Continuing Evolution of MV Underground Cable Construction & Usage

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Background

• Several surveys looking at Utility Specifications and Practices were performed by Joe Dudas with support from AEIC & NRECA (1993 – 2003).

• These surveys detailed industry trends in MV cable usage; it included:
  – Cable insulation materials
  – Conductor size and type
  – System voltage and lengths
  – Installation practices, etc.

• Results have been very useful to utilities and manufacturers in understanding current trends.

• Last survey was conducted in 2003

We will be conducting a survey for 2014 to bring the information up to date
2003 Survey Results

Summary of Answers From 31 Utilities

- Cable replacement percentages varied from <1% to 42%
- Cables replaced were 15Kv -175 and 220 mil and 25Kv - 260mil, bare neutral and no jacket
- Ages and insulation materials replaced were:
  - ☑️1960's to early 1980’s HMWPE cables
  - ☑️1960’s to mid 1980’s XLPE cables
  - ☑️1980’s EPR cables
  - ☑️Old PILC back to early 1900’s

Information from Previous Studies – Specifying Insulation

Why are we interested now?

• Recent survey (2003) results are probably no longer accurate
  – Utilities have merged and developed new / combined standards
  – Replacement / maintenance strategies have evolved
• IOU’s and REC’s asked common questions – analyzed separately
• Utility practices, which this study informs, help guide needed changes / updates to industry standards (AEIC, ICEA, etc.)
Approach

1. Determine the issues that are of greatest interest to folks
2. Develop surveys for wide distribution - Utility & Manufacturer
   • Practices
   • Influencing Factors
   • Lengths
3. Engage all interested
4. Solicit specifications
5. Compile specification & survey data and analyze
6. If possible combine / contrast IOU, COOP, PUD etc data
7. Dissemination - presentation to ICC etc

BENEFITS
Provides the 2014-2015 benchmark on utility cable and accessory practice
Updates current practices / trends in cable replacement and rejuvenation
Helps collate experiences / new issues with aging cable system population
How big is the Opportunity / Challenge?

<table>
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<th>Cable Length [1,000,000 ft]</th>
<th>WTRXLPE [%]</th>
<th>EPR [%]</th>
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<tr>
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</table>
Expand the Information Available

Utility Entity Approach

Used by Joe Dudas
Possible Expansions of Information

- Duct vs Direct Buried
- Factors Influencing Choice

Do other factors influence choice today?
In Conclusion

- We are revisiting this work
- Building on the foundations of Joe Dudas, Chris Fletcher, John Rodgers, Bill Cochran and others
- Continue the approach of anonymity used by Joe Dudas
- Expand into areas of interest today
  - Accessories
  - Refurbishment

- If you would like to participate
  - Leave your card
  - Talk to me at this ICC Meeting