

# **AEP-Ohio's Line Inspection Programs**

***Moving Beyond Compliance***

***EEI Fall 2008 TD&M Conference***

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***Robert Ivinskas, AEP-Ohio***

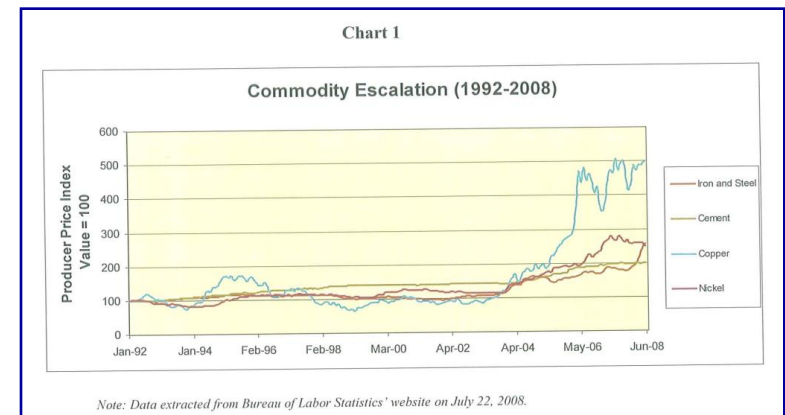
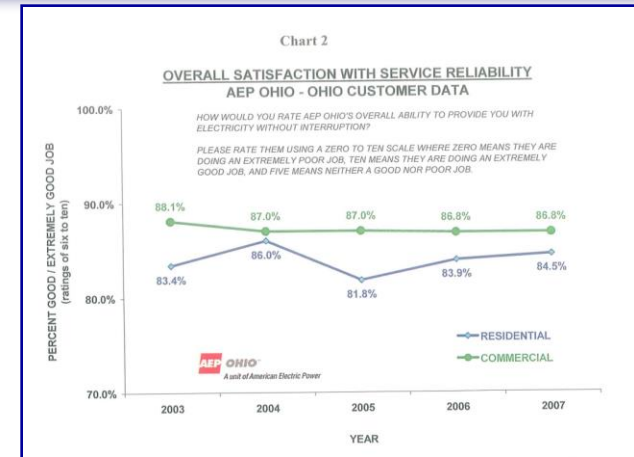


- ***The Issue at a Glance***
- ***The Ohio Electric Service and Safety Standards***
- ***AEP's proposed enhanced program***
- ***Observations and Key Questions***

# ***The Issue at a Glance***

- ***Today**, AEP-Ohio has in place a set of reliability programs that meets the Electric Service and Safety Standards (ESSS) of the Public Utility Commission of Ohio (PUCO)*
  - *Including a 5-year overhead line general inspection for distribution circuits*
  
- ***But** three factors mitigate against those programs' continuing to meet customers' expectations for power quality and reliability:*
  1. *Customer expectations are increasing (digital economy, etc.)*
  2. *Aging equipment is showing signs of increased failure*
  3. *Material costs are rising rapidly, challenging existing funding levels*
  
- ***Therefore**, AEP-Ohio has proposed to PUCO an enhanced program to go beyond compliance with the ESSS and to meet customer expectations*

- **Bob:** consider putting a slide here with graphs of how customer expectations are increasing (or Boyd's stats about increasingly digital homes, etc), equipment failures are increasing, and material costs are increasing (Boyd's graph)
- **But we could just as well skip it if people already agree with these points**



*The Ohio ESSS include chapter 27 which prescribes the inspection, maintenance, repair, and replacement programs for T&D facilities*

- ***Problem Statement***
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# Ohio ESS - Administration

- 4901:1-10-27\* Inspection, maintenance, repair, and replacement of transmission and distribution facilities (circuits and equipment).
- (A) This rule applies to the inspection, maintenance, repair, and replacement of utility transmission and distribution system facilities (circuits and equipment). *The rebuttable presumption that an electric utility is providing adequate service* pursuant to paragraph (F) of rule 4901:1-10-2 of the Administrative Code, *does not apply to this rule.* (emphasis added)
- (B) Distribution system *performance assessment*. For electric distribution circuits, the electric utility shall comply with rule 4901:1-10-11 of the Administrative Code. (Section C of the rule then goes on to elaborate a process of performance assessment for Transmission, subject to the “*review and acceptance by the director* of the consumer services department”)
- Paragraphs (D) and (E) – see next slides
- (F) Records. Each electric utility shall maintain *records sufficient to demonstrate compliance* with its transmission and distribution facilities inspection, maintenance, repair, and replacement programs as required by this rule.
- History: Effective 9-18-00; 1-1-04... Review dates: 9/30/02, 7/30/03, 11/30/07

\* Ohio Administrative Code 4901:1-10-27 (emphasis added) <http://codes.ohio.gov/oac/4901%3A1-10-27>

*The Ohio ESSS include chapter 27 which prescribes the inspection, maintenance, repair, and replacement programs for T&D facilities*

# Ohio ESS - Inspections

(D) Transmission and distribution facilities *inspections*.\*

- Unless otherwise determined by the commission, each electric utility shall, at a minimum, inspect its electric transmission and distribution facilities (circuits and equipment) to maintain safe and reliable service on the *following scheduled basis*:
  - (1) **Distribution** – at least *one-fifth* of all distribution circuits and equipment shall be inspected annually. All distribution circuits and equipment shall be inspected at least *once every five years*.
  - (2) **Transmission** – *all* transmission circuits and equipment shall be inspected at least once *every year*.
  - (3) **Substations** – *all* transmission and distribution substations and equipment shall be inspected at least once *each month*.
  - (4) Each electric utility shall file a *report on its compliance* with the inspection schedule in paragraphs (D)(1) to (D)(3) of this rule no later than ninety days after the end of each calendar year ending December thirty-first.

\* Ohio Administrative Code 4901:1-10-27 (*emphasis added*) <http://codes.ohio.gov/oac/4901%3A1-10-27>

*The ESSS prescribes the inspection intervals and requires reporting on compliance with the schedule*

# Ohio ESS - Programs

(E) Transmission and distribution inspection, maintenance, repair, and replacement *programs*.\*

- (1) Each electric utility shall establish and maintain *written programs, procedures and schedules* for the inspection, maintenance, repair, and replacement of its transmission and distribution circuits and equipment. These programs shall establish preventative requirements for the electric utility to maintain safe and reliable service. Programs shall include, but are not limited to, the following facilities:

- (a) Poles and towers;
- (b) Conductors;
- (c) Pad-mounted transformers;
- (d) Line reclosers;
- (e) Line capacitors;
- (f) Right-of-way vegetation control; and
- (g) Substations.

\* Ohio Administrative Code 4901:1-10-27 (*emphasis added*) <http://codes.ohio.gov/oac/4901%3A1-10-27>

*The ESSS requires documentation of programs, procedures, and schedules for assets by category, e.g., poles, conductor, transformers, capacitors, etc.*



# Ohio ESS – Review by staff

(E) Transmission and distribution inspection, maintenance, repair, and replacement programs.  
(continued)

- (2) Inspection, maintenance, repair, and replacement program *review*.
  - (a) Each electric utility operating during the year 2000 shall submit a plan for the inspection, maintenance, repair, and replacement of circuits and equipment as stated in paragraph (E)(1) of this rule *for review and acceptance by the director of the consumer services department* or the director's designee no later than January 1, 2001. The electric utility's submittal shall include *supporting justification and rationale* based upon historical practices and procedures used by the electric utility over the past five years. Any new electric utility commencing operation ...
  - (b) If the electric utility and the director of the consumer services department or the director's designee cannot agree on the details and contents of the utility's plan, the electric utility shall file, within one hundred twenty days after the submission of its plan, with the commission for a *hearing*, file a written report and documentation supporting its plan.
  - (c) *Revisions* to a previously accepted plan shall be *submitted for review* and acceptance as outlined in paragraph (E)(2)(a) of this rule, no later than *ninety days prior* to the beginning of the next succeeding calendar year.

\* Ohio Administrative Code 4901:1-10-27 (*emphasis added*) <http://codes.ohio.gov/oac/4901%3A1-10-27>

*The Director of the Consumer Services Department has an extensive staff dedicated to monitoring and ensuring compliance with the rules*

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# ***Our Proposed Enhanced Program***

AEP-Ohio's proposed *enhanced* program for power quality and reliability improvement has *four* key elements:

- Enhanced *overhead line inspection* approach, *targeting specific asset* modernization/replacements and reliability enhancements
- Enhanced *vegetation* management (right-of-way clearing)
- Targeted *distribution automation*
- Targeted *URD cable* replacement and rejuvenation

Our focus for this presentation

***AEP-Ohio's proposed enhanced program has four key elements, of which one is an enhanced approach to overhead line inspection***

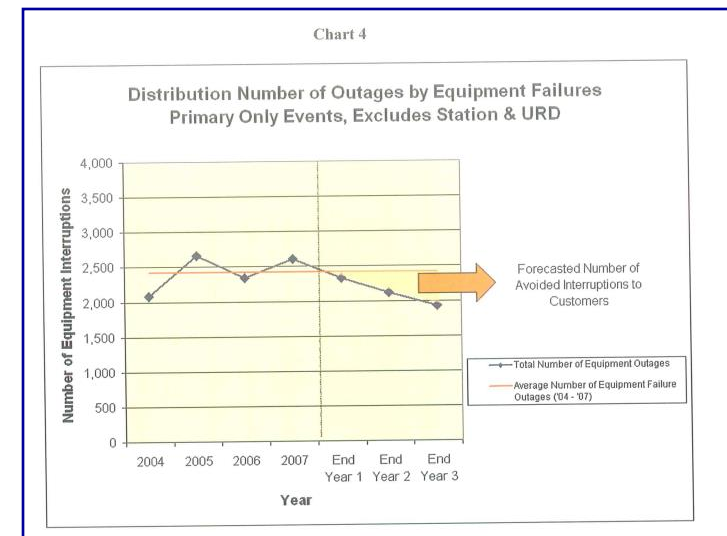
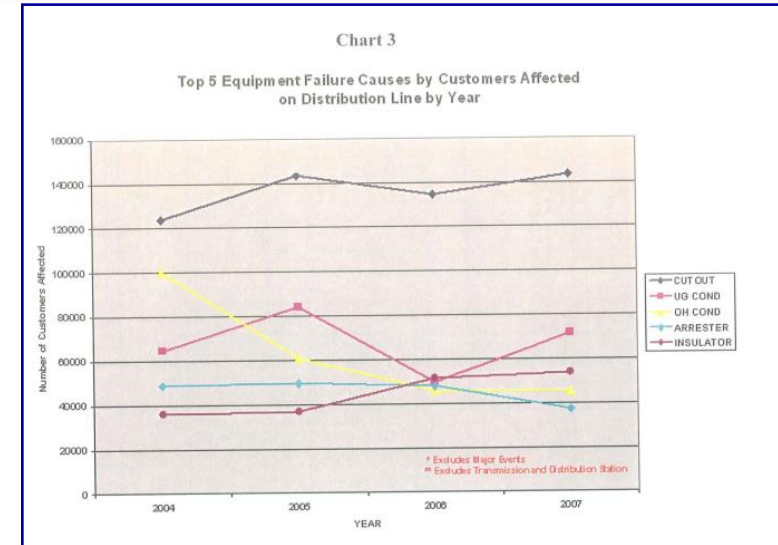
# What's the difference?

The enhanced overhead line inspection and repair/replace program differs from the current compliant program in a number of ways:

Current program	Enhanced program
<i>General</i> inspection, which could include driving by	<i>Comprehensive</i> inspection, to include walking and inspection via climbing or bucket
<i>Visual</i> inspection	Visual <i>plus</i> selective <i>infrared</i> or <i>EMI</i>
<i>General</i> , without regard to specific assets	<i>Targeted</i> to address <i>specific assets</i>
20% per year (5-year)	Unchanged
Pole inspection and treatment or reinforce/replace (10-year)	Unchanged

***AEP-Ohio's proposed enhanced program has four key elements, of which one is an enhanced approach to overhead line inspection***

- *The targeted assets: cutouts, arresters, reclosers, 34.5, and FDIs*
- *The expected results in terms of reduction of outages*
- *Work unit counts by year*
- *Incremental costs (percent only maybe?, and not by CSP & OP, because EEI audience doesn't care)*
- *Three-year horizon – for now*



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# ***What have we learned?***

## **Observations**

- Without a change in the funding of these programs, AEP-Ohio would be hard pressed to meet rising customer expectations for power quality and reliability in the face of aging infrastructure and rising material costs
- The PUCO's ESSS provide a good starting point for line inspection, and AEP-Ohio is now compliant with the rules, but the situation requires a creative new approach that goes beyond compliance
- With the proper funding, AEP-Ohio can meet the triple challenge and work with the PUCO to provide the level of service required

## **Key Questions**

- Will regulators recognize the need for an enhanced program and its attendant rate recovery?
- Would this program have been deemed too expensive before the recent rise in energy costs? If so, how do oil prices imply less reliability?
- Are we stuck in a quandary, or is there a better way out, a win-win for all concerned?

*AEP-Ohio has proposed an enhanced program to creatively meet the challenges of a new era in providing electric T&D service*

■ ***For more information, contact:***

Robert J. (Bob) Ivinskas  
Engineering Support Manager

AEP Ohio  
850 Tech Center Drive  
Gahanna, OH 43230

Phone: 614-883-6800  
E-mail: [rjivinskas@aep.com](mailto:rjivinskas@aep.com)

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