

# Distribution System Planning Practices

## Portland General Electric

Frederick Harris

Manager, Distribution Planning

February 12, 2020



# 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

## Distribution System Planning Practices

# 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



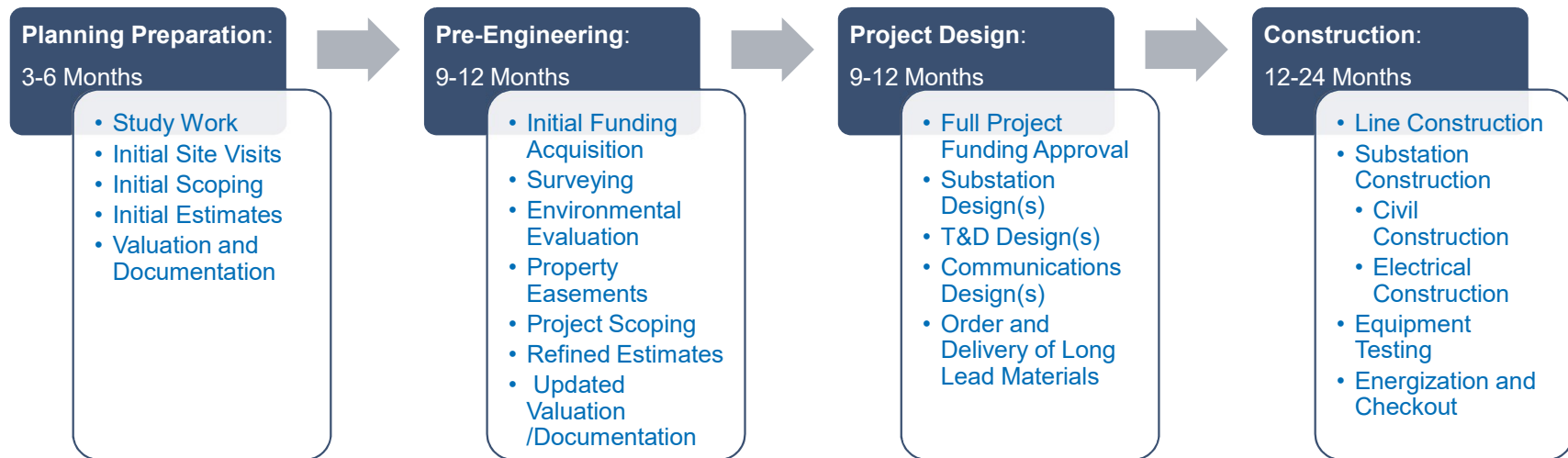
## Distribution System Planning Practices

# 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 Widening
- Customer
  - Load Additions
  - Generation Interconnection

# Timelines: Planning Process and Project Implementation

## Distribution System Planning Practices





# Questions

