Spark Northwest

OPUC Distribution System Planning Workshop

Alexia Kelly
Policy Advisor
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Who Is Spark Northwest?

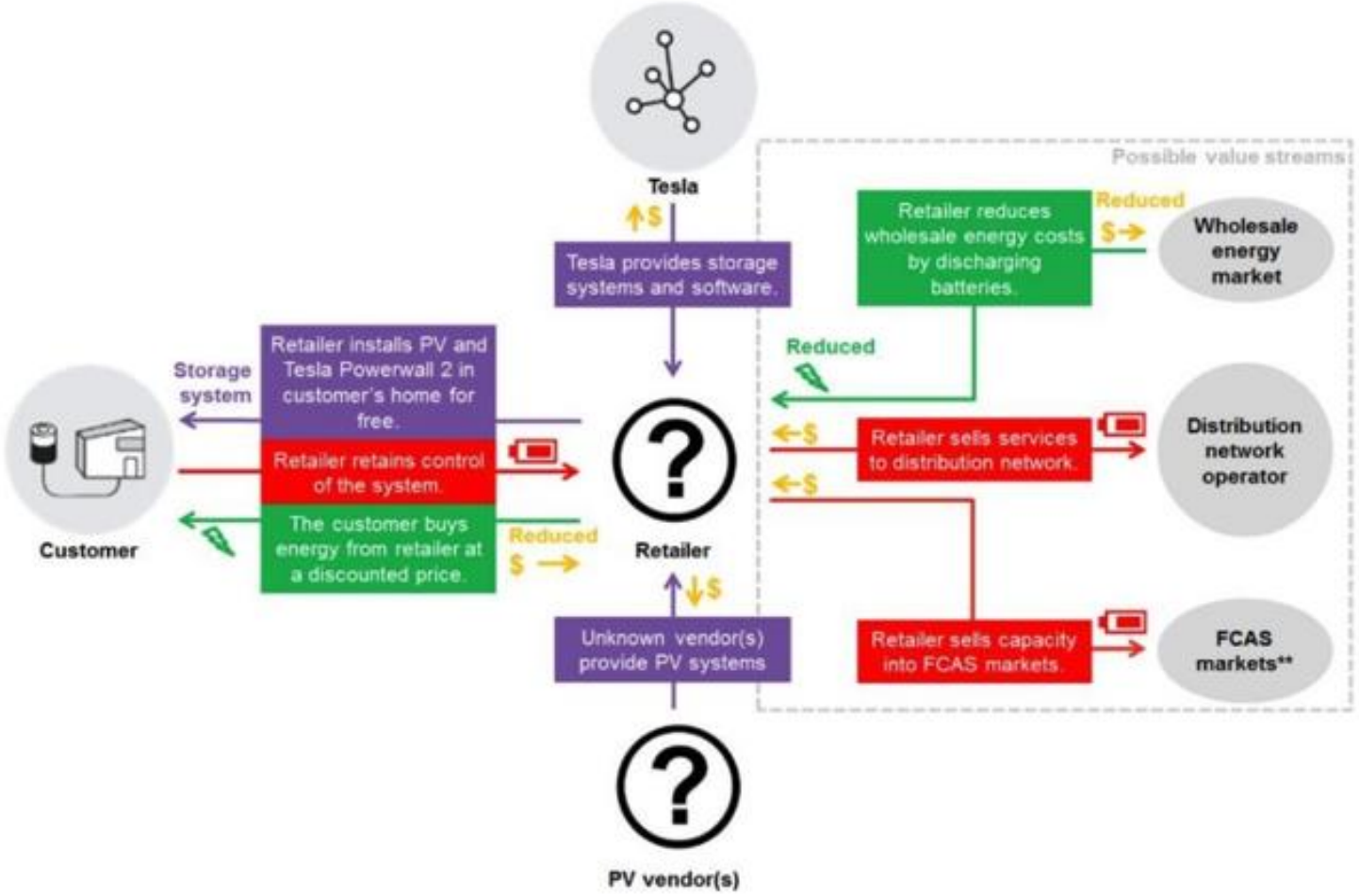
Nonprofit organization founded in 2001 to speed the equitable transition to clean energy in the Pacific Northwest. Through renewable energy projects and policy change, we envision a region powered by clean energy.

First Principles: The New Electricity System

DSP End Goals

- Spark Northwest envisions a distribution system that is:
  - **Equitable**- Allows for participation in the energy system by a broad range of stakeholders. Supports direct financial benefit to historically disenfranchised communities and populations- particularly communities of color, tribes and rural areas
  - **Resilient-** Contributes to climate change response and is resilient to climate change impacts
  - **Clean-** Decarbonized and reliable with a mix of generation types and locations
  - **Advanced-** Able to integrate and benefit from technology advances.
  - **Mutually Beneficial-** Solutions should address customer and system needs

Case Study: How Virtual Power Plants Work



Source: BNEF, 2018

Case Studies-Virtual Power Plants

Tesla's 2% Complete Virtual Power Plant Rescues Grid After Coal Peaker Plant Failure

Virtual Power Plants and Home Batteries May Shape the Future of Net Metering in the United States

Tesla virtual power plant in Australia reduces electricity rate by 'more than 20%', moving to phase 3

Replacing Power Plants with Low-Income Residential Solar+Storage

Sunrun Wins Another Capacity Contract for Aggregated Home Storage

Hawaiian Island will Create a Virtual Power Plant from 1,000 Solar Homes

September 11, 2019 By Andrew Burger 1 Comment

07-20-19 | WORLD CHANGING IDEAS

This "virtual power plant" made of solar and batteries means Oakland can stop burning jet fuel

The solar panels will power low-income housing—and then fill up batteries to use when demand peaks.

Current Challenges

- Few paths to market for non-utility sponsored projects
- Regulatory structure that does not accommodate/facilitate innovation
- Siloed planning processes led by utilities for highly interdependent topics
  - IRP, DSP, Capacity, etc.
- Lack of access to data
  - Hosting capacity, feeder maps, assumptions/inputs for system impact studies
- Interconnection process and costs
- Existing rate structures do not enable generators to capture full value stream of benefits and disincentivizes utilities from advancing integration of DERs
- Cost allocation for DSP upgrades as a result of DERs

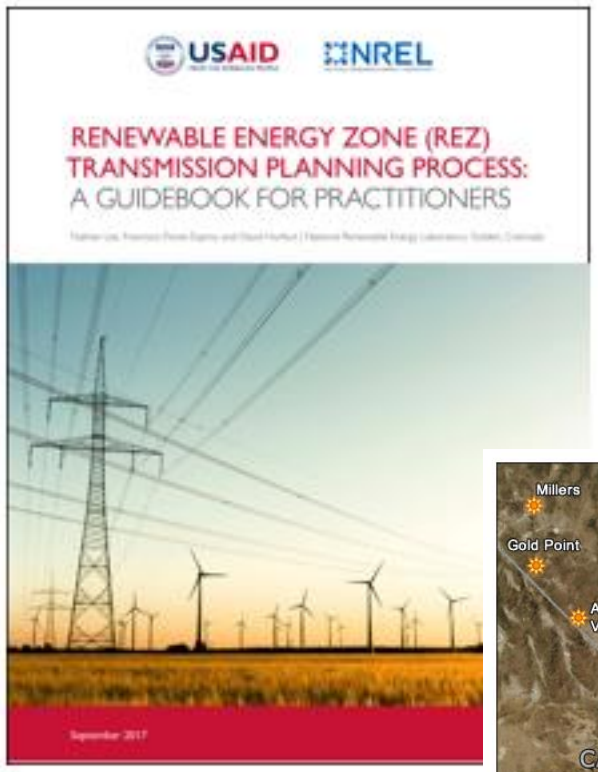
Interconnection challenges: Case Studies

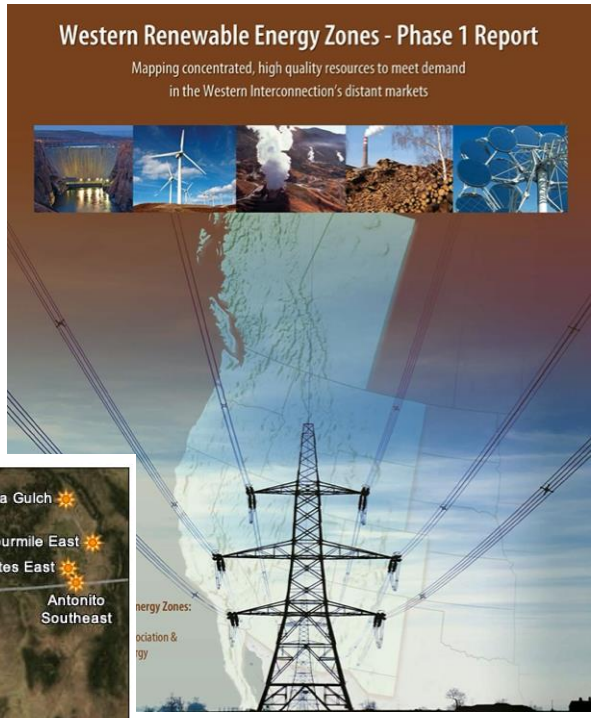
- 18kw behind the meter solar project (total cost of project $200K)
  - System Impact Study $59,300 in interconnection costs (distribution transformer modifications)
  - Evaluated by third-party electrical engineer and assumptions rebutted
  - Utility removed costs after project developer submitted third party analysis
- 61kw small scale hydro ($300K project)
  - $590,000 interconnection- project killed

Solutions

- Integrated planning processes (more on this shortly)
- Enhanced transparency and equal access to pertinent planning data
- Interconnection process reform (being addressed in other dockets but essential)
- Rate structure reform (also addressed in other dockets but essential)
- Support for innovation and piloting (by both utilities and non-utility actors)

A Modest Proposal: Smart Energy Zones





Smart Energy Zones for Oregon

- Planning process that includes:
  - Identification of areas of the grid that are:
    - better equipped to integrate DERs (eg excess hosting capacity)
    - Areas that have good renewable resource (solar, microhydro, etc)
    - Identified capacity constraints/load pockets
    - Areas subject to public power safety shut offs and/or are at high risk of natural disaster/disturbance
  - Process would result in:
    - Streamlined and standardized interconnection analysis and cost allocation for projects that meet certain pre-agreed criteria
    - Transparent mapping and disclosure of feeder data and hosting capacity
    - Application of “regulatory sandbox” “innovation zone” concept that would enable demonstration projects to be implemented with minimal regulatory hurdles
    - Potentially preferential rates structures for projects located in priority areas

Benefits of Smart Energy Zones

- Enhanced transparency and predictability for both utility and project proponents
- Enables non-utility sponsored DERs to be planned for and valued in a more predictable, cost effective and and integrated fashion
- Enables utilities and regulators to target transmission and distribution in a systematic fashion
- Can help support and direct DER development in communities/places that will derive the most benefit

Spark Northwest

We accelerate the shift to clean energy one community at a time.

Alexia Kelly
Policy Advisor

T 541.514.3633
E: alexia@sparknorthwest.org

sparknorthwest.org
@sparknorthwest