%	Reduction in preventable (020) lateral interruptions achieved incrementally each year of first cycle.
20%	20%	20%	Reduction in non-preventable (021) lateral interruptions achieved incrementally each year of first cycle.
20%	20%	0%	Reduction in preventable (020) feeder interruptions from mid-cycle feeder maintenance funded from hot-spot trim budget.
0%	4%	4%	Reactive Lateral Savings percent
	0.20	0.20	Feeder CI Savings degradation Factor
	0.03	0.50	Lateral CI Savings degradation Factor

2004	2005	2006	Cost assumptions:
0%	0%	5%	Incremental percent inflation assumed after 2005.
20%	10%	0%	Contractor productivity improvement due to performance-based contract, organization and operational process changes.
75%	75%	75%	Reduction in corrective maintenance workload achieved incrementally each year of first lateral cycle.
$1.31	$1.31	$1.31	:$1.00 is the ratio/cost comparison of trimming deferred maintenance on laterals vs. "on-cycle" trimming cost.
$102	$102	$102	per trouble ticket - distribution operations cost

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Natalie F. Smith
Principal Attorney
Florida Power & Light Company
700 Universe Boulevard
Juno Beach, FL 33408-0420
(561) 691-7207
(561) 691-7135 (Facsimile)

FPL

May 19, 2006

VIA HAND DELIVERY
Ms. Blanca S. Bayò, Director
Division of Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard, Room 110
Tallahassee, FL 32399-0850

060408-EI

Re: **Petition for Approval of Modifications to Florida Power & Light Company's Demand Side Management Plan**

Dear Ms. Bayò:

Enclosed for filing on behalf of Florida Power & Light Company ("FPL") are the original and fifteen (15) copies of a Petition for Approval of Modifications to its Demand Side Management Plan. Also included is a computer diskette containing an electronic version of FPL's Petition.

Please do not hesitate to contact me should you or your Staff have any questions regarding this filing. Thanking you for your attention to this matter.

Sincerely,

Natalie F. Smith

NFS:ec
Enclosures

Original Tariff forwarded to ECR

DOCUMENT NO.
04421-06
5-19-06

PETITION FOR APPROVAL OF MODIFICATIONS TO FLORIDA POWER & LIGHT COMPANY'S DEMAND SIDE MANAGEMENT PLAN

Florida Power & Light Company ("FPL"), pursuant to Sections 366.82 and 366.06(1), Florida Statutes (2006), and Florida Administrative Code Rule 25-17.0021 petitions the Florida Public Service Commission ("Commission") to approve certain Modifications to FPL's Demand Side Management ("DSM") Plan as described in this petition, and to authorize FPL to recover through its Energy Conservation Cost Recovery ("ECCR") clause reasonable and prudent expenditures associated with implementation of such modifications to FPL's DSM Plan. Approval of the modifications to FPL's DSM Plan, as proposed, will help further the objectives of the Florida Energy Efficiency Conservation Act ("FEECA") by cost-effectively reducing the growth rate of weather sensitive peak demand, reducing and controlling the growth rate of energy consumption, increasing the conservation of expensive resources and increasing the efficiency of the electrical system. See Section 366.81, Florida Statutes (2006); Rule 25-17.001(2), Florida Administrative Code (2006). Reducing the growth rate of weather sensitive peak demand will benefit not only FPL's individual customers who reduce their demand through participation in the new and modified DSM programs, but also all other customers on FPL's system. See Rule 25-17.001(3), Florida Administrative Code. FPL respectfully requests expedited consideration and approval of modifications to its DSM Plan in order that customers

INPUT DATA -- PART 1 CONTINUED
PROGRAM METHOD SELECTED: REV_REQ
PROGRAM NAME: Commercial/Industrial Building Envelope

I. PROGRAM DEMAND SAVINGS & LINE LOSSES

(1) CUSTOMER kW REDUCTION AT METER	0.85 kW
(2) GENERATOR kW REDUCTION PER CUSTOMER	1.14 kW
(3) kW LINE LOSS PERCENTAGE	9.03 %
(4) GENERATOR kWh REDUCTION PER CUSTOMER	2,170.65 kWh
(5) kWh LINE LOSS PERCENTAGE	7.16 %
(6) GROUP LINE LOSS MULTIPLIER	1.09
(7) CUSTOMER kWh INCREASE AT METER	0.00 kWh

II. ECONOMIC LIFE & K FACTORS

(1) STUDY PERIOD FOR THE CONSERVATION PROGRAM	26 YEARS
(2) GENERATOR ECONOMIC LIFE	25 YEARS
(3) T&D ECONOMIC LIFE	35 YEARS
(4) K FACTOR FOR GENERATION	1.65312
(5) K FACTOR FOR T & D	1.61194

III. UTILITY & CUSTOMER COSTS

(1) UTILITY NON RECURRING COST PER CUSTOMER	*** $/CUST
(2) UTILITY RECURRING COST PER CUSTOMER	*** $/CUST
(3) UTILITY COST ESCALATION RATE	*** %**
(4) CUSTOMER EQUIPMENT COST	*** $/CUST
(5) CUSTOMER EQUIPMENT ESCALATION RATE	*** %**
(6) CUSTOMER O & M COST	*** $/CUST/YR
(7) CUSTOMER O & M COST ESCALATION RATE	*** %**
* (8) INCREASED SUPPLY COSTS	*** $/CUST/YR
* (9) SUPPLY COSTS ESCALATION RATES	*** %**
* (10) UTILITY DISCOUNT RATE	8.37 %
* (11) UTILITY AFUDC RATE	7.84 %
* (12) UTILITY NON RECURRING REBATE/INCENTIVE	*** $/CUST
* (13) UTILITY RECURRING REBATE/INCENTIVE	*** $/CUST
* (14) UTILITY REBATE/INCENTIVE ESCALATION RATE	*** %

* SUPPLEMENTAL INFORMATION NOT SPECIFIED IN WORKBOOK
** VALUE SHOWN IS FOR FIRST YEAR ONLY (VALUE VARIES OVER TIME)
*** PROGRAM COST CALCULATION VALUES ARE SHOWN ON PAGE 2

IV. AVOIDED GENERATOR AND T&D COSTS

(1) BASE YEAR	
(2) IN-SERVICE YEAR FOR AVOIDED GENERATING UN	
(3) IN-SERVICE YEAR FOR AVOIDED T&D	
(4) BASE YEAR AVOIDED GENERATING COST	
(5) BASE YEAR AVOIDED TRANSMISSION COST	147.00 $/kW
(6) BASE YEAR DISTRIBUTION COST	17.27 $/kW
(7) GEN, TRAN & DIST COST ESCALATION RATE	3.00 %**
(8) GENERATOR FIXED O & M COST	30.93 $/kW/YR
(9) GENERATOR FIXED O&M ESCALATION RATE	4.35 %**
(10) TRANSMISSION FIXED O & M COST	2.68 $/kW
(11) DISTRIBUTION FIXED O & M COST	0.95 $/kW
(12) T&D FIXED O&M ESCALATION RATE	4.35 %**
(13) AVOIDED GEN UNIT VARIABLE O & M COSTS	0.082 CENTS/kWh
(14) GENERATOR VARIABLE O&M COST ESCALATION RATE	1.99 %**
(15) GENERATOR CAPACITY FACTOR	49% ** (In-service year)
(16) AVOIDED GENERATING UNIT FUEL COST	6.32 CENTS PER kWh** (In-service year)
(17) AVOIDED GEN UNIT FUEL COST ESCALATION RATE	4.44 %**

V. NON-FUEL ENERGY AND DEMAND CHARGES

(1) NON FUEL COST IN CUSTOMER BILL	*** CENTS/kWh
(2) NON-FUEL COST ESCALATION RATE	*** %
(3) DEMAND CHARGE IN CUSTOMER BILL	*** $/kW/MO
(4) DEMAND CHARGE ESCALATION RATE	*** %

APPENDIX J

ANNOTATED BIBLIOGRAPHY OF SELECTED REFERENCES - EXPECTED UNSERVED ENERGY ANALYSES

J - 1

ANNOTATED BIBLIOGRAPHY OF SELECTED REFERENCES - EXPECTED UNSERVED ENERGY ANALYSES

Rose, Judah, and Mann, Charles, "Unbundling the Electric Capacity Price in a Deregulated Commodity Market," in Public Utilities Fortnightly (December 1, 1995). ("A recent survey of utilities that we conducted revealed that on average, utilities estimated that customers would pay $12 (not cents, but dollars) per kilowatt-hour on average to avoid being blacked out.")

McCusker, S.A. and J.S. Siegel, Value of Distributed Energy Options for Congested Transmission/Distribution Systems in the Southeastern United States: Mississippi and Florida Case Studies, National Renewable Energy Laboratory (2002). (EUE value of $2,000 per MWH, or $2.00 per kWh.)

WSCC Power Supply Design Criteria Survey, Western Systems Coordinating Council (undated) ("The California Public Utilities Commission has used a value of $15/kWh of unserved energy and $15/outage/customer in past evaluations of the cost-effectiveness of proposed reliability enhancements.)

Violette, D.M., Freeman, R., and C. Neil, DRR Valuation and Market Analysis, Volume II: Assessing the DRR Benefits and Costs, *prepared for* International Energy Agency (2006). ("The range of VOLL [Value of Lost Load] is large, from zero to over $100/kWh. Several real-time pricing programs in the U.S. have assumed a VOLL of $3.00-$5.00/kWh to set the capacity rationing component of hourly commodity prices. [Footnote omitted] Recently, PJM Interconnection proposed a capacity market design predicated on a VOLL of almost $20/kWh. The method adopted by ISO-NE and NYISO to value their demand response programs, which has been endorsed by FERC, uses a VOLL between $2.50-$5.00/kWh. [Footnote omitted]")

ABB, LOLE/Resource Adequacy Methodology, New England Installed Capacity Requirement Stakeholder Meeting (2005). (PowerPoint presentation) (Outage costs assumed between $3/kWh and $12/kWh.)

Lee, Stephen T. (EPRI), Comparison of a Competitive Wholesale Power Market with Alternative Structures through a Long Term power Market Simulation, Working Paper for the California Energy Commission Workshop on Exploring Alternative Wholesale Electricity Market Structures for California (2001). ("The cost to the society of these blackouts is assumed to be $100,000 per MWh of unserved energy."

ANNOTATED BIBLIOGRAPHY OF SELECTED REFERENCES - EXPECTED UNSERVED ENERGY ANALYSES (CONTINUED)

Energy and Environmental Economics, Inc., Renewable Distributed Generation Assessment: Alameda Power and Telecom Case Study, *prepared for* California Energy Commission (2005). (At page 124, a graphic shows ranges of EUE values from a literature review. The ranges were approximately $0.75 to $12.00/kWh for residential customers, approximately $5.00 to $90.00/kWh for commercial customers, and approximately $0.90 to $20.00/kWh for industrial customers.)

PacifiCorp, IRP Public Input Meeting (PowerPoint presentation) (2004). ("EUE costs from EPRI study ranged from $5,210/MWh [$5.21/kWh] to $44,910/MWh [$44.91/kWh]." A weighted value of $24.00/kWh was shown in a graphic on page 38 of the presentation.)

Moslehi, K., Kumar, A.B., and Hirsch, P., Valuating Infrastructure for a Self-Healing Grid, (2006) (sponsored by EPRI and in part by TVA). (At page 8, tables show an EUE value of $24.00 per kWh.)

Camfield, R., Assessment of Other Factors, ATC's Access Initiative, Christensen Assoc. Energy Consulting, LLC (2005). (PowerPoint presentation) (A table on page 12 reflects benefits from reduced EUE valued at $10.25 per kWh.)

Camfield, R.J. Kirsch, L.D., Morey, M.J., and Welsh, M., Assessment of Other Factors: Benefit-Cost Analysis of Transmission Expansion Plans, prepared for American Transmission Company (2005). (This report includes information based on a literature survey on the costs of unserved energy. The information presented shows the following ranges for the cost of unserved energy for different types of customers: Residential: 17th percentile - $0.30/kWh to 83rd percentile - $7.67/kWh; Commercial: 17th percentile - $0.12/kWh to 83rd percentile - $27.44/kWh; and Industrial – 17th percentile - $0.39/kWh to 83rd percentile - $24.67/kWh. The information also shows median values for the cost of unserved energy for different types of customers as follows: Residential - $2.28/kWh, Commercial - $16.36/kWh, and Industrial - $8.48/kWh.)

UPDATED POWERSERVICES, INC. ANALYSIS

Table C - 1

OVERHEAD to UNDERGROUND CONVERSION ADJUSTMENTS to CIAC
(Costs and adjustments on a per mile of conversion basis)

Base Conversion Cost Differential			$835,314.00
Conversion Benefit Adjustments to CIAC		Fixed Percentage Adjustments (%)	Fixed Cost Adjustments (dollars)
Outage Restoration Reduction	- Non-major events	5.60%	$46,775.42
	- Major Events	23.68%	$197,791.32
Reduced Revenue Losses	- Non-major events	0.13%	$1,109.25
	- Major events	2.45%	$20,443.99
Reduced O&M Costs	- Vegetation Management	6.28%	$52,470.00
	- Other O&M**	1.19%	$9,960.00
Cost of UG Locates		-0.78%	($6,540.00)
Loss of Pole Attachment Revenue		-1.11%	($9,300.00)
Reduced Accident Litigation & Award Payments		0.03%	$242.33
Non-Participant Benefit (Qualitative Others)		-	-
Elimination of NESC (Code) Violations		-	-
Elimination of Overhead Routing Problems		-	-
Fixed Adjustments		37.47%	$312,952.31

** Other O&M From FPL Data Responses Reflects Higher O&M for Underground / Mile
PowerServices Inc. Estimates Reflect Improved O&M Cost for Underground Based on Improved Technology and other utility experience

UPDATED POWERSERVICES, INC. ANALYSIS

Table C - 2 FPL Restoration Costs 5 Year Historical Analysis (Non-Major Event)

Year	Cost
2001	$86,700,000
2002	$95,900,000
2003	$105,900,000
2004	$87,800,000
2005	$101,200,000
Total	$477,500,000
Avg.$/ Yr.	$95,500,000

2004 Customer Interruptions OH	3574053
OH Miles	41105
OH Interruptions / mile	86.95
2004 Customer Interruptions UG	290127
UG Miles	24107
UG Interruptions / mile	12.03
OH Ratio	87.84%
UG Ratio	12.16%

Avg.$/ Yr.	$95,500,000	$95,500,000	**Avg.$/Yr**
OH Ratio	87.84%	12.16%	**UG Ratio**
	$83,888,670	$11,611,330	
OH Miles	41105	24107	**UG Miles**
	$2,041	$482	
Term	30	30	**Term**
CIAC Credit	$46,775		

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Updated PowerServices Analyses
Exhibit ____ (PJR-3) Page 2 of 8

Table C - 3

FPL Hurricane Restoration Costs

5 Year Historical Analysis

Year	Storm	Cost	Distribution	Total
2001	Gabrielle	30,600,000	82.5%	$25,245,000
2004	Charley			
2004	Francis			
2004	Jeanne	877,800,000	82.5%	$724,185,000
2005	Dennis			
2005	Katrina			
2005	Rita			
2005	Wilma	853,200,000	82.5%	$703,890,000
			Total	$1,453,320,000

Years	5
Avg $/year	$290,664,000
OH Factor	0.975
	$283,397,400
Miles line	41105
$/Mile/Yr.	$6,894
Term	30

Years	5
Avg $/year	$290,664,000
UG Factor	0.025
	$7,266,600
Miles line	24107
$/Mile/Yr.	$301
Term	30

CIAC Credit	**$197,791**

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Updated PowerServices Analyses
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UPDATED POWERSERVICES, INC. ANALYSIS

Table C - 4 Tree Trimming Based on 3 / 6 Year Cycle

Annual Cost per Order # PSC-06-0781-PAA-EI	$71,900,000
Trimming Cycle Years*	3/6
Miles Overhead Lines	41105
Annual Costs/Mile	$1,749
Term / Years	30
CIAC Credit	**$52,470**

* Reflects cost of trimming mains on 3 year cycle and laterals on 6 year cycle

UPDATED POWERSERVICES, INC. ANALYSIS

Table C - 5

Tree Trimming Based on 3 Year Cycle

Annual Cost per Order # PSC-06-0781-PAA-EI	$102,500,000
Trimming Cycle Years (all main feeders and laterals)	3
Miles Overhead Lines	41105
Annual Costs/Mile	$2,494
Term / Years	30
CIAC Credit	**$74,808**

UPDATED POWERSERVICES, INC. ANALYSIS

Table C - 7 O&M Expenses (Other Utilities)

2005 Utilities With Recent Underground Conversion	
Overhead (excludes tree trimming)	
583/593	$1,202
583/593	$517
O&M Expense / Mile	$860
Underground	
584/594	$714
584/594	$341
UG Expense/ Mile	$528
OH/ UG Difference	$332
Term	30
CIAC Credit	**$9,960**

UPDATED POWERSERVICES, INC. ANALYSIS

Table C - 9

FPL Outage 5 Year Historical Analysis
Revenue Loss (Non-Major Events)

Year	Customers w/o Power	Duration/Minutes	Hours	Avg kWh/ hour	Total
2001	4,734,645	154	2.6	2.70	32,835,179
2002	5,171,697	150	2.5	2.70	34,934,584
2003	5,543,996	152	2.5	2.70	37,948,773
2004	5,091,226	179	3.0	2.70	41,039,934
2005	4,961,431	204	3.4	2.70	45,579,375

Total	192,337,845

FERC Form 1 Data	
2005 kWh Sales	102,296,438,000
Annual Hours	8,760
Avg. Sales / hour	11677675.57
# Customers	4321892
Avg. kWh/hour	2.70

Years	5
Hours/year	38467569
OH Factor	0.878
	33774526
PC- Fuel	0.045
	1519854
Miles line	41105
$/ Mile	$37
Term	30
CIAC Credit	**$1,109**

Docket Nos. 080244-EI & 070231-EI
Updated PowerServices Analyses
Exhibit ___ (PJR-3) Page 7 of 8

Table C - 10

FPL Hurricane Outage 5 Year Historical Analysis
Revenue Loss (Major Events)

Year	Storm	Customers	Duration/Days	Hours	Avg kWh/hour	Factor	Total kWh
2001	TS Barry	51,000	2	24	2.7	0.2683	1,773,356
2001	TS Gabrielle	812,000	7	24	2.7	0.2683	98,821,115
2001	TS Michelle	48,000	2	24	2.7	0.2683	1,669,041
2002	TS Edward	4,000	1	24	2.7	0.2683	69,543
2003	TS Henri	56,000	2	24	2.7	0.2683	1,947,214
2004	H Charley	900,000	16	24	2.7	0.2683	250,356,096
2004	H Frances	2,800,000	16	24	2.7	0.2683	778,885,632
2004	H Jeanne	1,700,000	17	24	2.7	0.2683	502,450,776
2005	TS Arlene	52,000	3	24	2.7	0.2683	2,712,191
2005	H Dennis	509,000	4	24	2.7	0.2683	35,397,570
2005	H Katrina	1,500,000	11	24	2.7	0.2683	286,866,360
2005	H Rita	140,000	3	24	2.7	0.2683	7,302,053
2005	H Wilma	3,200,000	22	24	2.7	0.2683	1,223,963,136
						Total	3,192,214,082

FERC Form 1 Data	
2005 kWh Sales	102,296,438,000
Annual Hours	8,760
Avg. Sales / hour	11677675.57
# Customers	4321892
Avg. kWh/hour	2.70

Years	5
Hours/year	638442816
OH Factor	0.975
	622481746
PC- Fuel	0.045
	28011679
Miles line	41105
$/ Mile	$681
Term	30
CIAC Credit	**$20,444**

Utility Puts TR-XLE and EPR Cables to the Test

Apr 1, 2003 12:00 PM
By G. Bruce Shattuck, Alabama Power Co., and Rick Hartlein, Georgia Tech NEETRAC

In the mid 1980s, plans were underway to construct one of the largest shopping malls in the southeastern United States, just south of Birmingham, Alabama, in an area that Alabama Power designated for the extension of its newly developing 35-kV service area. The Galleria Mall was to encompass 2 million sq ft (185,806 sq meters) of retail space and have an estimated demand of approximately 20 MVA.

About this time, a modified cross-linked polyethylene (XLPE) cable insulation containing a tree-retardant additive (TR-XLPE) was introduced to the market. This new cable was expected to increase cable reliability, compared with standard XLPE that had been in use for many years. In addition, a new cable construction was introduced that used a viscous mastic-like material that was extruded within the interstices of the conductor strands to block water migration within the conductor. Seeking to provide the highest level of reliability and cable longevity for the mall, Alabama Power specified the use of this TR-XLPE cable design.

Since there were concerns about the possibility of excessive shrink back on the TR-XLPE cables, company engineers decided to use Ethylene Propylene Rubber (EPR)-insulated cables in half of the circuits serving the mall, based on many years of good experience with EPR cables. With this approach, Alabama Power had a system designed to allow either the TR-XLPE cables or the EPR cables to serve the mall if an emergency developed.

Now, after 17 years of service with no failures of either cable, the utility was interested in determining the remaining reliability in each cable type. Of secondary interest was to determine the performance of the TR-XLPE cable compared with the EPR cable. The Southern Co. Research Committee and the Dow Chemical Co. formed a partnership to find the answers. Southern Co. is the parent company of Alabama Power and Union Carbide, recently purchased by Dow Chemical, was the manufacturer of the TR-XLPE cable compound.

Cable Testing

In the early 1970s, when the Association of Edison Illuminating Companies (AEIC; Birmingham) promulgated its specifications for electric utility cable, high on its list were the specifications for extruded medium-voltage insulated cable. These specs required all new cable designs to pass long-term tests to ensure reliability and longevity. The tests included high-voltage withstand, dissipation factor, thermal and mechanical characteristics, partial discharge and wet accelerated aging. These tests were important at a time when new materials and manufacturing processes were being introduced to the market and underground cable installations were rapidly increasing. By testing cables removed from service, engineers at

Alabama Power could see if the cables that met the AEIC requirements really were performing well in service.

The Tests

The testing project commenced with the removal of about 400 ft (122 m) of each cable type. The 1/0 AWG, three-phase, 35-kV cables with copper conductor were installed in a conduit manhole system serving the mall. The cables were wound on wooden reels and shipped to the Georgia Tech National Electric Energy Testing and Research & Application Center (NEETRAC) in Atlanta for testing.

Treeing Analysis. Water trees are a form of cable insulation degradation characterized by microchannels that develop as a tree-like structure in the insulation as a consequence of the interaction of water, electrical stress, impurities and manufacturing imperfections. Since water trees can degrade cable insulation over time, it was important to determine the extent of tree growth in these service-aged cables. The density of bow-tie trees was measured in size categories of 2 to 10 mils, 11 to 20 mils and 21 to 30 mils. The largest bow-tie trees detected for each material were 12 mils for TR-XLPE and 26 mils for EPR. The largest vented trees observed were 2 mils for TR-XLPE and 42 mils for EPR. Note that the 42-mil vented tree was found at a failure site in the EPR after an ac breakdown test.

Tree Retardant Additive Analysis. The TR-XLPE contains an additive to the base polymer, which was examined to ensure that the additive remained uniform across the insulation thickness. The tests confirmed that the TR additive was constant after 17 years of field service and was within the expected range for new cable. The results indicated that the additive does not migrate out of the insulation under normal-usage conditions.

Moisture Analysis was performed at 220°C (428°F) for 10 minutes on samples taken near the conductor shield and near the insulation shield. The average values indicated that moisture content in the EPR was significantly greater than the TR-XLPE due to the presence of the filler used in the EPR compound.

Stripping Tension. Good cable performance depends on good adhesion between insulation and the insulation shield to prevent voids between the two layers, where partial discharges could develop. The results of the tests indicated that stripping tension for both cables was comparable to that for new cables.

Dissipation factor, a measure of electrical losses, was an important parameter to determine if changes were occurring that would indicate dielectric instability in the insulation compounds. Measurements were made at applied voltages of 20, 40 and 50 kV over a temperature range of ambient to 90°C (194°F). The TR-XLPE cable exhibited a dissipation factor below 0.1% at all measured temperatures, and the EPR displayed a dissipation factor of about 0.4% at ambient temperature, increasing to above 0.7% as temperature was increased to 90°C.

Volume Resistivity of the Shields. Since the conductor and insulation shields must maintain a minimum level of conductance to ensure uniform voltage stress distribution at the interfaces, volume resistivity was measured at ambient temperature and at 45°C (113°F). While the shields for both materials were well below the commonly specified limits in the range of 500 to 1000 ohm-m, the EPR cable, which employed EPR-based semiconductive compounds, was more conductive than the XLPE semiconductive compounds.

Impulse Breakdown. Impulses due to lightning endanger the cable if its impulse-breakdown characteristics are marginal. For this reason, it is important to determine these characteristics in assessing the cable's projected longevity. These tests were made on five cable samples from each cable using the AEIC impulse test procedure. A log-normal distribution function was found to be the best fit for describing the failure data. The TR-XLPE demonstrated a higher impulse breakdown strength than EPR, as illustrated by the statistical differentiation that showed an absence of overlap of the 90% confidence intervals at the 50% characteristic level.

AC Breakdown. Five samples from each of the cables were subjected to a standard AEIC ac breakdown test using five-minute time steps. A two-parameter Weibull distribution function was the best fit for the failure stresses, revealing that the TR-XLPE had a higher ac breakdown strength than the EPR. It should be noted that the 380 V/mil breakdown stress from one of the TR-XLPE samples was treated as a "suspension" in the analysis. Failure site examination revealed that this particular sample contained a manufacturing defect, which resulted in incomplete coverage of the conductor by the conductor shield. However, the cable had performed well for 17 years in service with no failures.

Published Data Comparisons

Although long-term field aging has not been systematically pursued by investigators, cable tests were made in the mid- and late-1990s on 35-kV cables insulated with 345 mils of the same TR-XLPE and EPR compounds after nine years of field service.

The results of this work suggested that the impulse breakdown strength of EPR was greater than the TR-XLPE, which contrasted with results discussed above where TR-XLPE showed superior results. Both sets of data, however, revealed that the impulse breakdown strength of both compounds exhibited good relative stability, as did their ac breakdown strength.

Confirmations and Conclusions

The present study on field-aged 35-kV cables after 17 years of service supports the expectation that either cable will provide service life greater than 40 years. Overall, the TR-XLPE cables exhibited higher impulse breakdown strength and higher ac breakdown strength than the EPR cables.

A comparison to other field-aged cable evaluations at shorter aging times indicated that both cables exhibited good stability, relative to breakdown strength. Water-treeing analysis indicated that longer bow-tie trees and vented trees were present within the EPR than in TR-XLPE indicating that the TR additive in the TR-XLPE insulation continues to perform as designed. The dissipation factor for the TR-XLPE material was between four and seven times lower than that of the EPR. While there are some differences in dielectric strength, in dielectric losses and in water tree growth, both insulation materials can be used with the assurance of long cable life.

Acknowledgment

The authors would like to acknowledge the assistance of Dr. Timothy Person, Research Specialist with the research and development group of the Wire & Cable Compound department of the Dow Chemical Co., who assisted in the analysis of the data and in the writing of this article.

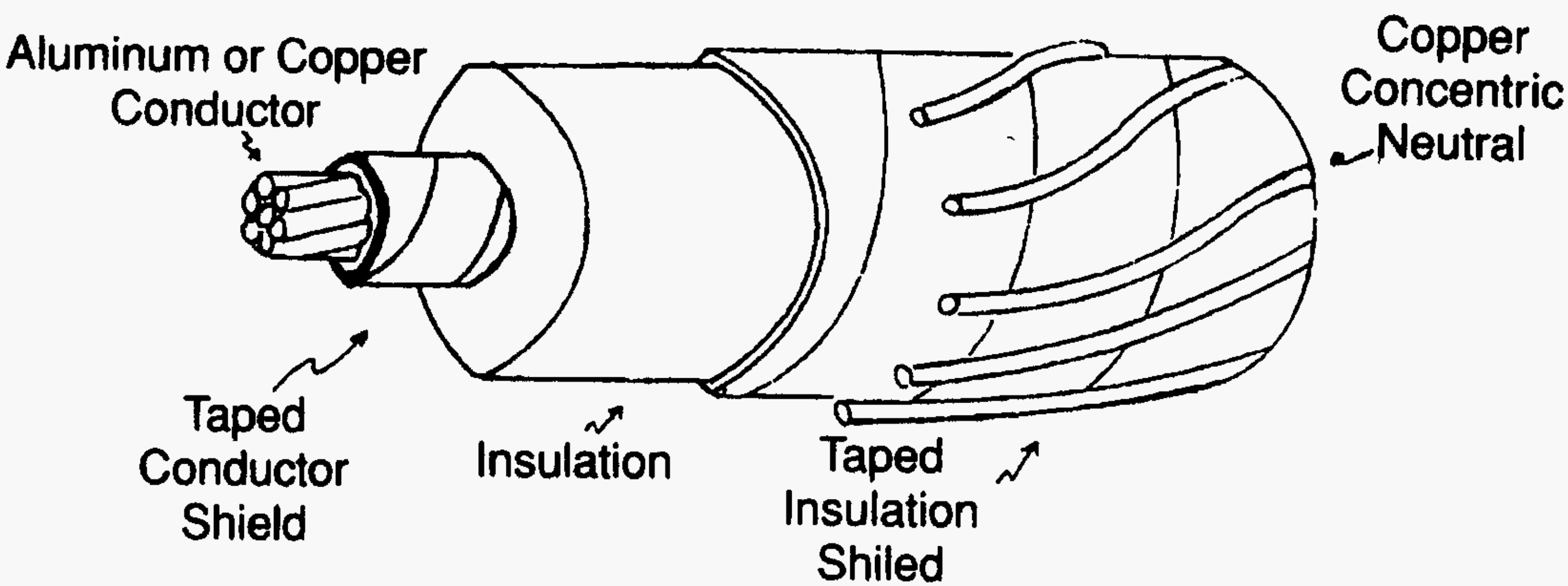
G. Bruce Shattuck graduated from the University of Alabama in 1971 with a BSEE degree. He began his career as a student engineer with the company in 1969, progressing through several levels of responsibility to his present position as principal engineer in the Power Delivery-Distribution Engineering Services Group.

Rick Hartlein spent 25 years at the Georgia Power Research Center evaluating transmission and distribution materials, developing specifications and industry standards, managing research and testing programs and providing engineering services. He joined Georgia Tech in 1996 to help establish NEETRAC, where he has been Underground Systems Program Manager. Hartlein is a past chair of the IEEE Insulator Conductors Committee and serves as a technical consultant to the AEIC Cable Engineering Committee.

TECHNICAL TRENDS IN MEDIUM VOLTAGE URD CABLE MATERIALS AND DESIGN

Joseph H. Dudas
Consultant
URD Power Cable

Early URD Cable Design



Docket Nos. 080244-EI & 070231-EI
Dudas URD Cable Presentation
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High Molecular Weight Polyethylene

- Seemed impervious to moisture
- Higher AC breakdown strength
- Superior dielectric properties
- Expected 50 plus years life
- Reduced insulation thickness

Crosslinked Polyethylene (XLPE)

- Gained favor in late 1960's
- Higher mechanical strength
- Higher operating temperature
- Higher AC breakdown strength
- Reduced insulation to 175 mils

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Industry Surprised By Early Cable Failures

- Failures of HMWPE in 7 to 10 years
- Lawson & Vahlstrom first published in 1970
- Tree-like structures in failed cables
- Determined to be electrochemical or water trees

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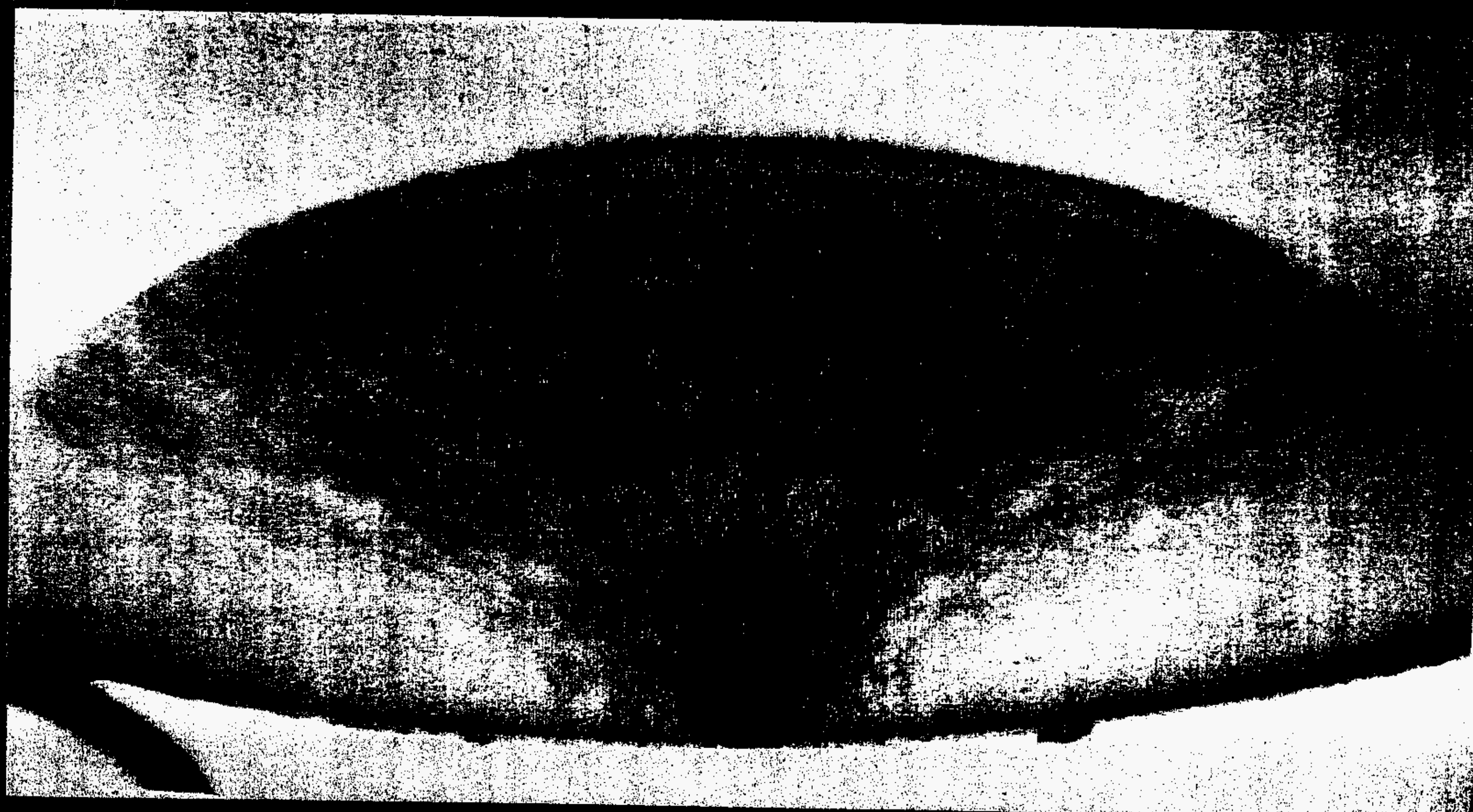
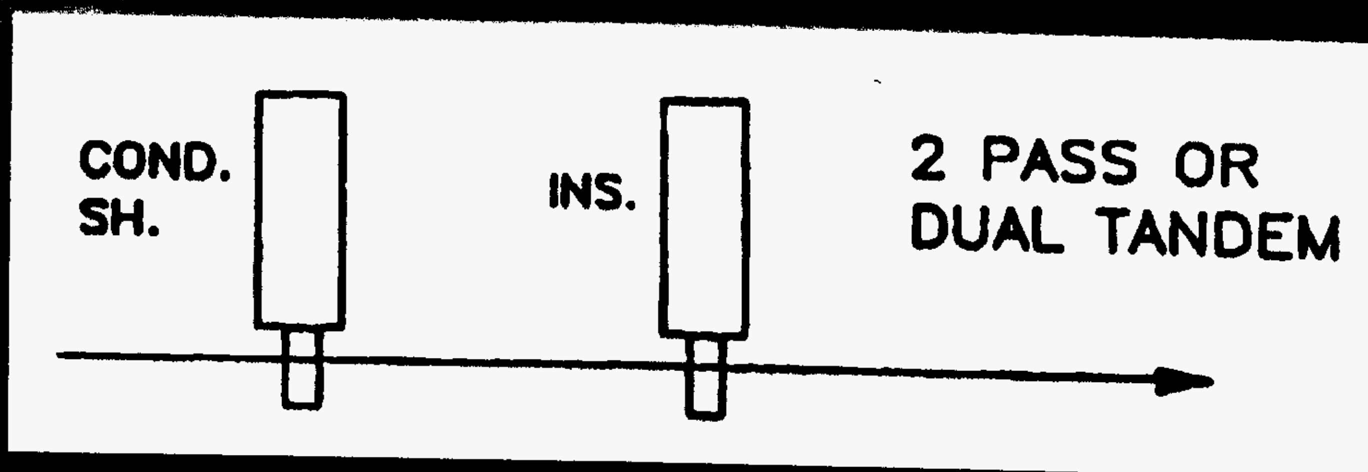
Electrochemical Tree in Failed Cable



Cable Specifications Tighten

- Specification groups become active
- Extruded shields were required
- Contaminants limited to 10 mils
- Wet electrical aging test added
- Protective jackets recommended

1970's Cable Extrusion Technology Was Limited



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Dudas URD Cable Presentation
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Industry Status By Late 1970's

- HMWPE cables failing at 5 per 100 mi.
- XLPE cable failing at 1 per 100 mi.
- First commercial Tree Retardant HMWPE
- Rapid acceptance by Rural Electric Coops
- IOU's mainly favored XLPE, others EPR

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1980's Brought Significant Changes

- Dry nitrogen curing process was introduced
- Strippable XLPE semicon shield developed
- Extrusion technology improved.

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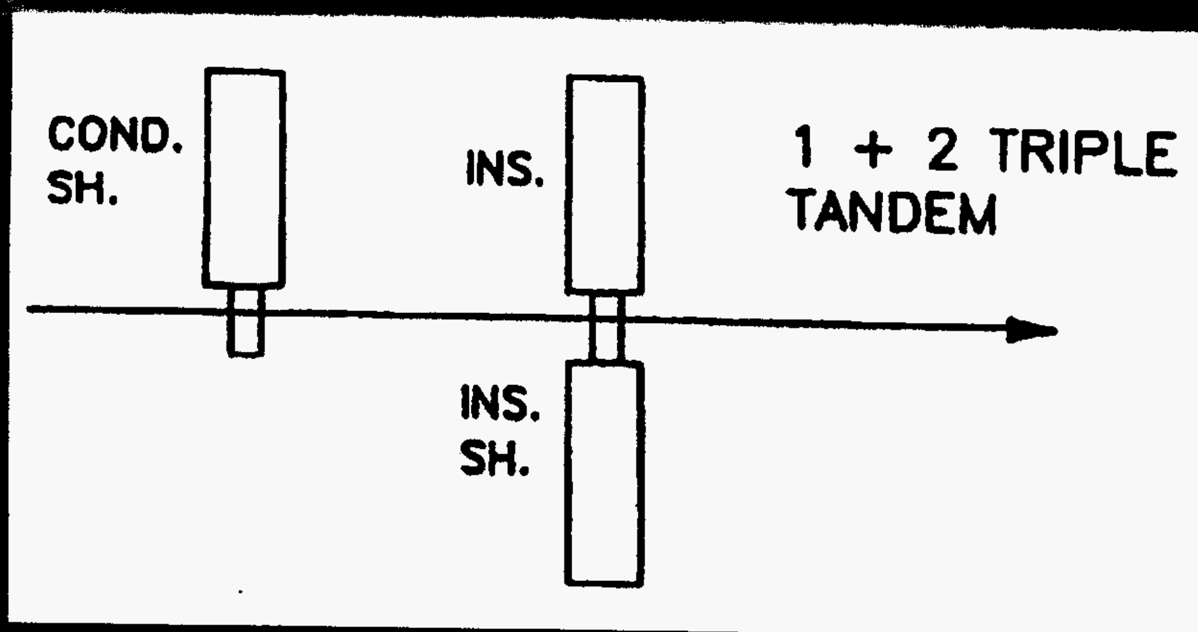
Triple Tandem Extrusion Technology



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Dudas URD Cable Presentation
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More 1980's Significant Improvements

- Contamination was reduced significantly
- Contaminant size reduced from 10 to 5 mils
- Commercial TRXLPE introduced.
- Strand filled cables are commercialized

More 1980's Significant Events

- Jackets gain widespread acceptance
- Supersmooth Conductor shield developed
- EPR emerges to compete with TRXLPE

What choices to Make?

- What insulation? XLPE, TRXLPE, or EPR?
- Should we specify strand filled conductor?
- Are supersmooth conductor shields really better?
- Should dry cure and triple extrusion be specified?
- Should a jacket be required? What type?

25 Largest Investor Owned Utilities

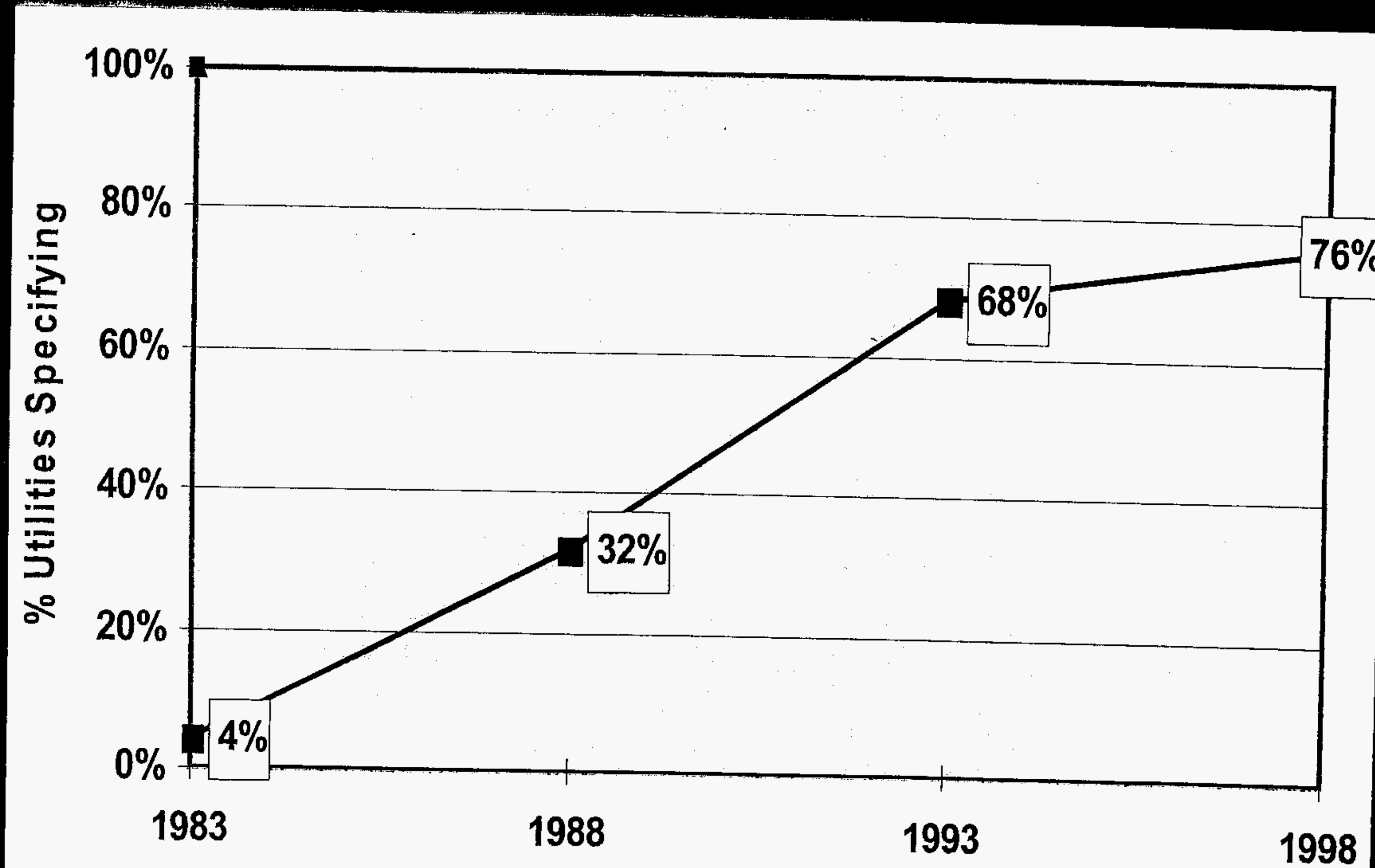
- Served 1 million or more customers
- More than 25,000 miles of installed cable
- 19 of 25 had representatives on AEIC

Rank	Company	No. Cust.
• 1	Pacific Gas & Electric	4,257,121
• 2	Southern California Edison	4,078,534
• 3	Florida Power & Light	3,263,360
• 4	Commonwealth Edison	3,249,162
• 5	Consolidated Edison of NY	2,943,281
• 6	TU Electric	2,176,549
• 7	Detroit Edison	1,941,881
• 8	Public Service Elect. & Gas	1,867,453
• 9	Virginia Electric & Power	1,805,645
• 10	Duke Power	1,662,168

Cable Specifications Analyzed

- Filled strand
- Conductor shield materials
- Insulation materials
- Extrusion method
- Curing method
- Metallic shield type
- Jacket type & material

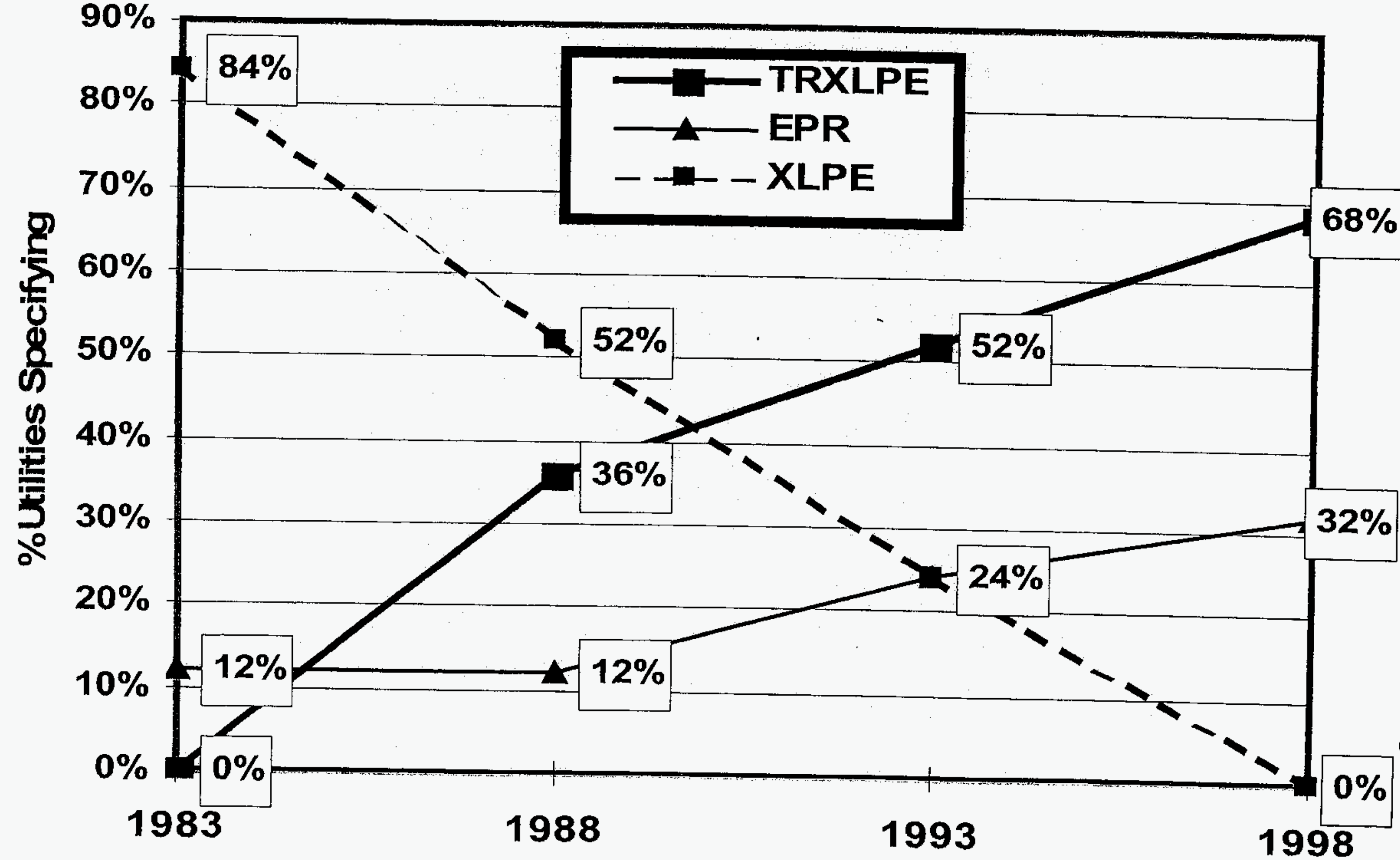
Increased use of Filled Stand Conductor over a 15-year period - 25 Largest IOU's



Insulation Materials Specified

- TRXLPE
- EPR
- XLPE

Insulation Compounds Specified over a 15-Year Period



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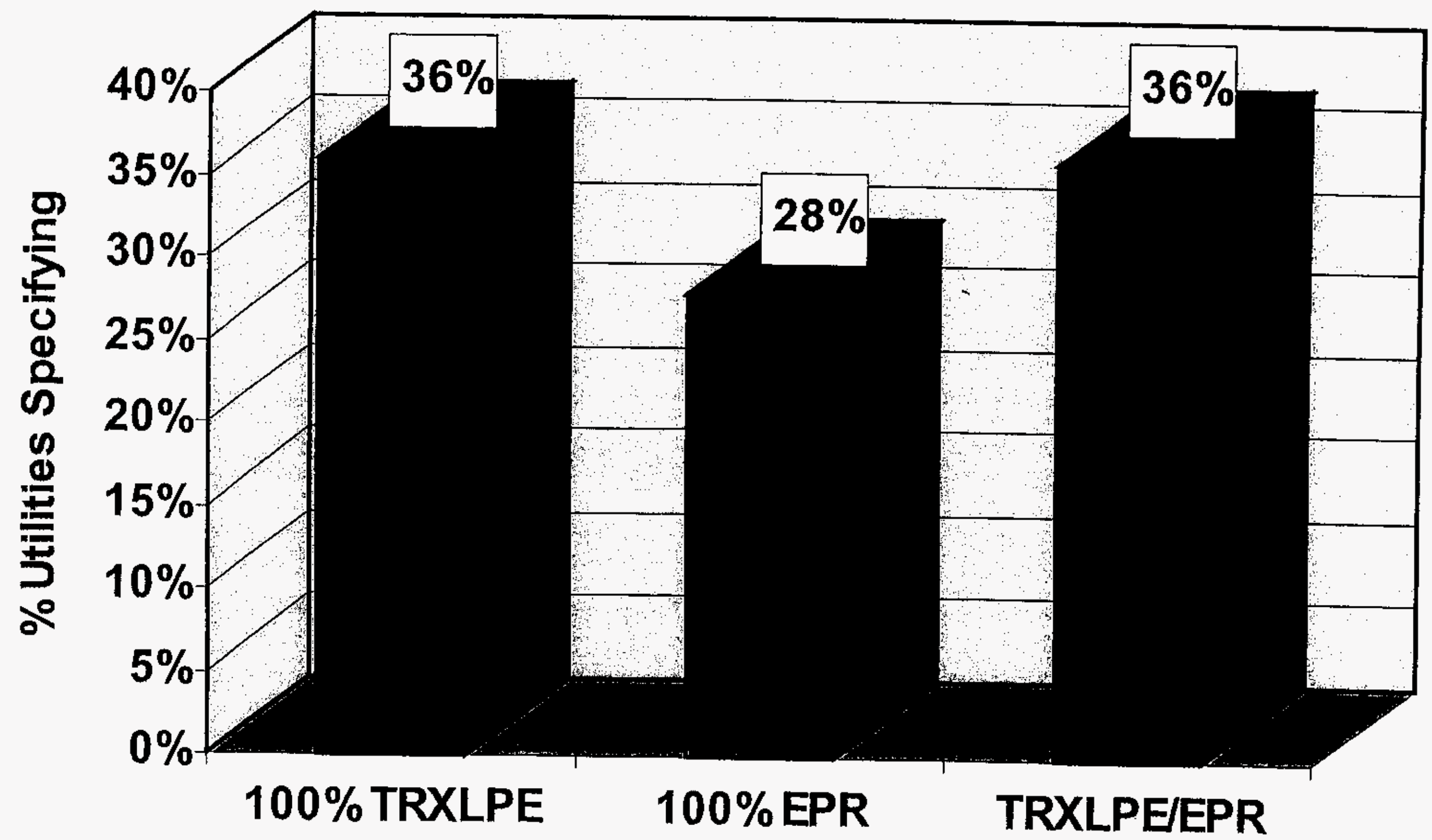
Dual Use Utilities Emerged Strongly in 1998



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Primary Reasons Cited for Specifying TRXLPE

- Lower cost
- Excellent service life
- Lower electrical losses

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Dudas URD Cable Presentation
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Primary Reasons Cited for Specifying EPR

- Long service life
- Better flexibility
- Less expansion during heating
- Better properties at high temperature

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Dudas URD Cable Presentation
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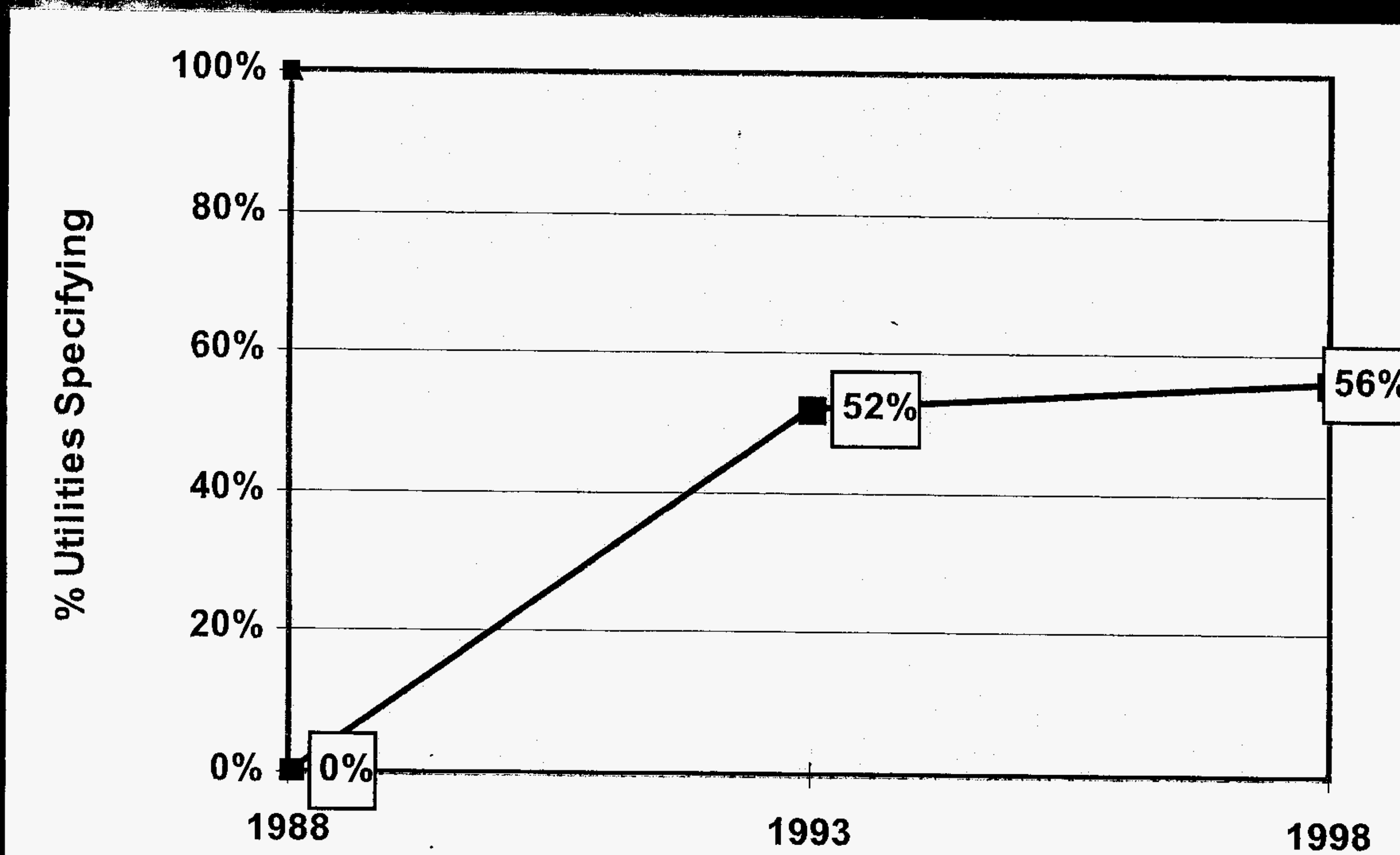
Supersmooth Semiconducting Conductor Shield Materials

- Introduced in 1988
- Formulated from acetylene carbon black
- Finer particle size
- Increased cable life

Increased use of Supersmooth Semiconducting Compound over a 10-Yr. Period - 25 Largest IOU's



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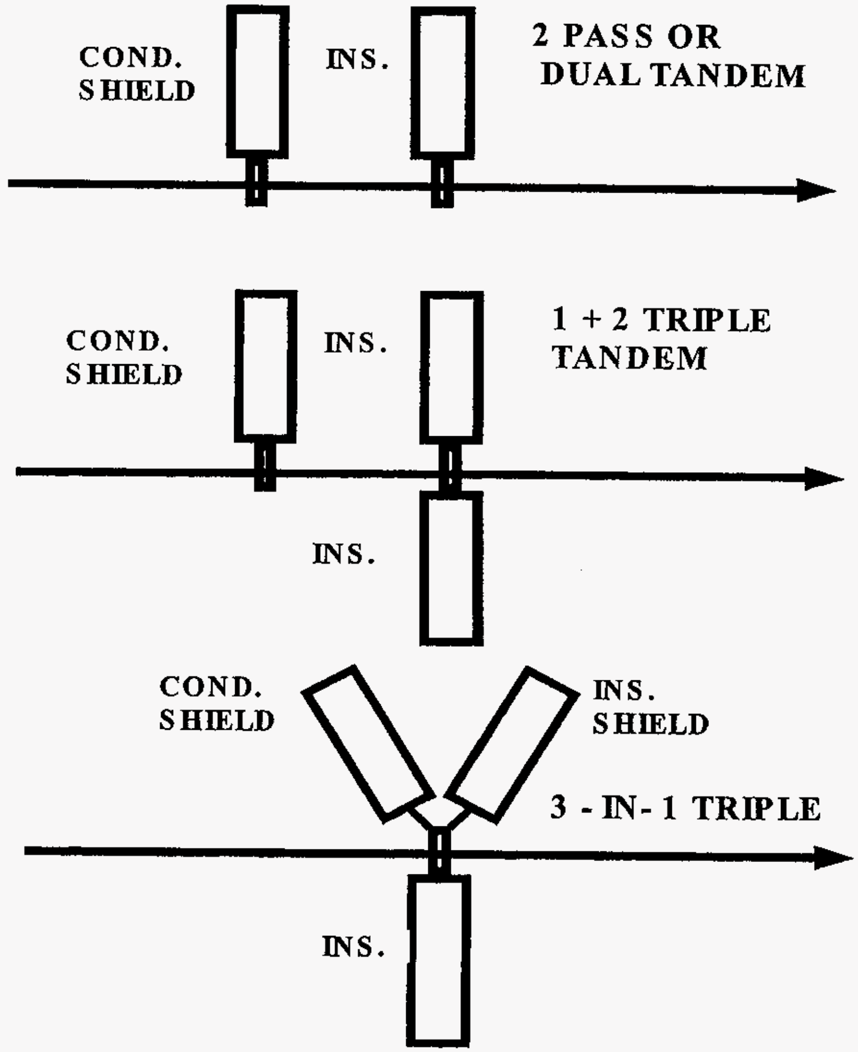
Cable Extrusion Methods



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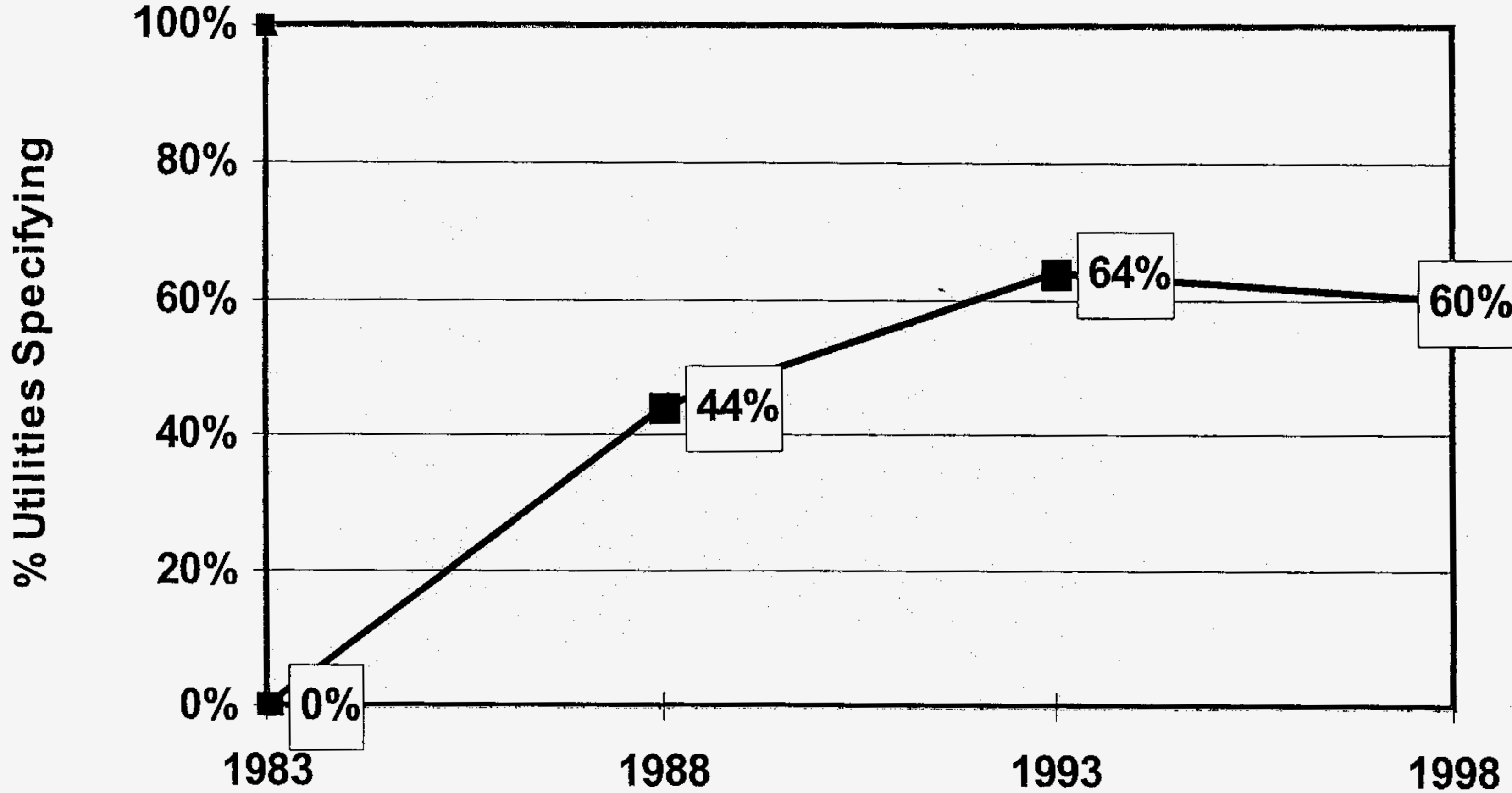
Triple Extrusion Specified over a 15-year period



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Dudas URD Cable Presentation
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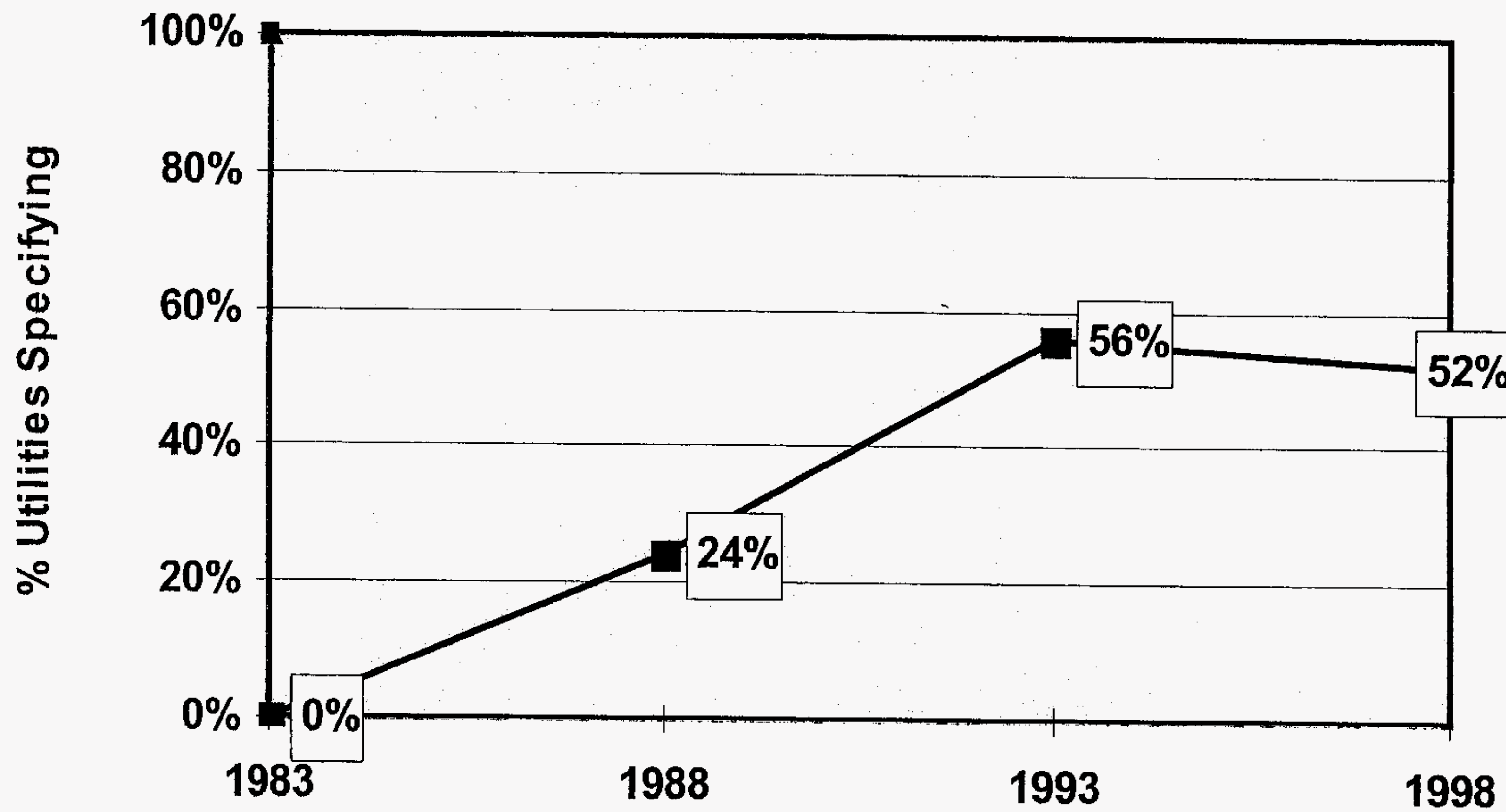
Curing Method Specified

- Dry Nitrogen
- Steam
- Curing method not specified

Dry Nitrogen Curing Specified over a 15-year period



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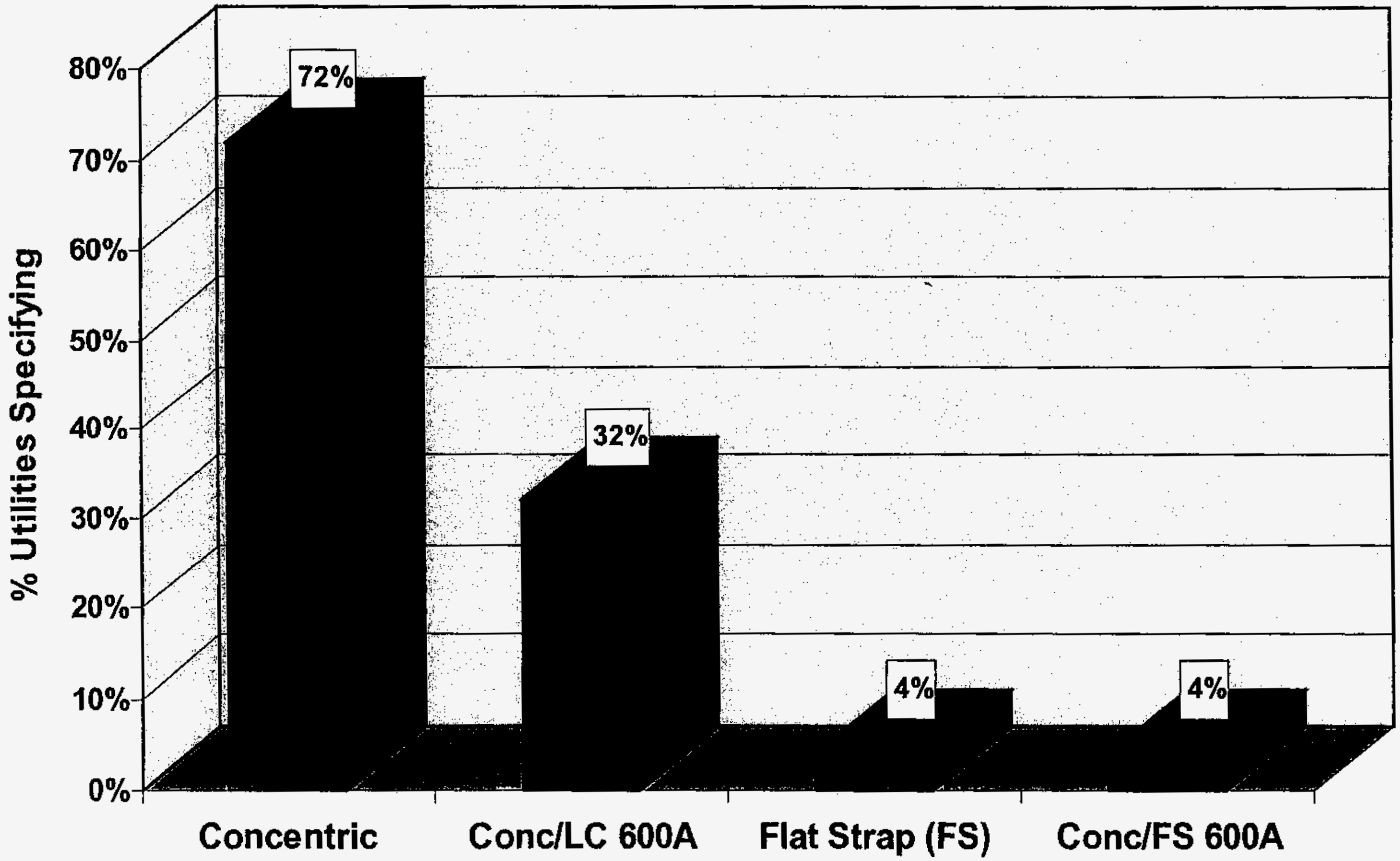
Metallic Shielding

- Concentric copper wires
- Flat strap
- Longitudinal corrugated shield

Copper Neutral Type Specified by 25 Largest IOU's 1998



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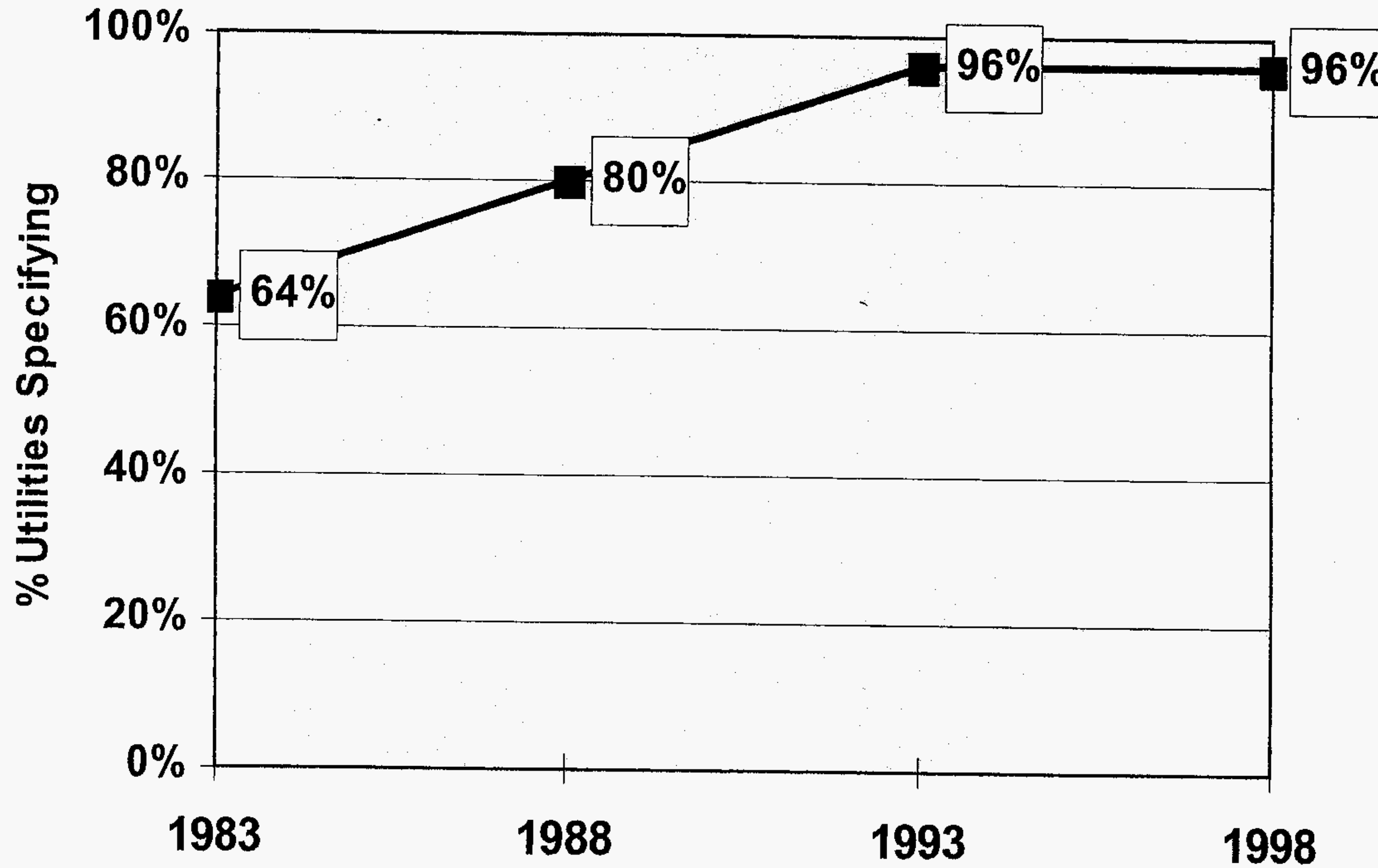
Advantages of a Protective Jacket

- Safeguard metallic shield from corrosion
- Reduce mechanical damage
- Barrier to water penetration

Increased use of Cable Jackets Over a 15-year period



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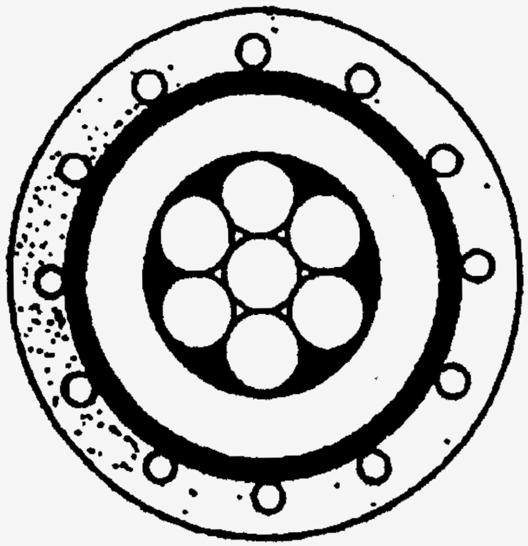
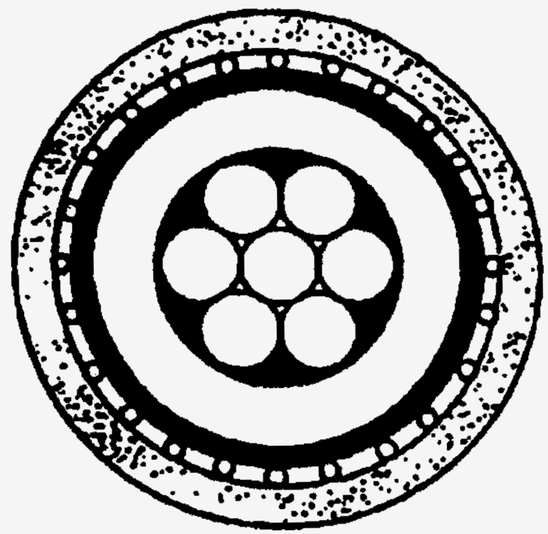
Protective Jacket Types



Encapsulating Jacket



Overlaying Jacket

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Dudas URD Cable Presentation
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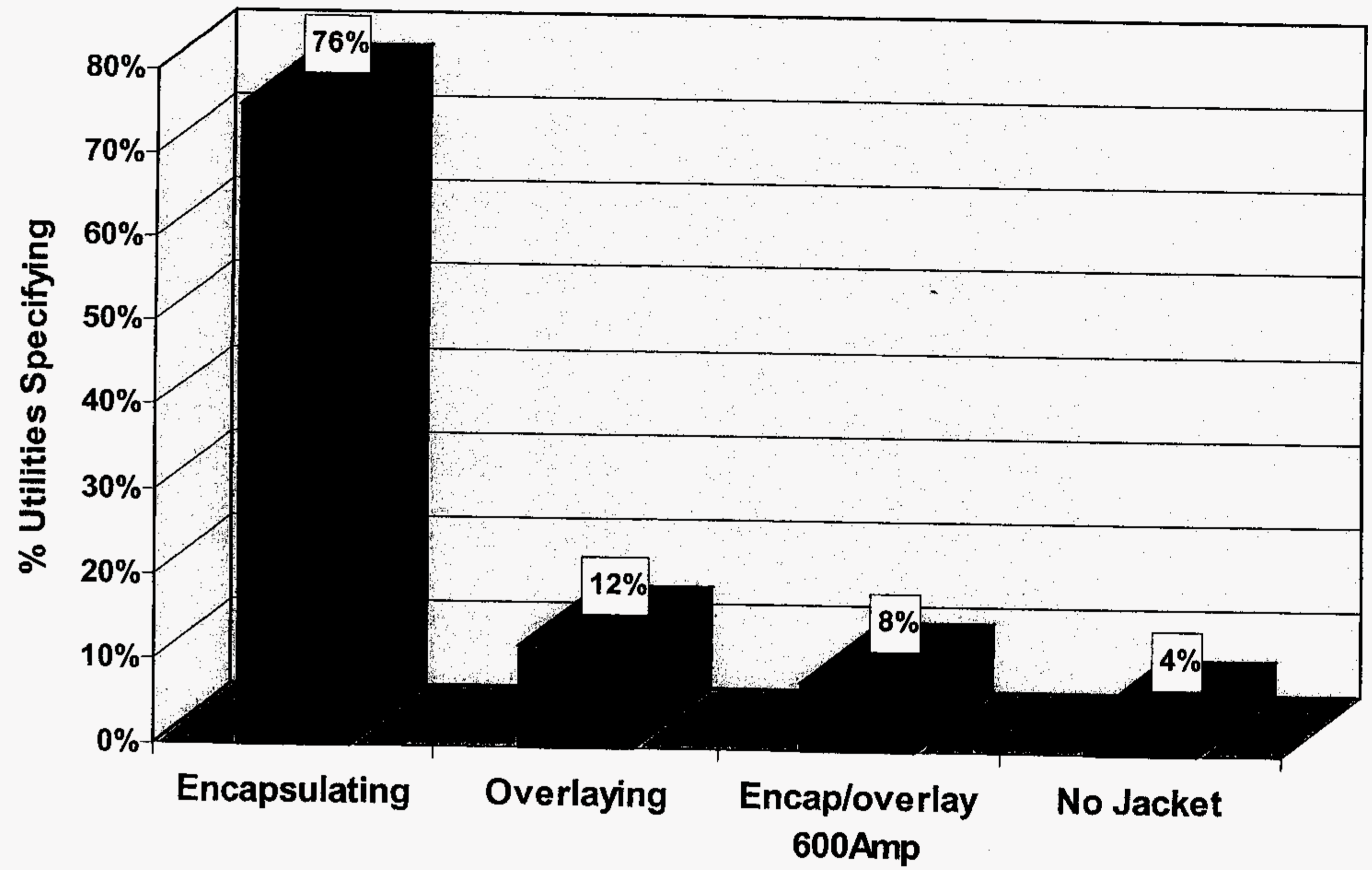
Cable Jacket Type Specified by 25 Largest IOU's 1998



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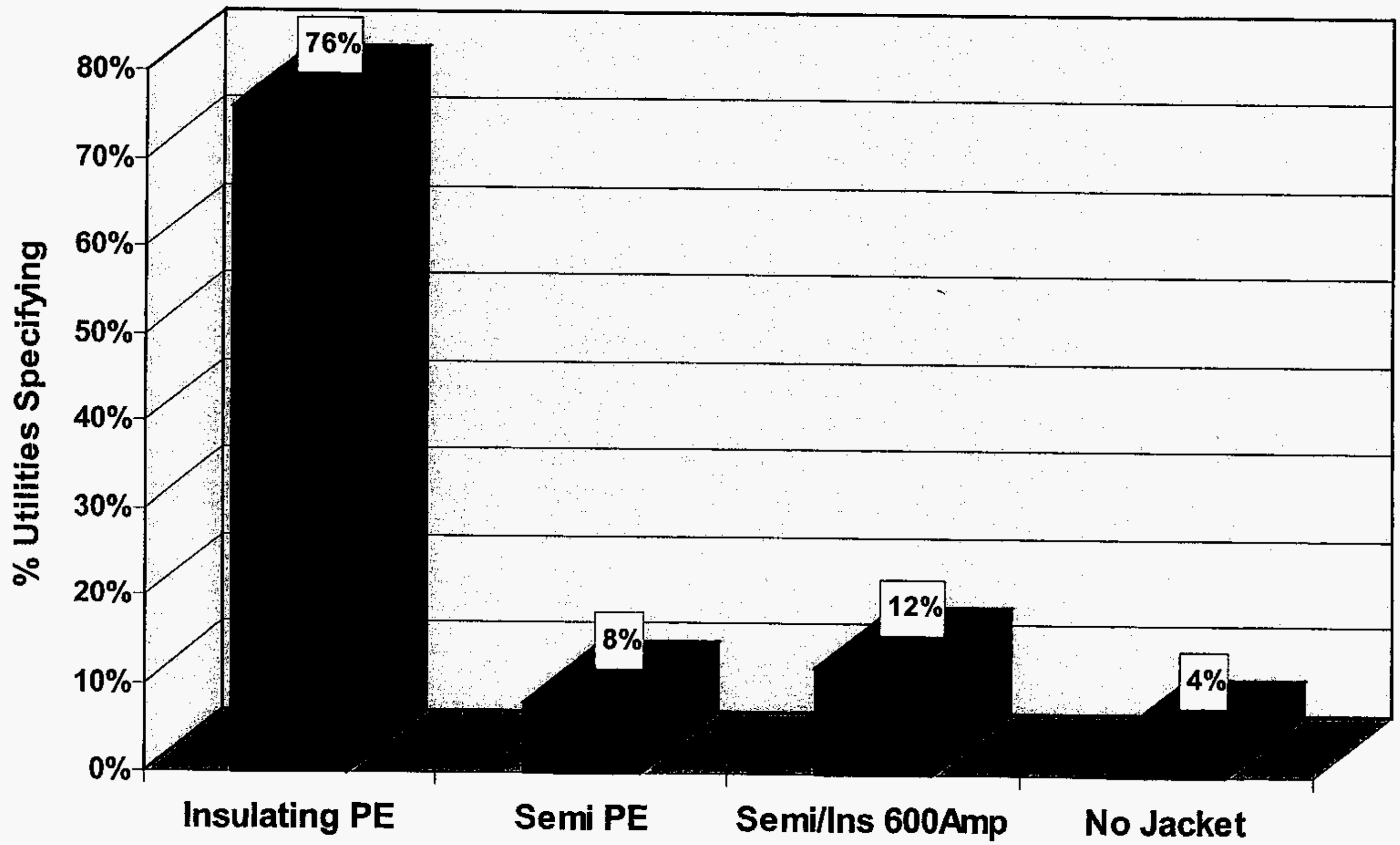
Cable Jacket Compound Specified by 25 Largest IOU's - 1998



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Dudas URD Cable Presentation
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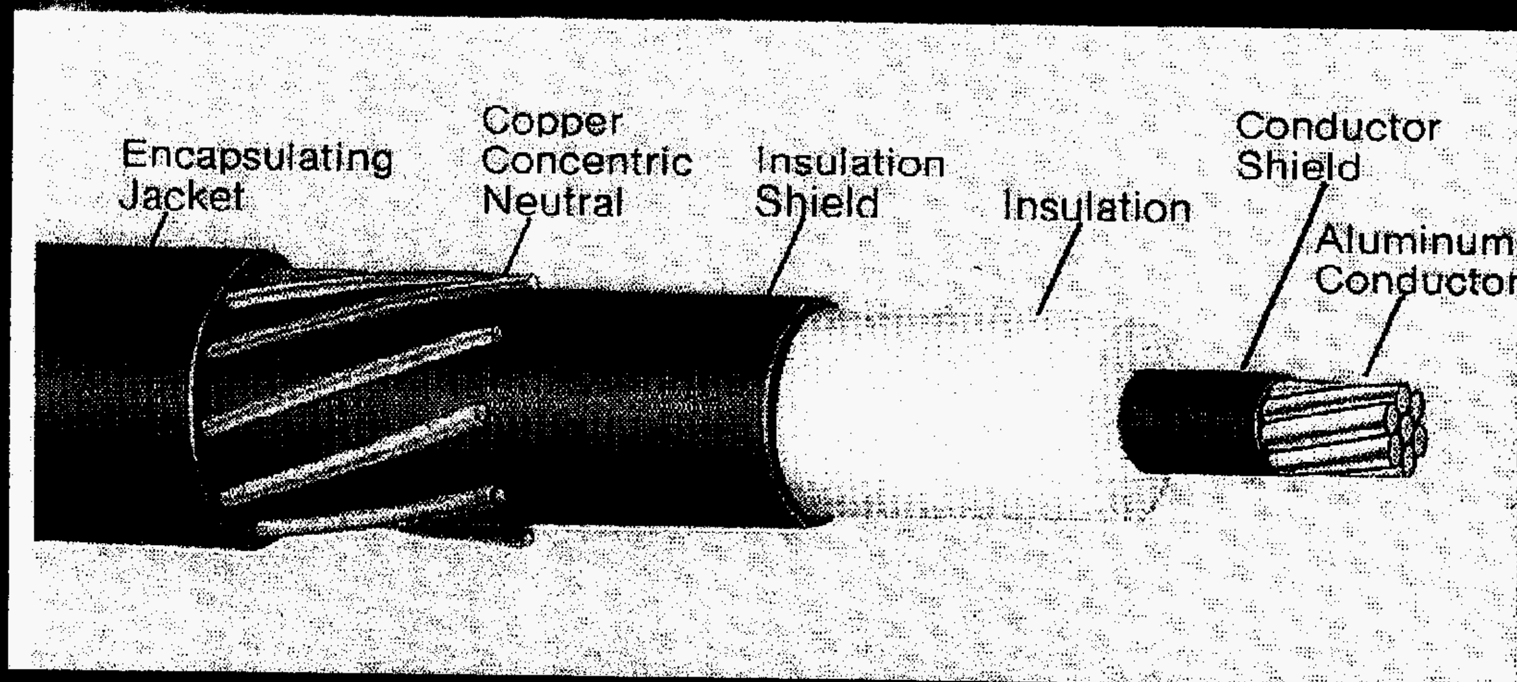
Most Widely Specified 15-35kV Cable Constructions

- Filled strand for non solid conductors
- TRXLPE or EPR insulation compound
- Supersmooth semicon cond shld for TRXLPE
- 1+2 triple or 3 in 1 triple extruded
- Dry cured for TRXLPE
- Concentric wire or Conc/LC 600A metallic shield
- Encapsulating insulating PE jacket

Typical USA Medium Voltage Cable



REFERENCES

- Early history and technical trends of IOU's in March/April 1994 issue of Electrical Insulation Magazine.
- Technical trends of IOU's is in ICC Fall 1999 minutes and Nov/Dec 1999 issue of Electrical Insulation Magazine.
- Technical Trends of REC's in ICC Fall 1998 minutes and 1998 proceedings of Rural Electric Power Conference

Eight Utilities Specifying EPR Insulation

- 5 Specify Filled Strand
- None specify Supersmooth Strand Shield
- 2 specify 1 + 2 triple extrusion
- None specify the curing method
- 8 specify jackets

Community of Captiva Island, Florida

PowerServices, Inc. Report Supporting Information

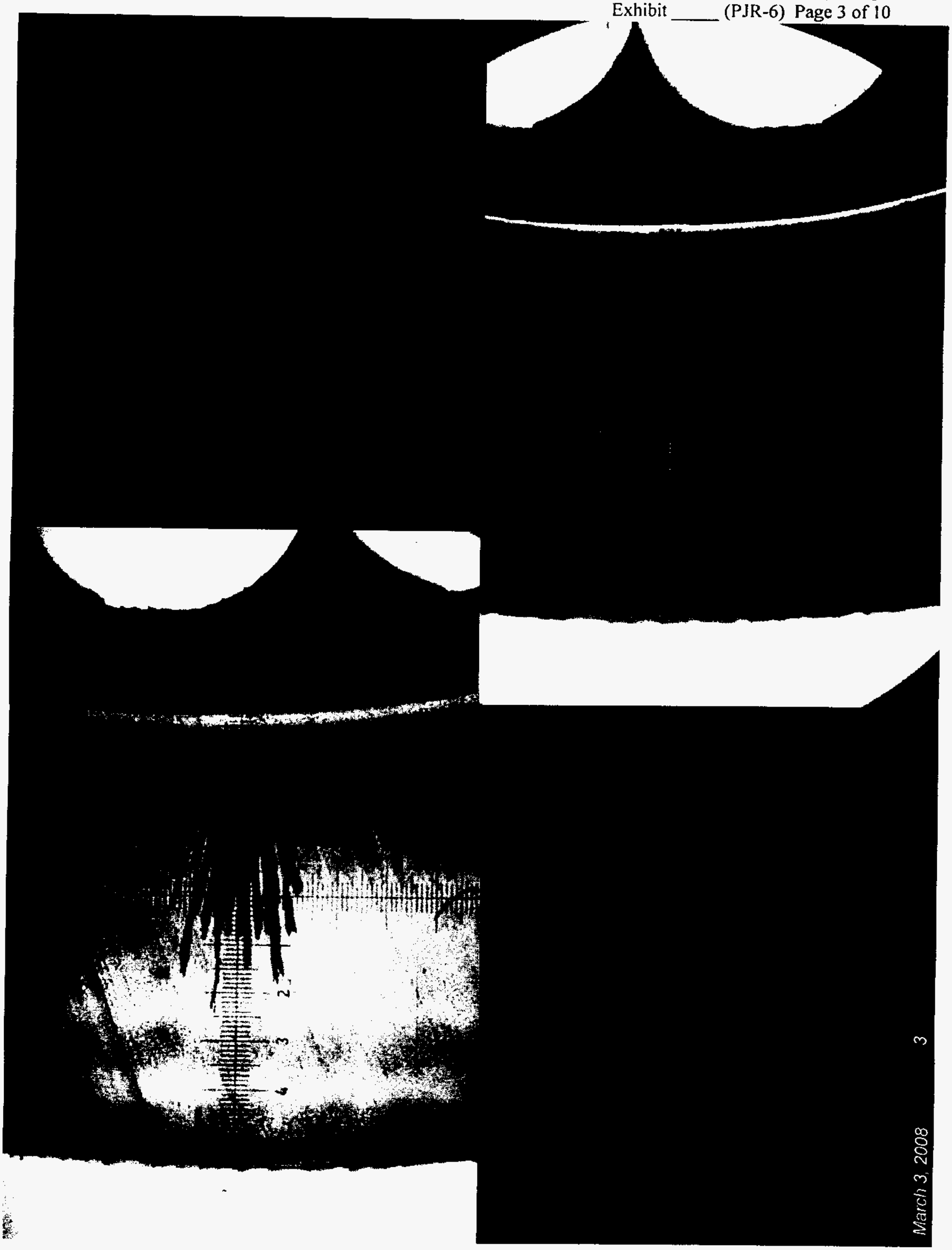
Power Services
Engineering & Management Services®

Presented By:
R.L. Willoughby
March 3, 2008

Docket Nos. 080244-EI & 070231-EI
PowerServices Captiva Supporting Info
Exhibit ____ (PJR-6) Page 1 of 10

History of Undergrounding

HMPE	TR-HMPE & XLPE	XLPE	XLPE
Mid to Late 1960s	Early to Mid 1970s	Mid to Late 1970s	Late 70s to Early 80s
Industry surprised by "water treeing"	Additive put in HMPE to retard growth of "water trees". Strippable insulation shields had problems maintaining uniform adhesion. Utilities started adopting jackets.	Strippable crosslinked insulation shields enabled application of all three layers in single pass, reducing chance of contamination and improving adhesion properties	Shields found to also benefit from cleaner carbon blacks. Cables becoming highly engineered product, reducing variability inherent in manufacturing process.


March 3, 2008
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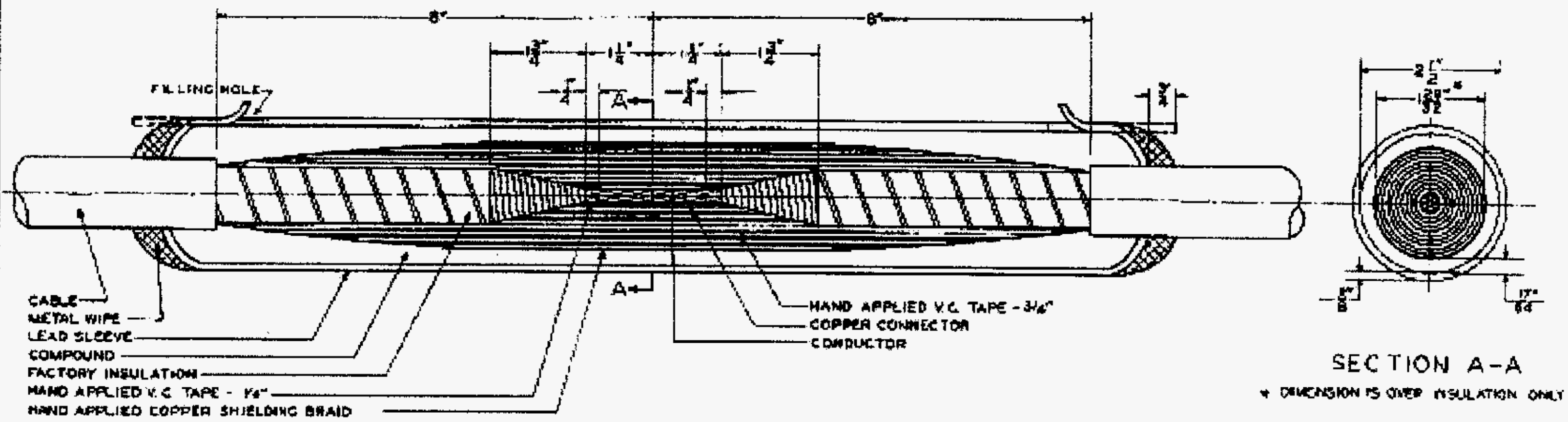
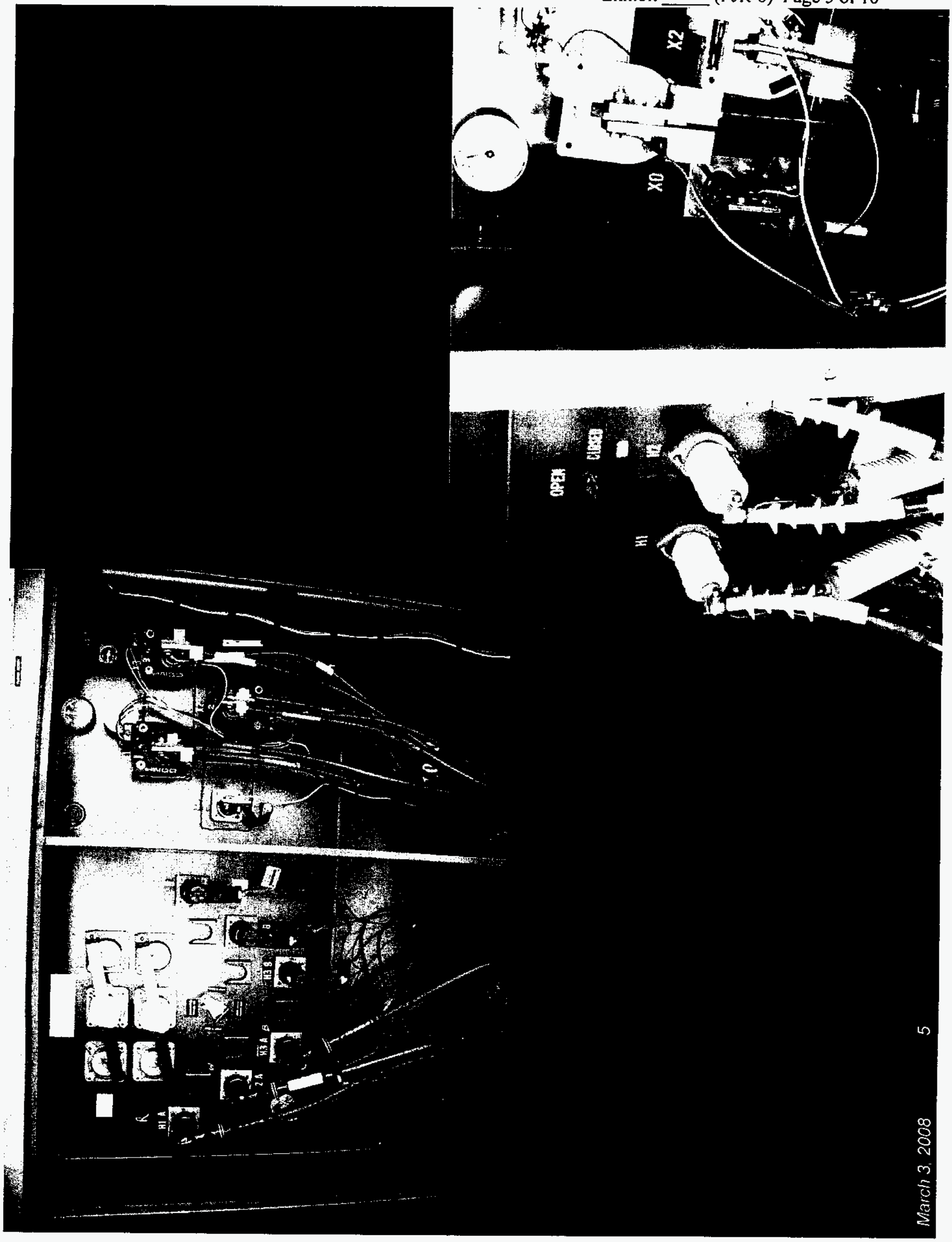


BILL OF MATERIAL			
ITEM	QUANTITY	DESCRIPTION	MAT. NO.
1A	1	LEAD SLEEVE - 2 1/2" x 20" x 1/8"	9-5140
2A	1	COPPER CONNECTOR - NO. 2	C-12250
3A	1/4 LB.	30-30 SOLDER	S-5420
3B	1 1/2 LB.	WIPING SOLDER	S-5480
3C	19 FT.	STRING SOLDER	S-5440
4B	95 YD.	V.C. TAPE - 3/4" X 10 MIL - OIL PACKED	T-1500
4D	6 YD.	V.C. TAPE - 1" X 10 MIL - DRY PACKED	T-1520
6A	8 YD.	COPPER SHIELDING BRAID	T-1130
7A	2 YD.	COTTON TAPE	T-1142
9A	1/4 GAL.	BASTING COMPOUND	C-6960
9C	1/4 GAL.	COMPOUND - OIL INSOLUBLE	C-6730
10A	1 OZ.	STEARINE	S-18940
10B	1/4 OZ.	SOLDERING PASTE	S-18620
12A	11 FT.	PAPER PASTERS - 2"	
12B	5 FT.	PAPER PASTERS - 3/4"	
13	2 FT.	ALUMINUM OXIDE ABRASIVE CLOTH	8-18005

20000 VOLT NO. 2 SINGLE CONDR. CABLE JOINT

Docket Nos. 080244-EI & 070231-EI
PowerServices Captiva Supporting Info
Exhibit (PJR-6) Page 4 of 10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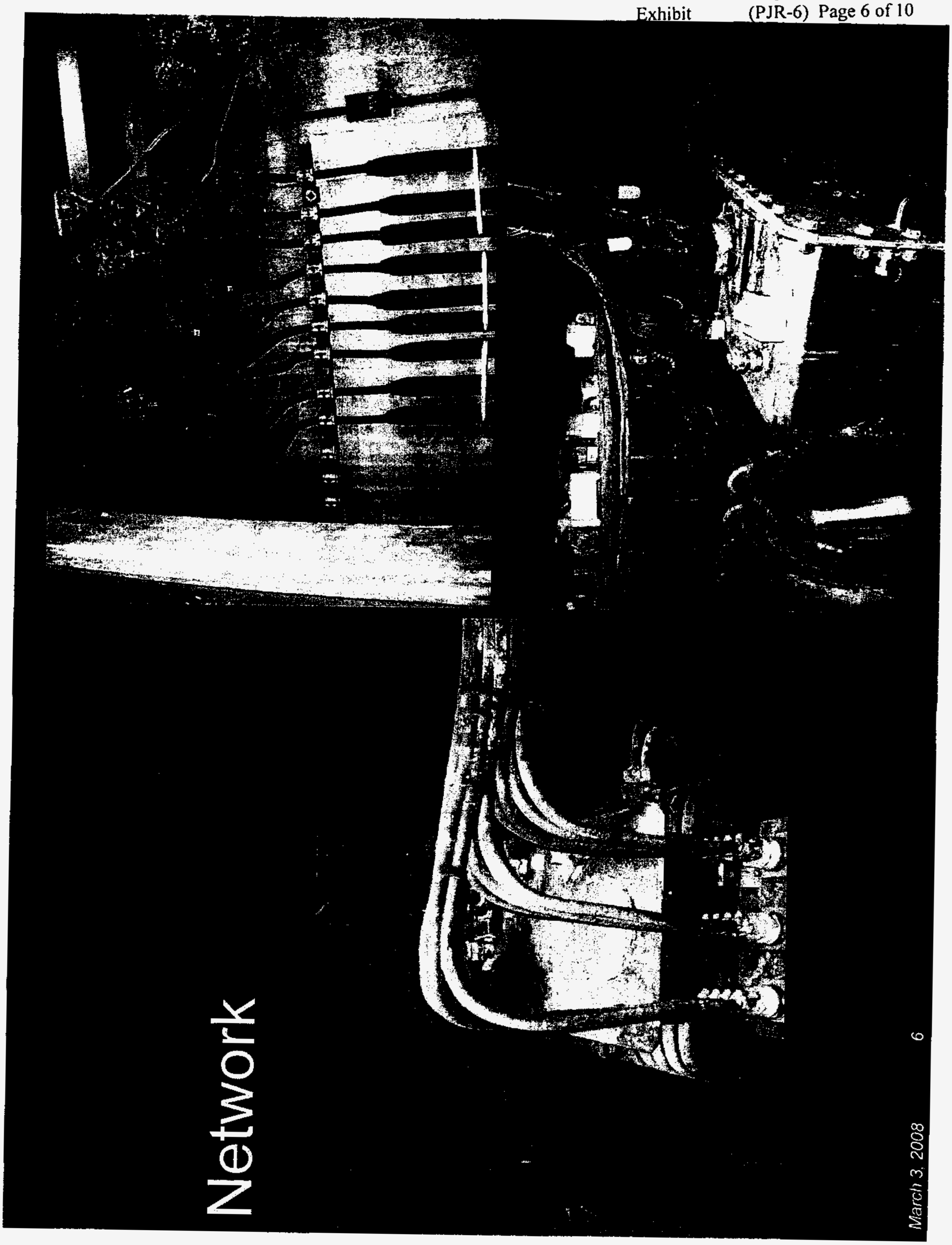
Network
March 3, 2008
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History of Undergrounding

Paper and Lead Cables – 80+ years excellent performance

For approximately 30 years, State of Maryland has required all residential subdivisions to be underground. Since then, our clients in Maryland have had improved reliability.

“Wash out” – Underground equipment flooding

Overhead exposed to salt spray 365 days per year, 24/7 hours and days per week

History of Undergrounding

Continued Improvement in Technology & Installation Training

Docket Nos. 080244-EI & 070231-EI
PowerServices Captiva Supporting Info
Exhibit (PJR-6) Page 8 of 10

Power

History of Undergrounding

North Carolina Utilities Commission

Overhead facilities recommendations:

- Identify the overhead facilities that repeatedly experience reliability problems
- Determine whether conversion to underground is cost-effective
- Develop a plan for converting facilities qualifying based on above criteria

Docket Nos. 080244-EI & 070231-EI
PowerServices Captiva Supporting Info
Exhibit (PJR-6) Page 9 of 10

Public Safety

Public Safety

North Carolina Utilities Commission Report – 1990-2006

- 169 fatalities
- 1 report on undergrounding

Florida Utility – 1990-2006

- 391 injuries or fatalities
- 1 report on undergrounding

Minimize Risk

Attachment A

Government Adjustment Factor v. Storm Restoration Costs

I. Low Density Subdivision (LDS):

#		CIAC Scenarios: 20-Year OH Vintage	CIAC Scenarios: 10-Year OH Vintage
1	New Underground Facilities - Conversion	537,000	537,000
2	+ Existing Overhead Facilities Net Book Value	10,000	110,000
3	+ Overhead Removal Cost	104,000	104,000
5	- Overhead Salvage Value	-	-
4	- New Hypothetical Overhead Facilities	(334,000)	(334,000)
6	Subtotal CIAC	317,000	417,000

II. Avoided Storm Restoration Costs:

#		Base Case 2-Yr Total	2004 Charley	2004 Frances	2004 Jeanne	2005 Dennis	2005 Katrina	2005 Rita	2005 Wilma
7	Total Distribution Cost (000s)	1,448,308	207,457	237,402	246,256	9,024	135,427	10,487	602,255
8	Overhead Distribution Cost (000s)	1,303,477	186,711	213,662	221,630	8,122	121,884	9,438	542,030
9	Customers Affected	10,740,000	874,000	2,786,000	1,737,000	509,000	1,453,000	140,000	3,241,000
10	Average Cost / Customer	121	214	77	128	16	84	67	167
11	Average Cost / LDS	25,487	44,862	16,105	26,795	3,351	17,616	14,157	35,121

III. 30-Year NPV of LDS Costs (line 11):

#		Base Case 2-Yr Total
12	Base Case - Average 1 Storm Every 3 Years	129,269
13	Sensitivity - 100-Year Average (1 Every 5 Yrs)	82,120

IV. NPV of LDS as Effective % of CIAC (line 6):

#		Base Case 2-Yr Total
14	Base Case - Average 1 Storm Every 3 Years	
15	20-Year Overhead Converted	41%
16	10-Year Overhead Converted	31%
17	Sensitivity - 100-Year Average (1 Every 5 Yrs)	
18	20-Year Overhead Converted	26%
19	10-Year Overhead Converted	20%

Docket Nos. 070231-EI & 080244-EI
URD-Operational Cost Differential Analysis
TRK-2, Page 1 of 23

FAC 25-6.078 - URD Underground v. Overhead Operational Cost Differential

- Net Present Value (NPV) Summary -

	Year 1 ($/PLM)		30-Year NPV ($/PLM)			$ / Lot	
LOW DENSITY	O&M	Capital	O&M	Capital	Total	86.2	
1. Underground	2,454	3,215	34,543	50,151	84,694	983	[1]
2. Overhead (excl embed VM & Poles)	(1,956)	(2,257)	(27,533)	(35,207)	(62,740)	(728)	[1]
3. Lost Pole Rental Revenue	515		7,249		7,249	84	
4. Vegetation Management (URD)	---		(5,326)		(5,326)	(62)	[2]
5. Pole Inspection/Remediation (LD)	---	---	(1,403)	(3,003)	(4,406)	(51)	[2]
6. Litigation (Differential) **	n/a		n/a		n/a	n/a	[3]
7. Property Taxes & Insurance		18		1,683	1,683	20	
Differential (Non-Storm)			7,530	13,623	21,154	245	
Avoided Storm Restoration:							
Tier 1 - GAF Equivalent	(10,427)		(33,091)		(33,091)	(384)	
Tier 2 - Mid-Band (40%)	(4,171)		(13,236)		(13,236)	(154)	
Tier 3 - Baseline (20%)	(2,085)		(6,618)		(6,618)	(77)	

	Operational Cost / Lot				
LOW DENSITY	Non-Storm	Storm	Subtotal	Total	% Change
Pre-Operational Cost				563.23	
Post-Operational Cost:					
Tier 1 - GAF Equivalent	245	(384)	(139)	424.23	-25%
Tier 2 - Mid-Band (40%)	245	(154)	91	654.23	16%
Tier 3 - Baseline (20%)	245	(77)	168	731.23	30%

	Year 1 ($/PLM)		30-Year NPV ($/PLM)			$ / Lot	
HIGH DENSITY & METER PEDESTAL	O&M	Capital	O&M	Capital	Total	100.1	
1. Underground	2,454	3,215	34,543	50,151	84,694	846	[1]
2. Overhead (excl embed VM & Poles)	(1,956)	(2,257)	(27,533)	(35,207)	(62,740)	(627)	[1]
3. Lost Pole Rental Revenue	515		7,249		7,249	72	
4. Vegetation Management (URD)	---		(5,326)		(5,326)	(53)	[2]
5. Pole Inspection/Remediation (HD/MP)	---	---	(1,220)	(2,615)	(3,835)	(38)	[2]
6. Litigation (Differential) **	n/a		n/a		n/a	n/a	[3]
7. Property Taxes & Insurance		18		1,737	1,737	17	
Differential (Non-Storm)			7,713	14,066	21,779	217	
Avoided Storm Restoration:							
Tier 1 - GAF Equivalent	(12,117)		(38,453)		(38,453)	(384)	
Tier 2 - Mid-Band (40%)	(4,847)		(15,381)		(15,381)	(154)	
Tier 3 - Baseline (20%)	(2,423)		(7,691)		(7,691)	(77)	

	Operational Cost / Lot					
HIGH DENSITY	Non-Storm	Storm	Subtotal	Total	% Change	
Pre-Operational Cost				140.19		
Post-Operational Cost:						
Tier 1 - GAF Equivalent	217	(384)	(167)	0.00	-100%	[4]
Tier 2 - Mid-Band (40%)	217	(154)	63	203.19	45%	
Tier 3 - Baseline (20%)	217	(77)	140	280.19	100%	

	Operational Cost / Lot					
METER PEDESTAL	Non-Storm	Storm	Subtotal	Total	% Change	
Pre-Operational Cost				(43.85)		[5]
Post-Operational Cost:						
Tier 1 - GAF Equivalent	217	(384)	(167)	0.00	100%	[4]
Tier 2 - Mid-Band (40%)	217	(154)	63	19.15	144%	
Tier 3 - Baseline (20%)	217	(77)	140	96.15	319%	

[1] All related costs excluding items 3 & 4 below
[2] Periodic expenditures for new facilities begin 1st year of their cycle
[3] For confidentiality purposes, litigation costs are embedded in items 1 & 2 above for underground and overhead facilities, respectively
[4] Value capped at zero if negative
[5] Tariff value = zero since it is negative

FAC 25-6.078 - URD (Low Density) Underground v. Overhead Operational Cost Differential

- Net Present Value (NPV) -

Non-Storm 21,154	1 2008	2 2009	3 2010	4 2011	5 2012	6 2013	7 2014	8 2015	9 2016
Operating & Maintenance (O&M)									
1. Underground	2,454	2,494	2,541	2,588	2,637	2,686	2,738	2,791	2,845
2. Overhead (excl embed VM & Poles)	(1,956)	(1,988)	(2,025)	(2,063)	(2,102)	(2,141)	(2,182)	(2,225)	(2,267)
3. Lost Pole Rental Revenue	515	523	533	543	553	564	575	586	597
4. Vegetation Management (URD)	0	0	0	0	0	(2,915)	0	0	0
5. Pole Inspection/Remediation (LD)	0	0	0	0	0	0	0	(1,240)	0
6. Litigation (Differential) **	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total O&M Differential	1,013	1,030	1,049	1,068	1,089	(1,806)	1,130	(88)	1,174
NPV- Operating @ 8.35%	1,013	950	893	840	790	(1,210)	699	(50)	618
Cumulative NPV - O&M	1,013	1,963	2,857	3,696	4,486	3,277	3,975	3,925	4,544
Capital Expenditures									
1. Underground	3,215	3,312	3,403	3,504	3,613	3,717	3,825	3,938	4,052
2. Overhead (excl embed Poles)	(2,257)	(2,325)	(2,389)	(2,460)	(2,536)	(2,609)	(2,686)	(2,765)	(2,844)
3. Pole Inspection/Remediation (LD)	0	0	0	0	0	0	0	(2,522)	0
4. Property Taxes & Insurance	18	36	54	71	89	107	125	96	115
Total Capital Expenditures Differential	976	1,023	1,067	1,116	1,166	1,215	1,265	(1,253)	1,323
NPV - Capital @ 8.35%	976	944	909	877	846	814	782	(715)	696
Cumulative NPV - Capital	976	1,920	2,829	3,706	4,552	5,366	6,147	5,433	6,129
NPV - Total Cash Flows	1,989	1,894	1,803	1,717	1,636	(396)	1,480	(765)	1,315
Cumulative NPV - Total Cash Flows	1,989	3,883	5,686	7,403	9,038	8,642	10,123	9,358	10,673
30-Year Differential NPV	21,154								

Non-Storm 21,154	10 2017	11 2018	12 2019	13 2020	14 2021	15 2022	16 2023	17 2024
Operating & Maintenance (O&M)								
1. Underground	2,898	2,953	3,008	3,064	3,120	3,177	3,235	3,295
2. Overhead (excl embed VM & Poles)	(2,310)	(2,353)	(2,397)	(2,442)	(2,487)	(2,532)	(2,579)	(2,626)
3. Lost Pole Rental Revenue	608	620	631	643	655	667	679	691
4. Vegetation Management (URD)	0	0	(3,264)	0	0	0	0	0
5. Pole Inspection/Remediation (LD)	0	0	0	0	0	0	(1,437)	0
6. Litigation (Differential) **	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total O&M Differential	1,196	1,219	(2,023)	1,265	1,288	1,312	(102)	1,360
NPV- Operating @ 8.35%	581	547	(837)	483	454	427	(30)	377
Cumulative NPV - O&M	5,125	5,672	4,834	5,318	5,772	6,199	6,168	6,545
Capital Expenditures								
1. Underground	4,165	4,284	4,404	4,529	4,655	4,786	4,917	5,055
2. Overhead (excl embed Poles)	(2,924)	(3,008)	(3,092)	(3,179)	(3,268)	(3,360)	(3,452)	(3,549)
3. Pole Inspection/Remediation (LD)	0	0	0	0	0	0	(3,149)	0
4. Property Taxes & Insurance	135	154	173	192	212	231	191	212
Total Capital Expenditures Differential	1,376	1,431	1,485	1,542	1,599	1,657	(1,493)	1,719
NPV - Capital @ 8.35%	668	642	615	589	564	539	(448)	476
Cumulative NPV - Capital	6,798	7,439	8,054	8,643	9,207	9,746	9,298	9,774
NPV - Total Cash Flows	1,250	1,188	(222)	1,072	1,018	966	(479)	854
Cumulative NPV - Total Cash Flows	11,923	13,111	12,889	13,961	14,979	15,945	15,466	16,320

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FAC 25-6.078 - URD (Low Density) Underground v. Overhead Operational Cost Differential
- Net Present Value (NPV) -

Non-Storm 21,154	18 2025	19 2026	20 2027	21 2028	22 2029	23 2030	24 2031	25 2032	26 2033	27 2034	28 2035	29 2036	30 2037	Total (Nominal)
Operating & Maintenance (O&M)														
1. Underground	3,354	3,416	3,481	3,547	3,614	3,683	3,755	3,827	3,900	3,975	4,051	4,130	4,213	97,471
2. Overhead (excl embed VM & Poles)	(2,673)	(2,723)	(2,775)	(2,828)	(2,881)	(2,935)	(2,993)	(3,051)	(3,109)	(3,168)	(3,229)	(3,292)	(3,358)	(77,691)
3. Lost Pole Rental Revenue	704	717	731	744	759	773	788	803	818	834	850	867	884	20,455
4. Vegetation Management (URD)	(3,640)	0	0	0	0	0	(4,075)	0	0	0	0	0	(4,572)	(18,467)
5. Pole Inspection/Remediation (LD)	0	0	0	0	0	0	(1,668)	0	0	0	0	0	0	(4,345)
6. Litigation (Differential) **	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total O&M Differential	(2,256)	1,410	1,437	1,464	1,492	1,520	(4,193)	1,580	1,610	1,641	1,672	1,705	(2,833)	17,424
NPV- Operating @ 8.35%	(577)	333	313	295	277	260	(663)	231	217	204	192	181	(277)	
Cumulative NPV - O&M	5,968	6,301	6,614	6,909	7,186	7,446	6,783	7,014	7,231	7,435	7,627	7,807	7,530	
Capital Expenditures														
1. Underground	5,193	5,336	5,485	5,636	5,788	5,944	6,107	6,269	6,432	6,602	6,776	6,957	7,147	149,048
2. Overhead (excl embed Poles)	(3,646)	(3,746)	(3,851)	(3,957)	(4,063)	(4,173)	(4,287)	(4,401)	(4,516)	(4,635)	(4,757)	(4,884)	(5,017)	(104,835)
3. Pole Inspection/Remediation (LD)	0	0	0	0	0	0	(3,911)	0	0	0	0	0	0	(9,583)
4. Property Taxes & Insurance	233	254	275	295	316	338	284	305	327	348	369	390	411	6,353
Total Capital Expenditures Differential	1,781	1,844	1,909	1,975	2,041	2,107	(1,898)	2,173	2,243	2,315	2,388	2,463	2,541	41,184
NPV - Capital @ 8.35%	456	435	416	397	379	361	(286)	317	302	288	274	261	248	
Cumulative NPV - Capital	10,230	10,665	11,081	11,479	11,858	12,219	11,933	12,250	12,552	12,840	13,114	13,375	13,623	
NPV - Total Cash Flows	(122)	768	729	692	656	621	(949)	548	519	492	466	441	(29)	
Cumulative NPV - Total Cash Flows	16,198	16,966	17,696	18,388	19,044	19,665	18,716	19,264	19,783	20,275	20,741	21,182	21,154	
30-Year Differential NPV														

FAC 25-6.078 - URD (High Density & Meter Pedestal) Underground v. Overhead Operational Cost Differential
- Net Present Value (NPV) -

Non-Storm 21,779	1 2008	2 2009	3 2010	4 2011	5 2012	6 2013	7 2014	8 2015	9 2016	10 2017	11 2018	12 2019	13 2020	14 2021	15 2022	16 2023
Operating & Maintenance (O&M)																
1. Underground	2,454	2,494	2,541	2,588	2,637	2,686	2,738	2,791	2,845	2,898	2,953	3,008	3,064	3,120	3,177	3,235
2. Overhead (excl embed VM & Poles)	(1,956)	(1,968)	(2,025)	(2,063)	(2,102)	(2,141)	(2,182)	(2,225)	(2,267)	(2,310)	(2,353)	(2,397)	(2,442)	(2,487)	(2,532)	(2,579)
3. Lost Pole Rental Revenue	515	523	533	543	553	564	575	586	597	608	620	631	643	655	667	679
4. Vegetation Management (URD)	0	0	0	0	0	(2,915)	0	0	0	0	0	(3,264)	0	0	0	0
5. Pole Inspection/Remediation (HD/MP)	0	0	0	0	0	0	0	(1,078)	0	0	0	0	0	0	0	(1,250)
6. Litigation (Differential) **	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total O&M Differential	1,013	1,030	1,049	1,068	1,089	(1,806)	1,130	74	1,174	1,196	1,218	(2,023)	1,265	1,288	1,312	86
NPV- Operating @ 8.35%	1,013	950	893	840	790	(1,210)	699	42	618	581	547	(837)	483	454	427	26
Cumulative NPV - O&M	1,013	1,963	2,857	3,696	4,486	3,277	3,975	4,018	4,636	5,217	5,764	4,927	5,410	5,864	6,291	6,317
Capital Expenditures																
1. Underground	3,215	3,312	3,403	3,504	3,613	3,717	3,825	3,938	4,052	4,165	4,284	4,404	4,529	4,655	4,786	4,917
2. Overhead (excl embed Poles)	(2,257)	(2,325)	(2,389)	(2,460)	(2,536)	(2,609)	(2,686)	(2,765)	(2,844)	(2,924)	(3,008)	(3,092)	(3,179)	(3,268)	(3,360)	(3,452)
3. Pole Inspection/Remediation (HD/MP)	0	0	0	0	0	0	0	(2,196)	0	0	0	0	0	0	0	(2,742)
4. Property Taxes & Insurance	18	36	54	71	89	107	125	102	121	140	159	178	198	217	236	204
Total Capital Expenditures Differential	976	1,023	1,067	1,116	1,166	1,215	1,285	(921)	1,329	1,381	1,438	1,491	1,547	1,604	1,662	(1,074)
NPV - Capital @ 8.35%	976	944	909	877	846	814	782	(525)	699	671	644	617	591	566	541	(322)
Cumulative NPV - Capital	976	1,920	2,829	3,706	4,552	5,366	6,147	5,622	6,322	6,993	7,637	8,254	8,845	9,411	9,952	9,629
NPV - Total Cash Flows	1,989	1,894	1,803	1,717	1,636	(396)	1,480	(483)	1,318	1,253	1,191	(220)	1,074	1,020	968	(297)
Cumulative NPV - Total Cash Flows	1,989	3,883	5,686	7,403	9,038	8,642	10,123	9,640	10,957	12,210	13,401	13,181	14,255	15,275	16,242	15,946
30-Year Differential NPV	21,779															

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FAC 25-6.078 - URD (High Density & Meter Pedestal) Underground v. Overhead Operational Cost Differential

- Net Present Value (NPV) -

Non-Storm 21,779	17 2024	18 2025	19 2026	20 2027	21 2028	22 2029	23 2030	24 2031	25 2032	26 2033	27 2034	28 2035	29 2036	30 2037	Total (Nominal)
Operating & Maintenance (O&M)															
1. Underground	3,295	3,354	3,416	3,481	3,547	3,614	3,683	3,755	3,827	3,900	3,975	4,051	4,130	4,213	97,471
2. Overhead (excl embed VM & Poles)	(2,626)	(2,673)	(2,723)	(2,775)	(2,828)	(2,881)	(2,935)	(2,993)	(3,051)	(3,109)	(3,168)	(3,229)	(3,292)	(3,358)	(77,691)
3. Lost Pole Rental Revenue	691	704	717	731	744	759	773	788	803	818	834	850	867	884	20,455
4. Vegetation Management (URD)	0	(3,640)	0	0	0	0	0	(4,075)	0	0	0	0	0	(4,572)	(18,467)
5. Pole Inspection/Remediation (HD/MP)	0	0	0	0	0	0	0	(1,451)	0	0	0	0	0	0	(3,779)
6. Litigation (Differential) **	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total O&M Differential	1,360	(2,256)	1,410	1,437	1,464	1,492	1,520	(3,976)	1,580	1,610	1,641	1,672	1,705	(2,833)	17,990
NPV- Operating @ 8.35%	377	(577)	333	313	295	277	260	(629)	231	217	204	192	181	(277)	
Cumulative NPV - O&M	6,694	6,116	6,449	6,763	7,057	7,334	7,595	6,966	7,197	7,414	7,618	7,809	7,990	7,713	
Capital Expenditures															
1. Underground	5,055	5,193	5,336	5,485	5,636	5,788	5,944	6,107	6,269	6,432	6,602	6,776	6,957	7,147	149,048
2. Overhead (excl embed Poles)	(3,549)	(3,646)	(3,746)	(3,851)	(3,957)	(4,063)	(4,173)	(4,287)	(4,401)	(4,516)	(4,635)	(4,757)	(4,884)	(5,017)	(104,635)
3. Pole Inspection/Remediation (HD/MP)	0	0	0	0	0	0	0	(3,406)	0	0	0	0	0	0	(8,345)
4. Property Taxes & Insurance	224	245	265	285	306	326	345	302	323	343	364	385	405	425	6,598
Total Capital Expenditures Differential	1,730	1,792	1,855	1,920	1,985	2,051	2,116	(1,284)	2,191	2,260	2,331	2,404	2,478	2,555	42,666
NPV - Capital @ 8.35%	480	459	438	418	399	381	363	(203)	320	304	290	276	262	250	
Cumulative NPV - Capital	10,109	10,567	11,005	11,424	11,823	12,204	12,566	12,363	12,683	12,988	13,278	13,553	13,816	14,066	
NPV - Total Cash Flows	857	(119)	771	732	694	658	623	(832)	550	521	494	468	443	(27)	
Cumulative NPV - Total Cash Flows	16,802	16,684	17,455	18,166	18,860	19,536	20,161	19,329	19,880	20,401	20,895	21,363	21,806	21,779	
30-Year Differential NPV															

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LD (n-s)	21,154	
HD/MP	21,779	

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
			2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	Cash Flows (2007 $)																	
	Operating & Maintenance (O&M)																	
i	1. Underground	c	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454
i	2. Overhead (excl embed VM & Poles)	c	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)
i	3. Lost Pole Rental Revenue	c	515	515	515	515	515	515	515	515	515	515	515	515	515	515	515	515
i	4. Vegetation Management (URD)	c						(2,663)						(2,663)				
i	5. Pole Inspection/Remediation (LD)	c								(1,090)								(1,090)
i	5. Pole Inspection/Remediation (HD/MP)	c								(948)								(948)
i	6. Litigation (Differential) **	c	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n	7. Avoided Storm Restoration (T1-LD)	c	(10,427)					(10,427)					(10,427)					(10,427)
n	7. Avoided Storm Restoration (T1-HD/MP)	c	(12,117)					(12,117)					(12,117)					(12,117)
	Capital Expenditures																	
i	1. Underground	p	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215
i	2. Overhead (excl embed Poles)	p	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)
i	3. Pole Inspection/Remediation (LD)	p								(2,059)								(2,059)
i	3. Pole Inspection/Remediation (HD/MP)	p								(1,793)								(1,793)
	Rates																	
	Consumer Price Index (CPI)		2.51%	1.63%	1.88%	1.84%	1.92%	1.84%	1.94%	1.95%	1.90%	1.88%	1.88%	1.86%	1.87%	1.84%	1.82%	1.83%
	Public Utility Private Fixed Investment (PUPFI)		3.80%	3.02%	2.73%	2.99%	3.10%	2.88%	2.92%	2.96%	2.87%	2.79%	2.88%	2.80%	2.82%	2.80%	2.82%	2.74%
	CPI Multiplier		1.0000	1.0163	1.0354	1.0545	1.0747	1.0945	1.1157	1.1375	1.1592	1.1809	1.2032	1.2256	1.2485	1.2715	1.2947	1.3184
	PUPFI Multiplier		1.0000	1.0302	1.0584	1.0900	1.1236	1.1561	1.1899	1.2250	1.2602	1.2954	1.3326	1.3699	1.4086	1.4480	1.4887	1.5295
	Book Depreciation	f	3.03%															
	Income Tax (Composite)		38.575%															
	Property Taxes		1.80%															
	Property Insurance		0.06%															
	Discount Rate (Incremental Cost of Capital)	a	8.35%															

Cost of Capital	Weight	Cost	Wtd Avg
Debt	44.2%	6.60%	1.79%
Common	55.8%	11.75%	6.56%
Discount Rate	100.00%		8.35%

Lots / Pole-Line Mile	Low	High
Lots (customers)	210	176
Pole-Line Miles (excl services)	2.4	1.8
Lots / Pole-Line Mile	86.2	100.1

** For confidentiality purposes, litigation costs are embedded in items 1 & 2 above for underground and overhead facilities, respectively

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FAC 25-6.078 - URD - Underground v. Overhead Operational Cost Differential - Inputs

		17 2024	18 2025	19 2026	20 2027	21 2028	22 2029	23 2030	24 2031	25 2032	26 2033	27 2034	28 2035	29 2036	30 2037	Total
	LD (n-s) 21,154															
	HD/MP 21,779															
	Cash Flows (2007 $)															
	Operating & Maintenance (O&M)															
I	1. Underground	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	73,620
I	2. Overhead (excl embed VM & Poles)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(58,680)
I	3. Lost Pole Rental Revenue	515	515	515	515	515	515	515	515	515	515	515	515	515	515	15,450
I	4. Vegetation Management (URD)		(2,663)						(2,663)						(2,663)	(13,316)
I	5. Pole Inspection/Remediation (LD)								(1,090)							(3,270)
I	5. Pole Inspection/Remediation (HD/MP)								(948)							(2,844)
I	6. Litigation (Differential) **	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n	7. Avoided Storm Restoration (T1-LD)					(10,427)					(10,427)					(62,562)
n	7. Avoided Storm Restoration (T1-HD/MP)					(12,117)					(12,117)					(72,700)
	Capital Expenditures															
I	1. Underground	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	96,450
I	2. Overhead (excl embed Poles)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(67,710)
I	3. Pole Inspection/Remediation (LD)								(2,059)							(6,177)
I	3. Pole Inspection/Remediation (HD/MP)								(1,793)							(5,379)
	Rates															
	Consumer Price Index (CPI)	1.84%	1.80%	1.86%	1.90%	1.90%	1.89%	1.89%	1.97%	1.92%	1.90%	1.91%	1.93%	1.96%	1.99%	
	Public Utility Private Fixed Investment (PUPFI)	2.80%	2.73%	2.74%	2.80%	2.76%	2.69%	2.70%	2.74%	2.67%	2.60%	2.64%	2.64%	2.67%	2.73%	
	CPI Multiplier	1.3426	1.3668	1.3922	1.4187	1.4456	1.4728	1.5006	1.5302	1.5596	1.5892	1.6196	1.6509	1.6832	1.7167	
	PUPFI Multiplier	1.5724	1.6153	1.6596	1.7060	1.7532	1.8003	1.8488	1.8994	1.9501	2.0007	2.0534	2.1076	2.1639	2.2229	
	Book Depreciation															
	Income Tax (Composite)															
	Property Taxes															
	Property Insurance															
	Discount Rate (Incremental Cost of Capital)															
	Cost of Capital															
	Debt															
	Common															
	Discount Rate															
	Lots / Pole-Line Mile															
	Lots (customers)															
	Pole-Line Miles (excl services)															
	Lots / Pole-Line Mile															

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FAC 25-6.078 - URD Underground v. Overhead Operational Cost Differential - O&M

	A	B	C	D	E	F	G	H	I
1		Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
2	FERC Form 1 Distribution O&M								
3		580	Operation - Supervision & Engineering	20,727,037	20,531,161	20,473,740	19,776,720	19,529,141	23,324,424
4		581	Operation - Load Dispatching	622,958	554,315	661,675	689,605	621,442	587,753
5		582	Operation - Station	1,958,215	2,601,245	2,267,577	1,902,567	1,456,264	1,563,422
6		583	Operation - Overhead Line	6,892,482	5,198,039	8,719,848	7,288,327	5,743,960	7,512,234
7		584	Operation - Underground Line	8,454,240	8,145,382	8,429,031	9,010,982	8,788,107	7,897,698
8		585	Operation - Street Lighting & Signal Systems	4,200,382	4,447,038	4,729,905	3,837,935	3,736,160	4,250,872
9		586	Operation - Meters	5,980,098	6,867,315	7,810,150	5,688,752	4,264,851	5,269,425
10		587	Operation - Customer Installation	2,313,863	2,259,834	2,305,021	3,032,186	2,787,704	1,184,571
11		588	Operation - Miscellaneous Distribution	28,000,282	30,209,779	34,681,700	29,933,024	23,366,251	21,810,659
12		589	Operation - Rents	7,650,708	8,375,827	8,232,487	6,335,809	7,152,894	8,158,524
13		590	Maintenance - Supervision & Engineering	21,506,667	19,216,431	33,826,494	3,587,168	34,915,752	15,987,488
14		591	Maintenance - Structures	252,286	228,402	257,948	250,332	204,399	320,347
15		592	Maintenance - Station Equipment	7,607,444	8,194,170	7,272,116	6,176,602	7,718,877	8,675,456
16		593	Maintenance - Overhead Line	92,740,411	111,809,997	104,137,777	78,413,273	83,444,861	85,896,148
17		594	Maintenance - Underground Line	27,982,644	30,317,893	26,983,032	28,291,659	26,535,285	27,785,351
18		595	Maintenance - Line Transformers	1,569,760	1,601,410	1,351,361	1,499,555	1,640,807	1,755,670
19		596	Maintenance - Street Lighting & Signal Systems	7,136,966	6,098,153	7,428,293	6,264,416	6,559,375	7,334,594
20		597	Maintenance - Meters	2,091,076	2,586,481	2,466,954	2,062,276	1,769,531	1,570,139
21		598	Maintenance - Miscellaneous Distribution Plant	6,856,687	7,280,669	8,364,992	5,901,196	6,098,459	6,638,118
22			Total O&M	254,544,208	278,523,541	290,400,099	219,942,386	246,334,120	237,520,893
23									

FAC 25-6.078 - URD Underground v. Overhead Operational Cost Differential - O&M

	A	B	C	D	E	F	G	H	I
1		Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
24	Adjustments								
25		580	Operation - Supervision & Engineering	(1,671,580)	(192,903)	(2,424,323)	(2,134,904)	(1,900,201)	(1,705,570)
26	(a)		Operation - Supervision & Engineering	(3,403,336)	(3,276,254)	(4,285,547)	(3,071,412)	(2,990,753)	(3,392,716)
27		581	Operation - Load Dispatching	(622,958)	(554,315)	(661,675)	(689,605)	(621,442)	(587,753)
28		582	Operation - Station	(1,958,215)	(2,601,245)	(2,267,577)	(1,902,567)	(1,458,264)	(1,563,422)
29		583	Operation - Overhead Line	(1,385,795)	(3,504,469)	(2,133,649)	344,805	(1,104,562)	(531,100)
30		584	Operation - Underground Line	(160,937)	(254,546)	(50,628)	(20,717)	(266,190)	(212,602)
31		585	Operation - Street Lighting & Signal Systems	(4,200,382)	(4,447,038)	(4,729,905)	(3,837,935)	(3,736,160)	(4,250,872)
32		586	Operation - Meters	(5,980,098)	(6,867,315)	(7,810,150)	(5,688,752)	(4,264,851)	(5,269,425)
33		587	Operation - Customer Installation	(2,313,863)	(2,259,834)	(2,305,021)	(3,032,186)	(2,787,704)	(1,184,571)
34		588	Operation - Miscellaneous Distribution	(2,302,626)	180,083	(7,297,262)	(1,653,188)	(1,481,645)	(1,261,118)
35		590	Maintenance - Supervision & Engineering	(3,629,913)	(260,670)	(15,297,559)	(989,667)	(749,718)	(851,950)
36	(a)		Maintenance - Supervision & Engineering	(8,107,835)	(9,759,630)	(8,112,636)	(1,357,562)	(14,320,721)	(6,988,624)
37		591	Maintenance - Structures	(252,286)	(228,402)	(257,948)	(250,332)	(204,399)	(320,347)
38		592	Maintenance - Station Equipment	(7,607,444)	(8,194,170)	(7,272,116)	(6,176,602)	(7,718,877)	(8,675,456)
39		593	Maintenance - Overhead Line	(51,794,195)	(68,806,371)	(57,057,483)	(40,590,262)	(46,675,202)	(45,841,638)
40		594	Maintenance - Underground Line	(5,647,811)	(5,479,992)	(6,307,863)	(5,470,951)	(5,752,423)	(5,227,824)
41		595	Maintenance - Line Transformers	(16,529)	(82,647)	-	21	(21)	-
42		596	Maintenance - Street Lighting & Signal Systems	(7,136,966)	(8,098,153)	(7,428,293)	(6,264,416)	(6,559,375)	(7,334,594)
43		597	Maintenance - Meters	(2,091,076)	(2,586,481)	(2,466,954)	(2,062,276)	(1,769,531)	(1,570,139)
44		598	Maintenance - Miscellaneous Distribution Plant	(3,395,190)	(1,798,107)	(4,817,060)	(3,342,033)	(3,380,461)	(3,638,291)
45			Total Adjustments	(113,679,036)	(129,072,460)	(142,983,649)	(88,190,562)	(107,740,497)	(100,408,012)
46									

FAC 25-6.078 - URD Underground v. Overhead Operational Cost Differential - O&M

	A	B	C	D	E	F	G	H	I
1		Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
47	CIAC-Related O&M (excl. Vegetation & Pole Programs)								
48		580	Operation - Supervision & Engineering	15,852,121	17,062,004	13,763,870	14,570,404	14,638,188	18,226,138
49		581	Operation - Load Dispatching	-	-	-	-	-	-
50		582	Operation - Station	-	-	-	-	-	-
51		583	Operation - Overhead Line	5,506,687	1,693,570	6,586,199	7,633,132	4,639,398	6,981,133
52		584	Operation - Underground Line	8,293,303	7,890,836	8,378,403	8,990,265	8,521,917	7,685,096
53		585	Operation - Street Lighting & Signal Systems	-	-	-	-	-	-
54		586	Operation - Meters	-	-	-	-	-	-
55		587	Operation - Customer Installation	-	-	-	-	-	-
56		588	Operation - Miscellaneous Distribution	25,697,656	30,389,862	27,384,437	28,279,836	21,884,606	20,549,541
57		589	Operation - Rents	7,650,708	8,375,827	8,232,487	6,335,809	7,152,894	8,156,524
58		590	Maintenance - Supervision & Engineering	9,768,919	9,196,130	10,416,299	1,239,940	19,845,313	8,146,914
59		591	Maintenance - Structures	-	-	-	-	-	-
60		592	Maintenance - Station Equipment	-	-	-	-	-	-
61		593	Maintenance - Overhead Line	40,946,216	43,003,626	47,080,294	37,822,991	36,769,660	40,054,510
62		594	Maintenance - Underground Line	22,334,833	24,837,900	20,675,170	22,620,708	20,782,862	22,557,527
63		595	Maintenance - Line Transformers	1,553,231	1,518,763	1,351,361	1,499,576	1,640,786	1,755,670
64		596	Maintenance - Street Lighting & Signal Systems	-	-	-	-	-	-
65		597	Maintenance - Meters	-	-	-	-	-	-
66		598	Maintenance - Miscellaneous Distribution Plant	3,461,497	5,482,563	3,547,932	2,559,163	2,717,998	2,999,827
67			Total CIAC-Related O&M	140,865,172	149,451,082	147,416,451	131,751,825	138,593,622	137,112,880
68									

FAC 25-6.078 - URD Underground v. Overhead Operational Cost Differential - O&M

	A	B	C	D	E	F	G	H	I
1		Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
69	**Underground CIAC-Related O&M**								
70	(b)	580	Operation - Supervision & Engineering	8,685,812	10,415,360	6,765,229	8,055,167	8,852,282	9,341,023
71		584	Operation - Underground Line	8,293,303	7,890,836	8,378,403	8,990,265	8,521,917	7,685,096
72	(b)	588	Operation - Miscellaneous Distribution	14,282,374	18,551,242	13,460,021	15,634,349	13,234,473	10,531,784
73	(b)	590	Maintenance - Supervision & Engineering	4,206,543	4,159,517	3,939,803	597,870	8,780,528	3,554,996
74		594	Maintenance - Underground Line	22,334,833	24,837,900	20,675,170	22,820,708	20,782,862	22,557,527
75	(b)	595	Maintenance - Line Transformers	682,643	686,954	511,131	723,061	725,963	766,106
76	(b)	598	Maintenance - Miscellaneous Distribution Plant	1,513,466	2,479,827	1,341,950	1,233,969	1,202,574	1,309,008
77			**Subtotal Underground O&M**	59,998,974	69,021,636	55,071,707	58,055,389	62,100,600	55,745,539
78									
79	**Overhead CIAC-Related O&M**								
80	(b)	580	Operation - Supervision & Engineering	6,966,309	6,846,644	6,998,641	6,515,238	5,785,906	8,885,115
81		583	Operation - Overhead Line	5,506,887	1,693,570	6,586,199	7,633,132	4,639,398	6,981,133
82	(b)	588	Operation - Miscellaneous Distribution	11,415,282	11,838,620	13,924,416	12,645,487	8,650,133	10,017,757
83		589	Operation - Rents	7,650,708	8,375,827	8,232,487	6,335,809	7,152,894	8,156,524
84	(b)	590	Maintenance - Supervision & Engineering	5,562,376	5,036,614	6,476,495	642,069	11,064,785	4,591,918
85		593	Maintenance - Overhead Line	40,946,216	43,003,626	47,080,294	37,822,991	36,769,660	40,054,510
86	(b)	595	Maintenance - Line Transformers	870,588	831,809	840,230	776,515	914,823	989,564
87	(b)	598	Maintenance - Miscellaneous Distribution Plant	1,948,031	3,002,736	2,205,982	1,325,194	1,515,424	1,690,820
88			**Subtotal Overhead O&M**	80,866,198	80,429,445	92,344,744	73,696,436	76,493,023	81,367,341
89									
91									
92	**Pole-Line Miles (PLM)**								
93			Underground (trench)		25,053	24,679	24,427	24,166	23,893
94			Overhead (pole line)		41,690	41,619	41,343	41,144	40,897
95			**Total**		66,743	66,298	65,770	65,310	64,790
96									
97	**CIAC-Related O&M [per PLM]**								
98			1. Underground	2,454	2,755	2,232	2,377	2,570	2,333
99			2. Overhead (excl. embedded Vegetation & Pole Progams)	(1,556)	(1,929)	(2,219)	(1,783)	(1,859)	(1,990)
100			**Differential**	498	826	13	594	711	344
101									
103									

FAC 25-6.078 - URD Underground v. Overhead Operational Cost Differential - O&M

	A	B	C	D	E	F	G	H	I
1		Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
104	(a) Non-P&W Supervision & Engineering Allocation % (non-substation)								
105		Operations							
106		580	Operation - Supervision & Engineering Total		20,531,161	20,473,740	19,776,720	19,529,141	23,324,424
107		580	Various Adjustments		(192,903)	(2,424,323)	(2,134,904)	(1,900,201)	(1,705,570)
108			**Adjusted Operation - Supervision & Engineering**		**20,338,258**	**18,049,417**	**17,641,817**	**17,628,941**	**21,618,854**
109		58*	Total Operations (incl. Supervision & Engineering)		89,189,935	98,311,134	87,495,907	77,446,774	81,557,581
110		582	Operation - Station		(2,601,245)	(2,267,577)	(1,902,567)	(1,456,264)	(1,563,422)
111			**Non-Substation Total**		**86,588,690**	**96,043,557**	**85,593,341**	**75,990,510**	**79,994,159**
112			**Operations - % of Total (580 adjustment)**		**23%**	**19%**	**21%**	**23%**	**27%**
113									
114		Maintenance							
115		590	Maintenance - Supervision & Engineering		19,216,431	33,826,494	3,587,168	34,915,752	15,987,488
116		590	590.200 - Substation Distrib Maint Supv & Engineer		(260,670)	(15,297,559)	(989,667)	(749,718)	(851,950)
117			**Non-Substation Supervision & Engineering**		**18,955,761**	**18,528,935**	**2,597,501**	**34,166,034**	**15,135,538**
118		59*	Total Operations (incl. Supervision & Engineering)		189,333,607	192,088,965	132,446,479	168,887,345	155,963,312
119		59*	Maintenance - Structures & Station Equipment		(8,422,572)	(7,530,063)	(6,426,934)	(7,923,276)	(8,995,803)
120			**Non-Substation Total**		**180,911,035**	**184,558,902**	**126,019,545**	**160,964,069**	**146,967,509**
121			**Maintenance - % of Total (590 adjustment)**		**10%**	**10%**	**2%**	**21%**	**10%**
122									
123	(b) Overhead v. Underground Allocation % *								
124			Operations - Overhead Line [583 / (583+584)]	45%	39%	51%	45%	40%	49%
125			Maintenance - Overhead Line [593 / (593+594)]	56%	55%	62%	52%	56%	56%
126			** Applied to Supervision, Miscellaneous & Transformers*						
127									
129									

FAC 25-6.078 - URD Underground v. Overhead Operational Cost Differential - O&M

	A B	C	D	E	F	G	H	I
1	Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
130	**Lost Pole Rental Revenues [per PLM]**							
131	454.300 - CATV		5,751,207	6,768,560	6,220,724	5,525,797	5,255,389	4,985,567
132	454.400 - BellSouth Joint Use		15,555,603	18,052,902	16,399,009	12,620,033	15,927,496	14,778,577
133	**Subtotal Pole Rental Revenues**		21,306,811	24,821,462	22,619,733	18,145,830	21,182,885	19,764,144
134								
135	3. Lost Pole Rental Revenues [per PLM]		515	595	543	439	515	483
136								
138								
139	**Vegetation Management [per PLM]**							
140	Cost (2012)		(75,205,991)					
141	Planned Trim Miles		12,900					
142	**Cost / PLM (nominal $)**		(5,830)					
143	Adjustment for FPL Policies (e.g., RTRP, etc.)		-50%					
144	**Net Cost / PLM (nominal $)**		(2,915)					
145	CPI Multiplier		1.0945					
146	4. Vegetation Management [per PLM] (2007 $)		(2,663)					
147								
149								
150	**Pole Inspection / Remediation [per PLM]**							
151			Low Density	High / Meter				
152	Non-Service Poles		75	48				
153	Pole-Line Miles (excl services)		2.4	1.8				
154	**Poles / Line Mile**		31	27				
155					Cost / Pole		Cost / PLM	
156			Strength	Quantity	O&M	Capital	O&M	Capital
157	**Low Density**							
158	Inspections			31	(25)	(15)	(780)	(454)
159	Reinforcements - CT Truss (CCA)		0.08%	0.0	-	(325)	-	(8)
160	Reinforcements - ET Truss (CCA)		0.69%	0.2	-	(1,006)	-	(215)
161	Replacements (CCA)		1.48%	0.5	(673)	(3,012)	(310)	(1,382)
162	5. & 3. LD Pole Inspect/Remed [per PLM] (2007 $)						(1,090)	(2,059)
163	**High Density / Meter Pedestal**							
164	Inspections			27	(25)	(15)	(679)	(396)
165	Reinforcements - CT Truss (CCA)		0.08%	0.0	-	(325)	-	(7)
166	Reinforcements - ET Truss (CCA)		0.69%	0.2	-	(1,006)	-	(187)
167	Replacements (CCA)		1.48%	0.4	(673)	(3,012)	(269)	(1,203)
168	5. & 3. HD/MP Pole Inspect/Remed [per PLM] (2007 $)						(948)	(1,793)

FAC 25-6.078 - URD Underground v. Overhead Operational Cost Differential - Capital Expenditures

	A B C	D	E	F	G	H	I	J
1	Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
2	**FERC Form 1 Distribution Capital - Underground**							
3	Plant-in-Service Additions							
4	366	Conduit & Structures	93,449,391	85,583,696	123,235,508	96,211,743	87,733,601	74,482,406
5	367	Conductors & Devices	106,417,044	128,455,781	139,455,264	89,414,379	77,021,724	97,738,072
6	368	Transformers	35,985,130	42,513,095	42,841,747	36,648,823	30,166,954	27,755,032
7	Removal Costs		3,763,748	5,173,469	5,334,476	3,559,824	3,480,614	1,270,359
8	**Total Underground**		239,615,313	261,726,041	310,866,995	225,834,769	198,402,893	201,245,869
9								
10	**FERC Form 1 Distribution Capital - Overhead**							
11	Plant-in-Service Additions							
12	364	Poles, Towers & Fixtures	48,159,516	33,193,334	53,211,276	63,905,293	44,299,482	46,188,195
13	365	Overhead Conductors & Devices	58,241,703	60,306,523	77,283,362	57,624,141	42,607,750	53,386,738
14	368	Transformers	63,973,565	75,578,836	76,163,105	65,153,463	53,630,141	49,342,280
15	Removal Costs		24,595,274	26,903,214	35,798,390	25,500,925	16,272,071	18,503,769
16	**Total Overhead**		194,970,058	195,981,907	242,454,133	212,183,823	156,809,444	167,420,982
17								
18								
19	**Adjustments - Underground**							
20	Plant-in-Service Additions							
21	366	Conduit & Structures	(66,190,618)	(60,512,300)	(87,764,486)	(68,179,507)	(65,215,545)	(49,281,250)
22	367	Conductors & Devices	(74,708,084)	(93,743,288)	(100,666,004)	(64,583,117)	(55,993,711)	(58,554,301)
23	368	Transformers	(18,324,130)	(76,964)	(42,367,197)	(19,006,149)	(7,801,369)	(22,348,971)
24	Removal Costs		(1,630,347)	(1,584,411)	(2,562,912)	(1,486,699)	(1,436,031)	(1,081,682)
25	**Total Underground**		(160,853,179)	(155,916,963)	(233,380,599)	(153,255,472)	(130,446,657)	(131,266,203)
26								
27	**Adjustments - Overhead**							
28	Plant-In-Service Additions							
29	364	Poles, Towers & Fixtures	(27,766,982)	(26,005,484)	(34,273,438)	(36,876,064)	(18,103,415)	(23,676,507)
30	365	Overhead Conductors & Devices	(30,399,453)	(28,061,319)	(37,024,857)	(34,838,301)	(21,093,904)	(30,978,885)
31	368	Transformers	(32,576,231)	(136,825)	(75,355,017)	(33,788,709)	(13,869,101)	(39,731,504)
32	Removal Costs		(10,802,451)	(11,927,586)	(17,615,074)	(10,704,630)	(6,622,896)	(7,142,068)
33	**Total Overhead**		(101,565,117)	(66,131,214)	(164,268,386)	(116,207,703)	(59,689,317)	(101,528,964)
34								
35								

FAC 25-6.078 - URD Underground v. Overhead Operational Cost Differential - Capital Expenditures

	A B C	D	E	F	G	H	I	J
1	Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
36	**CIAC-Related Capital - Underground**							
37	Plant-in-Service Additions							
38	366	Conduit & Structures	27,258,773	25,071,396	35,471,022	28,032,236	22,518,056	25,201,156
39	367	Conductors & Devices	31,708,960	34,712,493	38,789,260	24,831,262	21,028,013	39,183,771
40	368	Transformers	17,661,000	42,436,131	454,550	17,642,674	22,365,585	5,406,061
41	Removal Costs		2,133,401	3,589,059	2,771,564	2,073,125	2,044,583	188,677
42	Total Underground		78,762,134	105,809,078	77,486,395	72,579,297	67,956,236	69,979,666
43								
44	**CIAC-Related Capital - Overhead (excl. embed Pole Prog)**							
45	Plant-in-Service Additions							
46	364	Poles, Towers & Fixtures	20,372,534	7,187,850	18,937,838	27,029,229	26,196,067	22,511,688
47	365	Overhead Conductors & Devices	27,842,250	32,245,204	40,258,505	22,785,840	21,513,846	22,407,853
48	368	Transformers	31,397,334	75,442,011	808,089	31,364,754	39,761,039	9,610,776
49	Removal Costs		13,792,823	14,975,628	18,181,316	14,796,296	9,649,175	11,361,701
50	Total Overhead		93,404,941	129,850,693	78,185,747	95,976,119	97,120,127	65,892,018
51								
52								
53								
54								
55	**Pole-Line Miles (PLM)**							
56	Underground (trench)			25,053	24,679	24,427	24,166	23,893
57	Overhead (pole line)			41,690	41,619	41,343	41,144	40,897
58	Total			66,743	66,298	65,770	65,310	64,790
59								
60								
61	**Capital Expenditures (per PLM)**							
62	1. Underground		3,215	4,223	3,140	2,971	2,812	2,929
63	2. Overhead (excl. embedded Pole Program)		(2,257)	(3,115)	(1,879)	(2,321)	(2,360)	(1,611)
64	Differential		958	1,109	1,261	650	452	1,318

FAC 25-6.078 - URD (Low Density) Underground v. Overhead Operational Cost Differential - Property Taxes & Insurance

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Capital		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1. Underground		3,215	3,312	3,403	3,504	3,613	3,717	3,825	3,938	4,052	4,165	4,284	4,404	4,529	4,655	4,786	4,917	5,055	5,193
2. Overhead (excl embed Poles)		(2,257)	(2,325)	(2,389)	(2,460)	(2,536)	(2,609)	(2,686)	(2,765)	(2,844)	(2,924)	(3,008)	(3,092)	(3,179)	(3,268)	(3,360)	(3,452)	(3,549)	(3,646)
3. Pole Inspection/Remediation (LD)		0	0	0	0	0	0	0	(2,522)	0	0	0	0	0	0	0	(3,149)	0	0
Total Capital		958	987	1,014	1,044	1,077	1,108	1,140	(1,349)	1,207	1,241	1,277	1,312	1,349	1,387	1,426	(1,684)	1,506	1,547
Undepreciated Balance		958	1,945	2,959	4,003	5,080	6,187	7,327	5,978	7,186	8,427	9,703	11,016	12,365	13,752	15,178	13,494	15,001	16,548
Accum Book Depreciation																			
2007	958	0	29	58	87	116	145	174	203	232	261	290	319	348	377	406	435	464	494
2008	987		0	30	60	90	120	150	179	209	239	269	299	329	359	389	419	449	479
2009	1,014			0	31	61	92	123	154	184	215	246	277	307	338	369	399	430	461
2010	1,044				0	32	63	95	127	158	190	222	253	285	316	348	380	411	443
2011	1,077					0	33	65	98	130	163	196	228	261	294	326	359	391	424
2012	1,108						0	34	67	101	134	168	201	235	268	302	336	369	403
2013	1,140							0	35	69	104	138	173	207	242	276	311	345	380
2014	(1,349)								0	(41)	(82)	(123)	(163)	(204)	(245)	(286)	(327)	(368)	(409)
2015	1,207									0	37	73	110	146	183	220	256	293	329
2016	1,241										0	38	75	113	150	188	226	263	301
2017	1,277											0	39	77	116	155	193	232	271
2018	1,312												0	40	80	119	159	199	239
2019	1,349													0	41	82	123	164	204
2020	1,387														0	42	84	126	168
2021	1,426															0	43	86	130
2022	(1,684)																0	(51)	(102)
2023	1,506																	0	46
2024	1,547																		0
2025	1,590																		
2026	1,634																		
2027	1,680																		
2028	1,725																		
2029	1,771																		
2030	(2,091)																		
2031	1,868																		
2032	1,917																		
2033	1,967																		
2034	2,019																		
2035	2,073																		
2036	2,130																		
Total Book Depreciation	34,830	0	29	88	178	299	453	640	862	1,044	1,261	1,517	1,811	2,145	2,518	2,936	3,396	3,805	4,259
Depreciated Balance		958	1,916	2,871	3,825	4,781	5,734	6,687	5,116	6,142	7,165	8,187	9,205	10,221	11,233	12,242	10,099	11,196	12,289
Property Taxes		17	34	52	69	86	103	120	92	111	129	147	166	184	202	220	182	202	221

FAC 25-6.078 - URD (Low Density) Underground v. Overhead Operational Cost Differential - Property Taxes & Insurance

		1 2008	2 2009	3 2010	4 2011	5 2012	6 2013	7 2014	8 2015	9 2016	10 2017	11 2018	12 2019	13 2020	14 2021	15 2022	16 2023	17 2024	18 2025
Replacement Value																			
2007	958	958	974	992	1,010	1,030	1,049	1,069	1,090	1,110	1,131	1,153	1,174	1,196	1,218	1,240	1,263	1,286	1,309
2008	987		987	1,003	1,022	1,041	1,061	1,080	1,101	1,123	1,144	1,166	1,187	1,210	1,232	1,255	1,278	1,301	1,325
2009	1,014			1,014	1,030	1,050	1,069	1,090	1,110	1,131	1,153	1,175	1,197	1,220	1,243	1,266	1,289	1,313	1,337
2010	1,044				1,044	1,061	1,081	1,101	1,122	1,143	1,165	1,188	1,210	1,233	1,256	1,280	1,304	1,328	1,352
2011	1,077					1,077	1,094	1,115	1,135	1,157	1,178	1,201	1,225	1,248	1,271	1,295	1,319	1,344	1,369
2012	1,108						1,108	1,126	1,147	1,168	1,190	1,212	1,236	1,260	1,284	1,308	1,333	1,357	1,383
2013	1,140							1,140	1,159	1,180	1,202	1,225	1,248	1,272	1,297	1,321	1,346	1,371	1,397
2014	(1,349)								(1,349)	(1,371)	(1,397)	(1,422)	(1,450)	(1,476)	(1,505)	(1,534)	(1,563)	(1,593)	(1,623)
2015	1,207									1,207	1,227	1,250	1,273	1,297	1,321	1,347	1,373	1,399	1,426
2016	1,241										1,241	1,261	1,285	1,309	1,334	1,358	1,385	1,412	1,438
2017	1,277											1,277	1,298	1,322	1,346	1,372	1,397	1,424	1,452
2018	1,312												1,312	1,334	1,359	1,384	1,410	1,436	1,464
2019	1,349													1,349	1,371	1,397	1,423	1,450	1,477
2020	1,387														1,387	1,410	1,436	1,463	1,491
2021	1,426															1,426	1,450	1,477	1,504
2022	(1,684)																(1,684)	(1,712)	(1,744)
2023	1,506																	1,506	1,531
2024	1,547																		1,547
2025	1,590																		
2026	1,634																		
2027	1,680																		
2028	1,725																		
2029	1,771																		
2030	(2,091)																		
2031	1,868																		
2032	1,917																		
2033	1,967																		
2034	2,019																		
2035	2,073																		
2036	2,130																		
Total Replacement Value	34,830	958	1,961	3,009	4,107	5,258	6,461	7,720	6,515	7,849	9,236	10,685	12,196	13,773	15,415	17,126	15,759	17,564	19,436
Property Insurance		1	1	2	3	3	4	5	4	5	6	7	7	8	9	10	10	11	12

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	19 2026	20 2027	21 2028	22 2029	23 2030	24 2031	25 2032	26 2033	27 2034	28 2035	29 2036	30 2037
Capital												
1. Underground	5,336	5,485	5,636	5,788	5,944	6,107	6,269	6,432	6,602	6,776	6,957	7,147
2. Overhead (excl embed Poles	(3,746)	(3,851)	(3,957)	(4,063)	(4,173)	(4,287)	(4,401)	(4,516)	(4,635)	(4,757)	(4,884)	(5,017)
3. Pole Inspection/Remediation	0	0	0	0	0	(3,911)	0	0	0	0	0	0
Total Capital	1,590	1,634	1,680	1,725	1,771	(2,091)	1,868	1,917	1,967	2,019	2,073	2,130
Undepreciated Balance	18,138	19,773	21,452	23,177	24,948	22,857	24,725	26,642	28,609	30,628	32,701	34,830
Accum Book Depreciation												
2007	523	552	581	610	639	668	697	726	755	784	813	842
2008	508	538	568	598	628	658	688	718	748	778	808	837
2009	492	522	553	584	614	645	676	707	737	768	799	830
2010	475	506	538	570	601	633	665	696	728	759	791	823
2011	457	489	522	555	587	620	652	685	718	750	783	816
2012	436	470	503	537	571	604	638	671	705	738	772	805
2013	415	449	484	518	553	587	622	656	691	725	760	794
2014	(450)	(490)	(531)	(572)	(613)	(654)	(695)	(736)	(777)	(817)	(858)	(899)
2015	366	402	439	476	512	549	585	622	659	695	732	768
2016	338	376	414	451	489	526	564	602	639	677	714	752
2017	309	348	387	426	464	503	542	580	619	658	696	735
2018	278	318	358	398	437	477	517	557	597	636	676	716
2019	245	286	327	368	409	450	491	532	572	613	654	695
2020	210	252	294	336	378	420	462	504	546	588	631	673
2021	173	216	259	303	348	389	432	475	519	562	605	648
2022	(153)	(204)	(255)	(306)	(357)	(408)	(459)	(510)	(561)	(612)	(663)	(714)
2023	91	137	183	228	274	320	365	411	456	502	548	593
2024	47	94	141	188	234	281	328	375	422	469	516	563
2025	0	48	96	145	193	241	289	337	385	434	482	530
2026		0	50	99	149	198	248	297	347	396	446	495
2027			0	51	102	153	204	254	305	356	407	458
2028				0	52	105	157	209	261	314	366	418
2029					0	54	107	161	215	268	322	376
2030						0	(63)	(127)	(190)	(253)	(317)	(380)
2031							0	57	113	170	226	283
2032								0	58	116	174	232
2033									0	60	119	179
2034										0	61	122
2035											0	63
2036												0
Total Book Depreciation	4,761	5,310	5,910	6,560	7,262	8,018	8,711	9,460	10,267	11,134	12,062	13,053
Depreciated Balance	13,377	14,462	15,542	16,617	17,686	14,839	16,014	17,182	18,341	19,494	20,638	21,777
Property Taxes	241	260	280	299	318	267	288	309	330	351	371	392

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	19 2026	20 2027	21 2028	22 2029	23 2030	24 2031	25 2032	26 2033	27 2034	28 2035	29 2036	30 2037
Replacement Value												
2007	1,334	1,359	1,385	1,411	1,438	1,468	1,494	1,522	1,552	1,582	1,612	1,645
2008	1,349	1,374	1,400	1,427	1,454	1,481	1,510	1,539	1,569	1,599	1,629	1,661
2009	1,361	1,386	1,412	1,438	1,466	1,493	1,522	1,551	1,581	1,611	1,642	1,674
2010	1,377	1,402	1,427	1,454	1,481	1,510	1,538	1,567	1,598	1,629	1,660	1,691
2011	1,394	1,419	1,445	1,471	1,499	1,527	1,556	1,586	1,616	1,647	1,679	1,711
2012	1,408	1,434	1,460	1,487	1,514	1,542	1,571	1,601	1,631	1,662	1,695	1,727
2013	1,423	1,449	1,476	1,503	1,530	1,558	1,587	1,617	1,648	1,679	1,711	1,744
2014	(1,653)	(1,684)	(1,715)	(1,748)	(1,778)	(1,811)	(1,843)	(1,878)	(1,913)	(1,950)	(1,986)	(2,024)
2015	1,453	1,480	1,507	1,535	1,563	1,592	1,621	1,650	1,681	1,713	1,745	1,778
2016	1,465	1,493	1,521	1,549	1,578	1,607	1,636	1,666	1,696	1,728	1,760	1,794
2017	1,480	1,508	1,536	1,565	1,594	1,623	1,653	1,683	1,714	1,745	1,777	1,811
2018	1,493	1,521	1,550	1,579	1,608	1,639	1,669	1,699	1,730	1,762	1,794	1,827
2019	1,506	1,535	1,564	1,594	1,624	1,654	1,685	1,716	1,747	1,779	1,812	1,844
2020	1,518	1,548	1,578	1,608	1,638	1,669	1,700	1,732	1,764	1,796	1,829	1,862
2021	1,533	1,561	1,591	1,622	1,653	1,684	1,716	1,748	1,781	1,813	1,847	1,880
2022	(1,776)	(1,810)	(1,843)	(1,879)	(1,916)	(1,952)	(1,989)	(2,026)	(2,064)	(2,103)	(2,141)	(2,180)
2023	1,560	1,588	1,619	1,649	1,681	1,713	1,746	1,779	1,812	1,846	1,881	1,915
2024	1,573	1,602	1,632	1,663	1,694	1,727	1,760	1,794	1,827	1,862	1,897	1,932
2025	1,590	1,616	1,646	1,677	1,709	1,740	1,774	1,809	1,843	1,878	1,913	1,949
2026		1,634	1,661	1,692	1,723	1,756	1,789	1,823	1,859	1,895	1,930	1,966
2027			1,680	1,707	1,739	1,771	1,805	1,838	1,874	1,910	1,947	1,983
2028				1,725	1,753	105	157	209	261	314	366	418
2029					0	54	107	161	215	268	322	376
2030						0	(63)	(127)	(190)	(253)	(317)	(380)
2031							0	57	113	170	226	283
2032								0	58	116	174	232
2033									0	60	119	179
2034										0	61	122
2035											0	63
2036												0
Total Replacement Value	21,387	23,416	25,532	27,730	28,244	27,147	27,700	28,317	29,002	29,756	30,583	31,485
Property Insurance	13	14	16	17	17	17	17	17	18	18	19	19

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		1 2008	2 2009	3 2010	4 2011	5 2012	6 2013	7 2014	8 2015	9 2016	10 2017	11 2018	12 2019	13 2020	14 2021	15 2022	16 2023	17 2024	18 2025
Capital																			
1. Underground		3,215	3,312	3,403	3,504	3,613	3,717	3,825	3,938	4,052	4,165	4,284	4,404	4,529	4,655	4,786	4,917	5,055	5,193
2. Overhead (excl embed Poles)		(2,257)	(2,325)	(2,389)	(2,460)	(2,536)	(2,609)	(2,686)	(2,785)	(2,844)	(2,924)	(3,008)	(3,092)	(3,179)	(3,268)	(3,360)	(3,452)	(3,549)	(3,646)
3. Pole Inspection/Remediation (HD/MP		0	0	0	0	0	0	0	(2,196)	0	0	0	0	0	0	0	(2,742)	0	0
Total Capital		958	987	1,014	1,044	1,077	1,108	1,140	(1,023)	1,207	1,241	1,277	1,312	1,349	1,387	1,426	(1,277)	1,506	1,547
Undepreciated Balance		958	1,945	2,959	4,003	5,080	6,187	7,327	6,304	7,512	8,752	10,029	11,341	12,691	14,078	15,504	14,227	15,734	17,281
Accum Book Depreciation																			
2007	958	0	29	58	87	116	145	174	203	232	261	290	319	348	377	406	435	464	494
2008	987		0	30	60	90	120	150	179	209	239	269	299	329	359	389	419	449	479
2009	1,014			0	31	61	92	123	154	184	215	246	277	307	338	369	399	430	461
2010	1,044				0	32	63	95	127	158	190	222	253	285	316	348	380	411	443
2011	1,077					0	33	65	98	130	163	196	228	261	294	326	359	391	424
2012	1,108						0	34	67	101	134	168	201	235	268	302	336	369	403
2013	1,140							0	35	69	104	138	173	207	242	276	311	345	380
2014	(1,023)								0	(31)	(62)	(93)	(124)	(155)	(186)	(217)	(248)	(279)	(310)
2015	1,207									0	37	73	110	146	183	220	256	293	329
2016	1,241										0	38	75	113	150	188	226	263	301
2017	1,277											0	39	77	116	155	193	232	271
2018	1,312												0	40	80	119	159	199	239
2019	1,349													0	41	82	123	164	204
2020	1,387														0	42	84	126	168
2021	1,426															0	43	86	130
2022	(1,277)																0	(39)	(77)
2023	1,506																	0	46
2024	1,547																		0
2025	1,590																		
2026	1,634																		
2027	1,680																		
2028	1,725																		
2029	1,771																		
2030	(1,586)																		
2031	1,868																		
2032	1,917																		
2033	1,967																		
2034	2,019																		
2035	2,073																		
2036	2,130																		
Total Book Depreciation	36,068	0	29	88	178	299	453	640	862	1,053	1,281	1,546	1,850	2,194	2,578	3,005	3,475	3,906	4,383
Depreciated Balance		958	1,916	2,871	3,825	4,781	5,734	6,687	5,442	6,458	7,471	8,483	9,491	10,497	11,500	12,499	10,752	11,827	12,898
Property Taxes		17	34	52	69	86	103	120	98	116	134	153	171	189	207	225	194	213	232

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FAC 25-6.078 - URD (High Density & Meter Pedestal) Underground v. Overhead Operational Cost Differential - Property Taxes & Insurance

		1 2008	2 2009	3 2010	4 2011	5 2012	6 2013	7 2014	8 2015	9 2016	10 2017	11 2018	12 2019	13 2020	14 2021	15 2022	16 2023	17 2024	18 2025
Replacement Value																			
2007	958	958	974	992	1,010	1,030	1,049	1,069	1,090	1,110	1,131	1,153	1,174	1,196	1,218	1,240	1,263	1,286	1,309
2008	987		987	1,003	1,022	1,041	1,061	1,080	1,101	1,123	1,144	1,166	1,187	1,210	1,232	1,255	1,278	1,301	1,325
2009	1,014			1,014	1,030	1,050	1,069	1,090	1,110	1,131	1,153	1,175	1,197	1,220	1,243	1,266	1,289	1,313	1,337
2010	1,044				1,044	1,061	1,081	1,101	1,122	1,143	1,165	1,188	1,210	1,233	1,256	1,280	1,304	1,328	1,352
2011	1,077					1,077	1,094	1,115	1,135	1,157	1,178	1,201	1,225	1,248	1,271	1,295	1,319	1,344	1,369
2012	1,108						1,108	1,126	1,147	1,168	1,190	1,212	1,236	1,260	1,284	1,308	1,333	1,357	1,383
2013	1,140							1,140	1,159	1,180	1,202	1,225	1,248	1,272	1,297	1,321	1,346	1,371	1,397
2014	(1,023)								(1,023)	(1,040)	(1,059)	(1,079)	(1,099)	(1,120)	(1,141)	(1,164)	(1,186)	(1,208)	(1,231)
2015	1,207									1,207	1,227	1,250	1,273	1,297	1,321	1,347	1,373	1,399	1,426
2016	1,241										1,241	1,261	1,285	1,309	1,334	1,358	1,385	1,412	1,438
2017	1,277											1,277	1,298	1,322	1,346	1,372	1,397	1,424	1,452
2018	1,312												1,312	1,334	1,359	1,384	1,410	1,436	1,464
2019	1,349													1,349	1,371	1,397	1,423	1,450	1,477
2020	1,387														1,387	1,410	1,436	1,463	1,491
2021	1,426															1,426	1,450	1,477	1,504
2022	(1,277)																(1,277)	(1,298)	(1,322)
2023	1,506																	1,506	1,531
2024	1,547																		1,547
2025	1,590																		
2026	1,634																		
2027	1,680																		
2028	1,725																		
2029	1,771																		
2030	(1,586)																		
2031	1,868																		
2032	1,917																		
2033	1,967																		
2034	2,019																		
2035	2,073																		
2036	2,130																		
Total Replacement Value	36,068	958	1,961	3,009	4,107	5,258	6,461	7,720	6,840	8,180	9,573	11,029	12,546	14,130	15,779	17,496	16,543	18,383	20,249
Property Insurance		1	1	2	3	3	4	5	4	5	6	7	8	9	10	11	10	11	12

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FAC 25-6.078 - URD (High Density & Meter Pedestal) Underground v. Overhead Operational Cost Differential - Property Taxes & Insurance

	19 2026	20 2027	21 2028	22 2029	23 2030	24 2031	25 2032	26 2033	27 2034	28 2035	29 2036	30 2037
Capital												
1. Underground	5,336	5,485	5,636	5,788	5,944	6,107	6,269	6,432	6,602	6,776	6,957	7,147
2. Overhead (excl embed Poles	(3,746)	(3,851)	(3,957)	(4,063)	(4,173)	(4,287)	(4,401)	(4,516)	(4,635)	(4,757)	(4,884)	(5,017)
3. Pole Inspection/Remediation	0	0	0	0	0	(3,406)	0	0	0	0	0	0
Total Capital	1,590	1,634	1,680	1,725	1,771	(1,586)	1,868	1,917	1,967	2,019	2,073	2,130
Undepreciated Balance	18,871	20,505	22,185	23,910	25,681	24,095	25,963	27,879	29,847	31,866	33,939	36,068
Accum Book Depreciation												
2007	523	552	581	610	639	668	697	726	755	784	813	842
2008	508	538	568	598	628	658	688	718	748	778	808	837
2009	492	522	553	584	614	645	676	707	737	768	799	830
2010	475	506	538	570	601	633	665	696	728	759	791	823
2011	457	489	522	555	587	620	652	685	718	750	783	816
2012	436	470	503	537	571	604	638	671	705	738	772	805
2013	415	449	484	518	553	587	622	656	691	725	760	794
2014	(341)	(372)	(403)	(434)	(465)	(496)	(527)	(558)	(589)	(620)	(651)	(682)
2015	366	402	439	476	512	549	585	622	659	695	732	768
2016	338	376	414	451	489	526	564	602	639	677	714	752
2017	309	348	387	426	464	503	542	580	619	658	696	735
2018	278	318	358	398	437	477	517	557	597	636	676	716
2019	245	286	327	368	409	450	491	532	572	613	654	695
2020	210	252	294	336	378	420	462	504	546	588	631	673
2021	173	216	259	303	346	389	432	475	519	562	605	648
2022	(116)	(155)	(194)	(232)	(271)	(310)	(348)	(387)	(426)	(464)	(503)	(542)
2023	91	137	183	228	274	320	365	411	456	502	548	593
2024	47	94	141	188	234	281	328	375	422	469	516	563
2025	0	48	96	145	193	241	289	337	385	434	482	530
2026		0	50	99	149	198	248	297	347	396	446	495
2027			0	51	102	153	204	254	305	356	407	458
2028				0	52	105	157	209	261	314	366	418
2029					0	54	107	161	215	268	322	376
2030						0	(48)	(96)	(144)	(192)	(240)	(288)
2031							0	57	113	170	226	283
2032								0	58	116	174	232
2033									0	60	119	179
2034										0	61	122
2035											0	63
2036												0
Total Book Depreciation	4,906	5,478	6,100	6,772	7,496	8,275	9,005	9,792	10,636	11,541	12,506	13,535
Depreciated Balance	13,964	15,027	16,085	17,138	18,184	15,820	16,958	18,088	19,210	20,325	21,432	22,533
Property Taxes	251	270	290	308	327	285	305	326	346	366	386	406

FAC 25-6.078 - URD (High Density & Meter Pedestal) Underground v. Overhead Operational Cost Differential - Property Taxes & Insurance

	19 2026	20 2027	21 2028	22 2029	23 2030	24 2031	25 2032	26 2033	27 2034	28 2035	29 2036	30 2037
Replacement Value												
2007	1,334	1,359	1,385	1,411	1,438	1,466	1,494	1,522	1,552	1,582	1,612	1,645
2008	1,349	1,374	1,400	1,427	1,454	1,481	1,510	1,539	1,569	1,599	1,629	1,661
2009	1,361	1,386	1,412	1,438	1,466	1,493	1,522	1,551	1,581	1,611	1,642	1,674
2010	1,377	1,402	1,427	1,454	1,481	1,510	1,538	1,567	1,598	1,629	1,660	1,691
2011	1,394	1,419	1,445	1,471	1,499	1,527	1,556	1,586	1,616	1,647	1,679	1,711
2012	1,408	1,434	1,460	1,487	1,514	1,542	1,571	1,601	1,631	1,662	1,695	1,727
2013	1,423	1,449	1,476	1,503	1,530	1,558	1,587	1,617	1,648	1,679	1,711	1,744
2014	(1,254)	(1,277)	(1,301)	(1,324)	(1,349)	(1,373)	(1,398)	(1,424)	(1,451)	(1,479)	(1,507)	(1,535)
2015	1,453	1,480	1,507	1,535	1,563	1,592	1,621	1,650	1,681	1,713	1,745	1,778
2016	1,465	1,493	1,521	1,549	1,578	1,607	1,636	1,666	1,696	1,728	1,760	1,794
2017	1,480	1,508	1,536	1,565	1,594	1,623	1,653	1,683	1,714	1,745	1,777	1,811
2018	1,493	1,521	1,550	1,579	1,608	1,639	1,669	1,699	1,730	1,762	1,794	1,827
2019	1,506	1,535	1,564	1,594	1,624	1,654	1,685	1,716	1,747	1,779	1,812	1,844
2020	1,518	1,548	1,578	1,608	1,638	1,669	1,700	1,732	1,764	1,796	1,829	1,862
2021	1,533	1,561	1,591	1,622	1,653	1,684	1,716	1,748	1,781	1,813	1,847	1,880
2022	(1,347)	(1,373)	(1,398)	(1,425)	(1,453)	(1,480)	(1,508)	(1,537)	(1,565)	(1,595)	(1,624)	(1,654)
2023	1,560	1,588	1,619	1,649	1,681	1,713	1,746	1,779	1,812	1,846	1,881	1,915
2024	1,573	1,602	1,632	1,663	1,694	1,727	1,760	1,794	1,827	1,862	1,897	1,932
2025	1,590	1,616	1,646	1,677	1,709	1,740	1,774	1,809	1,843	1,878	1,913	1,949
2026		1,634	1,661	1,692	1,723	1,756	1,789	1,823	1,859	1,895	1,930	1,966
2027			1,680	1,707	1,739	1,771	1,805	1,838	1,874	1,910	1,947	1,983
2028				1,725	1,753	105	157	209	261	314	366	418
2029					0	54	107	161	215	268	322	376
2030						0	(48)	(96)	(144)	(192)	(240)	(288)
2031							0	57	113	170	226	283
2032								0	58	116	174	232
2033									0	60	119	179
2034										0	61	122
2035											0	63
2036												0
Total Replacement Value	22,215	24,260	26,392	28,606	29,137	28,056	28,641	29,291	30,009	30,797	31,657	32,593
Property Insurance	14	15	16	17	18	17	17	18	18	19	19	20

FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential

- Net Present Value (NPV) -

Non-Storm 11,286	1 2008	2 2009	3 2010	4 2011	5 2012	6 2013	7 2014	8 2015	9 2016	10 2017	11 2018	12 2019	13 2020	14 2021	15 2022	16 2023	17 2024
Operating & Maintenance (O&M)																	
1. Underground	2,454	2,494	2,541	2,588	2,637	2,686	2,738	2,791	2,845	2,898	2,953	3,008	3,064	3,120	3,177	3,235	3,295
2. Overhead (excl embed VM & Poles)	(1,956)	(1,988)	(2,025)	(2,063)	(2,102)	(2,141)	(2,182)	(2,225)	(2,267)	(2,310)	(2,353)	(2,397)	(2,442)	(2,487)	(2,532)	(2,579)	(2,626)
3. Lost Pole Rental Revenue	515	523	533	543	553	564	575	586	597	608	620	631	643	655	667	679	691
4. Vegetation Management	0	0	(1,923)	0	0	(5,830)	0	0	(2,153)	0	0	(6,528)	0	0	(2,405)	0	0
5. Pole Inspection/Remediation	0	0	0	0	0	0	0	(1,257)	0	0	0	0	0	0	0	(1,457)	0
6. Litigation (Differential) **	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total O&M Differential	1,013	1,030	(875)	1,068	1,089	(4,721)	1,130	(105)	(979)	1,196	1,219	(5,287)	1,265	1,288	(1,094)	(121)	1,380
NPV- Operating @ 8.35%	1,013	950	(745)	840	790	(3,162)	699	(60)	(516)	581	547	(2,188)	483	454	(356)	(36)	377
Cumulative NPV - O&M	1,013	1,963	1,218	2,058	2,848	(314)	385	325	(191)	391	937	(1,251)	(768)	(314)	(670)	(706)	(329)
Capital Expenditures																	
1. Underground	3,215	3,312	3,403	3,504	3,613	3,717	3,825	3,938	4,052	4,165	4,284	4,404	4,529	4,655	4,786	4,917	5,055
2. Overhead (excl embed Poles)	(2,257)	(2,325)	(2,389)	(2,460)	(2,536)	(2,609)	(2,686)	(2,765)	(2,844)	(2,924)	(3,008)	(3,092)	(3,179)	(3,268)	(3,360)	(3,452)	(3,549)
3. Pole Inspection/Remediation	0	0	0	0	0	0	0	(2,561)	0	0	0	0	0	0	0	(3,198)	0
4. Property Taxes & Insurance	18	36	54	71	89	107	125	95	115	134	153	172	192	211	230	190	211
Total Capital Expenditures Differential	976	1,023	1,067	1,116	1,166	1,215	1,265	(1,293)	1,322	1,375	1,430	1,485	1,541	1,598	1,656	(1,543)	1,717
NPV - Capital @ 8.35%	976	944	909	877	846	814	782	(737)	696	668	641	615	589	564	539	(463)	476
Cumulative NPV - Capital	976	1,920	2,829	3,706	4,552	5,366	6,147	5,410	6,106	6,774	7,415	8,030	8,619	9,183	9,722	9,258	9,734
NPV - Total Cash Flows	1,989	1,894	164	1,717	1,636	(2,348)	1,480	(797)	180	1,249	1,188	(1,574)	1,072	1,018	183	(500)	853
Cumulative NPV - Total Cash Flows	1,989	3,883	4,047	5,764	7,400	5,052	6,532	5,735	5,915	7,165	8,353	6,779	7,851	8,869	9,052	8,552	9,405
30-Year Differential NPV	11,286																

	Year 1 ($/PLM)		30-Year NPV ($/PLM)			
CONVERSION	**O&M**	**Capital**	**O&M**	**Capital**	**Total**	
1. Underground	2,454	3,215	34,543	50,151	84,694	- All related costs excluding items 3 & 4 below
2. Overhead (excl embed VM & Poles)	(1,956)	(2,257)	(27,533)	(35,207)	(62,740)	- All related costs excluding items 3 & 4 below
3. Lost Pole Rental Revenue	515		7,249		7,249	
4. Vegetation Management	---		(15,122)		(15,122)	- Periodic expenditures for new facilities begin 1st year of their cycle
5. Pole Inspection/Remediation	---	---	(1,422)	(3,050)	(4,472)	- Periodic expenditures for new facilities begin 1st year of their cycle
6. Litigation (Differential) **	n/a		n/a		n/a	- For confidentiality purposes, litigation costs are embedded in items 1 & 2 above for underground and overhead facilities, respectively
7. Property Taxes & Insurance		18		1,677	1,677	
Differential (Non-Storm)			(2,285)	13,570	11,286	

FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential

- Net Present Value (NPV) -

Non-Storm 11,286	18 2025	19 2026	20 2027	21 2028	22 2029	23 2030	24 2031	25 2032	26 2033	27 2034	28 2035	29 2036	30 2037	Total (Nominal)
Operating & Maintenance (O&M)														
1. Underground	3,354	3,416	3,481	3,547	3,614	3,683	3,755	3,827	3,900	3,975	4,051	4,130	4,213	97,471
2. Overhead (excl embed VM & Poles)	(2,673)	(2,723)	(2,775)	(2,828)	(2,881)	(2,935)	(2,993)	(3,051)	(3,109)	(3,168)	(3,229)	(3,292)	(3,358)	(77,691)
3. Lost Pole Rental Revenue	704	717	731	744	759	773	788	803	818	834	850	867	884	20,455
4. Vegetation Management	(7,280)	0	0	(2,685)	0	0	(8,151)	0	0	(3,009)	0	0	(9,144)	(49,109)
5. Pole Inspection/Remediation	0	0	0	0	0	0	(1,691)	0	0	0	0	0	0	(4,405)
6. Litigation (Differential) **	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total O&M Differential	(5,896)	1,410	1,437	(1,221)	1,492	1,520	(8,291)	1,580	1,610	(1,388)	1,672	1,705	(7,405)	(13,279)
NPV- Operating @ 8.35%	(1,509)	333	313	(246)	277	260	(1,311)	231	217	(170)	192	181	(724)	
Cumulative NPV - O&M	(1,838)	(1,504)	(1,191)	(1,437)	(1,160)	(899)	(2,211)	(1,980)	(1,763)	(1,933)	(1,741)	(1,561)	(2,285)	
Capital Expenditures														
1. Underground	5,193	5,336	5,485	5,636	5,788	5,944	6,107	6,269	6,432	6,602	6,776	6,957	7,147	149,048
2. Overhead (excl embed Poles)	(3,646)	(3,746)	(3,851)	(3,957)	(4,063)	(4,173)	(4,287)	(4,401)	(4,516)	(4,635)	(4,757)	(4,884)	(5,017)	(104,635)
3. Pole Inspection/Remediation	0	0	0	0	0	0	(3,972)	0	0	0	0	0	0	(9,731)
4. Property Taxes & Insurance	232	253	273	294	315	334	281	303	325	346	367	388	409	6,324
Total Capital Expenditures Differential	1,779	1,842	1,908	1,974	2,040	2,106	(1,870)	2,171	2,241	2,313	2,386	2,461	2,539	41,006
NPV - Capital @ 8.35%	455	435	416	397	379	361	(296)	317	302	288	274	261	248	
Cumulative NPV - Capital	10,189	10,625	11,040	11,437	11,816	12,177	11,881	12,198	12,500	12,788	13,061	13,322	13,570	
NPV - Total Cash Flows	(1,053)	768	729	151	656	621	(1,607)	548	519	117	466	441	(476)	
Cumulative NPV - Total Cash Flows	8,352	9,120	9,849	10,000	10,656	11,277	9,670	10,218	10,737	10,854	11,320	11,761	11,286	
30-Year Differential NPV														

CONVERSION
1. Underground
2. Overhead (excl embed VM & Poles)
3. Lost Pole Rental Revenue
4. Vegetation Management
5. Pole Inspection/Remediation
6. Litigation (Differential) **
7. Property Taxes & Insurance
Differential (Non-Storm)

FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential - Inputs

Non-Storm 11,286		1 2008	2 2009	3 2010	4 2011	5 2012	6 2013	7 2014	8 2015	9 2016	10 2017	11 2018	12 2019	13 2020	14 2021	15 2022	16 2023
Cash Flows (2007 $)																	
Operating & Maintenance (O&M)																	
1. Underground	c	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454
2. Overhead (excl embed VM & Poles)	c	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)
3. Lost Pole Rental Revenue	c	515	515	515	515	515	515	515	515	515	515	515	515	515	515	515	515
4. Vegetation Management	c			(1,858)			(5,327)			(1,858)			(5,327)			(1,858)	
5. Pole Inspection/Remediation	c								(1,105)								(1,105)
6. Litigation (Differential) **	c	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Capital Expenditures																	
1. Underground	p	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215
2. Overhead (excl embed Poles)	p	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)
3. Pole Inspection/Remediation	p								(2,091)								(2,091)
Rates																	
Consumer Price Index (CPI)		2.51%	1.63%	1.88%	1.84%	1.92%	1.84%	1.94%	1.95%	1.90%	1.88%	1.88%	1.86%	1.87%	1.84%	1.82%	1.83%
Public Utility Private Fixed Investment (PUPFI)		3.80%	3.02%	2.73%	2.99%	3.10%	2.88%	2.92%	2.96%	2.87%	2.79%	2.88%	2.80%	2.82%	2.80%	2.82%	2.74%
CPI Multiplier		1.0000	1.0163	1.0354	1.0545	1.0747	1.0945	1.1157	1.1375	1.1592	1.1809	1.2032	1.2256	1.2485	1.2715	1.2947	1.3184
PUPFI Multiplier		1.0000	1.0302	1.0584	1.0900	1.1238	1.1561	1.1899	1.2250	1.2602	1.2954	1.3326	1.3699	1.4086	1.4480	1.4887	1.5295
Book Depreciation	f	3.03%															
Income Tax (Composite)		38.575%															
Property Taxes		1.80%															
Property Insurance		0.06%															
Discount Rate (Incremental Cost of Capital)	a	8.35%															

Incremental Cost of Capital	Weight	Cost	Wtd Avg
Debt	44.2%	6.60%	1.79%
Common	55.8%	11.75%	6.56%
Discount Rate (Incremental Cost of Capital)	100.0%		8.35%

** For confidentiality purposes, litigation costs are embedded in items 1 & 2 above for underground and overhead facilities, respectively

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FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential - Inputs

Non-Storm 11,286	17 2024	18 2025	19 2026	20 2027	21 2028	22 2029	23 2030	24 2031	25 2032	26 2033	27 2034	28 2035	29 2036	30 2037	Total
Cash Flows (2007 $)															
Operating & Maintenance (O&M)															
i 1. Underground	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	73,620
i 2. Overhead (excl embed VM & Poles)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(1,956)	(58,680)
i 3. Lost Pole Rental Revenue	515	515	515	515	515	515	515	515	515	515	515	515	515	515	15,450
i 4. Vegetation Management		(5,327)			(1,858)			(5,327)			(1,858)			(5,327)	(35,921)
i 5. Pole Inspection/Remediation								(1,105)							(3,315)
i 6. Litigation (Differential) **	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Capital Expenditures															
i 1. Underground	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	3,215	96,450
i 2. Overhead (excl embed Poles)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(2,257)	(67,710)
i 3. Pole Inspection/Remediation								(2,091)							(6,273)
Rates															
Consumer Price Index (CPI)	1.84%	1.80%	1.86%	1.90%	1.90%	1.89%	1.89%	1.97%	1.92%	1.90%	1.91%	1.93%	1.96%	1.99%	
Public Utility Private Fixed Investment (PUPFI)	2.80%	2.73%	2.74%	2.80%	2.76%	2.69%	2.70%	2.74%	2.67%	2.60%	2.64%	2.64%	2.67%	2.73%	
CPI Multiplier	1.3426	1.3668	1.3922	1.4187	1.4456	1.4728	1.5006	1.5302	1.5596	1.5892	1.6196	1.6509	1.6832	1.7167	
PUPFI Multiplier	1.5724	1.6153	1.6596	1.7060	1.7532	1.8003	1.8488	1.8994	1.9501	2.0007	2.0534	2.1076	2.1639	2.2229	
Book Depreciation															
Income Tax (Composite)															
Property Taxes															
Property Insurance															
Discount Rate (Incremental Cost of Capital)															
Incremental Cost of Capital															
Debt															
Common															
Discount Rate (Incremental Cost of Capital)															

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FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential - O&M

	A	B	C	D	E	F	G	H	I
1		Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
2	FERC Form 1 Distribution O&M								
3		580	Operation - Supervision & Engineering	20,727,037	20,531,161	20,473,740	19,776,720	19,529,141	23,324,424
4		581	Operation - Load Dispatching	622,958	554,315	661,675	689,605	621,442	587,753
5		582	Operation - Station	1,958,215	2,601,245	2,267,577	1,902,567	1,456,264	1,563,422
6		583	Operation - Overhead Line	6,892,482	5,198,039	8,719,848	7,288,327	5,743,960	7,512,234
7		584	Operation - Underground Line	8,454,240	8,145,382	8,429,031	9,010,982	8,788,107	7,897,698
8		585	Operation - Street Lighting & Signal Systems	4,200,382	4,447,038	4,729,905	3,837,935	3,736,160	4,250,872
9		586	Operation - Meters	5,980,098	6,867,315	7,810,150	5,688,752	4,264,851	5,269,425
10		587	Operation - Customer Installation	2,313,863	2,259,834	2,305,021	3,032,186	2,787,704	1,184,571
11		588	Operation - Miscellaneous Distribution	28,000,282	30,209,779	34,681,700	29,933,024	23,366,251	21,810,659
12		589	Operation - Rents	7,650,708	8,375,827	8,232,487	6,335,809	7,152,894	8,156,524
13		590	Maintenance - Supervision & Engineering	21,506,667	19,216,431	33,826,494	3,587,168	34,915,752	15,987,488
14		591	Maintenance - Structures	252,286	228,402	257,948	250,332	204,399	320,347
15		592	Maintenance - Station Equipment	7,607,444	8,194,170	7,272,116	6,176,602	7,718,877	8,675,456
16		593	Maintenance - Overhead Line	92,740,411	111,809,997	104,137,777	78,413,273	83,444,861	85,896,148
17		594	Maintenance - Underground Line	27,982,644	30,317,893	26,983,032	28,291,659	26,535,285	27,785,351
18		595	Maintenance - Line Transformers	1,569,760	1,601,410	1,351,361	1,499,555	1,640,807	1,755,670
19		596	Maintenance - Street Lighting & Signal Systems	7,136,966	8,098,153	7,428,293	6,264,416	6,559,375	7,334,594
20		597	Maintenance - Meters	2,091,076	2,586,481	2,466,954	2,062,276	1,769,531	1,570,139
21		598	Maintenance - Miscellaneous Distribution Plant	6,856,687	7,280,669	8,364,992	5,901,196	6,098,459	6,638,118
22			Total O&M	254,544,208	278,523,541	290,400,099	219,942,386	246,334,120	237,520,893
23									

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FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential - O&M

	A	B	C	D	E	F	G	H	I
1		Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
24	Adjustments								
25		580	Operation - Supervision & Engineering	(1,671,580)	(192,903)	(2,424,323)	(2,134,904)	(1,900,201)	(1,705,570)
26	(a)		Operation - Supervision & Engineering	(3,403,336)	(3,276,254)	(4,285,547)	(3,071,412)	(2,990,753)	(3,392,716)
27		581	Operation - Load Dispatching	(622,958)	(554,315)	(661,675)	(689,605)	(621,442)	(587,753)
28		582	Operation - Station	(1,958,215)	(2,601,245)	(2,267,577)	(1,902,567)	(1,456,264)	(1,563,422)
29		583	Operation - Overhead Line	(1,385,795)	(3,504,469)	(2,133,649)	344,805	(1,104,562)	(531,100)
30		584	Operation - Underground Line	(160,937)	(254,546)	(50,628)	(20,717)	(266,190)	(212,602)
31		585	Operation - Street Lighting & Signal Systems	(4,200,382)	(4,447,038)	(4,729,905)	(3,837,935)	(3,736,160)	(4,250,872)
32		586	Operation - Meters	(5,980,098)	(6,867,315)	(7,810,150)	(5,688,752)	(4,264,851)	(5,269,425)
33		587	Operation - Customer Installation	(2,313,863)	(2,259,834)	(2,305,021)	(3,032,186)	(2,787,704)	(1,184,571)
34		588	Operation - Miscellaneous Distribution	(2,302,626)	180,083	(7,297,262)	(1,653,188)	(1,481,645)	(1,261,118)
35		590	Maintenance - Supervision & Engineering	(3,629,913)	(260,670)	(15,297,559)	(989,667)	(749,718)	(851,950)
36	(a)		Maintenance - Supervision & Engineering	(8,107,835)	(9,759,630)	(8,112,636)	(1,357,562)	(14,320,721)	(6,988,624)
37		591	Maintenance - Structures	(252,286)	(228,402)	(257,948)	(250,332)	(204,399)	(320,347)
38		592	Maintenance - Station Equipment	(7,607,444)	(8,194,170)	(7,272,116)	(6,176,602)	(7,718,877)	(8,675,456)
39		593	Maintenance - Overhead Line	(51,794,195)	(68,806,371)	(57,057,483)	(40,590,282)	(46,675,202)	(45,841,638)
40		594	Maintenance - Underground Line	(5,647,811)	(5,479,992)	(6,307,863)	(5,470,951)	(5,752,423)	(5,227,824)
41		595	Maintenance - Line Transformers	(16,529)	(82,647)	-	21	(21)	-
42		596	Maintenance - Street Lighting & Signal Systems	(7,136,966)	(8,098,153)	(7,428,293)	(6,264,416)	(6,559,375)	(7,334,594)
43		597	Maintenance - Meters	(2,091,076)	(2,586,481)	(2,466,954)	(2,062,276)	(1,769,531)	(1,570,139)
44		598	Maintenance - Miscellaneous Distribution Plant	(3,395,190)	(1,798,107)	(4,817,060)	(3,342,033)	(3,380,461)	(3,638,291)
45			Total Adjustments	(113,679,036)	(129,072,460)	(142,983,649)	(88,190,562)	(107,740,497)	(100,408,012)
46									

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FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential - O&M

	A	B	C	D	E	F	G	H	I
1		Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
47	**CIAC-Related O&M (excl. Vegetation & Pole Programs)**								
48		580	Operation - Supervision & Engineering	15,652,121	17,062,004	13,763,870	14,570,404	14,638,188	18,226,138
49		581	Operation - Load Dispatching	-	-	-	-	-	-
50		582	Operation - Station	-	-	-	-	-	-
51		583	Operation - Overhead Line	5,506,687	1,693,570	6,586,199	7,633,132	4,639,398	6,981,133
52		584	Operation - Underground Line	8,293,303	7,890,836	8,378,403	8,990,265	8,521,917	7,685,096
53		585	Operation - Street Lighting & Signal Systems	-	-	-	-	-	-
54		586	Operation - Meters	-	-	-	-	-	-
55		587	Operation - Customer Installation	-	-	-	-	-	-
56		588	Operation - Miscellaneous Distribution	25,697,656	30,389,862	27,384,437	28,279,836	21,884,606	20,549,541
57		589	Operation - Rents	7,650,708	8,375,827	8,232,487	6,335,809	7,152,894	8,156,524
58		590	Maintenance - Supervision & Engineering	9,768,919	9,196,130	10,416,298	1,239,940	19,845,313	8,146,914
59		591	Maintenance - Structures	-	-	-	-	-	-
60		592	Maintenance - Station Equipment	-	-	-	-	-	-
61		593	Maintenance - Overhead Line	40,946,216	43,003,626	47,080,294	37,822,991	36,769,660	40,054,510
62		594	Maintenance - Underground Line	22,334,833	24,837,900	20,675,170	22,820,708	20,782,862	22,557,527
63		595	Maintenance - Line Transformers	1,553,231	1,518,763	1,351,361	1,499,576	1,640,786	1,755,670
64		596	Maintenance - Street Lighting & Signal Systems	-	-	-	-	-	-
65		597	Maintenance - Meters	-	-	-	-	-	-
66		598	Maintenance - Miscellaneous Distribution Plant	3,461,497	5,482,563	3,547,932	2,559,163	2,717,998	2,999,827
67			**Total CIAC-Related O&M**	140,865,172	149,451,082	147,416,451	131,751,825	138,593,622	137,112,860
68									

FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential - O&M

	A	B	C	D	E	F	G	H	I
1		Acct	Description	6-Year Avg	2007	2006	2005	2004	2003
69	**Underground CIAC-Related O&M**								
70	(b)	580	Operation - Supervision & Engineering	8,685,812	10,415,360	6,765,229	8,055,167	8,852,282	9,341,023
71		584	Operation - Underground Line	8,293,303	7,890,836	8,378,403	8,990,265	8,521,917	7,685,096
72	(b)	588	Operation - Miscellaneous Distribution	14,282,374	18,551,242	13,460,021	15,634,349	13,234,473	10,531,784
73	(b)	590	Maintenance - Supervision & Engineering	4,206,543	4,159,517	3,939,803	597,870	8,780,528	3,554,996
74		594	Maintenance - Underground Line	22,334,833	24,837,900	20,675,170	22,820,708	20,782,862	22,557,527
75	(b)	595	Maintenance - Line Transformers	682,643	686,954	511,131	723,061	725,963	766,106
76	(b)	598	Maintenance - Miscellaneous Distribution Plant	1,513,466	2,479,827	1,341,950	1,233,969	1,202,574	1,309,008
77			**Subtotal Underground O&M**	59,998,974	69,021,636	55,071,707	58,055,389	62,100,600	55,745,539
78									
79	**Overhead CIAC-Related O&M**								
80	(b)	580	Operation - Supervision & Engineering	6,966,309	6,646,644	6,998,641	6,515,238	5,785,906	8,885,115
81		583	Operation - Overhead Line	5,506,687	1,693,570	6,586,199	7,633,132	4,639,398	6,981,133
82	(b)	588	Operation - Miscellaneous Distribution	11,415,282	11,838,620	13,924,416	12,645,487	8,650,133	10,017,757
83		589	Operation - Rents	7,650,708	8,375,827	8,232,487	6,335,809	7,152,894	8,156,524
84	(b)	590	Maintenance - Supervision & Engineering	5,562,376	5,036,614	6,476,495	642,069	11,064,785	4,591,918
85		593	Maintenance - Overhead Line	40,946,216	43,003,626	47,080,294	37,822,991	36,769,660	40,054,510
86	(b)	595	Maintenance - Line Transformers	870,588	831,809	840,230	776,515	914,823	989,564
87	(b)	598	Maintenance - Miscellaneous Distribution Plant	1,948,031	3,002,736	2,205,982	1,325,194	1,515,424	1,690,820
88			**Subtotal Overhead O&M**	80,866,198	80,429,445	92,344,744	73,696,436	76,493,023	81,367,341
89									
91									
92	**Pole-Line Miles (PLM)**								
93			Underground (trench)		25,053	24,679	24,427	24,166	23,893
94			Overhead (pole line)		41,690	41,619	41,343	41,144	40,897
95			**Total**		66,743	66,298	65,770	65,310	64,790
96									
97	**CIAC-Related O&M [per PLM]**								
98			1. Underground	2,454	2,755	2,232	2,377	2,570	2,333
99			2. Overhead (excl. embedded Vegetation & Pole Progams)	(1,956)	(1,929)	(2,219)	(1,783)	(1,859)	(1,990)
100			**Differential**	498	826	13	594	711	344
101									
103									

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Overhead to Underground-Operational Cost Differential Analysis
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FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential - O&M

	A	B	C	D	E	F	G	H	I
1		Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
104	**(a) Non-P&W Supervision & Engineering Allocation % (non-substation)**								
105		**Operations**							
106		580	Operation - Supervision & Engineering Total		20,531,161	20,473,740	19,776,720	19,529,141	23,324,424
107		580	Various Adjustments		(192,903)	(2,424,323)	(2,134,904)	(1,900,201)	(1,705,570)
108			**Adjusted Operation - Supervision & Engineering**		**20,338,258**	**18,049,417**	**17,641,817**	**17,628,941**	**21,618,854**
109		58*	Total Operations (incl. Supervision & Engineering)		89,189,935	98,311,134	87,495,907	77,446,774	81,557,581
110		582	Operation - Station		(2,601,245)	(2,267,577)	(1,902,567)	(1,456,264)	(1,563,422)
111			**Non-Substation Total**		**86,588,690**	**96,043,557**	**85,593,341**	**75,990,510**	**79,994,159**
112			**Operations - % of Total (580 adjustment)**		**23%**	**19%**	**21%**	**23%**	**27%**
113									
114		**Maintenance**							
115		590	Maintenance - Supervision & Engineering		19,216,431	33,826,494	3,587,168	34,915,752	15,987,488
116		590	590.200 - Substation Distrib Maint Supv & Engineer		(260,670)	(15,297,559)	(989,667)	(749,718)	(851,950)
117			**Non-Substation Supervision & Engineering**		**18,955,761**	**18,528,935**	**2,597,501**	**34,166,034**	**15,135,538**
118		59*	Total Operations (incl. Supervision & Engineering)		189,333,607	192,088,965	132,446,479	168,887,345	155,963,312
119		59*	Maintenance - Structures & Station Equipment		(8,422,572)	(7,530,063)	(6,426,934)	(7,923,276)	(8,995,803)
120			**Non-Substation Total**		**180,911,035**	**184,558,902**	**126,019,545**	**160,964,069**	**146,967,509**
121			**Maintenance - % of Total (590 adjustment)**		**10%**	**10%**	**2%**	**21%**	**10%**
122									
123	**(b) Overhead v. Underground Allocation % ***								
124			Operations - Overhead Line [583 / (583+584)]	**45%**	39%	51%	45%	40%	49%
125			Maintenance - Overhead Line [593 / (593+594)]	**56%**	55%	62%	52%	56%	56%
126			** Applied to Supervision, Miscellaneous & Transformers*						
127									
129									

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	A	B	C	D	E	F	G	H	I
1		Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
130	**Lost Pole Rental Revenues [per PLM]**								
131		454.300 - CATV		5,751,207	6,768,560	6,220,724	5,525,797	5,255,389	4,985,567
132		454.400 - BellSouth Joint Use		15,555,603	18,052,902	16,399,009	12,620,033	15,927,496	14,778,577
133		**Subtotal Pole Rental Revenues**		21,306,811	24,821,462	22,619,733	18,145,830	21,182,885	19,764,144
134									
135	3. Lost Pole Rental Revenues [per PLM]			515	595	543	439	515	483
136									
138									
139	**Vegetation Management [per PLM]**								
140				Feeder (every 3 yrs)	Fdr & Lats (every 6 yrs)				
141		Feeder Miles		13,469					
142		Total Miles		41,690					
143		**Mileage Ratio - Feeder to Total**		32%					
144		Cost		(73,825,144)	(75,205,991)				
145		Planned Total Trim Miles (2010/2012)		12,400	12,900				
146		**Cost / PLM (nominal $)**		(5,954)	(5,830)				
147		Mileage Ratio Adjusted (nominal $)		(1,923)					
148		CPI Multiplier		1.0354	1.0945				
149	4. Vegetation Management [per PLM] (2007 $)			(1,858)	(5,327)				
150									
152									

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FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential - O&M

	A	B	C	D	E	F	G	H	I
1		Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
153	Pole Inspection / Remediation [per PLM]								
154				Low Density	High / Meter		Feeder		
155			Non-Service Poles	75	48				
156			Pole-Line Miles (excl services)	2.4	1.8		150	Average 145 mph span (ft)	
157			**Poles / Line Mile**	31	27		35		
158						Cost / Pole		Cost / PLM	
159				Strength	Quantity	O&M	Capital	O&M	Capital
160			**Feeder**						
161			Inspections		35	(25)	(15)	(880)	(513)
162			Reinforcements - CT Truss (CCA)	0.08%	0.0	-	(325)	-	(9)
163			Reinforcements - ET Truss (CCA)	0.69%	0.2	-	(1,006)	-	(243)
164			Replacements (CCA)	1.48%	0.5	(673)	(3,012)	(349)	(1,560)
165			**Total Cost/Mile (2007 $)**					(1,229)	(2,325)
166			**Low Density (Lateral)**						
167			Inspections		31	(25)	(15)	(780)	(454)
168			Reinforcements - CT Truss (CCA)	0.08%	0.0	-	(325)	-	(8)
169			Reinforcements - ET Truss (CCA)	0.69%	0.2	-	(1,006)	-	(215)
170			Replacements (CCA)	1.48%	0.5	(673)	(3,012)	(308)	(1,382)
171			**Total Cost/Mile (2007 $)**					(1,088)	(2,059)
172			**High Density / Meter Pedestal (Lateral)**						
173			Inspections		27	(25)	(15)	(679)	(396)
174			Reinforcements - CT Truss (CCA)	0.08%	0.0	-	(325)	-	(7)
175			Reinforcements - ET Truss (CCA)	0.69%	0.2	-	(1,006)	-	(187)
176			Replacements (CCA)	1.48%	0.4	(673)	(3,012)	(269)	(1,203)
177			**Total Cost/Mile (2007 $)**					(948)	(1,793)
178									
179								Weighted Average	
180				O&M	CapEx	Lateral Mix	System %	O&M	CapEx
181			**Weighted Average:**						
182			Feeder	(1,229)	(2,325)		32%	(397)	(751)
183			Low Density (Lateral)	(1,088)	(2,059)	70%	47%	(516)	(976)
184			High Density / Meter Pedestal (Lateral)	(948)	(1,793)	30%	20%	(193)	(364)
185	5. & 3. Pole Inspection/Remediation [per PLM] (2007 $)						100%	(1,105)	(2,091)

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FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential - Capital Expenditures

	A B C	D	E	F	G	H	I	J
1	Acct	Description	5-Year Avg	2007	2006	2005	2004	2003
2	**FERC Form 1 Distribution Capital - Underground**							
3	Plant-in-Service Additions							
4	366	Conduit & Structures	93,449,391	85,583,696	123,235,508	98,211,743	87,733,601	74,482,406
5	367	Conductors & Devices	106,417,044	128,455,781	139,455,264	89,414,379	77,021,724	97,738,072
6	368	Transformers	35,985,130	42,513,095	42,841,747	36,648,823	30,166,954	27,755,032
7	Removal Costs		3,763,748	5,173,469	5,334,476	3,559,824	3,480,614	1,270,359
8	**Total Underground**		239,615,313	261,726,041	310,866,995	225,834,769	198,402,893	201,245,869
9								
10	**FERC Form 1 Distribution Capital - Overhead**							
11	Plant-in-Service Additions							
12	364	Poles, Towers & Fixtures	48,159,516	33,193,334	53,211,276	63,905,293	44,299,482	46,188,195
13	365	Overhead Conductors & Devices	58,241,703	60,306,523	77,283,362	57,624,141	42,607,750	53,386,738
14	368	Transformers	63,973,565	75,578,836	76,163,105	65,153,463	53,630,141	49,342,280
15	Removal Costs		24,595,274	26,903,214	35,796,390	25,500,925	16,272,071	18,503,769
16	**Total Overhead**		194,970,058	195,981,907	242,454,133	212,183,823	156,809,444	167,420,982
17								
18								
19	**Adjustments - Underground**							
20	Plant-in-Service Additions							
21	366	Conduit & Structures	(66,190,618)	(60,512,300)	(87,764,486)	(68,179,507)	(65,215,545)	(49,281,250)
22	367	Conductors & Devices	(74,708,084)	(93,743,288)	(100,666,004)	(64,583,117)	(55,993,711)	(58,554,301)
23	368	Transformers	(18,324,130)	(76,964)	(42,387,197)	(19,006,149)	(7,801,369)	(22,348,971)
24	Removal Costs		(1,630,347)	(1,584,411)	(2,562,912)	(1,486,699)	(1,436,031)	(1,081,682)
25	**Total Underground**		(160,853,179)	(155,916,963)	(233,380,599)	(153,255,472)	(130,446,657)	(131,266,203)
26								
27	**Adjustments - Overhead**							
28	Plant-in-Service Additions							
29	364	Poles, Towers & Fixtures	(27,786,982)	(26,005,484)	(34,273,438)	(36,876,064)	(18,103,415)	(23,676,507)
30	365	Overhead Conductors & Devices	(30,399,453)	(28,061,319)	(37,024,857)	(34,838,301)	(21,093,904)	(30,978,885)
31	368	Transformers	(32,576,231)	(136,825)	(75,355,017)	(33,788,709)	(13,869,101)	(39,731,504)
32	Removal Costs		(10,802,451)	(11,927,586)	(17,615,074)	(10,704,630)	(6,622,896)	(7,142,068)
33	**Total Overhead**		(101,565,117)	(66,131,214)	(164,268,386)	(116,207,703)	(59,689,317)	(101,528,964)
34								
35								

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FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential - Capital Expenditures

	A	B	C	D	E	F	G	H	I	J
1		Acct		Description	5-Year Avg	2007	2006	2005	2004	2003
36	CIAC-Related Capital - Underground									
37		Plant-in-Service Additions								
38			366	Conduit & Structures	27,258,773	25,071,396	35,471,022	28,032,236	22,518,056	25,201,156
39			367	Conductors & Devices	31,708,860	34,712,493	38,789,260	24,831,262	21,028,013	39,183,771
40			368	Transformers	17,661,000	42,436,131	454,550	17,642,674	22,365,585	5,406,061
41		Removal Costs			2,133,401	3,589,059	2,771,564	2,073,125	2,044,583	188,677
42		Total Underground			78,762,134	105,809,078	77,486,395	72,579,297	67,956,236	69,979,666
43										
44	CIAC-Related Capital - Overhead (excl. embed Pole Prog)									
45		Plant-in-Service Additions								
46			364	Poles, Towers & Fixtures	20,372,534	7,187,850	18,937,838	27,029,229	26,196,067	22,511,688
47			365	Overhead Conductors & Devices	27,842,250	32,245,204	40,258,505	22,765,840	21,513,846	22,407,853
48			368	Transformers	31,397,334	75,442,011	808,089	31,364,754	39,761,039	9,610,776
49		Removal Costs			13,792,823	14,975,628	18,181,316	14,796,296	9,649,175	11,361,701
50		Total Overhead			93,404,941	129,850,693	78,185,747	95,976,119	97,120,127	65,892,018
51										
52										
53										
54										
55	Pole-Line Miles (PLM)									
56		Underground (trench)				25,053	24,679	24,427	24,166	23,893
57		Overhead (pole line)				41,690	41,619	41,343	41,144	40,897
58		Total				66,743	66,298	65,770	65,310	64,790
59										
60										
61	Capital Expenditures [per PLM]									
62		1. Underground			3,215	4,223	3,140	2,971	2,812	2,929
63		2. Overhead (excl. embedded Pole Program)			(2,257)	(3,115)	(1,879)	(2,321)	(2,360)	(1,611)
64		Differential			958	1,109	1,261	650	452	1,318

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FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential - Property Taxes & Insurance

		1 2008	2 2009	3 2010	4 2011	5 2012	6 2013	7 2014	8 2015	9 2016	10 2017	11 2018	12 2019	13 2020	14 2021	15 2022	16 2023	17 2024	18 2025
Capital																			
1. Underground		3,215	3,312	3,403	3,504	3,613	3,717	3,825	3,938	4,052	4,165	4,284	4,404	4,529	4,655	4,786	4,917	5,055	5,193
2. Overhead (excl embed Poles)		(2,257)	(2,325)	(2,389)	(2,460)	(2,536)	(2,609)	(2,686)	(2,765)	(2,844)	(2,924)	(3,008)	(3,092)	(3,179)	(3,268)	(3,360)	(3,452)	(3,549)	(3,646)
3. Pole Inspection/Remediation		0	0	0	0	0	0	0	(2,561)	0	0	0	0	0	0	0	(3,198)	0	0
Total Capital		958	987	1,014	1,044	1,077	1,108	1,140	(1,388)	1,207	1,241	1,277	1,312	1,349	1,387	1,426	(1,733)	1,506	1,547
Undepreciated Balance		958	1,945	2,959	4,003	5,080	6,187	7,327	5,939	7,147	8,388	9,664	10,977	12,326	13,713	15,139	13,406	14,913	16,460
Accum Book Depreciation																			
2007	958	0	29	58	87	116	145	174	203	232	261	290	319	348	377	406	435	464	494
2008	987		0	30	60	90	120	150	179	209	239	269	299	329	359	389	419	449	479
2009	1,014			0	31	61	92	123	154	184	215	246	277	307	338	369	399	430	461
2010	1,044				0	32	63	95	127	158	190	222	253	285	316	348	380	411	443
2011	1,077					0	33	65	98	130	163	196	228	261	294	326	359	391	424
2012	1,108						0	34	67	101	134	168	201	235	268	302	336	369	403
2013	1,140							0	35	69	104	138	173	207	242	276	311	345	380
2014	(1,388)								0	(42)	(84)	(126)	(168)	(210)	(252)	(294)	(336)	(379)	(421)
2015	1,207									0	37	73	110	146	183	220	256	293	329
2016	1,241										0	38	75	113	150	188	226	263	301
2017	1,277											0	39	77	116	155	193	232	271
2018	1,312												0	40	80	119	159	199	239
2019	1,349													0	41	82	123	164	204
2020	1,387														0	42	84	126	168
2021	1,426															0	43	86	130
2022	(1,733)																0	(53)	(105)
2023	1,506																	0	48
2024	1,547																		0
2025	1,590																		
2026	1,634																		
2027	1,680																		
2028	1,725																		
2029	1,771																		
2030	(2,152)																		
2031	1,868																		
2032	1,917																		
2033	1,967																		
2034	2,019																		
2035	2,073																		
2036	2,130																		
Total Book Depreciation	34,682	0	29	88	178	299	453	640	862	1,042	1,259	1,513	1,806	2,139	2,512	2,928	3,388	3,793	4,245
Depreciated Balance		958	1,916	2,871	3,825	4,781	5,734	6,687	5,077	6,104	7,129	8,151	9,171	10,187	11,201	12,212	10,020	11,120	12,216
Property Taxes		17	34	52	69	86	103	120	91	110	128	147	165	183	202	220	180	200	220

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		1 2008	2 2009	3 2010	4 2011	5 2012	6 2013	7 2014	8 2015	9 2016	10 2017	11 2018	12 2019	13 2020	14 2021	15 2022	16 2023	17 2024	18 2025
Replacement Value																			
2007	958	958	974	992	1,010	1,030	1,049	1,069	1,090	1,110	1,131	1,153	1,174	1,196	1,218	1,240	1,263	1,286	1,309
2008	987		987	1,003	1,022	1,041	1,061	1,080	1,101	1,123	1,144	1,166	1,187	1,210	1,232	1,255	1,278	1,301	1,325
2009	1,014			1,014	1,030	1,050	1,069	1,090	1,110	1,131	1,153	1,175	1,197	1,220	1,243	1,266	1,289	1,313	1,337
2010	1,044				1,044	1,061	1,081	1,101	1,122	1,143	1,165	1,188	1,210	1,233	1,256	1,280	1,304	1,328	1,352
2011	1,077					1,077	1,094	1,115	1,135	1,157	1,178	1,201	1,225	1,248	1,271	1,295	1,319	1,344	1,369
2012	1,108						1,108	1,126	1,147	1,168	1,190	1,212	1,236	1,260	1,284	1,308	1,333	1,357	1,383
2013	1,140							1,140	1,159	1,180	1,202	1,225	1,248	1,272	1,297	1,321	1,346	1,371	1,397
2014	(1,388)								(1,388)	(1,411)	(1,437)	(1,463)	(1,492)	(1,519)	(1,548)	(1,579)	(1,609)	(1,639)	(1,670)
2015	1,207									1,207	1,227	1,250	1,273	1,297	1,321	1,347	1,373	1,399	1,426
2016	1,241										1,241	1,261	1,285	1,309	1,334	1,358	1,385	1,412	1,438
2017	1,277											1,277	1,298	1,322	1,346	1,372	1,397	1,424	1,452
2018	1,312												1,312	1,334	1,359	1,384	1,410	1,436	1,464
2019	1,349													1,349	1,371	1,397	1,423	1,450	1,477
2020	1,387														1,387	1,410	1,436	1,463	1,491
2021	1,426															1,426	1,450	1,477	1,504
2022	(1,733)																(1,733)	(1,761)	(1,794)
2023	1,506																	1,506	1,531
2024	1,547																		1,547
2025	1,590																		
2026	1,634																		
2027	1,680																		
2028	1,725																		
2029	1,771																		
2030	(2,152)																		
2031	1,868																		
2032	1,917																		
2033	1,967																		
2034	2,019																		
2035	2,073																		
2036	2,130																		
Total Replacement Value	34,682	958	1,961	3,009	4,107	5,258	6,461	7,720	6,475	7,809	9,195	10,644	12,154	13,730	15,371	17,081	15,665	17,469	19,339
Property Insurance		1	1	2	3	3	4	5	4	5	6	6	7	8	9	10	10	11	12

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	19 2026	20 2027	21 2028	22 2029	23 2030	24 2031	25 2032	26 2033	27 2034	28 2035	29 2036	30 2037
Capital												
1. Underground	5,336	5,485	5,636	5,788	5,944	6,107	6,269	6,432	6,602	6,776	6,957	7,147
2. Overhead (excl embed Poles	(3,746)	(3,851)	(3,957)	(4,063)	(4,173)	(4,287)	(4,401)	(4,516)	(4,635)	(4,757)	(4,884)	(5,017)
3. Pole Inspection/Remediation	0	0	0	0	0	(3,972)	0	0	0	0	0	0
Total Capital	1,590	1,634	1,680	1,725	1,771	(2,152)	1,868	1,917	1,967	2,019	2,073	2,130
Undepreciated Balance	18,050	19,685	21,364	23,089	24,860	22,708	24,576	26,493	28,460	30,479	32,552	34,682
Accum Book Depreciation												
2007	523	552	581	610	639	668	697	726	755	784	813	842
2008	508	538	568	598	628	658	688	718	748	778	808	837
2009	492	522	553	584	614	645	676	707	737	768	799	830
2010	475	506	538	570	601	633	665	696	728	759	791	823
2011	457	489	522	555	587	620	652	685	718	750	783	816
2012	436	470	503	537	571	604	638	671	705	738	772	805
2013	415	449	484	518	553	587	622	656	691	725	760	794
2014	(463)	(505)	(547)	(589)	(631)	(673)	(715)	(757)	(799)	(841)	(883)	(925)
2015	366	402	439	476	512	549	585	622	659	695	732	768
2016	338	376	414	451	489	526	564	602	639	677	714	752
2017	309	348	387	426	464	503	542	580	619	658	696	735
2018	278	318	358	398	437	477	517	557	597	636	676	716
2019	245	286	327	368	409	450	491	532	572	613	654	695
2020	210	252	294	336	378	420	462	504	546	588	631	673
2021	173	216	259	303	346	389	432	475	519	562	605	648
2022	(158)	(210)	(263)	(315)	(368)	(420)	(473)	(525)	(578)	(630)	(683)	(735)
2023	91	137	183	228	274	320	365	411	456	502	548	593
2024	47	94	141	188	234	281	328	375	422	469	516	563
2025	0	48	96	145	193	241	289	337	385	434	482	530
2026		0	50	99	149	198	248	297	347	396	446	495
2027			0	51	102	153	204	254	305	356	407	458
2028				0	52	105	157	209	261	314	366	418
2029					0	54	107	161	215	268	322	376
2030						0	(65)	(130)	(196)	(261)	(326)	(391)
2031							0	57	113	170	226	283
2032								0	58	116	174	232
2033									0	60	119	179
2034										0	61	122
2035											0	63
2036												0
Total Book Depreciation	4,743	5,290	5,887	6,534	7,234	7,987	8,675	9,420	10,223	11,085	12,009	12,995
Depreciated Balance	13,307	14,394	15,477	16,555	17,626	14,721	15,901	17,073	18,237	19,394	20,543	21,686
Property Taxes	240	259	279	298	317	265	286	307	328	349	370	390

FAC 25-6.115 - Conversions - Underground v. Overhead Operational Cost Differential - Property Taxes & Insurance

	19 2026	20 2027	21 2028	22 2029	23 2030	24 2031	25 2032	26 2033	27 2034	28 2035	29 2036	30 2037
Replacement Value												
2007	1,334	1,359	1,385	1,411	1,438	1,466	1,494	1,522	1,552	1,582	1,612	1,645
2008	1,349	1,374	1,400	1,427	1,454	1,481	1,510	1,539	1,569	1,599	1,629	1,661
2009	1,361	1,386	1,412	1,438	1,466	1,493	1,522	1,551	1,581	1,611	1,642	1,674
2010	1,377	1,402	1,427	1,454	1,481	1,510	1,538	1,567	1,598	1,629	1,660	1,691
2011	1,394	1,419	1,445	1,471	1,499	1,527	1,556	1,586	1,616	1,647	1,679	1,711
2012	1,408	1,434	1,460	1,487	1,514	1,542	1,571	1,601	1,631	1,662	1,695	1,727
2013	1,423	1,449	1,476	1,503	1,530	1,558	1,587	1,617	1,648	1,679	1,711	1,744
2014	(1,701)	(1,733)	(1,765)	(1,797)	(1,830)	(1,863)	(1,897)	(1,932)	(1,969)	(2,006)	(2,044)	(2,083)
2015	1,453	1,480	1,507	1,535	1,563	1,592	1,621	1,650	1,681	1,713	1,745	1,778
2016	1,465	1,493	1,521	1,549	1,578	1,607	1,636	1,666	1,696	1,728	1,760	1,794
2017	1,480	1,508	1,536	1,565	1,594	1,623	1,653	1,683	1,714	1,745	1,777	1,811
2018	1,493	1,521	1,550	1,579	1,608	1,639	1,669	1,699	1,730	1,762	1,794	1,827
2019	1,506	1,535	1,564	1,594	1,624	1,654	1,685	1,716	1,747	1,779	1,812	1,844
2020	1,518	1,548	1,578	1,608	1,638	1,669	1,700	1,732	1,764	1,796	1,829	1,862
2021	1,533	1,561	1,591	1,622	1,653	1,684	1,716	1,748	1,781	1,813	1,847	1,880
2022	(1,827)	(1,862)	(1,897)	(1,933)	(1,971)	(2,009)	(2,046)	(2,085)	(2,124)	(2,164)	(2,203)	(2,243)
2023	1,560	1,588	1,619	1,649	1,681	1,713	1,746	1,779	1,812	1,846	1,881	1,915
2024	1,573	1,602	1,632	1,663	1,694	1,727	1,760	1,794	1,827	1,862	1,897	1,932
2025	1,590	1,616	1,646	1,677	1,709	1,740	1,774	1,809	1,843	1,878	1,913	1,949
2026		1,634	1,661	1,692	1,723	1,756	1,789	1,823	1,859	1,895	1,930	1,966
2027			1,680	1,707	1,739	1,771	1,805	1,838	1,874	1,910	1,947	1,983
2028				1,725	1,753	105	157	209	261	314	366	418
2029					0	54	107	161	215	268	322	376
2030						0	(65)	(130)	(196)	(261)	(326)	(391)
2031							0	57	113	170	226	283
2032								0	58	116	174	232
2033									0	60	119	179
2034										0	61	122
2035											0	63
2036												0
Total Replacement Value	21,287	23,315	25,429	27,625	28,137	27,038	27,587	28,200	28,881	29,632	30,454	31,352
Property Insurance	13	14	16	17	17	16	17	17	18	18	19	19

Florida Power & Light Company, 215 S. Monroe St., Suite 810, Tallahassee, FL 32301

FPL

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October 10, 2008

-VIA HAND DELIVERY -

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

Re: Docket Nos. 070231-EI and 080244-EI

Dear Ms. Cole:

I am enclosing for filing in the above dockets the original and five (5) copies of Florida Power & Light Company's responses to the Municipal Underground Utilities Consortium's First Data Requests (Nos. 1-72). A copy of FPL's responses will be served electronically on counsel for the parties of record in these dockets.

If there are any questions regarding this transmittal, please contact me at 561-304-5639.

Sincerely,

Nanci Nesmith

for John T. Butler

Enclosure

cc: Counsel for parties of record (w/enclosure)

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MUUC 9/4/08 DATA REQUESTS - FPL RESPONSES

Basic FPL System Facts & Information

1. To the extent possible, please fill in the following table showing what percentages, by length of facilities, e.g., pole-line miles for OH or circuit or trench miles for UG, of FPL's UG and OH distribution facilities were installed in each of the time periods shown.

Time Period	% of Total 2007 UG Installed in Period	% of Total 2007 OH Installed in Period
Before 1950	**Not available**	**Not available**
1950-1959	**Not available**	**Not available**
1960-1969	**Not available**	**Not available**
Before 1980	**26%**	**71%**
1980-1989	**32%**	**17%**
1990-1999	**27%**	**8%**
2000-2007	**15%**	**4%**

Note: Data is not available prior to 1977. The "Before 1980" figure represents the balance as of year-end 1979. Also see FPL's response to Question 5.

2. If it is not possible for FPL to answer the preceding question, please provide estimates of:

a. the average age of FPL's OH facilities, preferably on a mileage-weighted basis, and

A. See FPL's response to Question 1.

b. the average age of FPL's UG facilities, preferably on a mileage-weighted basis.

A. See FPL's response to Question 1.

c. Alternately, provide length of facilities in service by PLM or trench miles for each year during this time period on the FPL system.

A. See FPL's response to Question 1.

3. Page 8 of 17 of the UG Conversion O&M Worksheet shows the mileage for OH and UG facilities on FPL's system for the years 2003-2007.

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a. Do these values include "service laterals" or "service drops"?

A. No.

b. Is it correct to conclude that these data show that approximately 60 percent of new FPL distribution facilities over the 2003-2007 period are UG facilities?

A. Yes.

c. Please provide the comparable values for installed UG facilities (trench or circuit miles) and installed OH facilities (PLM) for the years, 1980, 1985, 1990, 1995, and 2000.

A.

	Underground	Overhead
1980	7,395	30,365
1985	11,101	33,797
1990	15,540	37,238
1995	18,719	38,584
2000	22,106	40,201

4. For purposes of the following questions, "rear-lot applications" means that the facilities, whether OH or UG, are installed at the rear of properties, away from roads and road rights-of-way, and "front-lot applications" means that the facilities, whether OH or UG, are installed "adjacent to a public road, normally in front of the customer's premises" (language from PSC Rule 25-5.0341(1), F.A.C.). If FPL believes that different definitions of "rear-lot" and "front-lot" are appropriate, please provide those definitions.

A. Definition is acceptable.

a. Does FPL have any UG facilities on its system that are installed in "rear-lot" applications?

A. Yes.

b. If so, please provide an estimate of the percentage of FPL's UG facilities that are installed in rear-lot applications and the percentage of FPL's UG facilities that are installed in front-lot applications.

A. FPL does not maintain its records in this manner.

c. Please provide an estimate of the percentage of FPL's OH facilities that are installed in rear-lot applications and in front-lot installations.

A. FPL does not maintain its records in this manner.

5. In what year did FPL first install UG facilities? Are they still in service?

A. FPL does not have the information available to specify the year UG was first installed. FPL's property records date back to 1941 (all data prior to 1941 were assumed to be vintaged as 1941 when FPL first implemented its Property Record System in the late 1970's). FPL's records show that there was some limited use of underground (approximately 1 mile) dating to the 1940's. These facilities have not been retired although they have been fully depreciated.

6. What types of each of the following distribution equipment items were typical for FPL UG installations in each of the time periods listed below? For each time period, please identify all types that were typically used in FPL UG installations.

Equipment/Types:

Cable: "Paper-lead" or "PILC"; "Solid dielectric"; "Cross-linked polyethylene" or "XLPE"; "Tree retardant cross-linked polyethylene" or "TRXLPE"; bare concentric neutral cable; All other types of cable, if any

Surge Arresters (All types typically used by FPL)

Switches or Switchgear:
Air-insulated; Oil-insulated; "SF6" (sulfur hexafluoride) insulated; Solid dielectric; All other types of switchgear, if any

Terminators (All types typically used by FPL)

Time Periods:

CABLE:
Before 1950 - **PILC**
1950-1959 - **Same as prior period**
1960-1969 - **Same as prior period plus solid dielectric, XLPE, bare concentric neutral, polyethylene**

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1970-1979 - **Same as prior period**
1980-1989 - **Same as prior period excluding bare concentric neutral, polyethylene**
1990-1999 - **Same as prior period plus TRXLPE**
2000 to present - **Same as prior period**

SURGE ARRESTORS:
Before 1950 - **Porcelain silicon carbide series gap**
1950-1959 - **Same as prior period**
1960-1969 - **Same as prior period**
1970-1979 - **Same as prior period**
1980-1989 - **Porcelain metal oxide varistor (MOV)**
1990-1999 - **Polymer gapless MOV (elbow and overhead)**
2000 to present - **Same as prior period**

SWITCHES & SWITCHGEAR:
Before 1950 - **Oil-insulated, air-insulated**
1950-1959 - **Same as prior period**
1960-1969 - **Same as prior period**
1970-1979 - **Same as prior period plus SF6**
1980-1989 - **Same as prior period**
1990-1999 - **Same as prior period plus solid dielectric**
2000 to present - **Same as prior period**

TERMINATORS:
Before 1950 - **porcelain**
1950-1959 - **Same as prior period**
1960-1969 - **Same as prior period**
1970-1979 - **Same as prior period**
1980-1989 - **Same as prior period**
1990-1999 - **Cold shrink**
2000 to present - **Same as prior period**

7. What are the current, or present-day, preferred FPL technologies for each of these equipment items?

a. Cable - **TRXPLE**
b. Surge arresters - **elbow metal oxide polymer**
c. Switches of switchgear - **dead front padmount air insulated**
d. Terminators - **Cold shrink**

8. Does FPL have any "paper-lead (PILC)" UG facilities still in service? If so, please provide an estimate of how many circuit miles or trench miles (please specify which) of such facilities are still in service. If so, please also characterize these facilities as transmission or distribution and explain the nature of the application these facilities are used for.

A. Yes, approximately 1,700 miles for distribution duct and manhole applications. Note that transmission-related facilities are not included in the analysis.

9. Does FPL have any "solid dielectric" UG facilities still in service? If so, please provide an estimate of how many circuit miles or trench miles (please specify which) of such facilities are still in service. If so, please also characterize these facilities as transmission or distribution and explain the nature of the application these facilities are used for.

A. Yes. All UG distribution facilities that are not PILC. Note that transmission-related facilities are not included in the analysis.

10. Please provide the amount (in circuit miles, if possible, or in trench miles - please specify which) of FPL's 2007 UG distribution facilities that are:

a. direct buried cable without conduit;
A. FPL does not maintain specific records for this type of construction. However, FPL estimates that this represents approximately one third of current miles.

b. "direct buried cable in conduit"; and
A. All other than that in FPL's response to Question 10.a.

c. cable in encased ductbank.
A. Approximately 1,700 miles.

11. Does FPL have any bare concentric neutral cable in service? Is FPL still installing bare concentric neutral cable? Has FPL considered any analyses, trade information, studies, or other information relating to O&M costs associated with bare concentric neutral versus jacketed cable on the FPL system? If so, please provide any materials considered.

A. Question 1 - Yes. Though FPL does not maintain specific records for this type of construction, it is estimated to be a very small amount. Question 2 - No. Question 3 - No, FPL does not have any such studies.

O&M Cost Differential Worksheets

12. Please provide all workpapers, source documents, studies, and any other documents that support FPL's O&M Worksheets.

A. See enclosed CD.

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13. Is it correct that FPL's O&M cost and Capital Expenditures values in the O&M Worksheets include estimated O&M costs and Capital Expenditures for all of FPL's OH and UG system? If not, please explain what the O&M and Capital Expenditures values do include.

A. Yes. Note that the cost projections for all but the new Vegetation Management and Pole Inspection/Remediation activities are based on FPL's average actual historical costs. This clarification is applicable to FPL's responses to all questions that characterize costs as "estimated".

14. Is it correct that FPL's O&M cost values and Capital Expenditures values therefore reflect the cost and expenditure values for OH and UG facilities of average age?

A. No. This is an incorrect inference. The costs simply represent those actually incurred in operating and maintaining FPL's distribution infrastructure during the time periods shown. There is no implication that such costs or their levels are representative for any particular age of facilities.

15. Is it correct that FPL's O&M cost values and Capital Expenditures values therefore reflect the cost and expenditure values for OH and UG facilities based on the average percentage of rear-lot and front-lot construction on FPL's system?

A. No. Similar to FPL's response to Question 14, it would be an incorrect oversimplification to assume that the costs amounts are representative for any particular mix of facilities.

16. a. Is it correct that FPL's O&M cost values in the URD O&M Worksheets and UG Conversion O&M Worksheets include estimated O&M costs for all of FPL's UG distribution system and all of FPL's OH distribution system, based on average costs for the accounts and categories shown over the period 2003-2007?

A. Yes. The estimates are based on the 5-year average of FPL's actual historical distribution CIAC-related costs for these years.

b. If not, please explain in detail what the O&M values include.

A. Not applicable.

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17. a. Please explain in detail what costs are included in the "Capital" cost category for UG and OH facilities.

A. All distribution-related costs, as reported in FPL's FERC Form 1, which are required to be capitalized rather than expensed per the Code of Federal Regulations.

b. Please identify and provide any documents that support or relate to the calculations for Low Density and High Density UG and OH installations as reflected in the O&M Worksheets.

A. See previously provided worksheets titled "25-6.078 URD Underground v. Overhead Operational Cost Differential".

18. a. Please explain in detail what values are reflected in the "Adjustments" to the "Distribution Capital" costs shown on page 12 of 17 of the UG Conversion O&M Worksheets, and on page 14 of 23 of the URD O&M Worksheets.

A. The adjustments remove costs either: (a) not associated with facilities to which the underground rules apply; or (b) to substitute projections where costs are expected to meaningfully differ from historic levels. Certain entire FERC accounts fall into category (a), such as: substation, street & signal lighting, customer premise equipment, and meters. Also removed for the same reason were costs embedded within other FERC accounts related to these types of activities, as well as, new growth (e.g., system expansion, large commercial projects), and storm restoration. Under category (b), embedded costs for vegetation management and pole inspection/remediation were removed in order to substitute more representative projected costs for these programs (for most of the historical years, the costs for these programs did not reflect the Commission's new pole inspection/remediation or vegetation management requirements). Lastly, the analysis also adjusted out a pro-rata share of associated "supervision and engineering".

b. Do the "Adjustments" reflect the cost of new UG installations on FPL's system in each year of the five-year study period, 2003-2007?

A. See FPL's response to Question 18.a.

c. Is it FPL's intention that the net values resulting from subtracting the "Adjustments" from the "Distribution Capital"

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values should reflect the cost of repairs and replacements to all UG facilities on FPL's system, for the years and the period indicated? If not, please explain what the net values are intended to show or represent.

A. Yes. These values represent the applicable capital costs required to operate the UG, as well as the OH, infrastructure.

19. a. Does FPL agree that there are additional avoided restoration cost savings from undergrounding that result from non-major weather events, i.e., weather events, such as severe thunderstorms and microbursts, other than named tropical storms and hurricanes?

A. Yes, that is possible though not quantifiable.

b. Is it FPL's belief that all such restoration cost savings are reflected in FPL's O&M differential, or in FPL's capital cost differential values?

A. Yes.

c. If not, please explain whether such additional restoration costs are reflected in FPL's analysis of operational cost differences, and if so, where they are reflected.

A. Not applicable.

20. Please explain why the values for Overhead facilities "exclude embedded Poles"?

A. Costs for inspection and remediation of poles are included by way of a second adjustment. FPL's Pole Inspection and Remediation program was changed in 2006 (see PSC Order No. PSC-06-0144-PAA-EI, in Docket No. 060078-EI). As a result, the expected costs for these activities are different than what would be embedded in the 5-year historical average. Therefore, the historical "embedded pole" costs were removed and replaced by the new expected costs.

21. Please explain the significant variation in supervision and engineering for stations for 2007 (as compared to the 2003-2006 values) in FERC Accounts 580 and 583.

A. For clarity, FPL has combined here its responses for both this and the following Question (No. 22). The 2007 figures for the 3 FERC accounts are essentially within the normal

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variation for the time period used for the analysis. Avoiding potential distortions from normal year-to-year changes was the reason FPL used a 5-year average. There is no net material impact on the 5-year average from any variation of the 2007 figures (see table below). On a "per books" basis (lines 3, 6 and 11 from the analysis), the net 5-year average for the 3 accounts differs by only $80K (0.0% of the $254M total) from the average of 2003-2006. On an adjusted basis (lines 48, 51 and 56), the result is a difference of $572K (0.4% of the $140M total). To identify the sources of these non-material variations would require performing a time-consuming analysis of all of the thousands of transactions that comprise each of these accounts.

Line	Acct	Description	5-Year Avg	2003-2006 Avg	Difference	% Difference	% of Total
FERC Form 1 Distribution O&M (per Books)							
3	580	Operation - Supervision & Engineering	20,727,037	20,776,006	(48,969)	-0.2%	0.0%
6	583	Operation - Overhead Line	6,892,482	7,316,092	(423,611)	-6.1%	-0.2%
11	588	Operation - Miscellaneous Distribution	28,000,282	27,447,908	552,374	2.0%	0.2%
		Total O&M	254,544,208		79,794	0.0%	0.0%
CIAC-Related O&M (Adjusted)							
48	580	Operation - Supervision & Engineering	15,652,121	15,299,650	352,471	2.3%	0.3%
51	583	Operation - Overhead Line	5,506,687	6,459,966	(953,279)	-17.3%	-0.7%
56	588	Operation - Miscellaneous Distribution	25,697,656	24,524,605	1,173,051	4.6%	0.8%
		Total CIAC-Related O&M	140,865,172		572,243	0.4%	0.4%

22. Please explain the significant variation for 2007 (as compared to the 2003-2006 values) in FERC Account 588.

A. See FPL's response to Question 21.

23. Without asking for specific values, do the litigation costs that are embedded in the O&M Worksheets include:

a. settlements paid to or on behalf of claimants?
b. damages awards?
c. legal fees and costs?
d. expert witness fees and costs?
e. any and all other costs that could be attributed to such litigation?

A. The O&M Worksheets include the costs described in (a) and (b) above.

24. Please explain what the Public Utility Private Fixed Investment ("PUPFI") is and by whom or by what agency it is prepared.

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A. **PUPFI is a measure of the weighted average rate of inflation for utility fixed (i.e., capital) investments such as distribution facilities. It is prepared by Global Insight, Inc.**

25. Does FPL agree that materials costs and utility labor costs have increased substantially over the past 2 to 5 years?

A. **While some material and labor costs have increased, this is not the case for all. Additionally, FPL continuously works to manage overall cost levels through various mitigation techniques.**

26. Did FPL consider using indexes (e.g., Handy-Whitman indexes) that would more closely track cost escalation for utility materials and utility labor costs than the CPI and the PUPFI?

A. **The analysis employed the indices which FPL routinely uses in its economic decision making.**

27. Is it correct that there is no depreciation expense assumed in the comparison analyses in the Worksheets?

A. **As a non-cash item, depreciation in a discounted cash flow analysis is only used as an element in calculating taxes. The analysis used depreciation to compute property taxes which are based on the accumulated net plant balance.**

28. Is it correct that, other than the net "Capital" costs for UG and OH facilities, there are no assumed wholesale or total replacements of either the hypothetical UG system or the hypothetical OH system reflected in the O&M Worksheets?

A. **Yes, only those replacements which are inherent in the course of maintenance activities.**

29. a. Does FPL have any "network underground distribution" installations on its system?

A. **Yes, portions of downtown Miami.**

b. If so, how many miles of such network underground distribution facilities does FPL have on its system?

A. **Though FPL does not maintain specific records for this type of construction, it is estimated to be approximately 5 trench miles.**

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c. Are the O&M costs for FPL's network underground distribution facilities included in the cost values shown in the O&M Worksheets?

A. The costs are embedded, but are of de minimis consequence to the analysis due to the very small proportion of network facilities to FPL's total infrastructure.

d. Are the Capital Expenditures for FPL's network underground distribution facilities included in the values shown in the O&M Worksheets?

A. See FPL's response to Question 29.c.

e. Does FPL agree that the O&M costs and Capital Expenditures for network underground distribution facilities are higher, on average, than for direct burial in conduit UG facilities?

A. The costs are likely higher on a unitized basis. However, as previously mentioned, this is of little consequence to the analysis due to the very small relative proportion of network facilities.

<u>O&M Costs According to Age of Facilities</u>

30. Has FPL considered any analyses, whether prepared by FPL or by others, of O&M costs relating to OH and UG facilities that attempt to measure or account for differences in such O&M costs by age or vintage of the facilities? If so, please identify all such analyses and provide copies of any such analyses that FPL has available.

A. No.

31. Has FPL considered any analyses, whether prepared by FPL or by others, of Capital Expenditures relating to OH and UG facilities that attempt to measure or account for differences in such Capital Expenditures by age or vintage of the facilities? If so, please identify all such analyses and provide copies of any such analyses that FPL has available.

A. No.

32. Has FPL considered any analyses, whether prepared by FPL or by others, of replacement experience relating to OH and UG facilities that attempt to measure or account for differences in

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such replacement experience or costs by age or vintage of the facilities? If so, please identify all such analyses and provide copies of any such analyses that FPL has available.

A. No.

33. Does FPL have any analyses, whether prepared by FPL or others, of equipment failure causes and rates for UG facilities of different vintages? If so, please identify and provide such analyses.

A. No.

34. Does FPL have any analyses, whether prepared by FPL or others, of equipment failure causes and rates for OH facilities of different vintages? If so, please identify and provide such analyses.

A. No.

35. a. Does FPL agree in general that UG facilities constructed using current-day technologies, and using FPL's current construction standards and installation practices and techniques, are more reliable than UG facilities constructed using older technologies?

A. In general, the quality of equipment itself is better due to factors such as, improved design, raw materials and/or manufacturing techniques. However, the cost for operating both UG and OH systems is influenced by many factors beyond initial quality such as, the manner in which the system is designed and installed (e.g., loading levels, etc.) and environmental factors (e.g., lightning, accidents, etc.).

b. Does FPL have any analyses, whether prepared by FPL or others, of the reliability of UG facilities constructed using current-day technologies, and using FPL's current construction standards and installation practices and techniques, as compared to UG facilities constructed using older technologies?

A. No.

c. If so, please identify and provide such analyses.

A. Not applicable.

36. a. Does FPL agree in general that UG facilities constructed using current-day technologies, and using FPL's current

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construction standards and installation practices and techniques, are expected to have lower O&M costs than older UG facilities: (i) over the life of the new UG facilities, and (ii) over the first 10 years of the life of the new UG facilities?

A. (i) See FPL's response to Question 35. (ii) FPL would not expect a significant difference in cost during the first 10 years of life.

b. Does FPL have any analyses, whether prepared by FPL or others, of O&M costs for UG facilities constructed using current-day technologies, and using FPL's current construction standards and installation practices and techniques, as compared to UG facilities constructed using older technologies?

A. No.

c. If so, please identify and provide such analyses.

A. Not applicable.

37. a. Does FPL agree in general that UG facilities constructed using current-day technologies, and using FPL's current construction standards and installation practices and techniques, are expected to have lower capital replacement costs than older UG facilities: (i) over the life of the new UG facilities, and (ii) over the first 10 years of the life of the new UG facilities?

A. See FPL's response to Question 36.a.

b. Does FPL have any analyses, whether prepared by FPL or others, of capital replacement costs for UG facilities constructed using current-day technologies, and using FPL's current construction standards and installation practices and techniques, as compared to UG facilities constructed using older technologies?

A. No.

c. If so, please identify and provide such analyses.

A. Not applicable.

38. Since the projects undertaken pursuant to Rule 25-6.115, F.A.C., are per se conversion projects, will FPL agree that the UG facilities contemplated for such conversion projects are new as of the installation date? Is it correct that the analyses in the UG Conversion O&M Worksheets reflect an assumed installation date of 2008?

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A. Yes, to both questions.

39. With regard to O&M costs, has FPL assumed that all new OH facilities, whether in new (URD) installations (Docket No. 070231) or in UG conversion installations (Docket No, 080244), would be installed using FPL's current construction standards and equipment specifications, in accordance with FPL's storm hardening plan? If not, please explain what assumptions FPL made in this regard.

A. Yes.

40. Have FPL's installation practices and techniques for UG facilities changed over time? Does FPL believe that its current (2007 or 2008) UG installation practices and techniques are better than:

A. FPL's installation practices have improved since the 70's. These changes are identified in the table below by decade.

a. in 2000? - **No changes.**
b. in 1990? - **Began directional boring.**
c. in 1980? - **Began installing cable in conduit.**
d. in 1970? - **Began installing spare conduit.**

41. Does FPL agree that the UG equipment and materials that FPL uses for current (2007 or 2008) UG installations are better now than:

A. The equipment FPL uses has improved since the 70's. These changes are identified in the table below by decade.

a. in 2000? - **No changes.**
b. in 1990? - **Began using tree retardant cross-linked polyethylene cable.**
c. in 1980? - **No changes.**
d. in 1970? - **Began using XLPE and jacketed cable.**

Costs for Rear-Lot and Front-Lot OH and UG Distribution Facilities

42. Has FPL considered any analyses, whether prepared by FPL or others, of vegetation management costs for OH facilities that are located in rear-lot applications as compared to the vegetation management costs for OH facilities located in front-lot applications? If so, please identify and provide all such analyses.

A. No.

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43. Has FPL considered any analyses, whether prepared by FPL or others, of O&M costs other than vegetation management costs for OH facilities that are located in rear-lot applications as compared to the O&M costs other than vegetation management costs for OH facilities located in front-lot applications? If so, please identify and provide all such analyses.

A. No.

44. Has FPL considered any analyses, whether prepared by FPL or others, of storm restoration costs for OH facilities that are located in rear-lot applications as compared to the storm restoration costs for OH facilities located in front-lot applications? If so, please identify and provide all such analyses.

A. No.

45. With regard to O&M costs, has FPL assumed that for new construction (Docket 070231), the UG facilities would all be installed as "direct buried cable in conduit underground electric distribution system" facilities in front-lot applications using FPL's current construction standards and equipment specifications? If not, please explain what assumptions FPL made in this regard.

A. FPL's basis for O&M costs is the actual costs from our accounting records rather than making assumptions as to what costs might hypothetically be.

46. With regard to O&M costs, has FPL assumed that for UG conversion projects (Docket 080244), the UG facilities would all be installed as "direct buried cable in conduit underground electric distribution system" facilities in front-lot applications using FPL's current construction standards and equipment specifications? If not, please explain what assumptions FPL made in this regard.

A. See FPL's response to Question 45.

47. Is it correct that FPL does not install any new UG facilities in rear-lot applications?

A. No. If the new construction is an extension to an existing rear-lot line, then the new facilities would be added in the rear as well. For new URD new facilities would be constructed as front-lot.

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48. Does FPL agree that Avoided Storm Restoration Costs ("ASRCs") for rear-lot OH facilities are greater on a dollars-per-pole-line-mile basis than for front-lot OH facilities?

A. FPL does not have the data necessary to respond to this question.

49. Has FPL made any analyses of the differences between rear-lot and front-lot OH storm restoration costs? If so, please provide such analyses.

A. No.

50. Has FPL performed any analyses of the ASRC factors making different assumptions regarding the proportions of rear-lot and front-lot construction in the area to be converted?

A. No.

51. Does FPL agree that where a UG conversion project replaces rear-lot OH facilities with front-lot UG facilities, ASRC savings will be greater (at least on an expected-value basis) than if the UG conversion replaced front-lot OH facilities?

A. FPL does not have the data necessary to respond to this question.

52. How, if at all, does FPL propose to reflect these facts or factors in its CIAC calculations? Is FPL willing to make adjustments to CIAC calculations on a case-by-case basis where an Applicant's UG conversion project will convert a significantly higher percentage of rear-lot OH facilities than the system average?

A. Question 1 - FPL has no plans to modify the presently-filed CIAC figures for the reasons discussed above. Question 2 - No, per FPL's previous responses, FPL has no basis for making any such case-by-case adjustments.

53. What did FPL assume regarding the proportions of rear-lot and front-lot OH construction in its GAF cost-effectiveness spreadsheet filed in Docket No. 060150-EI? Did FPL assume a system average value? If so, what is that value?

A. FPL made no explicit assumption regarding the location of facilities.

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Vegetation Management Costs

54. Does FPL agree that Vegetation Management costs for rear-lot OH facilities are greater on a dollars-per-pole-line-mile basis than for front-lot OH facilities?

A. FPL does not have the data necessary to respond to this question.

55. Has FPL performed any analyses of the differences between rear-lot and front-lot OH Vegetation Management costs? If so, please provide such analyses.

A. No.

56. Does FPL agree that where a UG conversion project replaces rear-lot OH facilities with front-lot UG facilities, Vegetation Management cost savings will be greater than if the UG conversion replaced front-lot OH facilities?

A. FPL does not have the data necessary to respond to this question.

57. Has FPL performed any analyses of Vegetation Management costs making different assumptions regarding the proportion of rear-lot construction in the area to be converted, e.g., system average percentage vs. 100% rear-lot vs. 100% front-lot facilities converted? If so, please provide such analyses.

A. No.

58. How, if at all, does FPL propose to reflect these facts or factors in its CIAC calculations? Is FPL willing to make adjustments to CIAC calculations on a case-by-case basis where an Applicant's UG conversion project will convert a significantly higher percentage of rear-lot OH facilities than the system average?

A. Question 1 - FPL does not plan to modify the presently-filed CIAC calculations for the reasons discussed above. Question 2 - No, per FPL's previous responses, FPL would have an insufficient basis for making any such case-by-case adjustments.

O&M Costs Other Than Vegetation Management

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59. Does FPL agree that O&M costs other than Vegetation Management costs for rear-lot OH facilities are greater on a dollars-per-pole-line-mile basis than for front-lot OH facilities?

A. FPL does not have the data necessary to respond to this question.

60. Does FPL agree that where a UG conversion project replaces rear-lot OH facilities with front-lot UG facilities, non-Vegetation Management O&M cost savings will be greater than if the UG conversion replaced front-lot OH facilities?

A. FPL does not have the data necessary to respond to this question.

61. Has FPL performed any analyses of the differences between rear-lot and front-lot O&M costs other than Vegetation Management costs? If so, please provide such analyses.

A. No.

62. Has FPL performed any analyses of O&M costs other than Vegetation Management costs making different assumptions regarding the proportion of rear-lot construction in the area to be converted? If so, please provide such analyses.

A. No.

63. How, if at all, does FPL propose to reflect these facts or factors in its CIAC calculations? Is FPL willing to make adjustments to CIAC calculations on a case-by-case basis where an Applicant's UG conversion project will convert a significantly higher percentage of rear-lot OH facilities than the system average?

A. Question 1 - FPL does not plan to modify the presently-filed CIAC calculations for the reasons discussed above. Question 2 - No, per FPL's previous responses, FPL would have an insufficient basis for making any such case-by-case adjustments.

<u>Capital Expenditures</u>

64. Does FPL agree that Capital Expenditures for rear-lot OH facilities are greater on a dollars-per-pole-line-mile basis than for front-lot OH facilities?

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A. FPL does not have the data necessary to respond to this question.

65. Does FPL agree that where a UG conversion project replaces rear-lot OH facilities with front-lot UG facilities, Capital Expenditure savings will be greater than if the UG conversion replaced front-lot OH facilities?

A. FPL does not have the data necessary to respond to this question.

66. Has FPL performed any analyses of the differences between rear-lot and front-lot Capital Expenditures costs? If so, please provide such analyses.

A. No.

67. Has FPL performed any analyses of Capital Expenditures costs making different assumptions regarding the proportion of rear-lot construction in the area to be converted? If so, please provide such analyses.

A. No.

68. How, if at all, does FPL propose to reflect these facts or factors in its CIAC calculations? Is FPL willing to make adjustments to CIAC calculations on a case-by-case basis where an Applicant's UG conversion project will convert a significantly higher percentage of rear-lot OH facilities than the system average?

A. Question 1 - FPL does not plan to modify the presently-filed CIAC calculations for the reasons discussed above. Question 2 - No, per FPL's previous responses, FPL would have an insufficient basis for making any such case-by-case adjustments.

ASRCs for UG Projects Between 1 and 3 Miles

69. Does FPL agree that the expected ASRC savings for a UG conversion project (or a new UG installation) of 2.8 miles (pole line miles or trench miles, as appropriate) are closer on a cost/savings-per-PLM basis to the savings of a 3.0 PLM conversion than to the savings associated with a 1.0 PLM conversion?

A. It is not possible to say conclusively because, as has been discussed in past proceedings and FPL's Data Request

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responses, the data available to develop the ASRC is limited. Therefore, FPL has adopted a "tiered" structure intended to strike the balance of being both conservative and administratively practical.

70. Please provide any and all analyses and workpapers showing how FPL determined that, in FPL's opinion, it would be appropriate to establish the Tier 1 and Tier 2 ASRC credits at 20 percent of the GAF and 40 percent of the GAF, respectively.

A. FPL does not have any such analyses, per se. One of the principal assumptions of the ASRC for GAF-eligible projects was that, because they covered large, contiguous areas, there would be no need for overhead restoration crews to go into the project neighborhoods and, hence, the savings would be maximized. The reasoning for Tier 3 was based on the assumption that there are some - though small and presently unquantifiable - ASRC benefits for small or even single customer installations. Therefore, a commensurately low percentage was assigned. For Tier 2, a conservative level of 40 percent was selected as reasonable in the absence of more specific available data.

71. Did FPL consider proposing a sliding-scale formula for calculating the ASRC/storm-related cost credits for projects between 1 pole-line mile and 3 pole-line miles?

A. Yes. However, it was determined to be unnecessarily administratively burdensome for application for both the URD and conversion tariffs. Additionally, as discussed in FPL's response to Question 69, the very limited data availability points to the most appropriate course being adoption of a conservative adjustment structure comprised of a few tiers.

72. Would FPL be amenable to establishing a formula (which could be geometric or linear) for calculating the ASRC credit value between 1 and 3 PLM?

A. No. See FPL's response to Question 71.

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Q.

Referring to Exhibit TRK-2 to the testimony of Thomas R. Koch, please answer the following:

a. Please explain the differences between the values shown in the tables on pages 1-3 of 23 and the values shown in the comparable analysis identified as "FAC 25-6.078 - URD Underground v. Overhead Operational Cost Differential" that FPL originally provided in Docket No. 070231-EI.
b. Please explain in detail the basis for the Underground Capital Expenditures shown on pages 2-3 of 23 of Exhibit TRK-2.
c. Is it correct that these Underground Capital Expenditure values are based on averages for all of FPL's underground distribution facilities, as shown for the years 2003 through 2007, on pages 14 of 23 and 15 of 23 of Exhibit TRK-2?
d. With regard to the Vegetation Management calculations shown on page 13 of 23 of Exhibit TRK-2: (i) Please explain in detail the basis for the 50% reduction in Vegetation Management costs attributed as an "Adjustment for FPL Policies (e.g., RTRP, etc.)" at line 143 on page 13 of 23. (ii) Please identify all such "FPL Policies" that FPL would assert justify this 50% Adjustment factor, including the proportion of the 50% Adjustment factor that, in FPL's or Mr. Koch's opinion, each policy contributes to the Adjustment factor. (iii) Please identify and provide any analyses, calculations, workpapers, or the like that show how this 50% Adjustment factor was arrived at. (iv) Please state any assumptions relating to this 50% Adjustment factor.
e. What is meant by the term "Non-P&W" on page 12 of 23 of Exhibit TRK-2?
f. (i) Please explain why FPL's expenses in Account 593, Maintenance - Overhead Line for the years 2006 and 2007 were so much greater than for the years 2003 through 2005. (ii) Do the greater cost values in 2006 and 2007 reflect FPL's implementation of its Storm Secure Plan and storm hardening initiatives that FPL announced in January 2006?

A.

a. The only difference is the values results from the change in the discount rate.
b. FPL used a 5-year average of its actual, historical underground capital expenditures. To aid transparency, the analysis started with the total distribution underground costs reported in FPL's FERC Form 1. Adjustments were made to this total to remove costs not associated with operating the facilities included under the rule (e.g., installation costs for new growth which are already reflected in the pre-operational cost differential). These calculations are shown on pages 14 and 15 of 23 of Exhibit TRK-2.
c. See FPL's response to Question 1.b.
d. (i) There are two basic reasons. First, only limited vegetation is typically present in

residential utility easements when new overhead facilities are constructed. By contrast, well-established neighborhoods tend to have higher tree density. Therefore, green field developments will have lower than average vegetation management requirements. Second, over the past several years and particularly since the 2004-2005 storm seasons, FPL has developed policies and programs which it believes could reasonably reduce vegetation management costs by 50% for new, green field-constructed, overhead lines compared to existing overhead lines (ii) FPL has an integrated set of multiple vegetation policies and programs. FPL does not track the effect of each individually.

a. Design Arborists – FPL's arborists participate during the design phase of new overhead line construction to identify any existing trees that conflict with the new facilities. They then work with the customer/developer to effect any needed removals.

b. Right Tree-Right Place Program (RTRP) – RTRP is an aggressive communication program which includes information to educate our customers on the importance of placing trees in the proper location. This information is provided to residential customers, developers/builders, and municipalities through a variety of distribution channels (e.g. brochures, bill inserts, web-sites, direct customer contacts, etc).

c. FPL has also initiated more aggressive practices for removing trees in conflict with its overhead facilities which cannot be effectively trimmed in conformance with arborist standards.
   (ii) See FPL's response to Question 1.d.(ii).
   (iii) See FPL's responses to Questions 1.d.(i) and 1.d.(ii).

e. Non-Pole & Wire. These calculations compute the adjustment percentage used to remove the supervision and engineering expenses related to the O&M costs not included under the rule.

f. It is to be expected that there will always be year-to-year variances in expenses, which are driven by many factors. Dampening the effect of this natural variation is the main reason why the analysis uses 5-year averages. The increases in Account 593 for the years 2006 and 2007 vs. the years 2003-2005 are primarily the result of: (1) 2004 and 2005 expenses being lower than they normally would have been due to shifting resources, and their associated costs, to support hurricane restoration efforts; and (2) beginning in 2006, higher expenses due to make-up work deferred as a result of the prior years' storms plus costs associated with implementing FPL's new pole inspection program, vegetation management program, and hardening plan.

Q.

With regard to Exhibit TRK-4 to Mr. Koch's testimony:

a. Is it correct that the only substantial difference between the spreadsheets previously provided as "FAC 25-6.115 -Underground v. overhead Operational Cost Differential -O&M" is the different discount rate used in TRK-4?

b. There is a small difference in the Total Adjustments shown in line 45 of page 6 of 17 of Exhibit TRK-4 as compared to the value shown in the same location in the original document. Which value is correct?

c. Is it correct that no adjustment factor such as that used on page 13 of 23 of Exhibit TRK-2 was used in Exhibit TRK-4 with regard to vegetation management cost differentials for underground conversions?

d. With regard to Exhibit TRK-4, please explain why FPL applied the Mileage Ratio adjustment to the feeder tree-trimming cycle. Was it because the $73,825,144 value includes tree-trimming costs for both feeders and laterals?

e. Please explain and show the calculations for the dollar values shown in line 145 on page 10 of 17 of Exhibit IRK-4, i.e., the $73,825,144 value in the Feeder column and the $75,205,991 value shown in the "Fdr & Lats" column.

A.

a. Yes.

b. TRK-4.

c. Yes.

d. Yes.

e. These estimates come from FPL's Tree Trim Model and are the product of a large number of multi-variant optimization calculations. The modeling is done at the circuit level using variables such as: historical trim costs; last trim date; vegetation-related interruption data, contractor resource availability; labor premiums and overtime rates, storm restoration data, etc. Added to these direct field costs is approximately $2.5-3.0 million for staff-related expenses.

Q.

With regard to the spreadsheet submitted by FPL in Docket No. 060150-EI, titled "Government Adjustment Factor V. Storm Restoration Costs" (copy attached), please state the approximate percentage of FPL's service area that was impacted by one or more storms in 2004 and 2005?

Will FPL agree that approximately 100 percent of its service area was impacted by at least one storm in either 2004 or 2005?

A.

Essentially every portion of FPL's territory was impacted by at least one storm event during 2004-2005.

See FPL's response to Question 3 above.

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Q.

On pages 6 and 8 of Exhibit TRK-4, there are two parenthetical notations, "(a)" and "(b)" that appear to refer to a footnote or to some other explanatory information. Please explain what these notations indicate.

A.

These refer to the respective allocation percentage calculations found on page 9 of 17, lines 104-126.

Q.

This question refers to Exhibit TRK-4 and also to the Staff's data request No. 17 from its July 31, 2008 data requests. Is it correct that the percentages shown in lines 124-125 on page 9 of 17 of Exhibit TRK-4 are the percentages used to allocate or apportion the costs in Accounts 580, 588, 590, 595, and 598 between Overhead and Underground costs? If not, please answer the following:

a. Please explain in detail how EEL made the allocations of the values in the distribution operation and maintenance accounts that contain both overhead and underground costs.

b. Please provide specific numeric calculations that show how the values in each of Accounts 580, 588, 590, 595, and 598 were allocated into the Underground CIAC-Related O&M and the Overhead CIAC-Related O&M categories.

A.

Yes.

a. N/A.

b. N/A.

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Q.

Please provide or state the number of crews, including both FPL crews and contractor crews, that FPL had working on;

a. overhead distribution operation and maintenance in each of the years 2007 and 2008;
b. underground distribution operation and maintenance in each of the years 2007 and 2008;
c. overhead distribution construction in each of the years 2007 and 2008; and
d. underground distribution construction in each of the years 2007 and 2008.

A.

FPL's crew sizes and make-ups vary from day-to-day depending on the scope of work needed to be performed. Additionally, none of the crews work exclusively on overhead or underground facilities. Finally, crews may work either construction or maintenance on any given day.

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Q.

Do FPL's overhead distribution crews (including both FPL crews and contractor crews engaged by FPL) work exclusively on overhead facilities? If not, please state the approximate percentage of such crews' time that is spent on overhead work and the approximate percentage that is spent on underground work.

A.

No. See FPL's response to Question 6. For the reasons identified previously, FPL does not track the percentage of time spent on overhead v. underground work.

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Q.

Do FPL's underground distribution crews (including both FPL crews and contractor crews engaged by FPL) work exclusively on underground facilities? If not, please state the approximate percentage of such crews' time that is spent on underground work and the approximate percentage that is spent on overhead work.

A.

See FPL's response to Questions 6 and 7.

Q.

Please describe the typical make-up (number of crew members and functional job description) and equipment support (vehicle and other major equipment) for an overhead distribution O&M crew.

A.

FPL's overhead crews typically are comprised of 2-3 journeymen and/or an apprentice. In general, the crew would use a truck equipped for handling the electrical material and a material trailer

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Q.

Please describe the typical make-up (number of crew members and functional job description) and equipment support (vehicle and other major equipment) for an overhead distribution construction crew.

A.

See FPL's responses to Questions 6 and 9.

Q.

Please describe the typical make-up (number of crew members and functional job description) and equipment support (vehicle and other major equipment) for an underground distribution O&M crew.

A.

FPL's underground crews typically are comprised of 2 journeymen, which may include a cable splicer. In general the crew would be equipped similarly to the overhead crew, though they may also be supported by splicing van.

Q.

Please describe the typical make-up (number of crew members and functional job description) and equipment support (vehicle and other major equipment) for an underground distribution construction crew.

A.

See FPL's response to Questions 6 and 11.

Q.

a. Why did FPL assume that, for underground conversion projects, pole inspection and remediation cost savings would not start until the eighth year of the study period?

b. Will FPL agree that, since any given underground conversion project must be assumed to replace an OH system of average age, it would be more correct to include the first pole inspection and remediation cost savings from an underground conversion project in Year 4 (i.e., 2011 in the analyses shown in Exhibit TRK-4), followed by including such pole inspection and remediation cost savings in Year 12 (2019), Year 20 (2027), and Year 28 (2035)?

c. If so, please provide an updated Exhibit TRK-4 that shows this revision.

A.

a. FPL's pole inspection program is based on an 8-year cycle. Therefore, FPL would not make the first inspection of a newly-installed pole until the 8th year.

b. No. The underground conversion differential cost is based on installing a brand new underground v. hypothetical brand new overhead system. As a result, the inspection cycle begins at installation.

c. N/A.

Q.

a. Why did FPL assume that, for underground conversion projects, vegetation management cost savings would not start until the third year of the study period?

b. Will FPL agree that, since any given underground conversion project must be assumed to replace an OH system of average age, it would be more correct to include the first (feeders only) amount for vegetation management cost savings from a UG conversion project in Year 2 (2009) and every 6 years thereafter and the second (feeders and laterals) amount for vegetation management cost savings in Year 5 (2012) and every 6 years thereafter.

c. If so, please provide an updated Exhibit TRK-4 that shows this revision.

A.

a. FPL's feeders are on a 3-year cycle. Therefore, FPL would not make the first trim of a newly-installed line until the 3rd year.

b. See FPL's response to Question 13.b.

c. N/A.

ASRC Credit for Underground Conversions (Sheet 6.300)

Projects < 1 mile – as proposed by FPL

Projects > 3 miles – as proposed by FPL

Projects between 1 and 3 miles -

$$\text{ASRC credit} = .2 * \text{ASRC}_{max} + [(D-1)^2 * (.8 * \text{ASRC}_{max}/4)]$$

Where D is the length in pole-line miles of the conversion job ($1<D<3$).

ASRC Credit for New Underground Projects (Sheet No. 6.100)

Projects where density is 6.0 or more dwelling units per acre:

Projects < 100 units – as proposed by FPL ($282.19/lateral*

Projects > 300 units – as proposed by FPL ($0.00/lateral)

Projects between 100 and 300 units -

URD Charge $= \$282.19 - [((NU/100))-1)^2 \times (\$282.19/4)]$

Where NU is the number of service laterals for the subject project.

Mobile Homes under Sheet No. 6.100:

Projects < 100 units – as proposed by FPL ($98.12/lateral)*

Projects > 300 units – as proposed by FPL ($0.00/lateral)

Projects between 100 and 300 units -

URD Charge $= \$98.12 - [((NU/100))-1)^2 \times (\$98.12/4)]$

Where NU is the number of service laterals for the subject project.

Projects where density is > 0.5 but < 6.0 dwelling units per acre:

Projects < 100 units – as proposed by FPL ($733.23/lateral)*

Projects > 300 units – as proposed by FPL ($450.23/lateral)*

Projects between 100 and 300 units -

URD Charge $= \$450.23 + \{\$273 - [((NU/100))-1)^2 \times (\$273/4)]\}$

Where NU is the number of service laterals for the subject project.

* These values subject to adjustment based on different operational cost credits.