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<th>6/17/2016</th>
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<td>Impacted Manual #(s)/Manual Title(s):</td>
<td>Manual 7 – Protection Standards</td>
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<td>Committee Approval Path - What committee(s) have already seen these changes?</td>
<td>PJM Relay Subcommittee</td>
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<td>MRC voting date:</td>
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| Impacted Manual sections: | • Section 7: Line Protection  
|                        | • Section 8: Substation Transformer Protection  
|                        | • Appendix B: Direct Transfer Trip  
|                        | • Appendix C: Dual Pilot Channels  
|                        | • Removed Appendix F: Triggered Current Limiters |
| Reason for change:     | Biennial Review |
| Summary of the changes: |            |
Section 7: Line Protection

- Reworded to distinguish the two independent protection schemes as “Primary” and “Backup”
- Specified PJM Planning Department to review and approve out-of-step relay and single-phase tripping applications
  - Previously just PJM was listed as the approver
  - out-of-step and single-phase tripping is typically not utilized in the PJM
  - For PRC-026-1, PJM may determine out-of-step relay blocking requirements

Section 8: Substation Transformer Protection

- Revised to better account for practices of all member TOs.
- Dedicated high-side interrupting device is required for a non-bulk-power transformers connected to a bulk-power line.
- Posed problems for retrofits and upgrades at existing facilities
  - Substation footprint does not always permit adequate clearance to add a circuit breaker or circuit switcher

Revisions mainly to Transformers Tapped to a Line

Section 8.2 Tapped Transformer Revisions

- Distinguished transformers with low-side rating ≤60kV, as more prone to animal contact, and require fault interrupting device (FID)
- For FIDs that are not fully rated, alternate means of tripping is required for faults that exceed the device rating (i.e., DTT, or Remote Line Clearing)
- Device failure scheme required when the transformer serves anything other than a radial distribution load

Appendix B: Direct Transfer Trip

- Added requirements for Power Line Carrier based DTT
  - channel integrity continuously monitored

Appendix C: Dual Pilot Channels

- Added Power Line Carrier section
  - DCB and DCUB examples with Phase-to-Ground and Phase-to-Phase Coupling and physical phase arrangements
- Fiber Optic Systems rearranged
  - Order of Dual Pilot examples revised to avoid ambiguity

Appendix F: Triggered Current Limiters

- Section was removed from M07
- Utilized for the mitigation of increased fault current on busses
- Not many in the PJM footprint