Sammamish-Juanita 115 kV Project
Community Meetings

June 20 and 23, 2012
Tonight’s agenda

- Review the electric system and project need
- Share the community-involved siting process
- Review the three route alternatives
- Discuss next steps
- Answer your questions
How power gets to you

Distribution

500 kV and 230 kV Transmission

Transmission Switching Substation

Local 115 kV transmission lines

Distribution Substation

12.5 kV neighborhood distribution circuits and laterals

Individual transformer

Service line

Wiring in home

Electrical panel

Generation

Bulk power lines

TV Wiring in home
What’s the problem?

- Demand for power is growing
- Demand for power is pushing limits of system capacity
- Our job is to keep your lights on and we need a reliable system to do so
Solutions to capacity and reliability challenges

- Expand or rebuild existing infrastructure
- Build new infrastructure
- Energy efficiency
- Alternative energy
- Energy storage
Keeping the power on in the Northern Redmond-Kirkland area
Current Moorlands capacity

Peak Moorlands Load (MW)
December 9, 2009

Sammamish-Vitulli Capacity 239 MW
Sammamish-Moorlands Capacity 176 MW
Cottage Brook-Moorlands Capacity 169 MW
Outage scenario

- Out of service – repair –
- Not enough capacity from Vitulli-Moorlands
- Reroute power from Moorlands
- Out of service – accident –
- Reroute power from Moorlands

Lake Washington

SAMMAMISH

Inglewood-Finn Hill

Kingsgate

JUANITA

Bothell

Woodinville

Cottage Lake

COTTAGE BROOK

Kenmore

Redmond
Moorlands System Projects

- **Cottage Brook-Moorlands Project** - Rebuild by 2013
- **Moorlands-Vitulli Project** - Rebuild by 2014
- **Sammamish-Juanita-Moorlands Project** - New lines in two phases
Sammamish-Juanita 115 kV Project

- A new line will:
  - Increase available capacity by transferring two substations off the existing system
  - Improve reliability by adding an additional transmission pathway for the system
  - Ensure dependable power so it is there when you need it
Sammamish-Juanita 115 kV Project

Winter Moorlands Peak Load (MW)
December 9, 2009

- Sammamish-Juanita New Line Capacity: 320 MW
- Cottage Brook-Moorlands Capacity after Rebuild: 320 MW
- Sammamish-Vitulli Capacity: 239 MW
- Existing Load before Projects
- Resulting Load after New Line

Increased capacity
Previous capacity
PSE’s siting goal:

Develop a community-acceptable, constructible and permittable route for the new transmission line
Community-involved siting process

Fall 2011

- Convened the stakeholder advisory group
- Learned about the electric system challenges and project purpose
- Discussed past routing process and comments heard
- Identified community siting criteria
Community-involved siting process

Fall 2011

- Advisory group
  - Weighted *avoidance areas and opportunities*
  - Used a geographic information system (GIS) routing model to develop routes for discussion

- PSE hosted a community meeting about the project’s progress and shared sample model outputs
Community-involved siting process

Winter 2012

- Advisory group
  - Incorporated community feedback
  - Began identifying route alternatives - started with 30 alternatives, narrowed down to 3
  - Asked PSE to review alternatives for feasibility and constructability

Spring 2012

- PSE reviewed the route alternatives, identified challenges and made minor modifications to each
Community-involved siting process

What we’ve heard from the community

- Avoid residential areas
- Use commercial/industrial areas
- Questions about property values
- Questions about electromagnetic fields and health
- Preferences for one route alternative over another
- Questions about construction effects to businesses along NE 124th Street
- Mixed feedback on use of parks, open space and critical wildlife habitat
- Mixed feedback about siting the line along Willows Road
- Combine with existing power lines
- Questions about vegetation impacts
- What will the new poles look like?
What Are MAGNETIC FIELDS?

Magnetic Fields are created when electrical current is flowing.

What are they NOT?

- Ultraviolet
- X-Rays
- Gamma Rays

WHERE are they?

- Anywhere electricity is used.
How do they COMPARE?

550 mG, static field

mG = milliGauss

Exposure at 1 ft distance

115 kV Power Line:
at 50 feet the magnetic field is 6.5 mG
at 100 feet the magnetic field is <2 mG

How do exposures compare to ICNIRP recommended guidelines?

No Washington State or federal exposure standards exist.
EMF and transmission lines

Magnetic fields decrease as distance from electricity sources increases

115 kV power line
- Approx. edge of right-of-way
  - 15 m (50 ft)
  - 30 m (100 ft)
  - 61 m (200 ft)
  - 91 m (300 ft)
- Mean magnetic field (mG)
  - 29.7
  - 6.5
  - 1.7
  - 0.4

230 kV power line
- Approx. edge of right-of-way
  - 15 m (50 ft)
  - 30 m (100 ft)
  - 61 m (200 ft)
  - 91 m (300 ft)
- Mean magnetic field (mG)
  - 57.5
  - 19.5
  - 7.1
  - 1.8

Public health summary

- EMF is a consequence of using power in our lives and the use of electricity has greatly improved our standard of living.

- The World Health Organization and many other scientific panels have found EMF has not been shown to cause any adverse health effects.

- The international guideline for public exposure is 2,000 mG:
  - 50 feet from a 115 kV line the exposure is 6.5 mG
  - 1 foot from a video screen the exposure is 5 mG

- No exposure standards exist in Washington State or at the federal level.
Typical 115 kilovolt transmission lines and poles

Average heights range from 65-75 feet
Vegetation management

PUGET SOUND ENERGY
UTILITY LANDSCAPING ZONE

Danger Zone  Wire Zone  Border Zone  Danger Tree Zone

Roadway
About the Route Alternatives

- Alternative 1
- Alternative 2
- Alternative 3
Route Alternative 1

- Challenges
  - Tree removal and maintenance
  - Crossing Seattle City Light lines
  - Community feedback on residential and school areas
Route Alternative 1

Photo simulation along 124th Avenue Northeast

Existing view

Proposed view
Route Alternative 2

- Challenges
  - Crossing the Seattle City Light lines
  - Crossing Interstate 405
  - Community feedback on residential areas
Route Alternative 2

Photo simulation along 132\textsuperscript{nd} Avenue Northeast

Existing view

Proposed view
Route Alternative 3

- Challenges
  - “Threading the needle”
    - Building setbacks and restrictions
  - Transfer of Development Rights (TDR) restrictions
  - Native Growth Protection Easements (NGPE)
  - Critical areas
  - Tree removal
  - View corridor
Route Alternative 3

Photo simulation along Willows Road

Existing view

Proposed view
Next steps for the siting process

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**2012**
- Input on 3 alternatives
- Input on preferred route
- Stakeholder advisory group meetings

**2013**
- Design and permitting
- Community meetings

**2014**
- Select final route
- Construction
- Project complete

**July 18**
- Review comments and recommend preferred route

Puget Sound Energy
What’s next?

- We want to hear from you
- Ask questions tonight or via email at info@sammjuan115.com

Tell us what you think
- Complete the comment form tonight
  OR
- Complete the route alternatives questionnaire on the project webpage (PSE.com/SammJuan115)
Questions?

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Questions?