

Bringing Renewable Energy into the Mainstream

Clean Energy Resource Teams (CERTS)

Steve Nisbet

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Wright-Hennepin Cooperative Electric Association

- Electric Distribution Cooperative
 - Serving western Hennepin and Wright counties
 - 47,000 consumers, 60,000 meters
 - Buy all power from two wholesale providers
 - All profits returned to member-owners
 - Democratically elected board of directors



WH Responsibilities

- Keep **ALL** member rates affordable
 - *Low income members cannot be harmed by cost shifts*
- Provide reliable energy
- Enhance the quality of life for our customers
 - *Bring renewable and alternative energy sources into mainstream*



WH and Renewables

- Installed demonstration projects
 - 20 KW wind turbine in 2007
 - 2 KW conventional solar array in 2009
 - 2 KW tenKsolar in 2011
 - Residential-sized battery storage in 2011
 - 4.6 KW output, 11.8 kWh total storage capacity
 - Paired with tenKsolar array
- Publish output data on website for members to see



Striking the Right Balance

There is no silver bullet...

- Coal
- Nuclear
- Wind/gas
- Solar/storage



WH MUST Pair Solar with Batteries

- Solar with WH-controlled batteries
 - Solar energy is stored when system load is low
 - Batteries deploy energy at the WH system peak
- *Solar and batteries qualify for the 30 % Tax Credit*
- Solar/battery customer benefit
 - Receive the solar energy as a kWh bill credit



Renewable Energy Rate Issue

Rate (Cost / kWh)

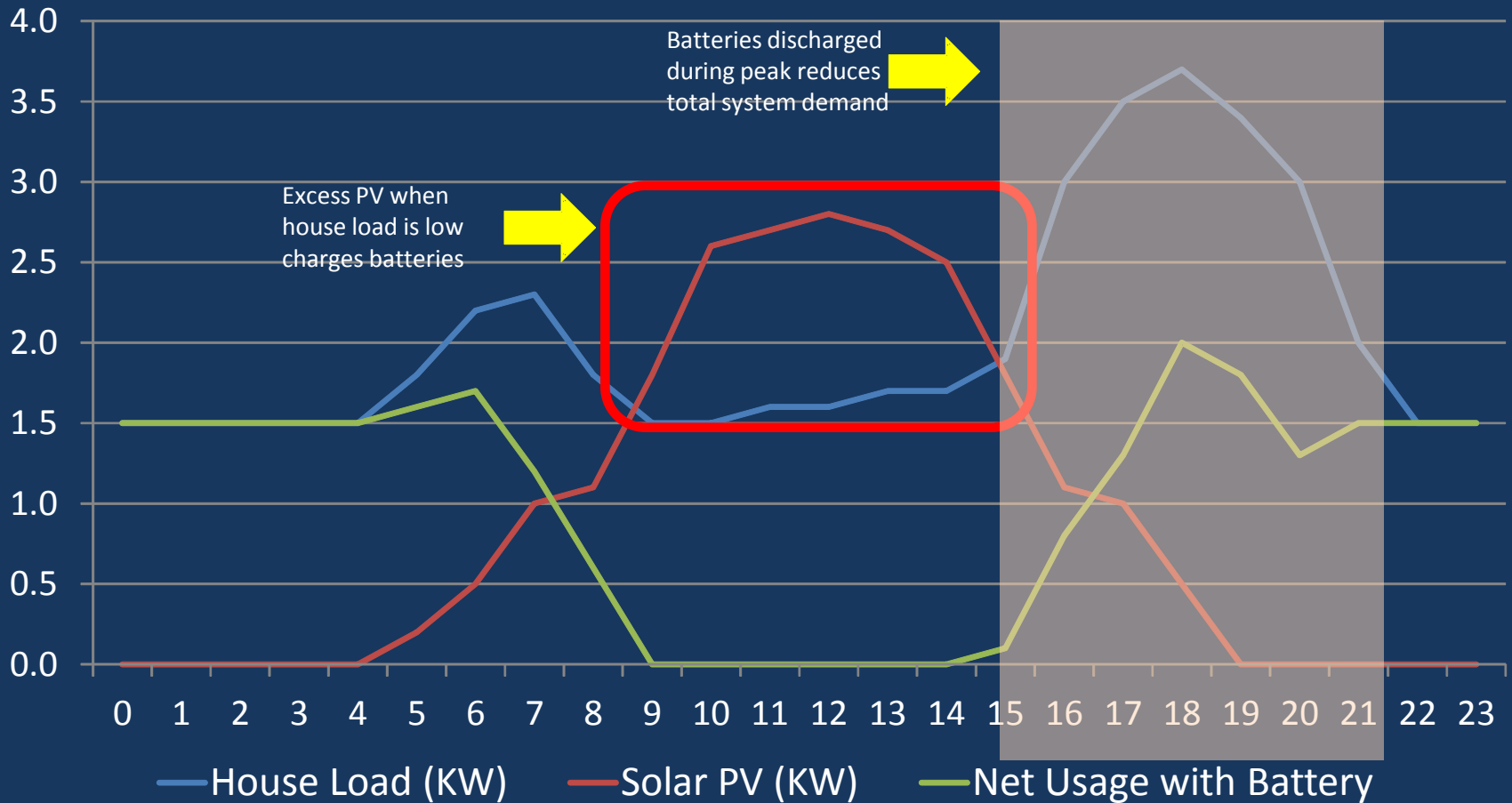
All power purchase costs for rate class
kilowatt-hour sales for rate class

Rates would increase if just solar w/o battery

SAME power purchase costs for rate class
LESS kilowatt-hour sales for rate class



PV Paired with Battery Storage



WH Solar Community Overview

- Partnership between Clean Energy Collective (CEC) and WH
 - WH not able to get the Federal 30% tax credit – needed a partner
- Installed at WH, but panels sold to members
- 32 kW solar system with 170 solar panels (190 watt each)
 - 36 kW Silent Power battery storage – made in MN
 - tenKsolar panels – made in MN



How does it work?

- **Members purchase panels through CEC**
 - \$869 per 190 watt panel (includes solar and battery storage)
 - \$4.60/watt – without rebates or grants
 - 30% of purchase price goes into trust fund (tax credit)
 - 5% of energy produced goes into trust fund (maintenance)
 - **Energy credits in kWh are provided for life of project**
 - Each panel is estimated to produce 25 kWh per month



Benefits to members

- 85% of people could not install solar at their site
- Maintenance is done by others
- Solar and batteries qualify for 30% Federal tax incentive
- Can buy as few as one panel or enough panels to meet their annual energy usage
 - Cannot produce excess quantity
- *Currently* projected to break even at year 20
 - Assumes 3% average rise in retail energy costs
- Members have indicated that solar is a hedge against future increased power costs
 - Members get retail rate – no matter what the rate is



In the news

- USA Today, St. Cloud Times, local newspapers, industry publications

WH offers solar energy informational meeting

But A meeting for Wright-Hennepin Cooperative Electric Association (WH) members who are interested in participating in a solar energy project will take place at WH headquarters, located at 1000 Electric Drive.

Solar energy is becoming more popular in Minnesota as more people are looking for a cleaner, renewable energy source.

To give its members an opportunity to have solar panels installed on their property, WH is offering a solar energy informational meeting. The meeting will be held on Tuesday, July 10 at 7 p.m. at WH headquarters, located at 1000 Electric Drive.

Cost of solar power will be discussed, as will the benefits of solar energy. The meeting is free and open to all WH members and the public.

For more information, call 326-1234.

FORMING A COMMUNITY SOLAR PROJECT

TOGETHER WE CAN PRODUCE

David Schmitt

David Schmitt has been engaged in the idea of producing power at the site of a home for a long time. He has had solar panels installed on his roof for several years.

Then Schmitt heard about a community solar project his utility company, the Wright-Hennepin Cooperative Electric Association, is building. Instead of spending several thousand dollars to install solar panels on his home, Schmitt could purchase a single panel for \$100.

"This way, I can do a little by little. Schmitt will see a discount of a few dollars on his monthly electricity bill. He will also get the satisfaction of creating renewable energy for his community that won't be affected by fluctuating prices of fossil fuels.

"We're contributing some pretty solid power to the grid," Schmitt said.

Community solar projects, popping up across the USA, are being looked at as a model that makes solar power both affordable and accessible to everyone.

"The projects allow everyone to get involved in producing solar power," not just the ones with a really good south-facing roof," said Eric Jensen, Chairman of the Minnesota Renewable Energy Society.

Elsewhere:

- Clean Energy Collective of Cambridge, Ohio, which is building the Wright-Hennepin project, has built or is building six others in Colorado and New Mexico and has six more in the works, said Tom Swearing, chief operating officer.
- "It's going to accelerate very quickly in the next few years," he said.
- A solar project built in 2006 in Channahon, Ill., was one of the first of its kind in the nation. A group of residents formed a limited liability company and raised \$25,000 from investors, President David Brock said.
- The 90-panel solar array was built on the roof of a church, which purchases about 25% of the power it generates. The surplus electricity is sold back to the grid, Brock said.

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SOLAR PROJECTS GO PUBLIC

Communities collaborate on power initiatives, cutting costs



The Clean Energy Collective's community solar array near Hills, Ohio, is an example of the changing landscape of power - in the largest community solar farm in the largest in the nation.

It's less expensive for the company to build the projects on an industrial scale than for homeowners to install panels themselves. For comparison, the payback period varies, Swearing said. For the Colorado project, it's usually 12 to 14 years. For Wright-Hennepin, it's closer to 20 years because of the additional cost of the batteries.

Wright-Hennepin's project has been popular among co-op members so far. About half of the 200 panels have been claimed.

"I think it's just the ease of being able to get in and out," said Nickolas, vice president of power supply. "They want to be able to try it a little bit."

Each panel generates about 25 kilowatt hours of electricity each month. It would take 20-30 panels to generate all the power used in the typical household, Nickolas said.

One unique aspect of the Wright-Hennepin project is that it uses batteries to store solar energy during the peak production hours in the daytime and can be used during times when it's needed the most. That's important because the co-op is made up mainly of residential customers, Nickolas said.

"Our peak demands occur around supper time, when everybody comes home from work and occupies the home again," Nickolas said.

He also reports for the St. Cloud Times in Minnesota.



Residents who bought solar panels from the Rural Electric Association's solar energy project. Paul Spencer (center, in green), founder and chief executive of several residents who bought into the Poudre Valley Rural Electric Association, is seen with a group of residents who bought into the Poudre Valley Rural Electric Association's solar energy project.



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Each month, it calculates the amount of energy produced by those panels and credits the customer on his or her utility bill, Swearing said.

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Yard Sign

- Members will have the option to put up a sign stating their participation in the solar community



Additional Information or Questions?

Steve Nisbet

Wright-Hennepin Cooperative Electric Association

763-477-3114 (direct)

snisbet@whe.org

www.whe.org

Thanks for your time today!

