

Getting Power to Where it is Needed...So What's the Problem?

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Wahkiakum PUD – who are we?

- 2670 electric customers
- 36 miles wide
- 12 employees
- 1 incorporated town



Challenges

Preface - THE SKY IS NOT FALLING and the Clean Energy Future bus has left the station!

The Biden Administration has an aggressive goal of a decarbonized grid by 2035

- Tremendously aggressive goal with significant challenges

Electrification will drive load growth

- Removal of natural gas
- Additional electric equipment and appliances
- Additional e-mobility and transportation equipment



Challenges - Generation

Generation and customer load must be in balance 24/7/365

Wind and solar have resource adequacy challenges

- Will the generation source be available when needed?
- Intermittent resources change the way we do resource planning

Siting and permitting can take years...and even decades

Developers are concerned about Return on Investment



Challenges – Transmission and Distribution

New load growth means a build out of the transmission and distribution systems

- Get power from the source (generator) to the load (customer)

A transmission line is like the freeway - direct with few off ramps

A distribution line is like a city street with a lot of side streets

It can be difficult to site generation near customer load

- Regulations, customer preferences, etc.



Challenges – Transmission and Distribution

Siting and permitting can take decades

Will your electric network – poles, wires, and transformers – be able to accommodate it??

Keep in mind....

- Who is going to pay for it?
- How long is it going to take to site, permit and build?



Cost Challenges

According to a Black & Veatch Study:

- A new distribution circuit can be \$100K to \$1M
- A new power transformer can be \$1M to \$5M
- A new substation can be \$5M to \$10M
 - And we may even need to upgrade the transmission line to serve this new substation

Note: These are general costs. Costs for small utilities will likely be much less than costs for large load utilities.

https://webassets.bv.com/2019-11/Electric_Fleets_Ebook_2019.pdf



So what do we do?

- There is no one-size-fits-all answer
- It will take collaboration
- It will take innovation and technology
- **ANYTHING IS POSSIBLE WITH TIME AND MONEY!**

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