

Serving Load in North-Central Seattle

Briefing for SCL Review Panel

October 19, 2011

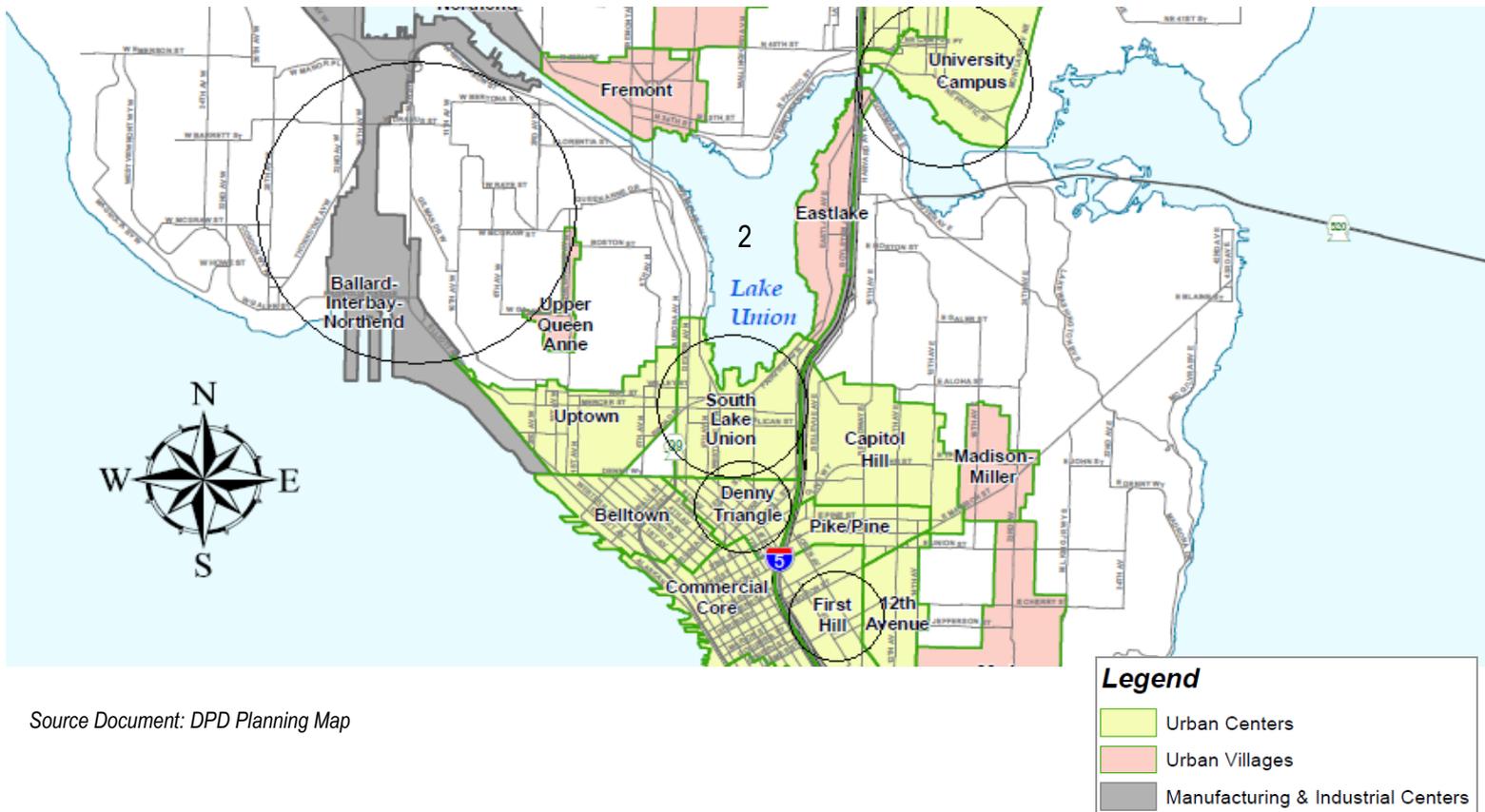


Agenda

- 1. Objective**
- 2. Customer Profiles**
- 3. Drivers**
- 4. Options Developed**
- 5. Recommendation**
- 6. Costs and Schedule**
- 7. Next Steps**

Objective

To develop and implement a plan serving the new and existing customer loads in the North & Central areas of Seattle



Source Document: DPD Planning Map

Customer Profiles

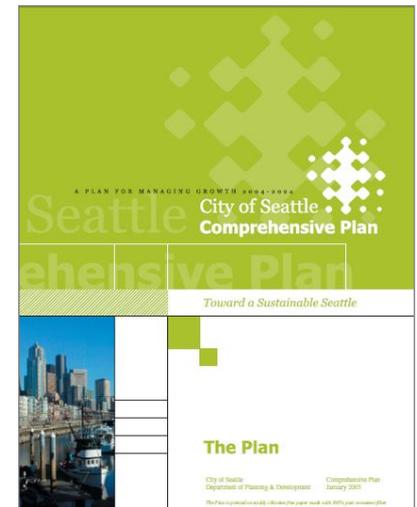
- Amazon
- Bill and Melinda Gates Foundation
- Fred Hutchinson Cancer Research Center
- Institute for System Biology
- Novo Nordisk (Zymogenetics)
- Seattle Biomedical Research Institution
- UW School of Medicine
- Vulcan



Source Document: Kidder Matthews Real Estate Planning Map

Drivers

- **Electrical Capacity**
- **Reliability**
- **System Flexibility and Expansion**
- **Alignment with City of Seattle Planning and Development Goals**
- **Who pays for the new infrastructure?**

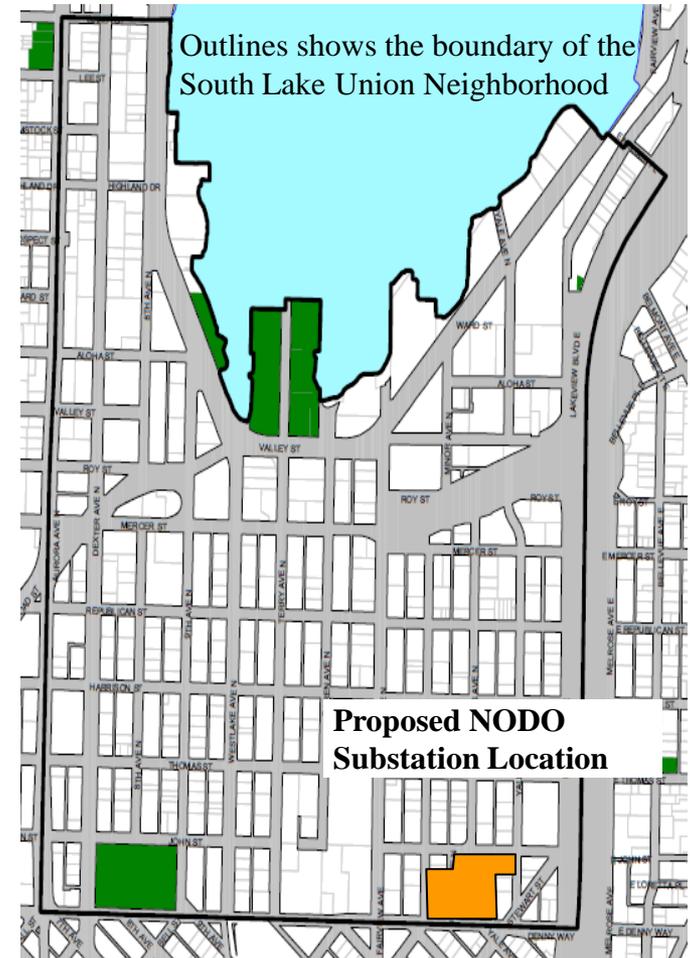


North Downtown (NODO) Site

- **Substation Property ~ \$44 M**
 - Purchased in 2009
 - 3.25 acres
- **Environmental Cleanup ~ \$7 M**



Source Document: Google Earth / SCL Edits

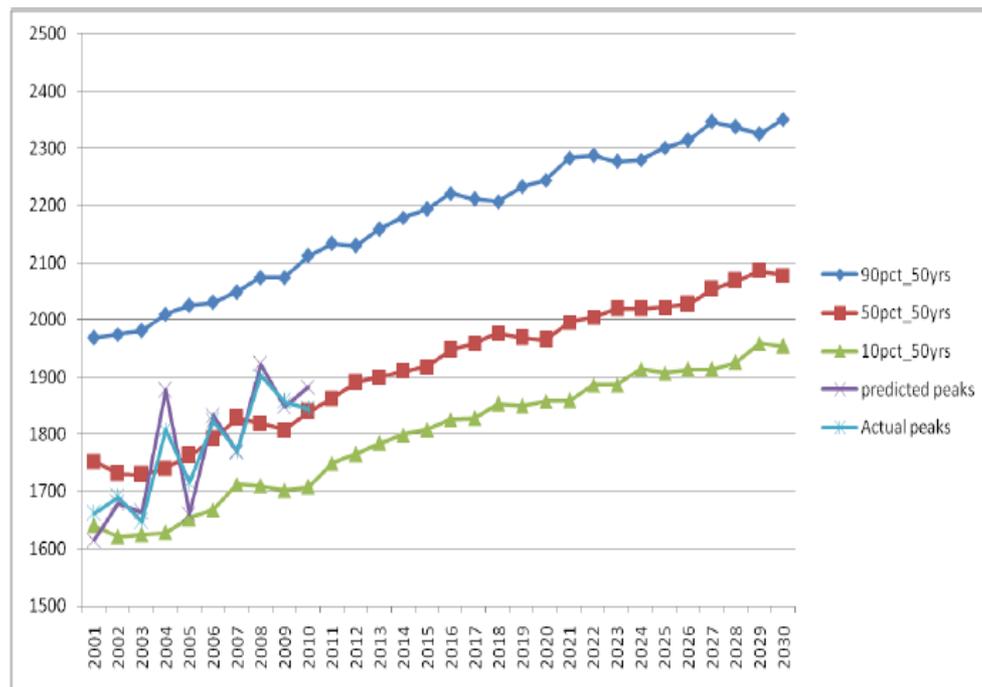


Source Document: DPD Neighborhood Planning Map / SCL Edits

Load Growth

per the Quanta Report – Oct 2011

- **System Load Forecast**
 - 0.6% per year for system peak in the next 20 years
 - 1845 MW peak demand in 2010
 - 2078 MW peak demand in 2030
- **South Lake Union**
 - 90 MW peak demand
 - Translates to 180MW per square mile
 - High load density
- **Downtown**
 - Served by 13kV network
 - 200 to 300 MW per square mile
 - High load density



Options Developed

Quanta Technology contracted to perform system analysis and study options:

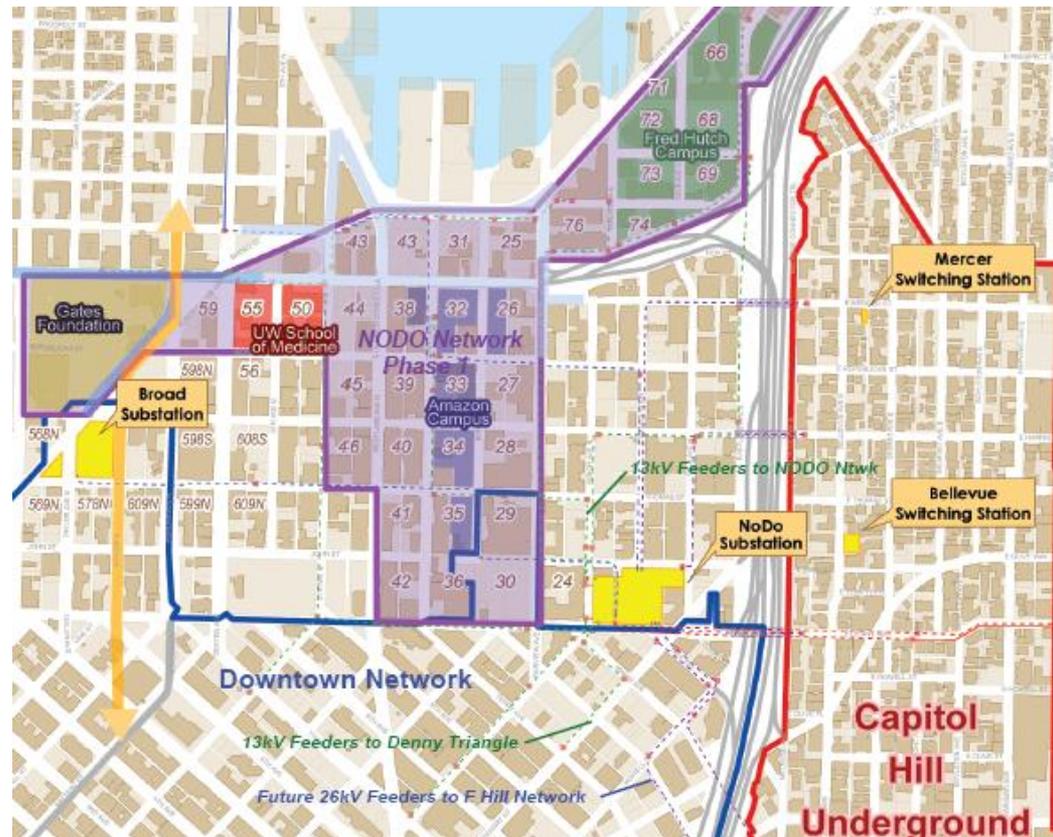
- 1. Do nothing**
- 2. Transfer loads**
- 3. Reinforce Broad St. Substation**
- 4. Build NODO Substation**

Optimal Choice and Recommendation

Build NODO Substation

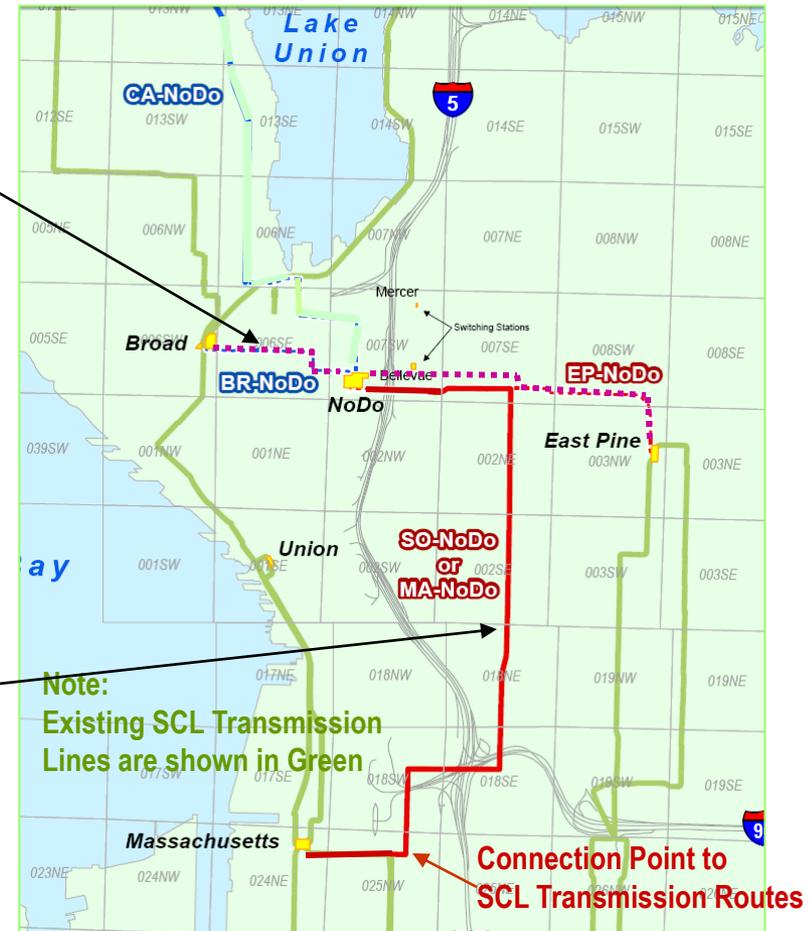
Substation

- Provides capacity for 13kV Network South Lake Union (SLU) and Denny Triangle
- Improve the reliability of the SLU Denny Triangle
- Flexibility to integrate First Hill to network System
- Flexibility to integrate the 26kV radial system to support the capacity and reliability



NODO Substation Related Transmission System Enhancements

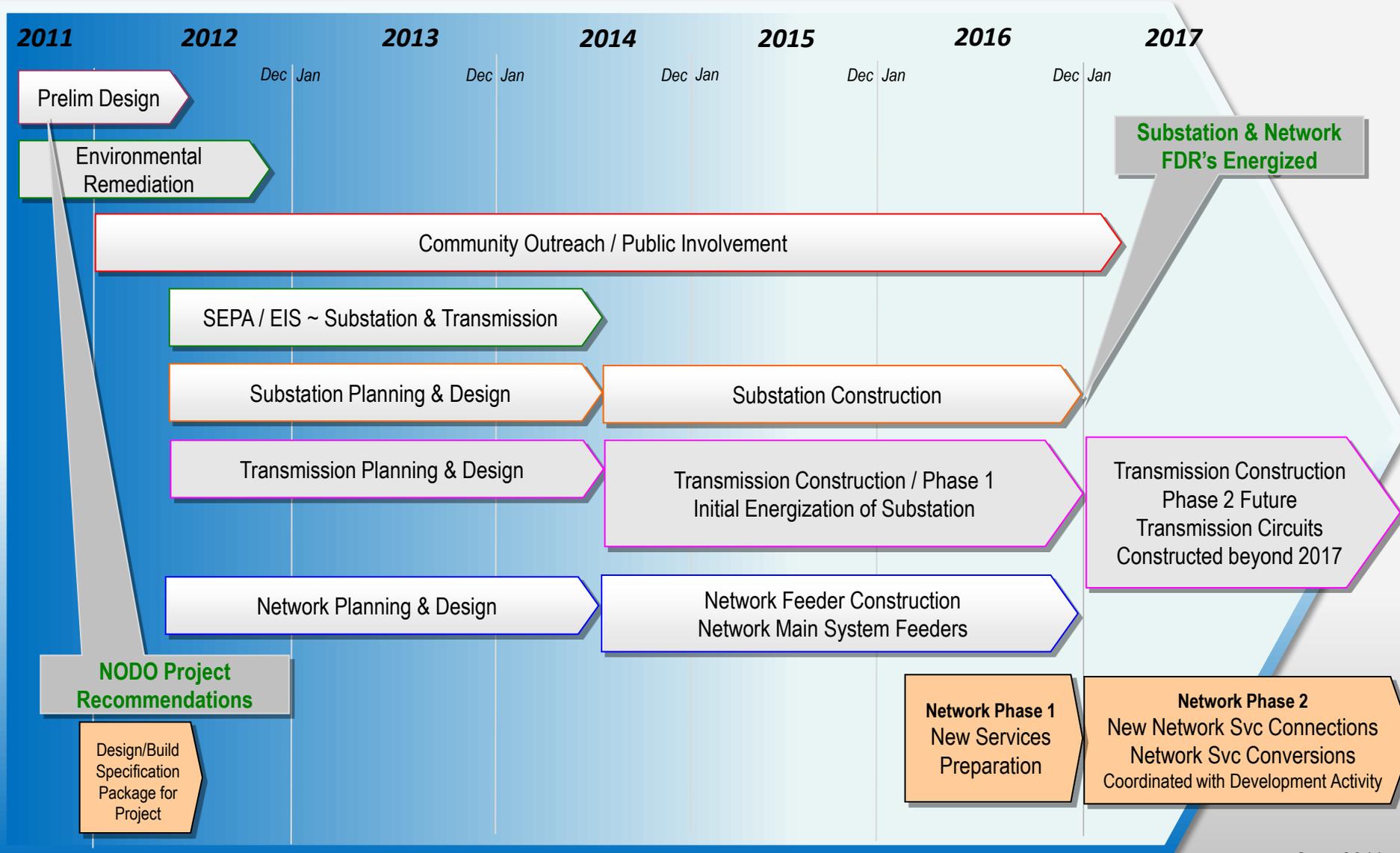
- **Transmission – Energize NODO Substation**
 - NODO Substation Site sits on the existing Broad to East Pine transmission route
 - To energize the new NODO Substation SCL will intercept the existing Broad to East Pine transmission line
- **Transmission – Future Phase Improvements**
 - Proposed transmission route from NODO to Mass substations
- **Transmission Cost ~ \$ 45 M**



Preliminary Cost Estimates

- **Total Project Cost ~ \$201 M**
- **Approved funding thru 2011 ~ \$51 M**
 - **Substation property ~ \$44 M**
 - **Environmental clean-up ~ \$7 M**
- **Request Future Funding ~ \$150 M**
 - **Substation ~ \$48 M**
 - **Transmission ~ \$45 M**
 - **Distribution ~ \$57 M**

NODO Project Preliminary Timeline



* Preliminary and for discussion purposes only. Costs and Schedule assumptions are based on securing budget authority and may change significantly.

Next Steps

- **Finalize study - October 2011**
- **Lifting proviso**
 - **Funds for preliminary engineering**
- **Mayor and Council approval to proceed**
 - **Strategic plan**
 - **2013 CIP budget**