

Meeting Summary

Advisory Group Meeting #2

October 17, 2011 • 5:30 p.m. to 8:00 p.m.

Baymont Inn and Suites, Kirkland, WA

Organization	Representative (s) in Attendance
Aegis Lodge	Wilson Anhar
City of Kirkland, Parks and Community Services	Linda Murphy
City of Kirkland, Public Works	Rob Jammerman
City of Redmond, Planning	Eric McConaghy
City of Redmond, Parks	Jean Rice
Evergreen Hospital	Lavon Weighall
Greater Kirkland Chamber of Commerce	Ron Parker
Greater Redmond Chamber of Commerce	Danielle Lynch
Juanita Neighborhoods	Mary Pong Dunphy
North Rose Hill Neighborhood	Don Schmitz
Proctor International, Inc.	Fred Proctor
Puget Sound Energy	Andy Swayne
Sustainable Redmond	Cindy Jayne
Willows Rose Hill Neighborhood	Gary Wightman (alternate for Tom Matthews)

Other Attendees:

- Barry Lombard, Puget Sound Energy, Project Manager
- Lindsey Walimaki, Puget Sound Energy, Corporate Communications
- Jim Swan, Puget Sound Energy, Senior Real Estate Representative
- Carol Jaeger, Puget Sound Energy, Transmission Planning
- LaWana Quayle, Puget Sound Energy, Transmission Engineering
- Kerry Kriner, Puget Sound Energy, Municipal Land Planner
- Angela Wingate, Puget Sound Energy, Municipal Liaison Manager
- Drew Thatcher, Consultant
- Lyn Keenan, GeoEngineers
- Joanne Markert, GeoEngineers
- Penny Mabie, EnviroIssues, EnviroIssues, Facilitator
- Rochelle Stowe, EnviroIssues, EnviroIssues, Notetaker

Meeting Purpose and Overview

The second stakeholder advisory group (SAG) meeting for the Puget Sound Energy (PSE) Sammamish-Juanita 115 kilovolt (kV) Transmission Line Project was convened in Kirkland, Washington on October 17, 2011. The meeting included a brief confirmation of the advisory group's purpose, goals and ground rules, and PSE and its consultants gave presentations on information requested at the first AG meeting, past routes and public feedback, the project routing model (GeoRoute model) with weighting and criteria, and next steps for the SAG regarding meetings.

Meeting Summary

Meeting Agenda

Penny Mabie welcomed everyone, led a round of introductions, introduced new members since last meeting, and reviewed the agenda.

Advisory Group Purpose, Goals, Ground Rules and Safety Moment

The SAG members confirmed the proposed operating guidelines, including expectations, goals, purpose and norms for the advisory group. Penny suggested sending a contact list for the SAG to consult with each other outside of the meetings, and noted that any member who did not want their contact information circulated should make her aware.

Lindsey Walimaki, PSE Corporate Communications, introduced herself and her role at PSE. Lindsey gave the "Safety Moment," reminding the group about winter storm preparedness and encouraging them to review the "Take Winter by Storm" (<http://takewinterbystorm.org/>) checklist (provided at meeting and available on website) and to report power outages. PSE currently relies on customers to self-report power outages.

September 29 Meeting Requests

Penny asked each SAG member if they had spoken with their constituents about the project, and asked what they have heard and if there were any new questions. She said this will be a standing topic of discussion at every meeting, and advised members to make it a practice to talk with constituents about what they have heard about the project and forward their questions to the project team.

Members of the advisory group noted that constituents:

- Are more inclined to "look up" where transmission lines are located and how they serve the community.
- Said this is a tough project to pass, and were quick to say they do not want transmission lines in their backyards.
- Are very interested to learn more about the project.

Response to Information Requests

Barry Lombard, PSE Project Manager, introduced himself, his role, and experience at PSE. He briefly reviewed the projects planned for the Eastside region that PSE expects to be constructed over the next decade, and noted that the Sammamish-Juanita 115 kV Project is just one part of the larger electrical system.

Barry introduced LaWana Quayle, PSE Transmission Engineer, and Drew Thatcher, Board Certified Health Physicist, and they gave a presentation addressing questions asked during the first meeting. Barry noted additional information requests, such as easements, visual impacts and construction impacts, may be addressed at future meetings.

Experience with underground transmission lines

PSE built an underground transmission line in 1974 that is two miles long and located between the Tukwila cable termination station, Southcenter substation and the Nelsen cable termination station. After initial outages caused by design defects in splices, there was only one other outage in the 1990s caused by a squirrel, which took approximately three weeks to fix. Since this incident, the underground portion of the line has been reliable.

Trees and canopy cover

There are different utility landscaping zones surrounding transmission lines. PSE's vegetation requirements for a 115 kV transmission line generally require mature tree heights to be less than 25 feet tall. In areas where access is an issue, shrubs or grasses may be the only option in the wire zones. When over-building existing distribution lines, where transmission lines are built over existing distribution lines, the mature height requirements would be 15-20 feet. Barry referenced PSE's vegetation brochures available at the meeting.

Noise

LaWana explained 230 kV lines may produce noise, like popping, depending on the amount of moisture in the air, while 115 kV lines typically do not. She noted that over the last 10-20 years, improvements from old, dirt-attracting porcelain insulators to new, chemically-developed and self-cleaning polymer insulators have helped to diminish noise.

Radio interference

LaWana explained that amateur radio operators will pick up a broad spectrum of noises, but the newer lines are less of an issue due to more advanced insulators. However, if noise persists, amateur radio operators can call PSE staff to locate radio frequency interference in order to clean and replace dirty insulators.

Electromagnetic fields (EMF)

Drew explained his role and experience in the public health sector. He differentiated between electric and magnetic fields, where magnetic fields can pass through our bodies unperturbed. The scientific

evidence shows us that magnetic field exposure cannot initiate cancer so scientific studies have focused on determining whether magnetic field exposure can have a promotional effect. Currently, there have not been significant studies to prove that EMF can break DNA strands.

The World Health Organization (WHO) classified EMF as a possible human carcinogen based upon pooled human studies that showed a consistent relative risk of 2 for childhood leukemia and exposure to magnetic fields greater than 3 to 4 milligauss. For comparison, a relative risk of 1 means the exposure of concern is no different than background, and smoking, as an example, has a relative risk of 20 to 30. However, WHO has not identified a plausible connection that the body can turn exposure to EMF into a carcinogen. Drew directed the SAG to an article published by WHO available as a handout at the meeting, *Electromagnetic fields and public health* (<http://who.int/mediacentre/factsheets/fs322/en/>).

Electric fields

Carol Jaeger introduced herself, her role, and experience at PSE. She explained that electric fields can be caused by a charged line, in which objects near the field can also become charged. She gave the example of scuffing feet on carpet and producing a spark on anything touched. The electric field is the person, and the touched object becomes charged. Oftentimes a metal structure near a powerline (i.e., a gutter close to Seattle City Light lines) can become charged, and if someone touches the structure, they may get a shock. Gutters or aluminum windows can be grounded to avoid being charged; however, if a person is not grounded and touches the gutter or window, they may still feel a charge.

PSE has rules regarding line proximity to homes or structures. For 115 kV lines, no object can exist within 9.1 feet. PSE hopes to keep lines 20 feet away from objects as a precaution. Carol noted that strength of the magnetic fields decreases as the distance from electricity sources increases.

Public meetings and notifications

Barry noted that two public meetings are planned for December 2011 and February 2012 and discussed all the methods PSE will use to notify the public about the meetings. He inquired if other methods were suggested; the group agreed with the list presented.

Questions: EMF

Shouldn't power companies provide funding to produce more studies?

Drew explained that the scientific community has already spent billions of dollars trying to find the relationship between EMF and cancer. There is starting to be agreement that more studies will not increase the body of knowledge.

Is there a meter that residents can use to test for EMF?

Yes. PSE offers a free service to customers who would like to test for EMF. They can conduct tests at different times during the day, using what they know about peak periods for PSE transmission lines to calculate exposure. However, it would take a little longer for PSE to calculate exposure near Seattle City

Light's 230 kV lines, since research would have to be done to learn the peak times and loads for those lines. EMF measuring-meters can also be purchased online and range in price from \$50 to \$100.

Is the EMF impact for underground lines zero?

There is still EMF, even with underground lines. Magnetic fields are not dampened by earth or concrete – so below-ground lines would emit EMF similar to above-ground lines.

Review Past Route Options

Barry gave a brief presentation on the past Sammamish-Juanita route options. He explained that in 2008, PSE held public meetings and received feedback on route alternatives based on general line siting considerations. In 2009, PSE developed five route options and presented them to the public. The following themes were heard in response to the five route alternatives:

- Use existing rights of way.
- Use routes within the commercial/industrial area.
- Avoid impacting the views along Willows Road.

Questions: Past routes

Why aren't there any past routes in the eastern half of the project area?

There needed to be a connection somewhere north of the Crestwood Substation on NE 106th Street and south of the Juanita substation to best meet the needs of our system. Due to accessibility (roads) and wetlands, we could not identify easy ways to tie into our existing system at the desired location from south of NE 116th Street and west of Interstate405. However, PSE is open to the public's recommendations.

Why did the routing process stop?

PSE found that they wanted more input to find a community-acceptable route, and recognized there is no perfect route option. Barry noted that this dense, urban area is a difficult area to site a transmission line and would require different siting methods. PSE decided to use both an advisory group and a siting tool (GeoRoute). This tool was originally used to site highway projects, and was invented by Ian McHarg, one founder of geographic information systems (GIS).

Barry likened GIS mapping to using a clear sheet (like Mylar) and outlining the study area and shading in only the wetlands. Then, another sheet is added with only forests shaded, and subsequent sheets have residential areas, parks and schools shaded. All the sheets are placed on a light table, where the darkest areas should be avoided, and lighter areas are opportunity areas. Barry further explained that the GeoRoute model can weight those sheets, or layers, and each can be weighted differently.

Project Routing Model Overview

Joanne Markert introduced herself, her role, and her experience with PSE and GeoEngineers. Joanne gave a presentation on the GeoRoute Model. She explained that the model looks at various data layers

and tries to balance them. She noted it is important to note that people make decisions, and not the model. She walked the group through the GeoRoute Model process poster, which explains how the model works.

The model incorporates avoidance areas (built, natural, and engineering) and opportunity areas (e.g. existing rights of way or arterial streets). The information used in these areas is based on GIS data from local, state and federal governments. Joanne explained the different pieces of the model, and walked through scenarios applying different weights to the model to show how changing the weighting can change the route alignment. The percentage given to areas (avoidance or opportunity) does not always have to be 50/50.

Penny asked the SAG what they thought of the model. They responded:

- The model makes sense, and lives up to its expectations.
- The model is interesting.
- I'm skeptical of the quality of the data.
- I imagine there will be controversy over the weights that we decide.

Questions: GeoRoute selection model

Could EMF be one criterion that we evaluate for route selection?

Drew explained that the SAG could decide on an appropriate level of EMF as a group, yet noted that there are no state or federal exposure limits to EMF, making it difficult to use EMF levels as a siting criterion. There is no objective EMF level to use in the criteria evaluation.

Why does the route option developed by the model that supposedly benefits wildlife take a path that seems least helpful to wildlife?

Joanne explained that the model likely chose a path between areas prone to landslide hazards and steep sloped areas.

It looks as if there is already a 230 kV line in the landslide area. Is it possible to completely ignore an area? (Refers to a line in an existing PSE corridor from Beverly-Sammamish, which was built in the 1920s)

Carol noted that PSE will look into this line further and research if there were outages caused by landslides, but it is likely that the line was built before this kind of mapping was available.

You're working with polygons mapped for different areas - what is the map grid size?

Joanne noted she will look into the exact grid size, but the data from the municipalities allows for the size to be quite small.

Can the SAG add or delete a layer?

Yes. However, the layer should represent the entire study area—there shouldn't be too many areas that are only Redmond or only Kirkland.

Can we add a weighting to the areas that do not already have existing overhead utility lines (like Totem Lake Mall)?

Not everything is mapped, so it depends on the available data.

Are there specific boundaries where the line cannot be built, or is the line limitless?

Barry explained that at the end of the day, the line must be constructible; it must be able to be permitted; and it must be within a reasonable or prudent cost range for PSE.

Was the current weighting developed after much iteration?

Joanne noted that the weighting is a compilation of many years of work, which includes public input from the previous public meetings from 2008 and 2009 and an assessment of the accuracy of the data.

Are there any other projects in which this model has been successful? In a fully built area, what is the most appropriate model?

Joanne explained that this is the smallest study area they have used for the model, but the method is repeatable and scalable, and depends on the data.

Is there a map that includes comprehensive plans from cities, where there is a permit necessary to complete the project (or not)? Or, does this step come after weighting?

PSE noted that some aspects will have to be addressed after weighting.

Can existing electric utility corridors (ones that PSE or Seattle City Light already owns) be used as opportunities for future routes in the model? For example, there are transmission lines along 124th Ave NE and 136th Ave NE?

PSE will look into this question further. Barry noted that both were considered possible routes.

Is there a way to retrieve data of contiguous tree canopy?

Joanne noted that GeoEngineers has the City of Kirkland data and tried to provide coverage for the City of Redmond using aerial photos. This is an example of balancing of two jurisdictions in order to use the data.

Action Item: The SAG will provide PSE and GeoEngineers with suggested adjustments or confirmation of the weighting and criteria on the GeoRoute Model handout given at the meeting.

Public Comment

There were no public comments.

Wrap-Up and Next Steps

Penny reviewed the next steps, which include the SAG validating the model weighting and criteria, developing and discussing possible alternatives, and narrowing alternatives for public review. She

reviewed the planned meeting objectives for each of the advisory group meetings during the process. Penny informed the group the next meeting will be on November 3 from 5:30 p.m. to 8:00 p.m. at the same location.

Bus tour

Andy Swayne explained that he will be giving two project area bus tours for the SAG, and PSE will provide transportation for the tours. The tours will consist of site visits to key substations and looking at some typical lines. Tour dates were announced for:

- Friday, October 28, 2:00 p.m. – 4:00 p.m.
- Saturday, October 29, 9:00 a.m. – 11:00 a.m.

Seven members of the SAG announced they would like to go on the tour on October 28. No others volunteered for October 29. Those absent will be advised of the tour; future tour details will be forthcoming from PSE.

The meeting adjourned at 7:40 p.m.

Summary of Action Items:

- The SAG will provide PSE and GeoEngineers with adjustments or confirmation of the weighting and criteria on the GeoRoute handout given at the meeting.
- PSE will provide information about the bus tours.