

Small Solar: Behind the Meter

Michael Shonka - Moderator

Solar Heat and Electric

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Cumming County Public Power District

THE NUMBER ONE ISSUE

- Nebraska is not a fossil fuel-rich state
- We import 95% of our energy
- We export \$.95 of every dollar to pay for energy
- Energy trade imbalance is \$ billions every year

What is at Stake: Our Economic Future

- Fossil fuel dollars exit the local economy
- Renewable energy dollars re-circulate in the local economy 8 - 11 times
- Solar / Wind will help reduce exporting capital to pay for energy **if** we keep it with local investors

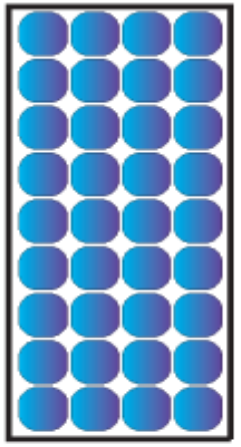
Energy in Transition

- Public Power has a critical role in development of renewable energy sources
- Private investment can build out PP infrastructure and potentially improve grid resilience
- Blend the *natural monopoly* with *market innovation* and lift the state out of dependence on “foreign carbon”.

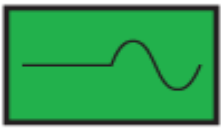
Behind the Meter

“any economic policy or trade practice that allows for the injection of energy on the customer’s side of the meter”

Solar Electric: Grid Tie



PV Array

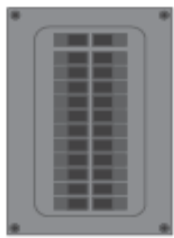
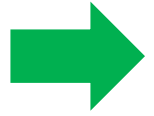


Inverter

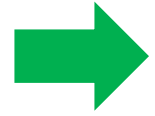


Behind the
Meter

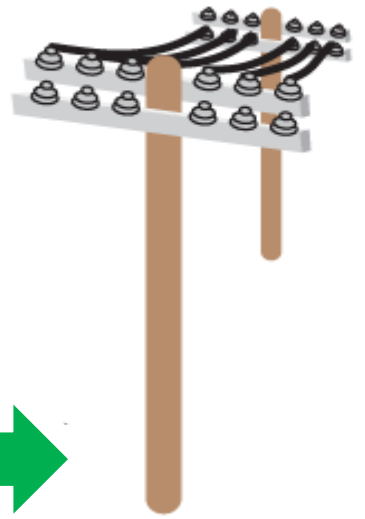
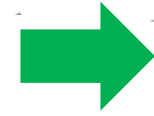
Meter



AC Service Panel



AC Utility Meter



Power Lines

Economic Policy

Incentives - federal, state, local, industry

Net metering

Virtual net metering

Meter aggregation

Rate structures favoring targeted energy investments

Locate energy intensive businesses near generation

New revenue streams for being the grid manager

Trade Practice

Construction and training

Permitting

Marketing

Design

Equipment

Procurement

RFP

Steps to the New Energy Frontier

- Net Metering - 100 kW limit, ties to tax structure, \$200,000 - \$250,000 investment
- Virtual Net Metering - per local distributor -or- agree to some state-wide guidance policy
- Meter Aggregation - simple, mostly software

Steps to the New Energy Frontier

- Portfolio Standards - can't make them do what they don't want to do, but some target helps
- General industry learning curve, better knowledge - less fear
- Technology lowers cost -
 - Inverters
 - ConnectDER
- Community Solar - next step up

Why not?

Nebraska is #3 in wind at 80 meters

We are in the top quarter for solar

Why not leverage our wind and solar resources
to become a top state with renewables.

Next Speakers:

Graham Christensen - GC ReVOLT

Chet McWhorter - Cuming Co PPD

Q & A

PV Solar Radiation (Flat Plate, Facing South, Latitude Tilt)

Annual

Model estimates of monthly average daily total radiation using inputs derived from satellite and/or surface observations of cloud cover, aerosol optical depth, precipitable water vapor, albedo, atmospheric pressure and ozone resampled to a 40km resolution. See http://www.nrel.gov/gis/solar_pv.html documentation for more details.

