PJM Philosophy Document

- This document supplements M07
  - M07 contains minimum design standards and requirements for protection systems within PJM

- This document provides recommendations, background and philosophy on relay protection that is not available in M07

- M07 was developed from this document in 2012
Latest Revision

• Identical text present in M07 was removed from latest Philosophy revision.
  – Only providing the supplemental information (background, philosophy, recommendations)

• Requirements are listed in M07
Section 1 - Introduction

Previously

• ...this document presents the minimum design guidelines and recommended design philosophy for the protection systems associated with bulk power facilities within PJM

This Revision

• This document provides recommendations, background and philosophy on relay protection that is not available in M07
Section 2 - Philosophy

This section presents:

• Philosophy on design objectives and criteria
• Equipment and recording considerations

• Section not in M07
• Minor changes
Refer to M07

These Sections had text identical to M07
• Sections 4 & 5 - Unit Power & Aux Transformer & Leads
• Section 6 – Start-up Station Service Trans & Leads
• Section 11 – Shunt Capacitor Protection
• Section 13 – Phase Angle Regulator Protection
• Section 17 – Special Protection Schemes
• Appendix I (E in M07) - Accepted PJM Bulk Power 3 Terminal Line Applications

Text in these Sections removed and the following statement added:

Refer to M07. No supplementary information available
Sections nearly Identical

These Sections had text nearly identical to M07

• Section 9 – Bus Protection
• Section 16 – Underfrequency Load Shed
• Appendix A – Use of Dual Trip Coils

Only a sentence or two of additional text
Sections only in Philosophy Doc

• Appendix B – Disturbance Monitoring Equip
• Appendix D - Tapping of Bulk Power Transmission Circuits for Distribution Loads
• Appendix F - Calculation of Relay Transient Loading Limits
• Appendix G - Voltage Transformers
• Appendix J – Triggered Current Limiters

"must" & "required“ changed where applicable
Sections with Supplemental Info

• Section 3 - Generator Protection
• Section 7 - Line Protection
• Section 8 - Substation Transformer Protection
• Section 10 – Shunt Reactor Protection
• Section 12 – Breaker Failure Protection
• Section 14 – Transmission Line Reclosing
• Section 15 – Supervising and Alarming
• Appendix C (B in M07) - Direct Transfer Trip Channels
• Appendix E (C in M07) – Dual Pilot Channel
• Appendix H (D in M07) – Small Generator Protection
• Appendix I (E in M07) - Accepted PJM Bulk Power 3 Terminal Line Applications
Questions