

Response to Data Requests

4/16/2014

At Sub-Area Workshop #1, workshop participants from the North, Central and South Sub-Areas were asked to identify what data would be useful to help compare the route segments in Workshop #2. Data requests are included in the table below, sorted by key topic area, and are summarized to exclude duplicate requests.

If Puget Sound Energy was unable to provide the data requested, the table includes a response explaining why the data is unavailable.

Key topic area	Request	Response
Aesthetics	Impact to aesthetics	See photo simulations.
Business impacts	Number of businesses within one mile	See data table for businesses within 600 feet to be consistent with distance used for permitting requirements.
	Number of churches within one mile	See data table for churches within 600 feet to be consistent with distance used for permitting requirements.
	Number of industrial areas	See data table.
	Number of shoppers within a quarter mile	PSE is not aware of a data source to address this request.
	Number of workers within a quarter mile	PSE is not aware of a data source to address this request.
	Number of businesses displaced	PSE will not have this information until a route has been selected and a detailed design is completed. However, at this time, we do not anticipate displacement of any businesses regardless of the route chosen.
	Number of jobs created	PSE does not have data to support this request. However, there will be temporary jobs during construction, and the project allows for the continuation of growth in the area which indirectly translates to job creation.
	Impacts to light rail or potential high speed rail	PSE will not have this information until a route is selected and a detailed design is completed.
Construction	Construction cost	See data table.
	How accessible are the lines for construction crews	See data table.
	Approximate time to construct	PSE won't have this information until a route has been selected and a detailed design is completed. Generally speaking, PSE expects it will take approximately 18-24 months to construct the entire project. However, specific construction information for each segment is dependent upon many factors, such as soils, pole foundations needed, access restrictions identified during the permitting process, the time of year of construction, etc.

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	Permitting difficulties	PSE won't identify specific permitting requirements until a route has been selected and a detailed design is completed.
	Number of poles needed	PSE won't have this information until a route is selected and a detailed design is completed. At that time, PSE will also be asking for community feedback on pole heights and configurations, which affect the number of poles needed.
	Location of underground route	PSE is proposing an overhead project and has not researched underground route options. If a community has an interest in seeing an underground route through their area, a detailed feasibility study would be needed to identify underground route options.
	Number and scope of other projects planned in the corridor	PSE does not have consistent data across all segments to make a comparison.
Cost	Total cost estimate	PSE will not have this information until a route is selected and a detailed design is completed. However, the high level cost estimate for the entire project is \$150-300 million.
	Number of customers impacted	The cost is shared across all of PSE's 1.1 million electric customers.
	Total cost estimate of acquiring easements	PSE will not have this information until a route is selected and a detailed design is completed.
	Amount of increase to ratepayers	PSE is unable to provide this information specific to each segment, but can provide it for the total route. PSE estimates the cost increase to average residential ratepayers to be approximately \$1-2 more per month, but this estimate may change based on final project cost.
	Maintenance costs per mile of underground vs. overhead lines	This data is not available. PSE does not currently have an estimate of total cost to underground transmission lines. For more information on undergrounding, please review the underground feasibility report on the project website.
	Total cost estimate of submerging transmission lines	This information is not available at this time. A submarine cable feasibility report will be available in late spring 2014.
	Total cost estimate of all legal disputes and delays (vs. cost of undergrounding)	The estimated cost of all legal disputes and delays is unknown. Per the tariff (Electric Tariff G, Schedule 80, Section 34) the cost of undergrounding is borne by the party or parties requesting the undergrounding.
Design features	Size of transmission lines by segment	This information will be determined during the detailed design phase of the project.
Easements	Number of poles that would follow the right-of-way vs. off the right-of-way	PSE will not have this information available until a detailed design is completed. However, PSE is providing data that shows the total number of miles along public right-of-way versus private right-of-way. Please note that all poles will be located within an easement and not on public right-of-way regardless of the route chosen.

Key topic area	Request	Response
	Number of new easements required	The number of easements required is unknown at this time. Real estate acquisition needs will be evaluated as part of finalizing the design once a route is selected by PSE.
	Number of existing easements	PSE has not yet reviewed all of its easements within the various segments. Once a route is selected by PSE, a full evaluation will be conducted.
	Number of condemnations needed	The number of condemnations is unknown at this time. Real estate acquisition needs will be evaluated as part of finalizing the design once a route is selected by PSE.
	Number of properties with potential legal issues re: easements	Number of properties with potential legal issues is unknown.
Environmental impacts	Number of wildlife, including eagles, ospreys and raccoons	See data table about number of species present. Also, please note some of the information is protected and not publicly available.
	Number of wetlands	See data table.
	Number of stream crossings	See data table.
	Stability of nearby slopes in construction zone	See data table.
	Topography	See data table for steep slopes.
	Number of fault line crossings	See data table for fault lines near a corridor.
	Impact to environmentally sensitive areas	See data table for wetlands, stream crossings, and wildlife presence.
	Percent probability for geotechnical events	See data table for information on fault lines near a corridor and slope stability.
	Regulations requiring exemptions	Specific permits that will be required are not known at this time. Obtaining exemptions is subject to project specific details.
	Impacts to salmon habitat	PSE does not anticipate impacts to salmon habitat regardless of the route chosen.
Existing utilities	Presence of fuel pipelines and their age/condition	See data table for presence of pipelines.
	Existing utilities (power lines, petroleum pipeline, etc.)	PSE does not have consistent data across all segments to make a comparison. While existing utilities are present along all of the route segments, specific existing utilities will be determined during the detailed design phase of the project. Typical utilities found in most public rights of way or utility corridors include water, sewer, communications/fiber, power, natural gas, and storm water.
	Number of interactions with other existing utilities (e.g. Olympic Pipeline)	PSE does not have consistent data across all segments to make a comparison. While existing utilities are present along all of our route segments, the specific existing utilities will be determined during the detailed design phase of the project. Typical utilities found in most public rights of way or utility corridors include water, sewer, communications/fiber, power, natural gas, and storm water.

Key topic area	Request	Response
	Probability of Olympic Pipeline leaks	PSE does not have information on leaks at this time because the pipeline is not owned by PSE. However, if the selected route follows the corridor shared with the pipeline, PSE will continue to work closely with BP, the owner of the pipeline, throughout the detailed design and construction processes to ensure leaks will be avoided during and after construction. PSE has completed other similar projects near the pipeline in the past and no leaks have occurred on the pipeline as a result of any of PSE's infrastructure upgrades.
	Estimated fatality rates from Olympic Pipeline explosion	Because the pipeline is not owned by PSE, data related to the pipeline is unavailable at this time. However, if the selected route follows the corridor shared with the pipeline, PSE will continue to work closely with BP, the owner of the pipeline, throughout the detailed design and construction processes to ensure the area remains safe during and after construction. PSE has completed other similar projects near the pipeline in the past without incident.
Graphics and visual aids	Photo simulations of proposed transmission line along proposed segments showing homes, lines, towers, etc.	See photo simulations.
	Renderings of development for routes, including poles, obstacles and risks	See photo simulations.
	Photos of current substations (showing integration with community character)	See photos on table.
	"Before" and "after" photos of pole types	See photo simulations.
	Industrial zone map overlay with segments on one map	See existing land use/visual conditions graphic.
	Diagram with current substations and transmission lines transposed with potential segments	Due to security reasons, PSE cannot provide information about the locations of all existing transmission lines and substations in the area. However, in the Solutions Report, a high-level map shows the general area of this infrastructure.
	Virtual tour of the segments	PSE was unable to develop a virtual tour in the timeframe provided.
	Olympic Pipeline map overlay with segments on one map	Because the pipeline is not owned by PSE, we are unable to provide that information.
	Fly photo drone over segments to illustrate issues	PSE was unable to fly a photo drone in the timeframe provided.

Key topic area	Request	Response
Health	Polychlorinated biphenyl (PCB) levels at new and existing substations	See data table.
	Amount of EMF reduction of existing lines after upgrading	See data table.
	Proximity of hazards to the line (e.g. trees)	See data table for total number of trees.
	Increase in noise level	This data is dependent upon pole height and configuration, as well as background noise level. There are many construction techniques that help decrease noise. 230 kV lines using similar construction are typically no louder than a whisper.
	Long term impacts of equivalent noise levels to communities	This data is dependent upon pole height and configuration, as well as background noise level. There are many construction techniques that help decrease noise. 230 kV lines using similar construction are typically no louder than a whisper.
	Number of people (residents and users) exposed to potential EMF health impacts	Over the past 30 years, there have been many scientific studies conducted on power frequency EMF. According to extensive reviews conducted by leading public health agencies such as the World Health Organization (WHO) and the U.S. National Institute of Environmental Health Sciences (one of the U.S. National Institutes of Health), this large body of research has not established that exposure to power frequency EMF causes adverse health effects in humans or animals. A third-party EMF expert is available to provide more information.
	Current EMF studies for the voltage being considered	This data will be provided in a study, scheduled to be completed in late spring 2014. The study will include both current and projected EMF levels based on modeling.
	Number of people that will be exposed to more than 5 gauss from lines along each segment	Five gauss is significantly higher than any magnetic field measurement found due to exposure to power lines. Nobody will be exposed to more than 5 gauss as a result of this project. PSE is conducting a study, scheduled to be completed late spring 2014 that will include both current and projected EMF levels based on modeling.
	Proximity and number of people within a certain risk range	Over the past 30 years, there have been many scientific studies conducted on power frequency EMF. According to extensive reviews conducted by leading public health agencies such as the World Health Organization (WHO) and the U.S. National Institute of Environmental Health Sciences (one of the U.S. National Institutes of Health), this large body of research has not established that exposure to power frequency EMF causes adverse health effects in humans or animals. A third-party EMF expert is available to provide more information.

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	EMF health impacts, factoring in the public health impacts of the other intended uses (e.g. light rail) on a cumulative basis and based on worst case scenario	Over the past 30 years, there have been many scientific studies conducted on power frequency EMF. According to extensive reviews conducted by leading public health agencies such as the World Health Organization (WHO) and the U.S. National Institute of Environmental Health Sciences (one of the U.S. National Institutes of Health), this large body of research has not established that exposure to power frequency EMF causes adverse health effects in humans or animals. A third-party EMF expert is available to provide more information.
Longevity	Number of years the line will last before needing to be upgraded	See data table.
Project need	Cost benefit analysis of proposed routes vs. alternative solutions (e.g. battery storage)	PSE does not have this information related to each segment. However, alternative solutions were reviewed during the analysis of the project need and solutions, and either did not solve the problem electrically or were not feasible to solve the problem. For more information, please refer to the solutions report on the project website.
	Energy demand forecasts for customers along segment	PSE is unable to provide this information specific to segment. The transmission system is a complex, interconnected system that serves power to all Eastside energy users. Local use for customers along route segments directly impacts the distribution system, which in turn affects the overall demand on the transmission system in the Eastside area. The new substation is needed near the center of that demand and also equally spaced between the existing Sammamish and Talbot Hill substations that feed power to the Eastside.
Property value impacts	Property value impacts from the existing corridor	This information is unknown. PSE's general experience is that, long-term, transmission lines do not have a significant impact on property values.
	Property value impacts that would result from proposed segments	This information is unknown. PSE's general experience is that, long-term, transmission lines do not have a significant impact on property values.
	Percent decrease in property tax and effects on school funding and emergency services	This information is unknown. PSE does not expect any negative effects on school funding and emergency services. PSE's general experience is that, long-term, transmission lines do not have a significant impact on property values.
	Appraisal on all affected properties and net present value calculation	PSE appraisal needs will be evaluated as part of the real estate acquisition process once a route and the corresponding design are finalized by PSE.
Recreation	Number of recreational amenities	See data table.
	Number of existing parks and pathways	See data table.
	Number of adjacent parks	See data table.
	Number of planned parks and pathways	PSE does not have data to support this request.

Key topic area	Request	Response
	Number of visitors to adjacent parks	PSE does not have data to support this request.
	Number of recreational users of Lake Washington Boulevard	PSE does not have data to support this request.
	Number of visitors, trails, cars and bikes who will see new infrastructure	Data is unavailable at this time. While this information is dependent upon final route and design, PSE is working on a preliminary view impact analysis, which will be shared upon completion.
	Impact to community access areas	See the "Parks" section of the data table. Impacts cannot be assessed until a design has been developed.
Residential impacts	Number of homes within 100 feet, within 300 feet and within one mile	See data table for residences within 25 feet and 600 feet.
	Number of households immediately adjacent	See data table for residences within 25 feet.
	Number of households newly impacted	See data table.
	Number of historic homes	See data table for number of registered historic sites.
	Population density within a quarter mile	No resource available with accurate data at a resolution level needed to get an estimate.
	Number of people impacted	No resource available with accurate data at a resolution level needed to get an estimate.
	Number of low income households	PSE does not have data to support this request. The permitting process does not allow the value of properties to be considered as a route selection tool for social justice reasons.
Schools	Number of schools within 100 feet, a quarter mile and one mile	See data table for number of schools within 25 feet and within 600 feet.
	Number of child care facilities	See data table for number of child care facilities within 25 feet.
Undergrounding	Total cost estimate of undergrounding transmission lines (verified by independent consultant)	PSE estimates it costs \$20-28 million per mile to construct an underground transmission line, but that figure does not take into account other project costs. PSE does not currently have an estimate of total cost to underground with other project costs included. For more information on undergrounding, please review our underground feasibility report available on the project website.
	How much can be placed underground	This information can be found in the undergrounding feasibility study published on the project website.
Vegetation	Number of trees removed	See data table for total number of trees. Number of trees removed is dependent upon final route and design.
	Number of mature trees	See data table for total number of trees.
	Ability to enhance landscaping in corridor	This information is unknown until a detailed design is completed. PSE will work one-on-one with affected property owners to restore areas disturbed by construction.

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View impacts	Number of homes that would be visually impacted by new lines	PSE does not have the data at this time. While this information is dependent upon final route and design, PSE is working on a preliminary view impact analysis, which will be shared upon completion.
	Number of open areas visually impacted	PSE does not have the data at this time. While this information is dependent upon final route and design, PSE is working on a preliminary view impact analysis, which will be shared upon completion.
	Number of properties with view impacts	PSE does not have the data at this time. While this information is dependent upon final route and design, PSE is working on a preliminary view impact analysis, which will be shared upon completion.
Other	Fairness in the different routes	There is no data to support this request. However, in an effort to be fair and equitable in our process, PSE is engaging in a robust public outreach process to ensure all members of the public have the same opportunity to provide comments on our route options.
	Data from other communities that have had a transmission line built in them (expected costs, route challenges for construction)	PSE has completed many similar transmission line projects over the years and is familiar with general project costs and route challenges. One recent example of another 230 kV line built through a residential area is the Covington-Berrydale transmission line, completed about three years ago. The project rebuilt two 115 kV H-frame lines to a single double-circuit 230 kV line.
	Solutions from Europe and major metro areas in the U.S.	Overhead poles and wires are still the standard solution. Undergrounding is used for 230 kV transmission lines only 0.5-0.6% of the time in the US and less than 2% in Europe, typically in areas where there is no space for overhead lines.