THE MIDWEST SOLAR MARKET

HOT OR NOT?

May 16, 2014
Big picture:
For years, solar was about remote power installations and the environment.
Now solar is about the economics
Local Solar Potential

Potential Percent of Electricity from Local Rooftop Solar

- 50% or more
- 25 to 50%
- 10 to 25%
- 0 to 10%

Residential and Commercial roofs
SAVING WITH SOLAR
RISING RETAIL ELECTRICITY PRICES
(Residential, ¢ per kilowatt-hour)
RISING RETAIL ELECTRICITY PRICES
(Residential, ¢ per kilowatt-hour)

3% per year

4.7% per year

Average of Midwest states


0¢ 3¢ 6¢ 9¢ 12¢ 15¢
RISING RETAIL ELECTRICITY PRICES

4.7% per year

Average of Midwest states
RISING RETAIL ELECTRICITY PRICES

4.7% per year
SOLAR PARITY IS COMING

(¢ per kilowatt-hour)

- Average Midwest residential retail electricity price
- Levelized cost of solar electricity (Minneapolis)
- Cost of solar with ITC

Unsubsidized Solar Parity

Subsidized Solar Parity

4.7% per year
LOCAL SOLAR POTENTIAL

POTENTIAL PERCENT OF ELECTRICITY FROM LOCAL ROOFTOP SOLAR

Residential and Commercial roofs

ILSR INSTITUTE FOR LOCAL SELF-REliANCE
SOLAR PARITY AT PARITY (2022)
(Megawatts)

Residential and Commercial roofs
See ILSR’s Rooftop Revolution reports for data
VALUE
14.7¢ LOCAL POWER VALUE (per kilowatt-hour)

Local capacity value
Avoided transmission access
Environmental
Avoided transmission losses
Brown energy replacement

Solar is valuable!

Minnesota’s Value of Solar
Can a Northern State’s New Solar Policy Defuse Distributed Generation Battles?

John Farrell
April 2014
LOCAL POWER VALUE (economy)

By the end of 2014, the solar industry will have created over 3,700 jobs and added $415 million to the state’s economy.

The state’s net metering law allows up to 940 MW of solar, an amount which would generate a further 18,000 jobs and over $2 billion in economic activity in the state’s economy.
Attitude towards increased use of local wind energy

Local Ownership

Not local: -44%

Local: +33%

+77% net approval

Very negative | Negative | Neutral | Positive | Very positive

LOCAL POWER VALUE (political)
Germany’s Energy Revolution Still People Powered

Other 54%

Individuals & Farmers 46%

29,000 MW

27% renewable
GREAT OPPORTUNITY
INSTALLED SOLAR CAPACITY (MW)

Sources: SEIA & ACORE

0.3 GIGAWATTS
N. DAKOTA

- Solar standard (RPS)
- Community solar
- Value of solar
- Net metering
- State tax/cash incentives
- Utility cash incentives
- Property/sales tax benefit

Source: DSIRE
NEBRASKA

- Solar standard (RPS)
- Community solar
- Value of solar
- Net metering
- State tax/cash incentives
- Utility cash incentives
- Property/sales tax benefit

Source: DSIRE
WISCONSIN

- Solar standard (RPS)
- Community solar
- Value of solar
- Net metering 20/100 KW
- State tax/cash incentives
- Utility cash incentives
- Property/sales tax

Source: DSIRE
Residential retail electricity price

Value of solar

Solar price with ITC

Solar price

MICHIGAN

- **Solar standard (RPS)** *
  - triple credit under RPS
- Community solar
- Value of solar
- Net metering
- State tax/cash incentives
- Utility cash incentives
- Property/sales tax

Source: DSIRE

ILSR INSTITUTE FOR LOCAL SELF-RELIANCE
ILLINOIS

- Solar standard (RPS)
- Community solar
- Value of solar
- Net metering (40 KW)
- State tax/cash incentives
- Utility cash incentives
- Property/sales tax

Source: DSIRE
MISSOURI

- Solar standard (RPS)
- Community solar
- Value of solar
- Net metering
- State tax/cash incentives
- Utility cash incentives
- Property/sales tax

Source: DSIRE
LOCAL PERMITTING

As the cost of solar falls...

...the savings from streamlined permitting rise

Approx. year for residential installation:
- 2013
- 2017
- 2023

Installed Cost per Watt

Data from The Impact of City-level Permitting Processes on Residential Photovoltaic Installation Prices and Development Times (LBNL, 2013)

*From ILSR’s Rooftop Revolution reports: http://www.ilsr.org/rooftop-revolution/
LOCAL PERMITTING

Leading Cities

Vote Solar: Project Permit
LOCAL ENERGY FINANCING

PROJECT AT A GLANCE:
LED lighting upgrades and kitchen hood fan controls

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Project Cost</td>
<td>$ 50,622</td>
</tr>
<tr>
<td>Xcel Energy rebates</td>
<td>- $ 11,314</td>
</tr>
<tr>
<td>Edina Emerald Energy Program loan</td>
<td>$ 39,308</td>
</tr>
<tr>
<td>Paid back on property taxes</td>
<td></td>
</tr>
<tr>
<td>Avg. Annual Loan Payment</td>
<td>$ 9,727</td>
</tr>
<tr>
<td>Annual Energy + Maint. Savings</td>
<td>$ 15,296</td>
</tr>
<tr>
<td>NET SAVINGS / YEAR</td>
<td>$ 5,569</td>
</tr>
</tbody>
</table>

FRANCHISE

CITIES

UTILITIES

LEVERAGE
THANK YOU!

SOLAR PARITY IS COMING

SOLAR PARITY IS COMING

http://www.ilsr.org/rooftop-revolution/