



Seattle City Light



POWER LINE CLEARANCE AND LANDSCAPES UNIT

Introduction

David Bayard PLC and Landscapes Manager

- Tree Care industry since 2000
- ISA CA (2009), ISA TRA Qualified (2013)
- WA DNR Urban and Community Forestry Council (2017)
- Seattle UF Core Team
- Recreational Tree Climbing company owner/facilitator (2011)



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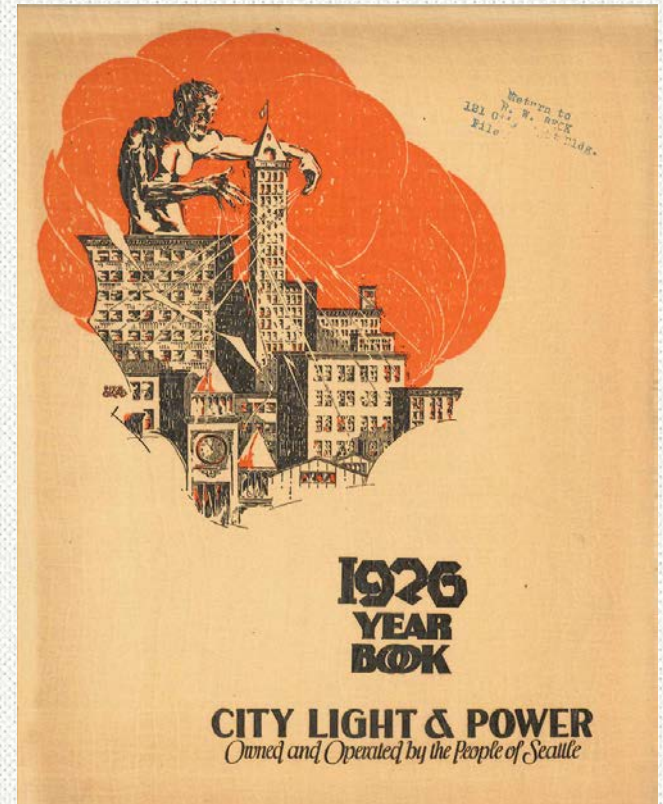
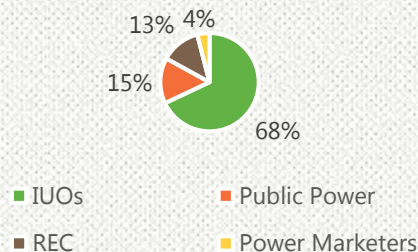
SEATTLE CITY LIGHT SYSTEM OVERVIEW

Public Power Generator, Transmitter, Distributor

- 10th Largest Public Utility in the U.S.
 - o 430K Meters
 - o 656 Trans. (506 NERC), 2300 Dist., 317 Network Circuit-Miles
 - o 7 Hydroelectric Generation sites
 - o 16 Major Substations

Public Power:*
2,011 Utilities (60%)

Electricity Providers in
U.S. by Market Share

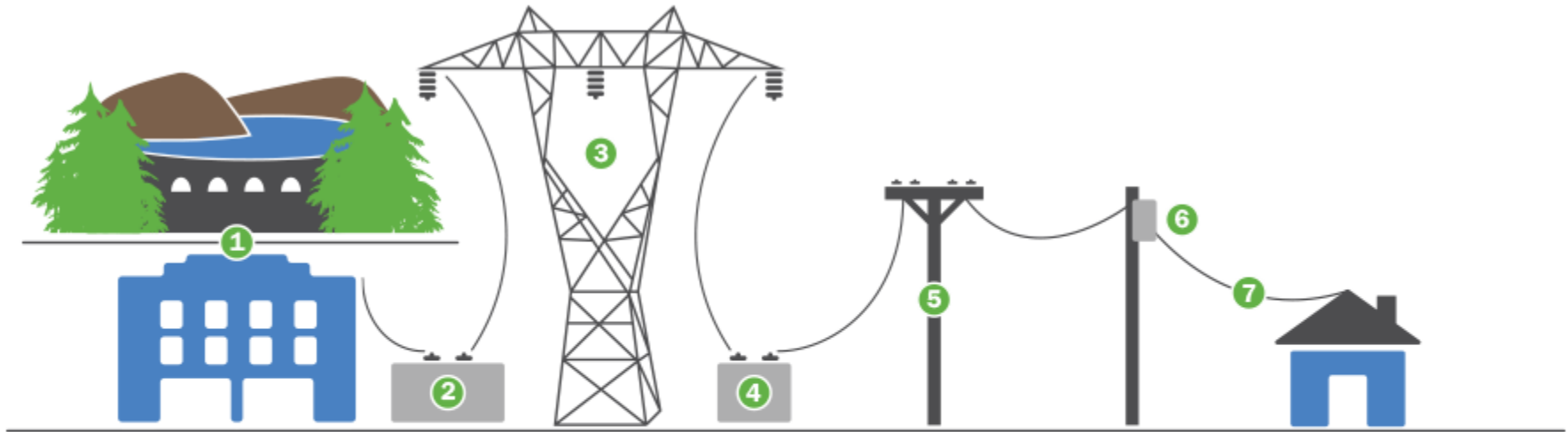


* Data from <https://www.publicpower.org/public-power/stats-and-facts>



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Generation – Transmission - Distribution



- ❶ Power is generated from dam/powerhouse
- ❷ Substation transformer steps up voltage for transmission
- ❸ Transmission lines carry electricity long distances
- ❹ Neighborhood substation transformer steps down voltage

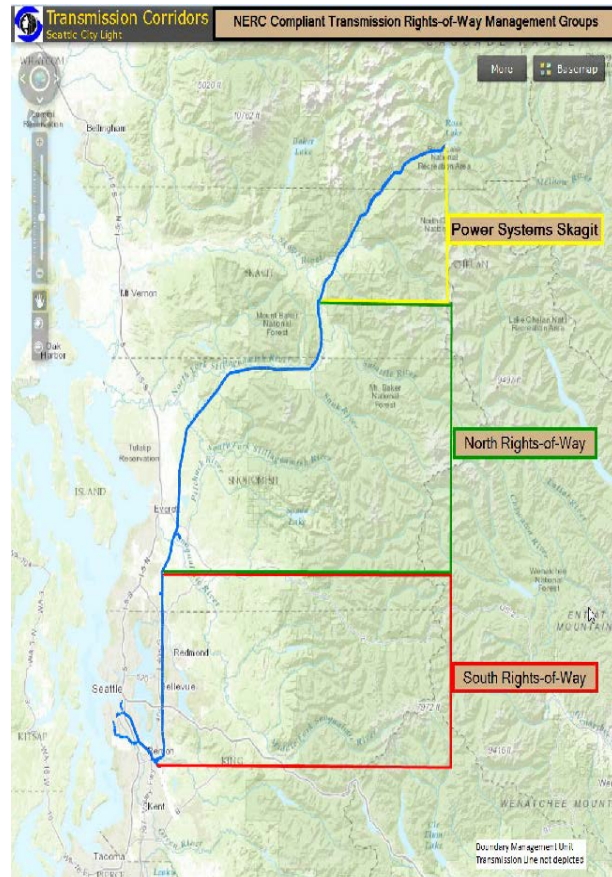
- ❺ Distribution lines carry electricity to residents
- ❻ Transformers on poles step down electricity before entering residence
- ❼ Service line for residence



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Seattle City Light System Overview

Transmission System

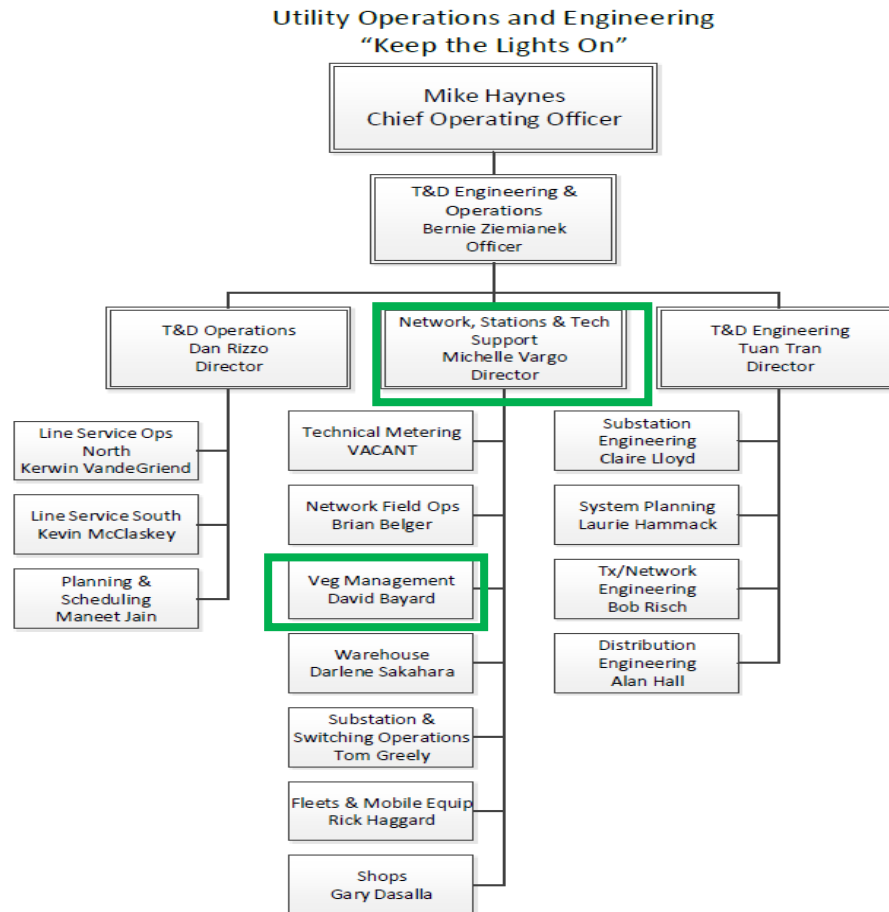


Distribution Service Territory



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Organizational Context

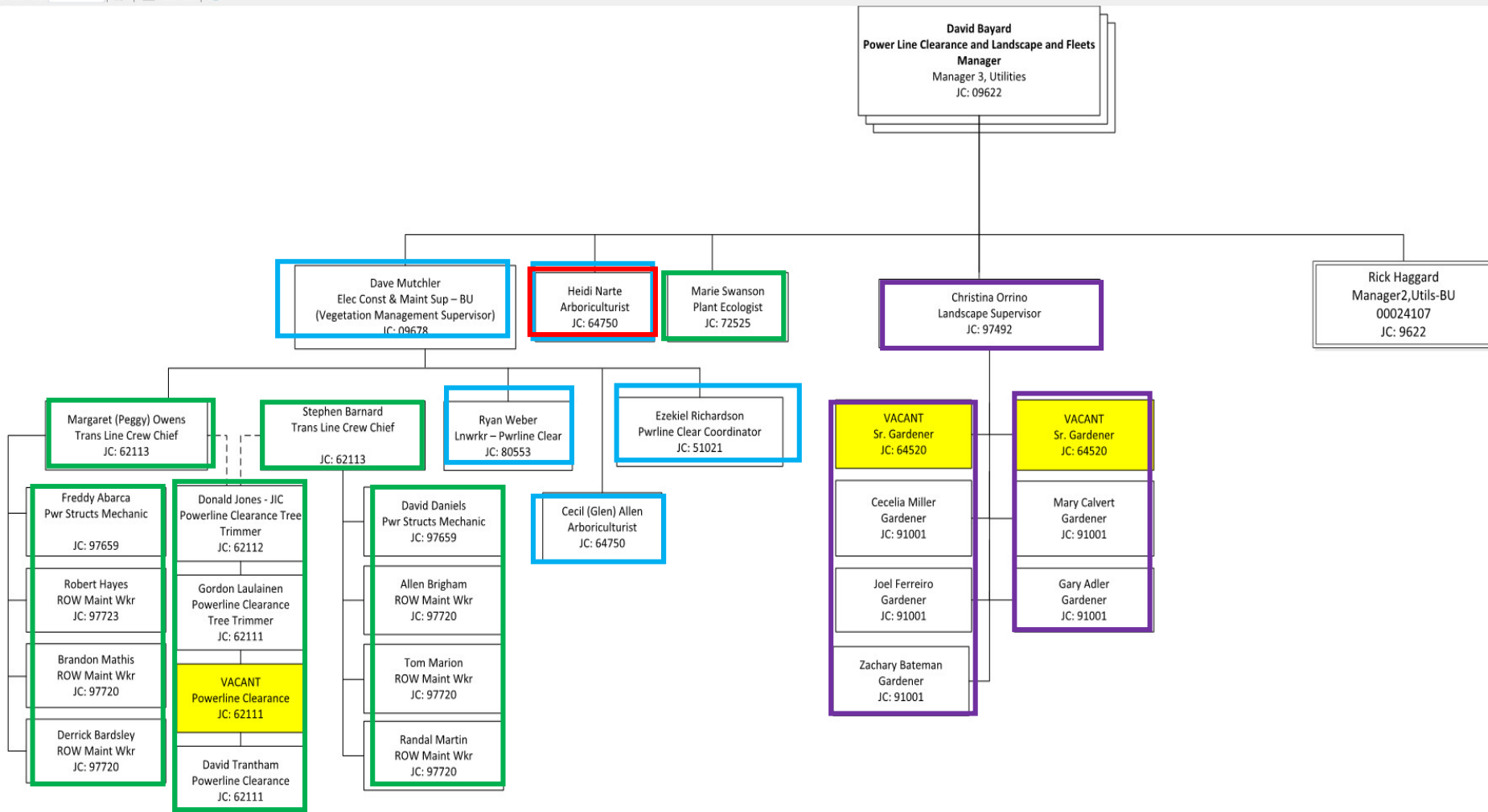


3/29/2019



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Organizational Context



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Seattle City Light's Power Line Clearance and Landscapes Unit



Mission:

PLC&L is committed to ensuring safe and reliable power delivery through the comprehensive and environmentally responsible management of the vegetation our lines and infrastructure impact.

Budget #s (2018)

- City Light – \$1.4 B
- T&D Operations O+M - \$77M
- PLC&L - \$10M
 - Labor \$2.1M
 - Dist PLC - \$6M (contract tree-trimming)
 - Trans ROW Maint - \$500 K
 - Landscapes Maint - \$150 K
 - Urban Forestry – \$250K



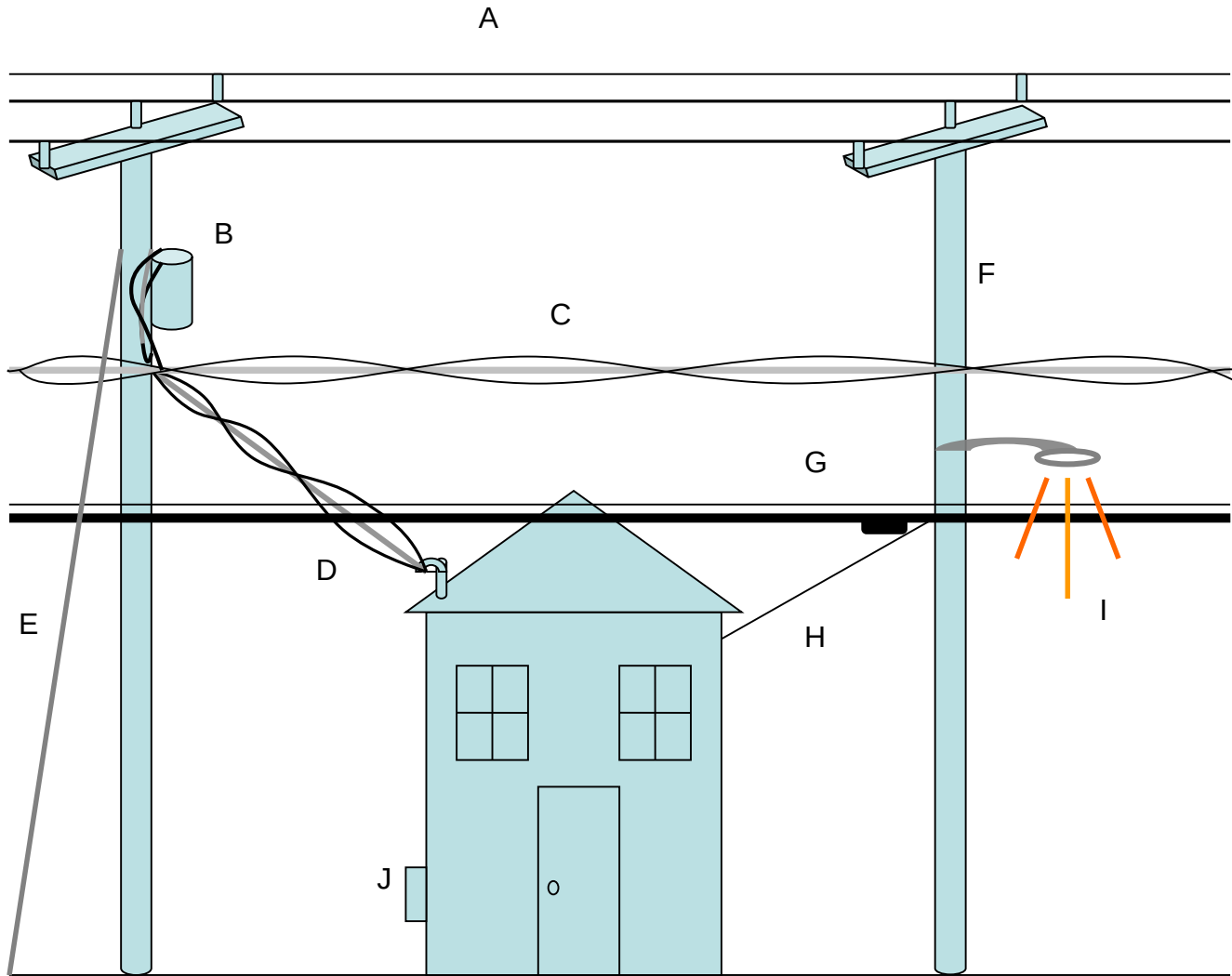
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Distribution Tree Trimming Program

- Maintains and monitors over 300,000 trees with grow/fall in potential
- Trims over 2300 circuit-miles of overhead lines in Seattle and parts of Burien, Lake Forest Park, Normandy Park, Renton, SeaTac, Shoreline, Tukwila and Unincorporated King County.



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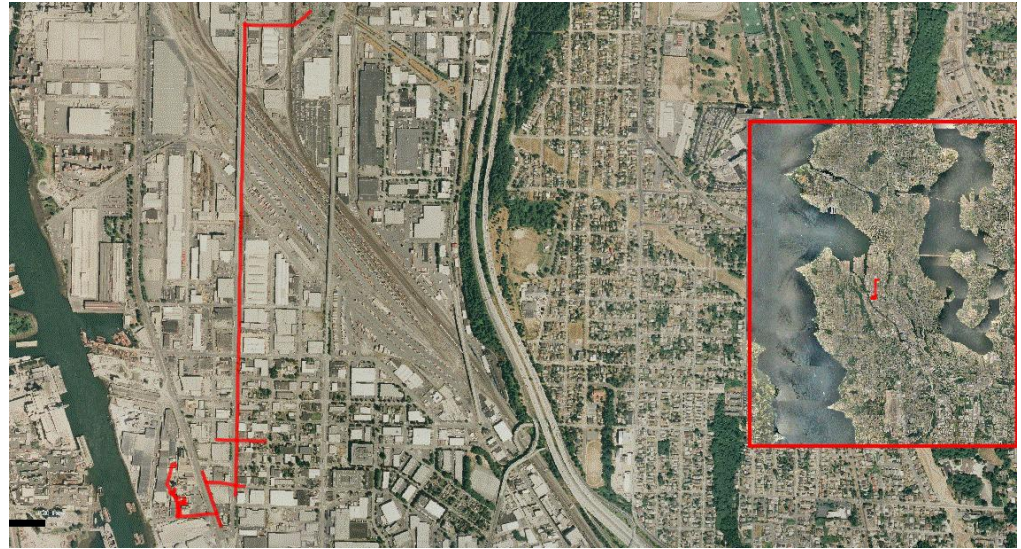
Typical
Distribution
System
Facilities



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Dist Tree Trim Methodology

- Feeder-based
- 4-5 yr. cycle for entire service area



- All regular maintenance tree trimming done by contractors
- Vegetative clearance distances informed by WA WAC 296-24-960, tree care industry BMPs and budget.

- Directional Pruning (“natural” or “drop-crotch”) – an increased focus on proper arboriculture yields “deeper” cuts 1st time around. No “rounding over” or “shaping”.
- All contractors are Journey-level Tree Trimmers or apprentices. All work identified (notified) and audited by ISA Certified Arborists (CA)
- All Contract Tree crews have min. 1 ISA CA per crew – anomaly in the industry

Transmission Right-of-Way Maintenance Program

- Manages vegetation along 656 circuit-miles of transmission lines through King, Snohomish, Skagit, Whatcom and Pend Oreille counties.



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Transmission Right-of-Way Maintenance Program

- - Work Managed on 2 yr. cycle informed by annual inspections.
- - 230kV system Subject to Federal regulation

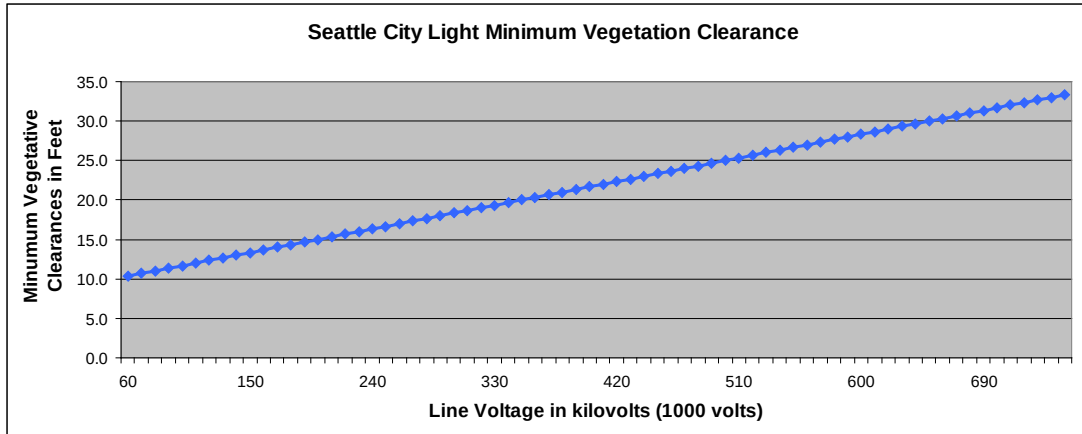
NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION



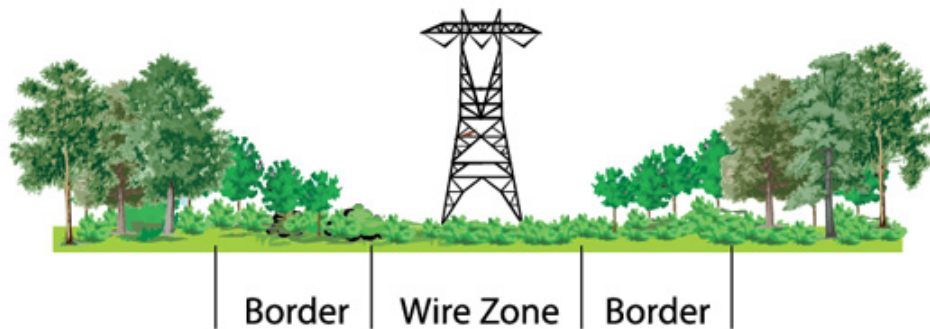
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Transmission Right-of-Way Maintenance Program

- Min Clearances informed by WAC, NERC and Cycle



- Follow Wire-Zone – Border-Zone BMPs



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Importance of Regular Cycle Maintenance

- “Deferral of line clearance beyond an optimal cycle can result in increased costs...of 23% - 70% per unit” (2009 ACRT assessment).
- 71% of (distribution) trees are “medium” or “fast” growing species
- In 2006 after several years of not funding Veg. Mgmt we had over 875 outages due to vegetation, mostly trees. Since then the average has been about 182 outages/year.

SCL Urban Forestry: Urban Tree Replacement Program

- Partners with Trees for Seattle and SDOT on tree planting/establishment projects



- Partners with Washington State Nursery and Landscape Association (WSNLA) to provide Urban Landscape Tree Replacement Certificates in Franchise Cities

SCL Urban Forestry

- “Right Tree Right Place” information and customer care
 - Average 1600+ calls/emails per year

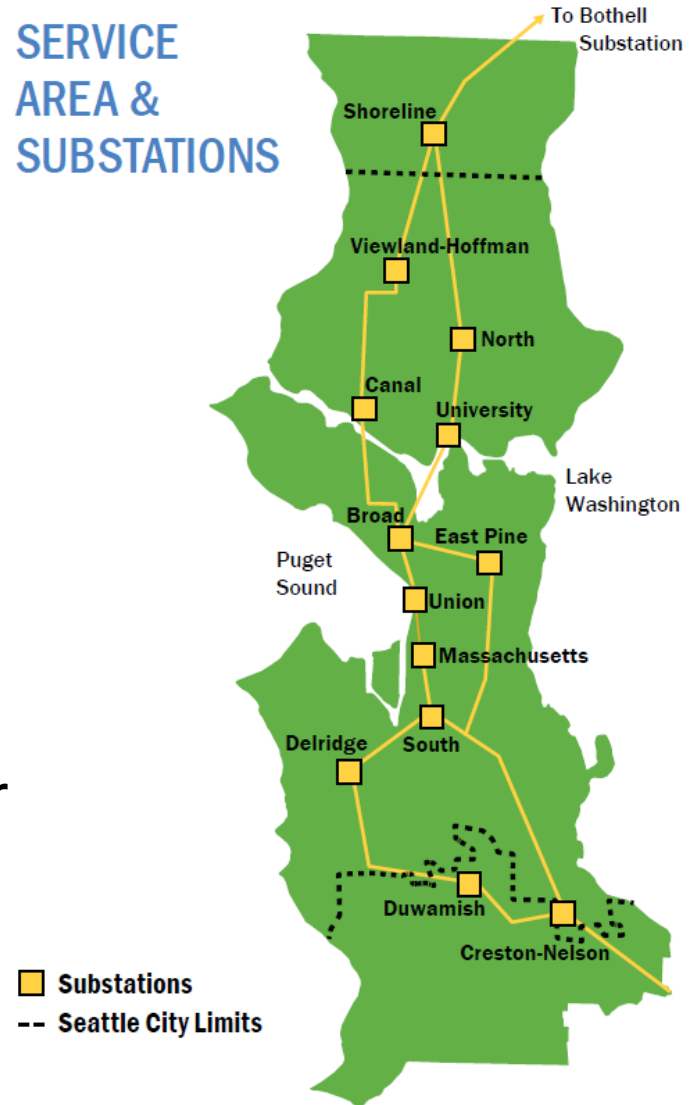
- Maintains National Arbor Day *Tree Line USA* designation since 2013



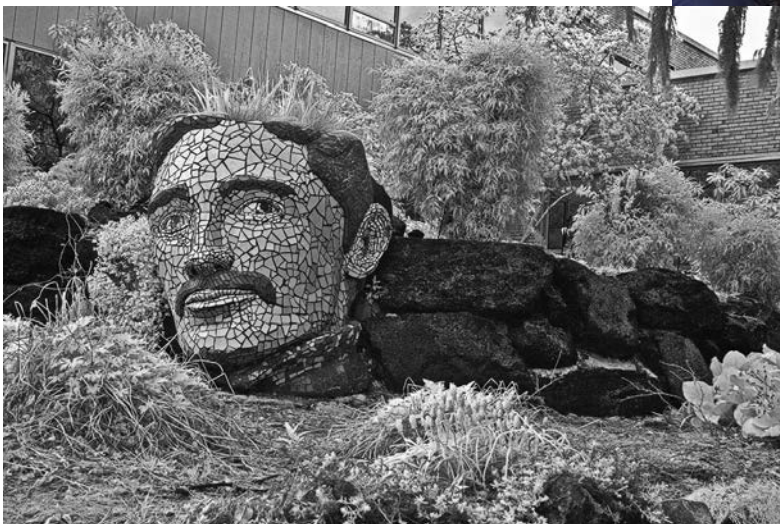
- Special Projects:
 - *Cambistat* pilot,
 - *Green Line* Transmission Corridor Community Stewardship pilot,
 - PLC Standards update,
 - 4 kV Substation Vector-ing pilot

Landscapes Maintenance

- 16 Major Substations
 - Neighborhoods
 - Showpiece Landscapes
 - Landmark Building Designs
- Over 75 Properties
 - Decommissioned Subs
 - Service Centers and System Operations Center
 - Other Facilities
- Restoration Projects



Landscapes Maintenance



THANK YOU!



QUESTIONS?

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