Portland General Electric

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Current Planning Drivers and Requirements

- Load Growth
 - Top-Down Approach Via Corporate Forecasts
 - 10-year View
- Reliability
 - Use Basic Metrics (SAIDI, SAIFI, CAIDI, MAIFI)
- Resiliency
 - Transmission and Distribution Resiliency Initiative (T&DRI)
- Safety



Leading Indicators Used for Future Project Development

- Heavily Loaded Substation Equipment or Feeders
 - Exercise Performed Semi-Annually
 - Configuration based on Normal System State
- Large Load Additions
 - Residential Developments
- Lumped Load Additions
 - New data center or manufacturing facility
- Calculated Risk
 - Likelihood x Consequence



Other Factors Used for Future Project Development

- Environmental Impacts
- Urban Growth Boundary Expansion
- Zoning Changes



Tools Used in the Planning Process

- Powerflow Modeling Software
- GIS / Spatial Information
- AMI Meter Information
- Provides Usage Data

- Asset Models
- Data Historian
- Asset Database(s)
- Reliability Data and Reports



The Project Development Process

Distribution System Planning Practices





Distribution Related Capital Spending

- Integrated Grid
 - Energy Storage (HB 2193)
 - Field Area Network
- T&D Resiliency Initiative
 - Arc Flash Mitigation
 - Cable Replacement Program
 - Tree Wire Program
 - Conversion Projects
 - Distribution Automation and TRIP Savers®
 - Substation Modernization and Related Upgrades

- Distribution System Base Budget
 - Substation and Distribution Line Upgrades
 - Communications Upgrades
 - FITNES
 - Road Widenings
- Customer
 - Load Additions
 - Generation Interconnection.



Timelines: Planning Process and Project Implementation

Distribution System Planning Practices

Planning Preparation: 3-6 Months

- Study Work
 - Initial Site Visits
 - Initial Scoping
 - Initial Estimates
 - Valuation and Documentation

Pre-Engineering:

9-12 Months

- Initial Funding Acquisition
- Surveying
- Environmental Evaluation
- Property Easements
- Project Scoping
- Refined Estimates
- Updated Valuation /Documentation

Project Design:

9-12 Months

- Full Project Funding Approval
- Substation Design(s)
- T&D Design(s)
- Communications Design(s)
- Order and Delivery of Long Lead Materials

Construction:

12-24 Months

- Line Construction
- Substation Construction
- Civil Construction
- Electrical Construction
- Equipment Testing
- Energization and Checkout



Questions

