

Planning for Renewable Energy in Michigan Communities

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Small Town & Rural Development Conference

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Overview

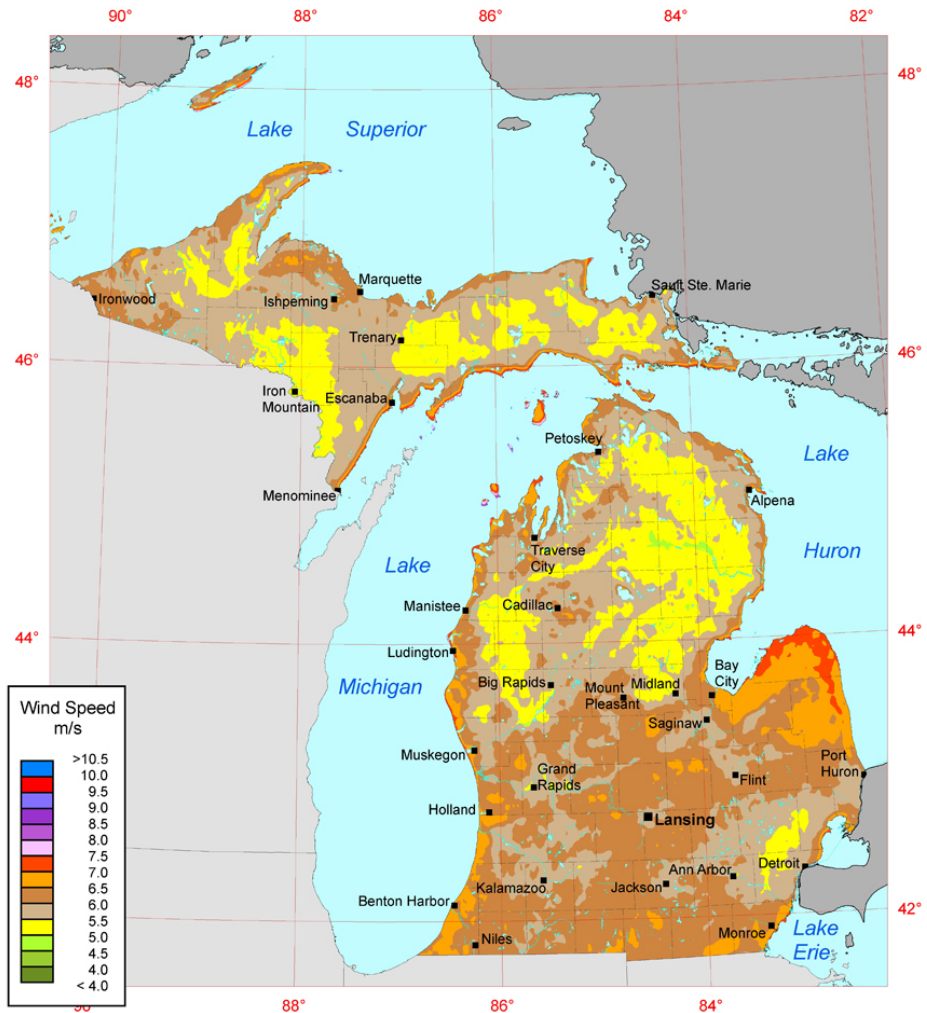
- Why plan for renewable energy?
- Pros & cons of wind
- Pros & cons of solar
- Planning and zoning resources

My Background

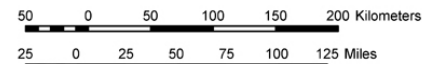
- PhD in rural land use planning
 - Investigate claims of wind as farmland preservation tool
- Research on attitudes about energy, energy policy
- Extension-like “roadshow” around Michigan
 - Neutral broker
 - Provide state-based data
- City of Ann Arbor Planning Commissioner (since 2014)

WHY PLAN FOR RENEWABLE ENERGY?

Michigan - Annual Average Wind Speed at 80 m



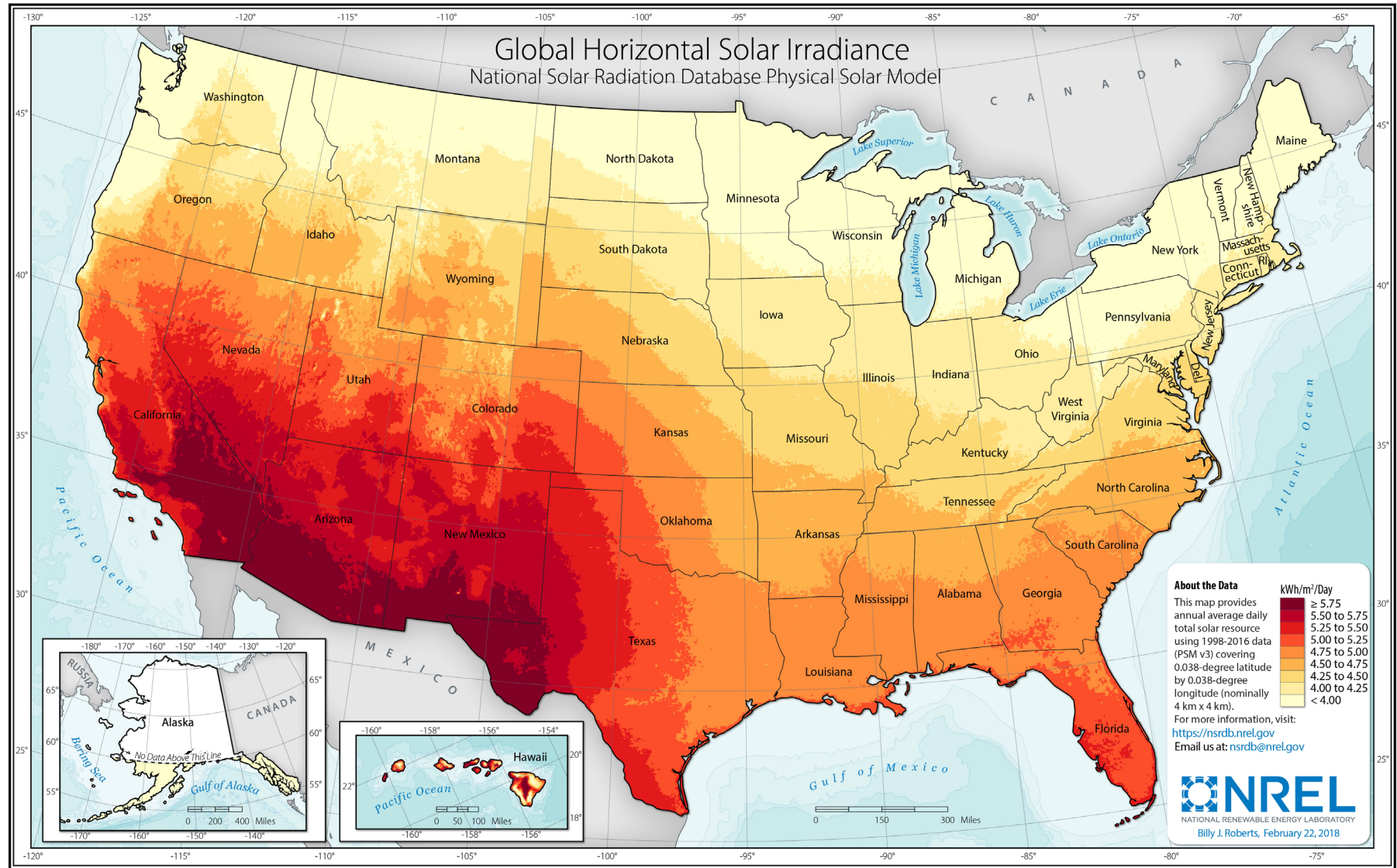
Source: Wind resource estimates developed by AWS Truepower, LLC for windNavigator®. Web: <http://www.windnavigator.com> | <http://www.awstruepower.com>. Spatial resolution of wind resource data: 2.5 km. Projection: UTM Zone 16 WGS84.



AWS Truepower™
Where science delivers performance.



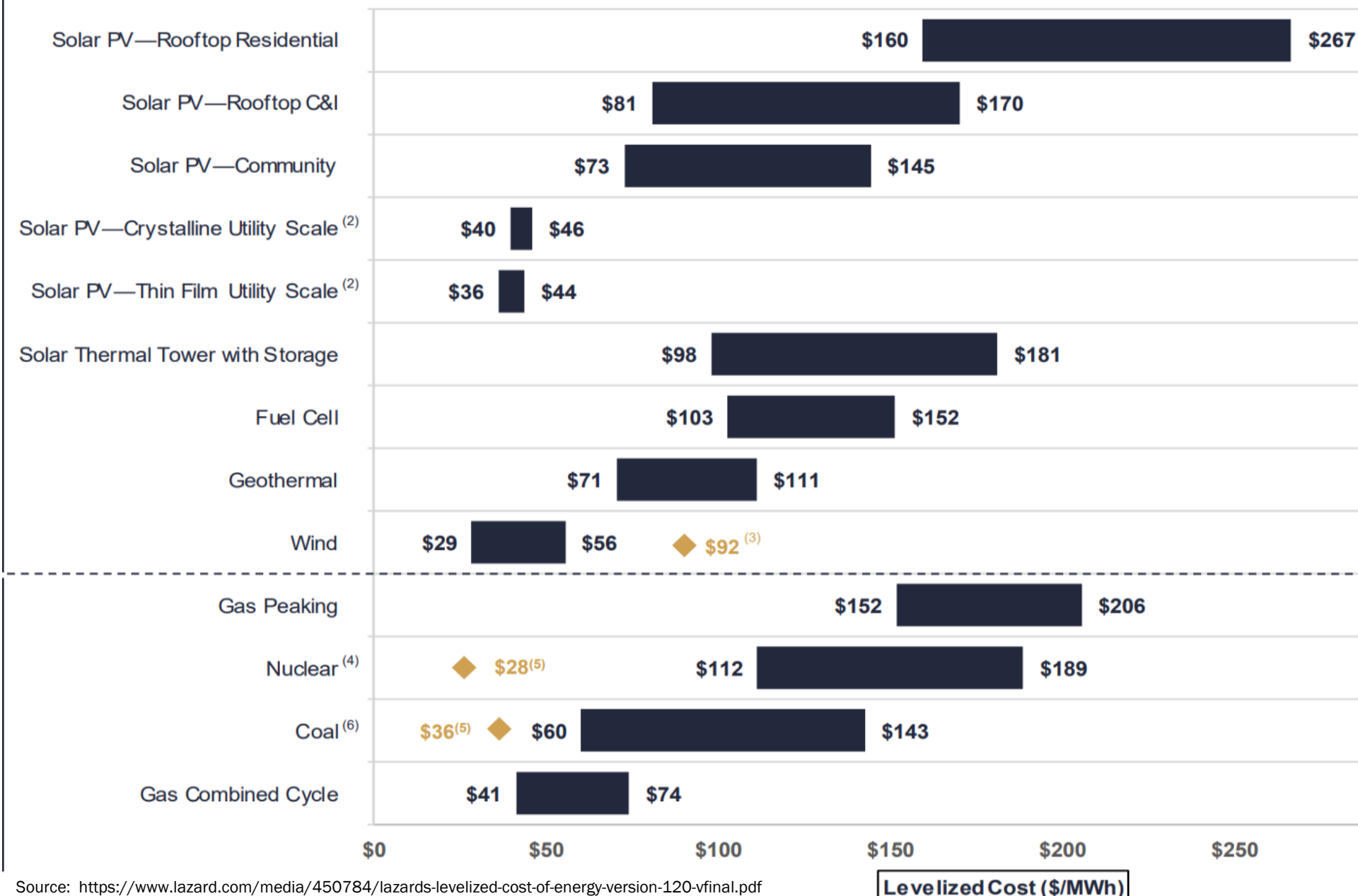
NREL
NATIONAL RENEWABLE ENERGY LABORATORY
18-OCT-2010 11.1





Existing Utility-scale Solar/Wind in Michigan

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



Why you should plan

- Technology making wind development and solar, too possible statewide
- Still limitations
 - Need open land
 - Grid access
- **Plan before developers come knocking!**





PROS & CONS OF WIND ENERGY

Wind Energy

Local Benefits

- Landowner payments
 - Farm succession
 - Farm reinvestment
 - Not JUST farmers
- Tax payments, developer donations
 - \$2M+ value / turbine
- Jobs (maybe)

Local Concerns

- Noise / health
- Wildlife
- Visual Impacts
 - Outright
 - On property values
- “Not why I moved here”

What determines individual attitudes?

- Type of land owned, “fit”
 - secondary vs. primary residence
 - farmland / rental property
- Direct compensation
 - Some better than none
 - \$1,000 per year as key threshold
- Attitudes about process

Bottom Line on Wind

- Wind = economic development
- If goal is to sustain agriculture, wind can fit
- If goal is for substantial residential development or growth of tourism, wind may not be right



PROS & CONS OF SOLAR ENERGY

Scale matters

1MW 5-7 acres



Photo: <https://inovateus.com/portfolio-items/lapeer-michigan-solar/>

Solar Energy

Local Benefits

- Landowner payments
- Tax payments (?)
- Water quality, pollinator potential
- Jobs (maybe)

Local Concerns

- Wildlife (?)
- Noise (?)
- Visual Impacts
 - “Not why I moved here”
- Impact on farm economy
 - Rental land
 - PA 116

Thoughts on attitudes about solar

- Impacts limited to drive-by; aesthetics can be managed
- “Wise use of land”, especially on large scale
 - Is this temporary land-use or not?
 - Limiting it to non-prime soils?
 - How does this benefit neighboring fields

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



PLANNING AND ZONING FOR ENERGY

Step 1: Plan first!

- How does energy fit with your long-term plan?
 - For economic development
 - For land use
- What sort of energy, and in which part of township?
- Guide from MEO/WUPPDR coming soon

Step 2: Make zoning match your plan

- Specifics matter about ability to realize plan
- Doesn't have to be all or nothing
- Unlikely to satisfy everyone
- Beware of zoning out

Zoning Considerations

- Setbacks
- Noise, flicker, visual impacts analysis, mitigation
- Decommissioning plan / financial assurance
- Beware of double standard
 - Wind: Noise ordinance for anything else?
 - Solar: What else do you allow on prime soils?

Example zoning ordinances

Wind

- [Sample Zoning for Wind Energy Systems](#) (2017)
- [Michigan Land Use Guidelines for Siting Wind Energy Systems](#) (2007)
- [Shiawassee County review of ordinances](#) (2017)

Solar

- [National Renewable Energy Lab](#) (2017)
- [MSU Extension](#) training

Consider whether
peer communities
do or do not
have energy projects

Real-time Resources

- Reach out to me (sbmills@umich.edu)
 - Answer questions
 - Looking for partners!
- MSU Extension
 - [Brad Neumann](#), [Harmony Gmazel](#), [Mary Reilly](#)
- ICMA [SolSmart](#)

Closing thought: Planning Process Critical to Public Acceptance



- Best before proposal is on the table
 - Time
 - Control
 - What's rational

Photo: <https://www.uppermichiganssource.com/content/news/Friends-of-the-Huron-Mountains-not-in-favor-of-wind-turbine-project-in-LAnse-489183491.html>

Thank you (especially Michigan Energy Office) & questions

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