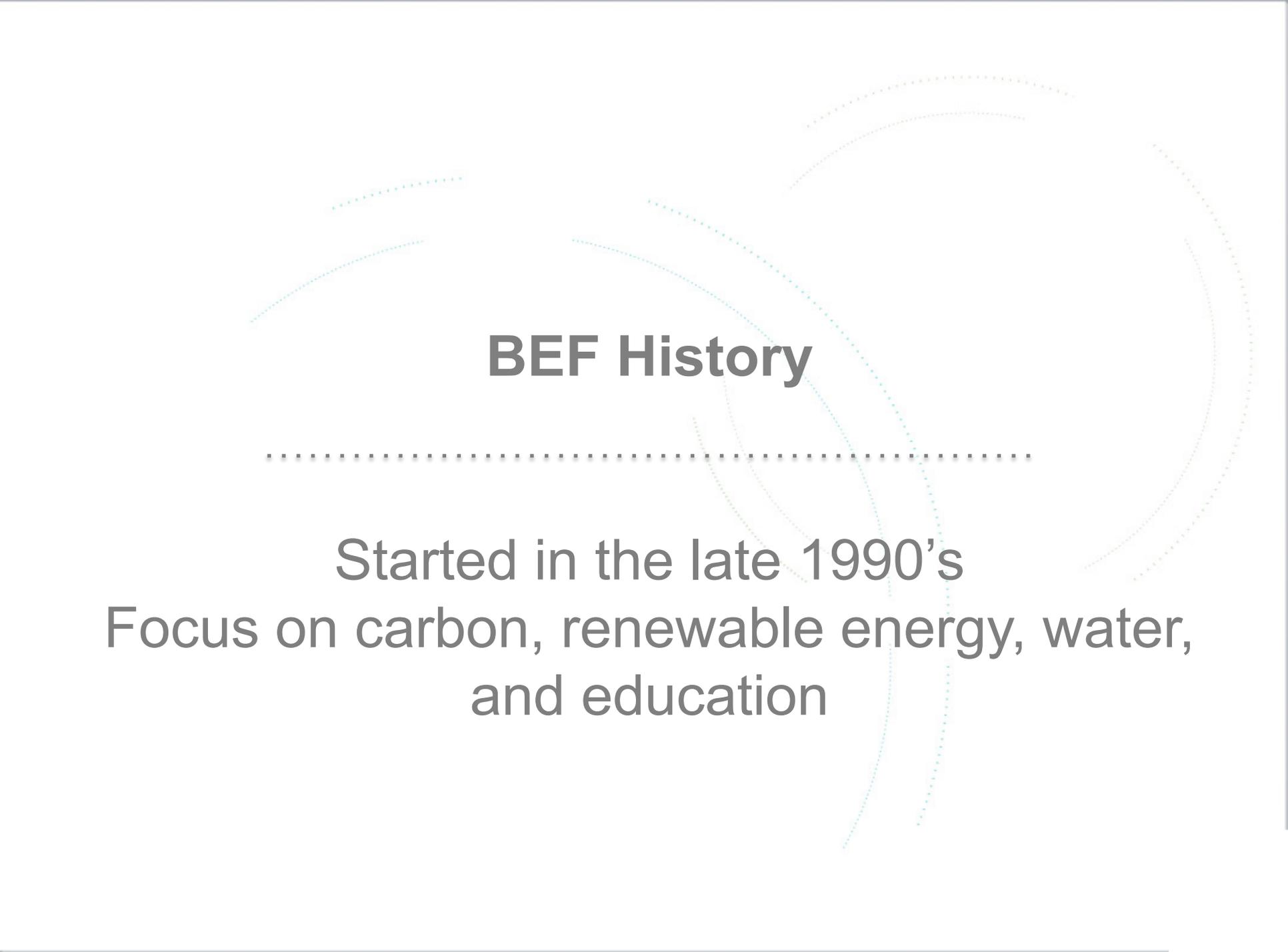




empowering business
to be in balance

DOE Indian Energy – Community Solar

Lucas Kappel, Bonneville Environmental Foundation | 09.26.18



BEF History

Started in the late 1990's
Focus on carbon, renewable energy, water,
and education

Lucas' Background

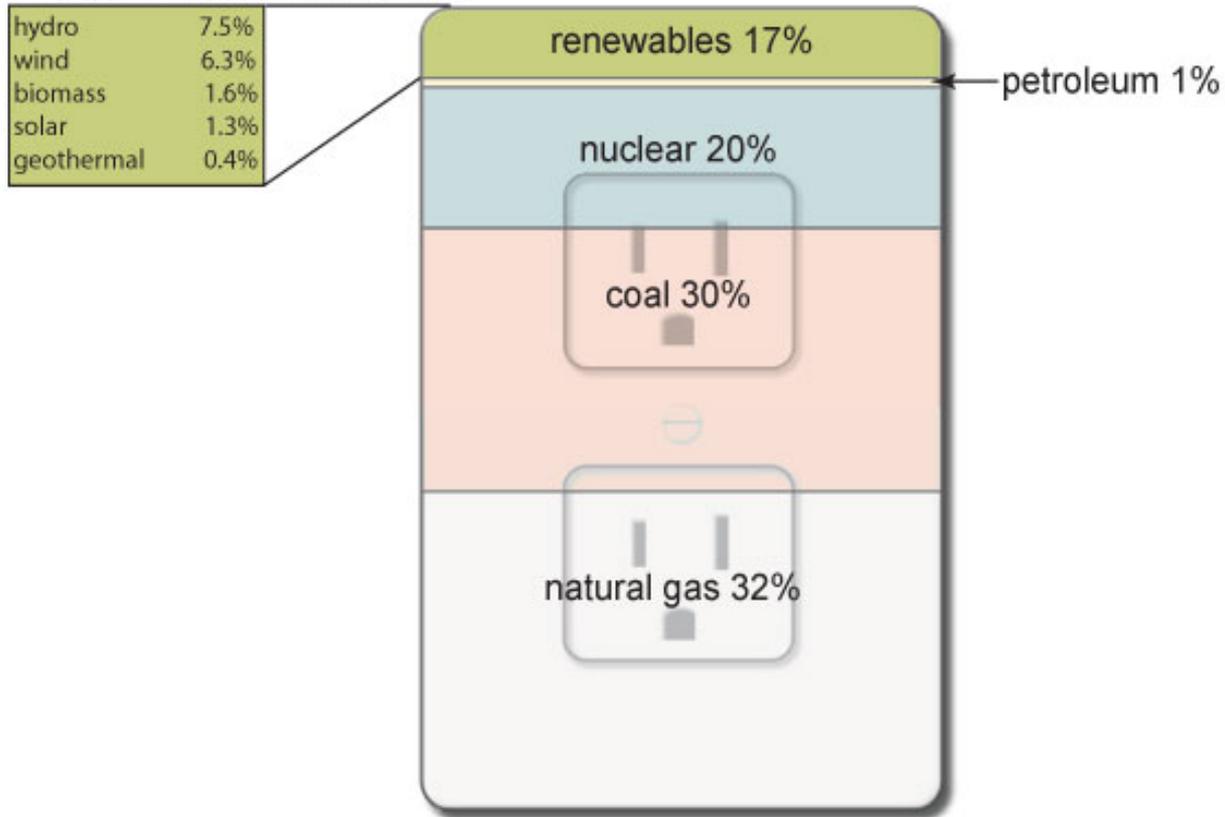
- 5+ years renewable and energy efficiency
- Experience with residential, commercial, tribal, low to moderate income, and government.
- Completed audits, supported programs, and project development / management.
- Have been at BEF about 2 years.



Context

Sources of U.S. electricity generation, 2017

Total = 4.01 trillion kilowatthours



Note: Electricity generation from utility-scale facilities.

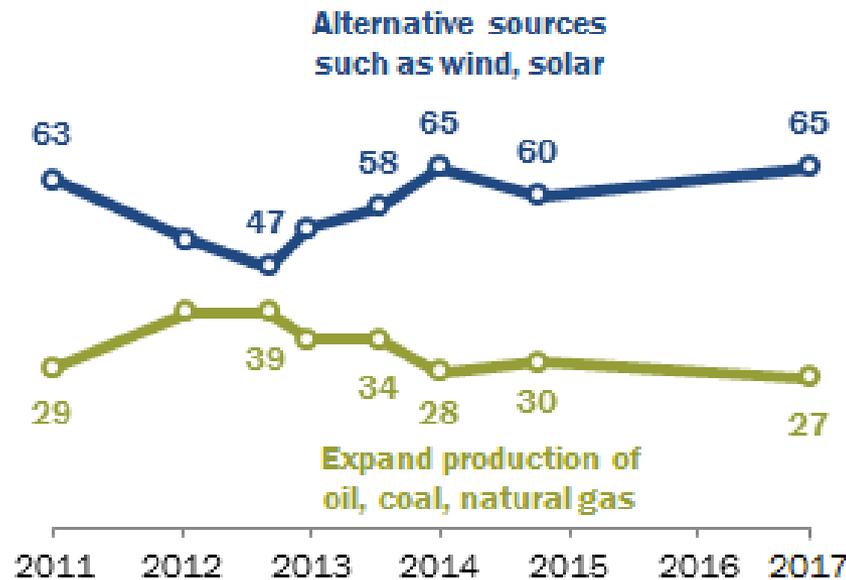
Source: U.S. Energy Information Administration, *Electric Power Monthly*, February 2018, preliminary data



Renewables Are Popular

Most in U.S. give priority to developing alternative energy over fossil fuels

% of U.S. adults who say ____ should be the more important priority for addressing America's energy supply



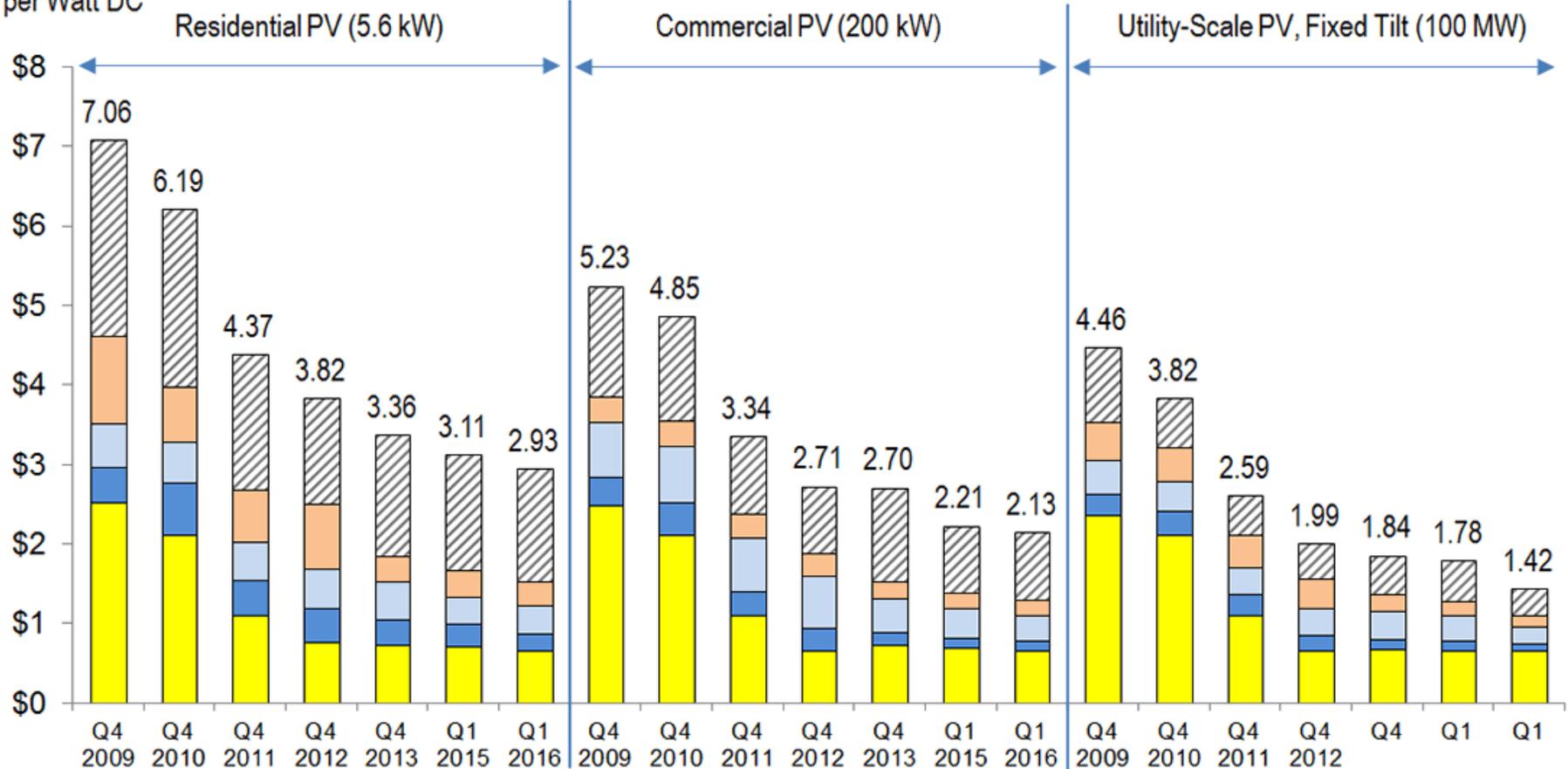
Note: Both/Don't know responses not shown.
Source: Survey conducted Jan. 4-9, 2017.

PEW RESEARCH CENTER



Solar cost are falling

2016 USD
per Watt DC



- ▨ Soft Costs - Others (PII, Land Acquisition, Sales Tax, Overhead, and Net Profit)
- ▤ Soft Costs - Install Labor
- ▥ Hardware BOS - Structural and Electrical Components
- ▦ Inverter
- ▧ Module



Solar Technical Potential

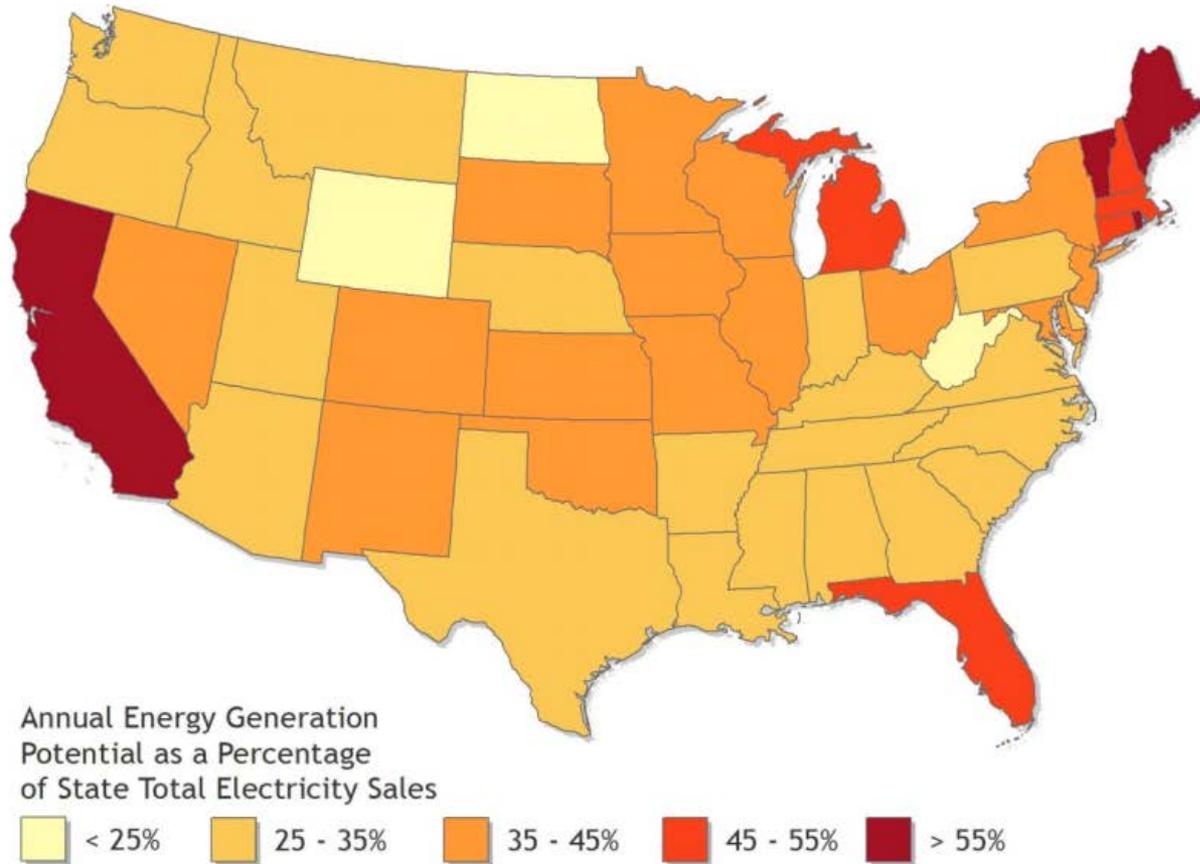


Figure 18. Potential rooftop PV annual generation from all buildings as a percentage of state total 2013 electricity sales

Image Credit: NREL



Rooftop Solar



Rooftop Disadvantages?

- Some don't own the roof
- Costs are higher relative to commercial/utility
- Shading
- Lack of electrical infrastructure



Community Solar



Image Credit: Indiana DG



A Shared System

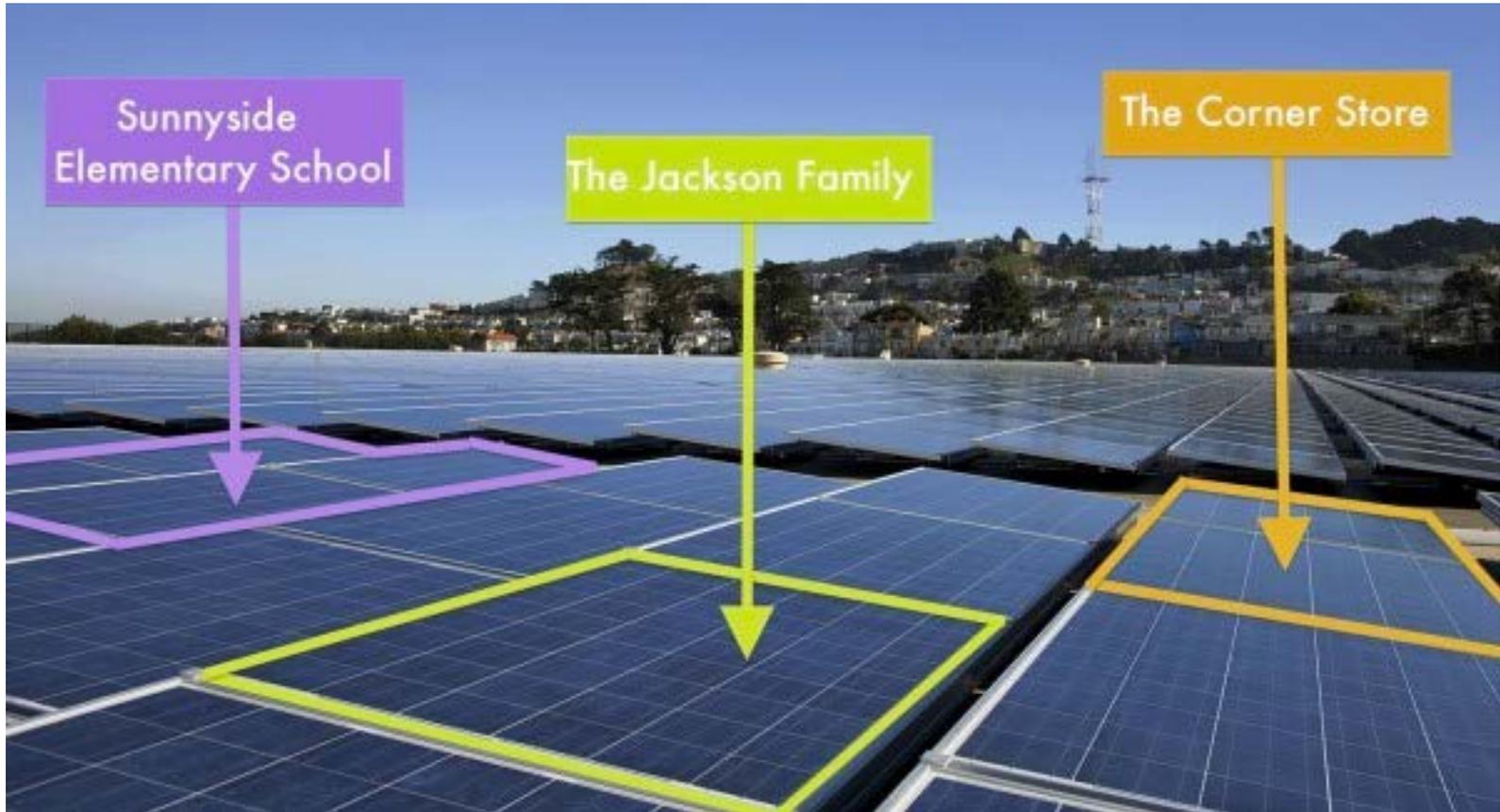
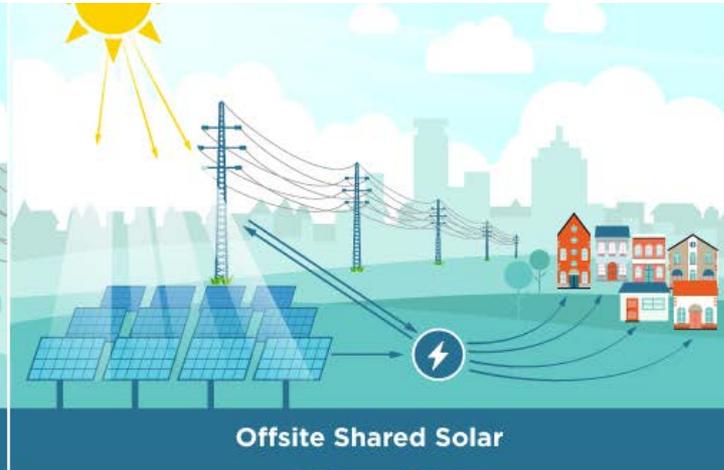
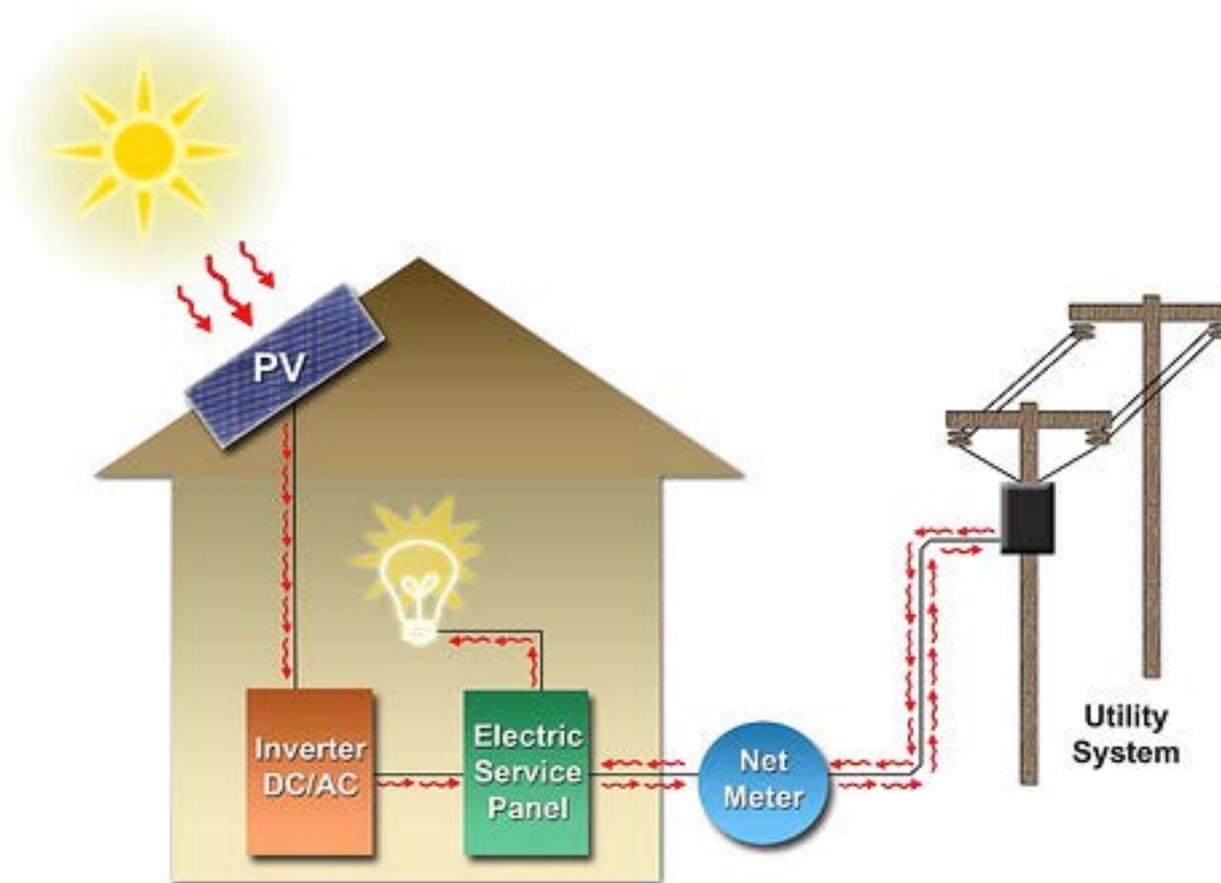


Image Credit: Vote Solar

Community Solar



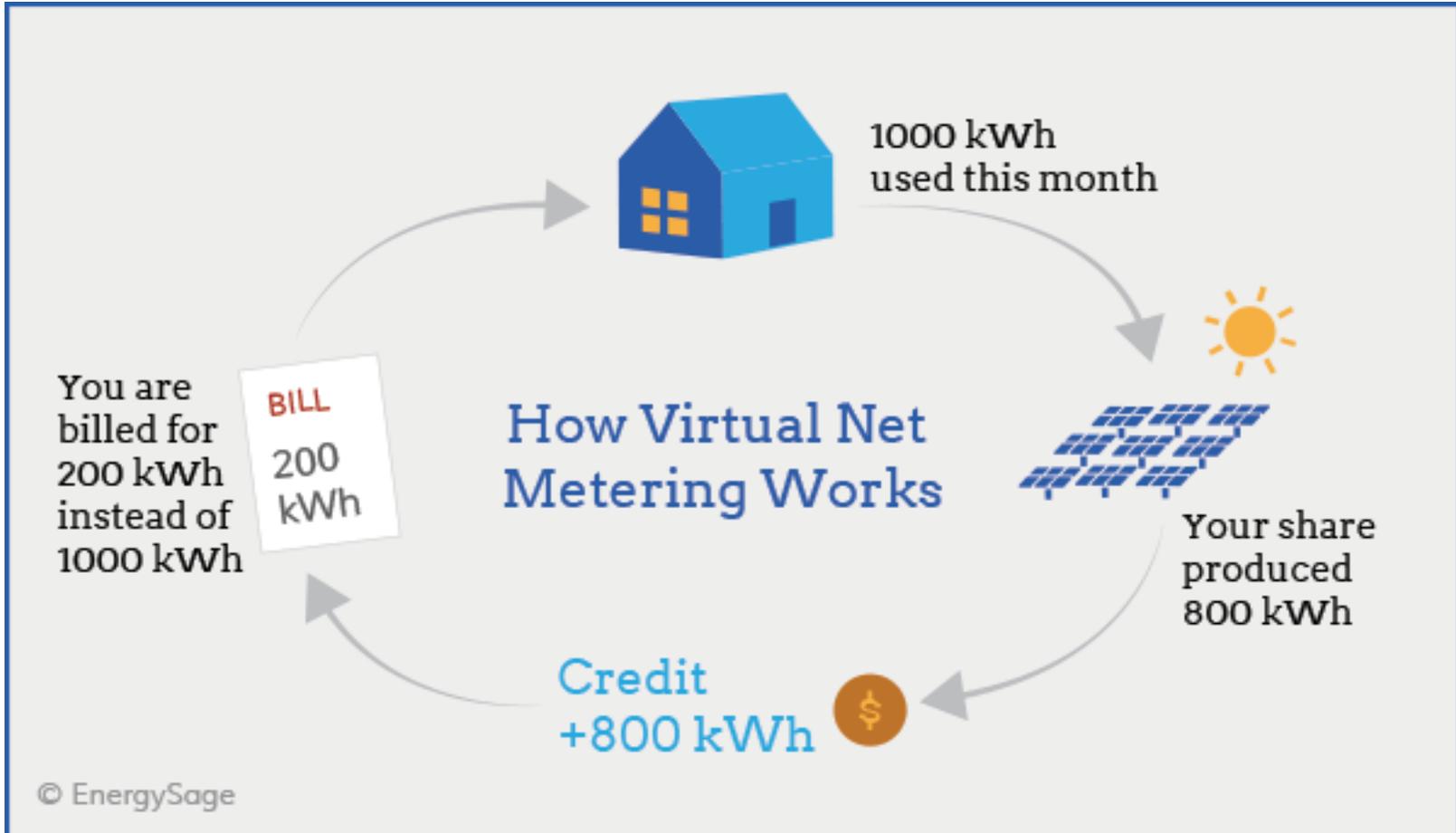
Net Metering



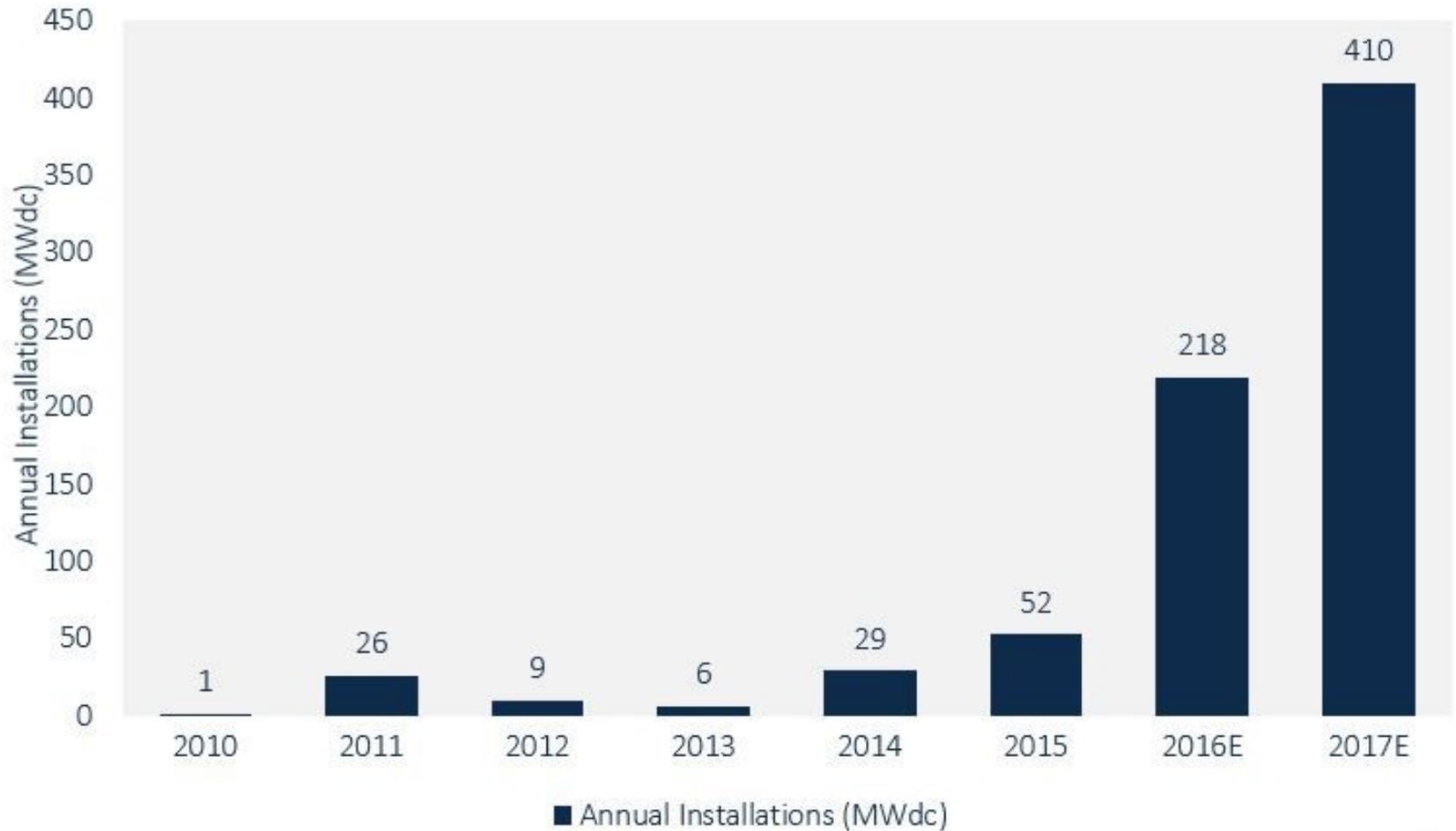
Surplus energy, measured by an electric meter, is netted from the amount passing from the utility to the customer.



Virtual Net Metering



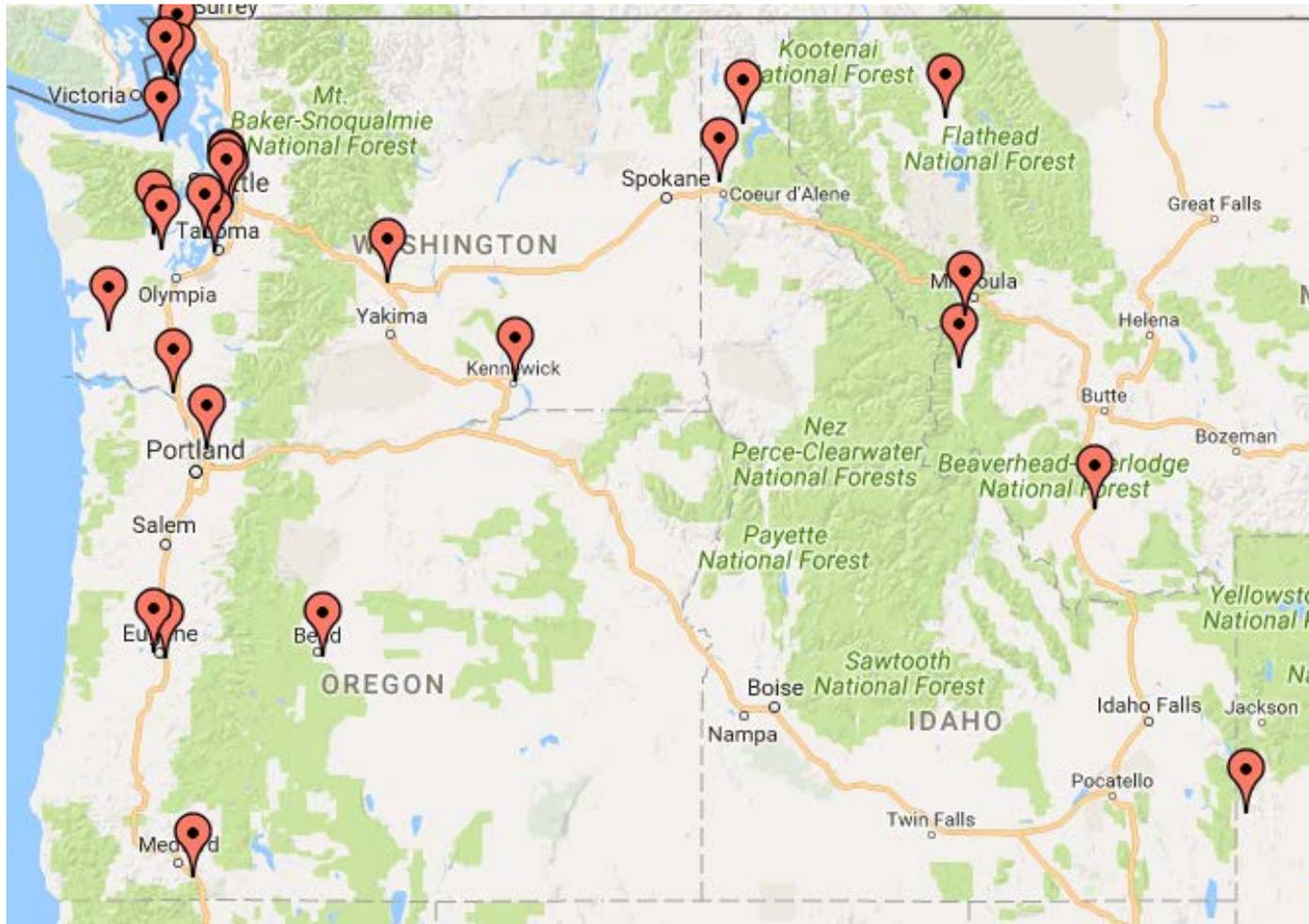
Community Solar Growth



BEF Community Solar 2010



BEF Community Solar 2018



BEF Solar Efforts

- Tribal = Spokane, Nez Perce, Tulalip, Coeur d'Alene, Quinault, Skokomish, Makah, Stillaguamish, Hoh, and more!
- Utility Community Solar = Twenty eight utilities including... Northern Lights, Clark PUD, and Flathead Electric



Flathead Electric, Kalispel, MT



Tulalip Tribe, WA



Low-Income Community Solar



Efforts In Your State

- 42 States with at least one community solar project.
- 19 States with programs.
- 1,226 MW installed as of 2018 Q2
- 3 GW expected in the following years.
 - Powering nearly 500k homes



Community Solar Opportunities

- Potential Tribal Projects
 - Develop and own projects
 - Lease land for 3rd party development
 - Facilitate subscriptions for members
- Can benefit from scale without the complexity of rooftop implementation



How To Get Started

- Reach out to US DOE, Office of Indian Energy
- Contact Coalition for Community Solar Access to find your states community solar implementers.
- Look into GRID Alternatives - Tribal Program



BEF Renewable Offerings

in Pacific NW

- Free Services
 - Project Development/Technical Assistance
 - Grant Sourcing and Application
 - Project Management
- Facilitate Development in...
 - Solar
 - Biomass
 - Hydro
 - Hydrogen
 - More...



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