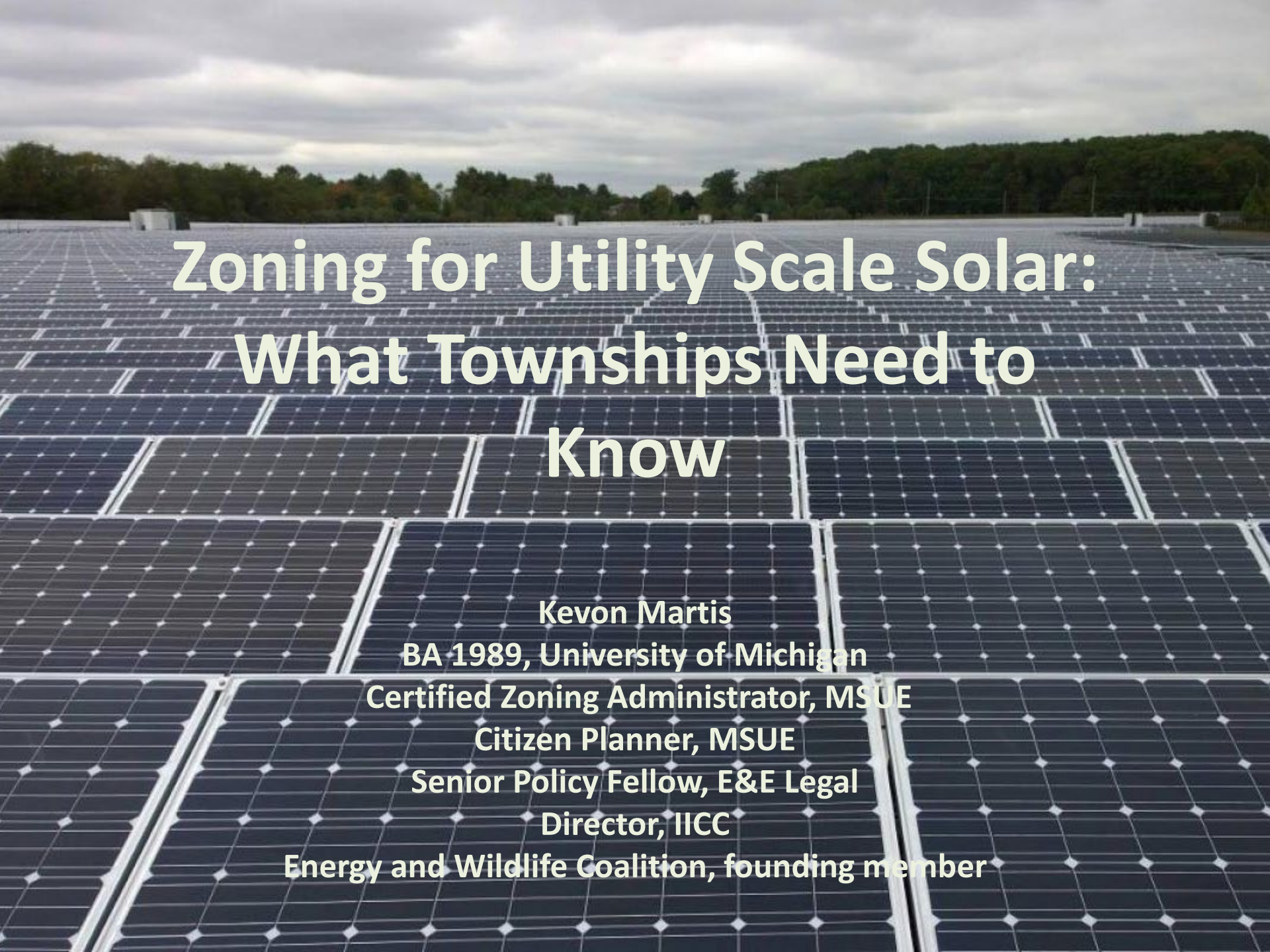


Zoning for Utility Scale Solar: What Townships Need to Know

Kevon Martis
BA 1989, University of Michigan
Certified Zoning Administrator, MSUE
Citizen Planner, MSUE
Senior Policy Fellow, E&E Legal
Director, IICC
Energy and Wildlife Coalition, founding member

Credentials

- MSU Certified Zoning Administrator and Citizen Planner
- Deerfield Township Zoning Administrator
- Lenawee County Commissioner
- Former Vice-chairman Riga Township PC-6 years
- Worked for 2 years drafting ag preservation plan for Lenawee County
- Helped draft wind energy ordinance that became a State model ordinance

Please note:

If you google my name, it doesn't take long to find a number of articles linking me financially to fossil fuel interests.

Those articles are false.

I receive no money and take no direction from any energy interests of any kind.

And I will take no questions on this matter.

Note:

I am currently the Zoning Administrator in Deerfield Township and Lenawee County Commissioner. But I am speaking tonight as an independent zoning expert and my comments in no way represent the policies or interests of either unit of government.

Further:

Most SE Michigan township officials want to know whether they should restrict solar on prime farm ground. And they also want to know what they can do under Michigan law to protect farm ground if that is the policy direction they adopt.

That is the direction of my talk today.

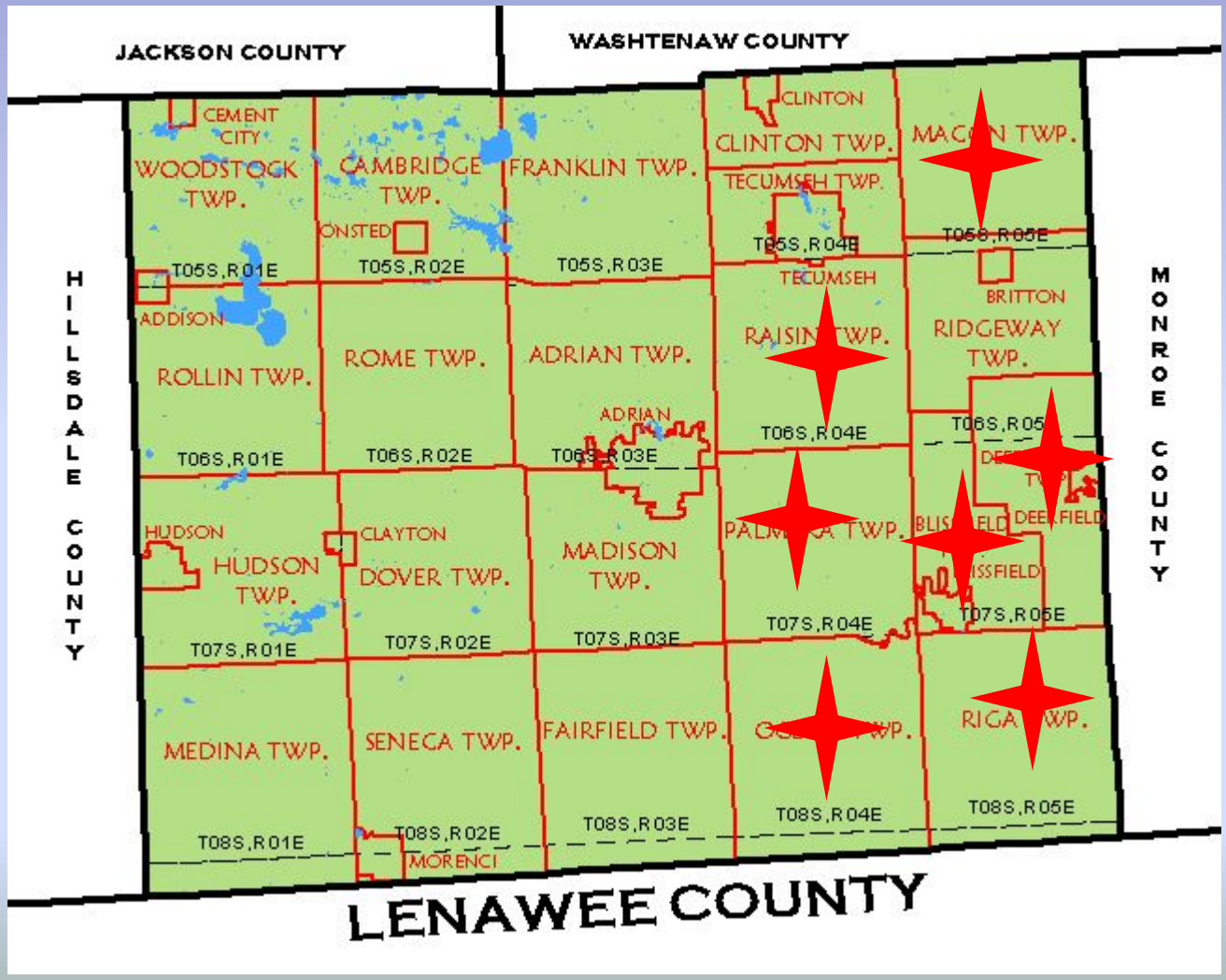
However:

If your community wants large scale solar on farm ground, most developers are happy to draft regulations that make that possible at no cost to the township.

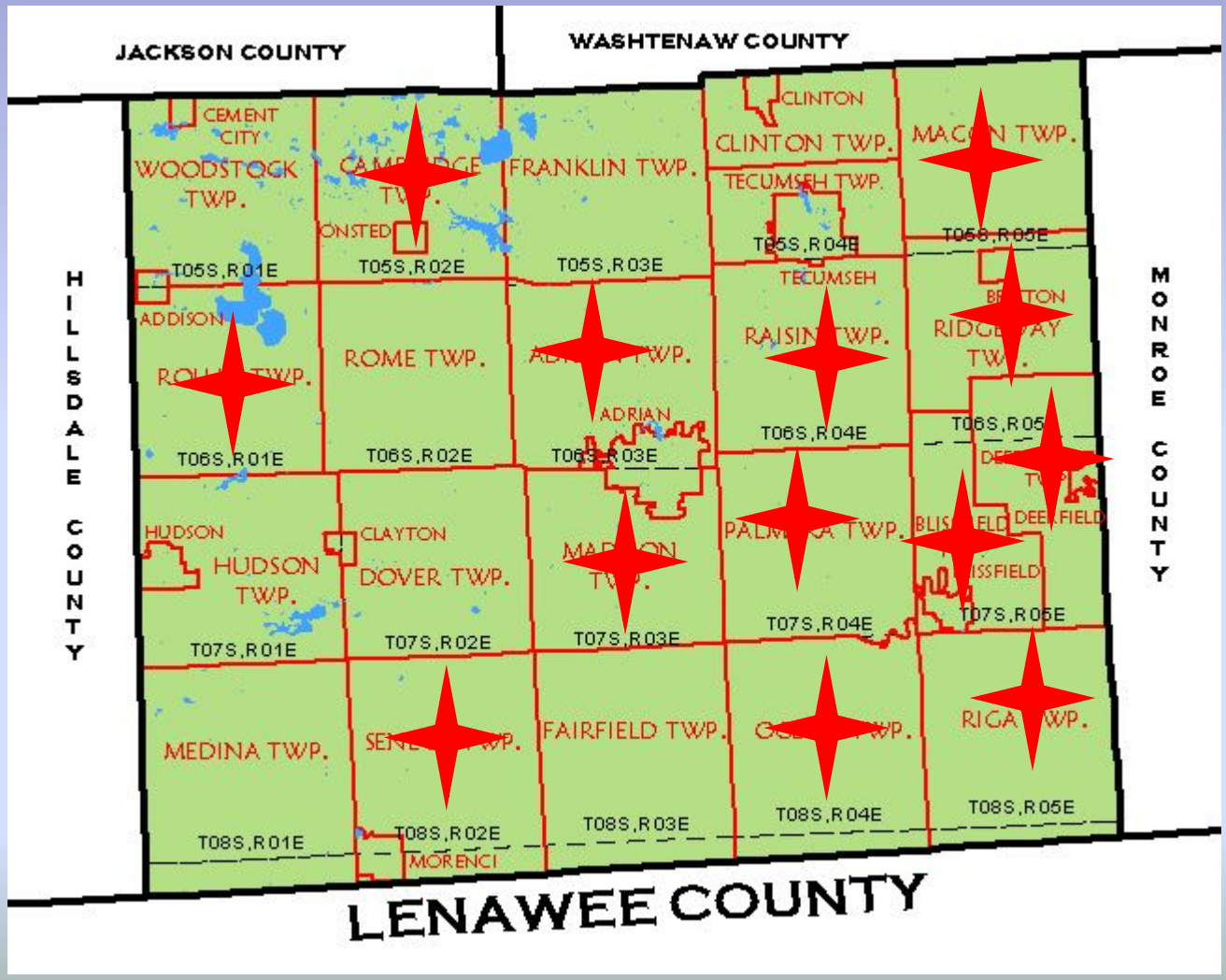
That is not the direction Deerfield Township took and I am here to share what we have learned over the past two years.

Lenawee County Proposals

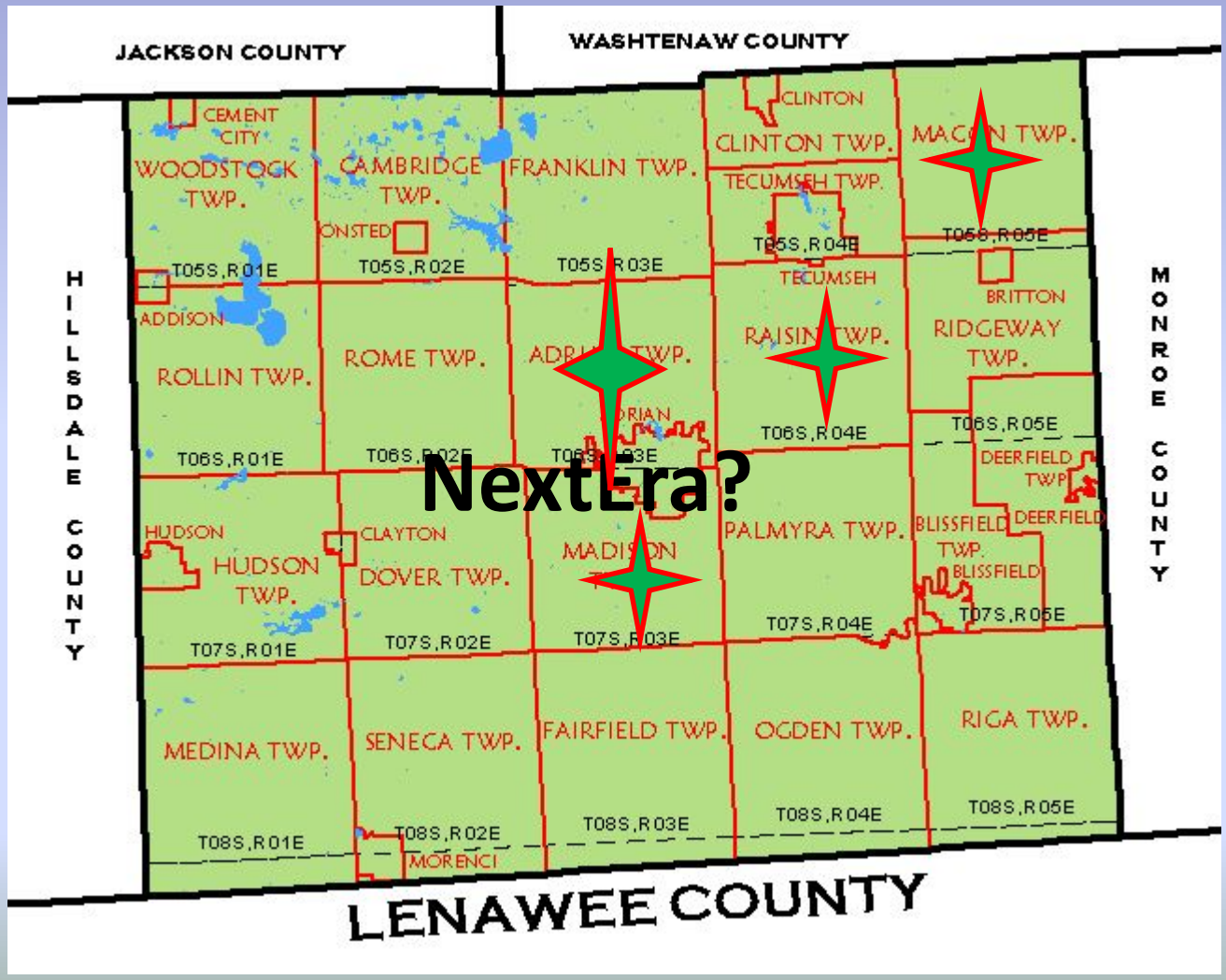
In 2020-2-21 much of SE Lenawee County was Under Development Pressure



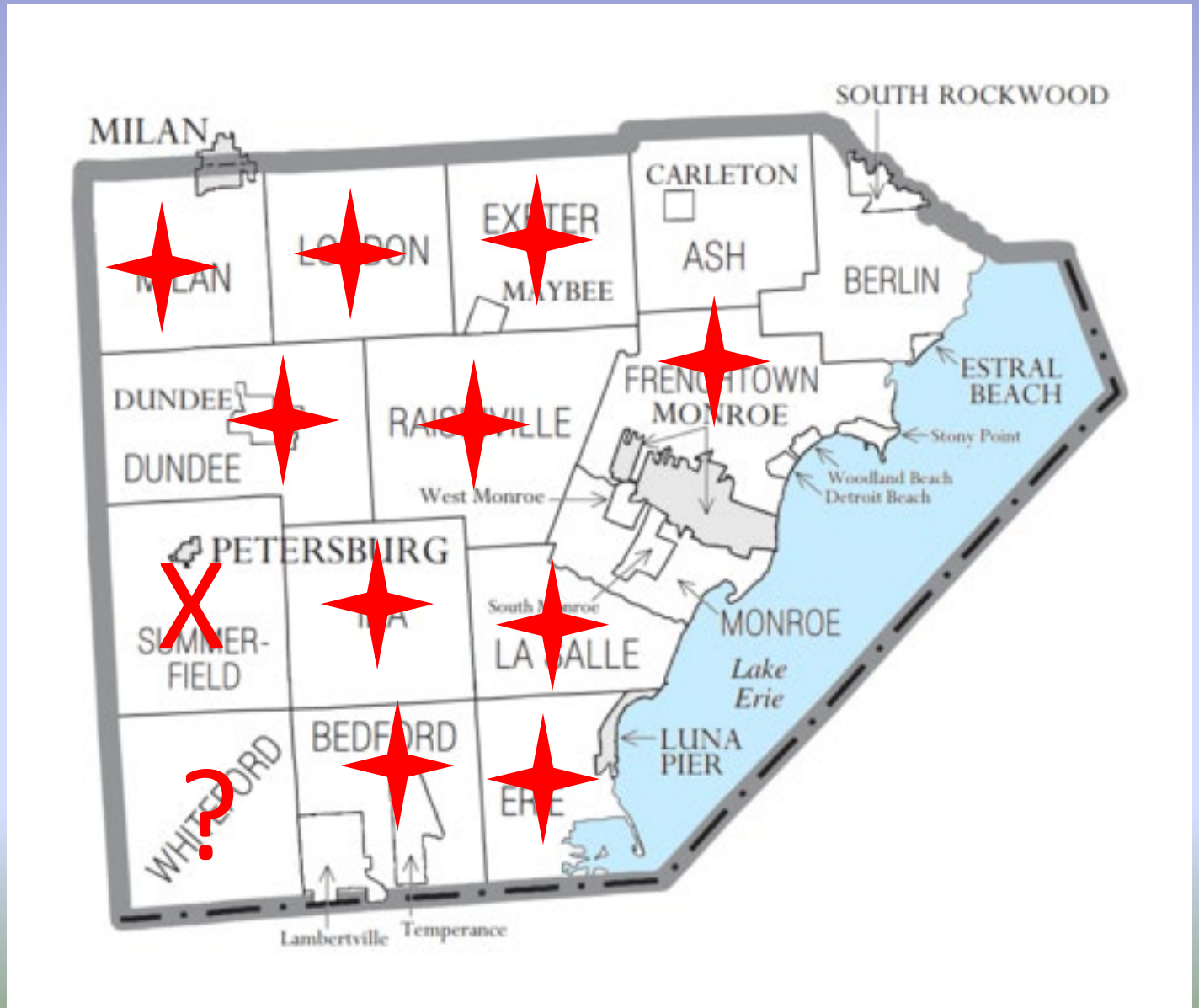
In 2023, more townships seeing development pressure.



Raisin, Macon, Adrian and Madison are open for solar to date.



Monroe County Seeing Same Pressure



Controversy

Milan Township

This spring, 2 Milan township board members were recalled over proposed solar development on ag ground. The voting margin was ~3:1 and it favored those who wished to preserve agriculture.

Palmyra Township

On the same election day, Palmyra Township voters overwhelmingly supported an ag-preservation oriented ordinance at the ballot box by a similar 3:1 margin.

Campaign disclosures show that the solar company spent roughly $70,000 in PR to the people's $2,000 but were unable to overturn the ordinance.

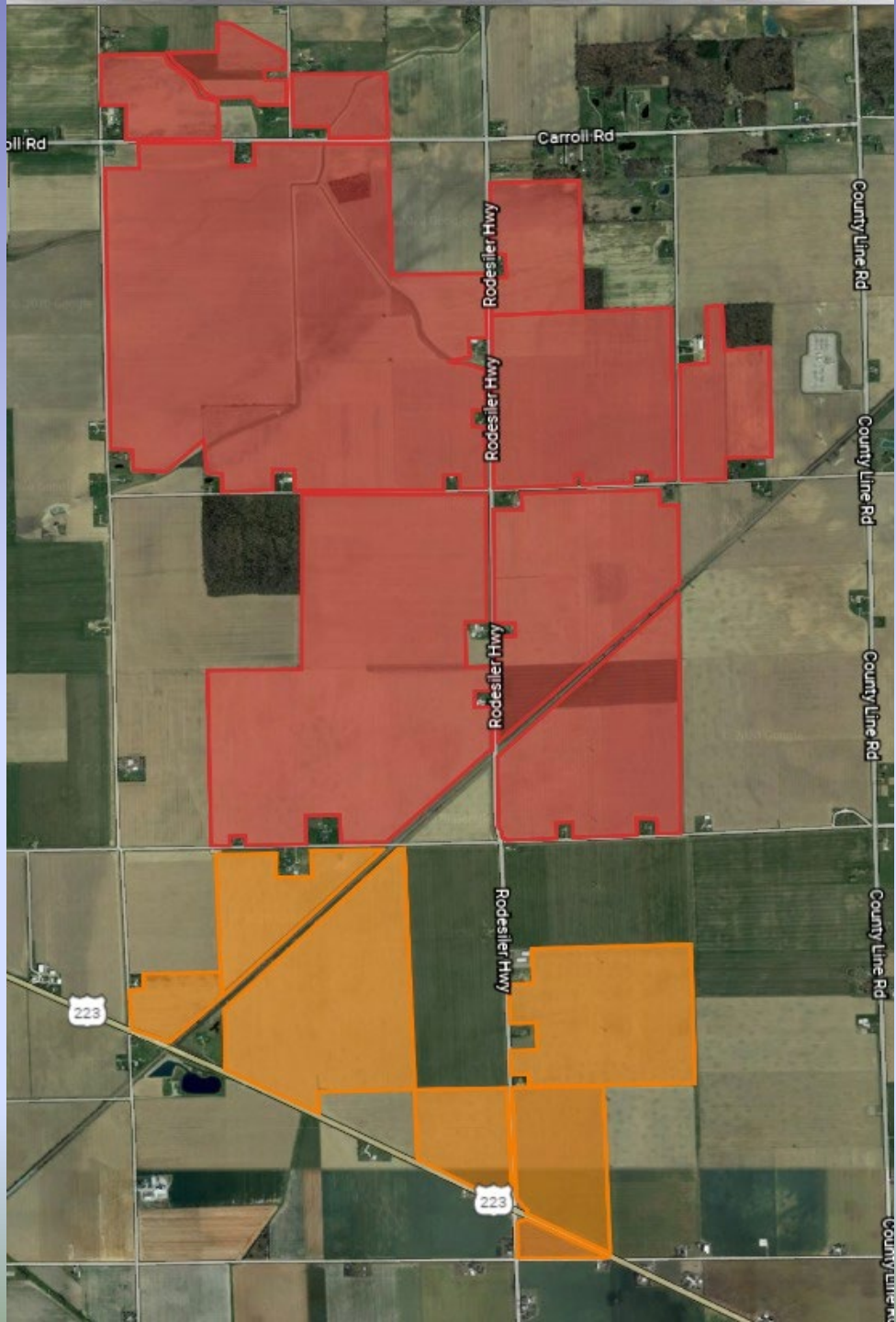
The Carroll Road Solar Farm: A Case Study

The Carroll Road Solar farm was a 200 MW solar plant proposed by Florida-based ESA Solar.

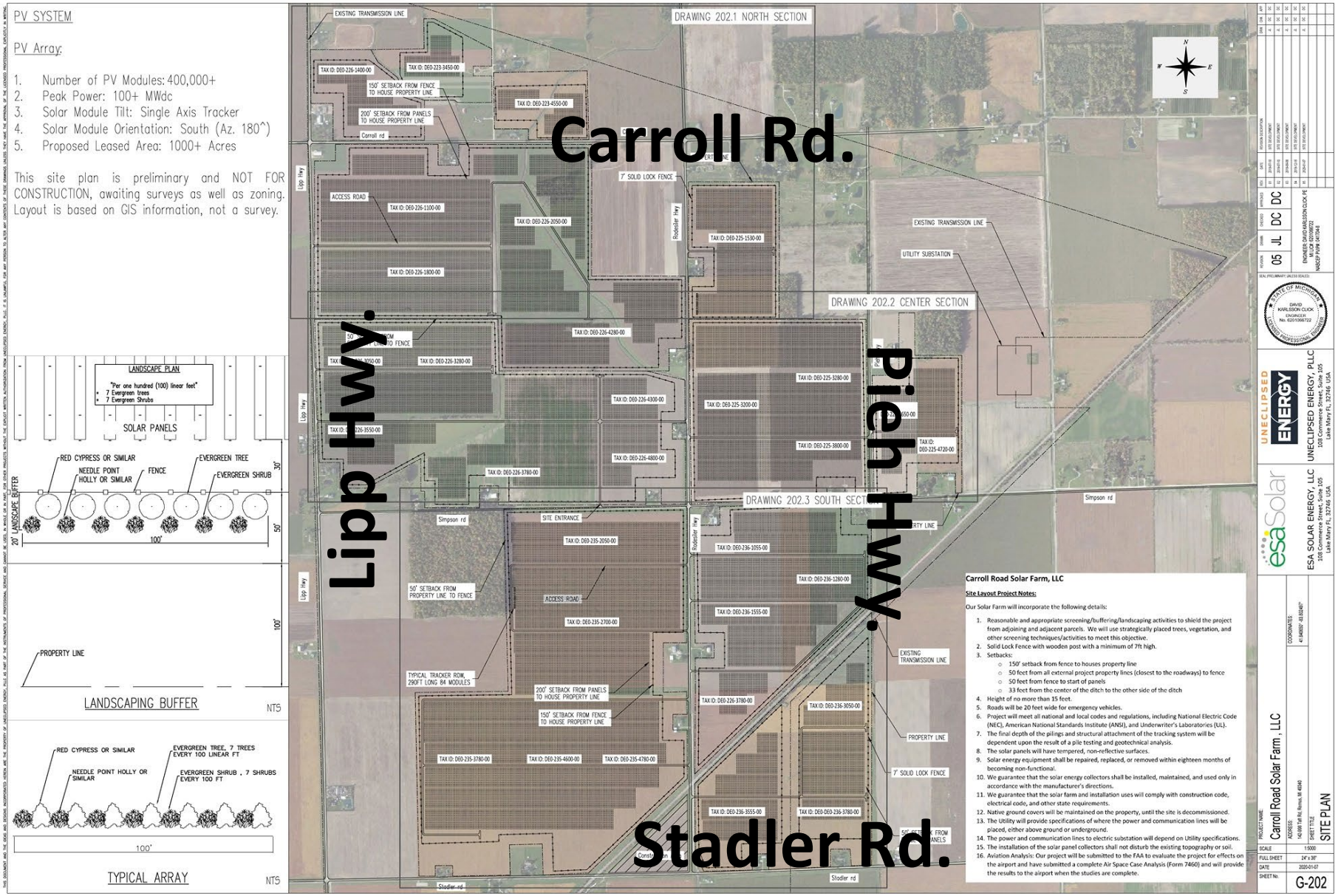
It was to stretch across Deerfield and Riga Townships. Deerfield was unzoned and Riga had just updated their solar ordinance.

Although the Riga solar regulations were intended to protect ag ground, Governor Whitmer's changes to PA116 Rules took away the protections the Riga Ordinance had in place, namely it relied upon the former PA116 ban on solar.

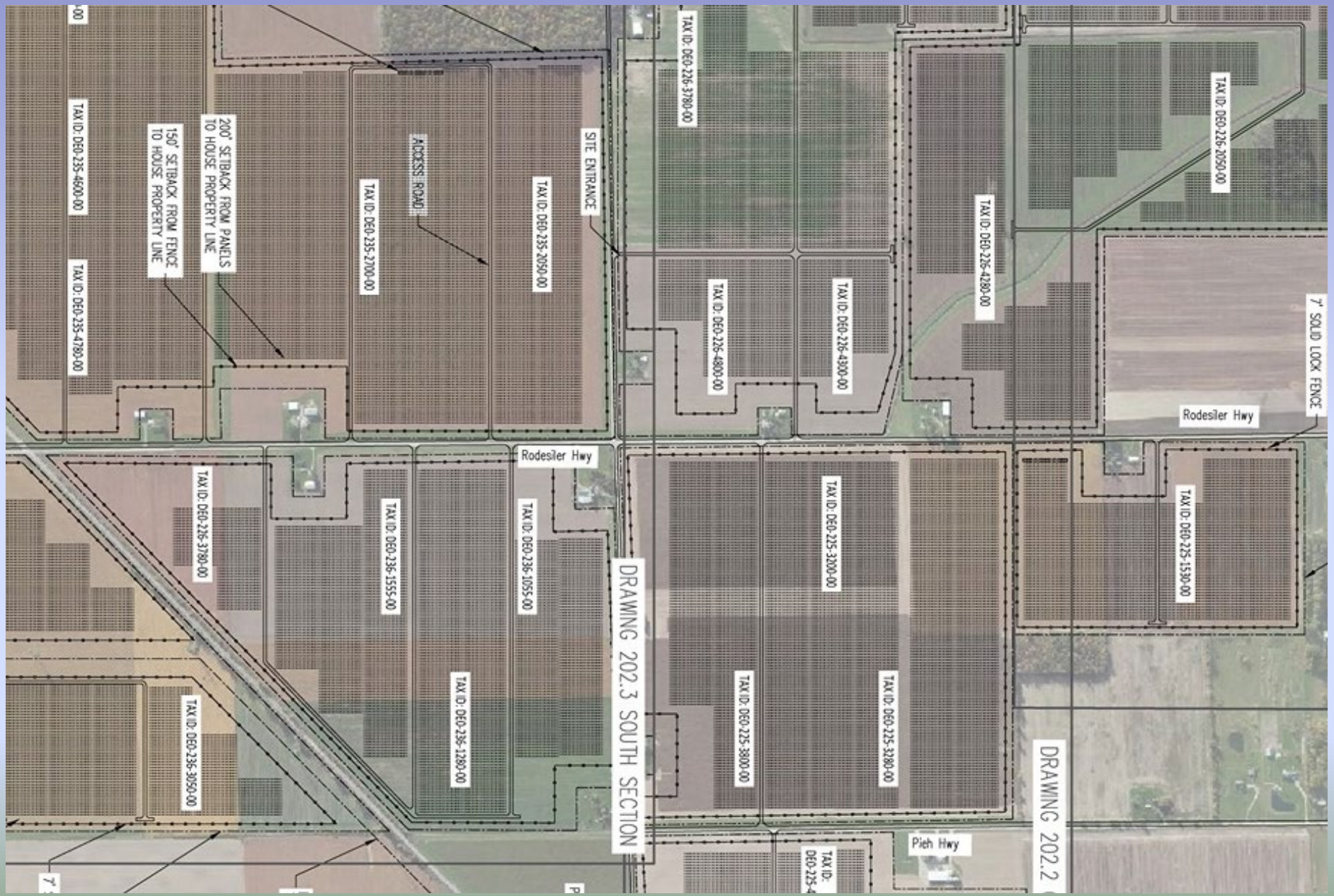
Combined Riga and Deerfield approximate project footprint as of January 2020. In excess of 2,000 acres.



ESA Deerfield Project: ~1,640 acres

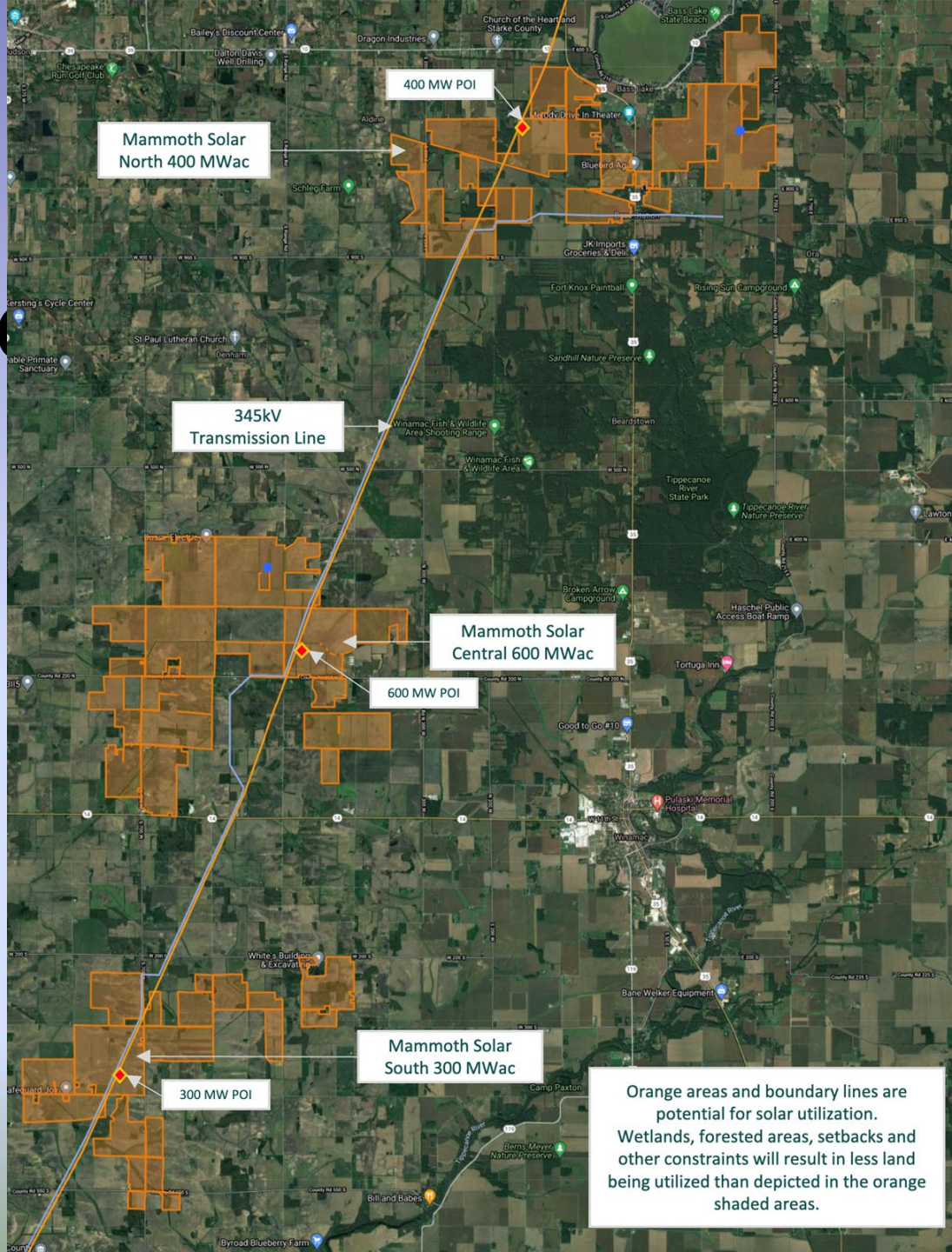


ESA Deerfield Project Closeup



Typical smaller installation

Mammoth Solar Farm: 13,000 acres in Indiana
It will be largest in US when in operation.



Understanding Zoning and Developer Claims And Zoning

Beware of Zoning Excuses

"Sad but true, far too many hearings on rezoning cases resemble a horse trading affair being carried out in a comic soap opera fashion. Some of the more ridiculous excuses offered for granting rezoning follow such lines as…."

Adapted from the Michigan Planning Guidebook: for Citizens and Local Officials, May 2008, MSU Extension

“Ridiculous” Zoning Excuses-MSUE

- **You can’t keep a man from using his land**
- **This will bring in more revenue**
- **The owner of the land can get more money for the land if it’s rezoned commercial**
- **They are too big of an outfit; we can’t deny the rezoning.**
- **We don’t have any right to say where commercial or industrial developments should go.**
- **He invested a lot of money into this land thinking the rezoning would be granted. How can we deny it?**
- **We don’t want to have to go to court; after all, it really doesn’t look that bad.**

Adapted from the Michigan Planning Guidebook: for Citizens and Local Officials, May 2008, MSU Extension

Benefit Side of Ledger

For obvious reasons, developers want to talk up any financial benefits that may accrue to the community even though those alleged benefits are not particularly relevant zoning criteria.

What about the cost side of the ledger?

Nevertheless, economic benefits often dominate the zoning discussion.

Therefore, I think we should at least take a look at common developer claims and see if they have merit.

Claim 1: Saving the family farm

Saving the family farm?

We often hear statements about solar leases being a benefit to struggling family farmers. But is that true across the board?

If you are a farmer and you own ground that could host solar, $800-1,400 per acre per year is certainly good money. That cash could be useful to maintain farming operations on non-solar ground if they have such ground.

But often, farm ground leased for solar development is not owned by people actually farming the ground. The landowners may be corporate/private real estate investors or they have inherited land, etc.

While these people still benefit when they lease, it must be understood that since they are *not farmers,* solar money is not a benefit to a *farmer* in this case.

And when land is owned by real estate investors or is in an estate that doesn't farm, that ground is typically farmed by tenant farmers who cannot compete with lucrative solar lease payments.

As a result, those farmers are driven off that farm and may lose income from many hundreds of acres.

And finally, when a landlord leases hundreds of acres for solar development, the windfall is so large (hundreds of thousands per year), that smaller operators may find it hard to compete at future land or equipment auctions against buyers with so much more expendable income.

Claim 2: Solar is good for the larger agriculture industry

MSU Econ. Analysis of Carrol Rd.

Deerfield Township worked with Dr. Steven Miller at MSU's *Center for Economic Analysis* at the Dept. of Agricultural, Food and Resource Economics to develop a local economic cost analysis for the Carroll Road Solar plant.

MSU Econ. Analysis of Carrol Rd.

Model simulation: Lost Farm Sales Impacts on Lenawee County, MI

Impact Type	Employment	Labor Income	Regional Income	Output
Direct Effect	6	$48,980	$713,567	$1,092,848
Indirect Effect	2	$106,285	$209,064	$320,187
Induced Effect	0	$35,682	$21,220	$110,923
Total Effect	8	$184,030	$943,851	$1,523,958

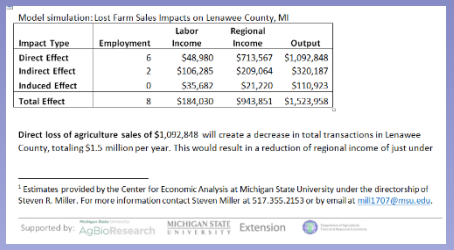
Direct loss of agriculture sales of $1,092,848 will create a decrease in total transactions in Lenawee County, totaling $1.5 million per year. This would result in a reduction of regional income of just under

[1] Estimates provided by the Center for Economic Analysis at Michigan State University under the directorship of Steven R. Miller. For more information contact Steven Miller at 517.355.2153 or by email at mill1707@msu.edu.

Supported by: Michigan State University AgBioResearch | MICHIGAN STATE UNIVERSITY Extension | Department of Agricultural, Food and Resource Economics

Dr. Miller's model estimates approximately $1.5 million annual economic losses to the Lenawee County ag economy over 35 years or $52.5 million in aggregate, not including Riga Township portion.

Furthermore:



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Total Effect	8	$184,030	$943,851	$1,523,958

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Supported by: AgBioResearch MICHIGAN STATE UNIVERSITY Extension

This analysis included only one of several proposed Lenawee County developments.

Personally, I see no way to reconcile this with local Master Plans which typically state that land use policies are to support the overall ag economy, not transfer wealth out of ag production and into a very small number of solar beneficiaries.

Claim 3: Tax Benefits

Local Economic Impacts Benefits

Solar developers regularly speak of the tax revenue flowing into communities from solar development on ag land.

But this revenue stream is under continued attack in Lansing and it is clear that the current administration wishes to sharply lower tax on solar.

Thinking About Regulation

MZEA

The Michigan Zoning Enabling Act grants townships the right to create land use regulations that protect the community's Health, Safety and Welfare as well as regulate aesthetics like size of structures, percentage of coverage of ground, setbacks, etc.

http://www.legislature.mi.gov/(x3eqqx2ix0ez34nsk1zysl45)/documents/mcl/pdf/mcl-Act-110-of-2006.pdf

PA295-Renewable Mandate

PA 295 was adopted in 2008. It included a mandate for 10% renewable energy.

That mandate was raised to 15% in 2016 in the new energy bill. That increase was a result of an amendment by Sen. Dale Zorn.

http://www.legislature.mi.gov/(S(qgez42e30g4205pti45jclxt))/mileg.aspx?page=getObject&objectName=mcl-Act-295-of-2008

PA295

Renewable energy developers regularly cite this renewable energy mandate when they are requesting zoning amendments to permit wind and solar to be constructed in local townships. They often say that "The State says we have to do this."

Leutheuser Amendment

Since so many developers were telling townships that "The state mandate means you have to let us into your community on our terms", I approached Senator Shirkey about an amendment to the 2016 energy legislation that would reinforce local control of power plant zoning.

Leutheuser Amendment

At Shirkey's prompting, Rep. Leutheuser in Hillsdale County added this language and it is now law.

Amendment No. 2e
December 15, 2016

Senate Bill No. 438 (H-7)

Rep. Leutheuser moved to amend the bill as follows:

1. Amend page 42, following line 7, by inserting:

"SEC. 54. NOTHING IN THIS SUBPART ABROGATES THE POWERS GRANTED TO LOCAL UNITS OF GOVERNMENT UNDER THE MICHIGAN ZONING ENABLING ACT, 2006 PA 110, MCL 125.3101 TO 125.3702.".

My point?

Solar and wind power plants are totally subject to local zoning regulations just like any other power plant.

The renewable energy mandate does not make them a special class.

Where SHOULD Utility Solar be Locate?

PA 116

As many township officials know, PA116 is a property tax rebate policy for agricultural land. Until 2019, solar power plants on ag land would disqualify that ground from participating in PA116.

But is ag ground the best place for solar?

Charles Gould, MSUE

“[Charles] Gould maintains that prime agricultural land should be the “last resort” for development — that projects should first be considered on marginal or industrial land.”

https://energynews.us/2019/04/10/michigan-revisits-policy-that-limits-solar-development-on-farmland/

MI Farm Bureau Policy:

- Incentivizing the production and use of renewable energy on non-agricultural use areas such as brownfield, public property, Michigan Department of Transportation rights-of-ways and other marginal lands, as well as industrial, residential and agricultural buildings, to reduce easements across farms for renewable energy projects and to protect prime farmland.
- Solar developers disclosing chemical and electronic components of solar panels and equipment to the landowner.

Massachusetts Audubon

"If this trend continues, as much as 150,000 acres of [Massachusetts] land may be lost to meet the targets for renewable energy development—land that is needed to provide other important functions in responding to climate change. This loss can be avoided by incentivizing solar installations within already developed sites and lands with lower resource values (e.g., parking lots, roofs, highway right-of-ways, and large turfgrass landscaped areas).

PA 116-Result

Even though the proponents of the PA116 rule changes for solar claimed that primarily poor farm ground would be impacted, the truth is that some of the most productive farm ground in the state is being sought for development even as many environmental experts disagree with that result.

PA 116 and Local Zoning

PA 116

Governor Whitmer changed the rules on PA116 qualification and under certain conditions, PA116 ground can host solar power plants.

Unfortunately, solar supporters are using this change to imply that townships now *must permit* solar plants on enrolled ground.

PA116 rule change take away local control?

"Pursuant to the Farmland and Open Space Preservation Act, MCL 324.36101 et seq. (the Act) and Paragraph 2 of the Farmland Development Rights Agreement with the Landowner, MDARD, subject to appropriate permitting by the local governing body, may permit structures to be built on property enrolled in the program if the structures are consistent with farm operations. "

The rule itself makes it clear that this PA116 rule for solar is subordinate to the local zoning authority.

PA116 take away local control?

Solar Panel Approval Process
Farmland and Open Space Preservation Program

STEP 1

Local government approval/review

1.1 Landowner/Solar Developer contacts the local unit of government having zoning authority to determine if solar development is permitted on the land under local zoning. The following are possible responses that may be received:

a. Solar panel development is not permitted on the land.
b. Solar panel development may be permitted via either a rezoning, a special use permit or a use variance.
c. Solar panel development is permitted under local zoning.
d. If the land is not zoned the solar panel development would likely be permitted via a building permit.

1.2 If the project has been approved by the local government or you have documentation (i.e. meeting minutes, approval letter) from the local government that the project will be approved proceed to STEP 2.

1.3 The Solar Developer may request a listing of the PA 116 Agreements and PA 116 Liens in the area being considered for solar development and, if available, a map of these same parcels from the Michigan Department of Agriculture and Rural Development.

https://www.michigan.gov/documents/mdard/Solar_Panel_PA_116_Application_684964_7.pdf

More PA116 Rules to Consider

Under PA116 rules, landowner liable

4. The PA 116 landowner agrees to the following conditions and has signed an Amended PA 116 Agreement agreeing to the following additional provisions;
    a. The owner agrees not to claim PA 116 tax credits during the time the land is being used for the production of solar power as provided in the solar panel lease;
    b. The owner is responsible for the removal of the solar panels from the property and for the restoration of the formerly occupied land to agricultural use;
    c. The owner is to provide a surety in the form of a bond or irrevocable letter of credit to assure that the land is restored to agricultural use and that the solar panels, and all related equipment above and below ground are removed;
    d. The owner is required to notify the Michigan Department of Agriculture and Rural Development and the local governing body, having zoining authority, within 90 days if the ownership of the solar panels changes;
    e. The owner is required to notify the Michigan Department of Agriculture and Rural Development and the local governing body, having zoning authority, within 90 days if the ownership of the property changes;
    f. The owner agrees to plant a cover crop including pollinator habitat under the solar panels to reduce erosion and to maintain soil fertility;
    g. The owner agrees to maintain the existing drainage on the property during the life of the project;
    h. The owner agrees to notify any new landowner within 90 days of the requirements listed in the Amended Agreement;
    i. The owner must obtain approval from the local governing body, having zoning authority, and the Michigan Department of Agriculture and Rural Development for extension of the time period the solar panels are located on the property.

PA116 and Farm Drainage

Questions and Answers

1. **Question:** Why does the drainage need to be maintained on the property where the solar panels are located?
   Answer: It is important to maintain the drainage so the land may be restored to agricultural use. Also if the drainage is not maintained, the land may revert into a wetland area which may come under State of Michigan regulation. If the land becomes a wetland regulated by the State of Michigan, the land may not be used for farming.

Drainage maintenance a serious ag land issue.

Pollinator Habitat Critical

Development and the local governing body, having zoining authority, within 90 days if the ownership of the solar panels changes;

e. The owner is required to notify the Michigan Department of Agriculture and Rural Development and the local governing body, having zoning authority, within 90 days if the ownership of the property changes;
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h. The owner agrees to notify any new landowner within 90 days of the requirements listed in the Amended Agreement;
i. The owner must obtain approval from the local governing body, having zoning authority, and the Michigan Department of Agriculture and Rural Development for extension of the time period the solar panels are located on the property.

Rules for pollinator habitat are extensive:

http://rightofway.erc.uic.edu/wp-content/uploads/2019/02/MSU_Solar_Pollinators_Scorecard_2018_posted.pdf

Developers and PA116:

Solar developers have stated in public meetings that these PA116 rules require them to return the ground to it's original condition at the end of the project.

The implication is that since those State rules are so rigorous, the township should not be overly concerned about decommissioning.

However:

A non-trivial portion of the ground in the Carroll Road Solar plan was NOT in PA116 which means those rigorous State reclamation rules will not apply.

Further:

This is particularly troubling since at least one solar lease states:

"[Developer] shall have no obligation to remove any roads constructed on the Property or any subsurface improvements."

otherwise restore the Property to as near as possible to its original

and leave the Property in a good, clean condition. Notwithstanding the foregoing, Tenant shall have no obligation to remove any roads constructed on the Property or any subsurface improvements. Tenant shall have access to the Property and Leased Premises during the Restoration Period at no cost to Landlord in order to remove the Improvements and to restore the

SENATE BILL NO. 277

"However, the [PA116] deferment period shall not exceed 90 years minus the remaining term of the development rights agreement. A landowner may enter into a subsequent amended development rights agreement to provide for an additional deferment period."

By the way:

The list of regulations in this rule are substantial. Time does not permit me to address all of the issues in this document.

I encourage everyone to procure a copy of the rules, read and understand them.

https://www.michigan.gov/documents/mdard/MDARD_Policy_on_Solar_Panel_and_PA116_Land_656927_7.pdf

Local Regulations to Understand

Typical Township Documents

There are two documents that impact the placement of solar panels in townships and counties.

The first is the *Master Plan* which charts future land use policy in the township.

The second is the *Zoning Ordinance* which regulates land use.

Clinton County MP

Goal 3: Agricultural Land Preservation

Emphasize the preservation of agricultural and open space land through zoning, regulatory controls and other mechanisms such as PDR, TDR and PA-116.

Objective 1

Establish an appropriate financing mechanism to fund a farmland preservation program.

Objective 2

Enhance and develop programs through existing organizations, such as Michigan State University Extension (MSUE) and Conservation District to support the agricultural industry in the County.

Objective 3

Recognize and consider protection of prime, unique and important agricultural lands in the County in development decisions.

Objective 4

Continue working with local jurisdictions, farmers, and agricultural industry to enhance and protect farmland.

Objective 5

Develop appropriate zoning regulations and other tools, such as Purchase of Development Rights (PDR), and Transfer of Development Rights (TDR) to protect farmland.

Objective 6

Develop (with existing organizations and schools) public information and education programs about the impact of agricultural land reductions and the value of agricultural land preservation.

Objective 7

Develop agricultural security zones or districts with appropriate financial incentives.

Objective 8

Develop zoning regulations which allow flexibility in commercial farm growth but restrictive enough to maintain sound environmental practices and location.

Common Issue

In view of strong MP statements on ag preservation like Clinton County's, proponents of solar development often make statements like "solar farming allows farmers to harvest a new crop", thus trying to paint the construction and operation of solar power plants as a farming activity.

Is solar development "farming"?

MI RTFA definition doesn't include power generation

(a) "Farm" means the land, plants, animals, buildings, structures, including ponds used for agricultural or aquacultural activities, machinery, equipment, and other appurtenances used in the commercial production of farm products.

(b) "Farm operation" means the operation and management of a farm or a condition or activity that occurs at any time as necessary on a farm in connection with the commercial production, harvesting, and storage of farm products, and includes, but is not limited to:

(*i*) Marketing produce at roadside stands or farm markets.

(*ii*) The generation of noise, odors, dust, fumes, and other associated conditions.

(*iii*) The operation of machinery and equipment necessary for a farm including, but not limited to, irrigation and drainage systems and pumps and on-farm grain dryers, and the movement of vehicles, machinery, equipment, and farm products and associated inputs necessary for farm operations on the roadway as authorized by the Michigan vehicle code, Act No. 300 of the Public Acts of 1949, being sections 257.1 to 257.923 of the Michigan Compiled Laws.

(*iv*) Field preparation and ground and aerial seeding and spraying.

(*v*) The application of chemical fertilizers or organic materials, conditioners, liming materials, or pesticides.

(*vi*) Use of alternative pest management techniques.

(*vii*) The fencing, feeding, watering, sheltering, transportation, treatment, use, handling and care of farm animals.

(*viii*) The management, storage, transport, utilization, and application of farm by-products, including manure or agricultural wastes.

(*ix*) The conversion from a farm operation activity to other farm operation activities.

(*x*) The employment and use of labor.

(c) "Farm product" means those plants and animals useful to human beings produced by agriculture and includes, but is not limited to, forages and sod crops, grains and feed crops, field crops, dairy and dairy products, poultry and poultry products, cervidae, livestock, including breeding and grazing, equine, fish, and other aquacultural products, bees and bee products, berries, herbs, fruits, vegetables, flowers, seeds, grasses, nursery stock, trees and tree products, mushrooms, and other similar products, or any other product which incorporates the use of food, feed, fiber, or fur, as determined by the Michigan commission of agriculture.

MI Farm Bureau Policy Book

We oppose:

- Right to Farm protection being extended to marijuana growing facilities until growing the plant becomes legal at the federal level.
- Ballot initiatives seeking to control generally accepted livestock production and management practices.
- The inclusion of commercial wind turbine or solar facilities in the definition of a farm. The Michigan Right to Farm Act should allow for and protect users of existing and new technology, including energy production for on-farm use.

Typical Township ZO defines agriculture

"AGRICULTURAL: Includes purposes related to agriculture, farming, dairies, pasturage, horticulture, floriculture, viticulture and animal and poultry husbandry."

<u>Power generation not included.</u>

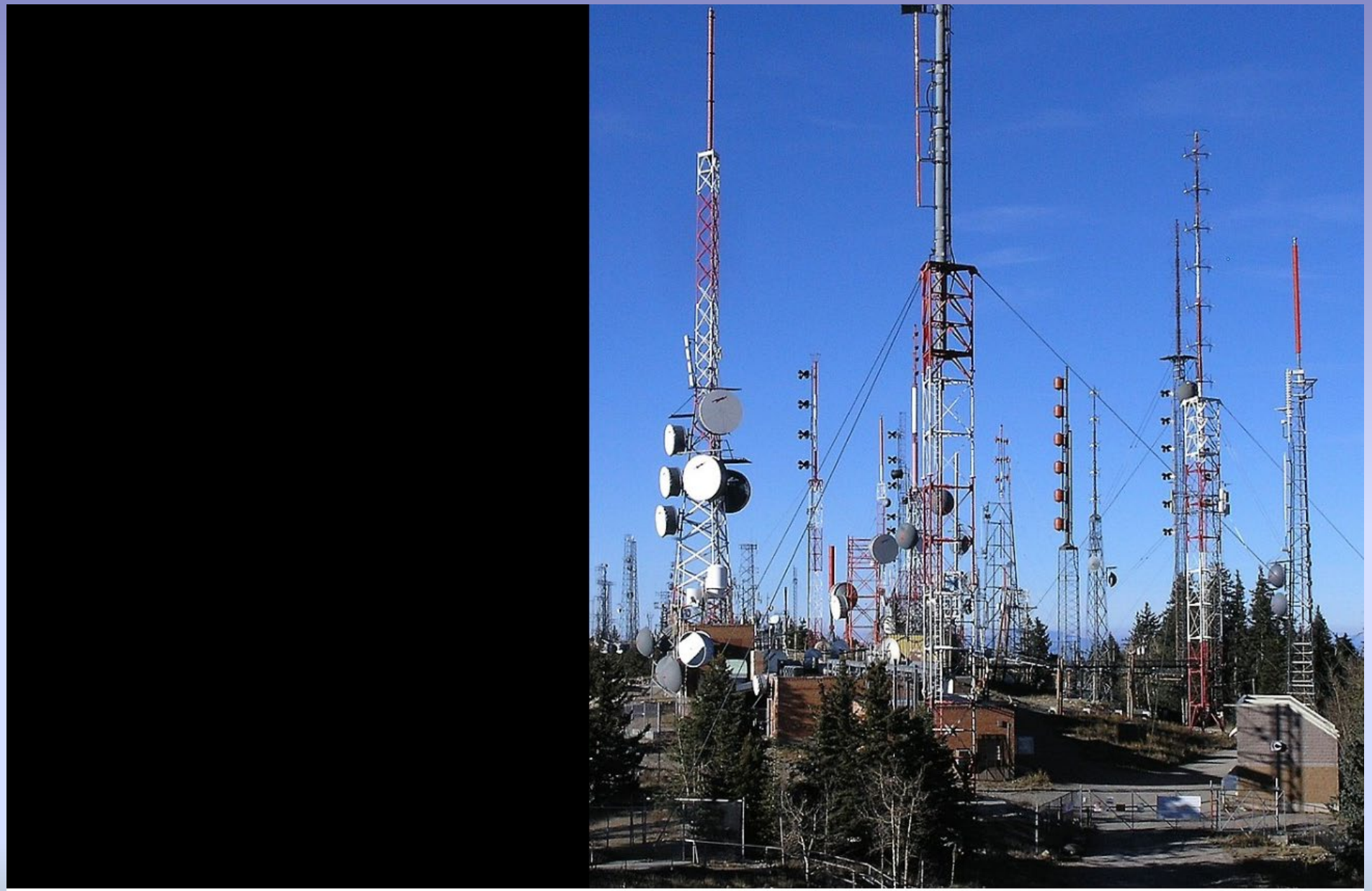
Did you know?

Many non-ag facilities include the word “farm”.

Are these ag uses?

8.5 Storage Facilities—Tanks

Tank farm areas require additional consideration for spacing not only between process hazards but from other storage tanks. Minimum tank, that is, shell to shell, spacing is well defined and is usually in accordance with NFPA 30, Flammable and Combustible Liquids Code. It also includes spacing requirements from buildings and property lines.



Huge antenna farm on Sandia Peak near Albuquerque, New Mexico, USA

This isn’t farming either.

Ordinance Recommendations

Industrial District Preferred

A plain reading of most rural township zoning ordinances would suggest that power plants belong in industrial areas.

When an industrial district exists, I recommend that solar be placed in that district.

If the Industrial district abuts commercial, institutional, residential or other aesthetically sensitive zones, I recommend requiring a landscaped earth berm or large setbacks to obscure the view.

Ag Preservation

Even though industrial zones are ideal for utility solar, developers regularly target ag ground for solar development due to low cost.

If that is the case and your township wishes to keep ag ground in agricultural production, I recommend that you limit the percentage of coverage on farm ground.

Most communities using this approach set limit of 10-30% coverage for solar on ag ground.

You may also prohibit solar on PA116 ground.

Setbacks

Setbacks are designed to provide aesthetic protection to neighboring residential land owners.

When regulating solar on ag ground, I recommend a waivable 500-1,000' setback from the array to the nearest property line.

Then the solar developer can negotiate a view shed easement or "waiver" with the neighbors to reduce the setback to something suitable for the developer, typically less than 100'.

Drainage Tile Issues

The PA116 rules describe a substantial future risk to farm ground hosting solar development in the event of tile failure.

I recommend requiring robotic inspection of every foot of tile pre-construction, repair of any inoperable tile in advance and then re-inspection every three years.

All video footage to be placed on file with Township.

The equipment exists

The Drain Camera Shop

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QUESTIONS?
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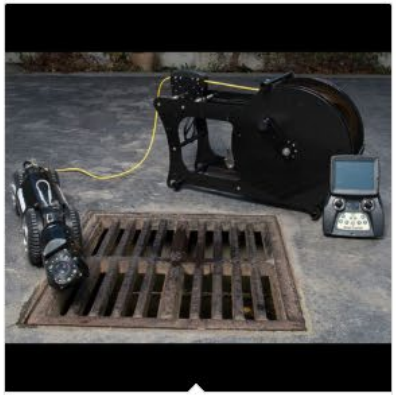


DT Crawler Package A

DT Crawler Package B

Iris Crawler Package A

Objections to Inspection

There may be resistance to such an inspection regimen.

But imagine 35 years from now when most of us will likely have gone on to our final rewards.

What if the tile has failed and the ground can no longer be farmed?

The solar plant operator's defense will almost certainly be "how do you know it was working when we started the project?"

Inspection creates a data trail.

Non-PA116 Ground

Since we have seen that some solar leases do not offer the same protections to farm ground not enrolled in the PA116 program, I recommend requiring all utility solar to honor the current PA116 rules on all ground, enrolled or not. This would add requirements for things like pollinators, etc., throughout the footprint of any development.

Noise

Inverter noise can be quite obnoxious. Most environmental noise standards recommend a 40-45dBa noise limit for rural areas. And they add 5dB penalty for noise sources that have a "tone" or a recognizable pitch as opposed to broadband or white noise-like inverters.

I recommend a sub-40dBa property line noise limit and adding the Lmax descriptor: 40dBa Lmax.

Noise

This low noise level recommendation is based upon ANSI standards and was identified by independent noise control expert Robert Rand:

Appropriate noise criteria then fall in the range of 35 to 38 dBA daytime and 25 to 28 dBA at night. These criteria are consistent with ANSI Standards for land use compatibility in quiet rural residential properties and prevent unwanted sound from intrusive tonal noise with an adequate margin of safety.

http://iiccusa.org/solar/rob-rand-noise-impact-assessment-overview/

Noise

In addition, you can require a noise attenuating roof-less masonry structure around each inverter array. This will buffer the noise.

Proudfoot

ARCHITECTURAL ACOUSTICS • INDUSTRIAL NOISE CONTROL

SOUNDBLOX®

SOUNDCELL®

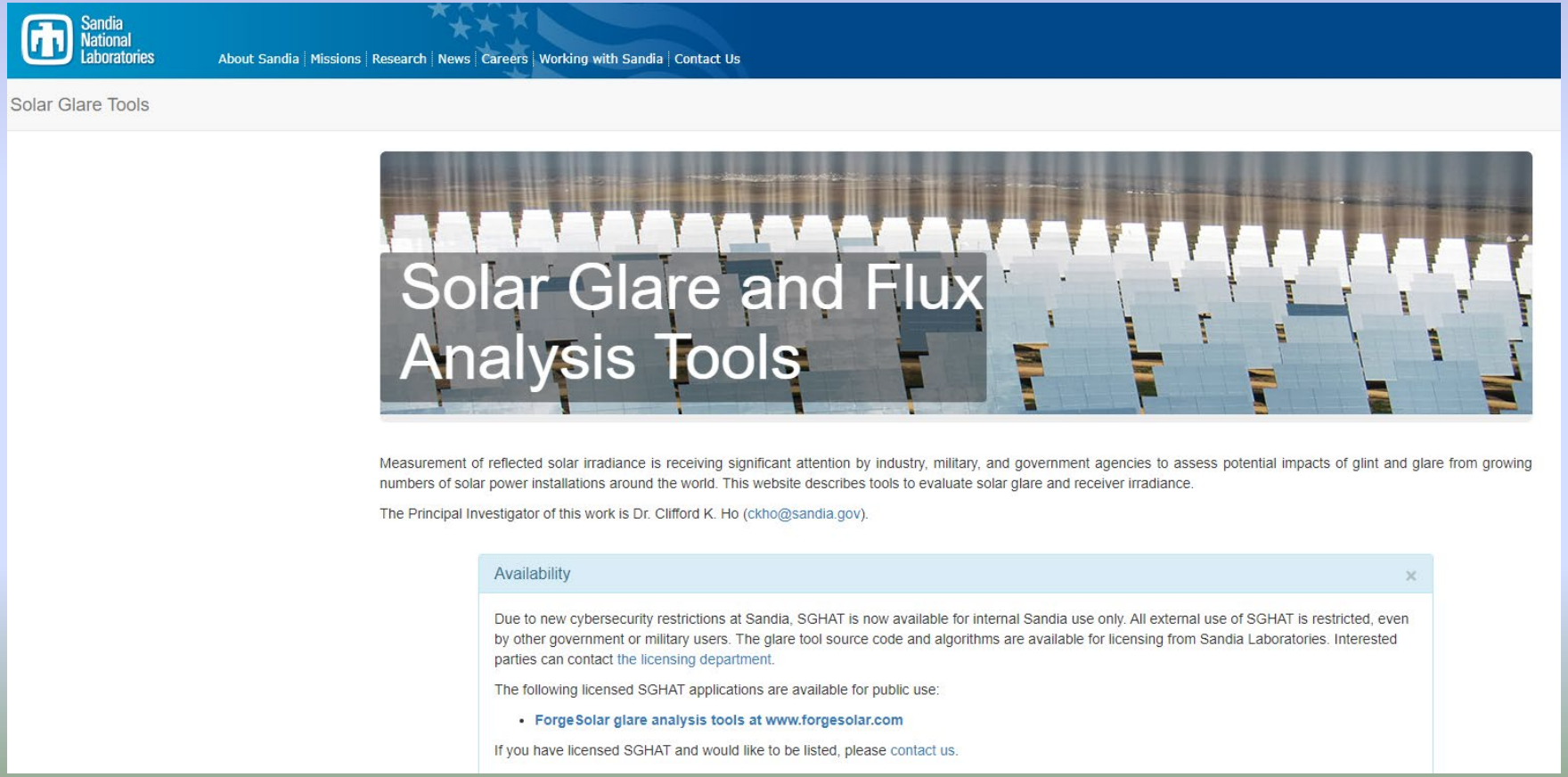
The Proudfoot Company is an industry leader in acoustical correction and noise control. Since 1965, Proudfoot has worked with architects, engineers, consultants, and specifiers to control noise on a wide variety of projects using Soundblox and SoundCell Acoustical Concrete Masonry Units (ACMU'S) . Tens of millions of these popular units are in place around the world today.

Glare

Solar developers routinely state that the FAA permits solar panels to be installed near airports thus leaving the impression that glare is a non-issue.

Glare cont'd:

The truth is that glare is a serious problem and solar panels at airports must undergo rigorous glare analysis and follow rigorous siting criteria.



Examples of Glare from Solar Technologies

Sandia National Laboratories

Photovoltaics

Concentrating Solar Power

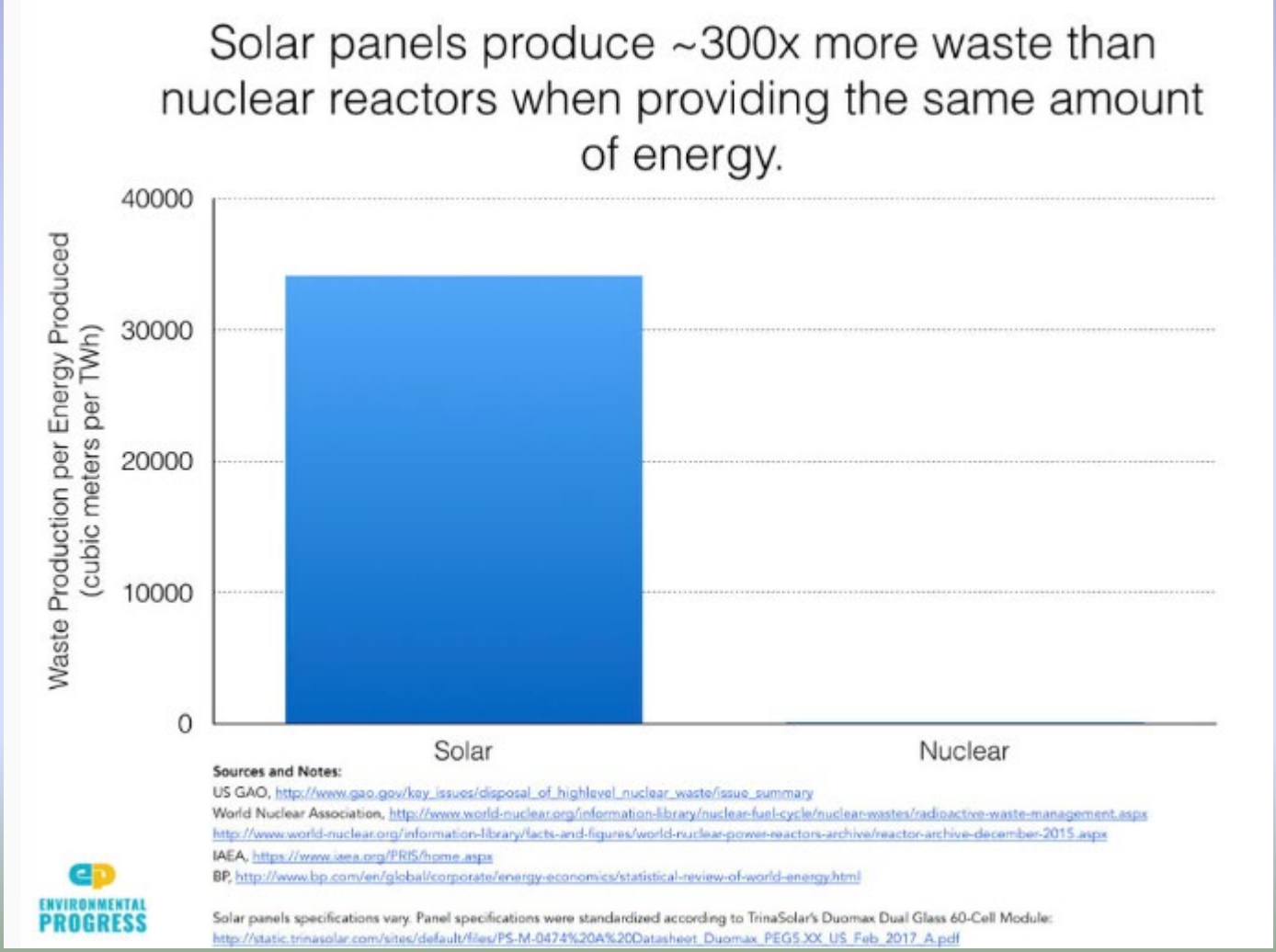
Heliostats and Central Receiver at Sandia Labs, Albuquerque, NM

Dish Collectors at Sandia

Parabolic Trough Collectors at Kramer Junction, CA

End of Life Issues

Solar arrays produce a lot of waste compared to energy delivered.



End of Life Issues

In the US, expired solar panels are either shipped abroad or placed into the waste stream.

gtm: Solar Grid Edge Storage Wind Trending Podcasts White Papers Webinars

SOLAR

Landfilling Old Solar Panels Likely Safe for Humans, New Research Suggests

Recycling the materials from spent PV panels and wind blades is the ultimate goal but doing so remains costly.

JASON DEIGN | APRIL 02, 2020

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End-of-life modules can be recycled, but the IEA suggests they pose no landfill health threats. (Credit: PV

End of Life Issues

Severe storm damage can open pathway to leaching of pollutants and create surge in waste.

Recycling

Before we engender a solar waste crisis, I recommend that municipalities require developers to guarantee that 100% of the panels, wiring and attendant electrical hardware will not end up in the waste stream but be recycled.

Their components are not benign and they are of such massive volume, they pose an outsized long term risk to the environment.

Decommissioning

The PA116 rules require the *landowner* to furnish a bond to guarantee removal of the system at the end of it's useful life.

But not all ground hosting solar would be in PA116. Therefore, I recommend requiring a bond equivalent to the value of restoring the project site to it's original condition. That value should be determined by a third part engineer selected by municipality and paid for by developer. That value should be updated every three years.

Cash in escrow is better than a bond.

Enforcement Escrow

16 years' experience with wind energy development has taught us the need for small municipalities to require *zoning ordinance enforcement money* to be placed in escrow and maintained by the developer.

This is because most townships lack adequate funding for expensive ordinance enforcement, particularly when the developer is a large Fortune 500 company.

Property Value Impacts

We are now seeing more studies showing loss of property value for homes in close proximity to large-scale solar development.

The developers claim there is no valuation impact.

Since we cannot be sure, negotiating a property value guarantee as part of an SLU deliberation would be reasonable.

If there is no impact as the developers claim, they should not hesitate to guarantee it.

Exclusionary Zoning?

Exclusionary Zoning

Often, officials think that every land use *must* be permitted or the township could be sued for "illegal exclusionary zoning".

Mich. Bar on Exclusionary Zoning

"Courts interpreting these provisions have found that, in order to establish [exclusionary zoning], "plaintiffs must show:

(1) that the challenged ordinance has the effect of totally excluding the land use within the [municipality]

(2) there is a demonstrated need for the excluded land use in the [municipality] or surrounding area

(3) the use is appropriate for the location

(4) the use is lawful."

-http://www.michbar.org/publiccorp/pdfs/winter09.pdf

Almer Township & Demonstrated Need

"Wind turbines produce energy, which is, of course, needed by the Almer Township community. But …[NextEra's Tuscola Wind project] cannot reasonably argue that the Township will have inadequate access to energy absent the wind energy project."

Accordingly, it is **ORDERED** that Defendant Almer Township Board's denial of Plaintiff Tuscola Wind III, LLC's, SLUP application is **AFFIRMED.**

Dated: November 3, 2017

s/Thomas L. Ludington
THOMAS L. LUDINGTON
United States District Judge

FAQ

My FAQ section was primarily designed for communities with limited access to sound legal counsel. Clinton County has great legal counsel at hand and they can more adequately address questions about vested right, exclusionary zoning, etc., than I can. In the interest of time, I have deleted this section.

Conclusion

Bottom Line

Many SE MI townships are deciding that utility solar is a poor fit for high quality ag land.

The claims of solar developers are designed to win zoning approval by inducing the township government to value economics more than considering the highest and best use of land in the community.

And when there are millions of acres of brownfield, industrial or commercial land available that is suitable for solar development, there is simply no need for it on prime ag land.

Up To You

If you only take one thing away from this talk, it is this:

Clinton County has full authority to regulate utility scale solar in any fashion you wish. Solar development is not a special class of land use.

Reasonable regulations designed to protect ag ground from solar development are a legitimate use of township authority to advance a legitimate governmental interest.

A Bit of Political Advice

Clinton County has a lot of experience with County zoning permitting a controversial land use (wind energy) in townships that are not self-zoned.

When Dallas, Essex and Bengal faced wind development, they first adopted police power ordinances and then, after losing in court, two of the three took back local control of zoning.

It may be wise to adopt wind and solar regulations that preserve the communities as they are.

Then, if those townships want to encourage those intyrusive uses, they can do so by creating township zoning.

Model Ordinance

I have developed a model solar ordinance that adds reasonable protections for high quality ag land like Riga Township.

It is here: www.iiccusa.org

Summerfield Township has also developed a solid solar ordinance that places solar in their industrial district.

It is here:
https://nebula.wsimg.com/00f838473fcbc594fa28f1debd100e75?AccessKeyId=ABD038DA05A7AAA90A2C&disposition=0&alloworigin=1

Questions?

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