



GRAHAM  
SUSTAINABILITY INSTITUTE  
UNIVERSITY OF MICHIGAN

# Brownfield Reuse & Solar Fields

Sarah Mills, PhD

Michigan Land Bank Leadership Summit

October 14, 2019

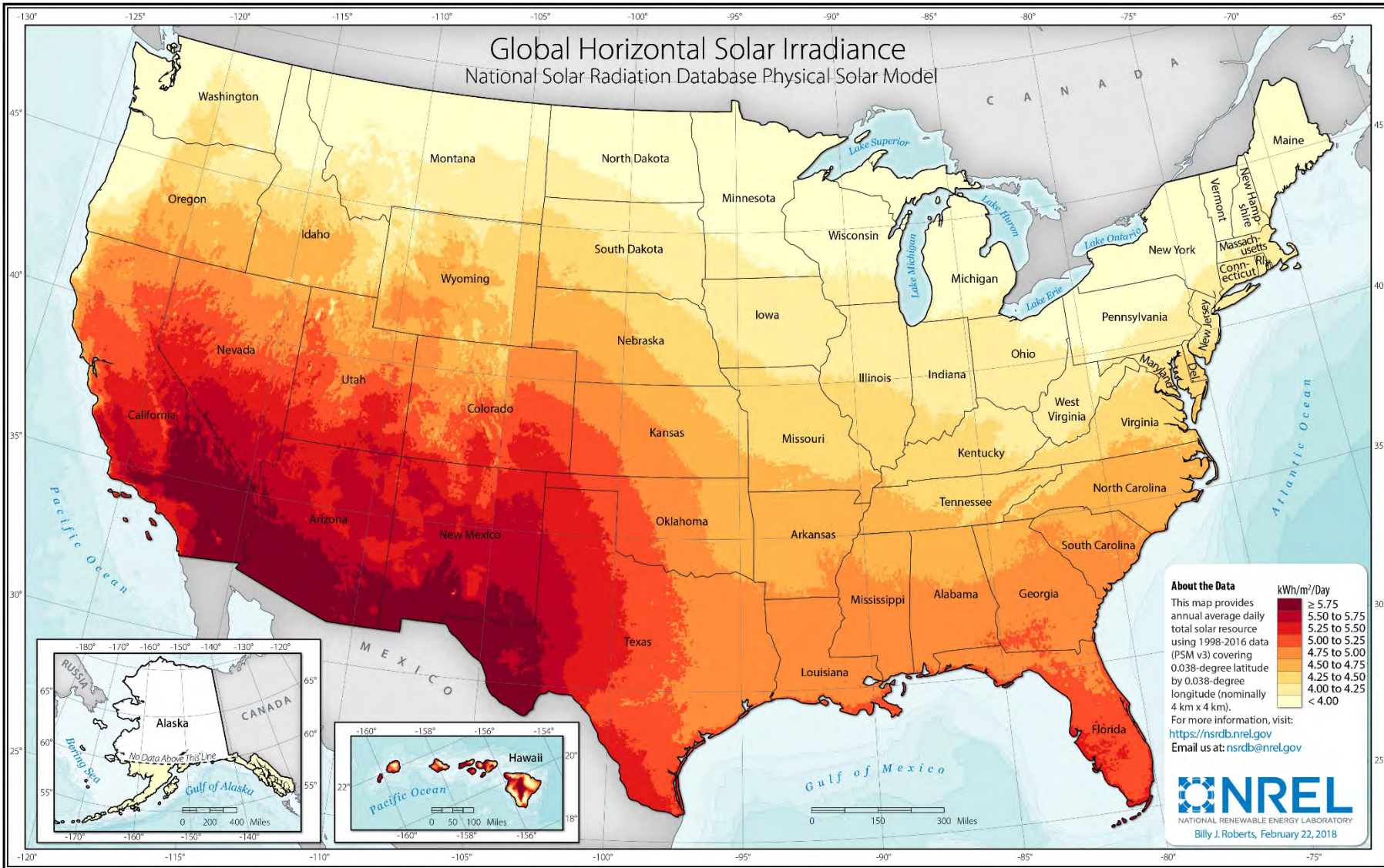
# Overview

- Solar in Michigan?
- Why consider solar?
  - 3 Michigan examples
- What are solar developers looking for?
  - Marketing your properties
- UM work underway

# SOLAR IN MICHIGAN?

# Global Horizontal Solar Irradiance

## National Solar Radiation Database Physical Solar Model

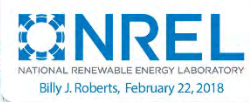


**About the Data**

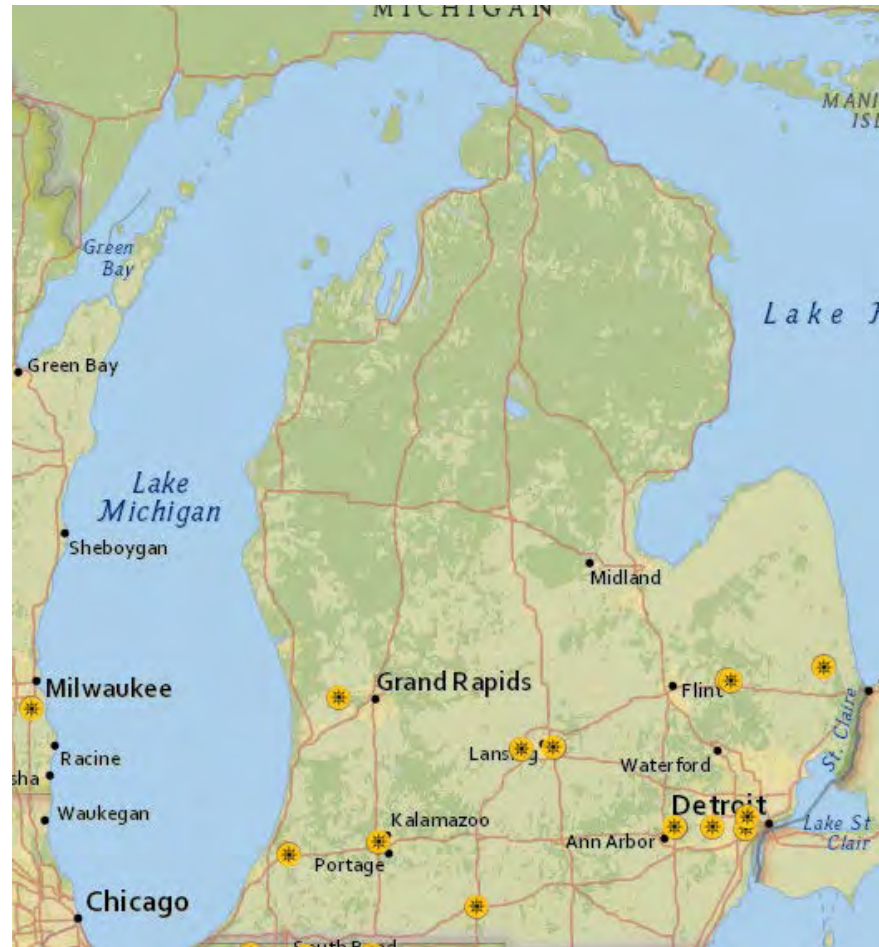
This map provides annual average daily total solar resource using 1998-2016 data (PSM v3) covering 0.038-degree latitude by 0.038-degree longitude (nominally 4 km x 4 km).

kWh/m <sup>2</sup> /Day	Color
≥ 5.75	Dark Red
5.50 to 5.75	Red
5.25 to 5.50	Orange-Red
5.00 to 5.25	Orange
4.75 to 5.00	Light Orange
4.50 to 4.75	Yellow-Orange
4.25 to 4.50	Yellow
4.00 to 4.25	Light Yellow
< 4.00	White

For more information, visit:  
<https://nrel.gov>  
 Email us at: [nsrdb@nrel.gov](mailto:nsrdb@nrel.gov)



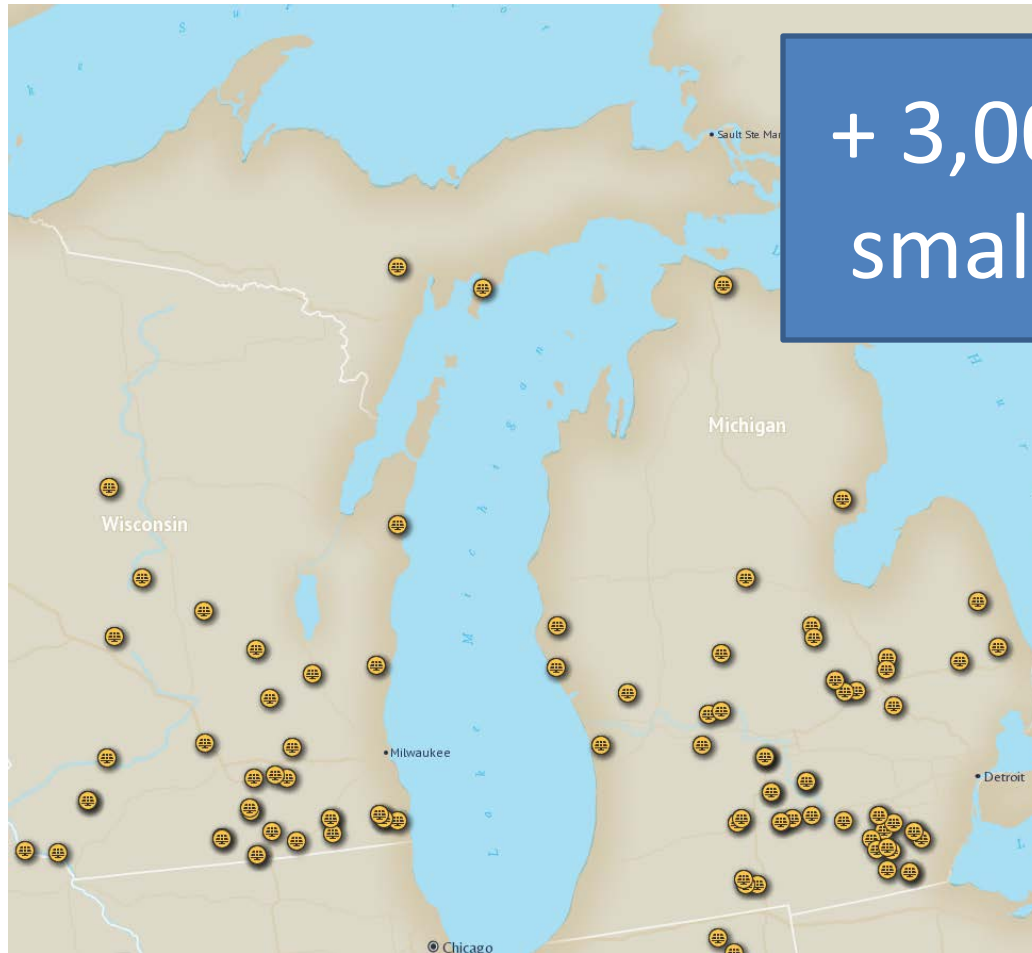
# Existing Utility-scale Solar 99MW



- Source: U.S. Energy Mapping System,  
<https://www.eia.gov/state/maps.php>



# (Large) Solar being considered 56 projects, 7,000 MW



+ 3,000 MW of  
small projects

- Source: MISO Queue, Sept 2, 2019
- <https://api.misoenergy.org/PublicGiQueueMap/index.html>

# Not all—but lots—will be built

The Detroit News

HOME

NEWS

SPORTS

BUSINESS

AUTOS

LIFE + HOME

ENTERTAINMENT

OPINION

MORE

## DTE to request bids for solar and wind projects

775MW by 2023

ter, The Detroit News Published 9:59 p.m. ET Sept. 16, 2019

## Michigan PURPA Settlement Set to More Than Triple State's Solar Capacity

### Michigan has its first massive solar contract

Consumers:  
+584 MW by  
Sept 2023

Consumers Energy has agreed to a deal with Ranger Power to purchase the output of 100 MW of Ranger's planned 149 MW River Fork Solar project, the first deal of its kind known to pv magazine in the state.

# Why so much activity?

Demand from consumers, cities, corporations

Cost reductions, utility policies making renewables possible statewide







Some case studies

# WHY CONSIDER SOLAR?

# Why think about solar?

- Opportunity for revenue
  - Lease of land
  - Property tax (probably)
- Opportunity for stormwater benefits
- Opportunity to improve image
  - Better than eyesore
  - Contribution to climate action

# Coldwater Solar Field

- 1.3MW on 7 acres
- Owned by former foundry
- Ballasted
- Gravel cover
- Benefit:  
Aesthetic  
improvement



Images from [Coldwater Board of Public Utilities Website](#)

# East Lansing Solar Park



*Photo: Nick King/Lansing State Journal*

- 0.3MW on 1 acre
- Retired city-owned landfill
- Ballasted
- Pollinators, native grasses planned
- Benefit:  
“Community Solar”  
\$0 lease  
10-year tax exemption

# Lapeer Solar Facility

- 48 MW on 250 acres
- Land owned by City of Lapeer
  - Formerly farmed
- Benefit:
  - Lease: \$500k/year (\$887/acre)
  - Taxes: \$4.5M school; \$.75M county
  - \$10M spending during construction







# WHAT SOLAR DEVELOPERS ARE LOOKING FOR

# Land

- Possible on any size, but economies of scale
  - PURPA: 15-20 acres
  - 50MW: 250+ acres
  - 125MW (avg): 600+ acres
  - Shiawassee: 1,200 acres

# Grid Access

- Near substation
  - How near depends on project size
- Small projects: 3-Phase, space on distribution network
- Big projects need transmission access

# Other Considerations

- Cleared, flat land
- Site/zoning requirements (stormwater, screening)
- Tax rate
- Solar resource

# How to market properties?

- Size of parcel      Mapping parcels
- Grid access      Electrical infrastructure
- Cleared, flat land      Mapping
- Site requirements (stormwater, screening)
- Tax rate      State action req'd      What's in local zoning?
- Solar resource      ✓





**UM WORK UNDERWAY**

# Project with SLBA

## Identifying opportunities/barriers

### Opportunities

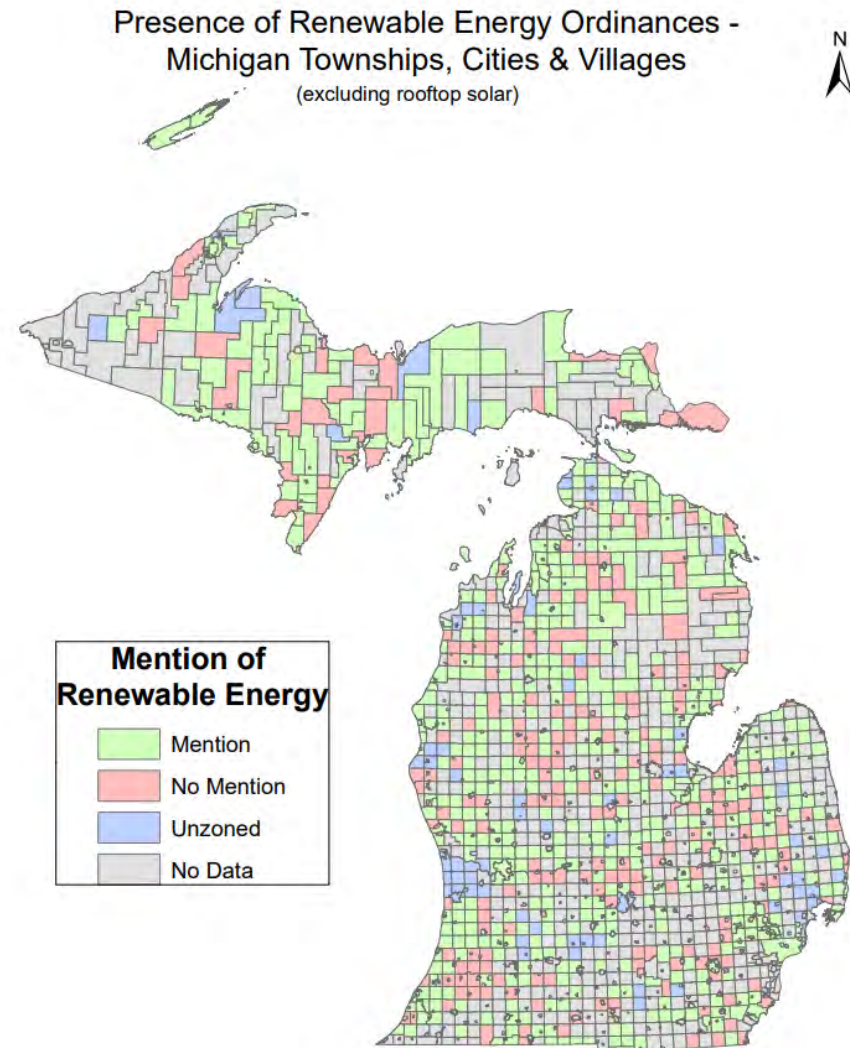
- Dealing with single landowner
- Better access to grid, load centers
- Already cleared (maybe)
- Ability to access Brownfield TIF, Act 381 \$

### Barriers

- Ballasted system, erosion control may add costs
- Uncertainty about liability / clean-up
- Tax rates (city vs. twp)
- Policy uncertainty

# Planning/Zoning Resources under Development for EGLE

- Curated repository of templates, guidance
- Database of all zoning ordinances in the state; which have renewables content
- March-April 2020 issue of Planning & Zoning News



# Real-time Resources

- Reach out to me
  - Answer questions
  - Give presentation
  - Connect you to MSU-Extension, other communities
  - Tell me what you need





Thank you!

Questions?

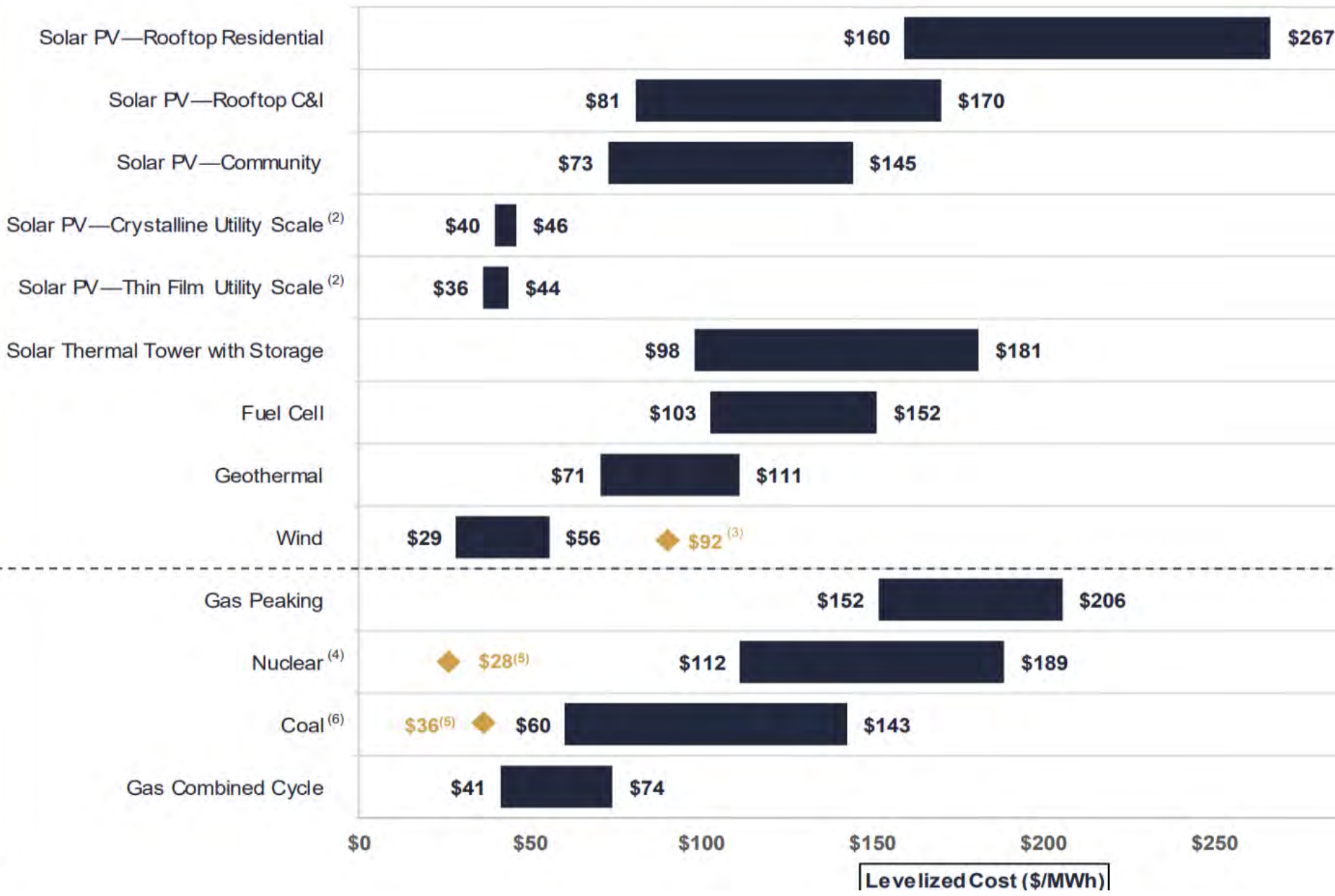
**Sarah Mills, PhD**

Senior Project Manager, University of Michigan

[sbmills@umich.edu](mailto:sbmills@umich.edu)

(734) 615-5315





# Solar Energy

## Local Benefits

- Landowner payments
  - Opportunity for brownfields!
- Tax payments (?)
- Water quality, pollinator potential
- Jobs (maybe)

## Local Concerns

- Wildlife (?)
- Impact on farm economy (?)
  - Rental land
  - Supply chain
- Visual Impacts
  - “Not why I moved here”

# Bottom Line on Solar

- Solar = economic development
- Where land is ample or of marginal quality, **no-brainer**
- Where ag-based economy, think more carefully through pros/cons