COHOCTAH PLANNING COMMISSION MEETING- WATERS EDGE CAMP AND CONFERENCE CENTER 4100 N CENTER RD HOWELL MI 48855 8PM

January 05, 2023 at 8:00 PM

Township Hall | Fowlerville, Michigan

The Township will provide necessary reasonable auxiliary aids and services to individuals with disabilities at the meeting upon 72 hour advance notice by contacting Barb Fear, Township Clerk, by email: bfearclerk@gmail.com, phone: (517) 546-0655, or mail: 10518 N Antcliff Rd Fowlerville MI 48836.

MINUTES

CALL TO ORDER

The meeting was called to order at 8:01pm.

PLEDGE OF ALLEGIANCE – *Moment of Silence*

ROLL CALL

PRESENT: Tony Tyler, Chrissy DeFrancisco, Mark Cican, Phil Charette, Jessica Buttermore, Kyle Engel, Zoning Administrator Fred Buckner, Attorney Michael Homier. ABSENT: Mike Jolliff.

APPROVAL OF AGENDA

Motion made by Buttermore, Seconded by Charette to approve the agenda with the addition of January 26, 2023 meeting under unfinished business. Voting Yea: Tyler, DeFrancisco, Cican, Charette, Buttermore, Engel, motion carried.

APPROVAL OF MINUTES

1. Minutes 12-01-2022

   Motion made by DeFrancisco, Seconded by Buttermore to approve the 12-01-2022 minutes as presented. Voting Yea: Tyler, DeFrancisco, Cican, Charette, Buttermore, Engel, motion carried.

CALL TO THE PUBLIC

Public comment received.

MATTERS PERTAINING TO THE GENERAL PUBLIC

2. Public Hearing- Solar/Wind Ordinance Revisions and Moratorium

   Motion made by Charette, Seconded by Buttermore to open the Public Hearing at 8:06pm. Voting Yea: Tyler, DeFrancisco, Cican, Charette, Buttermore, Engel, motion carried.

See attached for public comment.

Motion made by Buttermore, Seconded by Charette to close the Public Hearing at 9:26pm. Voting Yea: Tyler, DeFrancisco, Cican, Charette, Buttermore, Engel, motion carried.

Motion made by Buttermore, Seconded by Engel to adopt the Resolution to recommend to Township Board adoption of an ordinance to include a moratorium on the issuance of permits, licenses, or approvals for, or for any construction of, Commercial Wind and Solar Energy projects, and to repeal sections of the Township Zoning Ordinance pertaining to "Solar Farms and "Solar Energy Systems". Roll call voting Yea: DeFrancisco, Buttermore, Cican, Charette, Engel, Tyler. Nays: none. Absent: Jolliff. Motion carried.

UNFINISHED BUSINESS

Joint meeting with the Township Board on January 26, 2023 for the purpose of discussing the Master Plan has not been set at this time.

NEW BUSINESS

3. Change Regular Meeting Start Time

4. 2023 Meeting Schedule

   Motion made by Charette, Seconded by Buttermore to adopt the 2023 meeting schedule as presented and to change the start time of meetings to 7:00pm.
   Voting Yea: Tyler, DeFrancisco, Cican, Charette, Buttermore, Engel, motion carried.

CALL TO THE PUBLIC

Resident raised concern over drainage on Betterly Road. Improvements made by the Road Commission did not adequately remedy the problem.

ADJOURNMENT

Motion made by Tyler, Seconded by Buttermore to adjourn the meeting at 9:44pm.
Voting Yea: Tyler, DeFrancisco, Cican, Charette, Buttermore, Engel, motion carried.

Gmail

Barb Fear <bfearclerk@gmail.com>

Support for Headland Solar Project

1 message

Carolyn Randall <grorand@gmail.com>
To: bfearclerk@gmail.com
Cc: supervisor@cohoctahtownship.org

Wed, Jan 4, 2023 at 9:18 PM

Dear Township Clerk Barb Fear,
This email is in support of the Headland Solar Project in Chohoctah and Conway Townships. I am a resident of the Lansing area and a frequent visitor to Livingston County. I'm excited for the new solar project proposed by Headland. This project has the potential to provide clean energy to the Lansing and Flint areas of Michigan and is a positive step in our efforts to reduce greenhouse gas emissions. It will also provide tax revenue and power to nearby communities and help farmers in the area looking to diversify their income.
Please support the advancement of this project.

Thanks you,
Carolyn Randall
Okemos, MI
517-449-1353

Gmail Barb Fear <bfearclerk@gmail.com>

Headland Solar

1 message

Morgan Adams <morgy8755@yahoo.com> Wed, Jan 4, 2023 at 9:21 PM
To: "bfearclerk@gmail.com" <bfearclerk@gmail.com>
Cc: "supervisor@cohoctahtownship.org" <supervisor@cohoctahtownship.org>

Dear Conway and Cohoctah Township and Livingston County Officials,

I am a resident from Lansing and I am writing support of the Headland Solar Project. Which each county and township that gets on board with projects like these, it makes it that much easier for it to spread across the state. The project will boost local tax revenue while creating hundreds of local in demand construction jobs and providing income for your local farmers, as well as have the ability to provide energy to places like Lansing and Flint. Additionally, the Headland Solar project will promote cleaner air and water for future generations. It is one of the biggest investments anyone can be doing for our future.
Thank you,

Morgan Adams
Lansing, MI
517-914-0054

Gmail

Barb Fear <bfearclerk@gmail.com>

Headland Solar project

1 message

Cathleen Burton <burton.cathleen@gmail.com> Thu, Jan 5, 2023 at 9:40 AM
To: bfearclerk@gmail.com
Cc: supervisor@cohoctahtownship.org

Hello
I am writing in support of the solar project in Livingston County but I am unable to attend the meeting this evening. I have lived in Livingston County for 50 years and see the benefit to our community, especially the farmers who are struggling.
I am a climate reality leader also and support green initiatives to save our planet, the people and wildlife. We need to reduce carbon emissions and solar energy is non toxic and efficient. I know there are some people who believe things that are non factual and these cannot be the ones making decisions for our community. Please allow time to dispel/ discount those rumors during the meeting.
Thank you
Cathleen Burton
Howell, Michigan

Gmail

Barb Fear <bfearclerk@gmail.com>

On the subject of Solar Farms

1 message

Amy Seiferlein <amy.seiferlein@gmail.com> Wed, Jan 4, 2023 at 8:45 PM
To: bfearclerk@gmail.com, supervisor@cohoctahtownship.org

Please read this at the meeting, I wanted to attend but just can't make it to the meeting.

I strongly support the proposed solar farm.
Solar energy is a renewable energy source, meaning you don't ever use it up.
Solar energy is clean. It avoids the environmental damage associated with mining or drilling for fossil fuels.
Those are the standard pros that you have heard before, but I also just want to point out the prohibitive costs of continuing to use fossil fuels. Who in this room has not noticed rapidly rising utility rates? That's not a temporary bump that will go back down - those prices will continue to rise. I'd think you would all jump at the chance to add some energy to the grid at no cost to you.
And to address the moaning about losing farmland... just look at all the farmland being sold off to developers for subdivisions. Small farms are becoming to expensive for many to continue to struggle with, unfortunately. I'd rather see the land put to use for energy production, than another subdivision.
There are even studies being done of combining farming with solar farms. Some crops may still be grown under or in between the panels.
This is positive progress and it will help all of us, in the long run. Don't stand in the way of progress. Support solar.
Thank you.
Amy Seiferlein

Gmail

Barb Fear <bfearclerk@gmail.com>

Solar project

Julie Stachecki <stachec1@me.com> Thu, Jan 5, 2023 at 1:11 PM
To: bfearclerk@gmail.com
Cc: supervisor@cohoctahtownship.org

Hello Ms. Barb Fear,

I appreciate the diligent work that the Planning Commission is taking on reviewing all of the input, science, facts and conditions that revolve around the issue of developing a Solar energy producing site in our area/County.

I **support** these energy alternatives and I support the development in Livingston County.
I encourage the Commissioners to put practical restrictions on the project and require adequate oversight, reporting of the good and not-so-good events that occur during its installation and its operations.
I also encourage the Commission to seek their own experts on similar Solar projects, funded by the developer proposing to build/operate the facilidismantlety. As a 'condition' of allowing the solar project to be installed and operated I encourage strict rules for adherence to what the Commission sees as possible problems giving them the authority to stop and dismantle the project if necessary. There should also be an end-date to the project and future approvals based on the experience of the first 'operating-phase' of the site.

I, too, am concerned about the birds and insects that this large area of solar panels may impact. Yet, I'm cautiously **supportive** of trying it and studying these potential negative impacts so we have true Facts not just 'concerns'. Based on the Facts, future restrictions, or limited applications can be allowed with more knowledge of what we can all expect from solar producing energy sites.

By supporting new energy systems the Township and out County can be seen as leaders. We will be on the record for looking to the future an d being probem-solvers.

Please support theis solar energy producing project.

Thank you,
Julie Stachecki Johanningsmeier
Livingston County resident of 26 years

Julie Stachecki
Site Specific, Inc.
ISA Certified Arborist MI-0650;
TRAQ Qualified; MI Oak Wilt Qualified
810-599-0343

Gmail

Barb Fear <bfearclerk@gmail.com>

Meeting to discuss solar power

Matthew Frisch <mfrisch@fibertec.us> Thu, Jan 5, 2023 at 3:46 PM
To: "bfearclerk@gmail.com" <bfearclerk@gmail.com>
Cc: supervisor@cohoctahtownship.org

Dear Sir,
I have learned that a township meeting will be held tonight to discuss a proposal for allowing a solar farm in Livingston County. As a business owner in Livingston County, I would like to express my opinion.
I own a company with an office in Green Oak Township (11766 Grand River Rd. Brighton), where I employ close to 15 staff members. I am a believer in Global Warming and the imperative to take action to reduce its impact. I see solar parks as an essential element in this battle. Let me present three points:
1. Almost 45% of corn grown in the USA is used for the manufacture of Ethanol for fuel. This mono-crop is no less appealing to me than solar panels.
2. Regarding any argument that the panels may cause pollution, I offer this; I do environmental testing for a living. The risks associated with runoff and drift from agricultural fertilizer and pesticide application, along with the potential of groundwater contamination from these chemicals, is probably greater than anything that could result from a broken solar panel. Furthermore, the potential for spillage or leakage of fuels from farm equipment is another hazard that is no less than that of solar panels. Finally, the storage of livestock waste in lined or unlined containment structures located on farms is another significantly greater potential cause for pollution.
3. I understand and can appreciate NIMBY-ists. I share their concerns about unsightly industrial scale projects that muck up their views. But I feel that this can easily be mitigated by requiring plantings along boundary lines.

Sincerely,

Matt Frisch

Matthew Frisch
President

Fibertec Environmental Services
1914 Holloway Drive
Holt, MI 48842
517-699-0345 x4405
mfrisch@fibertec.us

The Choice of Environmental Professionals since 1987

How is our customer service? Fill out our online customer satisfaction survey

January 5, 2023

Statement written by Gwen Ives Kato, landowner in Conway Township.

I am a Realtor in Livingston County, and I've had over 150 transactions in the greater Livingston County area. I also am a farmer that has land in the solar project. I want to review 'how' a home is appraised and the value given by an appraiser. A house's condition, size, quality, and the amount of land it sits on is the primary consideration – what the bank is actually writing the loan for. What an appraiser also takes into account is any surrounding nuisances, such as noise levels and smells, i.e., hog farms, shooting ranges, dirt bike trails, landfills, and airports. Even having outbuildings does not add much value to a property. Personally, I wouldn't mind a quiet solar array near me, as barriers can be planted to hide the view, if wanted. In fact, this ordinance requires solar developers to plant such buffers. Michigan law states that if a proposed land use doesn't affect the community's Health, Welfare, or Safety, then the property owner has the right to pursue it.

There have been appraisal and real estate studies across the country confirming that homes can retain their value with solar farms around them. Locally, Cohn Reznick, a national accounting firm, conducted a property value impact assessment on the proposed Headland project in Conway and Cohoctah Township. This study, which can be found at cohnreznick.com, examined the likelihood of Conway and Cohoctah Township residential properties seeing an adverse impact based on proximity to a solar project. They reached conclusions by examining several other similar rural areas throughout the Midwest where these projects exist and what effect they have or have not had on home values. Their findings indicate that neighboring properties in Conway and Cohoctah Township are not likely to be impacted by proximity to the Headland Project.

Access to high-speed internet would do more to add property value in both these townships than anything else. With more families working from home, that is a requirement, and my clients often can't buy in these townships because of unreliable internet. The millions of dollars in new tax revenue for the township that solar would bring could go a long way to making that a reality."

My family and each of the other farming families in support of this project have paid more property taxes in Conway township in the last 70 years than probably everyone in opposition to the project put together. I believe it's a farmer's right to decide within reason what to do with their own land. I believe solar exploration should be a realistic option for farm land for all 'terminal farms' that have no next generation to take it over. Solar is undoubtedly a good option, environmentally, for the land itself, allowing it to rest from 70 years of cultivation and good for the community as a whole.

I'm in favor of the solar ordinance that's currently in place, and I ask that it remain in effect.

DICKINSON WRIGHT PLLC

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TIMOTHY A. STOEPKER
TStoepker@dickinsonwright.com
616-336-1060

January 5, 2023

By E-Mail Only, mhomier@fosterswift.com

Michael D. Homier
Foster Swift Collins & Smith PC
700 East Beltline N.E. Suite 200
Grand Rapids, Michigan

Re: Cohoctah Township Planning Commission Proposed Amendment to Zoning Ordinance extending a moratorium on the construction of wind and solar energy projects for an additional year (through January 4, 2024) and repealing of Sections 2.02, 4.03(M), 5.03(L), 6.03(K), 7.03(H), 10.03(G), 11.03(X), and 13.27 "and any other section that could be construed to permit Commercial Wind and Solar Energy Projects in the Township while the moratorium remains in effect" ("Zoning Amendment")

Dear Mr. Homier:

It is our understanding based upon our conversation of January 4, 2022 that you have been retained by Cohoctah Township ("Township") regarding the above referenced Zoning Amendment and regarding the Township's review and potential amendment of those sections of the Township's Zoning Ordinance governing solar energy projects.

Our client, Headland Solar, LLC ("Headland"), is considering the development of a utility scale solar energy system ("Solar Project") in the Township and accordingly has followed the Township's review of its current solar zoning ordinance commencing with the Township Board's resolution adopted December 22, 2021 placing a 180 day moratorium on solar projects in the Township.

A review of the public record pertaining to the Township's and Livingston County's review and consideration of an amendment to the Zoning Ordinance governing solar projects confirms that (1) there is no legal and factual basis to extend the moratorium on solar projects for another year, and (2) the repealing of the current solar zoning ordinance has the effect of excluding a lawful use for which there is a demonstrative public need and which otherwise unlawfully excludes a lawful use contrary to the Michigan and United States Constitutions.

Following the December 22, 2021 moratorium resolution (which we believe violates the Michigan Zoning Enabling Act), the Planning Commission discussed and reviewed various drafts of amendments to the solar zoning ordinance at Township Planning Commission ("Planning Commission") meetings on January 6, 2022, April 7, 2022, May 5, 2022, June 2, 2022, July 7, 2022, August 4, 2022, and September 1, 2022, and at a public hearing held October 6, 2022.

The record before the Planning Commission confirms that all meetings during which the solar amendment was discussed were open to the public, that the Planning Commission sought and obtained input on drafts of the solar amendment from Carlisle Wortman, the Township Planner, and from the Township Attorney. Minutes of the Planning Commission also confirm that the drafts of the solar amendment were modified in response to questions and issues raised by the Planning Commission.

The lengthy and detailed review by the Planning Commission of the solar amendment culminated in a public hearing on October 6, 2022. The minutes of the public hearing confirm that only one person spoke in opposition to the draft amendment to the solar zoning ordinance ("October 2022 Solar Amendment").

Following the public hearing on October 6, 2022 the Planning Commission unanimously recommended that the October 6, 2022 October 2022 Solar Amendment be adopted by the Township Board.

Subsequent to the Planning Commission's unanimous recommendation, the October 2022 Solar Amendment was referred to the Livingston County Planning Commission ("County Planning Commission") for review and comment. In advance of the Livingston County Planning Commission meeting to review the October 2022 Solar Amendment, the Livingston County Planning Department ("County Planning") undertook a detailed review of the October 2022 Solar Amendment and consulted with Dr. Sarah Mills regarding the same.

The County Planning Commission's review resulted in a detailed 22 page Memorandum dated October 24, 2022 ("County Planning Memo") prepared by Robert Stanford with input from Dr. Sarah Miles which was submitted to the County Planning Commissioners and to the Township Board.

A meeting was conducted by the County Planning Commission on November 16, 2022 at which time the County Planning Commission considered the County Planning Memo, reviewed the October 2022 Solar Amendment, and heard public comment. A significant portion of the County Planning Commission review involved examination of County Planning recommendations and suggested edits to the October 2022 Solar Amendment which are noted on pages 2 and 3 of the County Planning Commission meeting minutes.

Within the context of the County Planning Commission review it is critical to note that the suggested edits to the October 2022 Solar Amendment do not by any measure require an additional year to review and incorporate into the October 2022 Solar

Amendment, and that the Township through its representative, Mark Fosdick, confirmed on the record that the recommended edits to the October 2022 Solar Amendment were agreeable to the Township.

Leading up to the Township's agreement to the County Planning Commission's suggested edits, the County Planning Commission recommended "approval" of the October 2022 Solar Amendment as confirmed on page 22 of the County Planning Memo which contained the following statement:

> "The proposed amendments appear to be reasonable and appropriate. The township has done a very admirable job of attempting to address all facets of this land use activity to ensure the desired form of development takes place and to preserve the community's rural character to the best extent possible. To the County Planning Staff's knowledge, Cohoctah Township leadership utilized an educated and reasoned approach to the best of its abilities throughout this process. The proposed ordinance should serve Cohoctah Township and its residents well as the demand for utility scale solar energy systems begins in the very near-future."

Nothing in the Township record reveals any change in circumstances that requires another one year moratorium or changes to the October 2022 Solar Amendment beyond that discussed and agreed to by the Township at the County Planning Commission meeting conducted on November 16, 2022. Nor does the record reveal any legal basis to exclude utility scale solar energy systems from the Township as proposed in the Zoning Amendment to be considered by the Planning Commission on January 5, 2022.

Any recommendation by the Planning Commission to the Township Board to adopt the Zoning Amendment would be wholly inconsistent with the Planning Commission's recommendation to adopt the October 2022 Solar Amendment, and inconsistent with the recommendations of County Planning.

Accordingly, our client is requesting that the Township reject the Zoning Amendment that it not extend the moratorium, that it not repeal the solar sections of the Zoning Ordinance, and that it proceed with the October 2022 Solar Amendment as recommended by the Planning Commission and County Planning.

Copies of this letter will be provided by our client to the Planning Commission via the Chairperson, and to the Township Board via the Supervisor.

On behalf of Headland, we look forward to your response to this letter.

Sincerely,

Timothy A. Stoepker /s/

Cc Leslee M. Lewis
4868-1823-4951 v1 [77216-109]

Public Comment

1. Joann Haas, 10785 Fleming Rd. - See attached submitted comments, letters and research.
2. Clint Beach, 11388 Owosso Rd. - Thanked the Planning Commission for communication efforts and transparency. He stated that we are talking about large scale solar systems, not personal household. The solar company is trying to change the narrative with paid actors and misleading ads. They are not against solar, farmers, or green energy. The impact on wildlife, watershed, shading large areas of farm land is harmful. Dr.Mills even states it does cause definite harm. Last year 4 large scale solar projects were fined. Ranger Power and DTE want to put 2 projects in Cohoctah alone. 7000 acres are projected to be used in Livingston County. Clint asks that the Planning Commission limit the number of acres, maximize the setbacks and protect the Township.
3. Ken Carmack, 7990 Schrepfer Rd. – Thank you for the mail, email and correspondence efforts to get the information out on a complex issue. He supports the actions being taken tonight and by the board.
4. Kyle Howell, 8200 Owosso Rd. - Owns Sabine lake. He already has issues with erosion and sediment buildup. He is concerned about drainage and runoff to his property. He purchased the 178 acres from Bernie Link, a WW2 Vet, and promised to keep the property as is. Many years ago the power companies stole easements to this land. Bernie wanted to donate the land and make it a nature preserve. Kyle would like to honor his wished and preserve the land. Go to the city and keep it out of our Township.
5. Mike Buza, Swartz Creek, Sierra Club- (provided board with copy of Harvest the Sun newsletter) Electrification of our society is threatening fossil fuels. It is a multi trillion dollar industry. Solar will last for years. The amount of lead in a panel is not life threatening. The amount of lead in 750 panels is equal to one car battery. Most farmers must work a 2nd job. Many are elderly and would like to retire. Solar can help them do that. Look at the benefits to the community and look out for the farmers.
6. Frank Kersanty, 5475 Hayner Rd. – Thank you for the opportunity and listening. This is the wrong deal for the Township. They have been trying to make solar work since the 70's. It feels like we are being forced into it since someone decided global warming was a thing. Use it somewhere else. They promise us utopia, without giving us utopia. The Township should push back. They need to come up with a better solution.
7. Mary Ratelle, 2345 Gannon Rd. – See attached written comments. Mary grew up in the area and loves it here. She has made sacrifices to keep her property over the years. The drain issue is real. The drains were improved in the 90's but there are still problems on Byron Rd south of Gannon. Each person has given valid arguments. They should use brown areas and along freeways. Michigan is the 3rd worst state for sun. Native plants need 3 years to root and flower. Wildlife needs more than flowers to survive. Soil is a living thing and needs to be worked. Mary is concerned about first responders. If solar

panels are damaged by weather it could pose a danger to the people responding to the call. There are noise factors as well as concerns for wildlife.

8. Sarah Porter, 9402 Sober Rd. – Thank you for the complete 180 on communication. I am not in favor of solar or a paid puppet. Property owners will see a 30% decrease in property values. We do not want to be the industrial slums of the State. We are not against solar; we are against utility scale solar (stated 3 times). We can't save the climate by destroying the environment.
9. Heather Hodge, 9801 Marsh Rd. – I have been in the biotech industry for 16 years. I am passionate about environmental issues. I was thrilled at first, but surprised there was not much support for it. I thought everyone would be happy. I read Steve Horton's article. I have always had a passion for nature. I grew up in Cohoctah and cherish my time here. I try to be patient with others and care about the community. There is no truth to the property values being lower. Panels will not pollute or contaminate the water. The community will receive 18 million in tax revenues. It is a farmers right to decide what to harvest.
10. Jennifer Davis, 8058 Hemingway Rd. – Our ancestors fought for their rights. Solar is not the way to go green. We need to stop at nothing to fight this. Be with us, stand by us and say no.
11. Jamie Ward, 11818 Fleming Rd. – Not in support of the project, not against solar or green energy and has panels. My big concern is for the farmers. 7000 acres would be taken away from small scale farmers. The large farms should consider selling to the smaller farmers. This past harvest farmers yielded 273 or more bushels per acres. At $6.82 per bushel they made approximately $1872 an acre. The cost to harvest was approximately $882 an acre. Farmers can still earn money. How can small farmers grow? Sell the land if they don't want to farm. My husband is in the green industry. Look at the trees and plants you are putting in for screening and use the proper ones for the conditions. My daughter wants to go to college and become a farmer. How can she do this locally if there is no farm land available? Let the farmers work the land.
12. Tammy Schoenbeck, 8720 Antcliff Rd. – I am a certified appraiser and the solar farms will have an impact on home values. Even large power lines impact the land value. Drains are also a concern. Our property floods when there are large amounts of rain. Studies need to be done. I am passionate about this. Listen to the facts.
13. Coralene Bloss, 6436 N Burkhart Rd. – My family has been in the community for over 100 years. I am concerned about land values. What would my grandparents think? They had an old Delco system when electricity first came through. The electricity needs to come from somewhere. Would you rather have nuclear? The cadmium is sealed inside the panels. In 30-40 years I imagine they will have better ways to recycle the panels. We need alternatives. We can recycle and cut use of electricity. Drainage is a concern. Years ago our woods were flooded and killed all the trees. There are lots of issues to consider.

Have an open mind to see all sides of the issue. No more energy will be used once the panels are manufactured and delivered.

14. Brian Lieberman, 5217 W Lovejoy Rd. – When subsidies end who cleans it up? Tax payers will fund the subsidies and clean up.
15. Joann Haas, 10785 Fleming Rd. – We are talking about large scale solar, not on a house. We are not spreading misinformation. The information I gave is from OHSHA and Sarah Mills. I am not going to park 2000 cars on my property. Property values will go down. The panels are sealed but I don't trust China made products and don't want to be their guinea pig.
16. Mary Ratelle, 2345 Gannon Rd. – Give the subsidies to residents to put solar on their homes. Natural disasters happen and can damage panels.
17. Emily Rupert, 6315 Fisher Rd. – My Grandparents were soil conservation farmers in the area and family has been here for years. My family would like to stay here for years. Noise is a concern. I looked at the Master Plan and larger plots are required to maintain the preservation of land. In the long term, these areas will be land locked for 30 years and no growth will occur. The roads can't handle the traffic and equipment. The Master Plan states the Township is committed to look out for the safety and health of the residents. Who benefits from this?
18. Richard Allen, 2073 Lovejoy Rd. – Thank you. Why is Granger getting involved in solar farms? On Lovejoy Rd a company named Ceres has bought up farmland and leases it out to someone to farm. The person selling the panels will tell you everything about them to sell it to you. They could be using political prisoners and slave labor to make them. Congo Mines China. 15k men, women and children using hand tools to mine the minerals needed. Many of them are slave labor. You should be ashamed to have them on your property.

First I want to make it clear I (We) are not paid to speak against the Solar companies.Unlike Ranger Power who pays speakers like Peter Sinclair and Brandon Miller to support them. We are not a front group sponsored by the fossil fuel industry to spread misinformation about solar. We are hard working people who go to work everyday and then come home to work more hours doing research-writing letters-and educating ourselves on Solar Power Plants. We give up time with our family and friends to fight to protect our homes-our land-our our wildlife and future generations from the devastation that these Power Plants will cause.

Joann Haas

DEMOSTRATED NEED COHOCTAH TOWNSHIP

1284 HOMES(CENSUS)

200,000 PANELS SERVE 11,000 HOMES

$$\frac{200{,}000}{11000} = 18.18 \text{ PANEL PER HOUSE}$$

1284 HOMES
X18.18 PANELS

23,343 PANELS

2000 PANELS PER ACRE

$$\frac{23{,}343}{2000} = 11.67 \text{ ACRES}$$

JOANN HAAS

December 22, 2022

Kenneth E. Recker, P.E.

Chief Deputy Drain Commissioner

2300 E. Grand River, Suite 105

Howell, MI. 48843-7581

Thank you for meeting with me on November 28, 2022. During our meeting I expressed my concerns regarding the drainage of my property relevant to the proposed solar development project in Conway Township. I must admit that I have become intrigued about the drainage of the entirety of Conway Township.

In an effort to satisfy my curiosity I have found two sources of information which I believe are reliable and concise. The first source is the Conway Township Master Plan 2018, page 14 states. "Conway is the only township in the county that drains stormwater runoff into adjacent municipalities due to elevation. Therefore, the township highly encourages low impact development to better manage stormwater." (see attachment #1)

The second source of information is titled Property Drainage Issues by Clifford H. Bloom. Page 1 states, "The property at the higher elevation has the right to have water flow from his/her property onto all properties having lower elevations pursuant to the natural flow." (see attachment #2)

At the present time, Conway is a rural township with a population of about four thousand residents. Large open fields used for farming and homes scattered along unpaved roads is a characteristic of the community. It is this characteristic which preserves drainage at a relatively natural flow. Consequently, Conway due to its undeveloped characteristics lacks appropriate infrastructure to support the drainage demands of a large scale utility development.

To be fair, The Livingston County Drain Commission has done a good job of constructing an adequate amount of drains in Conway Township. These drains along with naturally occurring tributaries efficiently collect and accelerate runoff

from the higher elevations to lower elevations. The dilemma is that the water that these drains collect must be discharged into neighboring communities.

To summarize, solar developers want to install tens of thousands of "solar panels that will channelize water causing it to leave the site faster and infiltrate neighboring properties." (see attachment #3) Then, the Conway drainage system will capture an increased amount of runoff, accelerate its speed and discharge the "stormwater runoff into adjacent municipalities due to elevation." (see attachment #1)

"In a nutshell, anyone who alters the natural drainage can potentially be liable for damages or be required by a court to put the land back the way it was before the alterations." and "The owner of the higher property cannot by development or other alteration of the land increase the amount, intensity or speed of water flowage onto the lower properties in such a fashion as to injure or damage the lower properties." (see attachments #2)

My concern is that large scale development in Conway Township will stress "water flowage issues that are governed by common law principles in Michigan." (see attachment #2) Any increase of floodwater runoff large enough to adversely effects neighboring property and adjacent municipalities could test these principles.

Thank you,

Roy Steyskal

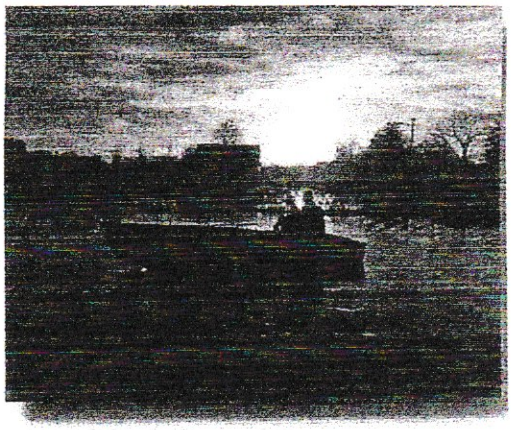
cc: Brian Jonckheere, Livingston County Drain Commissioner

cc: Conway Township Board

cc: Conway Township Advisory Committe

Conway Township Master Plan 2018 #1

NATURAL HISTORY



The glaciation period in southeast Michigan ended 10,000 to 15,000 years ago. The process shaped the Conway Township landscape through the deposition of rock debris. These glacial sediment deposits are the basis for soil development. The glacial sediments atop the bedrock range from 78 to 182 feet in depth. The glacial sediments are more prevalent in the northeast portion of the township and less in the southeast and southwest corners. Beneath the glacial deposit is two types of bedrock; the Saginaw formation and Coldwater formation. The Saginaw formation can be characterized as lineal beds of light and dark shale mix with white to light gray sandstone and lime stones. The Coldwater formation can be characterized as gray shale and numerous beds of brown dolomite, which has a salt and pepper appearance.

The surface geology of Conway Township varies. Moraines, which are hills that divide drainage basins, are found in the midsection of the township. The southern half of Conway is comprised of out wash plains, which are broad gently sloping plains, which originated from the melting of ice of a glacier.

The topography of Conway Township ranges from 870 feet above sea level along the Shiawassee-Livingston County line to over 970 feet above sea level along Fowlerville Road. Although a 100-foot elevation change may seem significant, the topography of Conway Township is relatively flat to rolling hills with slopes of 0 to 12 percent.

The major rivers that flow through Conway Township include the West Branch of the Red Cedar and the Looking Glass River. The West Branch of the Red Cedar flows north to south, draining to the southwest quadrant of the township. Portions of the West Branch are channeled into wetland marsh areas. The Looking Glass River flows north into Shiawassee county and drains the northwest of Conway Township. The central and northwest portions of Conway are drained by the Conway/Cohoctah Union Drain flowing to the north and east, emptying into Sprague Creek in Cohoctah Township. Conway is the only township in the county that drains stormwater runoff into adjacent municipalities due to its elevation. Therefore, the township highly encourages low impact development to better manage stormwater. The largest lake within Conway Township is Petty's Lake with a surface area of eight acres. Other water bodies in the township are substantially smaller and are pond-like in character.

#2

PROPERTY DRAINAGE ISSUES

By Clifford H. Bloom
Legal Counsel for the *Riparian Magazine*

Sooner or later, most attorneys are asked the following question by one or more clients—"Can my neighbor drain his/her water onto my property?" Issues involving water drainage frequently arise for properties around lakes. Water flowage problems can range from minor aggravations due to wet soil to major headaches such as basement flooding, property damage and even the undermining of foundations.

Local government regulations regarding water flowage from one property to another are quite rare, especially in rural areas. Therefore, water flowage issues are normally governed by common law principles in Michigan. In legal parlance, the "dominant estate" (or dominant property) is the property at the higher elevation, from which water flows. The "servient estate" (or servient property) is the property with the lower elevation, onto which water flows.

If water flowage exists in its natural state, the owner of the property at the higher elevation has the right to have water flow from his/her property onto all properties having lower elevations pursuant to the natural flow. That is, so long as water is flowing off the higher property at the natural flow (i.e., the speed, frequency, intensity and channel of the water has not been changed from its natural state), the owners of the lower properties upon which water flows naturally cannot change that flowage to the detriment of the owner of the higher property. In other words, properties at a lower elevation must continue to "accept" water which flows naturally from properties located at higher elevations. If the owner of a lower property attempts to alter or impede such flowage and such alteration causes damage or injury to the higher property (for example, water is backed up onto the higher property, which did not occur before), the owner of the lower property could be liable for damages or subject to a cease and desist order from a court.

The flip side of the above common law rule is the mandate that the owner of the higher property may not change the conditions on his or her land in such a fashion as to increase the burden of the water flowage onto the lower properties. That is, the owner of the higher property cannot by development or other alteration of the land increase the amount, intensity or speed of water flowage onto the lower properties in such a fashion as to injure or damage the lower properties. If the owner of a higher property alters water flowage onto a lower property in such a fashion as to cause injury or damage, the owner of the higher property can be liable for damages or be subject to an injunction.

In a nutshell, anyone who alters the natural drainage can potentially be liable for damages or be required by a court to put the land back the way it was before the alteration. Once exception to this rule involves drainage easements by prescription. If someone has altered the natural water drainage and such alteration occurs or is tolerated for 15 years or longer, the property owner claiming damage could lose his/her claims. In that case, the property owner who altered the drainage for in excess of 15 years may, in certain cases, obtain a drainage easement by prescription. If that occurs, the altered drainage which has occurred for more than 15 years essentially becomes the new natural water course.

What can a property owner do if he or she believes that the neighboring property has been altered in such a fashion as to adversely affect drainage onto his/her property? Unfortunately, the above-mentioned common law rules are not "self-executing"—that is, the property owner will normally have to file a civil lawsuit for damages or injunctive relief if the neighboring property owner refuses to remedy the situation. Since Michigan generally subscribes to the "American system of attorney fees" (i.e., each party pays their own legal fees, regardless of who wins or loses), the prevailing property owner will normally still have to pay his or her own attorney fees. Accordingly, it is usually beneficial to all parties involved to attempt to resolve drainage problems pursuant to compromises and only use litigation as a last resort due to the expense, time and negative emotions involved. Even if a compromise cannot be reached initially, the parties are sometimes willing to submit the dispute to a third party for mediation or binding arbitration, which can also lead to a resolution of the matter.

construction of the project range from muddy runoff streaming through his property to having portable toilets placed across his property line by the developers get submerged in muddy water after a rain storm.[47]

As a result of the damage to Mr. O'Bier's farm the solar developer, Sustainable Property Holdings, LLC, purchased his 3.00 acrepropertyon June 8, 2020 for $460,000. The assessed value at the time of sale, according to the deed, was $231,200. The tax map parcel number is 17-2-10A and the transaction is recorded Instrument #200011260.

Other serious erosion problems have occurred in Virginia, most notably in Essex and Louisa Counties. The 200.00 acre 20 MW Essex Solar Center off US Hwy 17 (Tidewater Trail at Muddy Gut Road), as a result of clear cutting and excavation experienced a sediment runoff problem shortly after it opened in 2018. In Louisa County, Dominion Energy's Belcher Solar Project has experience excessive stormwater runoff that has negatively impacted adjacent properties.

Soil scientists note that "the data shows that **solar panels 'channelize water,'** causing it to leave the site faster, and infiltrate neighboring properties. Some farmers have confirmed their fields became wetter than before the placement of a nearby solar facility, and they were having difficulty getting in to till their land to prepare it for the growing season."[48]

Tree removal results in barren land whose topsoil is removed and compacted, along with frequent mowing to control vegetation compacts the soil and leads to the soil being resistant to absorbing water.

VIEWSHED

Unlike most adverse influences upon adjacent properties that have a direct impact upon their utility to function (noise, odor, contaminants, traffic, etc.) **SEGPS's predominant impact is to the viewshed.**

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[47] Mark Hand, "Solar Farm's Construction Upsets Spotsylvania Residents: Report," *Patch*, January 29, 2020.
[48] Dan Way, "Big solar farms may be stressing agricultural ecosystem," https://carolinajournal.com/news-article/, May 25, 2017.

To continue on the subject of drainage from Roy's letter.You are all wondering why we keep talking about drains. The data shows that solar panels "Channelize water"causing it to leave the site faster and inflitrates neighboring properties (attachment # 1) If we get one inch of rain water on one acre of land it is equivalent to 27,154 gallons of water. Multiply that by the 745 affected acres around my home which equates to over 20 million gallons of water in one rain fall. With uncultivated (hard) land-no crops to soak it up-shadying from the panels reducing the evaporation of the water. What happens? Alot more run-off. So lets start in Conway. The proposed Power Plant between Mohrle Rd. and Sober Rd. Ives property run off goes to the Conway # 11 drain which then goes to Conway/Cohoctah Union drain. From this point I will call it the CC drain.VanGlider and Palmerton property run-off goes to the CC drain.The additional water and speed of the water will continue into Cohoctah in the CC drain.The CC drain is 414 ft from my property line. Exactly where Ranger Power wants

to put another Power Plant (Hopkins property 253 acres)They then want to cross the drain and continue the project along the drain from Fleming Rd down Stoner Rd to Owosso Rd. They then want to cross Stoner Rd. to go along Owosso Rd North. There they will use Hopkins(316 acres) and Hoisington property(127 acres) with an eastment from Wolvertons. Those projects on these properties will directly effect three underground drains. Stoner drain-Youngs drain and Gleason drain. All of which run into the CC drain. Adding more to the amount of water and speed of the water to the CC drain. This is north of my house, now lets go south. From the power line to my property line. They will be directly above another drain branch #4. Which runs into the CC drain. Across Fleming road Hosington Property(39 acres) they want to put another part of the power plant which will run directly along the CC drain. Do you honestly think the CC drain can handle this?

Oh, but wait, I am not done If you allow the power plant on Hoisington property (188 acres)between Hayner and Maxwell roads. The Hosington Drain runs to the branch 1 of CC drain.

Adding even more water. But wait there's more. Lets go back to Conway and the proposed power plant on the sherwood property (**550 acres**). Take a guess where that run off will go. If you guessed the CC drain. Ding Ding you are a Winner. The Sherwood drain runs to Sabine Lake which goes to branch 1 of the CC drain. And again do you think the CC drain can handle this? The answer is absolutely not! There is already a flooding issue at Byron and Gannon Roads. Residents letter (Attachement # 3) and I am sure there are other areas's with flooding in Cohoctah that we have not yet found. The CC drain runs through out Cohoctah townshop with multiple smaller drains connected to it. What damage are these properities going to have? They may not have solar panel in their front yards, but they are definelty going to be affected. The CC drain then runs thought Deerfield Township on to Burns Township. So what damage is going to happen there? Property cannot by common law development or make other alterations of the land that can increase the amount, intensity or speed of water flowage onto other properties in such a fashion as to injure or damage other properties

(Attachement #2) and can be held liable for damages. Both townships will be contributiting to this disaster that is going to happen. No power plants should be allowed in either townships. Our current infrastructure simply cannot handle it.

Joann Haas

SYSTEMS JAN. 1, 2022 #1

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#3

Cohoctah Solar Panels

From: makayla brotherten (mbrotherten456@yahoo.com)

To: twig26231@yahoo.com

Date: Monday, January 2, 2023 at 06:30 PM EST

Hello those who this may concern,

I wanted to bring attention to my thoughts about the upcoming plans to bring solar panels into our township, and how it may affect those in the area. I reside at the address 2405 Gannon Rd., where my family has owned the property since 1993. The property has the Sprague Creek, running through our backyard which in the more recent years we have taken note that it is prone to flooding. Since 2017, around the spring months varying between February to May, the creek overflows and brings the water very far into our yard. This has caused damage to our property in the past, bringing our bridge to nearly collapse as there is so much sand that is swept into our yard. Overwatering our lawn is another concern, and even bringing damage to our outside facilities. The overflow of the water has gone so high that it will run into our barns, ruining our items that we keep in there. Sentimental items that we keep stored in the barn, have been damaged by the amount of water. Not to mention the water damage done to the wood structure of the barn itself. The current of the water is so strong, that it will carry items such as, toys and whole decks, from our yard, into the current and take them away. These items from my property and others, along with all of the fallen wood creates back up to the creek. The backup of the water is so large that it affects the flow of the creek, not allowing it to flow regularly. It is been brought to my families attention that with the set up of solar panels in the township, that it will cause more runoff into the Sprague Creek leading to even larger amounts of severity of flooding, not only on my property but others as well. It would be much appreciated if you took a moment of your time to carefully consider my concern, as it will not only affect my property and family, but many others in the township as well.

Thank you,
Makayla Brotherten

Cadmium Telluride is a cadmium-tellurium compound.This crystalline compound is mainly used as a solar cell material and an infrared optical window. It is highly suitable for solar energy conversion. Cadmuim Telluride is highly toxic as it contains Cadmuim.Cadmuim is considered to be one of the six most toxic material know to man.The high reactivity of this substance triggers oxygen damage to living cell membrane,nucleus(holds all the cells chromosomes,which encode the genitic material DNA) and mitochondria(where biochemical processes of respiration and energy prodution occur)(Chemistry learner website)Lead used for solder.Can cause damage to the brain and nervous system.Slowed growth and development. Learning and behavior issues. Hearing and speech problem. Lower IQ. (CDC website) This is in our children we are talking about.Gen X(coating on panels) Has been linked to several health effects including reprodutive problems,low birth weight,high cholesterol and several types of cancer.The new assessment said the liver is particularly sensitive to the effects

of GenX, Hexavalent chromuim(used for harding of metal).Is known to cause cancer. In addtion, it targets it targetsthe respiratory systems,kidneys,liver,skin and eyes.(OSHA website).Polysilicion(used for semi-conductors and photovolataic industry)(science direct website0 effects the lungs. Galliuh Arsenide is used in thin-film solar cells. It is toxic to lungs,testes,kidney brain and immune systems.Silenium is a photoconductor which means it has the abilty to change light energy into electrical energy. Selenium can cause hair loss,nail brittleness and neurological adnormalities(such as numbness and other odd sensations in the extremities) (ATSDR website) Agency for Toxic substances and disease registry. We need to know what these solar panels are made of. We need to know the company who is manufacturing them. The exact solar panel they are going to use.We need the MSDS sheets (Material safety data sheets). It is a document that list information relating to occupational safety and health concerns on variour substance and products. Are any of these thing in your panels(Ranger Power)If so we should not them anywhere on our land.

JOANN HAAS

(Sorry- my printer is broken.)

1/5/23
Cohocton Twp.
Mtg.

Mary T. Ratelle
2345 Gannon Rd

* #3 G. Naturalist Cleaner MSU/MNCA
* Homesteader
* Past Communications
Novi PD, WCSD

* Opposed to Solar/Wind *
(and State taking township zoning away)

Many documented reasons by others why this should not be approved!

My additions to arguments -

- Quality of life destroyed
- Soil damage, thus eco system needed for healthy survival *
- Fast responders (& humans) subjected to toxins and possibly unable to handle disasters due to wind storms, fires, etc.

Thank You! Please vote this down.

HARVEST THE SUN

MICHIGAN'S BRIGHT OPPORTUNITY

MICHIGAN has a chance to become stronger through ENERGY INDEPENDENCE. Energy, produced from renewable sources such as sunlight (solar), wind, the movement of water (hydroelectric), and geothermal heat is less expensive and benefits people, wildlife and the planet in general. Renewable energy sources create jobs, give our state more money for community needs such as schools, and protect our Great Lakes.

This brochure's main focus is answering common questions and concerns about SOLAR ENERGY since this is the fastest growing sector of the renewable market, especially in Michigan. First, it's important to have a general understanding of the urgent need for all renewables.

Renewable energy sources will help keep drinking water sources clean. Most rural areas depend on wells for their daily water use.The groundwater supplying these wells will be affected by a warming and disrupted climate. Big runoffs following big dry spells can affect groundwater and can make people sick. "More intense precipitation events can lead to increased transport of pathogens that cause gastrointestinal illness into drinking-water sources. This puts populations that rely on untreated groundwater (such as smaller, rural communities) at increased risk of disease, especially following large rainfall events" *(https://glisa.umich.edu/groundwater-availability)*.

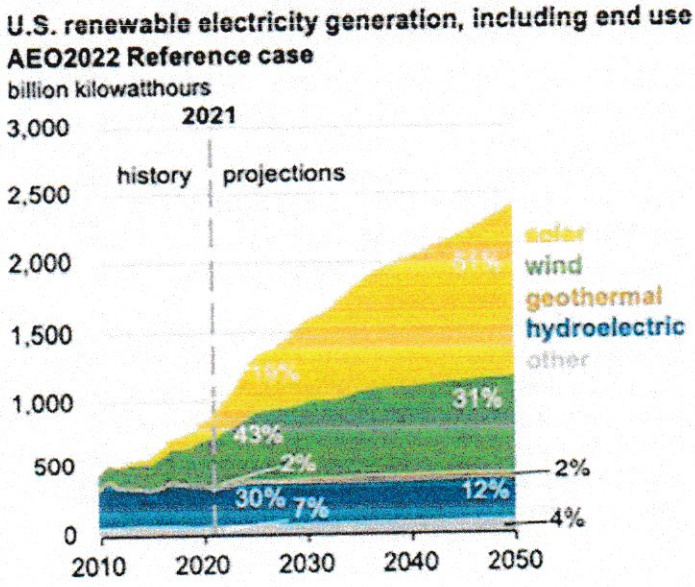
Renewables will keep property safe from fires. There are currently extensive, recurring fires in communities in the west and north. Areas dry out in extensive droughts and drenching rains. There will come a point where insurance companies will refuse to insure homes in some areas.

Renewables will keep property safe from rising seas. Parts of Miami are starting to flood and will become uninhabitable in the future (*How Miami Residents Are Adapting For Climate Change; NPR*). There are 14 major coastal cities in the United States that could disappear due to increasing sea level rise including New York City (*14 U.S. Cities That Could Disappear* | HuffPost Impact).

Renewables will help address the global food crisis. The food shortage from the climate crisis is causing increased challenges to food production due to increased droughts and floods. The climate crisis is also causing an increase in pests that attack the crops. According to UN News, many refugees who show up at the US/Mexico border are fleeing the effects of hurricanes and other climate disasters in Central America. Here in the US, California produces most of our fruits and vegetables, yet farms are left unplanted due to prolonged drought.

Renewables will help Michigan farmers with their crop storage problem. Michigan's agriculture is having many of the same problems identified around the country and the world. In the past, Michigan's cool weather was an advantage to keeping harvested crops fresh. Michigan farmers have crop storage problem due to global warming (freep.com). However, our farmers are now having to buy and run expensive equipment to keep their harvested crops from going bad.

How the climate crisis affects our food supply is one major reason we need to transition from fossil fuels to renewable energy as soon as possible.



Overall, replacing current, climate disrupting energy practices with clean energy alternatives is the best way to protect the quality of our soil, water and air.

Solar installations are an important way forward. Stable property values, stable income and better storage practices for farmers, clean drinking water and manageable property taxes can become a reality if we act NOW.

There are many factors that will be affected by the climate crisis and many of them will affect the value of property as well as the quality of life on Earth.

Chart Source: U.S. Energy Information Admin.
Annual Energy Outlook 2022

HARVEST THE SUN

Solar Power in Michigan ~ Questions and Answers

Solar is one way we can become enery independent in MICHIGAN, but as a relatively new concept, there are many questions and concerns about its safety and its economic and environmental consequences. Here is some "straight talk" about solar.

Don't Large Solar Installations Use Valuable Farmland?

To start a solar farm, the ideal place is large tracks of cleared, flat land; in other words, farmland. Currently, according to the USDA, over 90 million acres of the farmland in the US is planted in corn. Thirty million acres of that corn (one third) is used to produce ethanol that is used for automotive fuel. (*Corn is America's Largest Crop in 2019* | USDA). According to the NREL (National Renewable Energy Laboratory) it would take approximately 11.6 million acres of just solar panels to power the entire US, including cars. (How much solar would it take to power the U.S.? (freeingenergy.com). This means by totally electrifying our society, including transportation, we would be returning approximately 19 million acres in the US to food production.

In essence, if you want more farmland to be used for food production, solar farms are one way to achieve that goal. There are other advantages for farmland use for solar production. First, there is the economy of scale. Use of large tracks of farmland for solar results in electricity at half the cost per GWH than rooftop solar (*Study by Brattle Economists Quantifies the Benefits of Utility-Scale Solar PV* - Brattle).

Can Solar Farms and Traditional Farms Work Together?

Agrivoltaics is the use of land for both agriculture and solar photovoltaic energy generation. It is also sometimes referred to as agrisolar, dual-use solar, or low-impact solar. Solar grazing is a variation where livestock graze in and around solar panels.

Understandably, some farmers were concerned about the impact of solar panels on their farms, but research has shown many benefits to farming practices in addition to the steady income it provides to farmers.

"Properly spaced solar panels harvesting energy from the sun were found to keep plants healthy . . and solar panels conserve water . . ."

Can Agrivoltaics Actually Improve Farming?

The University of Arizona Research, Innovation & Impact Study involves solar energy production and agriculture practiced on the same piece of land. Initially this started out with sheep grazing beneath the solar panels set a bit higher off the ground. Now they are experimenting with vegetable production!

Benefits were also found in a study done by Oregon State University *(Sustainable Farm Agrivoltaic | College of Agricultural Sciences*; oregonstate.edu). Increased production was seen in crops needing partial shading. Even crops that like full sunlight have a limit on how much sun they can use as they increase in size. Properly spaced solar panels harvesting energy from the sun were found to keep plants healthy. Too much sun causes plants to sweat, so more water is needed to keep them healthy.

Luckily, solar panels help conserve water—a big benefit in a water hungry world especially since agriculture is responsible for 85% of water use. While energy is being harvested from solar panels, the plants grow under them keep those panels cooler increasing their efficiency by 10%!

Can Agrivoltaics Help Solve the Pollinator Crisis?

Solar Energy and its many benefits are just now being discovered and developed. Using energy from the sun to produce energy on Earth is much more friendly to the environment as compared to burning fossil fuels. The earliest solar farms were built with gravel put underneath them. Later on, we realized plant pollinator friendly crops could grow under the panels instead.

This was a wonderful idea because thousands of pollinators/bees are at risk (Chemistry World). Pollinator losses are so great that entomologists are worried about their extinction. Solar farms on large tracts of land with pollinator-friendly plants, free of pesticides, are critical today (*Pollinators - U.S. Fish and Wildlife Service*; fws.gov).

HARVEST THE SUN

Solar Power in Michigan – Questions and Answers

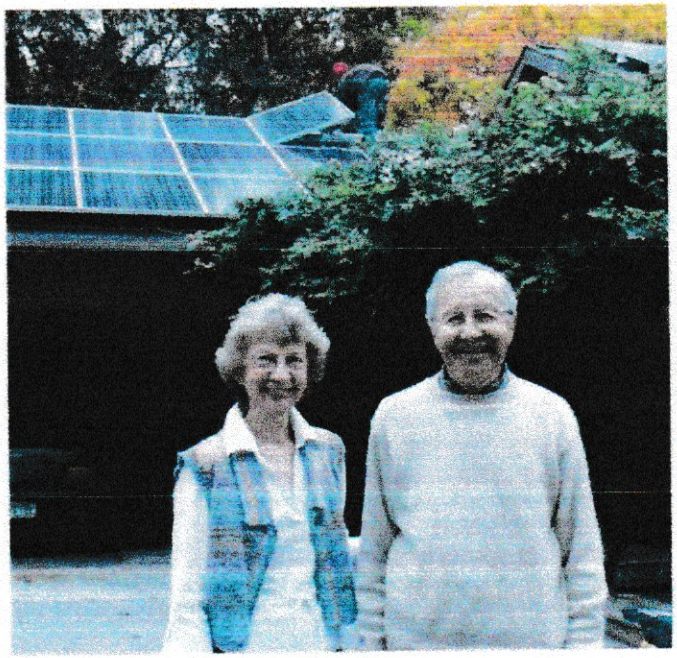
Will Solar Installations Hurt Property Values?

Property values are stable near solar installations. Solar energy in rural areas is being developed in response to harmful global warming. There has an effect on land and land values due to unrestrained climate disruption. Residents and businesses are stepping up to solve this problem.

When a utility-scale solar development is proposed, there is sometimes a question of how this will affect property values. Many owners of smaller properties nearby say the reason they moved into the "country" is that they loved the views of a farming community.

Most solar developers are sensitive to this criticism. Planners include vegetative barriers to block out the view of solar panels. Now, almost all proposed solar development companies include green barriers in their plans.

Property-Value Impacts Near Utility-Scale Solar Installations (lbl.gov) is an extensive study by the University of Texas at Austin. Researchers found no property values were affected due to nearby solar farms. However, a University of Rhode Island study *(Solar's Impact On Rural Property Values* | AgWeb) showed nearby solar farms had an effect on property values near cities but not on rural property values.



Do Solar Panels Emit EMFs?

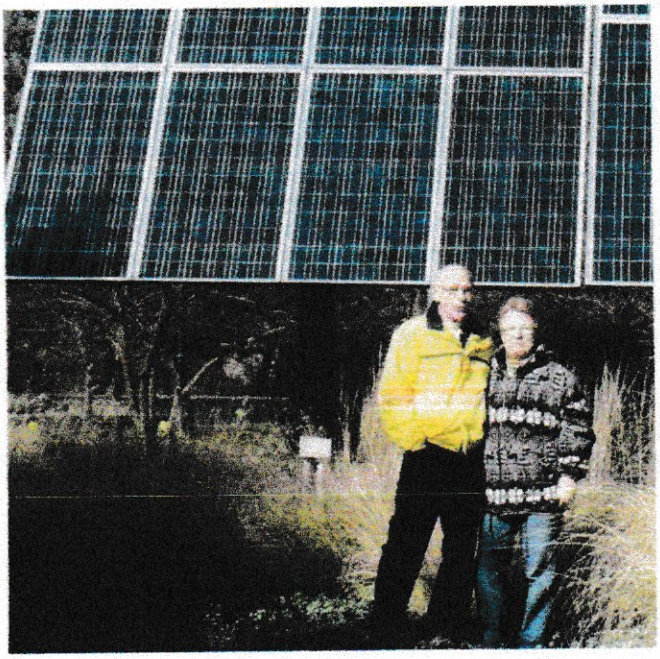
Occasionally, people voice concerns about EMF's (electromagnetic fields) coming from solar installations on land, such as farmland, near them. All electronic devices emit an electromagnetic field. The strength of the EMF drops dramatically in a short distance from the emitting device.

The legal "setbacks" or distance from solar panels installed on land are far enough away from homes to eliminate any danger from EMF's (*Electric & Magnetic Fields*; nih.gov).

Transmission lines are the other possible concern when a solar installation is sited near homes. Many of these are buried underground thus eliminating the danger from this source. If the line is above ground, a distance of 200 feet eliminates any possible harmful risk from EMFs.

In "15 Common Household Appliances That Emit EMF Radiation," EMF Empowerment reported research has shown harm from EMFs is questionable even at closer distances. Devices in your home likely cause a greater exposure to EMFs for people than a nearby solar farm would!

[Photo of satisfied residential solar customers.]
[Courtesy of Jan O'Connell.]



HARVEST THE SUN

Solar Power in Michigan – Questions and Answers

Can Solar Panels Be Recycled?

The United States has become an extensive throw-away society. It's recycling rate for plastic is less than 5%. People often claim the components for solar energy cannot be recycled. They are missing a bigger picture. Solar energy frequently replaces coal-burning plants. Those plants produce 110 million tons of coal ash per year in the US. Oddly, according to the EPA, "Coal ash is not *Hazardous Waste*" (NRDC). However, **coal ash is hazardous. Coal ash is waste**. Most of it is stored in slurry tanks with no plan for reuse. Coal ash contains many highly toxic elements as it sits in those slurry tanks.

The mantra for wise use of resources is "Reduce, Reuse, Recycle." The energy sector is beginning to promote energy efficiency, and this is a start toward the goal to reduce.There is also a growing market for used solar panels in places of the world where electricity is not available (*Reusing Solar Panels for Good* linkedin.com).

There has to be some caution here so that third world countries reuse good panels for energy production. The guarantee on many solar panels is 20-25 years. After this time, they may start losing some of their efficiency and may not be optimal for some applications. However, solar panels have been known to produce electricity for 40 years or more! Older solar panels should only be shifted into power situations where lower production is acceptable. No country should become a dumping ground for our old solar panels.

The final effort involves recycling. The recent push to recycle sustainable energy components can help the US begin to use its resources more wisely. Recycling is technologically feasible, but the issue is cost. The solution is an up-front fee for recycling when the panels are purchased. This fee is a promising feature to finance safe recycling industries. **The US Dept of Energy's National Renewable Energy Laboratory (NREL) sees a profitable and sustainable solar panel recycling industry as feasible by 2032.**

What Happens When the Sun Doesn't Shine?

There have always been issues about trying to match energy production with demand. This is because demand is highly variable. Historically, fossil and nuclear fuels have met variable demand by having an excess of production at all times. This is a wasteful adaptation. This is a particular problem with nuclear and coal since they have such a long start up time before they can produce electricity. Load demand on the grid can vary greatly in a five-minute period compounding the problem.

The long start up time problem is why they built the pump hydro-electricity storage plant in Ludington, Michigan. It can meet extra demand in two minutes. It has the capability of supplying power to 1.65 million residents (Pumped Storage Hydro Electricity | Consumers Energy). The Ludington pump hydro storage plant helped solve the demand/production mismatch by pumping water uphill when there is excess production, and then letting it flow downhill through turbines to create electricity when demand is high.

Renewable energy adds a complicating factor because its production is also variable. However, renewable energy is forcing utilities to become more efficient. They are doing this by having the utility companies look closer at storage to deal with the variability. The Ludington facility is helping with when the sun doesn't shine.

Solar is helping to solve one of the demand issues. The biggest demand is during the day when solar is at its peak production. Thus, it helps meet the demand spike. There are states that use consumers' home batteries to help meet the variability in demand.

In reality, storage has been used for a long time to deal with the issues of production and demand not matching. With new developments in storage technology, this is becoming less and less of an issue. These storage developments, along with the low costs of clean renewable energy, are making it the preferred electricity source.

Do Solar Panels Leak Poison?

There is much concern about the safety of solar panels. Much of this is a distortion of the facts. One of the common pieces of misinformation is that solar panels will poison the ground. First of all, solar panels are constructed in a similar fashion as car windshields or hurricane glass so that the materials inside will remain intact. This rugged construction has been used for over many years and why manufactures can give a 25 year power production guarantee.

During Hurricane Sandy many of the large-scale solar facilities in New York and New Jersey only suffered minor damage. During Hurricane Matthew one solar tracker manufacturer reported that their numerous systems received zero damage during the storm. (*Health-and-Safety-Impacts-of-Solar-Photovoltaics-PV* ncsu.edu).

Some solar panels do have some toxic materials. One of them is lead. However, it would take 750 solar panels to equal the amount of lead in one car battery. The lead is used for soldering.

Many manufacturers are moving away from lead solder. Real life situations have demonstrated that the way the solar panels are made keeps the lead used in them intact. Car accidents are a much greater risk of exposing lead to the environment.

Many people claim that the release of cadmium from solar panels pose a health risk. However, it is not pure cadmium that is in solar panels. It is cadmium telluride. This is a very stable compound and is a negligible toxic risk to people. In addition, the cadmium telluride is encased in glass similar to hurricane glass (*Is cadmium telluride toxic?* - Quora).

Solar is frequently replacing coal fired power plants. Coal ash contains cadmium and is a significant toxic risk to people (USGS "Trace Elements in Coal Ash" Fact Sheet 2015-5037). It also contains arsenic and lead that can be readily released to the environment. 140 million tons of coal ash is produced in the US each year and much of it is not properly stored.

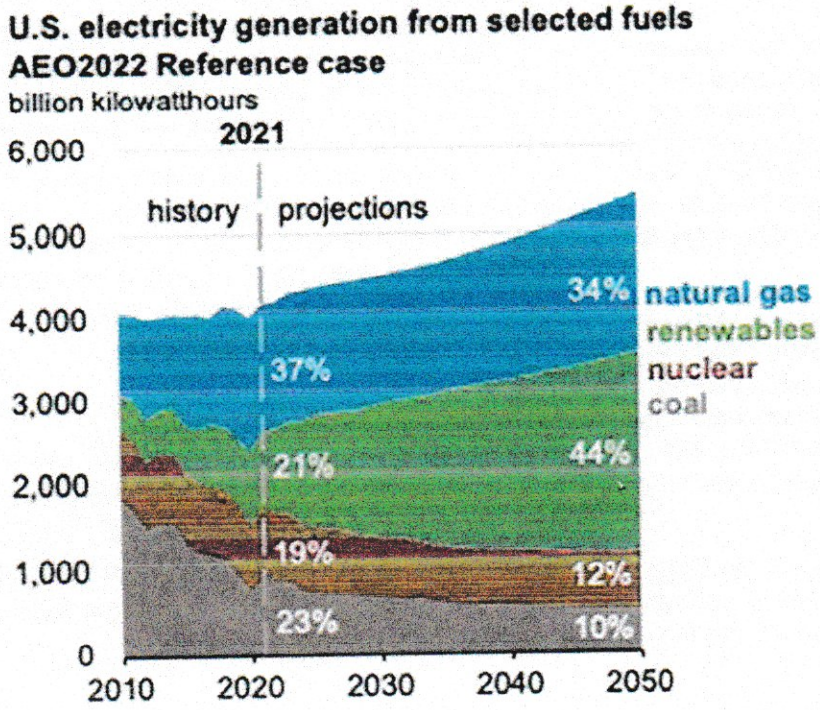


Chart Source: U.S. Energy Information Admin. *Annual Energy Outlook, 2022*

Can We Use Natural Gas as a "Bridge" Fuel?

The fossil fuel industry has sold natural gas as a "bridge" fuel as if it would be a fuel that did not produce as many carbon emissions as coal when used as a source of electricity.

This was our "bridge" fuel to a clean future. It was to be used until we could build enough solar and wind electrical generation plants. Natural gas was to be a magical fuel for society! Unfortunately, there is no such thing as true magic--only smoke and misdirection.

We need to look at the entire life cycle of natural gas, from production to combustion, to get a true picture of how natural gas contributes to global warming.

Natural gas produces far fewer carbon emissions at the point of ignition but that is just part of the story. Natural gas, a greenhouse gas 84 times more powerful than CO_2, leaks into the atmosphere at many points in its production and transmission. For many years the EPA has known of this leakage of natural gas. (POLITICO Pro | Article | Permian pipelines leak more methane than EPA estimates — study).

The Permian Basin of W Texas and SE New Mexico is one of the major production areas of natural gas in the United States. However, a recent study found there is 14 times more natural gas leakage from this area then was previously estimated by the EPA. (Sanford University, University of Arizona and the Environmental Defense Fund). This is enough natural gas to power two million homes!

There have been large scale accidents and sabotage associated with natural gas. In 2015/2016 a natural gas well in Aliso Canyon, California, started leaking massive amounts of natural gas. It was estimated that over 97,000 tons of methane were released during the 4-month course of the incident (Aliso Canyon gas leak - Wikipedia).

Just recently, the Nord Stream pipelines in the Baltic Sea appear to have been sabotaged due to warring countries. This is, by far, the largest natural gas leak recorded.

Up to half a million tons of methane was released during this incident according to an Associated Press analysis. NPR reported the Nord Stream gas leak emitted up to 500,000 tons of methane.

These types of issues undercut the benefits of "clean" burning natural gas. "Wind and solar generation surged 22% through the first nine months of the year...But the emission impact has been blunted by the increased use of natural gas which is up 7% this year" (*Wind and solar are booming, but emissions aren't falling - E&E News* eenews.net).

According to the National Oceanic and Atmospheric Administration, before man started dumping large amounts of CO2 into the atmosphere, the concentration level was about 280-PPM. (Climate Change: Atmospheric Carbon Dioxide | NOAA Climate.gov). According to Dr James Hansen, former director of NASA's Goddard Institute, we need to keep the atmospheric carbon levels under 350 PPM (World Energy Data).

We are currently at approximately 420 PPM. In other words, we need to somehow reduce the atmospheric CO_2 concentrations. If not, we will suffer severe consequences of the climate crisis. The story is worse if we consider atmospheric methane into the equation.

Dr. Bill McGuire, author of the book *Hothouse Earth* (2022) is a professor of Geophysical and Climate Hazards at the University College, London. Professor McGuire explains that if you figure the effects of methane into the atmospheric carbon equation we are actually at 500 PPM CO_2 equivalents.

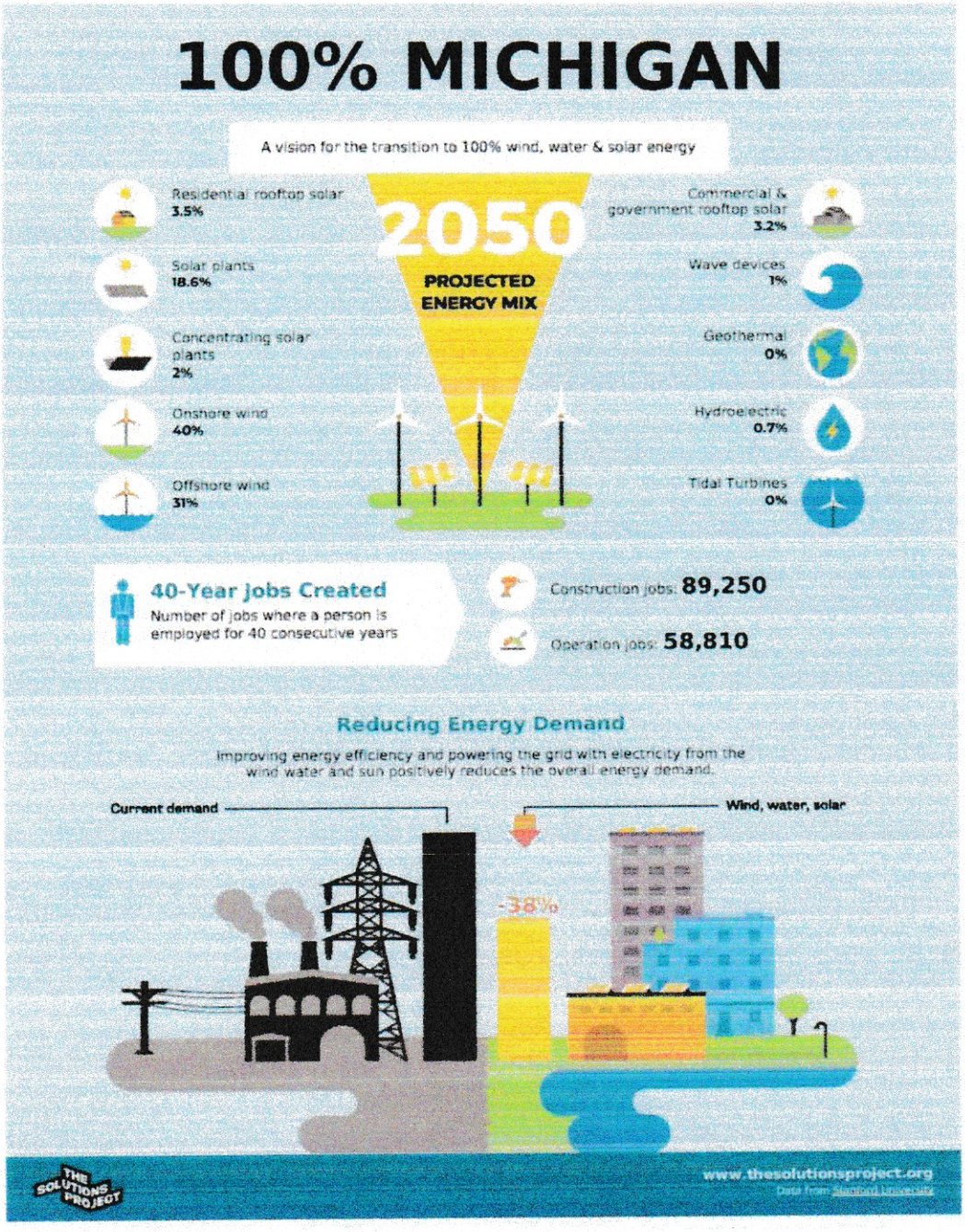
Natural gas is indeed a "bridge" fuel, but it is a bridge to disaster. We need to quit the use of all natural gas ASAP. There are many blocks to the development of sustainable energy projects, and people are needed in this effort--NOW.

HARVEST THE SUN

Solar Power in Michigan – Questions and Answers

What Can MICHIGAN Do?

thesolutionsproject.org has mapped out the way all 50 states can achieve 100% Renewable Energy drawing on their state's potential resources. The Solutions Project with CEO Gloria Walton, funds leaders who are at the frontlines of the climate crisis. The Project amplifies the innovative work that's happening on the ground, having contact with the people closest to the problems coming up with the solutions. Their vision for Michigan is here:



HARVEST THE SUN

Solar Power in Michigan – Questions and Answers

CONCLUSION

We must stay vigilant! Large established companies may push for projects that harm the environment in the morning, yet, in the evening, their representatives are at a township meeting advocating to build a wind or solar farm.

This is not a simple issue. Without people speaking up early, things may get worse in this regard. Could a company sabotage their sustainable energy business to benefit their pollution-generating oil business? YES. The big fossil fuel companies are getting involved in sustainable energy, again, not because of a sense of benevolence but because of market forces.

We need all hands on-deck right now—to have a decent future for our children and grandchildren and the many other unique and irreplaceable species on the Earth.

Photo Courtesy of Jan O-Connell
2009 Clean Energy event at Michigan's State Capitol

***Harvest the Sun* brochure is supported by:**

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- Sierra Club/Michigan/Nepessing Group
- For more information or a PDF of this brochure: Contact Mike Buza theoriginalzuba@yahoo.com

WHAT CAN I DO?

- Speak to neighbors and attend township and regional meetings to support the clean, renewable energy provided by wind and solar farms near you.
- Consider solar for your home or business. Contact: *Michigan Saves* | *Clean Energy Financing* | *Nonprofit Green Bank* to find a vetted contractor in your area.
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- Visit or join *Michigan Sustainable Energy Advocacy* (Michigan SEA) on FaceBook.
- Seek membership in well-established environmental organizations such as: 350.org; Sierra Club; Natural Resources Defense Council; The Ecology Center; World Wildlife Federation.

BECOME PART OF MICHIGAN'S BRIGHT OPPORTUNITY!