

Strategic Plan: Asset Management Electric Utility Infrastructure Planning

July 21, 2010 Presentation
to City Light Review Panel



Proposed Long-Term Strategic Priorities

1. Infrastructure Maintenance and Renewal



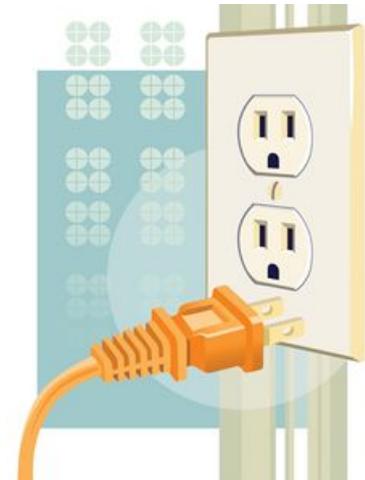
- **Maintain Reliability**
- **Provide Services Desired by Customers**

2. Environmentally Responsible Operations

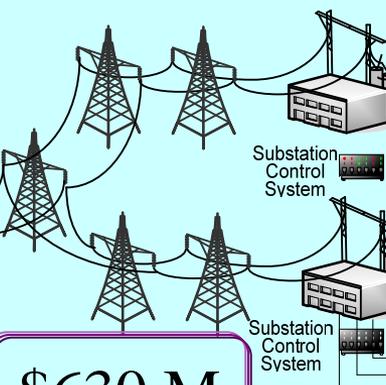
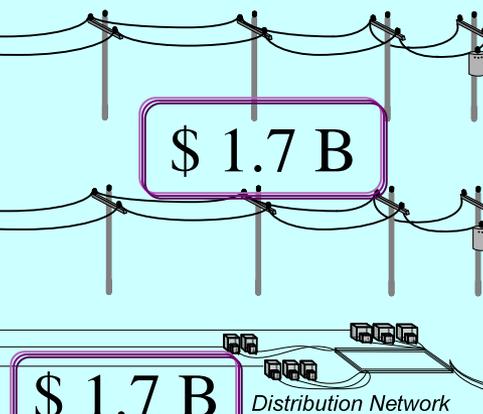
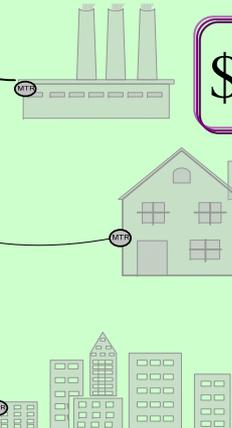


- **Green Portfolio Management**
- **Environmental Stewardship**

3. High Performance Organization & Workforce



Utility Infrastructure and Assets

<p>Generation</p>  <p>Priceless</p>	<p>Transmission/Substations</p>  <p>\$630 M</p>	<p>Distribution System</p>  <p>\$ 1.7 B</p>	<p>Customer End Systems</p>  <p>\$ 60 M</p>
<p>7 dams</p> <p>7 Generation Stations</p> <p>26 powerhouse transformers</p>	<p>660 Circuit Miles of Transmission</p> <ul style="list-style-type: none"> • 22 miles UG <p>1200 Steel Lattice Transmission Towers</p> <p>700 Transmission Poles</p> <p>15 major substations</p>	<p>53,720 Transformers</p> <ul style="list-style-type: none"> • 1231 Network transformers • 52,500 Distribution Transformers <p>167 Electric Feeders</p> <p>108,000 Poles</p> <p>84,000 Street Lights</p> <p>2400 miles of Distribution Line</p> <ul style="list-style-type: none"> • 500 mi UG • 160 mi UG Network 	<p>~ 400,000 customer meters</p> <p>71,500 in Suburban Cities (Shoreline, Lake Forest Park, Tukwila, Burien) and unincorporated King County</p>

Seattle – 1900's



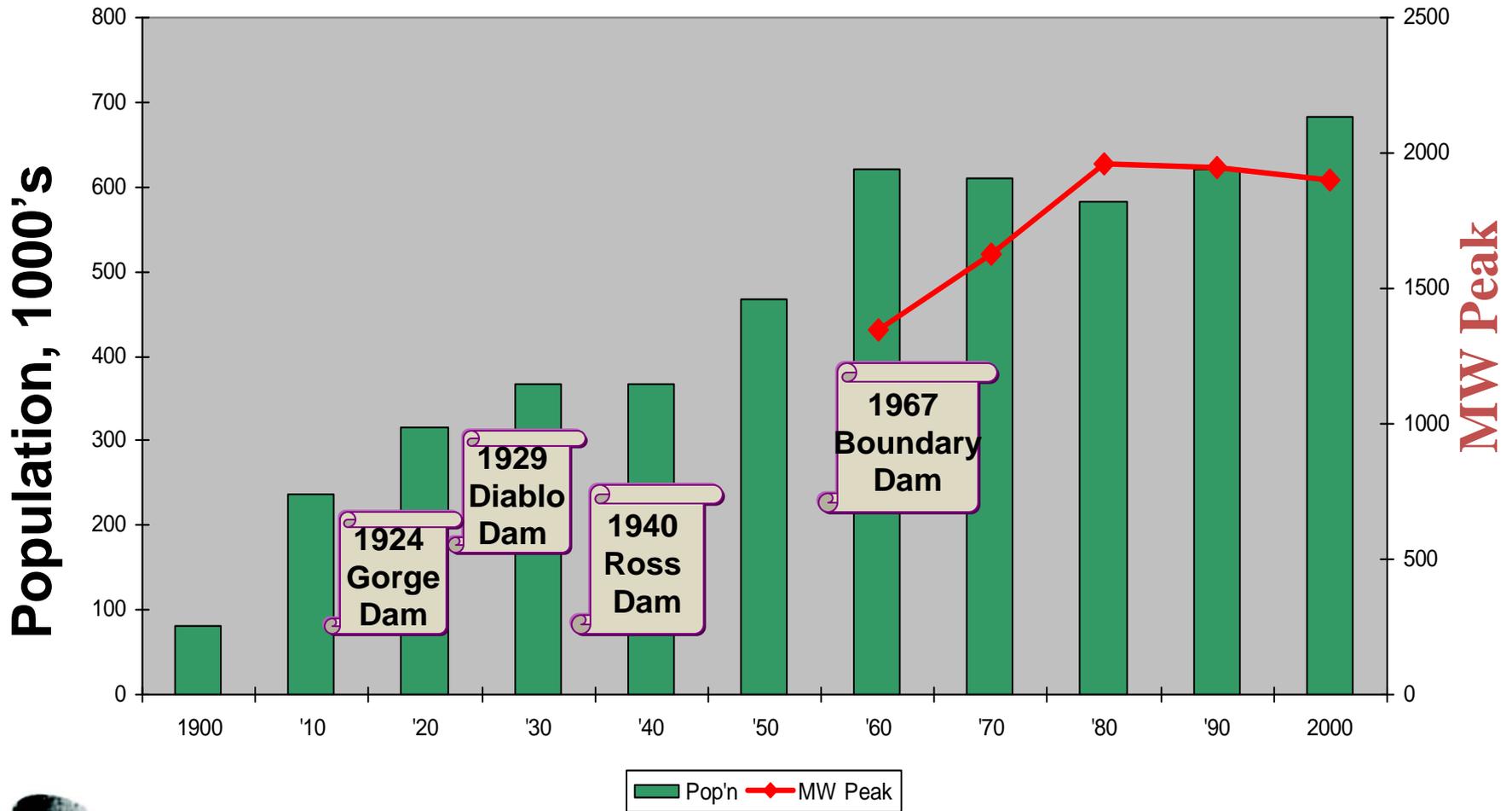
Seattle 1962 from Space Needle



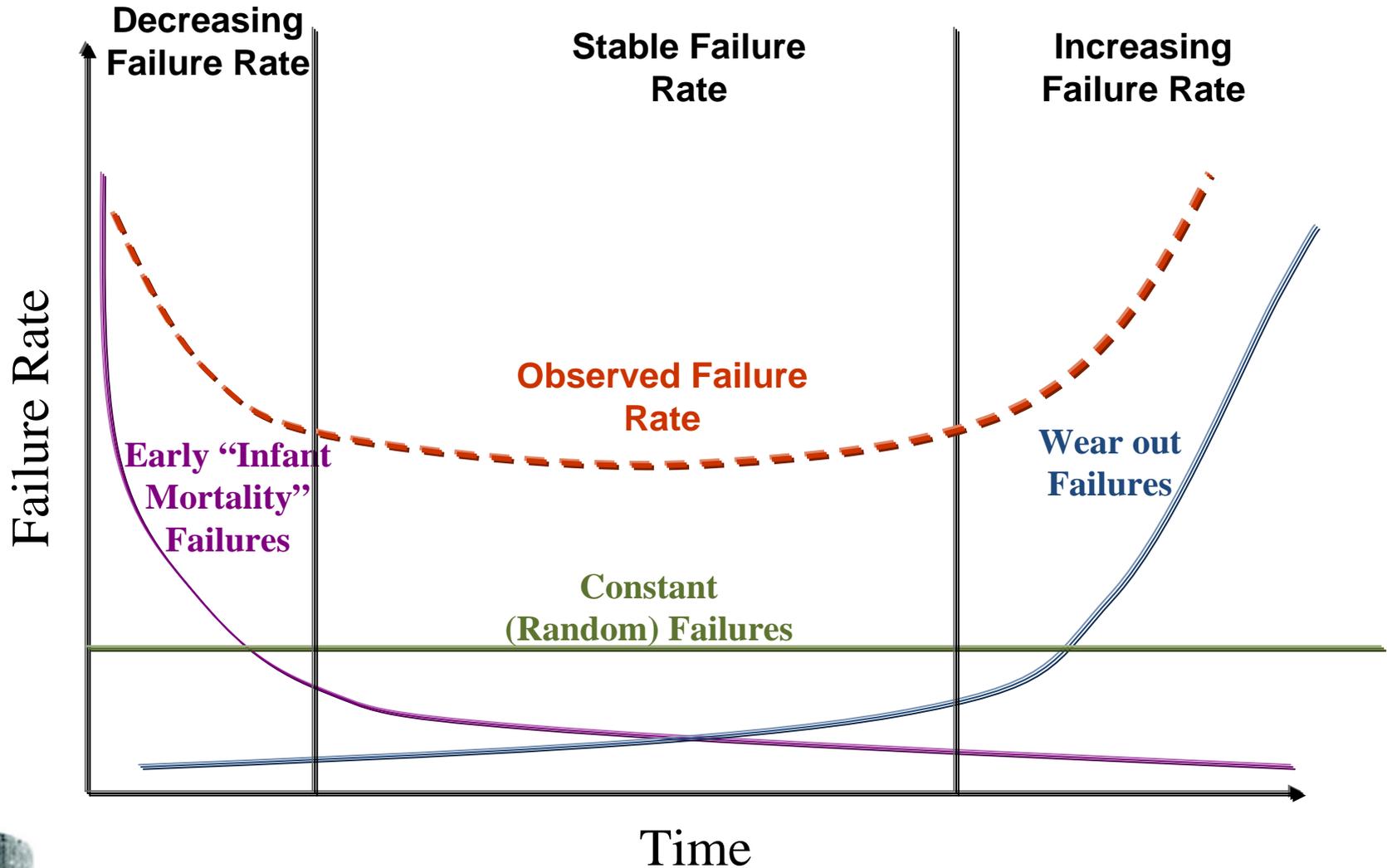
Seattle Today



SCL Service Territory Population and Electric Peak



Asset Failure for an Asset Class



Asset Replacement Alternatives

Option#1: Run to Failure

Status Quo – highest risk; highest cost

- Current methodology for most distribution assets
- Can lead to significant failure events and claims, Including environmental spills

Option #2: Age-Based Replacement

Replace on Proactive Schedule – lower risk – higher cost

- Typically replaced shortly after economic life or using other rule of thumb

Option #3: Asset Management

Optimizes cost and risk –

- Use asset condition to inform asset decisions
- Likely will use all three options for specific equipment types



“Run to Failure” is Costly

- At least 3 times more costly than Asset Management Practices

Cost of pole replacement after failure:

- 12+ hours outage – lost revenue opportunity
- Service disruption – customer dissatisfaction
- Overtime restoration
- Potential public safety issues before on-site
- Potential for environmental impact
- Crews not available for planned work

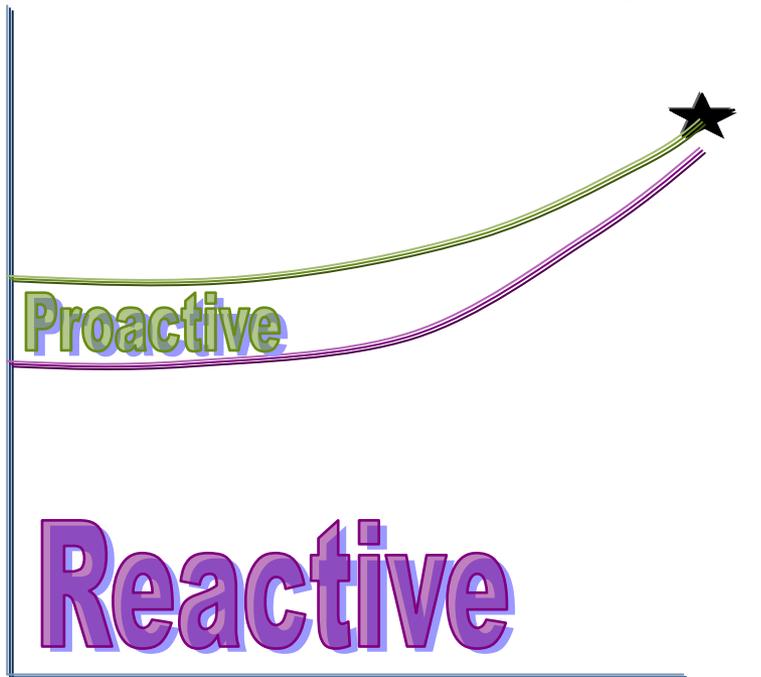
Cost of planned pole replacement

- 4 hours straight time for crew
- Pre-arranged and scheduled
- Less costly

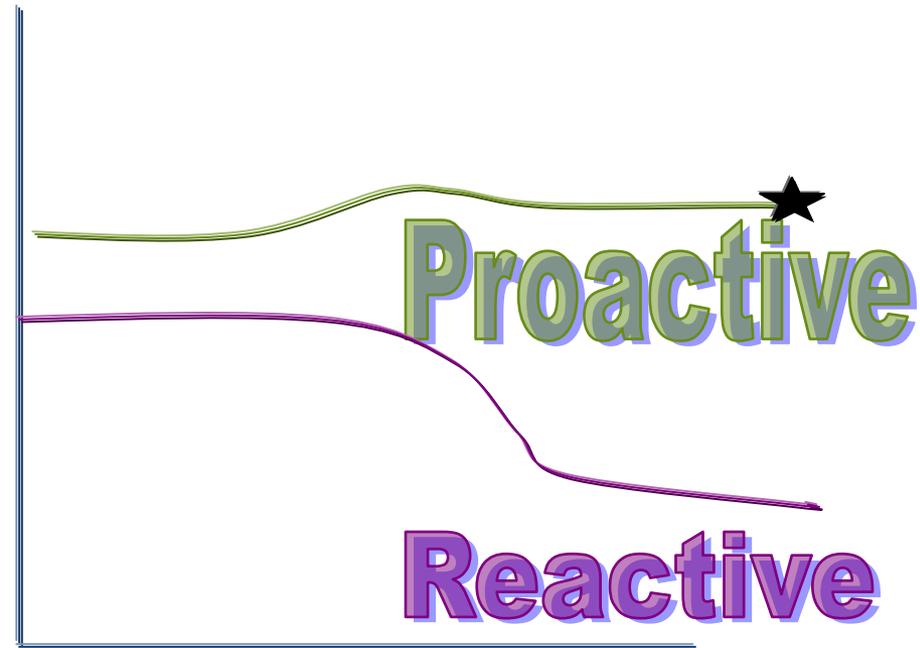


Strategy – Infrastructure Improvement Options

Impact of Delay



Proposed



Today

Tomorrow

Result: Increased Rates
Decreased Reliability

Today

Tomorrow

Result: More Predictable Rates
Increased Reliability



Strategic Plan: Infrastructure Maintenance and Replacement Programs

T&D Assets	Program Description	A (current funding)	B (Proposed)	C (Slower pace)
Distribution – Wood Poles	Pole Replacement (88,000 wood distribution poles)	600 poles	2000 poles	1500 poles
Distribution – UG Cable	Cable Injection & Replacement (500 Mi UG)	30 Mi Inject 5 mi Replacement	30 Mi Inject 8.5 mi Replacement	Degradation of reliability for customers
Distribution – Network	Network Vault Rebuild (2400 Street Enclosures)	7 rebuilt annually	20 /yr	15 /yr
Transmission Steel Towers	Inspect and evaluate necessary corrective action (1200 steel lattice towers)	One yr Pilot 60 Towers	1140 towers over 2 years	1140 towers over 5 years
Transmission – Line	Transmission Assessment & Maintenance (650 Miles)	Vegetation patrol	Full Inspection over 2 years	Full Inspection over 5 years



Strategic Plan: Infrastructure Maintenance and Replacement Programs

Assets	Program Description	A (Existing budget)	B (Proposed)	C (Slower pace)
T&D Substation	Substation Transformer Replacement (67 Transformers)	1 per yr	2 per yr (2013-14)	N/A
Generation	Major and Minor Maintenance	Rescheduled maintenance plans	Restore previous funding	
Generation	Unit Automation	Rescheduled projects	Restore previous funding	
Generation	Unit Upgrades & Rehabilitation Strategy	Rescheduled projects	Restore previous funding	



The background consists of several overlapping white rectangular cards. Each card features a large, bold, black question mark. The cards are arranged in a way that creates a sense of depth and repetition, with some cards partially obscured by others. The overall color palette is monochromatic, using shades of gray, white, and black.

Q & A