

# COOPERATIVE COMMUNITY SOLAR ACTIVITIES

## SOLAR POWERING MINNESOTA

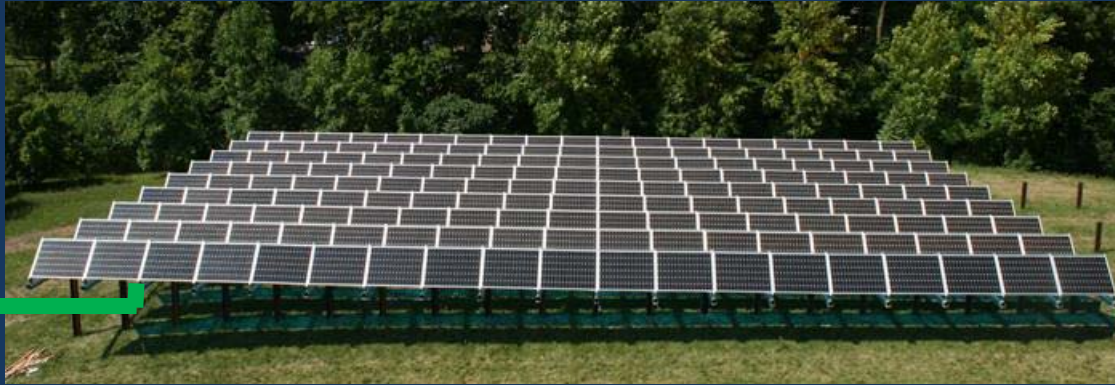
MARCH 7, 2014

WOULD  
YOU PREFER  
ELECTRICITY  
FROM A  
RENEWABLE  
RESOURCE?

THEN MAKE THE SWITCH TO  
SOLAR WITH LAKE REGION  
COMMUNITY SOLAR



# WH Solar Community Project #1



- 171 tenKsolar panels
- **32.5 kW of solar panels**
- **36 kw of Silent Power battery storage**
- Cost: \$4.83/watt with battery
- 25 Members participated (1 to 30 panels)
- Net \$900+ / panel
  - produces about 400 kWh/year
- Members are credited on electric bill
- Payback ~ 20 years
  - ROI 5-20%/yr. based on amount of sunshine
- Worked with Clean Energy Collective of Colorado





# Dedication – September 9, 2013



- Good will & high compliments from members, legislators, regulators, press
  - Minneapolis Star Tribune
  - USA Today
  - Christian Science Monitor
  - National Geographic
  - Widespread industry press
- Unit 2 – 100% subscribed, Commercial in June
- Reservation list started for Unit #3



# WH Members Win

- Available to all WH Members
- “Modular” purchasing choices
- Can transfer ownership
- Best economies of scale
- Quality control
- Optimal placement of panels for best production
- Hassle free business model with Clean Energy Collective (CEC)
- Maintenance free
- Long term equipment warranty



# Battery Storage

## *A Solution to Many Issues*



### Hotly debated issues

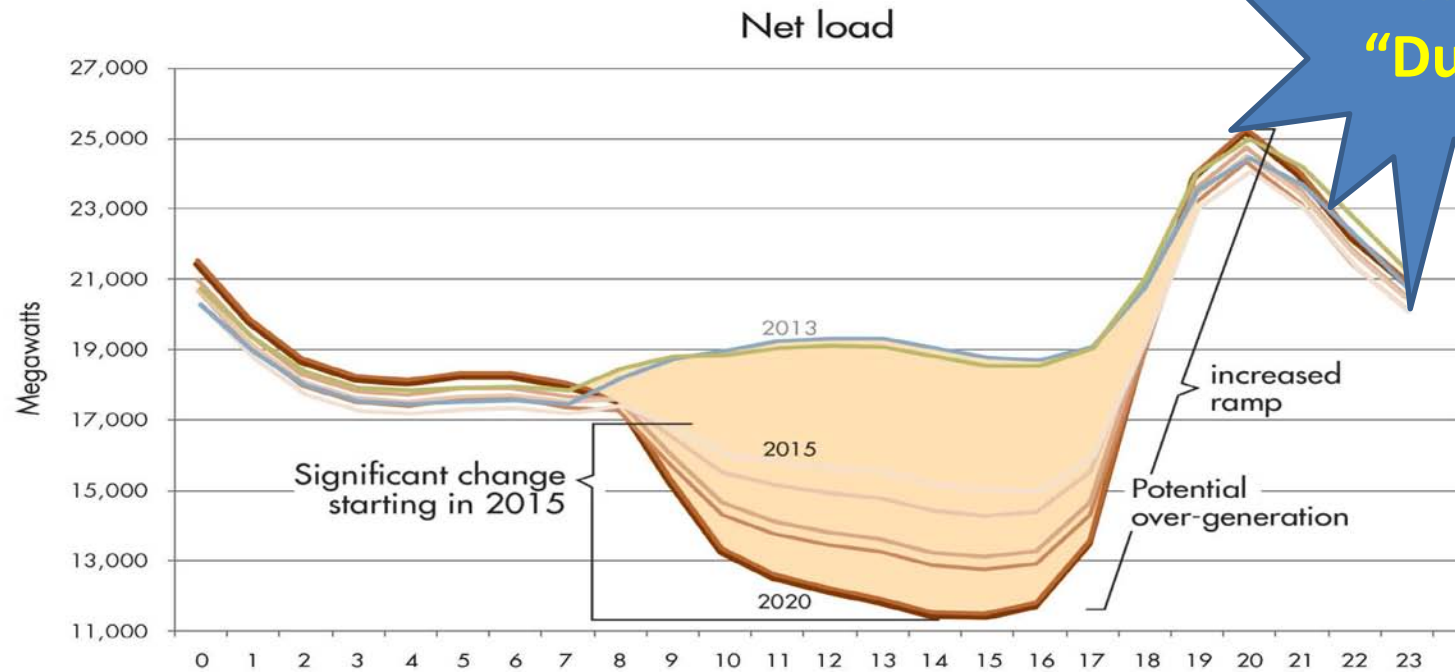
1. Ramping & Capacity
2. Cost Shifting
3. Stranded Investment
4. Power Quality



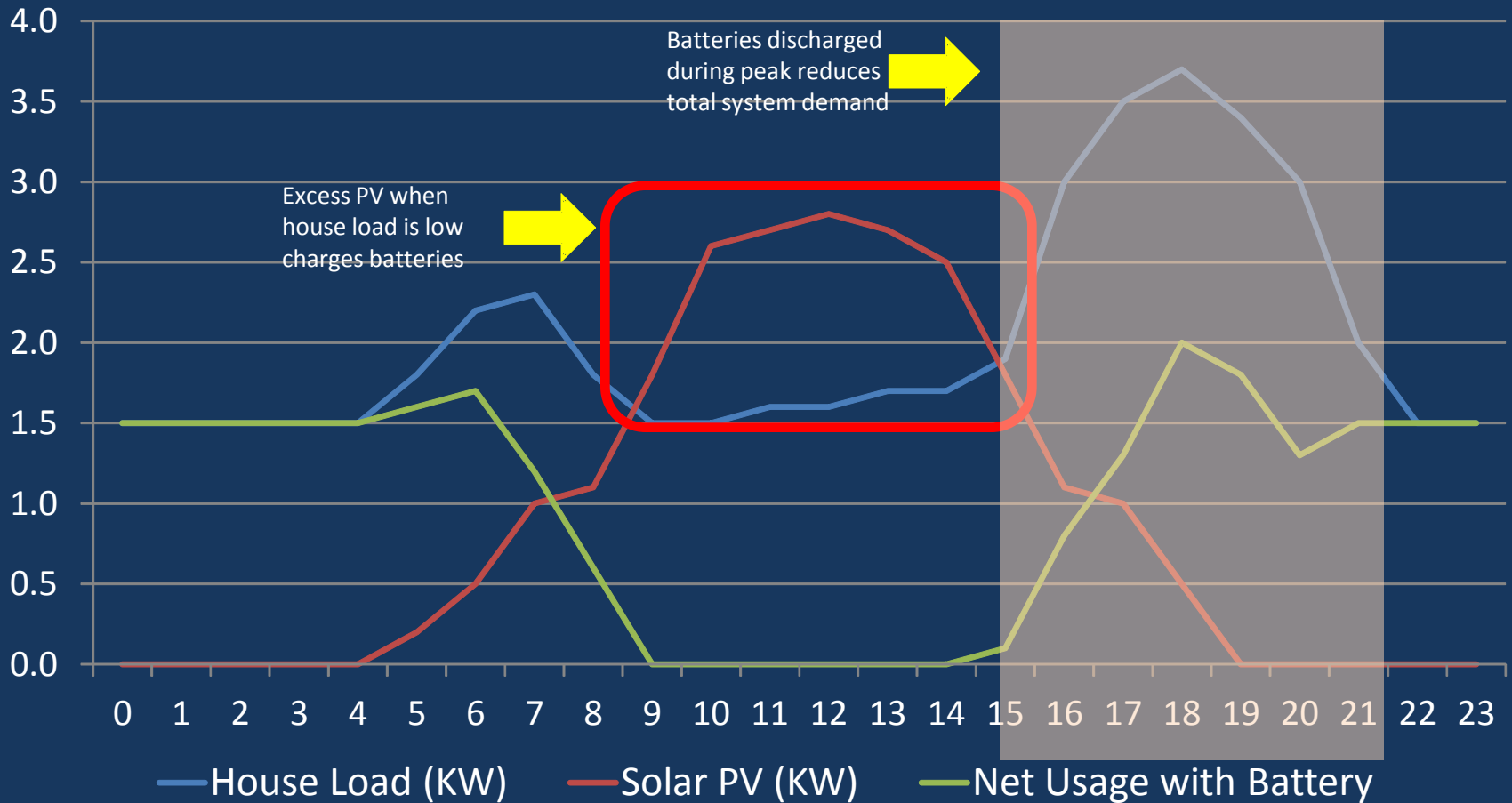


# 1. "Ramping" and Capacity

Growing need for flexibility starting 2015



# SOLUTION: Store & Deploy



# Wrapping Up

## Solar with Battery Storage Projects:

- Put electric utilities in a leadership role
- Provide the renewable energy services that our customers expect us to provide
- **No regrets strategy**

## Next Steps...

- WH would like to **shift financial incentives to storage**
  - Brings down cost
  - Solar went from \$8/watt to \$1/watt
- ***Need to help storage get there as well***





# WH Solar Community



*Rod Nikula – Wright Hennepin Cooperative Electric Association*



# A Cooperative Solar Solution

*"Bringing renewable energy to rural Minnesota – just like we brought electricity to the countryside 75 years ago"*



Lake Region Electric Cooperative  
Tim Thompson, CEO



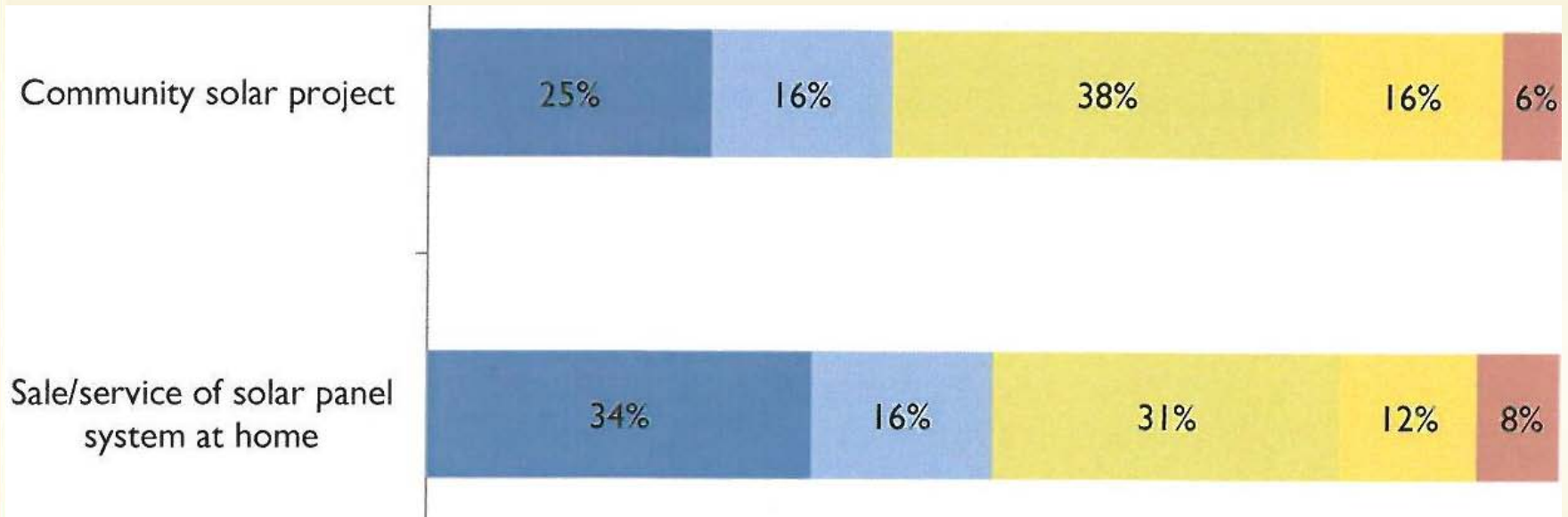
**The world is changing...**





# Member Driven – Business Plan

1,200-1,500 of our members definitely interested in solar



*“While members are very satisfied, they are willing to shop for a better deal if they had a choice”  
comment from NRECA’s Gina Ricci regarding 2012 survey results*



# EarthWISE

Geothermal Program



**Geothermal Closed Loop Installation and Geo Loop Tariff**



# Site Leveling & Preparation





# Surveying



## Hubbell Helical Foundation Anchors (36)





# Height – 2 ft. Above Grade





# Weed Mat & Rock





# Solar Racking





# Panel Installation





# Completed Project



# Lake Region Community Solar Fact Sheet

Location	LREC Campus, Pelican Rapids, MN
System Size	39.36 KW DC
Footprint	4000+ Sq. Ft.
Array Installation	LREC
Foundation Manufacturer	Hubbell Chance (made in the USA)
Module Manufacturer	tenKsolar (made in Minnesota)
Wattage per Module	410
Number of Modules (panels)	96



# Lake Region Community Solar Fact Sheet

Average Annual Energy Production Array 54,644 kWh

Average Annual Energy Production Per panel 588 kWh

Installed Cost \$3.66/Watt

**Price per panel \$1,500**

**Subscriber cost per kWh 13.2 ¢ kWh**

**Retail Rate Crossover (2.5% escalation) Year 6**

## **February 2014 Update**

49 panels sold, purchased by 24 members

10 members purchased 35 panels

14 members purchased single panels

No takers on a fractional panel yet

# Working with NRCO



[FAQs](#) [CONTACT US](#) [RETURN TO CO-OP](#)

Clean energy for  
you and your community.

## ABOUT sCOOP [View More](#)

There is growing interest among our members in the construction of solar generation resources right in our own backyard. Community solar lowers the cost to individual co-op members through economies of scale. sCOOP is perfect for members who do not want to, or can't, install solar on their own property.



## MEMBER COMMUNITY INFO [View More](#)

Lake Region Electric Cooperative members now have the opportunity to purchase part of the output from solar panels located at our service center. We will take care of operations, maintenance, and insurance of the solar farm. Each panel is 410 watts and will produce about 588 kWhs of electricity each year.





# Summary of what we have learned

- Member survey shows 1200-1500 members are “definitely interested” in Community Solar
- Community solar can help LREC achieve their goal of solar being good for all members
- National Renewables Cooperative Organization (NRCO) was a valuable partner - capturing tax equity and working through the complexities
- The story within the story is: LREC staff is developing the core competencies and skill sets to design and build solar arrays
- Staff labor for construction, operations and maintenance is capitalized into the project, bringing a rate benefit for their entire membership
- Our co-op’s community solar project is a market based approach to offering solar electricity and the greatest thing is that everyone in its value chain is either local or, like NRCO, a member of our cooperative family



# Rocky Mountain Institute Solar Business Models project

- GRE with Dakota Electric and Steele-Waseca
- Project goals
  - Analyze & calculate sources of solar PV benefits & costs
  - Evaluate models for community solar PV that enable utility to recover costs while meeting customer needs
  - Support rollout and preliminary evaluation of community solar model and share key learnings
- Timeline
  - Project kickoff in January 2014
  - Findings targeted Q4 2014

