ICC INQUIRY RE: JULY 11, 2011 STORM

Commonwealth Edison Company's Response to
Illinois Commerce Commission ("Staff") Data Requests
OUT 1.01 – 1.07
Date Received: July 19, 2011
Date Served: September 1, 2011

REQUEST NO. OUT 1.01:

System Condition, Maintenance, and Inspection before the storm

a) Describe ComEd's inspection programs for distribution, transmission, and substation facilities. Explain whether the inspection programs conform to NESC rules, and good utility practices. Indicate whether the inspection programs provide ComEd with a good awareness of system condition.

b) Explain whether ComEd's corrective and preventive maintenance, including vegetation management, and proactive replacement and refurbishment programs and practices on its transmission and distribution systems and substations are consistent with good utility practices to adequately maintain ComEd's systems and to minimize customer service interruptions.

c) Provide a monthly record of **corrective maintenance backlogs** for the last five years ending June 30, 2011. Provide a separate record for the distribution, transmission, and substation facilities.

d) Provide a monthly record of **preventive maintenance backlogs** for the last five years ending June 30, 2011. Provide a separate record for the distribution, transmission, and substation facilities.

e) Describe and explain ComEd's vegetation management programs for its distribution and transmission facilities.

f) Explain to what extent ComEd allows portions of trees and tree limbs to overhang its distribution lines and why ComEd employs this practice.

g) Provide ComEd's analysis of the effectiveness of a vegetation management program that would eliminate all vegetation overhanging its distribution facilities.

RESPONSE:

a) ComEd conducts routine inspections of distribution, transmission, and substation facilities. These inspections include identification of potential National Electric Safety Code (NESC) issues.

Overhead distribution circuits are inspected per CM-CE-P321, Rev 0 dated April 3, 2009 and attached hereto as OUT 1.01_Attach 1. For overhead Distribution, circuits operating at 4kV or 12kV are inspected on a 4-year cycle. Circuits operating at 34kV are inspected on a 2-year cycle. The inspection group is centralized, reporting to Engineering, to provide focus and consistency in the inspections.

Transmission circuits are inspected annually to identify abnormalities or problem conditions in accordance with Standard CM-CE-P040 Rev 2 dated June 10, 2011 and attached hereto as OUT 1.01_Attach 2. The Preventative Maintenance inspections are either Aerial Inspection (by helicopter) or Ground Patrol Inspections (walking). Ground Patrol Inspections are completed for circuits located in urban/congested areas not accessible by helicopter. In addition to the routine circuit inspections, "Special Inspections" are completed after each line operation to identify the cause.

ComEd Substation facilities are also formally inspected multiple times throughout the year to identify abnormalities or unwanted conditions within the substation parameters. In addition to the routine inspections previously mentioned, a thermographic inspection of each ComEd Substation facility is performed annually with additional inspections performed to support the overall substation reliability. For example, ComEd has performed additional thermography inspections at substations and transmission equipment prior, during and/or following operational conditions that cause a substation to be in last contingency or otherwise abnormally configured. See also the attachment labeled as OUT 1.01_Attach 3 for AM-ED-P034, Rev 3 dated June 15, 2011.

Corrective Maintenance Work Orders are generated as a result of the Inspections and are prioritized and scheduled per procedure WM-ED-P014 Work Screening and Prioritization attached hereto as OUT 1.01_Attach 4.

In recent years, ComEd has had discussions with Staff regarding NESC issues. ComEd has also invited the Staff to observe work being performed in the field. ComEd provides annual updates in response to the data request series "Annual Reliability Report Part B." ComEd also provides regular updates regarding NESC violations involving customer electric services equipment.

Independent evaluations have shown that ComEd maintenance programs are consistent with good utility practices. The Workforce Study Audit conducted by Jacobs Consulting in 2008 reported "ComEd has a robust maintenance planning function that meets or exceeds industry norms."

Inspection results are input into ComEd's Material Condition Improvement Plan (MCIP) process which begins by surveying and assessing the material condition of the delivery system assets based on a standard and repeatable process called "Health Indexing." Health Indexing quantifies equipment condition based on numerous criteria that are related to the long-term degradation factors that cumulatively lead to an asset's end-of-life. It provides a qualitative indication of the condition of an asset, which is more objective and meaningful than simply relying on age. Classes of assets are prioritized based upon an objective risk assessment by combining the "probability" of failure with the "impact" (consequences) of the potential failure of that particular class of equipment. Combining health assessment with risk modeling allows investment and work to be targeted where it will provide the most benefit to customers. ComEd also gains a more holistic and repeatable approach to understanding and improving the health of the delivery system. Thus MCIP: (1) better enables ComEd to develop a short- and long-term strategy to maintain reliability and reduce the probability and impact of events, (2) provides an effective, repeatable model to assess the current and future condition of the delivery system and its components, and (3) institutes a quantifiable process to understand, predict, and manage cash flow requirements. In short, MCIP allows ComEd's customers to experience the benefits of prioritizing investments on the delivery system.

b) Independent evaluations have shown that ComEd maintenance programs are consistent with good utility practices.

The Workforce Study Analysis conducted by Jacobs Consultancy, published on December 1, 2008 reported "ComEd has a robust maintenance planning function that meets or exceeds industry norms."

The Capital Project Evaluation for "Replace Electric Underground Equipment" conducted by Power Delivery Research & Consulting Corp. (PDR&C) published on May 21, 2007 stated "Consistent with good utility practice, ComEd minimizes the need for corrective action by employing maintenance programs intended to optimize the service life of infrastructure components and prevent in-service failures."

ComEd's Distribution Vegetation Management programs are consistent with American National Standards Institute (ANSI) A300 Part 1, and the International Society of Arboriculture Best Management Practices: Utility Pruning of Trees. ComEd believes that following these practices provides a high level of system damage prevention and does minimize customer service interruptions. ComEd was named a Tree Line USA utility by the Arbor Day Foundation for the 12th time in 2011 in recognition of its national leadership in caring for and protecting our communities' trees while meeting service objectives.

Transmission vegetation management programs are consistent with ANSIA300 Part 1 and Part 7, the International Society of Arboriculture Best Management Practices for Integrated Vegetation Management, and are NERC complaint.

ComEd Transmission participates annually in the SGS Transmission Reliability Benchmarking Study. This study includes Outage Performance data from 26 U.S. Transmission Systems. The Study benchmarks 15 "core" measures including Outage Frequency, Sustained Outages and Outage Duration. The 26 transmission systems make up approximately 47% of the US Transmission Grid, based on bulk power mileage. ComEd's 2010 performance was rated second best of the 26 systems that were scored.

Please see subpart (a) of this response for additional information concerning the distribution, substation, and transmission maintenance programs.

c) Attached hereto as OUT 1.01_Attach 5 is the monthly record of backlogs for Priority 10-60 Corrective Maintenance work order tasks the last five years starting in January 2006 and ending June 30, 2011. Separate tabs exist for Distribution, Transmission, and Substation organizations.

d) Attached hereto as OUT 1.01_Attach 6 is the monthly record of backlogs for Priority 10-60 Preventative Maintenance work order tasks the last five years starting in January 2006 and ending June 30, 2011. Separate tabs exist for Distribution, Transmission, and Substation organizations.

e) ComEd has multiple documents to describe and explain the distribution and transmission vegetation management programs. These documents are provided in response to the annual data request series "Electric Reliability Data Requests Parts C & D". The document numbers and titles are listed below. Additional copies will be provided upon request.

VM-ED-P024: Vegetation Management QA/QC for Tree Pruning
VM-ED-P025: Vegetation Management Distribution Clearance Guidelines
VM-ED-P010: Vegetation Management Distribution Preventive Maintenance Program
VM-ED-P035: Distribution Corrective Maintenance Program
VM-CE-P038: 48 Month ICC Compliance Process
VM-ED-P026: Vegetation Management Refusal Process
VM-ED-P011: Transmission Vegetation Management Program VM-ED-P041: Transmission Vegetation Management Preventative Maintenance Process
VM-ED-P044: Transmission Vegetation Management Mitigation
VM-ED-P045: Transmission Vegetation Management Corrective Maintenance Process
VM-ED-P046: Vegetation Management Transmission QA/QC Process
VM-ED-1007: Transmission Vegetation Management Scope of Work Verification Procedure
VM-ED-1006: Transmission Vegetation Management Clearance Guidelines Procedure
VM-CE-1004: Transmission Vegetation Management Annual Inspection Procedure

f) ComEd's tree trimming program complies with the ANSI A300 Standards so that under normal conditions distribution wires will be protected. ANSI A300 Standards permit portions of trees to overhang the distribution lines. This is allowed in the interest of environmental conservation and visual appearance. Removal of overhanging limbs is dependent on the type of facility, tree species, and other site conditions. The International Society of Arboriculture Best Management Practices, independent consulting, and results of outage investigations are used to determine tree pruning guidelines.

g) ComEd continually assesses the effectiveness of its vegetation management program. In 2007, ComEd enhanced the cyclic maintenance clearance guidelines for the 34kV system to allow no overhanging limbs. Since that time, ComEd has seen a decline in tree related interruptions to the 34kV system. However, the 34kV system does still incur impact from trees. Trees from outside the trim zone uproot, tree trunks break, and broken limbs from the side break, falling onto or through the conductors. While it is reasonable that a program that eliminates all vegetation overhanging the 12kV and 4kV distribution facilities would significantly reduce outages, such a program would not eliminate outages caused by broken limbs and trees from outside the trim zone. Furthermore, removal of overhang is not consistent with best management practices, and should be dependent on type of facility, tree species, and other site conditions. High winds from storms cause trees to fall on or through electric lines; and as demonstrated in the recent storms, even eliminating overhang will not prevent the type of damage seen in high wind events.

ComEd notes that vegetation management practices for distribution lines are primarily aimed at reducing tree contact, and are not designed to prevent downed trees from falling into, or blown debris from contacting lines. ComEd notes that the level and type of tree damage reported during the July 11, 2011 storm is not a direct function of utility vegetation management programs.

ComEd Process

Overhead Distribution Circuit Inspection and Maintenance

1. **PURPOSE**

To outline the programmatic inspection and maintenance for 4kV, 12kV, and 34kV overhead circuits.

NOTE: This document applies to routine inspection and preventive maintenance (PM) of overhead 4k, 12kV, and 34kV circuits.

To outline the basic tasks for performing inspections and issuing the associated corrective maintenance (CM).

NOTE: This includes reliability driven inspections such as, but not limited to, 1% circuit inspections.

Section 3, Responsibilities has been divided into the following subsections:

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3.3	Contract and Project Management	3
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Section 8, Process has been divided into the following subsections:

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2. TERMS AND DEFINITIONS

NOTE: **REFER** to CM-ED-000010 Technical Glossary for additional technical terms and definitions.

1. All-Inclusive (All-In) Inspection – A visual inspection that is primarily performed by walking the circuit. The field of vision is from the top of the pole to the ground line.

2. Corrective Maintenance (CM) sometimes used to refer to the CM work or CM work order.

3. High Impact Primary (HIP) Inspection – A visual inspection of the top of the pole to the bottom of equipment cutouts or bottom of line arresters (a line arrester that is not on the load side of the cutout). The inspection is performed primarily by driving and/or with front lot binocular observations, and includes limited rear-lot and Right of Way (ROW) walking or access.

4. Preventive Maintenance (PM) sometimes used to refer to the PM work or PM work order.

3. ROLES AND RESPONSIBILITIES

3.1. DOCUMENT WRITERS AND REVIEWERS

1. **BE AWARE** that Reliability Inspections owns this program.

2. **BE AWARE** that Reliability Inspections:

   A. Are accountable for the content of this program.
   B. Must review any revisions to this program and applicable reference documents.

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3.2. CONSTRUCTION & MAINTENANCE

1. **COMPLETES** the CM repairs and updates PassPort indicating the repairs performed.

2. **ENSURES** that close out comments in PassPort reflect work completed.

3. IF work is **not** required, OR was found completed upon arrival, **ENSURES** that:

   A. The CM is properly dispositioned.

   B. Include comments describing conditions found.

4. **ENSURES** that documentation relative to maintenance tasks is stored centrally and is available for future reference.

5. For slipped lead sleeves and damaged lead terminations, **INSPECTS/CONFIRMS** "wet" cable conditions at the adjacent manhole, and **TAGS** equipment accordingly.

   A. **ENSURES** that a permanent repair work request/work order is generated after tagging is completed for those locations requiring repairs.

3.3. CONTRACT AND PROJECT MANAGEMENT

1. **IS** the main point of contact with the contractors for all contractual issues.

3.4. DISTRIBUTION RELIABILITY INSPECTIONS

NOTE: Applies to visual inspection only, unless specified.

1. **TRACKS** progress of inspections.

2. **MAINTAINS** master file of all inspected circuits.

3. **IDENTIFIES** annual budgetary requirements necessary:

   A. to support program execution per maintenance template.

   B. to meet any regulatory commitments.

4. **COMMUNICATES** program changes to stakeholders as needed.

5. **MAINTAINS** list of conditions on the overhead distribution circuit inspection checklist.

6. **REQUESTS** copies of circuit maps from Mapping & Document Services.

7. **MAINTAINS** circuit inspection cycles within the Computerized Maintenance Management System (CMMS) (PassPort).

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8. **ENSURES** that:

A. The identified circuits inspected are those due in the current year.

B. Pouches assembled as necessary for identified circuits to be inspected contains the operating map of the circuit and the overhead distribution circuit inspection checklist.

C. The inspection type is indicated on the inspection pouch.

NOTE: "All-In" mode for 34kV Circuits and 1% Circuits, "HIP" mode for all others. Modifications are to be approved by Reliability Inspections.

D. PM Work Orders in Passport reflect appropriate programmatic information identifiers.

E. Locations requiring corrective maintenance are marked on the inspection map and the marked-up maps are made available for use by other departments.

F. Vegetation conflict items are noted on the inspection map and vegetation conflict forms are completed and submitted to Vegetation Management.

G. Mapping discrepancies are noted on the map and mapping discrepancy forms are completed and submitted.

H. Any emergent work into PassPort not captured by the mobile devices or entered by the OCC as applicable is created manually in the CMMS.

I. Technical support is provided for the mobile field inspection system (MFIS).

9. INSPECTOR:

A. **PERFORMS** inspection of the circuit utilizing current overhead distribution circuit inspection checklist.

B. **DOWNLOADS** circuits from the Mobile Field Inspection System (MFIS) into a mobile device.

C. **MARKS** inspection map with location and anomaly.

D. **ENTERS** location description into mobile device.

E. **ENTERS** deficiencies found into mobile device.

F. **COMPLETES AND SUBMITS** vegetation conflict form.

G. **COMPLETES AND SUBMITS** mapping discrepancy form.

H. **INDICATES** location where ComEd primary lines may have a potential clearance issue.

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I. **REQUIRES** the creation of a Corrective Maintenance task for potential clearance issues.

NOTE: Issues are to be reviewed and resolved by Work Management, New Business and/or Engineering and Design.

J. **INDICATES** name(s), company cell phone number, type of inspection, and inspection completion date on the marked-up inspection map.

K. **CAPTURES** digital photo of CM conditions as necessary to enhance ability to plan for repair of the condition and forwards to Reliability Inspections Planner to include in the CM work order tasks.

L. **CAPTURES** GPS coordinates of CM locations, as needed and marks coordinates on inspection map to assist with planning of repairs.

M. **CALLS** OCC directly for emergency items.

NOTE: OCC personnel **ENTERS** information into PassPort, CIMS, or OMS as required per OCC process.

N. **SYNCHRONIZES** the completed inspection in the mobile device to the Computerized Maintenance Management System (CMMS = PassPort system).

NOTE: The PassPort system automatically generates a Corrective Maintenance (CM) Work Order (WO) and completes the Preventive Maintenance (PM) WO.

3.5. DISTRIBUTION STANDARDS EQUIPMENT SPECIALISTS

1. **PROVIDES** input to Reliability and Material Condition groups regarding failure modes and manufacturer's recommendations.

2. **INVESTIGATES** new technology.

3. **DETERMINES** specific maintenance trigger levels as applicable to the equipment.

Examples: Inappropriate equipment installations, pole degradation levels, etc.

4. **IS** the primary interface with Original Equipment Manufacturer (OEM).

5. **PROVIDES** support to the field relative to equipment expertise.

3.6. DSO

3.6.1. Information Desk Technician (IDT)

1. **ENSURES** that EITHER Corrective Maintenance work requests, work orders OR Emergency OMS Tickets are generated for Emergency DSO jobs, as required, based on results of the inspection per OCC process.

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2. **ENSURES** that close out comments in PassPort and/or OMS, reflect work completed by Operations personnel under the direction of the DSO.

3. **ENSURES** that documentation relative to maintenance tasks is stored and is available for future reference.

4. **ENSURES** use of WO Group code supplied by Inspector on WO generated.

3.6.2. OES

1. **COMPLETES** the CM repairs as required.

2. **RETURNS** the data sheets to the DSO Planner indicating what repairs were performed.

3.7. DISTRIBUTION ENGINEERING & DESIGN AND NEW BUSINESS

1. **REVIEWS** Potential "Clearance" issues as reported from the circuit inspection, for those items not initially planned and scheduled by Work Management and C&M.

2. **DESIGNS** changes, as needed, to maintain acceptable clearances.

3.8. MAPPING & DOCUMENT SERVICES (M&DS)

1. **CREATES** circuit maps for use by Reliability Inspections to perform the circuit inspections.

2. **RECEIVES** mapping discrepancies.

3. **INCORPORATES** changes into the circuit maps.

3.9. MATERIAL CONDITION GROUP

1. **MONITORS** program performance.

2. **EVALUATES** need to modify program requirements due to failure trends and/or emergent failure modes.

3. **GATHERS** input from Distribution Equipment Specialists in Distribution Standards group(s) and from Operations groups as required.

4. **DEVELOPS** AND **UPDATES** maintenance templates for overhead circuits and associated components.

3.10. TRAINING DEPARTMENT

1. **EVALUATES** the need to develop training in conjunction with the line organizations when preventive maintenance tasks change.

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2. **DEVELOPS** the appropriate training program.

3. **CONDUCTS** training as required.

3.11. WORK MANAGEMENT

3.11.1. Long-Range Planner

1. **EVALUATES** resource requirements for corrective maintenance identified from the circuit inspection program.

2. **DEVELOPS** long-range work plan.

3. **DEVELOPS** resource strategy to ensure execution of the plan.

3.11.2. Planner

1. **PREPARES** necessary work packages in support of corrective maintenance.

2. **DISCUSSES** CM conditions with Reliability Inspections when clarification is needed for the scope of work.

3.11.3. Scheduler

1. **ENSURES** that maintenance tasks are scheduled and tracks execution.

2. **BUNDLES** work as needed to ensure completion of program tasks.

3.12. EMPLOYEES/WORKERS:

1. All ComEd, contractor or vendor personnel performing work within the ComEd service area **SHALL COMPLY** with:

   A. This procedure.

   B. ComEd Fundamentals.

   C. ComEd Safety Rule Book.

   D. Employee Code of Conduct.

   E. All other corporate and ComEd policies, programs, procedures, and expectations appropriate to the work being performed.

4. MATERIAL AND SPECIAL EQUIPMENT

4.1. MATERIAL

1. Materials needed for Fix on Find purposes include, but are not limited to:

   A. Guy Markers.

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B. Ground Molding.

C. Temp Patches.

4.2. SPECIAL EQUIPMENT

1. None.

5. SAFETY MEASURES AND ENVIRONMENTAL CONCERNS

5.1. SAFETY MEASURES

1. None.

5.2. Environmental Concerns

1. Waste Materials:

A. **PUT** in approved waste containers.

B. **DISPOSE** of properly.

2. IF Fluid spill is observed:

A. **FILL OUT** appropriate Fluid-spill documentation.

B. **UTILIZE** spill kit as practicable.

C. **REPORT** spills as required to the OCC.

NOTE: for additional guidance see EN-ED-P201 & EN-ED-2002.

6. PRECAUTIONS AND LIMITATIONS

6.1. PRECAUTIONS

1. WHEN safety, reliability, or operation of equipment could otherwise be affected before the next inspection cycle, **RECORD** defective conditions.

6.2. LIMITATIONS

1. Component inspection **MAY BE PERFORMED** in any sequence preferred by the Inspector.

7. PREREQUISITES

1. **VERIFY** that all ComEd, contractor or vendor personnel involved are trained and qualified in the equipment and procedures to be used.

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2. **MAKE SURE** that all requirements of CM-ED-050001 Hazard Identification, Error Prevention, STAR, Peer Check, Flagging And Robust Operational Barriers have been followed.

8. PROCESS

8.1. DISTRIBUTION CIRCUIT INSPECTION PROGRAM

1. This program involves the inspection of 4kV, 12kV, and 34kV circuits with overhead exposure. The frequency of the inspections is to be in accordance with the Maintenance Templates for distribution overhead circuits and components.

8.2. SPECIAL INSPECTIONS

1. Certain circuits or portions of circuits may be inspected at more frequent intervals resulting from any of the following:

   A. Post storm events.

   B. Conditions found on routine inspections.

   C. Excessive loading.

   D. or Other conditions that make such action advisable.

8.3. VISUAL CIRCUIT INSPECTION

8.3.1. Scope

1. For the programmatic cyclic annual circuit inspections, **VISUALLY INSPECT** the overhead portion of the circuit from the first pole from the substation breaker/recloser to the service drops; this includes the overhead portions of primary mainline as well as all primary lateral taps.

2. For inspections other than the programmatic cyclic annual circuit inspections, scope is based on the specific situation, determined by management.

8.3.2. Type of Inspection

1. For the 4/12kV programmatic cyclic annual circuit inspections, and for any ComEd management specially directed circuit inspections that do **not** fall within the All-In designation, a “High Impact Primary” inspection is performed. Components outside the “High Impact Primary” zone are **not** specifically excluded from a HIP inspection. If the inspector observes conditions listed on the overhead distribution circuit inspection checklist that are located outside the “High Impact Primary” zone, the condition(s) **SHALL STILL BE RECORDED** as part of the inspection. FIX ON FIND items **SHALL** also be addressed. The HIP inspection mode is intended to focus on conditions impacting the primary, and **not** merely to exclude other components.

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2. For the 34kV programmatic cyclic annual circuit inspections, and for any ComEd management specially directed circuit inspections, the inspection is primarily performed as an All-Inclusive (All-In) inspection. This includes inspection of the secondaries and identification of possible clearance violations.

3. For 1% Circuits, the scope of the inspection is determined by Reliability Programs. The inspection is primarily performed as an All-Inclusive (All-In) inspection. This includes inspection of the secondaries and identification of possible clearance violations.

8.4. CM CONDITIONS – OVERHEAD DISTRIBUTION CIRCUIT INSPECTION CHECKLIST

1. Circuit inspections shall record deficiencies for conductors, equipment, and the structures that support them, refer to the overhead distribution circuit inspection checklist CM-CE-P321-R0001 for detail.

8.5. FIX ON FIND

1. As directed by management, Inspector to perform minor repairs when identified during the inspection, including but not limited to replacement of guy markers and replacement of missing or damaged ground molding.

8.6. MAPPING ISSUES

1. **NOTE:** Any mapping discrepancies shall be noted on a mapping data discrepancy form AND **FORWARDED** to a mapping discrepancy administrator to have it entered into the Asset Management Map Discrepancies webpage.

Examples: Of mapping discrepancies include but are not limited to:

- An unmapped fuse. Special attention should be paid to mainline fuses and whether or not by-pass disconnects are installed and mapped correctly.
- A switch found in a different location in the field than on the map (up or downstream from a tap or feeder tie).

8.7. POTENTIAL CLEARANCE ISSUES

1. ComEd facilities with inadequate clearance from the ground, adjacent buildings, fire escapes, billboards, signs and other obstructions in accordance with ComEd Construction Standards shall require the creation of a Corrective Maintenance Item for a potential clearance issue. Refer to ESP 5.7.3.2 for selection of priority.

2. This issue is to be reviewed and resolved by regional work planner, and/or New Business or Engineering & Design.

8.8. COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM (PASSPORT)

NOTE: The circuits to be inspected for a particular year have Preventive Maintenance (PM) Work Orders (WOs) generated in PassPort.

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1. The circuits to be inspected for the year can be uploaded onto a moblie device through the use of a Mobile Field Inspection System (MFIS).

2. Each circuit has an electronic checklist that can be brought up for each pole location that has identified defects.

3. The results of the inspection are to be entered into PassPort written against the equipment record (the circuit). (Done automatically when MFIS is used)

   A. Each task on the WO represents a pole location.

   B. Each pole location may have multiple defects identified at that pole location, however, each wrench turning maintenance item is to have its own WO task. (Done automatically when MFIS is used)

4. The defects for a pole location are entered into a mobile device via the electronic overhead distribution circuit inspection checklist.

5. When the circuit inspection has been completed, the mobile device is synchronized to the CMMS, which automatically generates a CM Work Order (WO) and completes the Preventive Maintenance (PM) WO.

6. For each repair location, the inspector is to include the following descriptive/location information:

   A. Circuit or feeder identifier. (Automatically included when using MFIS)

   B. Location description: physical location relative to a fixed reference point on the circuit itself (e.g. “Disc D12345” or “2 poles s/ of tr 123456A1”); or by address; or other landmark description; or by GPS as last resort. Note: for Clearance issues identified for services or customer work required, the address for the location served by the service drop is required to be captured in the comments box; if an address does not exist, as a last resort measure, the meter number and street name of the location must be recorded in the comments box.

   NOTE: GPS coordinates may be used as a supplement when necessary.

8.9. CIRCUIT INSPECTION CORRECTIVE MAINTENANCE PRIORITIES

1. Emergency Maintenance Items - Items of immediate concern to the inspector are to be identified and reported immediately. The following are some examples of such items: severely leaking transformers/reclosers/potheads; broken pole; primary wire on crossarm or making contact with other facilities; wire down.

2. Except for those items identified as Emergency Maintenance, generally, identified CMs from the circuit inspections are pre-categorized on the overhead distribution circuit inspection checklist. Where choices exist between priorities for the same type of deficiency, a higher priority is to be selected for those deficiencies that pose an imminent reliability issue.

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8.10. LEGACY CM WORK TASKS

1. Programmatic inspections are done fresh without regard to the legacy CMs; as these circuits are re-inspected, the legacy CMs from the previous programmatic circuit inspections are periodically reviewed and appropriately dispositioned.

9. RETURN TO NORMAL

1. None

10. DOCUMENTATION

1. None

11. REFERENCES

11.1. TECHNICAL REFERENCES

1. None

11.2. STANDARD REFERENCES

1. CM-ED-050001 Hazard Identification, Error Prevention, STAR, Peer Check, Flagging And Robust Operational Barriers
2. WM-ED-P014 Work Screening And Prioritization
3. AM-ED-P034-R3002 – Template – Distribution Aerial Conductor
4. AM-ED-P034-R3003 – Template – Cutouts and Disconnects
5. AM-ED-P034-R3004 – Template – Gang Operated Switches
6. AM-ED-P034-R3009 – Template – Pole Top Capacitors
7. AM-ED-P034-R3010 – Template – Pole Top Regulators
8. ESP 5.7.3.2 – Investigating Reported Clearance Violations

12. ATTACHMENTS

1. CM-CE-P321-R0001 Overhead Distribution Circuit Inspection Checklist

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DEVELOPMENT HISTORY

Revision 0	Date 3/16/2009
Writer	Brian Beissert & Keith Frost (Reliability Inspections)
Reviewer (s)	Michelle Blaise
Approver(s)	Gus Ponce
Reason Written	Revised the document into a ComEd process and revised requirements for visual inspection, including the addition of identifying the need for tagging of slipped lead sleeves and damaged lead terminations as a Priority 20 Work Task. Added clarification to C&M West to generate appropriate Work Requests or Work Orders for permanent repairs after tagging has been performed of possible wet cables. Also revised the checklist (CM-CE-P321-R0001).

Revision 1	Date XX/XX/XXXX
Writer	
Reviewer (s)	
FAM Approver(s)	
Reason Revised	

Revision 2	Date XX/XX/XXXX
Writer	
Reviewer (s)	
FAM Approver(s)	
Reason Revised	

Revision 3	Date XX/XX/XXXX
Writer	
Reviewer (s)	
FAM Approver(s)	
Reason Revised	

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ComEd Program

ComEd T&S Overhead Transmission Aerial Patrol And Ground Patrol Inspection Program

1. PURPOSE

To provide the requirements and guidelines for inspecting and reporting both

- Overhead Transmission Aerial Patrol Inspection
- Overhead Transmission Ground Patrol Inspection

  Note: Intervals for inspections are covered in AM-ED-P034-R2001 Overhead Transmission Structures PCM Template.

- Emergency Structure Inspections

2. TERMS

1. Aerial Patrol Inspections

   A. Comprehensive Aerial Patrol: Helicopter traveling at an average speed of 5 knots between structures. The helicopter shall stop for approximately 1-2 minutes at each structure to inspect all components of the structure.

   B. Standard Aerial Patrol: Helicopter traveling an average speed of 10-20 knots along line, pausing only to accurately report new defects and verify condition of known defects.

2. Aerial Inspection Program: Aerial Inspection of the entire Overhead Transmission system using a helicopter. The Aerial Inspection Program is a combination of various speed aerial inspections completed over a specified inspection interval.

3. American Institute of Steel Construction (AISC)

4. Ground Patrol Inspection: Walking inspection, using binoculars to accurately report new defects and verify condition of known defects. In the event a condition cannot be adequately defined from the ground a climbing inspection shall be completed.

5. Safe Body Clearance: Minimum required distance from live parts (energized) such that it is not hazardous to be working or be at this distance from live parts.

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6. Tower Bolt Inspection Program: Climbing inspections of lattice type towers to inspect the conditions of the existing bolted connections.

7. Utilities Patrol and Construction Committee (UPAC)

Note: **REFER** to CM-ED-000010, EED Technical Glossary for technical terms and definitions

3. ROLES AND RESPONSIBILITIES

3.1. MANAGER, TRANSMISSION ENGINEERING DEPARTMENT

1. **PRIORITIZES** problem conditions identified by the aerial patrol and ground patrol inspections Program

2. **DOWNLOADS** all identified problems to the Overhead Transmission Database and to PassPort.

3. **RESPONDS** to critical problems identified by the Overhead Transmission Construction Crew / Aerial Inspection Crew by initiating PassPort work requests.

4. **IMMEDIATELY NOTIFIES** the Work Management Department and Transmission System Operations Department in the event a “critical” condition is located

5. **NOTIFIES** the Vegetation Department of problem conditions identified by the aerial patrol or ground patrol programs.

6. **NOTIFIES** the Environmental Department of Right of Way Dumping conditions identified by the aerial inspection or ground patrol programs.

   NOTE: Engineering shall enter all problem sites to PassPort.

7. **MAINTAINS** Inspection Programs in Passport to assure proper inspection intervals of the System.

3.2. DOCUMENT WRITERS AND REVIEWERS

1. **BE AWARE** that Transmission Engineering Department owns this program.

2. **BE AWARE** that Transmission Engineering Department Subject Matter Expert and Supervisors

   A. Are accountable for the content of this program.

   B. Must review any revisions to this program and applicable reference documents

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3.3. AERIAL CONTRACTOR

1. **PERFORMS** duty as helicopter pilot for ComEd Aerial Specialist Inspectors.

   A. PRIOR to each helicopter patrol, the pilot,

   B. **SUBMITS** FAA Flight Plans as required by location of the line

2. **FORWARDS** electronic reports to Transmission Line Engineering Department by CD disc and data in Microsoft Access within (14) calendar days of completion of the inspection.

3.4. MANAGER, TRANSMISSION SYSTEM OPERATIONS DEPARTMENT

1. **MAINTAINS** a log of critical conditions on the system as located and informed by Inspection Crews.

2. PRIOR to each helicopter patrol

   A. **IS BRIEFED** by the flight crew on flight plans

   B. **AUTHORIZES** the flight crew by phone.

3. AT the end of each day, **IS BRIEFED** by the crew

3.5. MANAGER, TRANSMISSION SERVICES DEPARTMENT

1. **PERFORMS** Aerial Patrol Program and Emergent Patrols as requested utilizing the Aerial Specialist Group.

2. **NOTIFIES**

3. **PERFORMS** the Ground Patrol Inspections utilizing Overhead Transmission Crews for those structures/ spans which are not accessible by helicopter due to congestion, major roadway crossings and farm animals.

4. **IMMEDIATELY NOTIFIES** the Transmission Engineering Department in the event a “critical” condition is located.

3.6. MANAGER, WORK MANAGEMENT DEPARMENT

1. **SCHEDULES** coordinate and submit outage requests for all Aerial Inspections within both the 2- mile and 5- mile perimeter of Nuclear Plants.

3.7. VEGETATION MANAGEMENT

1. **ENSURES,** in a timely manner, priority review of vegetation-related problem reports forwarded by Manager, Transmission Engineering Department

2. **ENSURES** completion of vegetation-related reported items in a timely manner

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3.8. ENVIRONMENTAL SERVICES

1. **ENSURES,** in a timely manner, priority review of environmental-related problem reports forwarded by Manager, Transmission Engineering Department

2. **ENSURES** completion of environmental-related reported items in a timely manner

3.9. EMPLOYEES/WORKERS:

1. All EED, contractor or vendor personnel performing work within the EED service area shall comply with

   A. This program

   B. ComEd Fundamentals

   C. ComEd Safety Rule Book

   D. Employee Code of Conduct

   E. All other Corporate and ED policies, programs, procedures, and expectations appropriate to the work being performed.

4. PRECAUTIONS AND LIMITATIONS

4.1. PRECAUTIONS

This document contains specific content that has been or will be used as “Evidence of Compliance” for regulatory audits, or in support of regulatory Readiness Evaluations. Any person(s) making revisions to this document shall contact the Transmission Strategy and Compliance (TSC) group within the Transmission Operations and Planning organization to inform them of proposed revisions (Outlook address of TOP TSC Transmission Compliance). A representative of the TSC shall be included as a “reviewer” of any proposed revisions to this document.

4.2. LIMITATIONS

None

5. PROGRAM

5.1. REGULATORY REQUIREMENTS

1. All Aerial Patrols shall be performed in accordance with Helicopter Association International “UPAC” Utilities Patrol and Construction Committee, SAFETY GUIDE.

2. All inspection work shall meet FAA requirements and ComEd work practices specifically outlined in the ComEd “Safety Rule Book”.

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5.2. SABOTAGE RECOGNITION AND REPORTING

5.2.1. **Sabotage** is an act, with malicious intent, the purpose of which is to significantly damage or attempt to damage a company facility, property or cyber resource. Another way of defining sabotage is violence against property.

1. Report any sabotage or potential sabotage events to

2. Local police (911) provide details

   A. Corporate Security 1-800-550-6154

   B. The OCC (or BPO)

   C. The Supervisor

3. Examples of Sabotage or potential sabotage could include

   A. Suspicious persons

   B. Surveillance activities

   C. Unidentified individuals conducting surveillance (camera / video)

   D. Suspicious packages

   E. Tampering with transmission towers and poles (loosening bolts, cutting guy wires)

   F. Gunshots to equipment, conductors or insulators

   G. Causing intentional failure of a component or system

   H. Damage to microwave towers including toppling

   I. Damage to microwave antenna

   J. Cut telephone lines

   K. Cut fiber optic lines

5.3. Aerial Inspection Program

1. The Aerial Inspection Program includes the entire ComEd overhead transmission system. The program is a combination of Comprehensive Aerial Inspections and Standard Aerial Patrols in which the helicopter is flown at various speeds. Intervals for each inspection type are covered in AM-ED-P034-R2001 Overhead Transmission Structures PCM Template.

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2. Exelon may employ the services of a professional aviation safety auditor to help both the aerial contractor and ComEd reach their maximum safety potential. The auditors will continually monitoring the quality, productivity and cost effectiveness of each operation. They will supply training where necessary and make recommendations to improve the programs. The aviation safety auditors will request detailed information describing details of each operation. Additionally, they will arrange appointments to visit aerial contractor facilities and shall accompany the aerial contractor on several routine flights.

3. During the flight, it is the responsibility of the helicopter crew to assess weather conditions (temperature, precipitation, wind speed, etc.) and determine when the flight shall be terminated to assure the airship can land before weather conditions become unsafe.

4. The helicopter pilot and observer shall exercise care when approaching a transmission line crossing in the flight path of the helicopter. In the event an unusually placed static wire is observed which poses a safety hazard for aerial collision, the helicopter crew shall report the location as a safety concern with the Daily Criticals Report. The location shall be reviewed for installation of aerial marker balls.

5. The restricted air space within (2) miles of a nuclear or fossil generating station shall not be violated.

   Prior to any flight activity within a (5) mile perimeter of a generating station, either fossil or nuclear type, the pilot must contact the designated Exelon Transmission Systems Operations to request airspace clearance.

   Transmission Systems Operations will

   - Request airspace clearance from the station
   - Respond back to the pilot.

   NOTE: For information only, Braidwood, Byron, Dresden, LaSalle, Quad Cities and Zion are Exelon Nuclear Power Stations.

6. Care shall be taken to guard against annoying the public or frightening farm animals by flying low or hovering too long with a helicopter. When approaching an area with farm animals, the crew is requested to observe the response of the animals. In the event the animals become excited, the helicopter crew shall leave the area and document the reason for no inspection.

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5.4. Climbing Inspections, Tower Bolt and Emergent Inspections

1. The climbing and tower bolt inspections shall be completed as requested by Engineering to provide a detailed inspection locating missing or loose structure bolts.

2. Emergency Patrol Inspections shall

   - Be completed as required to provide a detailed inspection of designated structures on a particular line

   - Be documented by the inspector on the Emergency Structure Patrol Report found in CM-CE-P040-R1001 Overhead Transmission Aerial Inspection And Ground Patrol Inspection Program Reporting Guidelines And Report Templates

   - Have inspector report details input into a database by the supervisor

   - Be reported to the Person In Charge and Engineering as soon as possible by emailing the Summary report generated by the Patrol Database reporting on all structures inspected

3. Before climbing a structure, the patroller shall establish the line voltage and review the Safe Body Clearances listed in section 404 of the ComEd “Safety Rule Book”. In the event Safe Body Clearances are in question, the patroller shall descend the structure and report the restricted safe body condition in the report.

4. When climbing a structure, one crew member shall remain on the ground to provide assistance in the event structure rescue is required.

5. Patrollers performing climbing inspections are required to have a ½ inch hand line in the event a tower rescue is required in accordance with section 205 of the ComEd “Safety Rule Book”.

6. Patrollers performing climbing inspections are required to also carry a safety kit to the base of each structure.

7. Patrollers shall exercise extreme caution during patrol of a line following a line trip.. Also note, downed wires may be in contact with farm fences capable of carrying electricity hundreds of feet from the right of way.

8. Patrollers performing climbing inspections of lattice towers shall perform a “shake-down” inspection of the structure to ascertain if there are any loose or missing bolts. Any deficiencies shall be noted in ***The Climbers Comprehensive Inspection Report Form*** in CM-CE-P040-R1001 Overhead Transmission Aerial Inspection And Ground Patrol Inspection Reporting Guidelines And Report Templates

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5.5. General Requirements for All Non-Emergency Inspections

1. Once a problem is identified it shall be described in the following fashion:

Reference CM-CE-P040-R1001 Overhead Transmission Aerial Inspection And Ground Patrol Inspection Reporting Guidelines And Report Templates for ***Reporting of Identified Non-Emergency Problems***

COMPONENT TYPE / COMPONENT DESCRIPTION / PROBLEM DESCRIPTION

For Example,

Insulator / Insulator Skirt / Flashed (Cold End)

- **COMPONENT TYPE** categories;

Examples are: Conductor, Insulator, Right of Way, Shield Wire, Spacer, Structure, and Switch.

- Followed by **COMPONENT DESCRIPTION** categories:

Examples are: shoe (pin), shoe (nut), shoe (complete), insulator string, etc.

Followed by **PROBLEM DESCRIPTION** categories:

Examples are: Abrasion (Heavy), Cracked, Chipped, Flashed, Missing, etc.

- The problem conditions shall **PRIORITIZED** by Overhead Transmission Lines Engineering.

Note: In the event the criticality of problem is in question either directly contact Overhead Transmission Engineering or reference CM-CE-P040-R1001 Overhead Transmission Aerial Inspection And Ground Patrol Inspection Reporting Guidelines And Report Templates, ***Overhead Transmission Repair Prioritization Codes*** for established Priority levels.

2. In the event the inspection crew locates a “critical” condition,

A. The crew shall immediately notify Overhead Transmission Lines Engineering.

B. Transmission Lines Engineering

1) Shall verify priority

2) Engineering shall immediately contact Transmission Systems Operations with a description and location of the identified problem.

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5.6. General Requirements for an Emergency Inspection

1. An Emergency Patrol has the goal of identifying the cause of recent operation and verifying condition of the line before the line is re-energized following a line operation.

   Reference CM-CE-P040-R1001 Overhead Transmission Aerial Inspection And Ground Patrol Inspection Reporting Guidelines And Report Templates for ***Reporting of Identified Emergency Problems***

   STRUCTURE (by Line #, Beginning Structure, EpiCenter Structure and ending Structure/ PROBLEM CLASSIFICATION / PROBLEM DESCRIPTION

   For Example,

   - Line #, Structure ID / Conductor Insulators / Flashed (From 2 through 6 on the Cold End)
   - Structures **are identified by Line # and Structure ID;**
   - Followed by Problem Classification

     For Example: Conductor Insulators, Static Insulators, Conductor Hardware, etc.

   - Followed by PROBLEM DESCRIPTION **categories:**

     For Example: Flashed, Broken, Contamination, damage to Shoe, damage to Armor Rods, etc.

   IF, in the course of the emergency inspection, maintenance problems are observed, **NOTE** the problems AND **REPORT** them to Engineering

2. The reports are meant to be survey of apparent damage to be used as a basis for evaluation, planning and prioritization of restoration work.

5.7. Overhead Transmission Ground Patrol Inspection Program

1. Walking Inspections are required for those structures / spans which are not accessible by helicopter due to congestion, major roadway crossings and farm animals. . Inspection of the structure, structure footing and Right of Way, insulator assemblies, static wire assemblies, conductor spacers, and all miscellaneous components shall be included.

2. A Comprehensive Climbing Inspection shall climb to the top of each structure to closely examine the condition of each component including the static wire assembly components.

3. The problem findings shall be clearly recorded for each structure and span using ***GROUND OR CLIMBING INSPECTION REPORT FORM*** from CM-CE-P040-R1001 Overhead Transmission Aerial Patrol And Ground Patrol Inspection Reporting Guidelines And Report Templates section.

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4. Photographs shall be taken for severe and unique problems identified during the inspection to illustrate the extent of damage and assist the person specifying repair materials. The photograph number shall be listed within the report. Photographs of common identified problem are NOT required.

5. The original hand written reports of ***GROUND OR CLIMBING INSPECTION REPORT FORM*** shall be forwarded to Overhead Transmission Lines Engineering.

6. The Comprehensive Climbing Inspections of lattice towers shall include a "shake-down" inspection of the structure to locate any loose connections. All deficiencies shall be recorded within the ***GROUND OR CLIMBING INSPECTION REPORT FORM*** .

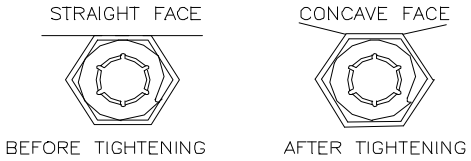
7. Overhead Transmission Engineering shall be responsible to prioritize and download all identified problems to the Overhead Transmission Database and to PassPort.

5.8. Tower Bolt Inspection Program

1. Tower Bolt Inspections shall be requested by Engineering for circuits with steel lattice tower structures which have suspected loose or missing bolted connections. The Tower Bolt Inspections are climbing inspections of lattice type towers to inspect the condition of the existing bolted connections. In conjunction with the Tower Bolt Inspection, the inspector shall also complete a Comprehensive Climbing Inspection and record any problem conditions observed during the inspection.

EASY INSPECTION

BEFORE TIGHTENING, A PALNUT LOCK NUT HAS STRAIGHT HEX FACES. AFTER PROPER TIGHTENING, THE HEX FACES BECOME SLIGHTLY CONCAVE (SEE ILLUSTRATION) THIS OBVIOUS DIFFERENCE MAKES VISUAL EXAMINATION A RELIABLE INSPECTION METHOD. IT WILL NOT BE NECESSARY TO TORQUE THE PALNUT LOCK NUT.



2. SAFETY IS #1 CONCERN

Prior to climbing any structure for Tower Bolt Inspection,

- Visually inspect for multiple missing bolts or structural members which may create an unsafe condition for climbing.
- Shake tower members while climbing to identify loose members.

If unsafe conditions are identified,

- Descend the tower
- Immediately report the conditions to Overhead Transmission Lines Engineering

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3. Prior to start of the Tower Bolt Inspection, review ComEd specification C9459 Section 5, (see below) which illustrates how to identify a PALNUT which has been properly tightened. The Climbers are asked to inspect each PALNUT to assure the face is concave. If the face is not concave, tighten the PALNUT up to ½ turn as specified per C9459.

4. Inspect each lattice tower structure and record the condition of each problem bolted component using the attached form, CM-CE-P040-R1001 Overhead Transmission Aerial Patrol And Ground Patrol Inspection Reporting Guidelines And Report Templates ***Tower Bolt Inspection Report Form.*** Record the number and general location of loose or missing PALNUTS, nuts, bolts and members.

5. Each deficient bolted component shall be repaired when discovered. Replacement bolts shall be installed when bolts are found missing. Nuts shall be tightened using the AISC "Turn of Nut Tightening Method". Using this method the connecting members are joined and are brought in good contact with one another. The bolts are tightened to the "snug tight" position. "Snug tight" is defined as the tightness attained by a few impacts of an impact wrench or the full effort of a man using an ordinary spud wrench. After all bolts in the connection are brought to the "snug tight" condition, each bolt shall then be tightened additionally by tightening the nut an additional 1/3 turn.

6. Identify any damaged or missing structure members at locations of missing bolts. To verify if tower members are missing view opposite side of same tower, or neighboring tower. Contact Engineering with any known or suspected missing members.

7. CM-CE-P040-R1001 Overhead Transmission Aerial Patrol And Ground Patrol Inspection Reporting Guidelines And Report Templates ***Tower Bolt Inspection Report Form*** shall be reviewed by Overhead Transmission Lines Engineering and filed for historical purposes.

5.9. General Requirements for the Aerial Patrol Program

1. Prior to each days flight the crew shall review the flight plans noting possible obstructions, areas of restricted flight and discuss all pertinent safety topics.

2. Each day, prior to the start of the helicopter patrol, the crew shall contact TSO (Transmission System Operators) department by phone for a briefing on the flight plans. Inspection of the lines may not begin until authorization has been granted. End of each day, the crew shall again contact the TSO for notification that work has been completed.

3. Helicopter inspections shall be conducted in the following fashion…

   - Single circuit construction, the helicopter may inspect from one side of the structure / span.

   - Double circuit construction accessible from both sides, the helicopter shall inspect both sides of the structure and along both spans.

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- Multiple circuits located along the same right of way not accessible both sides, may be inspected jointly. However, data shall be recorded by individual line.

- Similarly, for triple and quad circuit construction, the helicopter may inspect lines jointly.

4. In the event a "Critical" condition, Priority 10 or 20, is found during the days work, the crew shall stop the Aerial Patrol and immediately contact the designated Engineering Department contact person with details. Following a discussion of the problem(s) identified, the crew shall proceed with completion of the Aerial Patrol. Overhead Transmission Lines Engineering will initiate repair of the "critical" problem identified.

5. Each morning Priority 30 problems identified during the previous workday shall be forwarded electronically to the designated ComEd contact person describing the problem condition and scanned photos.

6. Direction of Flight: The helicopter shall fly in the direction of ascending structure numbers. (Structure #1- Structure #2- Structure #3, etc) Problem findings shall be reported as Right and Left, Low Side and High Side based on the direction of flight.

7. Static wire inspection results shall be reported with the line that the static wire protects. For double circuit construction protected with a single static wire, the results shall be reported with either circuit and designated as "single".

5.10. Helicopter Patrols

5.10.1. Standard Aerial Patrols

1. The Standard Aerial Patrols are planned inspections of both the structure and wire spans between structures. The inspection of the structure and all components shall be included.

2. The Standard Aerial Patrols shall be completed using a helicopter traveling an average speed of 10-20 knots along the line, pausing only as needed each structure.

   - The helicopter should stop only as needed to clearly define and record the extent of damage identified. All damage shall be reported in a detailed fashion (i.e. Top Phase 3rd spacer, 1/3 span, etc.).

   - The crew shall verify the condition of known Priority 40 CM problems listed in the ComEd "Line Report" forwarded prior to start of work. Only Problem conditions which have changed in priority level need reported as electronic data.

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3. Circuits located in congested areas in which the helicopter is required to fly above the circuit shall be referred to as "High Aerial Patrols". The helicopter will fly approximately 75 feet above the circuit at a continuous pace. It is understood the airship cannot hover for extended periods at these locations.

4. The Standard Aerial Patrols reportables shall be limited to new problems identified or those in which the condition has worsened. Report of each Structure span is not required if "No Problems Found".

5. Each "reportable" shall have a Priority assigned in accordance with Appendix C, of this document.

6. Photographs shall be taken to illustrate the extent of damage reported for severe and unique conditions identified during the inspection to assist the person specifying the repair materials. However, photographs of each common identified problem are NOT required.

7. All inspection findings including photos shall be prepared in electronic format. No hard copies are required

   - Electronic reports shall be forwarded to Engineering Department copied to CD disc. The data shall be forwarded in Microsoft Access 2000 format.

   - The electronic data shall arrive at the Transmission Lines Engineering Office within (30) calendar days of completion of the inspection.

5.10.2. <u>"Comprehensive" Aerial Inspection Program</u>

1. The Comprehensive Aerial Inspections are planned, detailed inspections of both structures and wire spans between structures. A detailed inspection of the structure, structure footing and Right of Way, static wire spans, conductor spans, insulator assemblies, static wire assemblies, conductor spacers, and all miscellaneous components shall be included.

2. The Comprehensive Aerial Inspections shall be completed using a helicopter traveling at an average speed of 5 knots between structures. The helicopter shall stop for approximately 1-2 minutes at each structure to inspect all components of the structure.

3. The Comprehensive Aerial Inspections reportables shall be limited to new problems identified or those in which the condition has worsened. Report of each Structure span is not required if "No Problems Found".

4. Each "reportable" shall have a Priority assigned in accordance with Appendix C, of this document.

5. Inventory items, specified by Overhead Transmission Lines Engineering shall be collected and included with the electronic data reported with each circuit.

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6. Photographs shall be taken to illustrate the present overall condition of the line and define the extent of damage reported. A generous number of photographs shall be taken in order to assist the person specifying the repair materials. However, photographs of each identified problem are NOT required.

5.10.3. Vegetation Inspection by Aerial Helicopter

1. A review of vegetation clearance to wires shall be completed during each aerial inspection. It is understood that the faster "Patrol Speed Aerial Inspection" will produce fewer findings than the "Comprehensive Aerial Inspections "due to the increased speed of flight.

   It is also understood that, due to the position of the helicopter relative to the conductors and towers required to complete the aerial inspections of these facilities, all vegetation issues may not be readily apparent. However, every effort will be made to identify areas of concern.

   - Right of Way vegetation problem findings shall be reported to the Transmission Lines Engineering in similar fashion as other data. Priority assignment shall be in accordance with CM-CE-P040-R1001 Overhead Transmission Aerial Inspection And Ground Patrol Inspection Reporting Guidelines And Report Templates.

   - Engineering shall, in a timely fashion, notify the Vegetation Department designated party of problem conditions identified as data is reported.

   NOTE: Critical conditions shall be reported immediately and all others shall be forwarded monthly.

5.10.4. Right of Way Dumping Reported by Aerial Helicopter

1. Identification of dumping sites shall be completed during each aerial inspection. It is understood that the faster "Patrol Speed Aerial Inspection" will produce fewer findings than the "Comprehensive Aerial Inspection "due to the increased speed of flight.

   - Right of Way dumping problem findings shall be reported to the Transmission Lines Engineering in similar fashion as other data. Priority assignment shall be in accordance with CM-CE-P040-R1001 Overhead Transmission Aerial Inspection And Ground Patrol Inspection Reporting Guidelines And Report Templates.

   - Engineering shall, in a timely fashion, notify the Environmental Department designated party of problem conditions identified as data is reported.

   NOTE: Critical conditions shall be reported immediately and all others shall be forwarded monthly.

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6. DOCUMENTATION

6.1. REPORTING FORMAT

1. All regular inspection findings

   - **SHALL BE FORWARDED** in electronic form on a CD (in Microsoft Access format).
   - **SHALL ARRIVE** at the Transmission Lines Engineering Office within (30) calendar days of completion of the inspection.

2. Documentation generated during performance of regular inspections **SHALL BE** maintained by Manager, Transmission Engineering Department.

3. All emergency structure inspection findings (forwarded in electronic format) **SHALL BE FORWARDED** to the Person In Charge and Engineering

   - As soon as possible by emailing the Summary report generated by the Patrol Database reporting on all structures inspected
   - By submitting a copy of the database as required

6.2. DOCUMENT RETENTION

1. Retention period for all Inspection data shall be the greater of, 3 years from date of inspection or one inspection cycle.

6.3. ELECTRONIC DATA PM TO CM LINKAGE

1. Electronic data shall be stored in such a manner that the results of PM inspections can be readily linked to each of the follow-up CM work tasks.

7. REFERENCES

1. Overhead Transmission PCM Templates

   A. AM-ED-P034-R2001 Overhead Transmission, Structures

   B. AM-ED-P034-R2002 Overhead Transmission, Foundations

   C. AM-ED-P034-R2003 Overhead Transmission, Line Switches

   D. AM-ED-P034-R2004 Overhead Transmission, Conductors and Static Wire

   E. AM-CE-P034-R2005 Overhead Transmission, Insulators

2. CM-ED-000010, EED Technical Glossary

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3. WM-ED-P014 Work Screening and Prioritization

4. ComEd Safety Rule Book, Latest Edition.

5. Helicopter Association International UPAC Utilities Patrol and Construction Committee

6. CM-CE-P040-R1001 Overhead Transmission Aerial Inspection And Ground Patrol Inspection Reporting Guidelines And Report Templates

8. ATTACHMENTS

1. None

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9. DEVELOPMENT HISTORY

Revision 0 CM-ED-P040	**Date 01/29/2007**
Writer	Howard D. Murray, Transmission Company Parvez Rashid, Transmission Company
Reviewer (s)	Vito Martino, Transmission Services; Harold J. Laski, Work Management; John Garavaglia, Transmission Engineering; William L. Magee, Transmission Engineering; Joe Landise, Transmission Engineering,
Approver(s)	Don Pellegrini (CM)
Reason Written	To convert existing MP-2.2 to new format

Revision 0 CM-CE-P040	**Date 9/5/2008**
Writer	John R. Garavaglia, Howard D. Murray, Carl Fowler
Reviewer (s)	John R. Garavaglia, Howard D. Murray, Carl Fowler
FAM Approver(s)	William Forst and Gus Ponce
Reason Revised	Revised to renumber as a ComEd program, to make the reporting guidelines and Report templates a separate, inserting directions for responsibilites for Vegetation and Environmental problems discovered. Reference document CM-CE-P040-R1001 and include the Emergency Tower Inspection Patrol information

Revision 1	**Date 5/5/2009**
Writer	John Bee
Reviewer (s)	John R. Garavaglia, Howard D. Murray, Carl Fowler, John Blazekovich, Chris Scanlon, Karl Perman
FAM Approver(s)	William Forst
Reason Revised	Added section 4.1.1, NERC Precaution Statement, added section 5.2 to address sabotage recognition and reporting. Added section 1.1 to CE-P040-R1001 to address sabotage recognition and reporting.

Revision 2	**Date 06/10/2011**
Writer	Howard D. Murray (ComEd, Sr Engineer), Chuck Priebe (ComEd, Sr Engineer),
Reviewer (s)	John R. Garavaglia (Mgr Transmission Control), Jim McNally (Director Corporate Security), Merle Turner (Mgr Vegetation Management), John Blazekovich (Mgr Compliance)
UFAM Approver(s)	Gus Ponce ComEd T&S UFAM;
Reason Revised	Added p6.2 Document Retention Period, added p6.2 Linking PM to CM work tasks, Revisied p3.3 ComEd Aerial Specialist Group now perform inspection from helicopter, Removed all references to annual inspection, added PCM Template References 1.0, Revised Title –replaced Aerial Analysis with Inspection.

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Revision 3	**Date XX/XX/XXXX**
Writer	
Reviewer (s)	
UFAM Approver(s)	
Reason Revised	

Revision 4	**Date XX/XX/XXXX**
Writer	
Reviewer (s)	
UFAM Approver(s)	
Reason Revised	

Revision 5	**Date XX/XX/XXXX**
Writer	
Reviewer (s)	
UFAM Approver(s)	
Reason Revised	

Revision 6	**Date XX/XX/XXXX**
Writer	
Reviewer (s)	
UFAM Approver(s)	
Reason Revised	

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Exelon Delivery Program

Preventative and Predictive Maintenance Program

1. PURPOSE

1.1. To provide guidelines for the development, documentation, implementation, and oversight of an effective preventive (PM) and predictive (PdM) maintenance program for the electric transmission, substation, and distribution assets.

1.2. A successful maintenance program will ensure the reliability of the system.

2. TERMS AND DEFINITIONS

2.1. Document Discrepancy Process – The process for notifying the responsible mapping department of discrepancies that exist between the established as-built field condition and the current maps and drawings depicting that condition.

2.2. Functional Equipment Group (FEG) – Operationally integrated equipment that can be removed from service as a system to allow for efficient bundling of work activities. Typically, a family of components common to a clearance order boundary.

2.3. Grace Period - The grace period is an authorized amount of time allowed beyond a prescribed due date. The grace timeframe is typically 25% of the task performance interval. This timeframe is provided to allow for scheduling efficiency in support of an equipment outage schedule or cycle plan/ FEG bundling opportunities

2.4. Inspection - Failure finding task visually performed on a scheduled periodicity. Also used to review the operating condition of components and gather required data to assess the condition of equipment.

2.5. Inventory - Population of preventive and predictive program tasks tracked via Passport. Inventory size is one of the indicators of the potential health of the preventative and predictive maintenance systems.

2.6. Model Work Order - Pre-planned templates used to create work orders for repetitive work or to generate Preventive Maintenance Work Orders.

2.7. NRC Maintenance Rule - "NRC Maintenance Rule" shall mean the NRC rules and regulations set forth in 10CFR50.65, as they may be amended from time to time. 10CFR50.65 provides the NRC requirements for monitoring the effectiveness of maintenance at Nuclear Power Plants. The Maintenance Rule requires the licensee to monitor the performance or condition of structures, systems, or components (SSCs) against licensee established goals in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended function.

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2.8. Overdue - Preventive or predictive maintenance tasks that exceed their grace period.

2.9. Past Due – Preventative or predictive maintenance tasks that have gone beyond the prescribed due date.

2.10. Performance Centered Maintenance (PCM) Template – PCM templates identify the preventive and predictive maintenance tasks recommended for a component or system. Maintenance tasks and frequencies are based on the criticality of the component, its duty cycle, and the environment in which it operates.

2.11. Preventive Maintenance (PM) - Physical maintenance performed at set intervals with the intent of improving equipment material condition and thus preventing a component or sub-component performance failure. PM activities are preplanned and directed at preventing in-service failures. Normally, these activities are scheduled for performance at set frequencies (i.e. time directed), but may also be initiated based upon a specific event or system equipment condition. Examples: calibration of transformer gauges, circuit breaker temperature gauges and lubrication of mechanisms are Preventive Maintenance.

2.12. Predictive Maintenance (PdM) - Predictive Maintenance tasks are inspections and diagnostics activities. Examples of such tasks include, but are not limited to, infrared thermography, insulating oil sampling, acoustic monitoring, travel timing tests, system or equipment performance tests, visual inspections, and operational data reviews. PdM collected data is integrated and evaluated to make timely maintenance decisions in the form of corrective or preventive maintenance task execution, or preventative and predictive maintenance frequency performance adjustments

2.13. Work Order (WO) - A *PassPort* document, which is a collection of tasks required to complete the desired work. It provides instructions for construction or maintenance work.

2.14. Work Order Task - One of a series of steps required to complete a Work Order.

2.15. Work Request (WR) - *PassPort* document of an Originator's request to have work performed.

3. ROLES AND RESPONSIBILITIES

3.1. AREA MAINTENANCE ENGINEER

3.1.1. Provides input into the maintenance program relative to equipment health and effectiveness of tasks.

3.1.2. Evaluation of component equipment health

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3.1.3. Review of PdM test results as required.

3.1.4. Primary interface to field forces for support during maintenance

3.2. ENGINEERING

3.2.1. Prescribes the preventive and predictive maintenance program task requirements for transmission, substation, and distribution system components and/or systems.

NOTE: Vegetation control programs are developed under Vegetation Management.

3.2.2. Documents maintenance program requirements (tasks, frequencies) via PCM templates.

3.2.3. Ensures that Original Equipment Manufacturer (OEM) recommendations are considered when developing program requirements.

3.2.4. Ensures that appropriate experts review proposed template modifications.

3.2.5. Obtains Nuclear Station Engineering agreement on any changes prior to implementation in the preventive/predictive maintenance for all switchyard components included in the Nuclear Station NRC Maintenance Rule including changes such as: PM creation, PM cancellation, PM deferral and justification, and PM frequency change. This is per interface procedures WC-AA-8000 and WC-AA-8003, NERC Standard NUC-001, Requirement R9.3.2, and Nuclear Station NPIRs, Section 5.

3.2.6. Monitors program performance and evaluates need to modify program requirements due to increased failure trends and/or emergent failure modes.

3.2.7. Ensures that regulatory commitments are met relative to completion of program.

3.2.8. Ensures that affected working departments review proposed PCM template modifications for impact on work procedures.

3.2.9. Generates Cascade/PassPort work orders as required to ensure program tasks are identified for inclusion in the work plan.

3.2.10. Identifies annual budgetary requirements necessary to support program execution per template.

3.2.11. Communicates program changes to stakeholders as needed.

3.2.12. Provides input to maintenance programs regarding failure modes and necessary tasks to prevent failures. Investigates new technology.

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3.2.13. Determines specific maintenance trigger levels as applicable to the equipment Examples: acceptable oil quality and DGA limits; acceptable power-factor test results; thermography temperature limits.

3.2.14. Serves as the primary interface with Original Equipment Manufacturer (OEM).

3.2.15. Provides support to the field relative to equipment expertise and may supplement skill of the craft.

3.3. TRAINING

3.3.1. Evaluates the need to develop training when preventive and predictive maintenance tasks change.

3.3.2. Develops appropriate training program

3.3.3. Conducts training programs as required

3.4. T&S / C&M / DSO

3.4.1. Executes the preventive maintenance program.

3.4.2. Documents completion of program via PassPort work orders.

3.4.3. Ensures that close out comments in PassPort reflect work completed and meet the criteria set forth in WM-ED-P020, “Work Close Out”.

3.4.4. Ensures that questionable or unacceptable PdM or PM test results are reviewed and/or acted upon.

3.4.5. Ensures that either Corrective Maintenance work requests or work orders are generated as required based on results of PdM and PM programs.

3.4.6. Interfaces with Training to ensure that necessary training is approved and that skill of the craft is sufficient to perform program tasks.

3.4.7. Ensures that procedure needs are identified and developed to support field execution of maintenance tasks.

3.4.8. Ensures that changes to work procedures are reviewed by Engineering for alignment with PCM templates.

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3.4.9. Ensures that documentation relative to predictive and preventive maintenance tasks test results is stored centrally and is available for future reference. Also ensures that physical maintenance logs and checklists are retained per the current record retention policy as described in Exhibit A of Corporate Procedure LE-AC-401, "Records Management, Retention and Disposition".

3.4.10. Reports mapping discrepancies using the Document Discrepancy Process.

3.5. VEGETATION MANAGEMENT

3.5.1. Responsible for the development, documentation, budgetary development, etc. for maintenance programs relative to Vegetation Management.

3.6. WORK MANAGEMENT

3.6.1. Evaluates resource requirements for maintenance program.

3.6.2. Develops long-range work plan.

3.6.3. Develops resource strategy to ensure execution of the plan.

3.7. WORK PLANNER

3.7.1. Development and maintenance of model work orders for preventive and predictive maintenance tasks.

3.7.2. Prepares necessary work packages in support of preventive and predictive maintenance.

3.8. WORK SCHEDULER/RESPONSIBLE MANAGER

3.8.1. Ensures that maintenance tasks are scheduled such that the grace period is not exceeded.

3.8.2. Schedules work to align with FEG when required.

3.8.3. Bundles work as needed to ensure completion of program tasks.

4. PRECAUTIONS AND LIMITATIONS

4.1. PRECAUTIONS

None

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4.2 LIMITATIONS

This document contains specific content that has been or will be used as "Evidence of Compliance" for regulatory audits, or in support of regulatory Readiness Evaluations. Any person(s) making revisions to this document shall contact the Transmission Strategy and Compliance (TSC) group within the Transmission Operations and Planning organization to inform them of proposed revisions (Outlook address of TOP TSC Transmission Compliance).

A representative of the TSC shall be included as a "reviewer" of any proposed revisions to this document.

5. PROGRAM

5.1. PCM templates will be used to document the required tasks and frequencies for the Preventive and Predictive Maintenance program.

5.2. Budgetary estimates are to be developed to align with the template requirements. Budgetary estimates are to include details relative to resource requirements.

5.3. The long-range work plan will reflect the budgetary estimates. Following finalization of the budget, the long-range work plan will be updated to reflect any necessary changes. The work plan will be levelized as required to support available resources. FEG requirements will be taken into consideration as the plan is developed.

5.4. Procedures will be developed as required to support execution of the program tasks as identified in the PCM templates. Document requirements will be identified by the appropriate field organization. Document development is the responsibility of the appropriate field organization.

NOTE: Procedure requirements should be determined based on the skill of the craft, complexity of the task being performed, and repeatability of the task. Determination of the Level procedure required is also necessary.

5.5. Training of field forces needs to be performed as required to address skill gaps within the craft relative to program requirements. A well-defined and executed training program is necessary to ensure that the craft is proficient in executing tasks as required.

NOTE: As program requirements change there is a need to evaluate the potential for added craft training. Determination of the training requirements requires alignment with the field organizations.

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5.6. Model work orders will be used to define the requirements for tasks within the program. PMRQ's will be created for each component relative to the model work orders. Work orders will be generated in PassPort to define the program requirements.

NOTE: For tasks initiated out of Cascade, the Cascade procedure type will be used to define the requirements. This information will be passed to PassPort.

5.7. Work packages are to be prepared as required to execute the PassPort work orders. The work planning process is addressed in procedure WM-ED-4001, Work Planning Procedure

5.8. Work tasks are to be scheduled per procedure WM-ED-5001, Work Week Preparation of the Work Control Schedule, where applicable.

5.9. Work execution is per procedure WM-ED-19, Work Execution.

5.10. Upon completion of a PM and/or PdM work order, the work order is to be completed in Passport. Close out comments relative to the scope of work performed, conditions found, and Corrective Maintenance work orders generated are to be included in the work order completion comments.

5.11. Corrective Maintenance work orders are to be generated as required to address as found conditions identified during execution of the PM and PdM program tasks.

5.12. All inspection and test results (paper and/or electronic in format) shall be returned to a central repository. This data will be used to fully understand a components maintenance history and current health. This information can be used for future trending.

6. DOCUMENTATION

6.1. Completion of the PM program is documented via PassPort.

6.2. Predictive maintenance test results are to be captured and stored in Cascade to the extent that Cascade has been implemented.

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6.3. Hardcopy test results are to be stored centrally by local area.

7. REFERENCES

7.1. WM-ED-4001, Work Planning Procedure

7.2. WM-ED-5001, Work Week Preparation of the Work Control Schedule

7.3. WM-ED-19, Work Execution

7.4. WC-AA-8000, INTERFACE procedure BETWEEN EXELON ENERGY DELIVERY (ComEd/PECO) and Exelon generation (nuclear/power) for construction and maintenance activities

7.5. WC-AA-8003, INTERFACE procedure BETWEEN EXELON ENERGY DELIVERY (ComEd/PECO) and Exelon generation (nuclear/power) for Design ENGINEERING and transmission planning activities

7.6. NERC Standard NUC-001, Nuclear Plant Interface Coordination

8. ATTACHMENTS

None

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9. DEVELOPMENT HISTORY

Revision 0	Date 05/16/2005
Writer	Kathy McHugh, FAM Maintenance Planning
Reviewer (s)	Per document review matrix.
Approver(s)	Kathy McHugh, FAM Maintenance Planning
Reason Written	Documentation of program requirements. Document renumbered to align with Asset Management function area.

Revision 1	Date 01/08/10
Writer	Ronald Donovan, Asset Performance
Reviewer (s)	ComEd: Michelle Blaise, Reliability and Capacity Expansion; Miguel Ortega and Brian Graham, T&S Engineering; Bill Fluhler and Chris Stefanski, Material Condition; Lori Cimaglia, T&S Construction; Dan Galovich, C&M; Robert Pinto, DSO; Craig Chesley, Vegetation Management; Dale LaGesse, Work Management; PECO – J. Coffman, Distribution Engineering; Drew Davis & Drew Reindel, T&S Engineering; Jean Holderried and Frank Gabriela, T&S Construction; Peter Singh, Work Management; Nicole Levine, DSO; Joe Garvey, C&M; Doreen Masalta; Vegetation Management; EED: Jennifer Sterling & Mark Draper, Transmission Strategy and Compliance
Approver(s)	Ronald Donovan, Brian Graham, Michelle Blaise, William Sullivan, UFAMs Maintenance Planning
Reason Revised	Updated roles and responsibilities to be consistent with organization structures

Revision 2	Date 05/28/2010
Writer	Chris Stefanski, Material Condition
Reviewer (s)	ComEd: Michelle Blaise, Reliability and Capacity Expansion; Miguel Ortega and Brian Graham, T&S Engineering; Bill Fluhler, Material Condition; Lori Cimaglia, T&S Construction; Dan Galovich, C&M; Robert Pinto, DSO PECO – J. Coffman, Distribution Engineering; Drew Davis & Drew Reindel, T&S Engineering; Frank Gabrieli, T&S Construction; Peter Singh, Work Management; Nicole Levine, DSO; Joe Garvey, C&M. EED: Jennifer Sterling, Transmission Strategy and Compliance
Approver(s)	Ronald Donovan, Brian Graham, Michelle Blaise, William Sullivan, UFAMs Maintenance Planning
Reason Revised	Modified roles and responsibilities by adding new Sections 3.2.8 and 3.4.8, to ensure alignment between executing department field procedures and PCM template expectations.

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Revision 3	Date 06/15/2011
Writer	Chris Stefanski, Material Condition
Reviewer (s)	ComEd: Bill Gannon, Reliability Programs; Mike Moy and Jim Crane, T&S Engineering; Ken Wendt, Material Condition; Lori Cimaglia, T&S; Dan Galovich, C&M; Robert Pinto, DSO; Craig Chesley, Vegetation Management; Dale LaGesse, Work Management PECO – J. Coffman, Distribution Engineering; Drew Reindel, T&S Engineering; Frank Gabrieli, T&S Construction; Peter Singh, C&M; Derrick Dickens, DSO; Bruce Fluehr; Vegetation Management; Bill Sullivan, Work Management EED: Jennifer Sterling, Transmission Strategy and Compliance
Approver(s)	Drew Davis (PECO), Bill Fluhler (ComEd) UFAMs
Reason Revised	Added verbiage to reinforce expectations around improved close-out comments in PassPort and to define a record retention policy for paper documentation of maintenance data.

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WORK SCREENING AND PRIORITIZATION

1 PURPOSE

1.1 This process provides governance for screening and prioritizing work that will effectively and efficiently:

1. Validate the legitimacy of incoming Work Requests and Work Orders
2. Check for duplication of previously assigned work
3. Assign the appropriate priority
4. Identify work for inclusion in Seasonal Readiness preparations
5. Validate Work Requests or Work Orders are properly coded in PassPort
6. Direct work items to the correct work group and schedule date
7. Protect the Work Control Schedule by directing high priority work to the FIN team.

1.2 This document will provide a prioritization process that focuses on a balanced evaluation of operational, reliability, and financial impacts in a safe manner.

1.3 This document does not address priorities for the predefine maintenance program.

2 TERMS AND DEFINITIONS

2.1 Condition Directed Maintenance: Maintenance triggered as a result of performing Predictive Maintenance or Performance Monitoring & Trending. Predictive Maintenance (i.e. vibration, thermography, lube oil sampling) and Performance Monitoring & Trending (pressure, temperature, amps, etc) are condition-monitoring techniques used to detect equipment degradation over time. Examples include:

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1. Predictive Maintenance Team (PDM) performs monthly checks of substation:

   a Oil leaks

   b Hot Spots

   c Circuit Breaker Chatter

2. Aerial – All primary Hot Spots, Disconnects etc.

3. Manhole Inspection – Structure, Leaking splices, Debris etc.

4. Replacing oil, based on an oil sample indicating degraded dielectric properties

5. Cleaning radiators and heat exchangers based on temperature measurement

2.2 Corrective Maintenance (CM): Maintenance performed to correct system equipment or component conditions that render them incapable of performing their designed function. As a rule, if the specific equipment or component requiring maintenance has degraded or failed, the action required to repair it is classified as Corrective Maintenance. Examples would include:

1. Equipment removed from service due to actual or incipient failure

2. Equipment that has the potential for rapidly increasing component degradation leading to an inability to perform it's function

2.3 Corrective Maintenance (CM) Backlog: The total number of open Corrective Maintenance tasks. The CM backlog is a key indicator of system material condition. This value is reported as required to the Illinois Commerce Commission (ICC) and Pennsylvania Public Utility Commission (PUC).

2.4 Critical Customer: High profile customers that require special attention such as hospitals, major airports, major sporting complexes, and others that have a significant safety, health, business, political or media impact.

2.5 Functional Equipment Group (FEG): Grouping of equipment and related components that are in an associated group and can be efficiently bundled, safely isolated and worked together in a scheduled Work Window.

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2.6 Minor Maintenance: Work that does not require support from external work groups during execution and does not require detailed work instructions as part of the Work Order. Typically, this work is completed the same day it is started. This work can be of any priority.

2.7 Predictive Maintenance (PdM): Predictive Maintenance tasks are inspection and diagnostics activities. Examples of such tasks include, but are not limited to, infrared thermography, insulating oil sampling, acoustic monitoring, travel timing tests, system or equipment performance tests, visual inspections, and operational data reviews. PdM collected data is integrated and evaluated to make timely maintenance decisions in the form of Corrective or Preventive Maintenance task execution, or Preventative and Predictive Maintenance frequency performance adjustments.

2.8 Preventive Maintenance (PM): Physical maintenance performed at set intervals with the intent of improving equipment material condition and thus preventing a component or sub-component performance failure. PM activities are preplanned and directed at preventing in-service failures. Normally, these activities are scheduled for performance at set frequencies (i.e. time directed), but may also be initiated based upon a specific event or system equipment condition (i.e. condition directed). Compressor oil and belt changes, gauge calibration of Transformer/Circuit Breaker temperature gauges and lubrication of mechanisms are examples of Preventive Maintenance.

2.9 Priority Definitions: Priorities are assigned to work based on the criteria established in WM-ED-P014-1, Priority Decision Tool. Strict adherence to priority criteria is required to ensure disciplined execution of scheduled work unimpeded by unnecessary organizational reaction to misclassified work. The Transmission and Distribution System Operations departments play a key role in prioritizing Priority 10, 20 and 30 work properly. Priorities are defined as follows:

1. Priority 10: Immediate response required; work item 24/7 until complete or until compensatory actions allow downgrading the priority. These items will have direct and immediate impact to CAIDI and SAIFI. Examples include:

   a Public/employee safety at reasonably determined immediate risk

   b Customer completely or partially without power

   c Customer voltage out of tariff

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d Environmental incidents such as unmitigated leaking PCB equipment

e Equipment at risk of immediate failure based on diagnostics or inspection

f Single contingency situations that exist for critical customers as determined by the OCC

g Out of configuration and exceeding emergency operational load limits

h Exceptional items as determined by the DSO/TSO shift manager

i Breach in security barriers as with a station break-in

j Thermography readings with action level “red” per AM-ED-P033.

k Gas Priority 10

1) Open damage

2) #1 Gas leak

3) No or low pressure

4) Blocked service (i.e. water or powder)

Note: See attachments: WM-ED-14-1 has a hyperlink to more detailed priority examples, WM-ED-P014-2 & 3 are T&S Equipment Priorities and WM-ED-P014-4 is Guidance for Establishing Cable Fault Priorities. These include examples of Priority 10 items.

2. Priority 20: Priority 20 items are divided into 2 completion windows.

1) Items that should complete in 14-days;

2) Items that can complete within 30-days (ComEd Only)

3. 14-days: Work may be scheduled to commence within 24 hours, with allowance for work planning and system conditions. Consider these items have a high probability of affecting CAIDI and SAIFI within 14-days. These items will be scheduled to

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complete within 14-days. Examples included are not all inclusive:

a All 34KV circuits out of configuration, All 12/4KV circuits out of configuration and all 12/4KV mainstem cable faults will be considered high priority. Unless directed by DSO Shift Manager or System Manager allows it to go over 14 days.(OP-ED-P049)

Note: Material issues will be handled on a case by case basis.

b Tagging for slipped lead terminations, Line Clearance and Floating Conductor (including 34 KV Static) tasks, mainline broken cross arms and damaged equipment with public access or environmental impact

c Critical levels of insulating liquids or gasses as defined in Attachment WM-ED-P014-2, and/or with recommendations from Engineering High probability of failure as a result of diagnostic testing or visual inspection

d Exceptional items as determined by the DSO/TSO Shift Manager

e Public/employee safety at clear risk--Consideration given to public accessibility and/or volume of pedestrian/vehicle traffic

f Inoperable ATO with critical customers on single line

g Any inoperable building entry alarm or other security related system that is installed for the purpose of security at ComEd facilities including substations or reporting centers.

4. 30-days: Consider these items have a high probability of affecting CAIDI and SAIFI within 30-days. These items can be completed within 30-days. These examples include and are not all inclusive:

a Fuse component out of configuration and exceeding normal operational load limits

b Protective relay or communication system alarm repair

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c Main stem out of configuration

d Cable faults with more than 20 single phase residential transformers, 10 commercial transformers, or secondary service faults with 1:2

e Inoperable ATO with non-critical customers on single line

f Thermography readings with action level “yellow” for items specifically identified in AM-ED-P033 to be scheduled inside scope freeze.

g Gas Priority 20

1) #2 Gas leak

2) Water intrusion investigation

Note: See attachments: WM-ED-14-1 has a hyperlink to more detailed priority examples, WM-ED-P014-2 & 3 are T&S Equipment Priorities and WM-ED-P014-4 is Guidance for Establishing Cable Fault Priorities. These include examples of Priority 20 items.

5. Priority 30: Work may be scheduled to commence within the T-5 Scope Freeze window. If scheduled within T-5, the work will be executed when authorized in accordance with WM-ED-P017, Scope Change Request. These items are to address existing conditions and are considered to have a high impact on CAIDI and SAIFI. The risk of impacting CAIDI and SAIFI is such that the work cannot be scheduled as a priority 40. To the extent practical, this work should be scheduled in accordance with the work window or FEG. This work should be completed within 8 weeks. Examples include:

a Diagnostic program response for re-test

b Cable faults that are not Priority 10 or 20

c Corrective action to assess the extent of an unknown condition of a specific component in response to diagnostic analysis or a performance assessment corrective action to determine risk to SAIFI/CAIDI, such as:

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1) Load Tap Changer inspection as a result of an oil sample analysis

2) Thermography readings with action level “yellow” for items specifically identified in AM-ED-P033 to be scheduled outside scope freeze.

d Sump Pump defects including broken or damaged pump, pipe system and electrical system or debris preventing discharge, in vaults identified within OP-CE-P062.

Note: See attachments: WM-ED-14-1 has a hyperlink to more detailed priority examples, WM-ED-P014-2 & 3 are T&S Equipment Priorities and WM-ED-P014-4 is Guidance for Establishing Cable Fault Priorities. These include examples of Priority 30 items.

6. Priority 40: Work based on a program timetable or need date not meeting the criteria for a priority 10, 20, or 30 corrective maintenance. Impact on SAIFI/CAIDI would result only if the condition degrades. This work shall be bundled and completed to meet the program timetable and/or need date. Priority 40s shall be scheduled in accordance with the appropriate Work Management processes. Examples include:

a Extent of condition assessments that are time driven in response to corrective action

b Customer requirement:

1) Priority 41 indicates a customer commitment to the day

2) Priority 47 indicates a customer commitment to the week (Intent - Not to move the activity out of the week as scheduled). Examples include:

a) Rubber-up to make safe

b) Customer complaints that need a schedule date – i.e. power quality issues

3) Seasonal Readiness preparation work that is performed to ready the system for Summer and Winter periods in accordance with WM-ED-P026 Seasonal Readiness

Note: Some Seasonal Readiness items may have a higher priority based on the priority

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10–30 criteria, but none should be classified less important than priority 40.

c Condition based work requested as a result of testing or analysis that should be scheduled the next available outage

d Key stakeholder commitments made in accordance with EX-ED-3002, Commitment Management Procedure

e Items on a mainline

f Items not a mainline and are from a reliability program.

g Instrument/meters used in diagnostic evaluation such as CB operations counter, compressor run-hour meter.

h Fully functional components that may be subject to generic problems identified through operating experience, trend analysis, and /or OEM notification. These items identify potential vulnerabilities that may threaten future equipment and/or system integrity.

i Code requirement items with no/low reliability impact

j Bulged, Leaking or Collapsed Joints found in an underground manhole as stated in CM-CE-P319 Inspection Process for Distribution Manholes and Components.

1) If other work is required in the same manhole, the line with the bulged, leaking, or collapsed joint must be de-energized in accordance with Safety Procedure SA-ED-P427. As schedules and workload permit, repair of these joints should be bundled and completed along with the other work in the manhole while the line has been removed from service.

2) Slipped Lead Terminations de-energized for safety when working in the first manhole / joint away from the termination should also be bundled and completed along with the other work as schedules and workload permit.

k Sump Pump defects in vaults which are not identified within OP-CE-P062.

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Gas Priority 40

1) #3 Gas leak

2) Permanent repairs for water blockage

Note: T&S priority 40 correctives shall be completed prior to leaving the FEG window. If work cannot be completed, for any reason, within the FEG window, the decision to forego completion must be approved by the affected T&S Maintenance Manager in consultation with the Transmission System Operations Manager.

Note: See attachments: WM-ED-14-1 has a hyperlink to more detailed priority examples, WM-ED-P014-2 & 3 are T&S Equipment Priorities and WM-ED-P014-4 is *(Continued)* Guidance for Establishing Cable Fault Priorities. These include examples of Priority 40 items.

2.10 Observed Material Condition Job Type (MC): A material condition not meeting the criteria listed for corrective maintenance. An observed material condition is a contingent–degraded condition whose current state would not prudently warrant taking the equipment out of service to remedy by itself; this condition can be used as input for engineering analysis. Impact on SAIFI and CAIDI may result only if the condition degrades. Observed Material Condition (MC) Samples include:

a Minor degradation identified by predictive, periodic, or preventative maintenance activities that warrant attention to maintain the long-term reliability of the equipment but is not expected to result in failure or mis-operation without other external influence such as: high winds, ice, wildlife contact or continued degradation.

b Potential system improvements identified by observation, monitoring, industry operating experience and/or equipment history.

c Items identified not on the mainline and not from a reliability program and may have an impact on reliability only if the material condition further degrades.

d Items identified as a cosmetic nature that do not threaten equipment or system functionality.

e Some Minor equipment deficiencies that does not affect system operation/reliability but requires detailed planning.

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f Non-committed items identified by internal/external audits.

g Information requested by engineering to serve as data supporting engineering analysis or program.

Note: MC is the code used to identify Observed Material Condition in the PassPort Job Type field.

2.11 Other maintenance: Activities not reflecting a material condition deficiency affecting safety, reliability or security and not meeting the criteria above will be completed under the Toolpouch and Minor Maintenance process. WM-ED-P015. Examples are painting, signage, housekeeping, replacing light bulbs, maintaining tools and equipment.

2.12 Seasonal Readiness activities: Work that is performed to prepare EED personnel and equipment for upcoming seasonal (Summer and Winter) extreme periods. This work is identified, coded and managed in accordance with WM-ED-P026 Seasonal Readiness.

2.13 Tool Pouch Maintenance: Minor adjustments or replacements that do not require documentation.

2.14 Work Screening Committee (WSC): This group meets daily (Monday thru Friday) to review, prioritize and ensure proper PassPort coding for all Work Requests and Work Orders originated since the previous meeting. A cross-discipline group consisting of, but not limited to the Work Control Coordinator, Work Week Manager, FIN Team FLS or Planner, Maintenance Engineering, New Business representative, Operations representative (OCC and TSO), Field Operations representative, Work Planning representative and Supply Work Management Analyst. Participants must have the required knowledge base to make appropriate decisions. The Work Control Coordinator has the authority to require attendees as appropriate.

3 ROLES AND RESPONSIBILITIES

3.1 AREA MAINTENANCE ENGINEER (AME)

3.1.1 Provide technical and operational input on screening and prioritization of work.

3.1.2 Periodically review CM backlog for identification of Seasonal Readiness (SUMR or WNTR) preparation work.

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3.1.3 When necessary, perform investigations to support appropriate prioritization of Corrective Maintenance issues.

3.2 DUTY FLS/MANAGER

3.2.1 Shall act as single point of contact for Operations for all emergent Work Requests after normal working hours

3.2.2 Notifies the appropriate EED Work Management of all initiated emergent work activities

3.3 FIELD OPERATIONS REPRESENTATIVE

3.3.1 Participates on the Work Screening Committee as required by the Work Screening Committee

3.4 FIN TEAM SUPERVISOR (or Designee)

3.4.1 Reviews all generated Work Requests to select, prioritize, and approve for FIN team execution.

3.4.2 Participates in the Work Screening meetings as required by the Work Screening Committee

3.4.3 Approves return of work to Work Management if it could not be accomplished under the FIN process

3.4.4 Notifies the appropriate EED Work Management of all initiated emergent work activities.

3.5 ORIGINATOR (Work Request)

3.5.1 Prior to creating a work request, reviews PassPort to ensure an existing WR/WO hasn't already been created in the system.

3.5.2 Submits a Work Request to the appropriate EED Work Screening committee per WM-ED-P013, Work Initiation and WM-ED-2001 Work Coding

3.5.3 Work to be performed in more than one unique work location, the Originator is required to create Work Request for each location. Example: vegetation brings wire down in one location and a fault occurs burning wire down on the way to a substation in another location, this requires two different Work Requests.

3.5.4 Assigns a suggested priority to the Work Request and supplies quality information about the deficiency

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3.5.5 Considers if the work being initiated has a seasonal (Summer or Winter) impact per WM-ED-P026 Seasonal Readiness. Work Requests (and Work Orders) for Seasonal Readiness preparation work is to be coded in Passport with the appropriate Schedule Backlog code (SUMR or WNTR).

3.5.6 Consider if the work being initiated impacts a wetland area per EN-ED-P016 Wetland Management Protection Program. Environmental impact work is to be coded in Passport with the appropriate Schedule Backlog code (ENV).

3.5.7 Consider if the work being initiated may require special arrangements for contractor vacuum excavation equipment. This will be required when Construction & Maintenance is scheduled to perform work.

3.5.8 Notifies the FIN Team or appropriate Duty FLS/Manager of Priority 10 work; for Priority 20 work describe any urgency categorizing the item if required 14-day Priority 20 definition.

3.5.9 Provides detailed information on the equipment or system condition on the Work Request to facilitate priority evaluation by the regional Work Screening Committee

3.5.10 The Originator <u>or designated representative will participate in the Work Screening Committee meeting / call so as</u> to provide additional detail on submitted requests.

3.6 <u>OPERATIONS REPRESENTATIVE</u>

3.6.1 Participate in daily work screening review.

3.6.2 Provide operational information to support proper prioritization of Work Requests.

3.6.3 Provide detailed information to support proper prioritization on requests submitted by their organization

3.7 <u>WORK CONTROL COORDINATOR (WCC)</u>

3.7.1 Chairs the local Work Screening Committee meeting that reviews, prioritizes and ensures proper PassPort coding

3.7.2 ComEd: The Work Control Coordinator in communication with the FIN Supervisor/FIN Planner will schedule Priority 20 work to meet the 30-day completion criteria.

3.7.3 Ensures that at a minimum the following code values are addressed:

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Note: Further Work Coding instructions are provided in WM-ED-2001, Work Coding Procedure.

1. Work Requests:
   - a Priority
   - b Discipline
   - c Job Type
2. Work Orders:
   - a Work Order Type
   - b Priority
   - c Discipline
   - d Job Type

3.7.4 Ensures that the following code values are addressed as appropriate:

1. Work Requests:
   - a Need Date
   - b Description
   - c Primary Equipment Group Type
   - d Primary Equipment I.D.
   - e Location Sequence I.D.
   - f Failure
   - g Schedule Group
   - h Schedule Backlog (SUMR / WNTR Seasonal Readiness)
   - i Schedule Backlog (ENV – Environmental Concern)
2. Work Orders:
   - a Need Date
   - b Primary Equipment Group Type

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c Primary Equipment Group I.D.

d Location Sequence I.D.

e Failure

f Schedule Backlog (SUMR / WNTR Seasonal Readiness)

g Schedule Backlog (ENV – Environmental Concern)

h Schedule Group

i Work Order Group

j Discipline

3.7.5 WCC will interact with the Work Manager, Work Week Managers, Work Planners, Engineering, Scheduler, Operations, and the Work Screening Committee to ensure that the appropriate work is included in the Work Control Schedule.

3.7.6 Ensure that all work entering the schedule through the Work Screening Committee adheres to the WM-ED-P017, Scope Change Request.

3.7.7 Assign action items to investigate or resolve prioritization and scheduling issues.

3.7.8 <u>WORK PLANNING</u>

3.7.9 Reviews department's work scope and determines if Work Screening committee is correct in their resource identification.

3.7.10 Responds to appropriate Work Screening committee to reassign correct work group if necessary

3.7.11 Reviews daily screening items and validates / update schedule group, discipline and EPS Project codes to ensure data integrity.

3.8 <u>WORK SCREENING COMMITTEE (WSC)</u>

3.8.1 Meets daily (Monday thru Friday) to review, prioritize and ensure proper PassPort coding on all Work Requests and Work Orders originated since the previous meeting. Work Requests and Work Orders not accepted by the WSC or requiring further information will be returned to the originator with an explanation or a request for clarification.

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3.8.2 Determines if work can be performed in accordance with WM-ED-15, Tool Pouch and Minor Maintenance

3.8.3 Validates Schedule Backlog coding for Summer (SUMR) or Winter (WNTR) Readiness preparation work in accordance with WM-ED-P026 Seasonal Readiness

3.8.4 Validates out of configuration items and PassPort coding with the Operations System Engineer

3.8.5 Reviews the definition and priority of out of configuration quarterly

3.8.6 Assigns Priority 10 Work Orders to the FIN team in accordance with WM-ED-21, FIN Team

3.8.7 Ensures that all work entering the schedule through the Work Screening Committee adheres to the WM-ED-P017, Scope Change Request and review SCRs as stated in WM-ED-P017

4 PRECAUTIONS AND LIMITATIONS

4.1 PRECAUTIONS

4.1.1 None

4.2 LIMITATIONS

4.2.1 None

5 PROCESS

5.1 Any individual or organization requiring work to be done by EED resources must **GENERATE** a Work Request.

5.2 **IF** a job requires work to be performed in more than one unique work location, this **REQUIRES** a Work Request to be **GENERATED** for each location. Example: vegetation brings wire down in one location and a fault occurs burning wire down on the way to a substation in another location, this requires two different Work Requests.

5.3 Work initiated through the maintenance inspection programs, ComEd **USES** OVERHEAD DISTRIBUTION CIRCUIT INSPECTION CHECKLIST, CM-CE-P321-R0001. PECO **USES** OVERHEAD DISTRIBUTION CIRCUIT INSPECTION AND THERMOGRAPHY PATROL PROCEDURE (Number pending)

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5.4 Originator **ASSIGNS** priority and supplies detailed information about the deficiency in the work request, using the attached Priority Decision tool to assign the priority. (Attachment 1, WM-ED-P014-1).

5.5 Originator **CONSIDERS** if the work being initiated has a seasonal (Summer or Winter) impact per WM-ED-P026 Seasonal Readiness. Work Requests (and Work Orders) for Seasonal Readiness preparation work are to be coded in Passport with the appropriate Schedule Backlog code (SUMR or WNTR).

5.6 The work request is **SUBMITTED** via PassPort for approval to the appropriate EED Work Management organization's PassPort alert group.

5.7 All Priority 10 work that meets the FIN Team criteria must be **GIVEN** directly to the FIN team FLS or to the Duty FLS/Manager during off-shift hours. Priority 20 work can be **COMPLETED** by FIN as resource allocation allows.

Note: FIN Team criteria are job duration of one (1) shift or less.

5.8 Work Control Coordinator (WCC) **CHAIRS** the Work Screening Committee (WSC), which meets daily to **DISPOSITION** all work requests and work orders to the planning group, back to the originator, or to a support organization for additional information.

5.8.1 All Work Requests will be converted (Rolled) to a Work Order within:

1. 5 calendar days for Priority 10-20 (Priority 10, typically are addressed immediately).

2. 14 calendar days for Priority 30 and customer commitments (Priority 41 and 47).

3. 30 calendar days for Priority 40 and Observed Material condition Job Type.

5.8.2 Steps taken for unactioned (approval did not take place) Work Requests:

1. If the originator submits a WR that does not contain sufficient information for a Work Planner to begin the process of preparing a Work Package, the Work Screening Committee should request additional information from the originator and should <u>not</u> approve the WR. If sufficient additional information is not

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returned by the originator, the Work Request shall be canceled after:

a 30 calendar days for Priority 10 and 20

b 45 calendar days for Priority 30 and customer commitments (Priority 41 and 47)

c 60 calendar days for Priority 40 and Observed Material Condition Job Type

5.9 Priorities of submitted work are **EVALUATED** by the WSC on its impact, or potential impact, to safety, system integrity, reliability, operations, security, and regulatory requirements. All work is **EVALUATED** with a focus on identifying a balanced approach to operational, reliability, and financial impact. Priorities are not to be based upon resource or material availability.

5.10 The WSC will **VALIDATE** or **ASSIGN** a priority to all approved work requests.

5.11 The WSC must **VALIDATE** any requests for priority changes and document in the notes field in PassPort.

5.12 The WSC or the Work Control Coordinator must be **NOTIFIED** and **AUTHORIZE** PassPort coding change(s) when the work is reassigned from one work group to another.

5.13 The WSC must **VALIDATE** Schedule Backlog coding for Summer (SUMR) or Winter (WNTR) Readiness preparation work in accordance with WM-ED-P026 Seasonal Readiness.

5.14 The EED Work Control organization **ENSURES** approved work is **SCHEDULED** appropriately.

5.15 If manpower required does **not** match manpower available inside of scope freeze, then affected Work Week Manager(s) will **COLLABORATE** with WSC and WCC to **RESOLVE** the issue and **ENSURE** highest priority work is scheduled accordingly.

5.16 The WCC and/or the Work Week Manager will **ENSURE** all rescheduled work is **COMMUNICATED** to all affected stakeholders. All rescheduled work will be **DOCUMENTED** appropriately.

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6 DOCUMENTATION

6.1 NONE

7 REFERENCES

7.1 Commitments

7.1.1 A commitment was made to the ICC on January 11, 2005 that ComEd will continue to implement the FIN Team process.

7.2 AM-ED-P033, Transmission and Substations Thermography Program Guide

7.3 CM-CE-P321-R0001, OVERHEAD DISTRIBUTION CIRCUIT INSPECTION CHECKLIST

7.4 PECO - OVERHEAD DISTRIBUTION CIRCUIT INSPECTION AND THERMOGRAPHY PATROL PROCEDURE (Number Pending)

7.5 CM-ED-020010, Oil Handling – Testing, Cleaning And Filling

7.6 EX-ED-302, Commitment Management Procedure

7.7 WM-ED-P010, Work Management Process

7.8 WM-ED-P013, Work Initiation

7.9 WM-ED-P017, Scope Change Request

7.10 WM-ED-5001, Workweek Preparation of the Work Control Schedule

7.11 WM-ED-P028 FIN Team

7.12 WM-ED-P022, Tallyboard Process

7.13 WM-ED-P026, Seasonal Readiness

7.14 OP-ED-P049 - Out of Configuration Identification, Repair and Documentation Process

7.15 OP-ED-1077 – Contingency Planning and Risk Mitigation for Venues, High Risk Events and Special Events

7.16 EN-ED-P016 - Wetland Management Protection Program

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8 ATTACHMENTS

8.1 WM-ED-P014-1, Work Management Priority Decision Tool

8.2 WM-ED-P014-2, T&S Equipment Priorities

8.3 WM-ED-P014-3, Guidance for establishing priorities for Cable Faults

8.4 Distribution Work Screening Meeting checklist and T&S Distribution Work Screening Meeting checklist

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9 DEVELOPMENT HISTORY

	Revision 0	**Date 06/01/2004**
Writer	Harry Laski	
Reviewer(s)	Bob Gilbertson, Robert Cassity, Paul Hinderman	
Approver(s)	Robert Fisher	
Reason Written	Work Management Processes	
	Revision 1	**Date 03/11/2005**
Writer	Paul Hinderman (WM Programs)	
Reviewer(s)	Michael McMahan (VP WM) Harry Laski (WM Programs) Harry Sullens (WM Programs) Maureen Byers (WM)	
Approver(s)	Michael McMahan (VP WM) Harry Laski (WM Programs) Maureen Byers (WM)	
Reason Written	Clarify process flow of work screening and work prioritization	
	Revision 2	**Date 04/17/2006**
Writer	Bob Gilbertson & Harry Laski (Work Management)	
Reviewer(s)	Laski, Harry, Freitag, Judy A.; Martino, Vito; Madsen, Robert M.; McDonald, Charles D.; McBride, William P.; Cimaglia, Loretta A; Brann, Michael A.; Kao, Ben (Team assigned for review) and all appropriate FAMs.	
Approver(s)	Harry Laski, Mike McMahan and the Management Model FAMs	
Reason Written	Align the Work Screening and Prioritization with current organizations, processes the Management Model Element, added Priority 41 & 47 for customer commitments and Gas priority examples. This revision's theme was for more clarity for each priority.	
	Revision 3	**Date 07/07/2006**
Writer	Bob Gilbertson & Harry Laski (Work Management)	
Reviewer(s)	Rick Sanner & Harry Laski (Work Management)	
Approver(s)	Harry Laski & Mike McMahan	
Reason Written	This revision does not change the intent or scope of the document; just adds clarity for Seasonal Readiness WM-ED-P026.	
	Revision 4	**Date 12/08/2006**
Writer	Bob Gilbertson & Harry Laski (Work Management)	
Reviewer(s)	Harry Laski (Work Management) and a team selected for development of this revision	
Approver(s)	Harry Laski & Mike McMahan and appropriate FAMs	
Reason Written	Inclusion of Observed Material Condition and field inspection criteria matrix	

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Revision 5	**Date 06/18/2006**
Writer	Bob Gilbertson (Work Management)
Reviewer(s)	Erika Bonelli, Ed Nolan, Doug Dale, John Jamicich, Mark Baranek, Sharon Pluskis, Dale LaGesse
Approver(s)	Peter Singh & Rick Sanner Governance and Oversight
Reason Written	Inclusion requirement to notify the Work Screening Committee or the Work Control Coordinator if discipline changes are made to a Work Order task.
Revision 6	**Date 10/10/2007**
Writer	Keith Muehleisen (Work Management)
Reviewer(s)	Ed Nolan, Doug Dale, Kathy McVey-Ryan, Suzanne Shaw
Approver(s)	Peter Singh & Rick Sanner Governance and Oversight
Reason Written	Timely conversion of Work Requests to Work Orders by the Work Planners based on priority.
Revision 7	**Date 12/17/2007**
Writer	Bob Gilbertson (ComEd Work Control)
Reviewer(s)	PECO Work Managers, ComEd Work Managers: Dan Galovich, Mark Baranek, Erika Bonelli, Sharon Pluskis and all appropriate FAMs
Approver(s)	Peter Singh & Rick Sanner Governance and Oversight WM FAMs
Reason Written	Enhancement of the WR to WO conversion for more clarity and the action taken if the conversion from a WR to WO does not occur in the time required.
Revision 8	**Date 7/14/2009**
Writer	Bob Gilbertson (ComEd Work Control)
Reviewer(s)	PECO Work Managers, ComEd Work Managers: Dan Galovich, Mark Baranek, Erika Bonelli, Sharon Pluskis and all appropriate FAMs
Approver(s)	Dale LaGesse & Joe Garvey, WM UFAMs
Reason Written	Addition of 30-day window for Priority 20 work

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	Revision 9 **Date 6/15/2010**
Writer	Chris Stefanski (Material Condition)
Reviewer(s)	ComEd: Michelle Blaise, Reliability and Capacity Expansion; Miguel Ortega and Brian Graham, T&S Engineering; Bill Fluhler, Material Condition; Lori Cimaglia, T&S Construction; Dan Galovich, C&M; Robert Pinto, DSO PECO – J. Coffman, Distribution Engineering; Drew Davis & Drew Reindel, T&S Engineering; Frank Gabrieli, T&S Construction; Peter Singh, Work Management; Nicole Levine, DSO; Joe Garvey, C&M. EED: Jennifer Sterling, Transmission Strategy and Compliance
Approver(s)	Dale LaGesse & Joe Garvey, WM UFAMs
Reason Written	Reinforce representation by CM request originator or designee at the Work Screening Committee Meeting.
	Revision 10 **Date 7/05/2010**
Writer	Sharon Pluskis, Michelle Jones, Vicki Lynn, and Timothy McGuire
Reviewer(s)	Bill Gannon, Cheryl Maletich, ComEd Work Managers: Dan Galovich,
Approver(s)	Dale LaGesse & Joe Garvey, WM UFAMs
Reason Written	Reference to priority changes for ATO and sump pumps. Additional verbiage in regards to slipped link terminations, Environmental references, and a attendance/check list to assure attendance and critical questions are asked during work screening call meeting
	Revision 11 **Date 09/24/2010**
Writer	Sharon Pluskis
Reviewer(s)	ComEd Work Managers: Dan Galovich,
Approver(s)	Dale LaGesse & Joe Garvey, WM UFAMs
Reason Written	Reference to inoperable building alarms or other security related systems at ComEd facilities

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PRIORITY RESPONSE:

Priority 10: Immediate response required; work item 24/7 until complete or until compensatory actions allow downgrading the priority. These items will have direct and immediate impact to CAIDI and SAIFI

Priority 20: Priority 20 items are divided into 2 completion windows.
1) Items that should complete in 14-days
2) Items that can complete within 30-days. (ComEd Only)

14-days: Work may be scheduled to commence within 24 hours, with allowance for work planning and system conditions. Consider these items have a high probability of affecting CAIDI and SAIFI within 14-days. These items will be scheduled to complete within 14 days.

30-days: Consider these items have a high probability of affecting CAIDI and SAIFI within 30-days. These items can be completed within 30-days.

Priority 30: Work may be scheduled to commence within the T-5 Scope Freeze window. If scheduled within T-5, the work will be executed when authorized in accordance with WM-ED-P017, Scope Change Request. These items are to address existing conditions and are considered to have a high impact on CAIDI and SAIFI. The risk of impacting CAIDI and SAIFI is such that the work cannot be scheduled as a Priority 40. To the extent practical, this work should be scheduled in accordance with the work window or FEG. This work should be completed within 8 weeks.

Priority 40: Work based on a program timetable or need date not meeting the criteria for a priority 10, 20, or 30 corrective maintenance. Impact on SAIFI/CAIDI would result only if the condition degrades. This work shall be bundled and completed to meet the program timetable and/or need date. Priority 40s shall be scheduled in accordance with the appropriate Work Management processes.

Note: T&S priority 40 correctives shall be completed prior to leaving the FEG window. If work cannot be completed, for any reason, within the FEG window, the decision to forego completion must be approved by the affected T&S Maintenance Manager.

Observed Material Condition Job Type (MC): A material condition not meeting the criteria listed for corrective maintenance. An observed material condition is a contingent–degraded condition whose current state would not prudently warrant taking the equipment out of service to remedy by itself; this condition can be used as input for engineering analysis. Impact on SAIFI and CAIDI may result only if the condition degrades

CM-CE-P321-R0001 OVERHEAD DISTRIBUTION CIRCUIT INSPECTION CHECKLIST: provides the priority basis for ComEd Maintenance Inspectors performing circuit inspections in the field.

- OVERHEAD DISTRIBUTION CIRCUIT INSPECTION AND THERMOGRAPHY PATROL PROCEDURE for PECO.

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Priority Decision Tool
(continued)

Ask yourself if...?

Then priority is:

inspection
- Exceptional items as determined by the DSO/TSO Shift Manager
- Public/employee safety at clear risk. Consideration given to public accessibility and/or volume of pedestrian/vehicle traffic
- Public/Employee safety at reasonably determined immediate risk
- Customer completely of partially without power
- Customer voltage out of tariff
- Environmental incident such as: unmitigated leaking PCB equipment
- Equipment at risk of immediate failure and directly impacting the system based on diagnostics or inspection
- Single contingency situation exists for a critical customer as determined b the OCC
- Out of configuration and exceeding emergency operational load limits
- Exceptional items as determined by the OCC/TSO Shift Manager
- Breach to security barriers as with a station break-in
- Gas Priority 10: Open damage, #1 Gas leak, No or low pressure, Blocked service (i.e. water or powder)
- Thermography readings with action level "red" per AM-ED-P033.

Visual Examples of Priority 10 deficiencies can be found at: Priority 10 Examples.pdf

YES → **Priority 10**

NO ↓

14-days examples:
- Tagging for slipped lead terminations, Line Clearance and Floating Conductor (including 34 KV Static) tasks, mainline broken cross arms and damaged equipment with public access or environmental impact
- Critical levels of insulating liquids or gasses as defined in Attachment WM-ED-P014-2, and/or with recommendations from Engineering High probability of failure as a result of diagnostic testing or visual
- Any inoperable building entry alarm or other security related system that is installed for the purpose of security at ComEd facilities including substations or reporting centers

30-days examples:
- Fused components out of configuration and exceeding normal operational load limits
- Protective relay or communication system alarm repair
- Main Stem circuits out of configuration
- Cable faults with more than 20 single phase residential transformers, 10 commercial transformers, or secondary service faults with 1:2
- Non-critical ATO customers on single line
- Critical levels of insulating liquids & gases per attachment WM-ED-P014-2 & or engineering recommendation
- Thermography with action level "yellow" for items specifically identified in AM-ED-P033 to be scheduled inside scope freeze
- Gas Priority 20: #2 Gas leak, Water intrusion investigation
- . Visual Examples of Priority 20 deficiencies can be found at: Priority20 Examples.pdf

YES → **Priority 20**

NO ↓

- Diagnostic program response for re-test
- Cable faults that are not Priority 10 or 20
- Corrective action to assess the extent of an unknown condition of a specific component in response to diagnostic analysis or a performance assessment corrective action to determine risk to SAIFI/CAIDI, such as:
  - Load Tap Changer inspection as a result of an oil sample analysis.
  - Thermography readings with action level "yellow" for items specifically identified in AM-ED-P033 to be scheduled outside scope freeze.

Visual Examples of Priority 30 deficiencies can be found at: Priority30 Examples.pdf

YES → **Priority 30**

NO ↓

Priority 40 is on the next page (2 of 3)

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CSW 0000188

Ask yourself if…?

Priority Decision Tool
(continued)

Then priority is:

NO

•The extent of condition assessments that are time driven in response to corrective action
•Customer requirement:
- o Priority 41 indicates a customer commitment to the day

Priority 47 indicates a customer commitment to the week (Intent - Not to move the activity out of the week as scheduled). Examples include:
- o Rubber-up to make safe
- o Customer complaints that need a schedule date – i.e. power quality issues

•Seasonal Readiness preparation work that is performed to ready the system for Summer and Winter periods in accordance with WM-ED-P026 Seasonal Readiness
Note: Some Seasonal Readiness items may have a higher priority based on the priority 10–30 criteria, but none should be classified less important than priority 40.
•Condition based work requested as a result of testing or analysis that should be scheduled the next available outage
•Key stakeholder commitments made in accordance with EX-ED-3002, Commitment Management Procedure
•Items on a mainline
•Items not a mainline and are from a reliability program.
•Instrument/meters used in diagnostic evaluation such as CB operations counter, compressor run-hour meter.
•Fully functional components that may be subject to generic problems identified through operating experience, trend analysis, and /or OEM notification. These items identify potential vulnerabilities that may threaten future equipment and/or system integrity.
•Code requirement items with no/low reliability impact.
•Bulged, Leaking or Collapsed Joints found in an underground manhole as stated in CM-CE-P319 Inspection Process for Distribution Manholes And Components. - If other work is required in the same manhole, the line with the bulged, leaking, or collapsed joint must be de-energized in accordance with Safety Procedure SA-ED-P427. As schedules and workload permit, repair of these joints should be bundled and completed along with the other work in the manhole while the line has been removed from service
•Gas Priority 40
- o #3 Gas leak
- o Permanent repairs for water blockage
- o Code requirement items with no/low reliability impact.

•Visual Examples of Priority 40 deficiencies can be found at: Priority 40 Examples.pdf

YES → **Priority 40**

NO

•Minor degradation identified by predictive, periodic, or preventative maintenance activities that warrant attention to maintain the long-term reliability of the equipment but is **not** expected to result in failure or mis-operation without other external influence such as: high winds, ice, wildlife contact or continued degradation
•Potential system improvements identified by observation, monitoring, industry operating experience and/or equipment history
•Items identified not on the mainline and not from a reliability program and may have an impact on reliability only if the material condition further degrades.
•Items of a cosmetic nature that do not threaten equipment or system functionality.
•Minor equipment deficiencies that does not affect system operation/reliability but requires detailed planning.
•Non-committed items identified by internal/external audits.
•Items that are either existing or absent that serve as data input to support engineering analysis or program.
•Visual Examples of Priority 40 deficiencies can be found at: Observed Material Condition Examples.pdf

YES → **Observed Material Condition** (Job Type)

NO

•Consider Tool Pouch and Minor Maintenance WM-ED-P015

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T&S Equipment Priorities

Priority	Equipment	Situation	Reference*
10	Battery	Open cell / Open circuited	Engineering
	Battery Charger	Charger failure	Engineering
	Transformers, OCB's, LTC's, Primary Compartments	Re-samples due to elevated gassing. The presence of acetylene in a transformer main tank. These samples are initiated by Engineering.	Engineering
	Gas Breaker	Low gas alarm	Engineering
	Thermography on all equipment and connections	Action level red	AM-ED-P033 pg. 9-10
	Transformer Alarms	Major or minor alarms generated by oil-line monitoring systems	EP-5810-E On-Line Power Transformer Monitoring system
	Fans		
20	Oil Samples on all equipment	Re-samples due to oil quality out of specification	OP-ED-140-802 pg. 9
	Oil Sample on newly installed transformer (1st Sample) Only if transformer is an emergent activity	Baseline oil sample after the unit has been in service for 1 week	Engineering
	Transformer	Oil level at or below low mark	FBE04-23 pg. 3
	Transformer Alarms	Major or minor alarms generated by oil-line monitoring systems	EP-5810-E On-Line Power Transformer Monitoring system
	Nitrogen	Major alarm triggered (all 300 MVA regardless if in alarm or not.	
	Fans	Summer Mode (May1 – Oct 15)	
	Fans	Consider duration and fan count running vs. non running	
	OCB	Oil level at or below low mark	FBE04-23 pg. 3 Use General Rules
	Desiccant	More than 75% color change, if free water or ice visible	
	Gas CB	Low gas level	Engineering
	Thermography on all equipment and connections	Action level yellow	AM-ED-P033 pg. 9-10
	Current and Potential Transformers for Revenue Metering	Associated with revenue metering at generating stations or interconnection tie lines	PJM Manual 01 Section 5
	Bushing	Loss of oil	TB-05-004
		Low oil	TB-05-004
		Overfilled	TB-05-004
		Sight glass unreadable	TB-05-004
		Darkened oil	TB-05-004
		Moisture in glass	TB-05-004
	Building entry alarm or other security related system	Inoperable	
30	Thermography on all equipment and connections	Action level yellow	AM-ED-P033 pg. 9-10
	Nitrogen	Pressure related to ambient temperatures	
	Fans	Winter Mode (Oct 16 – April 30)	
	Desiccant	Less than 25% color change	
	Oil Sample on newly installed transformer (2nd Sample) Only if transformer is an emergent activity	Baseline oil sample after the unit has been in service for 5 weeks	Engineering

*System conditions dictate equipment availability and shall be discussed with DSO/TSO operations and are the primary factor (s) for the priority decisions that will be made.

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T&S Equipment Priorities

AME Reference Guide/Corrective vs. Observed Material Condition

Work Order Description	Priority 40 CM	Priority 40 MC (Observed Material Condition)
Counters - Transformer LTCs	X	
Counters - Non SCADA CBs	X	
Counters – SCADA CBs		X
Housekeeping Issues (Defined in WM-ED-15, Page 8, Minor Maint)		X
Insulator - Cleaning	X	
IR Scans - Any		X
IR Scans - Equipment Bushings	X	
IR Scans - Line of site less than 63º F		X
IR Scans - Line of site greater than 63º F	X	
IR Scans - Non-line of site less than 17º F		X
IR scans - Non-line of site Between 17º F – 36ºF	X	
Lighting - Security	X	
Lighting - Elevated or on structure		X
Oil Stains (With LO failure code removed)		X
Painting - Aesthetics		X
Painting – Metal integrity compromised	X	
Rodent Habitation (Exterminator)	X	
Rodent Intrusion (Reliability Related)	X	
Signage – Human Performance	X	
Signage – Non Human Performance		X
Stenciling (Non Outage)		X
Stenciling (Outage Required)	X	
Switchyard Grading - Wildlife Intrusion	X	
Switchyard Grading - Spread gravel and low spots		X
Wildlife - Aesthetics or excrement		X
Wildlife - Encroachment (Reliability Related)	X	

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Guidance for establishing priorities for Cable Faults

PRIORITY	**Situation and System**		
	Main Stem	**Primary URD (Fused Component)**	**Secondary or Service**
10	▪ Any fault creating outage, emergency, or safety conditions that requires immediate action. (See left)	▪ Any fault creating outage, emergency, or safety conditions that requires immediate action. (See left)	▪ Any fault creating outage, emergency, or safety conditions that requires immediate action. (See left) ▪ Customer with well. ▪ 240V required immediately.
20	▪ All others not previously noted.	▪ Non-critical ATO customer on single line. ▪ More than 20 1-phase residential transformers at risk. ▪ More than 10 commercial transformers at risk.	▪ 240V needed soon. ▪ 1:2 installed. ▪ Bad neutral
30		▪ All others not previously noted.	▪ Plated. ▪ Temporary (made safe). ▪ All others not previously noted.
40	NA	NA	NA

*System conditions dictate equipment availability and shall be discussed with DSO/TSO operations and are the primary factor (s) for the priority decisions that will be made.

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N:\WM Procedures
Three Lincoln revision -Distribution Work Screening Meeting Checklist

N:\WM Procedures
Three Lincoln revision T&S Work Screening Meeting Checklist

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ICC INQUIRY RE: JULY 11, 2011 STORM
OUT 1.01_Attach 5
Tab: CM - Distribution

		2006 Jan	2006 Feb	2006 Mar	2006 Apr	2006 May	2006 Jun	2006 Jul	2006 Aug	2006 Sep	2006 Oct	2006 Nov	2006 Dec
	Priority												
Backlog													
Distribution	Priority 10	44	20	37	43	86	54	116	28	44	24	31	30
Distribution	Priority 20	99	104	119	72	125	110	114	115	106	145	81	59
Distribution	Priority 30	387	3,046	2,984	2,559	2639	2581	2687	2637	2281	2454	2276	2245
Distribution	Priority 40	43,804	51,844	58,895	60,615	65856	65551	66227	70065	71527	72353	73619	74531
Distribution	Priority 50	114,572	119,269	122,106	123,228	124396	123055	124167	117130	116889	117498	117467	117311
Distribution	Priority 60	8,831	14,512	14,410	14,126	13482	13283	13251	12182	2168	13035	13013	12992
	Total	167,737	188,795	198,551	200,643	206584	204634	206562	202157	193015	205509	206487	207168

		2007 Jan	2007 Feb	2007 Mar	2007 Apr	2007 May	2007 Jun	2007 Jul	2007 Aug	2007 Sep	2007 Oct	2007 Nov	2007 Dec
	Priority												
Backlog													
Distribution	Priority 10	16	20	24	26	20	42	63	37	73	21	25	16
Distribution	Priority 20	96	149	107	135	144	143	169	246	167	163	80	153
Distribution	Priority 30	1836	2078	2,335	2602	4080	4471	4827	5601	5951	6249	6025	6656
Distribution	Priority 40	76676	110921	98,224	101341	101313	104247	106260	109447	112017	113384	115184	114459
Distribution	Priority 50	116198	85770	7,191	7112	5356	5091	5016	4917	1095	993	978	1010
Distribution	Priority 60	12336	11183	2,206	2197	183	113	106	79	48	12	13	13
	Total	207158	210121	110087	113413	111096	114107	116441	120327	119351	120822	122305	122307

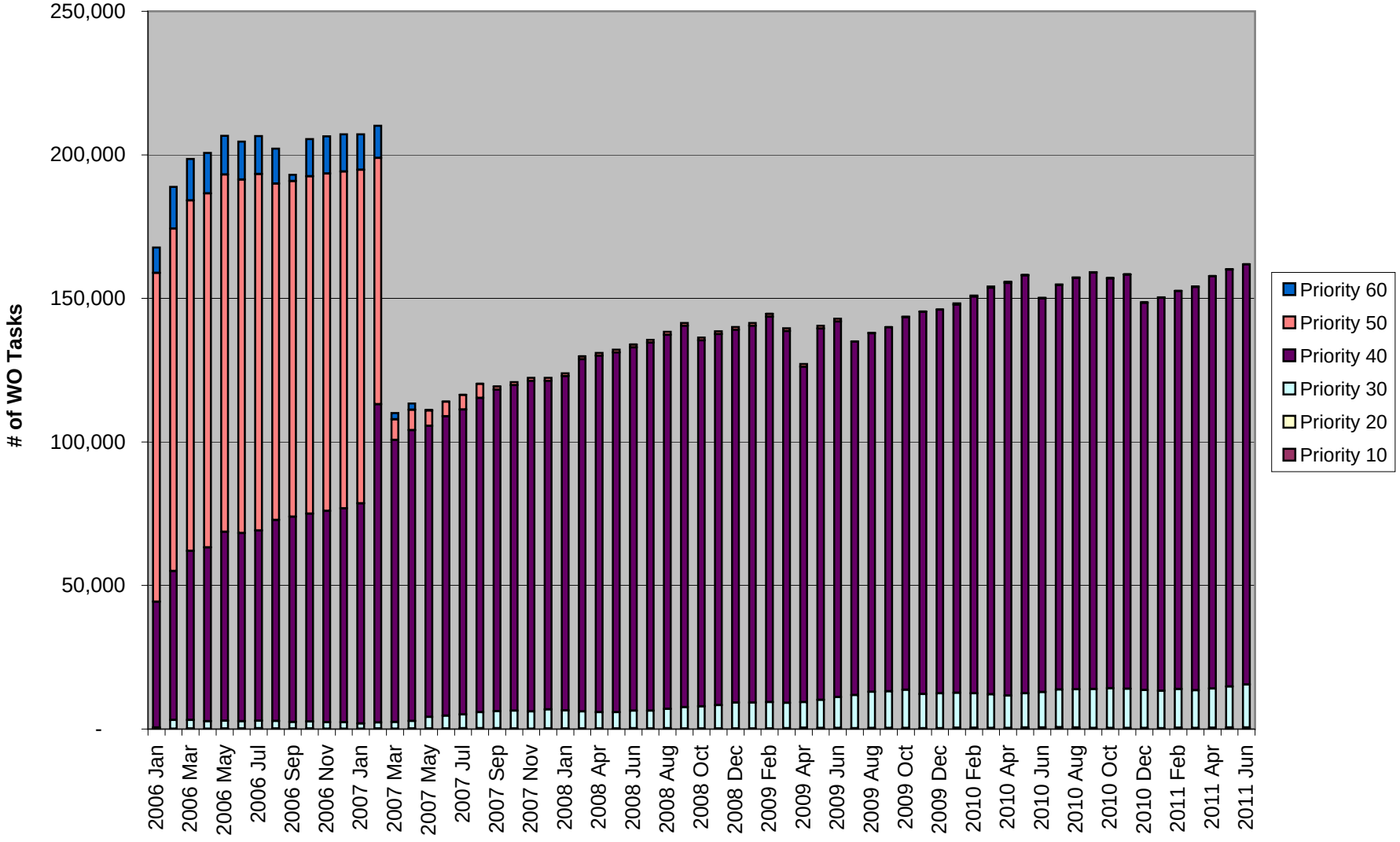
		2008 Jan	2008 Mar	2008 Apr	2008 May	2008 Jun	2008 Jul	2008 Aug	2008 Sep	2008 Oct	2008 Nov	2008 Dec
	Priority											
Backlog												
Distribution	Priority 10	16	46	24	33	51	32	44	41	19	28	17
Distribution	Priority 20	146	114	145	135	210	143	184	145	155	160	188
Distribution	Priority 30	6329	5986	5659	5673	6107	6241	6768	7473	7677	8180	8959
Distribution	Priority 40	116445	122699	124205	125321	126573	128174	130358	132767	127506	129178	129879
Distribution	Priority 50	978	973	970	995	995	993	993	989	983	978	980
Distribution	Priority 60	14	13	13	13	13	19	14	14	13	13	13
	Total	123928	129831	131016	132170	133949	135602	138361	141429	136353	138537	140036

		2009 Jan	2009 Feb	2009 Mar	2009 Apr	2009 May	2009 Jun	2009 Jul	2009 Aug	2009 Sep	2009 Oct	2009 Nov	2009 Dec
	Priority												
Backlog													
Distribution	Priority 10	21	32	37	28	43	35	32	25	37	68	19	25
Distribution	Priority 20	138	186	256	403	343	326	216	306	326	283	259	254
Distribution	Priority 30	9051	9119	8781	8987	9783	10798	11607	12654	12759	13319	11933	12126
Distribution	Priority 40	131261	134305	129565	116766	129345	130796	123052	124883	126790	129776	133065	133628
Distribution	Priority 50	979	980	976	983	982	985	152	141	138	138	136	136
Distribution	Priority 60	12	12	12	12	12	13	8	7	7	11	15	14
	Total	141462	144634	139627	127179	140508	142953	135067	138016	140057	143595	145427	146183

		2010 Jan	2010 Feb	2010 Mar	2010 Apr	2010 May	2010 Jun	2010 Jul	2010 Aug	2010 Sep	2010 Oct	2010 Nov	2010 Dec
	Priority												
Backlog													
Distribution	Priority 10	21	28	16	32	85	40	86	70	26	43	36	100
Distribution	Priority 20	420	444	316	348	422	472	520	443	297	342	300	210
Distribution	Priority 30	12157	11966	11750	11295	11945	12406	13170	13360	13589	13785	13673	13293
Distribution	Priority 40	135237	138175	141633	143701	145550	137081	140897	143244	145027	142760	144211	134871
Distribution	Priority 50	387	386	386	375	154	157	157	155	154	159	156	153
Distribution	Priority 60	12	12	12	12	12	12	12	12	13	14	14	13
	Total	148234	151011	154113	155763	158168	150168	154842	157284	159106	157103	158390	148640

		2011 Jan	2011 Feb	2011 Mar	2011 Apr	2011 May	2011 Jun
	Priority						
Backlog							
Distribution	Priority 10	18	24	26	58	69	48
Distribution	Priority 20	262	382	302	369	414	491
Distribution	Priority 30	13044	13493	13159	13638	14316	14930
Distribution	Priority 40	136880	138623	140484	143641	145206	146345
Distribution	Priority 50	152	149	134	137	138	137
Distribution	Priority 60	13	13	11	11	10	10
	Total	150369	152684	154116	157854	160153	161961

Distribution CM Backlog



		2006 Jan	2006 Feb	2006 Mar	2006 Apr	2006 May	2006 Jun	2006 Jul	2006 Aug	2006 Sep	2006 Oct	2006 Nov	2006 Dec
	Priority												
Backlog													
Transmission	Priority 10	0	1	1	0	2	1	1	3	1	2	2	0
Transmission	Priority 20	0	1	3	5	1	0	2	5	8	7	0	0
Transmission	Priority 30	9	24	31	25	14	27	26	11	35	28	24	20
Transmission	Priority 40	1527	3333	3150	3033	2876	2824	2684	2584	2553	2278	2587	2558
Transmission	Priority 50	6110	4775	4549	4278	4194	3840	3622	3405	3070	2993	2915	2906
Transmission	Priority 60	8139	7593	7579	7570	7565	7534	7516	7506	7497	7440	7434	7434
	Total	15,785	15,727	15,313	14,911	14,652	14,226	13,851	13,514	13,164	12,748	12,962	12,918

		2007 Jan	2007 Feb	2007 Mar	2007 Apr	2007 May	2007 Jun	2007 Jul	2007 Aug	2007 Sep	2007 Oct	2007 Nov	2007 Dec
	Priority												
Backlog													
Transmission	Priority 10	1	1	1	0	0	0	2	2				
Transmission	Priority 20	7	12	3	4	3	15	4	6	21	11	1	1
Transmission	Priority 30	13	9	14	24	46	57	54	93	82	102	48	24
Transmission	Priority 40	2487	2992	3,430	3318	3116	3127	3062	3,032	2884	2828	2739	2629
Transmission	Priority 50	2765	2718	124	108	105	104	106	69	16	15	7	7
Transmission	Priority 60	7421	7409	72	71	71	67	67	33	1	1		
	Total	12,694	13,141	3,644	3,525	3,341	3,370	3,295	3,235	3,004	2,957	2,795	2,661

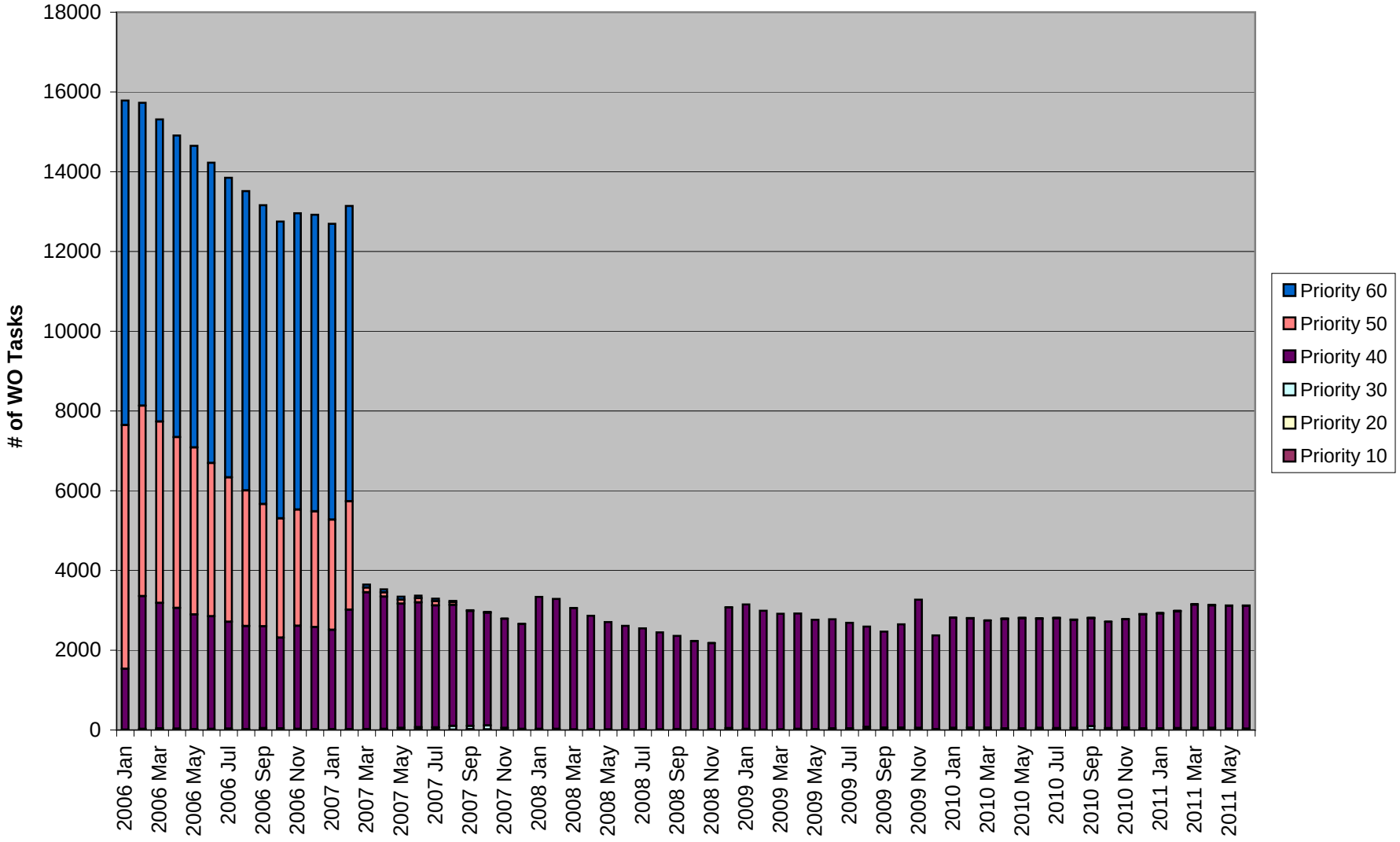
		2008 Jan	2008 Feb	2008 Mar	2008 Apr	2008 May	2008 Jun	2008 Jul	2008 Aug	2008 Sep	2008 Oct	2008 Nov	2008 Dec
	Priority												
Backlog													
Transmission	Priority 10	1	1			3	2		1	1			1
Transmission	Priority 20	10	4	1	8	7	6	11		4	1	2	4
Transmission	Priority 30	15	20	11	9	4	3	5	11	17	14	14	42
Transmission	Priority 40	3309	3259	3044	2848	2692	2602	2534	2438	2338	2215	2162	3028
Transmission	Priority 50	4	1	1	2	1	2	1	1	1	3	3	2
Transmission	Priority 60												
	Total	3,339	3,285	3,057	2,867	2,707	2,615	2,551	2,451	2,361	2,233	2,181	3,077

		2009 Jan	2009 Feb	2009 Mar	2009 Apr	2009 May	2009 Jun	2009 Jul	2009 Aug	2009 Sep	2009 Oct	2009 Nov	2009 Dec
	Priority												
Backlog													
Transmission	Priority 10				1				1				
Transmission	Priority 20			6	7	5	7	7	18	6	2	5	
Transmission	Priority 30	27	9	9	17	17	28	28	54	48	52	43	17
Transmission	Priority 40	3122	2984	2898	2894	2740	2741	2651	2523	2412	2595	3219	2353
Transmission	Priority 50	2											
Transmission	Priority 60												
	Total	3,151	2,993	2,913	2,919	2,762	2,776	2,686	2,596	2,466	2,649	3,267	2,370

		2010 Jan	2010 Feb	2010 Mar	2010 Apr	2010 May	2010 Jun	2010 Jul	2010 Aug	2010 Sep	2010 Oct	2010 Nov	2010 Dec
	Priority												
Backlog													
Transmission	Priority 10		2		2	1	7	5	1		2		1
Transmission	Priority 20	4	4	4	1	7	9	12	4	7	2	11	1
Transmission	Priority 30	46	49	50	33	33	33	30	45	88	40	43	36
Transmission	Priority 40	2766	2742	2688	2748	2760	2742	2755	2707	2708	2667	2719	2858
Transmission	Priority 50	7	8	9	9	10	10	10	10	10	10	11	13
Transmission	Priority 60												
	Total	2,823	2,805	2,751	2,793	2,811	2,801	2,812	2,767	2,813	2,721	2,784	2,909

		2011 Jan	2011 Feb	2011 Mar	2011 Apr	2011 May	2011 Jun
	Priority						
Backlog							
Transmission	Priority 10			1		2	2
Transmission	Priority 20	2	5	6	8	5	1
Transmission	Priority 30	34	40	44	43	25	26
Transmission	Priority 40	2884	2929	3088	3073	3079	3081
Transmission	Priority 50	13	13	13	13	14	13
Transmission	Priority 60	1	1	1	1	1	1
	Total	2,934	2,988	3,153	3,138	3,126	3,124

Transmission CM Backlog



		2006 Jan	2006 Feb	2006 Mar	2006 Apr	2006 May	2006 Jun	2006 Jul	2006 Aug	2006 Sep	2006 Oct	2006 Nov	2006 Dec
	Priority												
Backlog													
Substation	Priority 10	7	2	0	3	4	0	5	3	1	1	2	0
Substation	Priority 20	47	63	58	55	42	41	55	60	45	91	73	35
Substation	Priority 30	65	55	77	76	98	53	88	79	83	66	116	56
Substation	Priority 40	5494	7897	7849	8089	8614	8700	8881	8952	8725	9024	9874	10400
Substation	Priority 50	5343	4544	4083	4170	4004	4199	4321	4294	4192	4141	3989	3900
Substation	Priority 60	1248	2272	2200	2329	2557	2765	2719	2562	2544	2473	2284	2200
	Total	12,204	14,833	14,267	14,722	15,319	15,758	16,069	15,950	15,590	15,796	16,338	16,591

		2007 Jan	2007 Feb	2007 Mar	2007 Apr	2007 May	2007 Jun	2007 Jul	2007 Aug	2007 Sep	2007 Oct	2007 Nov	2007 Dec
	Priority												
Backlog													
Substation	Priority 10	6	6	4	2	4	3	5		4	4	7	3
Substation	Priority 20	53	33	37	49	51	27	35	50	40	28	35	24
Substation	Priority 30	88	92	133	150	149	132	148	166	158	230	229	217
Substation	Priority 40	10663	11037	13,030	13162	12965	13060	13136	13,176	12,977	13,077	13,118	12,255
Substation	Priority 50	3898	3689	437	343	302	280	255	159	152	45	115	17
Substation	Priority 60	2149	2106	226	215	194	165	130	107	103	20	3	1
	Total	16,857	16,963	13,867	13,921	13,665	13,667	13,709	13,658	13,434	13,404	13,507	12,517

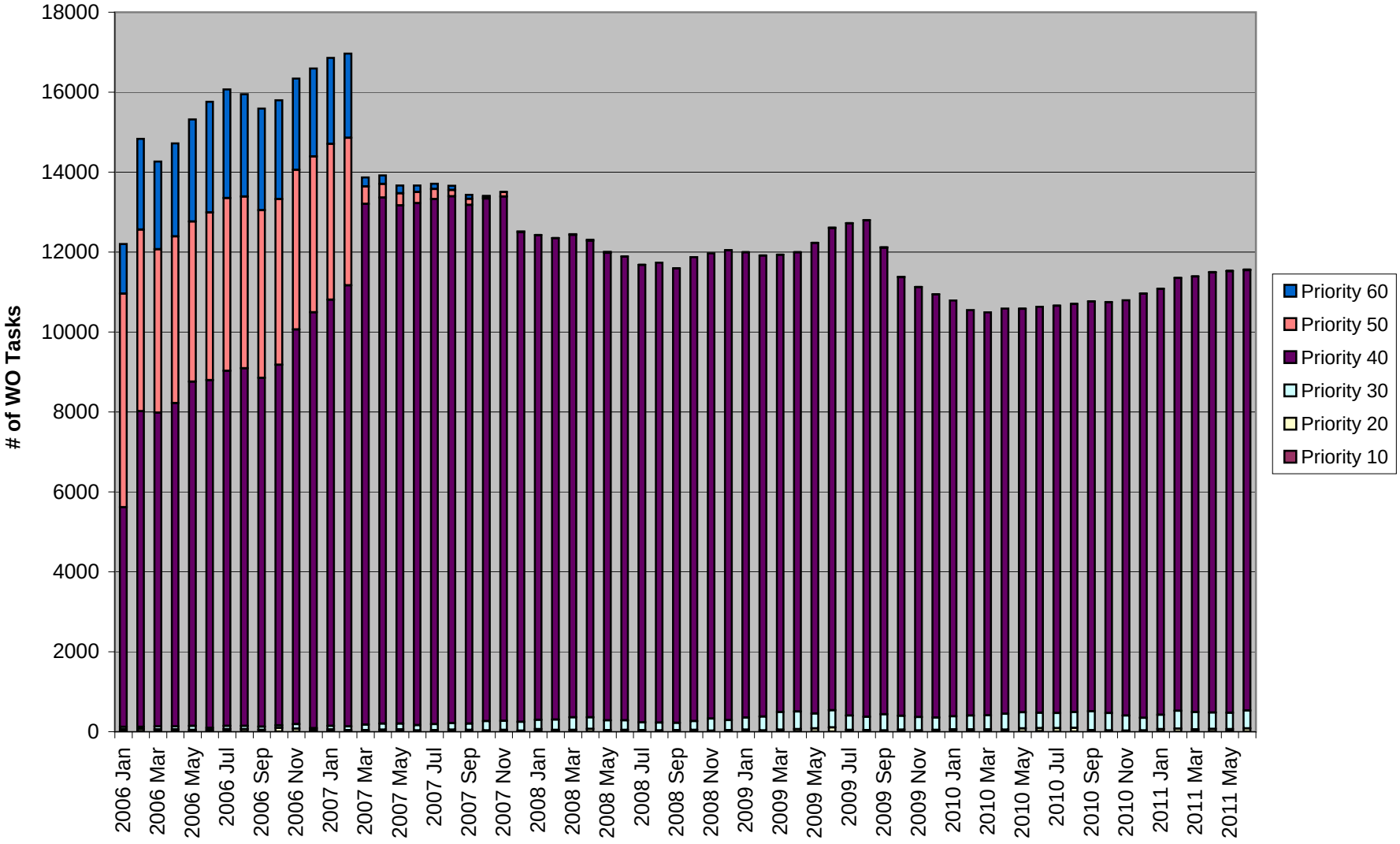
		2008 Jan	2008 Feb	2008 Mar	2008 Apr	2008 May	2008 Jun	2008 Jul	2008 Aug	2008 Sep	2008 Oct	2008 Nov	2008 Dec
	Priority												
Backlog													
Substation	Priority 10	9	4		1	1	2	1	3	3	2		4
Substation	Priority 20	57	43	43	69	38	41	39	28	33	43	27	32
Substation	Priority 30	228	255	317	292	244	243	191	198	184	223	299	252
Substation	Priority 40	12129	12044	12072	11925	11701	11600	11446	11504	11373	11604	11643	11755
Substation	Priority 50	8	8	14	21	22	5	8	2	2			4
Substation	Priority 60	1	1	2	1	1	1	2	2	3	2	1	1
	Total	12,432	12,355	12,448	12,309	12,007	11,892	11,687	11,737	11,598	11,874	11,970	12,048

		2009 Jan	2009 Feb	2009 Mar	2009 Apr	2009 May	2009 Jun	2009 Jul	2009 Aug	2009 Sep	2009 Oct	2009 Nov	2009 Dec
	Priority												
Backlog													
Substation	Priority 10	1	2	1	1	3	2	1			3	2	3
Substation	Priority 20	50	32	49	62	77	104	44	39	29	46	31	41
Substation	Priority 30	303	343	443	443	377	432	361	334	409	346	330	308
Substation	Priority 40	11640	11532	11439	11488	11771	12060	12311	12420	11670	10975	10758	10587
Substation	Priority 50	7	7	7	6	6	11	10	10	11	11	9	9
Substation	Priority 60	1	1	1	1	1	2						1
	Total	12,002	11,917	11,940	12,001	12,235	12,611	12,727	12,803	12,119	11,381	11,130	10,949

		2010 Jan	2010 Feb	2010 Mar	2010 Apr	2010 May	2010 Jun	2010 Jul	2010 Aug	2010 Sep	2010 Oct	2010 Nov	2010 Dec
	Priority												
Backlog													
Substation	Priority 10		5	3	3	3	14	3	1	1	2		
Substation	Priority 20	55	50	51	49	76	75	86	96	38	28	27	29
Substation	Priority 30	328	348	357	393	406	383	378	394	473	437	378	316
Substation	Priority 40	10403	10144	10078	10139	10097	10157	10190	10208	10250	10277	10387	10615
Substation	Priority 50	2	2	2	2	2	2	3	3	2	3	3	3
Substation	Priority 60	1	1	2	3	3	3	3	3	3	3	3	3
	Total	10,789	10,550	10,493	10,589	10,587	10,634	10,663	10,705	10,767	10,750	10,798	10,966

		2011 Jan	2011 Feb	2011 Mar	2011 Apr	2011 May	2011 Jun
	Priority						
Backlog							
Substation	Priority 10	3	1	4	4	5	3
Substation	Priority 20	60	76	55	63	56	78
Substation	Priority 30	360	445	431	412	410	448
Substation	Priority 40	10655	10827	10900	11009	11048	11019
Substation	Priority 50	3	4	4	9	10	11
Substation	Priority 60	3	3	3	3	3	3
	Total	11,084	11,356	11,397	11,500	11,532	11,562

Substation CM Backlog



ICC INQUIRY RE: JULY 11, 2011
OUT 1.01_Attach 6
Tab: PM - Distribution

	2006 Jan	2006 Feb	2006 Mar	2006 Apr	2006 May	2006 Jun	2006 Jul	2006 Aug	2006 Sep	2006 Oct	2006 Nov	2006 Dec
Newly Generated	9610	1430	2705	2657	3661	1551	4113	2954	1256	4937	10181	11016
Completed	5201	5528	6852	4067	4760	5102	3755	3262	4015	4080	4043	4128
Overdue	797	816	868	689	520	440	934	809	90	83	17	9
Cancelled	622	28	37	50	66	72	39	38	21	377	43	2166

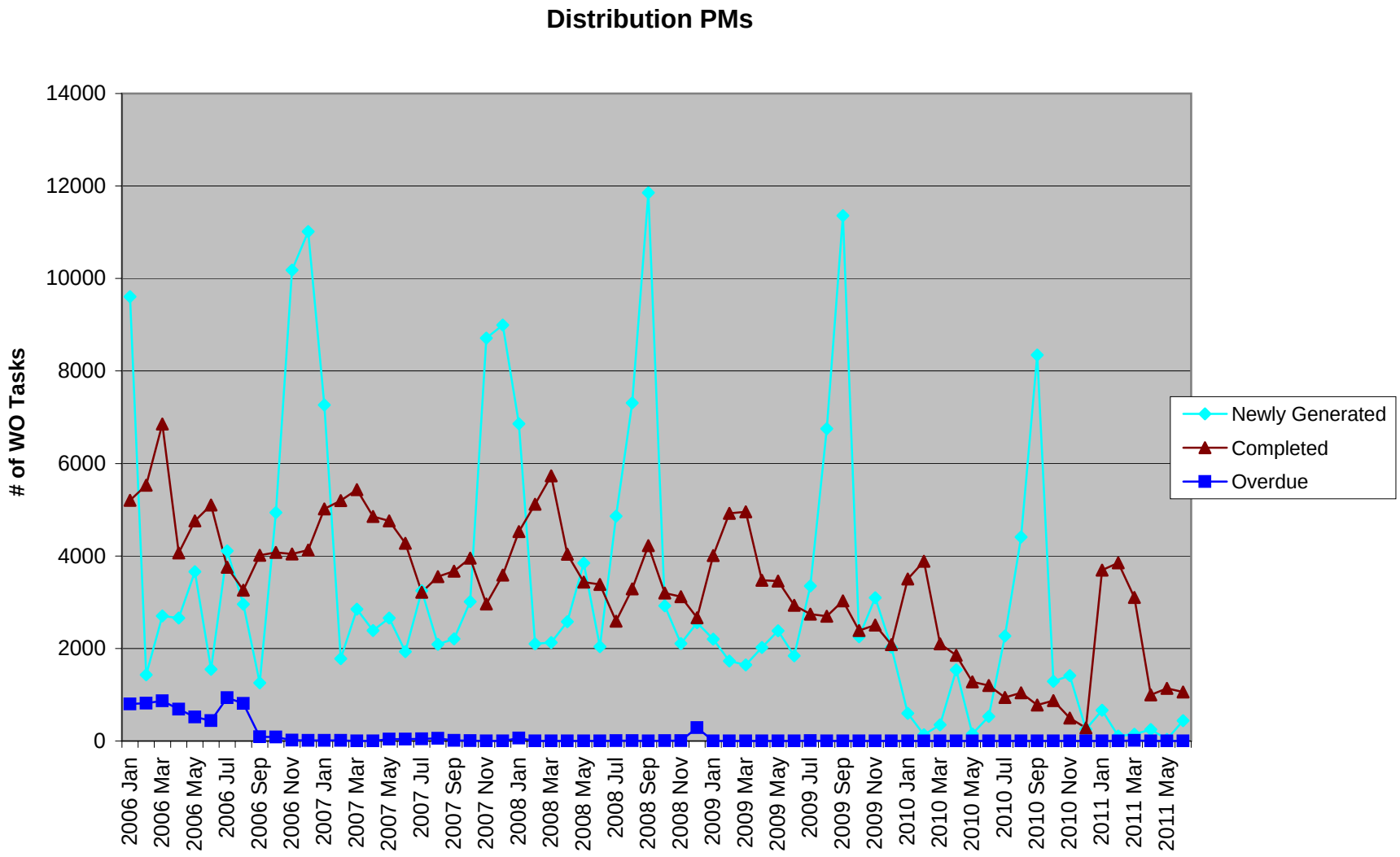
	2007 Jan	2007 Feb	2007 Mar	2007 Apr	2007 May	2007 Jun	2007 Jul	2007 Aug	2007 Sep	2007 Oct	2007 Nov	2007 Dec
Newly Generated	7266	1778	2848	2386	2658	1932	3250	2090	2209	3014	8713	8991
Completed	5020	5196	5433	4853	4759	4274	3218	3555	3671	3952	2965	3590
Overdue	9	10	1	0	40	37	45	59	11	4	2	1
Cancelled	99	11	132	1	22	14	13	3	6	4	9	41

	2008 Jan	2008 Feb	2008 Mar	2008 Apr	2008 May	2008 Jun	2008 Jul	2008 Aug	2008 Sep	2008 Oct	2008 Nov	2008 Dec
Newly Generated	6862	2103	2131	2578	3845	2040	4861	7312	11853	2922	2105	2556
Completed	4529	5118	5731	4037	3437	3385	2588	3291	4223	3196	3119	2663
Overdue	63	2	0	1	1	1	7	8	0	3	6	287
Cancelled	7	2	17	11	1676	11	7	17	10	494	0	15

	2009 Jan	2009 Feb	2009 Mar	2009 Apr	2009 May	2009 Jun	2009 Jul	2009 Aug	2009 Sep	2009 Oct	2009 Nov	2009 Dec
Newly Generated	2200	1729	1646	2020	2383	1843	3349	6754	11358	2251	3099	2029
Completed	4008	4921	4953	3477	3459	2932	2740	2698	3031	2390	2505	2084
Overdue	2	0	0	0	0	0	4	0	0	0	1	0
Cancelled	480	13	11	4	5	3	4	19	1	30	8	208

	2010 Jan	2010 Feb	2010 Mar	2010 Apr	2010 May	2010 Jun	2010 Jul	2010 Aug	2010 Sep	2010 Oct	2010 Nov	2010 Dec
Newly Generated	596	134	349	1539	151	527	2270	4408	8347	1290	1414	254
Completed	3502	3885	2098	1852	1277	1199	941	1042	778	874	494	283
Overdue	0	0	0	0	0	0	0	0	0	0	0	0
Cancelled	21	3	8	0	2	1	3	0	6	21	20	16

	2011 Jan	2011 Feb	2011 Mar	2011 Apr	2011 May	2011 Jun
Newly Generated	664	107	146	246	34	440
Completed	3694	3851	3104	998	1135	1060
Overdue	0	1	13	2	0	0
Cancelled	24	10	4	3	40	1


Distribution PMs
# of WO Tasks
14000
12000
10000
8000
6000
4000
2000
0
2006 Jan
2006 Mar
2006 May
2006 Jul
2006 Sep
2006 Nov
2007 Jan
2007 Mar
2007 May
2007 Jul
2007 Sep
2007 Nov
2008 Jan
2008 Mar
2008 May
2008 Jul
2008 Sep
2008 Nov
2009 Jan
2009 Mar
2009 May
2009 Jul
2009 Sep
2009 Nov
2010 Jan
2010 Mar
2010 May
2010 Jul
2010 Sep
2010 Nov
2011 Jan
2011 Mar
2011 May
Newly Generated
Completed
Overdue

	2006 Jan	2006 Feb	2006 Mar	2006 Apr	2006 May	2006 Jun	2006 Jul	2006 Aug	2006 Sep	2006 Oct	2006 Nov	2006 Dec
Newly Generated	376	261	164	266	643	503	739	718	389	376	298	297
Completed	260	253	440	230	473	356	275	340	409	478	386	302
Overdue	19	29	26	24	2	0	0	9	6	8	2	0
Cancelled	100		7	6	11	1	1		43		6	2

	2007 Jan	2007 Feb	2007 Mar	2007 Apr	2007 May	2007 Jun	2007 Jul	2007 Aug	2007 Sep	2007 Oct	2007 Nov	2007 Dec
Newly Generated	589	408	349	463	429	293	448	406	426	887	486	817
Completed	372	302	624	514	550	419	528	414	475	624	416	399
Overdue	0	0	2	5	0	1	0	0	6	3	0	0
Cancelled	65	168				7	7	8	45	33	6	3

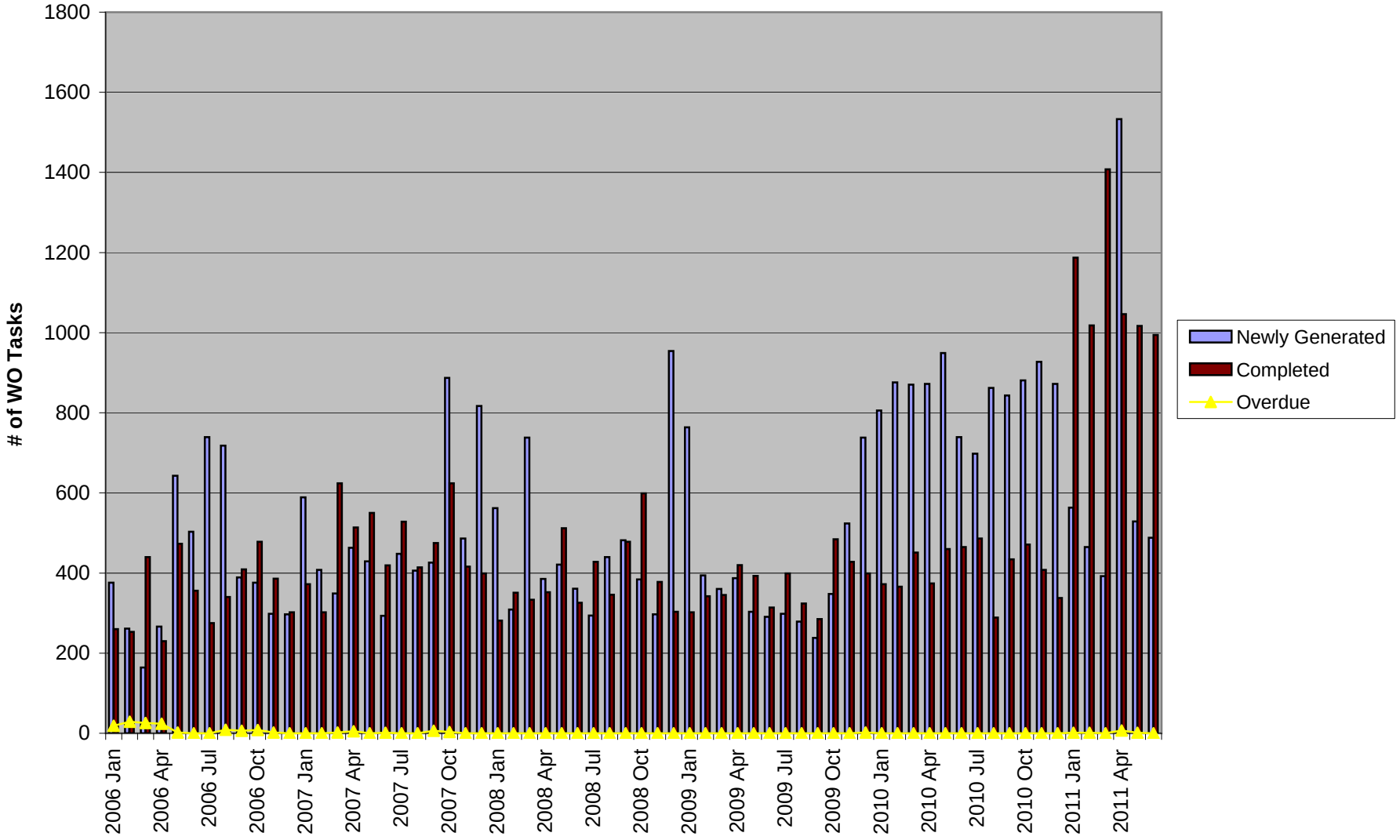
	2008 Jan	2008 Feb	2008 Mar	2008 Apr	2008 May	2008 Jun	2008 Jul	2008 Aug	2008 Sep	2008 Oct	2008 Nov	2008 Dec
Newly Generated	562	309	738	385	421	361	294	440	482	384	297	954
Completed	281	351	333	352	512	326	428	346	478	599	378	303
Overdue	0	0	0	0	0	0	0	0	0	0	0	0
Cancelled	8	1	11	1	1	1	6	1	15	2	2	1

	2009 Jan	2009 Feb	2009 Mar	2009 Apr	2009 May	2009 Jun	2009 Jul	2009 Aug	2009 Sep	2009 Oct	2009 Nov	2009 Dec
Newly Generated	764	394	360	387	303	291	298	279	238	348	524	738
Completed	302	342	345	420	393	314	399	324	285	484	428	399
Overdue	0	0	0	0	0	0	0	0	0	0	0	2
Cancelled	50	0	12	0	1	11	0	0	4	2	41	2

	2010 Jan	2010 Feb	2010 Mar	2010 Apr	2010 May	2010 Jun	2010 Jul	2010 Aug	2010 Sep	2010 Oct	2010 Nov	2010 Dec
Newly Generated	806	876	870	872	949	739	698	862	843	881	927	872
Completed	372	366	451	374	460	465	486	289	434	471	408	338
Overdue	0	0	0	0	0	0	0	0	0	0	0	0
Cancelled	151	16	27	8	7	11	6	11	8	14	229	9

	2011 Jan	2011 Feb	2011 Mar	2011 Apr	2011 May	2011 Jun
Newly Generated	563	465	392	1533	529	488
Completed	1187	1018	1408	1046	1017	994
Overdue	1	1	0	7	1	0
Cancelled	25	5	0	4	8	3

Transmission PMs



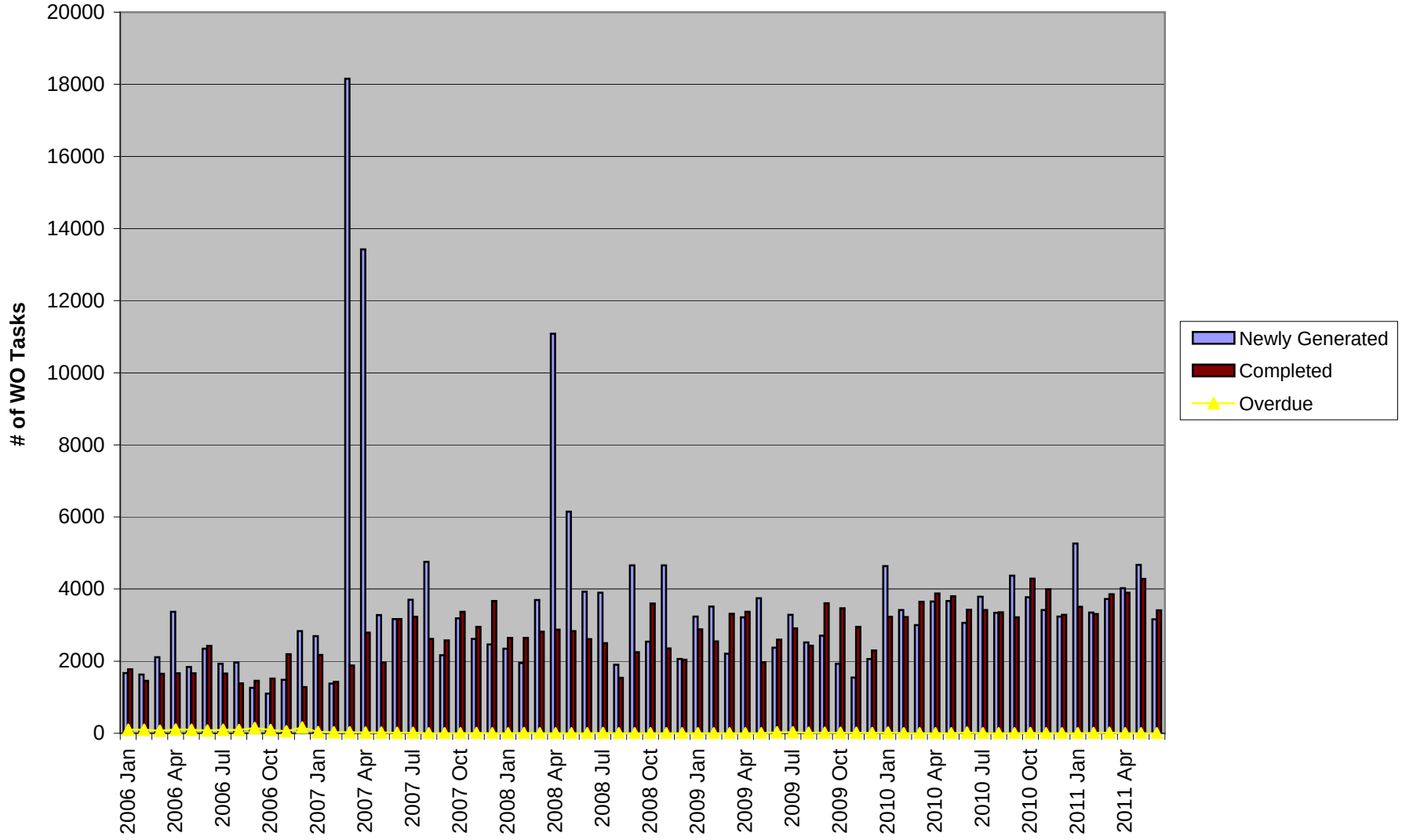
	2006 Jan	2006 Feb	2006 Mar	2006 Apr	2006 May	2006 Jun	2006 Jul	2006 Aug	2006 Sep	2006 Oct	2006 Nov	2006 Dec
Newly Generated	1671	1630	2110	3366	1836	2343	1926	1964	1262	1097	1483	2832
Completed	1774	1456	1649	1667	1664	2420	1655	1382	1455	1519	2190	1280
Overdue	99	96	69	107	94	79	100	93	147	92	55	160
Cancelled	534	59	191	139	144	181	58	101	30	971	135	103

	2007 Jan	2007 Feb	2007 Mar	2007 Apr	2007 May	2007 Jun	2007 Jul	2007 Aug	2007 Sep	2007 Oct	2007 Nov	2007 Dec
Newly Generated	2691	1376	18157	13422	3276	3164	3703	4755	2162	3185	2619	2462
Completed	2172	1425	1879	2790	1965	3165	3230	2617	2577	3372	2952	3666
Overdue	37	26	29	21	19	16	16	0	1	1	5	0
Cancelled	141	38	1166	110	63	3658	60	207	174	307	292	195

	2008 Jan	2008 Feb	2008 Mar	2008 Apr	2008 May	2008 Jun	2008 Jul	2008 Aug	2008 Sep	2008 Oct	2008 Nov	2008 Dec
Newly Generated	2343	1952	3699	11082	6147	3923	3900	1903	4659	2540	4657	2062
Completed	2647	2642	2816	2877	2835	2613	2502	1537	2248	3597	2352	2042
Overdue	0	5	1	3	0	0	8	0	0	0	0	0
Cancelled	3151	443	3289	12094	4536	716	1603	79	2289	2022	3355	578

	2009 Jan	2009 Feb	2009 Mar	2009 Apr	2009 May	2009 Jun	2009 Jul	2009 Aug	2009 Sep	2009 Oct	2009 Nov	2009 Dec
Newly Generated	3237	3514	2210	3214	3743	2371	3289	2517	2710	1928	1543	2064
Completed	2884	2549	3317	3367	1972	2595	2913	2428	3606	3467	2954	2294
Overdue	0	0	0	0	0	26	27	13	16	16	15	8
Cancelled	73	1206	83	836	2125	24	384	59	836	13	10	74

	2010 Jan	2010 Feb	2010 Mar	2010 Apr	2010 May	2010 Jun	2010 Jul	2010 Aug	2010 Sep	2010 Oct	2010 Nov	2010 Dec
Newly Generated	4634	3415	3003	3654	3669	3065	3785	3338	4374	3772	3421	3234
Completed	3231	3222	3645	3875	3803	3428	3417	3356	3217	4291	3996	3284
Overdue	19	3	0	3	0	24	0	0	0	4	0	2
Cancelled	185	44	50	22	8	15	27	17	16	33	14	19

	2011 Jan	2011 Feb	2011 Mar	2011 Apr	2011 May	2011 Jun
Newly Generated	5261	3351	3726	4021	4669	3158
Completed	3510	3310	3859	3896	4284	3408
Overdue	2	5	13	0	1	1
Cancelled	29	92	10	47	16	30

Substation PMs