



Community Energy Storage

→ how do folks pay for this?

▶ Ralph Jacobson

Financing Considerations

1. Where is Minnesota in the market?

2. How does energy storage differ from solar?

3. Utility acceptance: who owns it? Who controls it? Time is everything in the market

4. Early adopters: aspirational or business

5. Examples

Where is Minnesota in the market?

Are we still in
flyover country?

Our market
drivers are
mostly
aspirational

Not a
deregulated
market here

Align with GHG
Reduction
Goals

**Energy storage
is a
*different animal***

doesn't generate
more kilowatt-hours

makes solar
dispatchable

capacity asset

Early-stage Market Realities

- ▶ Business case: Where is the pain?
 - ▶ Market pieces are not in place yet
 - ▶ Difficult to finance
 - ▶ Most vendors want volume
 - ▶ Timeline on MISO rulemaking?
- ▶ Aspirational: between R&D and commercialization
 - ▶ Early adopters
 - ▶ More grants available
 - ▶ Utility pilot projects
 - ▶ Crowdsourced debt

Red Lake Solar Project

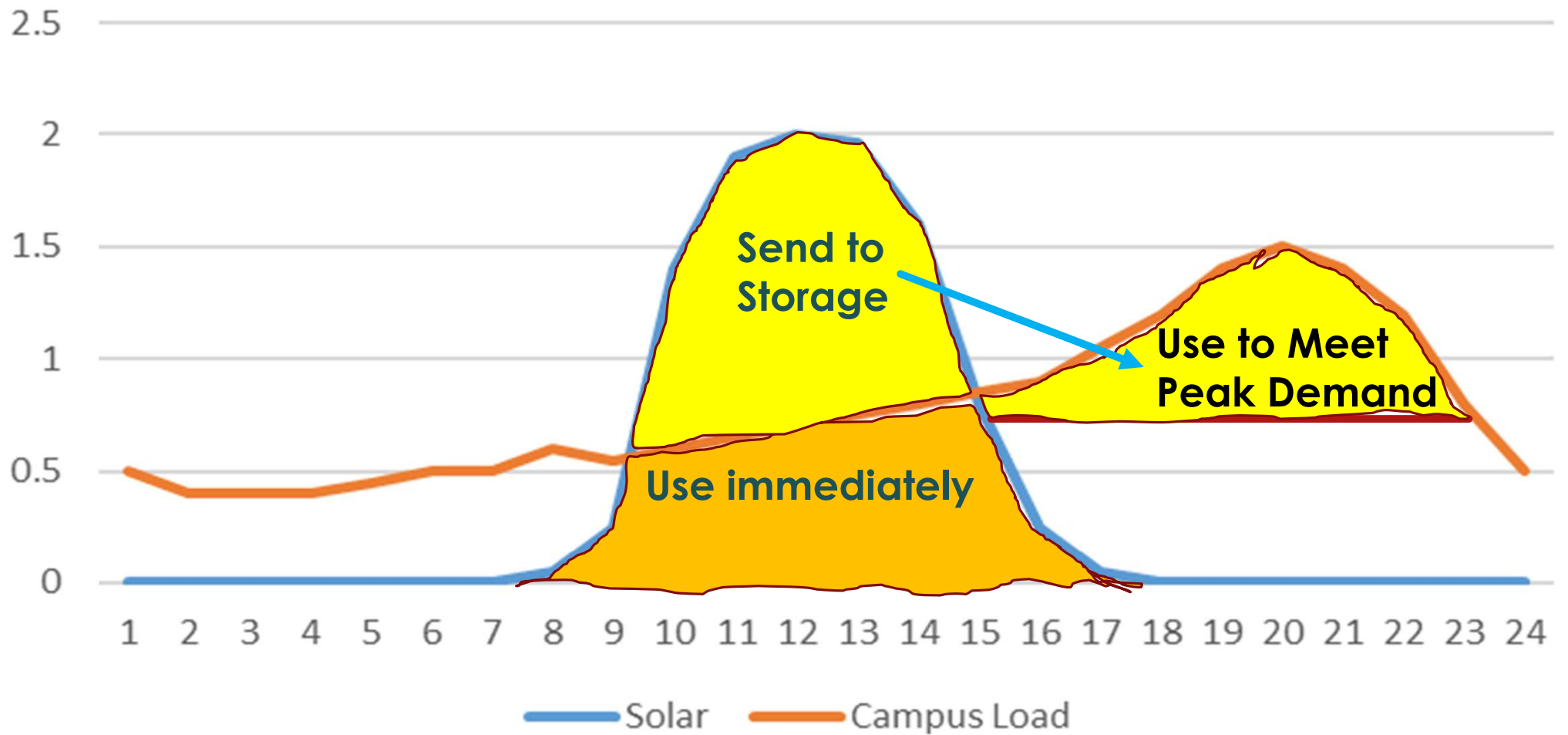
Utilize more solar with flow batteries

Financing Parameters

- Pass tax benefits through to Red Lake
- Crowdfunding encourages local investment
→ better terms for all parties!
- Flips ownership to Red Lake after 6th year
- Must finance 'energy storage' also



Campus Daily Load vs High Solar



Little Earth of United Tribes Housing Community Resilience with Sonnen Virtual Power Plant



Financing Parameters

- Business case
- More pieces to cash flow
- Traditional capital
- Utility involvement