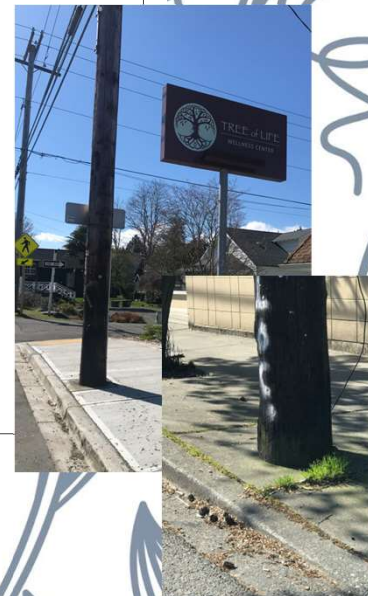


PSE OPTIONS

Alternatives to Easement Acquisition on Vashon Maury



"Can't be built upon...can't be landscaped"

"Ingress/egress .. kept free of vehicles"

"No purpose but unaltered open space"

"Not usable to owner .. no buildings or structures"

"Some over 100' * wide - High voltage transmission"

"If easements counted as buildable area ... houses dangerously close to potentially hazardous transmission lines"



CITY OF SEDRO-WOOLLEY
PLANNING DEPARTMENT
325 Merrick Street
Sedro-Woolley, WA 98284
Phone (360) 855-0771
Fax (360) 855-0733

BACKGROUND

Minimum lot size requirements in residential areas are in place to ensure that property owners are afforded adequate space to fully and safely enjoy the intended use of their private property. Certain easements interfere with this intent. The area covered by ingress/egress easements granted to neighboring properties cannot be built upon, landscaped or otherwise enjoyed by the property owner. Utility easements for hazardous transmission lines also cannot be built upon, may contain hazardous transmission lines and in many cases cannot be landscaped.

There is concern that if transmission line easements are allowed to be included in lot area calculations or lot width at building line requirements, a large portion of the lot area may be encumbered by easements, leaving the property owners unable to use the space on their lots as intended by the Sedro-Woolley Municipal Code and Comprehensive Plan. Equivalently, if the area or lot width at building line is encumbered by shared ingress and egress easements, the property owner's use of their property is limited.

ANALYSIS

Transmission line and ingress/egress easements can be problematic for property owners because if such easements exist on their property, that area cannot be used for any purpose other than unaltered open space or a shared driveway. Ingress/egress easements are required to be kept clear of vehicles and other obstructions so that other properties may gain access to their property across the easement. The area encumbered by such an easement is not usable to the owner of the lot on which the easement occupies.

Transmission line easements - in particular easements for gas transmission lines and electric (power) transmission lines - come with very strict rules from the utility provider. These restrictions preclude the construction of any buildings or structures. The high power transmission lines do not allow even fences or benches. The electrical easements do not allow landscaping to grow over a certain height, and gas transmission easements do not allow any landscaping such as trees or shrubs that put roots down into the ground. The width of any easement depends on the utility. Some power easements are over 100' wide for the high voltage transmission lines, while other power easements, such as the regional transmission line easements, are much narrower. All easements are recorded and previously determined by the utility provider. The proposed zoning code amendments do not alter the existing easement widths.

If new residential developments are allowed to count transmission line or ingress/egress easements toward buildable area on a lot, the resulting home may have an unusable yard (with potentially hazardous transmission lines) and the new home is forced to be dangerously close to gas or power transmission lines. Said easements should therefore not be included in buildable area calculations or lot width at building line requirements in order to ensure residents of Sedro-Woolley have safe, usable space on their property.

Staff Report - Easement impacts on lot area of new lots
City of Sedro-Woolley

https://cms5.revize.com/revize/cityofsedrowoolley/Governing%20Bodies/Planning_Commission/Materials/2019/20190716_PC_Staff_Report_re_Easement_Impacts_on_New_Lots.pdf

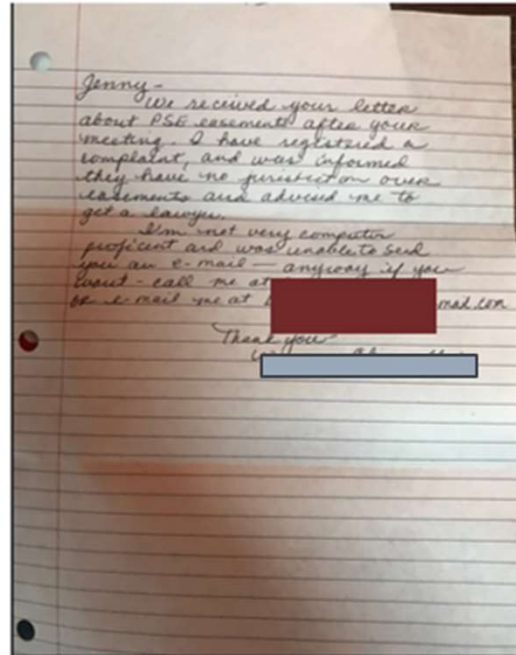
PSE Easements: Sedro Wooley, Planning, WA

REDUCE BUILDABLE AREA: "houses dangerously close to potentially hazardous transmission lines"



Elderly neighbor: 'it was hard.
There were 3 PSE salespeople
telling me to sign'

Area of focus



PG&E and CA FIRES

PG&E faced increased regulatory pressure after its equipment was found responsible for a series of wildfires in Northern California, including the 2020 fire which resulted in the deaths of four people and destroyed hundreds of houses. California's Public Utilities Commission found that PG&E was neglectful in its maintenance of the grid.

<https://pdi2.org/wp-content/uploads/2021/03/108-NEI-Underground-Presentation-06-09-09.pdf>

"99% REDUCTION IN
IGNITION RISK WITH
UNDERGROUND LINES...
LOWEST LONG TERM COST"

PG&E California Wildfire risk reduction strategy



UNDERGROUNDING

A Safer, Stronger and More
Affordable Energy Future

FEBRUARY 2023

To better serve our customers and communities and reduce wildfire risk, PG&E is undergrounding 10,000 miles of powerlines.

What is undergrounding?

Undergrounding is the process of moving sections of overhead powerlines beneath the ground. This work will benefit our customers by:

- Helping prevent wildfires caused by equipment
- Reducing power outages and improving reliability
- Driving long-term affordability
- Decreasing the need for future tree work

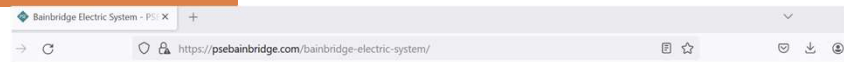
↓ 99%

reduction in ignition
risk at locations with
lines undergrounded.

This makes it one of the most
effective ways to reduce
wildfire risk at the **lowest
long-term cost to customers.**

BAINBRIDGE:
58%
UNDERGROUND

<https://psebainbridge.com/bainbridge-electric-system/>



Bainbridge Electric System

PSE has developed and maintained the electric system on Bainbridge Island since the early 20th century. As the Bainbridge population increased, so did the demand for power. We expand our electric system to meet demand and support energy efficiency investments on the Island. The Island's population has increased from just over 4,000 residents in 1950, to nearly 25,000 residents as of 2022. As population continues to grow, investments in infrastructure, reliability and energy efficiency will be needed to provide safe, reliable, efficient power into the future.

How power gets to you

Bainbridge Island's electricity goes through a series of steps before it reaches you:

1. Electricity is generated at a place such as Wild Horse Wind & Solar Facility or Baker Dam.

Electric System Facts

Bainbridge has:
2 transmission lines
3 substations

[View the power grid map](#)

322 miles of distribution lines

186 miles are underground

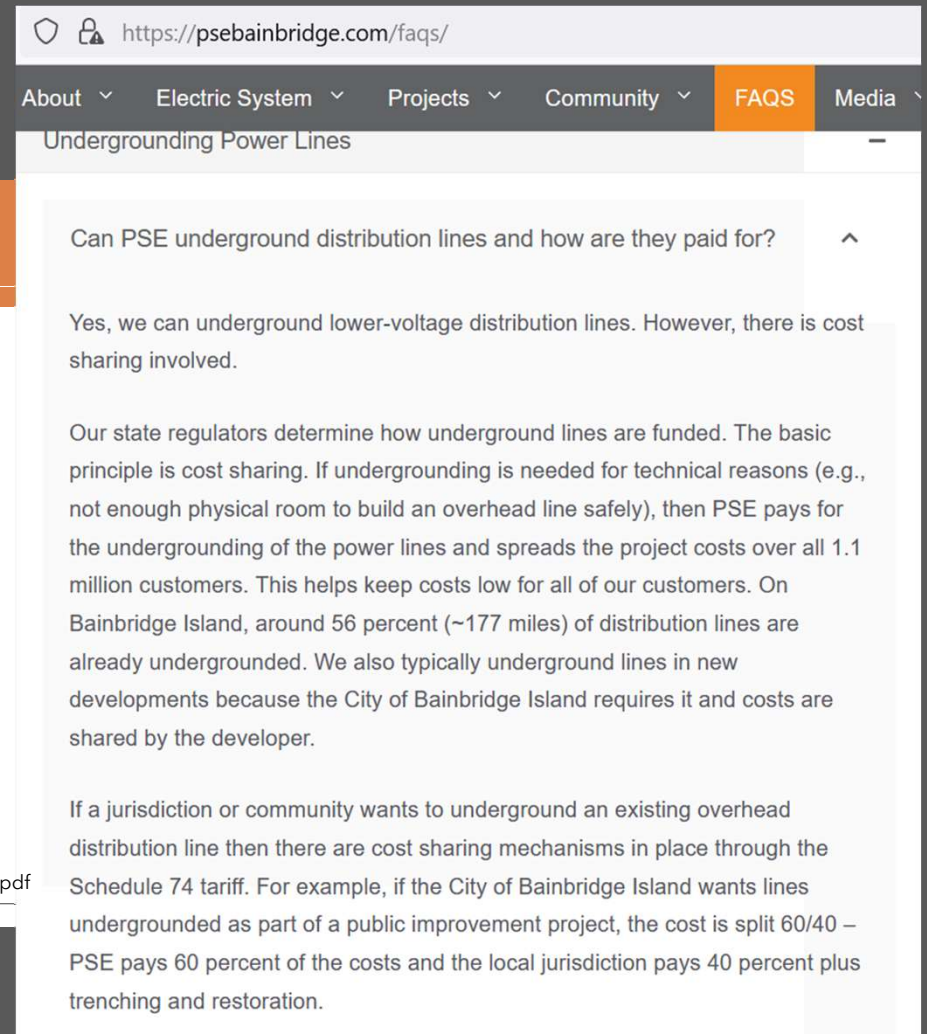
24 miles are specially coated tree wire

COSTS

'COSTS ARE COVERED BY ALL 1.1M CUSTOMERS'

"it is up to the community to decide whether to invest in it."

<https://pdi2.org/wp-content/uploads/2021/03/108-NEI-Underground-Presentation-06-09-09.pdf>



The screenshot shows a web browser window with the URL <https://psebainbridge.com/faqs/>. The navigation menu includes 'About', 'Electric System', 'Projects', 'Community', 'FAQS' (highlighted in orange), and 'Media'. The page title is 'Undergrounding Power Lines'. A FAQ entry is visible with the question: 'Can PSE underground distribution lines and how are they paid for?'. The answer states: 'Yes, we can underground lower-voltage distribution lines. However, there is cost sharing involved. Our state regulators determine how underground lines are funded. The basic principle is cost sharing. If undergrounding is needed for technical reasons (e.g., not enough physical room to build an overhead line safely), then PSE pays for the undergrounding of the power lines and spreads the project costs over all 1.1 million customers. This helps keep costs low for all of our customers. On Bainbridge Island, around 56 percent (~177 miles) of distribution lines are already undergrounded. We also typically underground lines in new developments because the City of Bainbridge Island requires it and costs are shared by the developer. If a jurisdiction or community wants to underground an existing overhead distribution line then there are cost sharing mechanisms in place through the Schedule 74 tariff. For example, if the City of Bainbridge Island wants lines undergrounded as part of a public improvement project, the cost is split 60/40 – PSE pays 60 percent of the costs and the local jurisdiction pays 40 percent plus trenching and restoration.'

REPAIRS

*UP TO 10X LESS OUTAGES WITH UNDERGROUND

*10X LONGER TO REPAIR

-CANCEL OUT EACH OTHER-

NEI - Electrical Field and Power Engineering
Consultants

Distribution: 15kV and Below

- 80% of all outages occur on the distribution system.
- 15kV underground distribution is becoming very common for new line
- The number of outages due to underground distribution are far less than overhead distribution.
 - An improvement of up to 10 times is possible when lines are placed underground.



HOWEVER:

- Time to repair, outage duration, is much longer (up to 10 times longer) for radial distribution systems (the most common type).
- The two effects counterbalance each other and underground radial lines may be no more reliable than overhead lines. They will be impervious to widespread outages due to ice.
- Underground systems are harder to modify.

NEI Electric Power Engineering

14

<https://pdi2.org/wp-content/uploads/2021/03/108-NEI-Underground-Presentation-06-09-09.pdf>

OVERHEAD VS UNDERGROUND COSTS

NEI - Electrical Field and Power Engineering Consultants

TRANSMISSION: UNDERGROUND MAY BE 4-20 TIMES OVERHEAD.

SUBTRANSMISSION: UNDERGROUND MAY BE 4-20 TIMES OVERHEAD.

DISTRIBUTION: UNDERGROUND MAY BE 2-10 TIMES OVERHEAD.

NEW UNDERGROUND MAY BE CHEAPER THAN OVERHEAD IN SPECIAL CONDITIONS AND COSTS VARY GREATLY FROM UTILITY TO UTILITY AND PLACE TO PLACE.

<https://pdi2.org/wp-content/uploads/2021/03/108-NEI-Underground-Presentation-06-09-09.pdf>

REDUCE OUTAGES -DESIGN-

NEI - Electrical Field and Power Engineering Consultants

RADIAL VS LOOPED

The Main Objection to
Underground Distribution Lines
Can Be Solved

The distribution system can be changed from radial to looped.
This greatly reduces outage time.

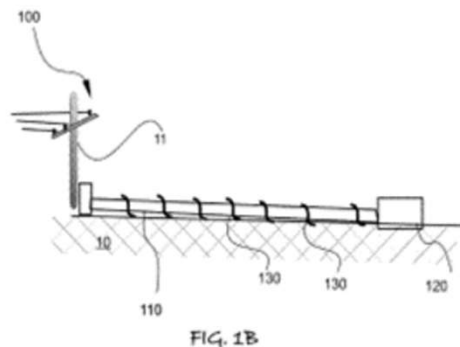
Radial
Distribution
System

NEI Electric Power Engineering 15

<https://pdi2.org/wp-content/uploads/2021/03/108-NEI-Underground-Presentation-06-09-09.pdf>

Ground Level Distribution (GLDS)

Ground Level Distribution System (GLDS) is an implementation on the hybrid undergrounding concept. GLDS is a “no excavate” approach that negates the costs of excavation whilst providing similar benefits of traditional undergrounding

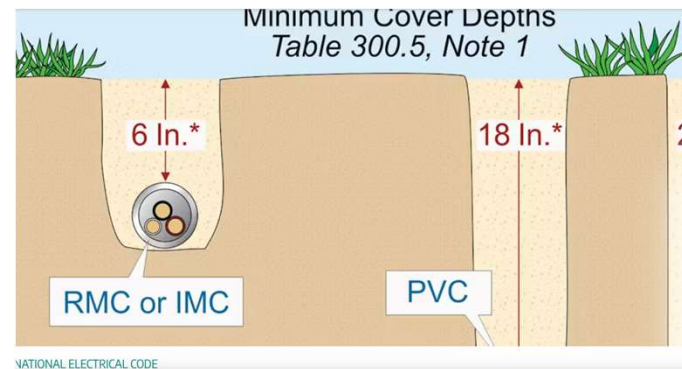


GLDS conceptual diagram from US patent [1]


PG&E officials said the undergrounding process typically costs about \$3.5 million per mile of cable going underground.

The new method — which inserts the cable into a hard surface that typically can't be cut open with everyday tools (and withstands being run over by semi-trucks without damage) will cost about \$1.5 million to \$2 million per mile and be done 2-3 times faster

'MINIMUM COVERAGE' OPTIONS



<https://www.ecmweb.com/national-electrical-code/article/20902845/stumped-by-the-code-requirements-for-underground-cables-and-raceways>



UNDERGROUND CABLES NOT ONLY PROTECT AGAINST
BLACKOUTS DURING PEAK LOAD HOURS AND SEVERE WEATHER
EVENTS, BUT ALSO FROM AN ENVIRONMENTAL POINT OF VIEW
PROVIDE MASSIVE ELECTRIFICATION, WHICH IS THE **BEST WAY** TO
DECARBONIZE OUR ENERGY SYSTEM.

Undergrounding and Climate Change Strategies

<https://www.power-grid.com/td/why-underground-cables-are-a-better-long-term-choice-for-utilities/>