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Witness _____

Date 9/25/12 Reporter _____

**Commonwealth Edison Company's
Infrastructure Investment Plan**

January 6, 2012

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Executive Summary

Plan Overview

On November 8, 2011, Commonwealth Edison Company ("ComEd") filed its proposed performance-based formula rate, Rate DSPP – Delivery Service Pricing and Performance ("Rate DSPP"), with the Illinois Commerce Commission ("Commission") pursuant to Section 16-108.5 of the Public Utilities Act ("Act"). The Commission commenced Docket No. 11-0721 to review that filing. In making that filing, ComEd confirmed that it elected to become a "participating utility", and committed to undertake the investments described in Section 16-108.5(b) of the Act. Section 16-108.5(b) also calls on ComEd, within 60 days of such filing, to submit a plan for satisfying its infrastructure investment program commitments, which must include information regarding scope, schedule and staffing, as well as certain information about its Smart Grid Test Bed Plan.

Accordingly, ComEd submits to the Commission this Infrastructure Investment Plan ("Plan"), for informational purposes, as prescribed by the Act. As also prescribed, the Plan organizes individual projects under two broad categories of investment:

Reliability-Related Investments: Section I of the Plan sets forth electric system upgrades, modernization projects, and training facilities; and

Smart Grid-Related Investments: Section II of the Plan describes the Smart Grid electric system upgrades and transmission and distribution infrastructure upgrades and modernization.

This Plan includes an estimated cumulative total of \$1.3 billion of capital investment plus associated expenses in electric system upgrades, modernization projects, and training facilities ("Reliability-Related Investments") over the planned five-year period plus the permitted ramp-up and ramp-down time. The Plan also includes an estimated cumulative total of \$1.3 billion of capital investment plus associated expenses in Smart Grid electric system upgrades over the planned 10-year period plus the permitted ramp-up and ramp-down time.

As required by Section 16-108.5(b), the total estimated \$2.6 billion of cumulative capital investment under this Plan will be incremental to ComEd's total annual capital investment program, as defined in Section 16-108.5(b). That is, over the term of the Plan, ComEd will invest an estimated cumulative total of \$2.6 billion more capital than a capital investment program that invested at an annual rate defined by ComEd's average capital spend for calendar years 2008, 2009, and 2010, as reported in ComEd's applicable Federal Energy Regulatory Commission ("FERC") Form 1s. If the forecasted capital investment costs exceed \$3.0 billion a report will be submitted to the Commission that identifies the increased costs and explains the reasons. The report shall be submitted no later than the year in which the forecasts will exceed capital investment costs of \$3.0 billion. In no case will \$3.0 billion in capital investment costs be exceeded without the approval of the General Assembly.

In the event that Section 16-108.5 becomes inoperative or Rate DSPP is terminated, then the Plan, including but not limited to all programs and investments, will also become inoperative and terminate immediately.

Summary Plan Scope

Reliability-Related Investments. These programs are described in detail in Section I of the Plan, and include, but are not limited to, the following specific programs briefly described below:

- **Underground Residential Cable (“URD”) injection and replacement.** This program is designed to remediate nearly 4,200 miles of bare concentric cable, some of which was installed as early as 1966. This work will reduce long duration outages primarily experienced in residential subdivisions.
- **Mainline cable system refurbishment and replacement.** The most complex of all the Reliability-Related investments, this program includes planned assessment and refurbishment of all manholes on ComEd’s system (approximately 28,000), replacement of an estimated 500 miles of mainline underground cable, and testing of an estimated 1,780 sections of mainline cable over the course of the program. This program is primarily targeted at the testing and replacement of lead cable in urban areas.

Because remediation scope is based on inspection results, the complex nature of the underground system, interrelationship of multiple circuits within a manhole, and certain potential moratoriums on work, this program also contains the highest degree of scope uncertainty of all the Reliability-Related investments.

- **Ridgeland 69kV cable replacement.** This program involves planned replacement of approximately 10 miles of high voltage (69kV) underground cable, a majority of which was installed in the early 1950’s, and some as early as 1927.

- **Construction of training facilities.** This program provides for planned construction of two new facilities – one in Chicago and one in Rockford – to provide electric and customer operations training. These facilities will provide the ability to offer year-round practical, hands-on training to ComEd’s field employees and will enable them to practice classroom theory on real equipment and technology year-round.
- **Wood pole inspection, treatment, and replacement.** There are approximately 1.3 million wood poles on the ComEd system. Under current processes, ComEd inspects wood poles on the distribution system according to a 24-year cycle, which translates to approximately 56,000 poles inspected per year. This program entails planned inspection and treatment of approximately 650,000 wood poles over the five-year program period, and replacement or reinforcement of an estimated 15,000 additional poles over the course of the program. This program will reduce customer interruptions due to wood pole failures by programmatically assessing the strength and integrity of ComEd’s wood poles, and represents the first five years of a 10-year plan to transition ComEd to a 10-year inspection cycle for wood poles.
- **Storm hardening.** This program is designed to further reduce the susceptibility of circuits to storm-related damage, and will include deployment of a variety of engineered solutions, including, but not limited to, overhead-to-underground conversion, installation of tree-resistant conductors, and additional vegetation management. In order to optimize customer benefits, circuits will be prioritized based on historical susceptibility to storm-related damage. Engineered solutions will be designed specifically for each circuit.

These programs are planned to be completed over a five-year period plus reasonable ramp-up and ramp-down periods. More detailed descriptions of each of these programs, including scope, schedule, capital budget, staffing and units of work are included in Section I of this document.

Smart Grid Electric System Upgrades. These programs are described in detail in Section II of the Plan, and include, but are not limited to, the following specific programs briefly described below:

- **Distribution Automation (“DA”).** DA technology uses “sectionalizing” devices and remote communications to detect issues on the distribution system and automatically re-route power to minimize the number of customers impacted. This is commonly referred to as the self-healing nature of the Smart Grid. ComEd’s DA program includes planned installation of approximately 2,600 DA devices, upgrade of 780 additional devices, and installation of approximately 5,000 new radios.
- **Substation micro-processor relay upgrades.** This program is designed to modernize 10 ComEd substations, including upgrade of electro-mechanical protective relays to modern microprocessor-based devices, replacement of aging circuit breakers, two-way communications between ComEd’s control center and each substation, and installation of technology to remotely monitor the health of ComEd’s largest assets, its transformers. This program provides for fault detection, remote asset monitoring and improved site security. Partial upgrades may be applied across the service territory. ComEd has over 250 transmission-fed substations, and over 800 substations in total.

- **Smart Meters.** At the completion of this program, all retail meters on the ComEd distribution system will have been replaced with Smart Meters, including deployment of an Advanced Metering Infrastructure (“AMI”), which provides a two-way communications infrastructure to support other customer services and Smart Grid applications. Expected benefits include reductions in the number of estimated bills, unaccounted for energy, and consumption on inactive meters. Deployment of AMI will occur pursuant to the Advanced Metering Infrastructure Deployment Plan (“AMI Plan”), which will be reviewed with the Smart Grid Advisory Council and filed with the Commission no later than April 23, 2012.
- **Associated cyber-secure data communications network.** A cyber-secure data communications infrastructure will be incorporated into each functional area of the Smart Grid. It includes implementation of a robust security model that is aligned with industry best practices and existing security standards. This security model will address confidentiality, integrity, availability and non-repudiation of data transport through the network.
- **Smart Grid Test Bed Plan.** A plan for the creation, operation, and administration of a Smart Grid test bed as described in subsection (c) of Section 16-108.8 is attached hereto as Attachment 1.

Descriptions of each of these programs, including scope, schedule, capital budget, staffing and units of work are included in Section II of this document.

These descriptions, as with the forecasts generally included within this Plan, are illustrative of the investments that ComEd currently proposes to make pursuant to Section 16-108.5 of the Act over its 5- and 10-year horizons (exclusive of ramp-up and

ramp-down periods). Of course, as time passes, specific investment needs, customer electric use patterns, customer applications, customer attitudes, and commercially available equipment and technologies will all evolve. Section 16-108.5 recognizes that change will occur as ComEd implements this Plan, including in its annual reporting process, its emphasis on technological interoperability, and its innovative test bed feature. Moreover, the effects change and the need for adaptability in a plan only increase the further out the planning horizon extends. Over periods as long as those called for by Section 16-108.5, specific work plans must be conceptual.¹ A sound operating plan thus must not only retain the flexibility to adapt to such an evolutionary environment, it must embrace it, while still providing overall guidance and vision.

This Plan contains estimates of projected investment activity in future years. Consistent with this structure, those estimates are planning tools. They are not benchmarks. They will evolve both as new information becomes available, and as ComEd gains actual experience. In particular, the actual work plans will be developed on the quarterly cycles. The purpose of this work in any given period may evolve from that now planned, schedules may be either accelerated or delayed, and implementation may require either fewer or more units of work at lower or higher cost, even if the scope and timing of the planned work does not change. The Plan is not to limit or confine the ability of that process to function. Moreover, such change does not imply any flaw in this Plan, nor any imprudence or unreasonableness in its execution. To the contrary, planning without flexibility would be unwise and unreasonable.

¹ ComEd is also submitting a 2012 investment plan, which contains more specific detail about the planned activities for the 2012 year.

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- **Associated cyber-secure data communications network.** A cyber-secure data communications infrastructure will be incorporated into each functional area of the Smart Grid. It includes implementation of a robust security model that is aligned with industry best practices and existing security standards. This security model will address confidentiality, integrity, availability and non-repudiation of data transport through the network.
- **Smart Grid Test Bed Plan.** A plan for the creation, operation, and administration of a Smart Grid test bed as described in subsection (c) of Section 16-108.8 is attached hereto as Attachment 1.

Descriptions of each of these programs, including scope, schedule, capital budget, staffing and units of work are included in Section II of this document.

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ramp-down periods). Of course, as time passes, specific investment needs, customer electric use patterns, customer applications, customer attitudes, and commercially available equipment and technologies will all evolve. Section 16-108.5 recognizes that change will occur as ComEd implements this Plan, including in its annual reporting process, its emphasis on technological interoperability, and its innovative test bed feature. Moreover, the effects change and the need for adaptability in a plan only increase the further out the planning horizon extends. Over periods as long as those called for by Section 16-108.5, specific work plans must be conceptual.¹ A sound operating plan thus must not only retain the flexibility to adapt to such an evolutionary environment, it must embrace it, while still providing overall guidance and vision.

This Plan contains estimates of projected investment activity in future years. Consistent with this structure, those estimates are planning tools. They are not benchmarks. They will evolve both as new information becomes available, and as ComEd gains actual experience. In particular, the actual work plans will be developed on the quarterly cycles. The purpose of this work in any given period may evolve from that now planned, schedules may be either accelerated or delayed, and implementation may require either fewer or more units of work at lower or higher cost, even if the scope and timing of the planned work does not change. The Plan is not to limit or confine the ability of that process to function. Moreover, such change does not imply any flaw in this Plan, nor any imprudence or unreasonableness in its execution. To the contrary, planning without flexibility would be unwise and unreasonable.

¹ ComEd is also submitting a 2012 investment plan, which contains more specific detail about the planned activities for the 2012 year.

Summary Plan Schedule

In order to establish a framework to plan for and schedule future work while efficiently addressing this inherent change and uncertainty, ComEd is employing a proven iterative planning structure. Under this structure, work plans will be developed on a rolling basis for each quarter of the investment period. Each work plan will outline a series of tasks comprising: project and work planning, design, regulatory and public affairs functions where required (e.g., permitting), project implementation, and review. This periodic quarterly cycle is illustrated throughout this Plan in a series of Gantt charts showing repeating cycles of work planning and management activity. Please note that while this work planning and management cycle repeats on a quarterly basis, the activities associated with each quarter's iteration may take longer than a quarter to complete. This structure allows ComEd to implement its multi-year Plan effectively and rigorously, while retaining the required flexibility. The Gantt charts that appear in the Plan are illustrative and are not intended to establish specific milestones.

The individual program schedules included in this Plan explain when each program is planned to start and end. Most include both a rolling quarterly work plan process and a high-level task list. It is recognized that scope priorities will be adjusted over the course of the programs as new information is obtained.

The entire Plan covers a 10-year time period. All program areas are planned for completion within five years with the exception of the Smart Meter program, which is planned to be completed within 10 years. All time periods include reasonable ramp-up and ramp-down periods.

Figure B.1 in Appendix B presents a high level schedule to complete the entire scope of work associated with the Plan. Detailed schedules are provided in the sections that follow for specific program areas.

Summary Plan Budget

The program budget identifies the estimated annual capital cost for each program. The Plan budget total is estimated to be \$2.6 billion in capital investments plus associated expenses. As prescribed by the Act, the estimated \$2.6 billion of capital investment under the Plan must be incremental to ComEd's annual capital investment program, which the Act defines as ComEd's "average capital spend for calendar years 2008, 2009, and 2010 as reported in the applicable Federal Energy Regulatory Commission ("FERC") Form 1." 220 ILCS 5/16-108.5(b). The annual capital expenditures for calendar years 2008, 2009, and 2010 are \$951.6 million, \$848.7 million, and \$955.8 million, respectively, as reflected in the statement of cash flows from each year's respective FERC Form 1. This results in an annual baseline of \$918.7 million, derived by summing \$951.6 million + \$848.7 million + \$955.8 million = \$2.8 billion and dividing \$2.8 billion by 3. Thus, the baseline, over the 10-year period is \$9.2 billion. Table B.1 in Appendix B presents a summary of the Plan's estimated total capital budget by program, and Figure B.2 in Appendix B presents the estimated total capital budget by year associated with the Plan.

Summary Plan Staffing

Program staffing identifies the annual full-time equivalent employees ("FTEs") required for completion of program scope of work. (See Appendix A).

FTEs have been calculated by taking the estimated worker-hours to execute the Plan and dividing by 2,080. Estimated worker-hours are composed primarily of:

1. Worker-hours charged directly to work orders associated with specific scopes of work; and
2. Worker-hours charged on timesheets in support of the Plan.

Worker-hours charged on timesheets in support of the Plan have been allocated to the specific scopes of work proportionally, based on the estimated worker-hours charged to work orders for specific scopes of work. The estimated FTEs shown in the Plan include direct and contractor FTEs as defined in Appendix A. However, they do not include any induced FTEs.

Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, legal support and craft. Figure B.3 in Appendix B presents the estimated FTEs to execute the scheduled scope of work associated with the Plan. FTEs are not defined as employee head counts, and should not be confused with employment levels and trends.

Summary Plan Quantity of Units

The program quantity of units describes the estimated number of work units, where applicable, that are planned to be completed each year for the program area. Units of work for each program are discussed, as applicable, in that program's respective section of the Plan. All units of work associated with the identified work scopes are included in the estimated quantities in this document, and will be counted

towards achievement of the Plan goals. However, this does not limit additional units from being performed as part of the baseline spend at ComEd's discretion.

Submission of 2012 Investment Plan

This Plan also includes, for informational purposes, a schedule and staffing plan for the calendar year 2012 investments ("2012 Plan") included as Attachment 2 to this Plan. The 2012 Plan provides more information on scope, schedule, budget, staffing, and units of work that are planned to be completed in 2012 in association with the Plan. The monthly targets listed are not intended to be firm milestones, but rather to provide directional guidance towards accomplishment of the annual goals. The 2012 Plan is attached hereto as Attachment 2.

SECTION I: Reliability-Related Investments

SECTION I.A: Underground Residential Cable (“URD”) Injection and Replacement

I.A.1: Program Scope

ComEd's URD system has approximately 8,700 miles of bare concentric neutral cable that was installed between 1966 and 1985, which is primarily used to serve residential and commercial areas. The URD Injection and Replacement program excludes mainline cable, which is covered under the Mainline Cable System Refurbishment and Replacement program described in Section I.B below. URD cable failures mainly occur within the population of bare concentric neutral cable. The number of annual failures in this type of cable has been trending up in recent years as this cable continues to age. ComEd anticipates that it will be necessary to inject or replace approximately 4,177 miles of the problematic cable. ComEd anticipates that, by the end of the program, the number of annual failures in this type of cable will be significantly reduced. This reduction in faults will reduce long-duration outages primarily experienced in residential subdivisions. The program consists of two major components:

- URD Cable Injection
- URD Cable Replacement

Each of these components is described in more detail below.

URD Cable Injection

Cable injection fills in cable insulation voids and avoids cable failures. In general, URD cables that are candidates for injection typically have intact concentric neutral conductors, are not solid cable or strand-filled cable, and have a low number of cable splices. Where it is practical, cable injection is typically a more cost beneficial way to avoid URD cable failures than cable replacement. Based on ComEd's past experience with URD cable injection, it is estimated that during the course of the program approximately 810 miles of the approximately 4,177 miles of URD cable targeted for injection or replacement will be injected.

URD Cable Replacement

URD cables that cannot practically or economically be injected will be replaced on a schedule prioritized to replace worst performing URD cables first. It is expected that at the end of the program approximately 3,367 miles of URD cable will have been replaced.

I.A.2: Program Schedule

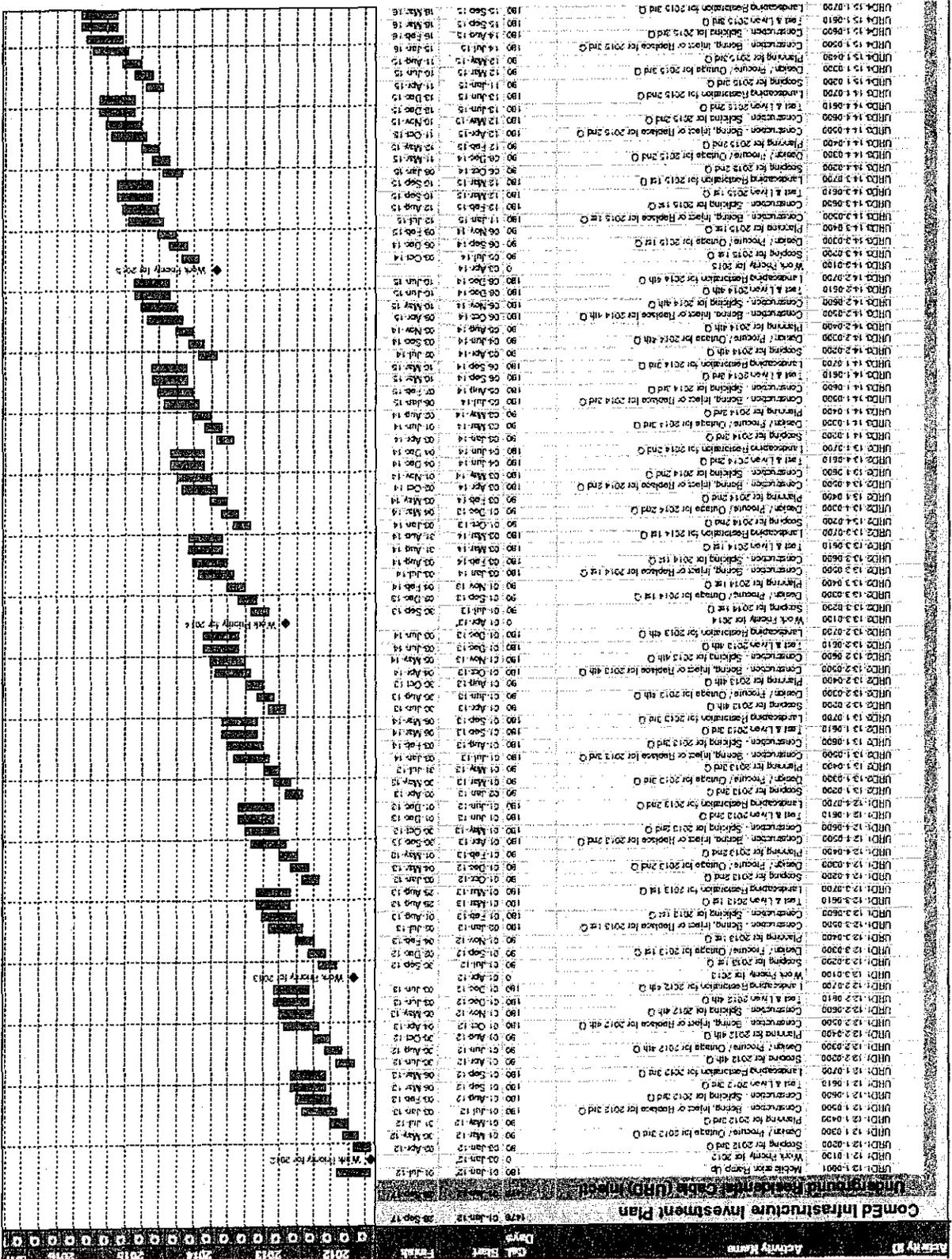
This program is planned to be completed over a five-year period plus reasonable ramp-up and ramp-down periods. Estimates of cost, units of work, and schedules for that work, may evolve over time.

Figure I.A.2 presents the estimated schedule to complete the URD Injection and Replacement program. The schedule is essentially a rolling quarterly work plan consisting of the following key tasks:

- Mobilization and ramp-up

- Establish priority for the calendar year
- Perform scoping
- Perform design tasks, procure material, and identify required outages in schedule
- Planning (develop work packages and secure permits)
- Construction – Boring, injection or replacement
- Construction – Splicing where required
- Test and liven
- Landscaping restoration
- Demobilization and ramp-down period

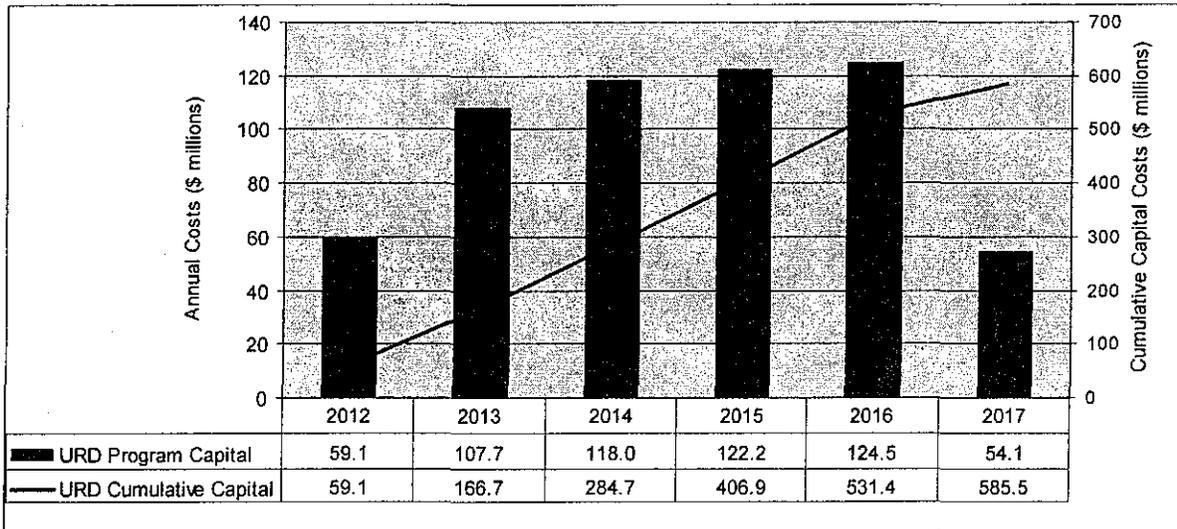
FIGURE I.A.2: URD INJECTION AND REPLACEMENT SCHEDULE



I.A.3: Program Budget

Figure I.A.3 represents the estimated capital budget for the URD Injection and Replacement program. ComEd estimates the program cost to be capital investments of \$586 million plus associated expenses over the program period. Estimates of cost, units of work, and schedules for that work may evolve over time.

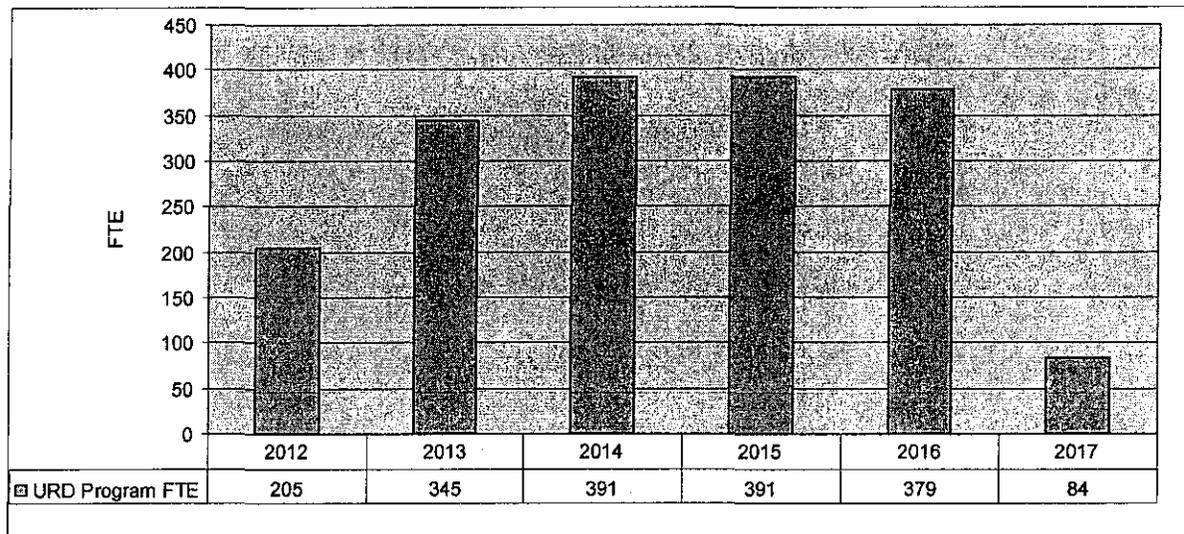
FIGURE I.A.3: URD INJECTION AND REPLACEMENT CAPITAL BUDGET



I.A.4: Program FTEs

Figure I.A.4 presents the estimated FTEs required to perform the scheduled scope of work. FTEs have been calculated by taking the estimated worker-hours to execute the scope of work and dividing by 2,080. Job classifications may include, but are not limited to, engineers, technicians, work planners, finance support, safety support, scheduling support, legal support and craft.

FIGURE I.A.4: URD INJECTION AND REPLACEMENT FTES



I.A.5: Program Units

Figure I.A.5.A shows the miles of URD cable estimated to be injected. This chart will serve as a tracking mechanism over the course of the program, and reflects the scope of work to be accomplished, as well as the scope of work left to be performed. It is estimated that approximately 810 miles of URD cable will be injected over the course of the program. Estimates of cost, units of work, and schedules for that work may evolve over time.

FIGURE 1.A.5.A: URD CABLE INJECTION UNITS

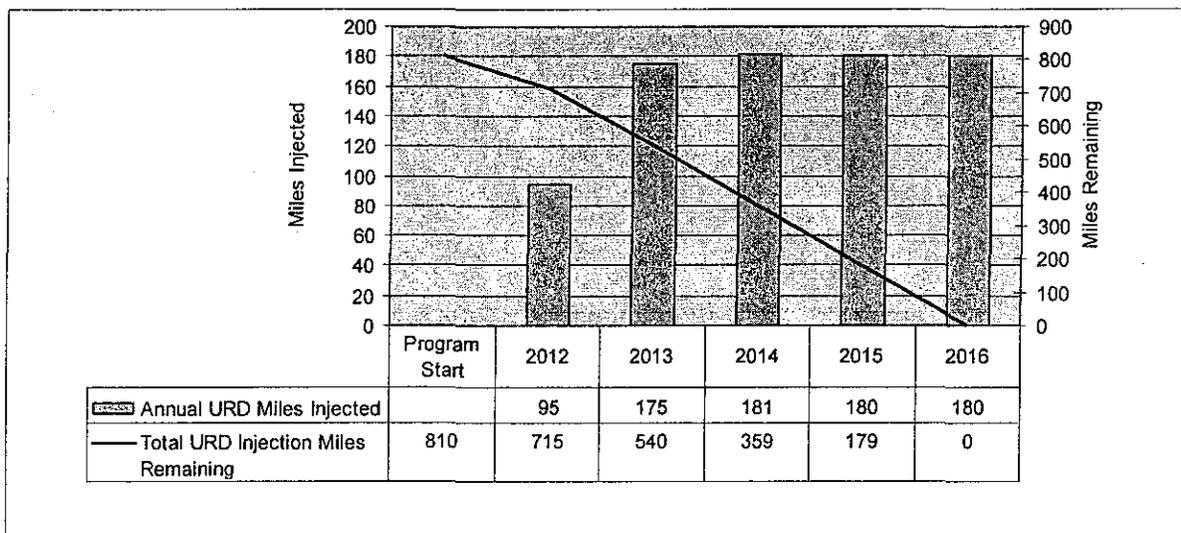
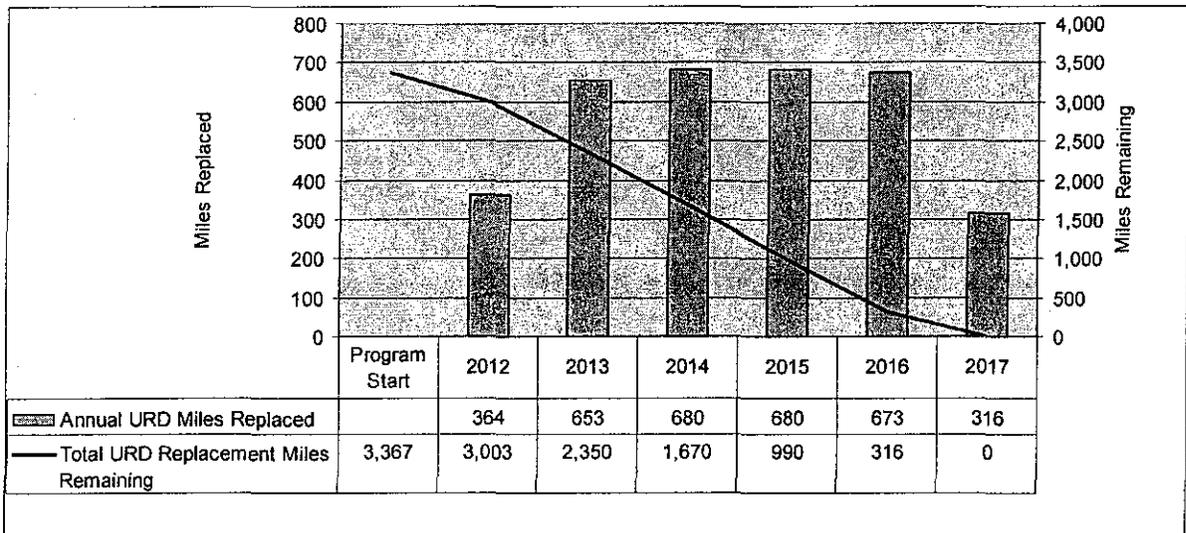


Figure I.A.5.B shows the miles of URD cable estimated to be replaced. This chart will serve as a tracking mechanism over the course of the program; and reflects the scope of work planned to be accomplished each year, as well as the scope of work left to be performed. It is estimated that approximately 3,367 miles of URD cable will be replaced over the course of the program. Estimates of cost, units of work, and schedules for that work may evolve over time.

FIGURE I.A.5.B: URD CABLE REPLACEMENT UNITS



SECTION I.B: Mainline Cable System Refurbishment and Replacement

I.B.1: Program Scope

The ComEd mainline underground system includes approximately 8,300 miles of cable installed in conduit systems or direct buried. Mainline cable system refurbishment and replacement has the most complex scope of work of all the programs. The scope is composed of three main work categories:

- Manhole assessment and cable system refurbishment
- Cable replacement
- Cable testing

The accomplishment of this scope is highly dependent on the ability to obtain necessary permits and to schedule equipment outages. Certain periods of time or certain work restrictions, such as summer critical periods, may limit the types of work that can be performed due to the need to maintain system configuration. Such periods will be reflected in ComEd's annual or summer critical work plans. Because remediation scope is based on inspection results, the complex nature of the underground system, interrelationship of multiple circuits within a manhole, and certain potential moratoriums on work, this program contains the highest degree of scope uncertainty of all the Reliability-Related investments.

Manhole Assessment and Cable System Refurbishment

ComEd has approximately 28,300 manholes on its system. Over the course of the program, ComEd plans to assess all manholes on its system and perform refurbishment within the parameters of the Act.

Assessment includes the evaluation of the overall condition of the manhole, cables, and cable support systems. Refurbishment includes replacing or repairing cable systems in the manhole, and addressing other structural issues as required. Manhole structural work may range from minor refurbishment to replacement of an entire manhole.

Concurrent with manhole assessments, cable joint issues discovered within the manholes (e.g., bulging or leaking joints) will be addressed primarily with cable replacement. As assessments are performed, work plans will be generated to address the findings.

Cable Replacement

Replacement criteria will be based, in part, on the method of original installation. Replacement of cable in conduit will be based on manhole assessment findings. Direct buried mainline cable will either be replaced without testing, or replaced after testing, based on cable length and prior fault history. It is estimated that approximately 526 miles of mainline cable will be replaced over the course of the program. This estimate is based on assumptions concerning inspection results, which will be adjusted over time as actual data become available. Because of their inherent reliance on assumptions,

early estimates of cable replacement contain a high degree of uncertainty and are not intended to reflect firm scope.

Cable Testing

Underground cable is divided into sections largely as a result of limits placed on cable lengths by the manufacturers and limits due to the physical configuration of the circuits.

An estimated 1,780 circuit sections will be selected for Very Low Frequency ("VLF") Testing per the Institute of Electric and Electronics Engineers ("IEEE") standard 400.2 to validate the serviceability of the section of cable, including circuit sections that either have not had a prior test, or circuit sections that have had multiple faults within the last 36 months but are not candidates for replacement without testing. It is estimated that cable tests will result in replacement of cable sections, which are included in the estimate shown in the "Cable Replacement" section above. This estimate is based on assumptions concerning inspection results, which will be adjusted over time as actual data become available. Because of their inherent reliance on assumptions, early estimates of cable testing contain a high degree of uncertainty and are not intended to reflect firm scope.

I.B.2: Program Schedule

The overall Mainline Cable System Refurbishment and Replacement program is planned to be completed over a five-year period plus reasonable ramp-up and ramp-down periods. Estimates of cost, and units of work, and schedules for that work, may evolve over time. The schedule for each of the three program areas is described below.

Figure I.B.2.A presents the estimated schedule to complete the Manhole Assessment and Cable System Refurbishment program. The schedule is essentially a rolling quarterly work plan consisting of the following key tasks:

- Mobilization and ramp-up
- Establish manhole inspection priority for the calendar year
- Perform scoping and configuration analysis; review sequence for capacity issues
- Perform design tasks, procure material, and identify required outages in schedule; include identified joint issues in evaluation
- Planning (develop work packages and secure permits)
- Construction – Manhole cleaning (environmental) if required
- Construction - Conduct manhole assessments and refurbish cable systems as necessary
- Evaluate results
- Develop cable replacement plans as necessary
- Demobilization ramp-down period

Figure I.B.2.B presents the estimated schedule to complete the Mainline Cable Replacement program. The schedule is essentially a rolling quarterly work plan consisting of the following key tasks:

- Ramp-up period
- Establish replacement priority for the calendar year

- Perform scoping and configuration analysis; review sequence for capacity issues
- Perform design tasks, procure material, and identify required outages in schedule; include identified joint issues in evaluation
- Planning (develop work packages and secure permits)
- Construction – Install conduit when required
- Construction – Pull / install cable and terminal pole work
- Construction – Pull / install cable
- Construction – Install dead joints
- Test cable and liven
- Demobilization ramp-down period

Figure I.B.2.C presents the estimated schedule to complete the Mainline Cable Testing program. The schedule is essentially a rolling quarterly work plan consisting of the following key tasks:

- Ramp-up period
- Establish testing priority for the calendar year
- Perform scoping and configuration analysis; review sequence for capacity issues
- Perform design tasks, procure material, and identify required outages in schedule; include identified joint issues in evaluation
- Planning (develop work packages and secure permits)
- Perform testing

- Evaluate results
- Develop work program for testing failures (*i.e.*, cable replacement) based on results
- Demobilization ramp-down period

FIGURE 1.B.2.A: MANHOLE ASSESSMENT SCHEDULE

