



Narration: Puget Sound Energy serves customers across western Washington. We generate electricity from a variety of sources, including hydropower, coal, natural gas and wind. And we move this power through our electric system to serve our residential, business and commercial customers.




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



Narration: Our customers use more electronics and there are more and larger houses and businesses in the communities we serve. As demand for power grows, parts of our electric system are reaching their capacity limits.

Capacity means being able to supply enough power across our lines, while reliability means making sure we can provide power even when parts of the system are out of service.

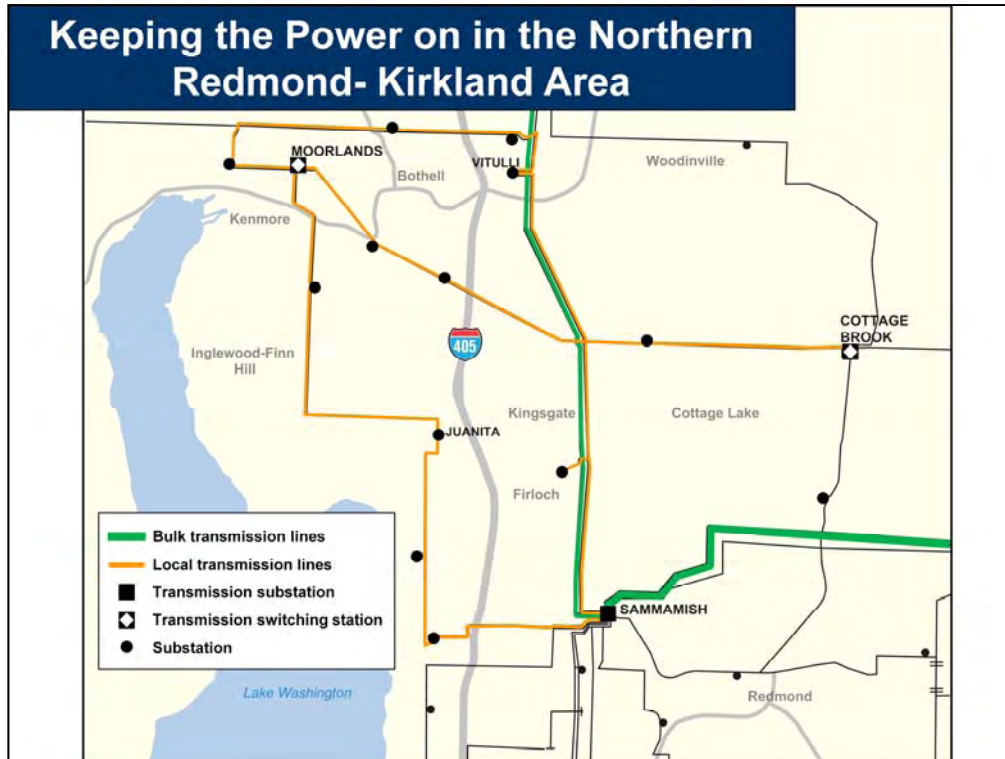


Solutions to capacity and reliability challenges

- Expand or rebuild existing infrastructure
- Build new infrastructure
- Energy efficiency
- Alternative energy
- Energy storage

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Narration: We are using a number of tools to solve capacity and reliability challenges - we're building new infrastructure, such as substations and transmission lines, and expanding or rebuilding existing infrastructure. We're also using or looking at other non-traditional solutions such as energy efficiency programs, alternative energy and energy storage.

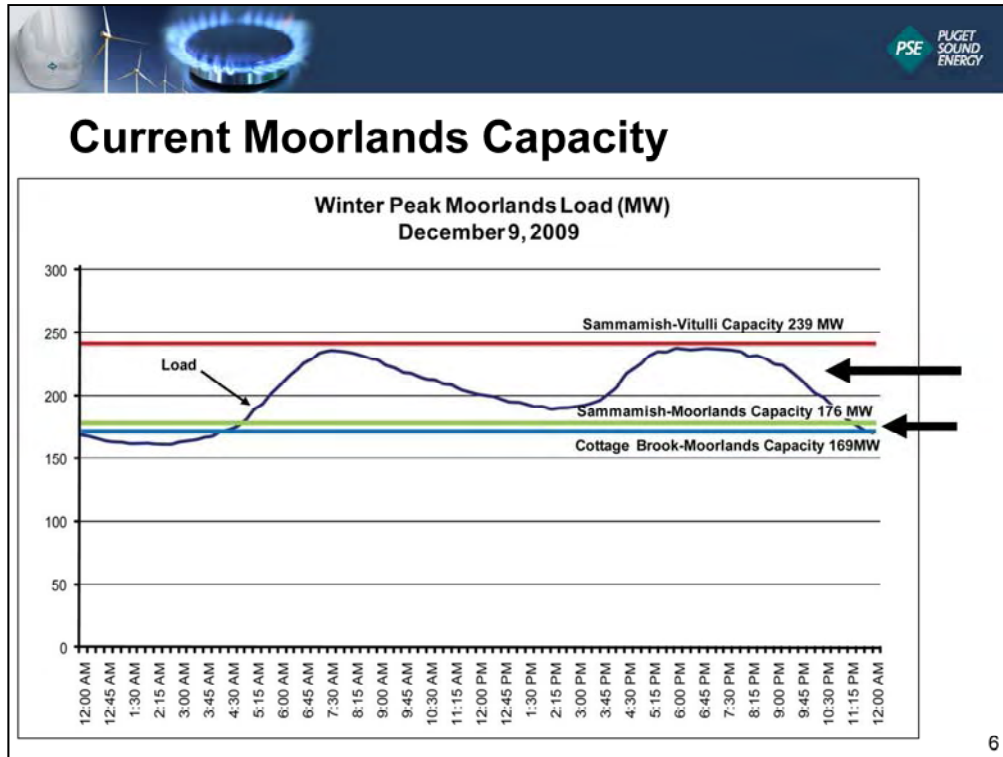


Narration: For the northern Redmond-Kirkland area, our electrical system – known as the Moorlands system – serves a population of approximately 150,000 residential, business and commercial customers.

Like other parts of our system, the Moorlands system faces capacity and reliability challenges.

The green lines show power entering the area. The orange lines are the Moorlands electric system, which is made up of local transmission lines running between the Sammamish, Moorlands and Cottage Brook transmission substations. Power is moved between these three substations to feed 12 local substations.

The Moorlands system was built prior to the 1960s but a lot has changed in the area since then. And, now our local transmission lines are approaching their capacity limits.




Narration: When we look at an electric system we have to plan for peak loads. In general we have two peaks – winter, when customers are keeping warm and using more lighting, and summer, when customers are trying to cool off.

This graph shows the winter peak (the curved load line). As you can see, it exceeds the existing capacity along the Sammamish-Moorlands line and the Cottage Brook-Moorlands line.


Under certain conditions, the existing system can be overloaded, resulting in loss of service to our customers. We need to add capacity in order to meet our existing and growing demand for power and to continue to provide reliable service to our customers.

We have three Moorlands system projects which together will increase system capacity and improve service reliability.



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




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Narration:

The Moorlands system projects include:


- The Cottage Brook-Moorlands Project – We will rebuild the existing transmission line between the Cottage Brook and Moorlands substations with higher-capacity wire and new insulators and poles.
- We also have the Moorlands-Vitulli Project – Here, we will also rebuild the existing transmission line.
- And we have the Sammamish-Juanita-Moorlands Project – This project will increase capacity and improve reliability by building a new transmission line between the Sammamish and Moorlands substations in two phases. Phase 1 is our current project - the Sammamish-Juanita transmission line. Phase 2, likely years in the future, is the Juanita-Moorlands transmission line.

By doing all of these projects we can increase system capacity, improve reliability, and reduce the risk of loss of service to our customers.



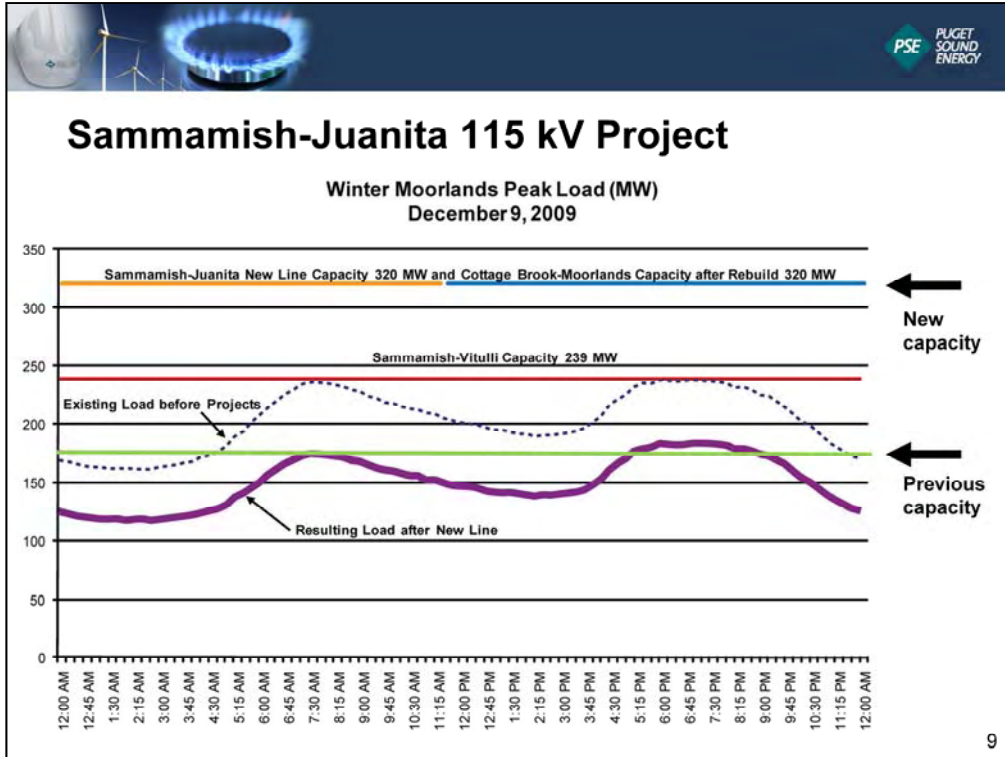
Samamish-Juanita 115 kV Project

- A new line will:
 - Increase available capacity by moving two substations off the existing system
 - Improve reliability by adding an additional transmission pathway for the system



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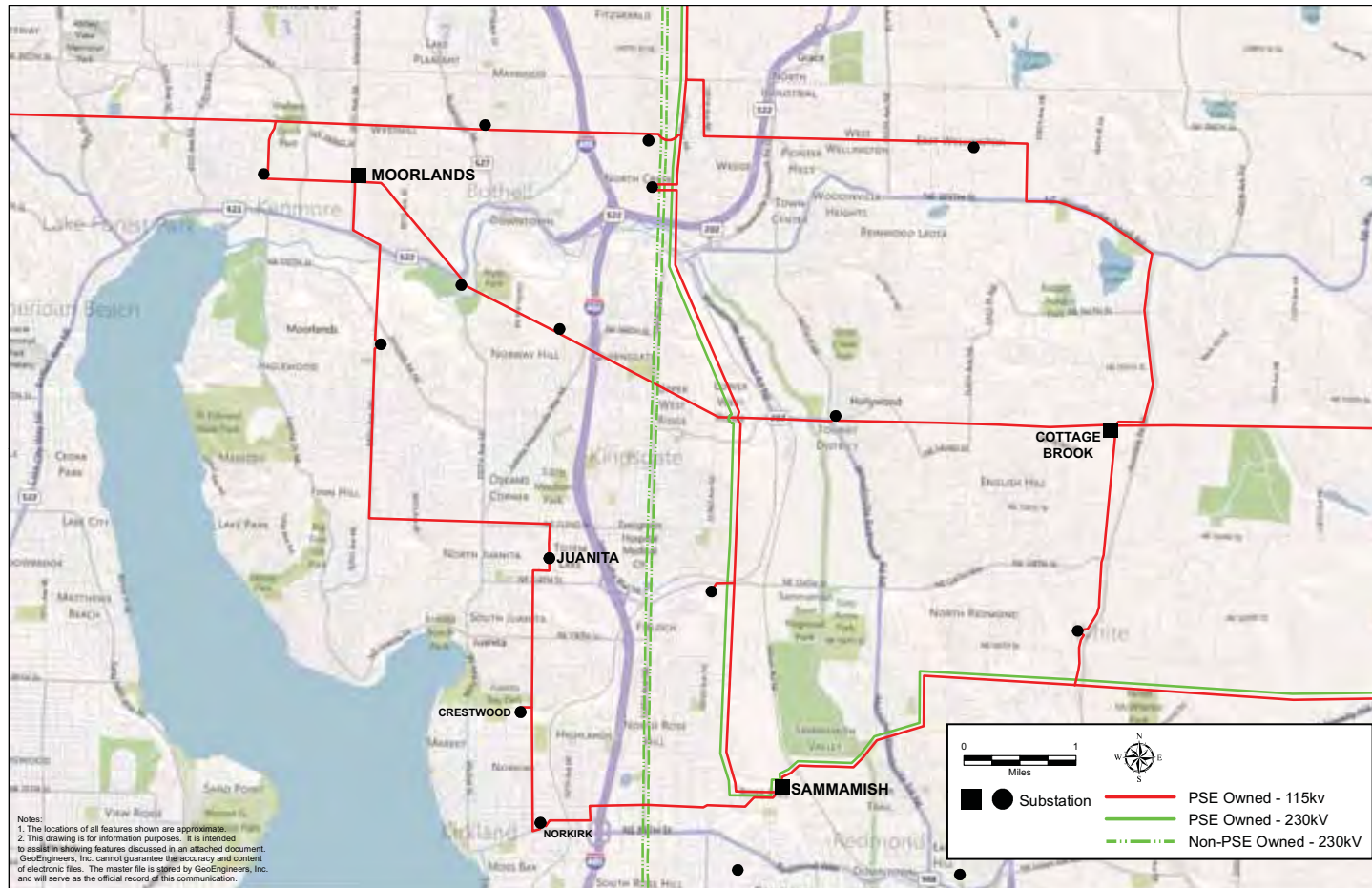
Narration: Our local system serves 12 substations. By building the new Sammamish-Juanita line we can move two substations off the Moorlands system to another system that has more capacity. This will increase available capacity within the system and improve system reliability by adding an additional transmission pathway to the Moorlands system.



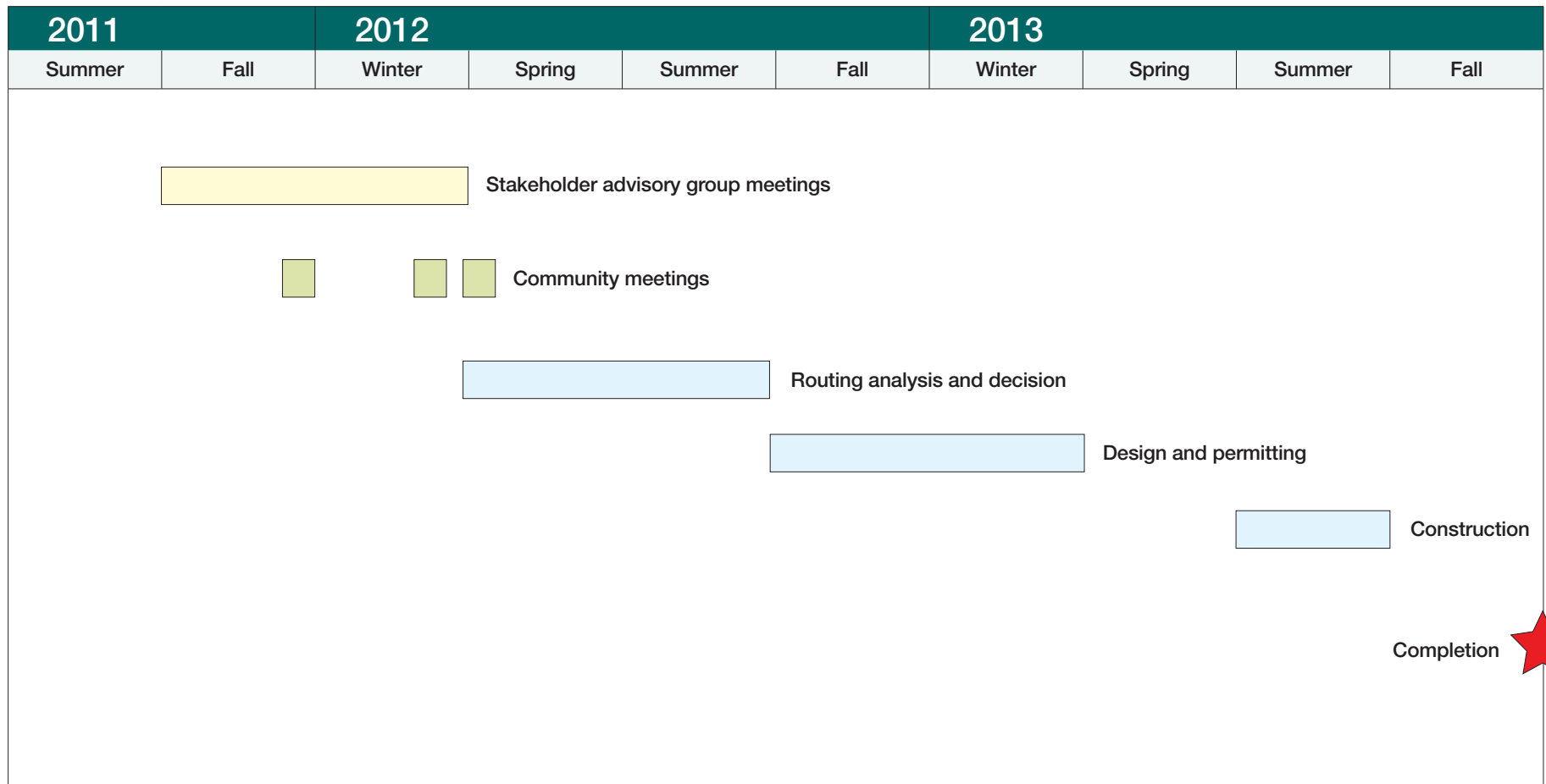
Narration: By building all three projects, the system capacity will exceed electrical demand (as shown by the purple load line).

While we've been working on this project for a while, we've expanded our community involvement to help us develop a community-acceptable route alignment that will meet the needs of the local community, PSE's customers, and PSE.

Moorlands Electric System



Project Schedule



Examples of typical transmission structures



Single-circuit 115 kV wood pole without distribution underbuild



Single-circuit 115 kV wood pole with distribution underbuild



Single-circuit 115 kV wood pole with bundled conductor



Single-circuit glu lam pole



Single-circuit 115 kV wood H-frame structure



Single-circuit galvanized steel monopole



Double-circuit weathered steel monopole