ENMAX DA Update

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About ENMAX

• 1,054 square km
• 280 feeders
• 25kV and 13.2kV Distribution
• ~ 400,000 customers
• Peak demand: >1,600 MW
DA Program Overview

- Automation of worst-performing feeders continues
- Will have a total of 91 out of 280 feeders automated in 2009 (33% of system)
- Conversion from Utilinet to SpeedNet radios in progress, will have 19 of 25 substations converted in 2009
- 11 million customer minutes of interruption (CMI) averted to date
- 159,000 customer interruptions (CI) averted
PowerMax Initiative

PowerMax will:

• Improve asset utilization by increasing planned distribution feeder loading.
• Improve field staff efficiency and safety by reducing requirement for manual switching and hot-stick work.
• Improve reliability of distribution circuits through automatic restoration.
PowerMax: Improved Asset Utilization

Conventional Feeder
Feeder Loading Level: 50%

Substation
PowerMax: Improved Asset Utilization

Conventional Feeder
Feeder Loading Level: 50%

Substation
PowerMax: Improved Asset Utilization

Optimized Feeder
Feeder Loading Level: 67%

Substation 1
PowerMax: Improved Asset Utilization

Optimized Feeder
Feeder Loading Level: 67%

Substation 1
PowerMax: Improved Asset Utilization

Optimized Feeder
Feeder Loading Level: 75%

Substation 1
PowerMax: Improved Asset Utilization

Optimized Feeder
Feeder Loading Level: 75%

Substation 1

IEEE PES DAWG Meeting July 27, 2009
Asset Utilization: Existing Circuits

Survey of existing circuits:

- Circuits with >50% loading surveyed
- Sixteen existing feeders and one new feeder identified as candidates for double-tie automated restoration
Asset Utilization: Existing Circuits

Substation 23

Substation 37

240A

261A

386A
Asset Utilization: Existing Circuits

Substation 23

240A

Auto

Substation 37

261A

386A

Auto

Auto
Asset Utilization: Existing Circuits
Asset Utilization: Existing Circuits

Substation 31: 250A

Substation 22: 270A, 420A
Asset Utilization: Existing Circuits
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Substation 37

Substation 31

500A
500A
0A
193A

380A

Auto
Auto
Auto
Auto
Asset Utilization: New Circuits

- Will perform feasibility study on implementing increased feeder loading in new service areas
PowerMax: Improve Efficiency and Safety

• New pad-mount switch standard:
  • Dead-front
  • Minimize/eliminate hot-stick work
  • Fault Interrupting, (no fuses)
  • Visual open, visual ground
  • Minimize/eliminate maintenance
  • Automated, compatible with Intelliteam II
1.8 GHz Licenced Radio Frequencies
1.8 GHz Licenced Radio Frequencies

- Developmental license for Calgary area obtained
- Plan to install one trial master site
  - Back-haul DA data to gain experience with technology
  - Possible future application for AMI
Questions?