



Community Questions from Dec. 7, 2016 Shiawassee Co. Town Hall

Following are answers to a series of questions that were submitted by audience members to Apex Clean Energy at the Shiawassee County community meeting on December 7, 2016.

Jobs / Economic Impact

Q: You mentioned not taking tax abatements – how many, if any, long-term jobs will this create in our county?

- K.S., City of Owosso

A: There will be two stages of job creation associated with the construction of Maple Rapids Wind – near-term and long-term.

The construction stage will create an immediate need for several hundred jobs, and will result in increased spending and acquisition that will provide a boost to the local economy. Once the project is constructed, we anticipate a demand for approximately 10 well-paid, full-time and long-term jobs in Shiawassee County. These jobs will remain fixtures in the local community for the projected 25-30 year lifespan of the project.

Q: How will the tax benefits to the local community be allocated?

A: In Michigan, that tax benefits are based on the millage rates set at the municipal and county level. Therefore, the cash value of each individual turbine is taxed in the particular jurisdiction where it is located.

Following is a graph to help break that down using an estimated value of the turbines.

Please note: Apex has not yet determined which turbines will be used in the project. So, the numbers reflected in the chart are not guaranteed to be what townships will receive per turbine in their first year. However, it is a rough estimate to help shed some light on how taxes are assigned.

SHIAWASSEE COUNTY

ESTIMATED 1ST YEAR TAXES FOR EACH \$1.8 MILLION WIND TURBINE

LOCAL UNIT NAME School District Name	REVENUES Millage Rates			TOTALS
	COUNTY	TOWNSHIP	OTHER	
FAIRFIELD TOWNSHIP				
Ovid-Elsie Schools	\$7,096.14	\$3,999.42	\$10,396.80	\$21,492.36
	7.8846	4.4438	11.5520	23.8804
MIDDLEBURY TOWNSHIP				
Ovid-Elsie Schools	\$7,096.14	\$4,657.32	\$11,071.80	\$22,825.26
	7.8846	5.1748	12.3020	25.3614
Owosso Schools	\$7,096.14	\$4,657.32	\$6,888.60	\$18,642.06
	7.8846	5.1748	7.6540	20.7134
OWOSSO TOWNSHIP				
Ovid-Elsie Schools	\$7,096.14	\$2,262.33	\$11,518.65	\$20,852.82
	7.8846	2.5137	12.7985	23.1698
Owosso Schools	\$7,096.14	\$2,262.33	\$7,335.45	\$16,693.92
	7.8846	2.5137	8.1505	18.5488
RUSH TOWNSHIP				
Ovid-Elsie Schools	\$7,096.14	\$3,974.76	\$11,518.65	\$22,589.55
	7.8846	4.4164	12.7985	25.0995
Owosso Schools	\$7,096.14	\$3,974.76	\$7,335.45	\$18,406.35
	7.8846	4.4164	8.1505	20.4515

This table is an illustrative projection of possible taxation of turbines located in some townships and school districts in Shiawassee County to be used for initial discussions about the project.

Note:

- (1) By state law, wind energy facilities are taxed as industrial personal property and are reported on a special Michigan Department of Treasury form (No. 4565).
- (2) By state law, industrial personal property is at least partially exempt from some educational property taxes. In Shiawassee County, industrial personal property is exempt from the SET and local school operating taxes.
- (3) By state law, industrial personal property is subject to depreciation according to a set schedule. This table shows only the 1st year's taxes.
- (4) By state law, wind energy facilities are excluded from the definition of "eligible manufacturing personal property" ("EMPP") and, therefore, are not eligible for the recently created EMPP tax exemption.
- (5) This table is based on 2016 property tax rates as many 2017 property tax rates are not yet established. The millage rates are from data provided by Shiawassee County.
- (6) This table assumes an average beginning true cash value of a 2 MW turbine facility of \$1.8 million, yielding a beginning taxable value of \$900,000.

Q: When will the wind farm break even? In the end, who benefits?

- W.Z., Owosso Twp.

A: There are several factors that determine the economic breakeven of the project, but ultimately Apex is responsible for the capital investments and financial risks associated with the project.

Regarding the question of who benefits, the entire community stands to benefit. Here's a quick breakdown:

- **Shiawassee County** – Over the projected 25 year lifespan of the project, Maple Rapids Wind will generate up to \$12 million in local tax revenue. This money can be used to support law enforcement, infrastructure projects, pay off debt, support community programs, and much more.

- **The local economy** – In addition to the \$12 million in projected tax revenues, Maple Rapids Wind will generate approximately \$26 million in payments to private landowners and project participants. These funds will be used to reinvest in the local economy, purchase equipment, sponsor community events and help keep farmland in the family.
- **Ovid-Elsie and Owosso School Districts** – Local school districts will benefit from the increased tax revenues they will receive as a direct result of the project. This will strengthen the schools’ budget and allow them to have more money for programs, capital investments and educating students.
- **Shiawassee County roads** – Once the wind farm is completed, Apex Clean Energy will work with the county and participating townships to ensure that all roads included in a road use agreement are repaired to equal or better condition than before the wind project was constructed.
- **State of Michigan** – Maple Rapids Wind will help the state reach its goal of producing or acquiring 15% of all electricity used in the state from renewable energy sources by 2021.
- **Farmers and the environment** – Wind energy reduces the strain on local water reservoirs. Water is a precious resource that is vital to agricultural communities, particularly in times of draught and uncertain weather patterns. In 2015, wind energy saved over 886 million gallons of water from being used in fracking and cooling power plants.
- **Whoever purchases the energy** – At the end of the day, Maple Rapids Wind will produce 120 MW of safe, clean and renewable energy that will be available at a competitive and stable price to any number of investors (according to [a recent study on the levelized costs of energy](#), wind energy is the cheapest form of energy production available on the market).
- **America** – This project will fit into America’s energy portfolio and bring us one step closer to energy independence.

Health and Safety

Q: There is abundant data showing adverse health effects from infrasound (inaudible). What is your (Apex) measurement process for making sound level measurements?

- E.R., Owosso Twp.

A: This is not an accurate claim.

The vast majority of peer reviewed scientific data denies that “infrasound” has been found to have an adverse effect on human health.

In fact, infrasound from Maple Rapids Wind will be softer than highway noise, a standard air conditioner, and many other noises humans encounter in everyday life – even in the country.

Read further for more information about this:

On at least 49 separate occasions, opponents of wind energy have attempted to challenge wind farms in courts across the world on the basis of health concerns related to turbine noise. In every instance, except for one, the cases were denied or thrown out of court. The successful case was eventually overturned and found to be based on misinformation.

[Energy and Policy Institute](#) highlights the specifics of each case and profiles 16 self-described “expert witnesses” whose credentials have been debunked.

However, Apex Clean Energy understands that wind turbines do create noise. We also understand that some people do not know how much noise is created, and naturally have questions about whether or not the turbines will disrupt their everyday lives. That is why we work very hard to properly site our projects while meeting all zoning and noise restriction setbacks. These assessments are based on community input and peer reviewed fact-based information.

Please [contact us](#) if you would like to discuss this further.

Q: What is the specification for sound pressure level for both audible, and in-audible at distances of 1, 2, 3, 4 & 6 miles from wind turbine tower?
- E.R., Owosso Twp.

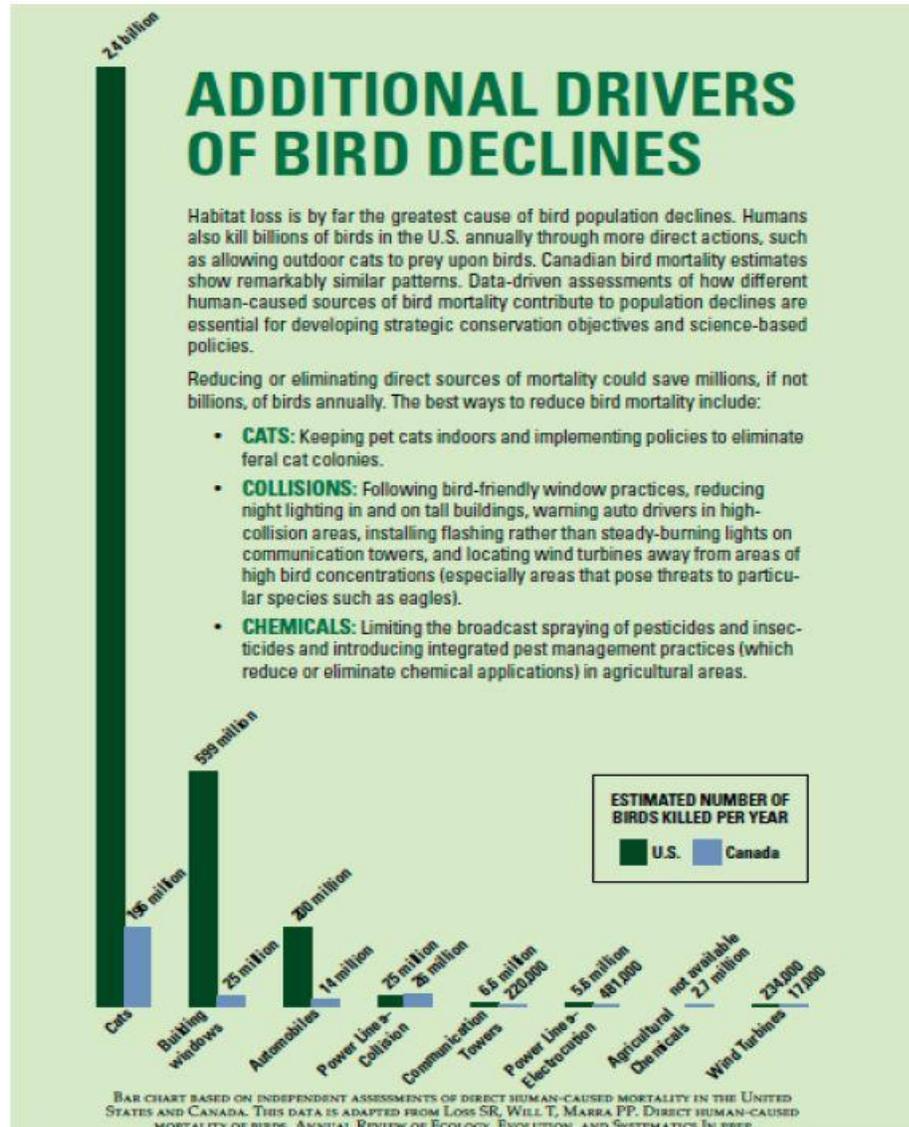
A: A final turbine model and manufacturer has not been selected, and sound studies have not yet been completed. Therefore, it is impossible to answer this question at this time. However, Maple Rapids Wind will be designed and built in full compliance with any permitting requirements associated with sound levels, and we intend to minimize the level of sound from an occupied residence.

Birds / Environmental Impact

Q: I am concerned about our local bird population, especially near the Shiawassee River. How are you going to protect our birds?
- A. M., Rush Twp.

A: At Apex Clean Energy, we love birds. We also love bats, butterflies, bees, and land animals. That is why we pay close attention to the environmental impact of our wind projects and devote months and years of study to ensuring that we site projects in locations proven to have minimal environmental impact.

Additionally, Apex works closely with state and federal environmental agencies, and must submit all plans for their review and approval before a final site plan is laid out and construction begins.



Source: North American Bird Conservation Initiative U.S. Committee, *The State of the Birds 2014*, U.S. Department of the Interior, Washington, DC (2014), p. 11.

Q: How many acres does a single turbine affect?

- T. S., Unknown

A: On average, a single wind turbine will take less than one acre of agricultural land out of production. With this in mind, Apex Clean Energy understands your land is important and we have designed our lease agreements to provide generous compensation to participating landowners for lost production resulting from capital investments on your property.

Q: What is the average acreage of land area occupied by the turbine – including pads and access roads, etc.?

- B.M., Owosso Twp.

A: See above

Q: If wind turbines only require a few acres each of farm ground, why do you lease tens of thousands of acres for only 50 or 60 turbines?

- J.B., Middlebury Twp.

A: This is a common question, and we're glad you asked.

There are a number of reasons why a wind developer needs to lease large amounts of land, and many are due to the regulations and siting requirements we follow before determining a project's final layout. In addition to zoning requirements mandated through county or municipal ordinances, developers must also adhere to setbacks related to the following issues:

- Roads.
- Railways.
- Federal Aviation Administration (FAA) requirements.
- Telecommunications infrastructure – transmission lines, cell towers, radio signal pathways, etc.
- Oil and Gas infrastructure – pipelines, buried infrastructure, etc.
- Topographical concerns – wetlands, floodplains, ditches, hills, etc.
- Environmental concerns – migratory bird patterns, eagle populations, bat populations, considerations given to the endangered species act, etc.
- Apex also has a series of internal setbacks that we consider in every project we build.

Wind developers can only explore construction after all of these considerations are met.

One last point to consider: Apex Clean Energy believes it is in the long-term best interest of the communities where we operate if we are able to share the profits from the project with as broad of a segment of the population as possible. Therefore, as we sign up acreage, and good neighbor agreements, we structure our contracts to deliver the most value to the largest number of people. This empowers private citizens with the ability to reinvestment in their own local communities.

Q: I have heard a lot about the evils of coal plant emissions, like mercury, CO2 and fine particulate matter. Can you tell us what price per unit of emissions avoided will be from this wind project for each pollutant, and how that compares to gas fired or nuclear power plants?

- K.D., Rush Township

A: It is hard to say what the specific projected emission reductions will be until Maple Rapids Wind receives a final layout and site approval. However, in 2015 wind energy prevented 1.4 million metric tons of carbon dioxide emissions from coal and gas plants in in the State of Michigan. Maple Rapids Wind will add to this number while helping protect the environment in Shiawassee County.

Q: If farmland is removed from PA116, who pays the back tax penalty - Apex or the landowner?

- S.K, Middlebury Twp.

A: Apex will.

The wind farm is committed to paying any back taxes and penalties as a result of a landowner removing farmland from PA116, at no out-of-pocket expense to the landowner. The lease that landowners sign address this topic specifically. We are happy to work with anyone who may have additional questions about your specific property.

Decommissioning

Q: If subsidies run out, will they make a profit so will be maintained?

- Green, Rush Twp.

A: Apex Clean Energy is a privately owned company and does not require, or use, subsidies to fund our wind projects. We have fully committed to Maple Rapids Wind and are making the necessary investments to confirm the long-term success of this project.

All future costs associated with decommissioning the wind farm will be borne by Apex Clean Energy, or the owner of the project at that time, and be conducted at no cost to taxpayers.

General Operational

Q: Where are the turbines manufactured (components, tower, blades, etc.)?

- G.R., Venice Twp.

A: Apex has not selected the specific turbines that will be used in the Maple Rapids Wind project. However, many of the parts and components we generally use are made in America.

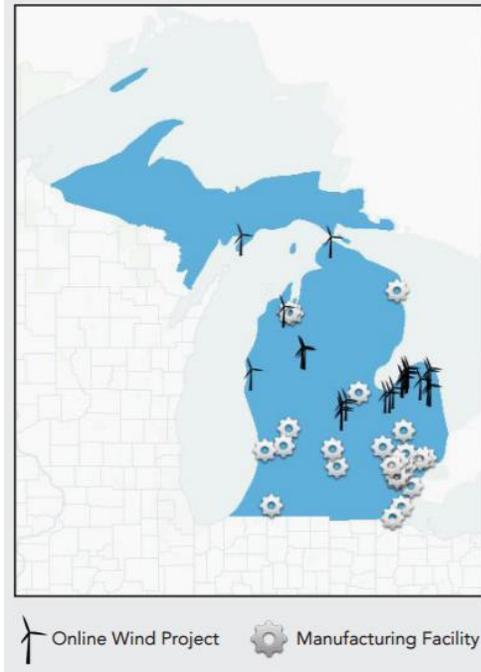
One of the wonderful things about the American wind energy industry is that it has grown significantly over the past two decades. Today, wind energy supports and employs more than 1,000 Michiganders, and over 88,000 people nationwide.

Q: Will wind turbines be manufactured in Michigan?

- D.S., Shiawassee

A: Michigan is currently home to 26 manufacturers who make parts and components used in wind farms throughout the country and across the world. However, because we have not selected the specific wind turbines that will be used in the Maple Rapids Wind project, it is too soon to know whether the components will be manufactured in Michigan.

The following map highlights the general areas in Michigan where components for wind farms are manufactured.



Source: AWEA, Michigan State Fact Sheet, 2016.

Q: Where will the power go? Who is getting the power?

- D.W., Fairfield Twp.

A: The power generated from the Maple Rapids Wind project will feed into the local electrical grid in Shiawassee County, which will support and strengthen the electrical system in this area. A final purchaser of the power has not yet been determined.

Q: Do wind generators have backup generators, or will power plants have to be build, and by whom?

- H.W., Middlebury Twp.

A: No.

Wind turbines are self-sustaining, and self-functioning machines that do not require additional back up generation. This is why wind turbines play such an important role in helping Michigan and America reach energy independence.

Q: Has a haul route for construction been identified along county roads? If so, please describe. If improvements are required, who will pay for it?

- B.M., Owosso Twp.

A: Not yet.

Apex Clean Energy will work with the Shiawassee County Planning Commission and Board of Commissioners to determine a suitable road use agreement once haul routes have been determined.

As part of this future agreement, Apex assumes responsibility for all costs associated with necessary upgrades and repairs to the affected roads both before and after construction.

At the end of the day, most communities are left with better roads after the wind farm is constructed than before – this is our goal.

Q: How much cement is used in the base? How does this affect the life in the soil needed for healthy plant production?

- B., Rush Twp.

A: The foundation of a turbine uses approximately 375-390 cubic yards of concrete to support the wind turbine. Upon removal of the turbine after the project's lifespan, the soil will be replaced and reclaimed to its original use at no out-of-pocket cost to the property owner. This requirement is outlined in writing with participating landowners.

During the life of the turbine, farmers remain able to grow crops up to the immediate footprint of the turbine.

Q: I have often seen that existing turbines are not rotating. Why do I see installed turbines not being used?

- Brady, Owosso

A: There are a couple reasons why you may see turbine blades standing still. One is the possibility of general maintenance – every wind farm has a team of technicians who monitor the individual turbines around the clock. These teams also perform routine scheduled maintenance on the turbines, just like you would do with a car, tractor or important piece of farm equipment.

Another reason is that there may be too much energy on the grid at any one particular time for the given demand. These “loads” are carefully monitored by grid operators – such as Midcontinent Independent System Operator (MISO), PJM, SPP or others – and affect all sources of energy generation equally.

At the end of the day, wind turbines make money when the spin. Apex Clean Energy is dedicated to building and maintaining a highly functioning wind farm so that local landowners and the taxing entities are able to realize the maximum value of these investments.

Q: You claim a 30 year lifespan for your project. Yet, most wind developers in Michigan, including DTE and Invenergy, state that turbines last 20 years. Who is telling the truth?

- T.B., Owosso

A: Most wind farms have a guaranteed life of between 20 and 30 years based solely on the land lease contracts structured with private landowners. In Maple Rapids Wind, Apex structured our contracts with landowners to lease the land for 35 years. This means there is an option to upgrade the facilities over time, as needed, or as new technology becomes available.

One way to think about this is to compare the wind farm to a traditional agricultural business or farm. The farm can be around for many years, but the equipment operating on the farm (combine, tractor, etc.) will need to be replaced over time. Some of the wind turbine components may need to be repaired, replaced or refurbished during that project lifespan, but the roads, collection lines and substation that support the project can

sustain the project and therefore maintain a stream of revenue for the local community for a number of years.

Miscellaneous

Q: Is your company funded by tax credits? If President Trump ends this special funding (for wind turbines), then what? If you are in the middle of building the project and run out of money, how will you handle finishing the project?

- M.S., Middlebury Twp.

A: No. Apex Clean Energy is privately owned US company. The funding to construct the wind farm is made possible through private investment. These investments will be fully-aligned prior to construction, so the projected can be completed without risk of stopping mid-construction. Once the wind farm is operating, it will qualify for the Production Tax Credits (PTC), which is established by law.

The PTC is currently being phased out, and will not be available after year 2020. However, the industry has a strong future. There is bi-partisan support for wind industry and wind energy has proven to be highly competitive with other forms of energy generation.

In fact, wind energy is extraordinarily competitive from a cost standpoint, and can go head to head with other sources of energy production. According to a [recent study](#), wind energy is often the cheapest source of energy production on the market – with or without the PTC.

Q: What is the spacing distance between 600 ft. plus windmills?

- R.R., Owosso Twp.

A: The design and layout of a wind farm takes many factors into account. Traditional industry standards are a side by side (lateral) spacing of about 3x the rotor diameter of a turbine, and almost .8 miles between turbines linearly in order to allow the wind flow to achieve peak efficiency. So, using the example of a GE wind turbine with a 361 foot tower and 224 foot blades (total tip height of 586 ft.), could mean spacing of about 1200 ft. between turbines.

Again, these setbacks are to allow for wind efficiency, and differ from safety setbacks.

Q: How close do you live to a wind turbine? Would you be willing to live next to a wind turbine farm?

- D., Owosso

A: Large commercial wind turbines operate in numerous states around the country and within communities or in close proximity to homes. Well sited wind farms have minimal impacts on residence and bring tremendous benefits to local communities.

Q: How much are wind turbines being subsidized by government funds?

- D., Owosso

A: Apex Clean Energy is a private company and is not subsidized by the federal government. All of our projects are constructed on private land with the consent and participation of private landowners, using private investments.

Q: Why place the turbines in an area with such a low wind ratio?

- D., Owosso

A: There are many factors that go into evaluating a location to support wind energy. There needs to be sufficient wind, access to the power grid, and minimal environmental impacts. Shiawassee County Michigan has a proven wind resource, and data from several years of study that prove this is a perfect area for the placement of well sited and a highly functional wind farm.

Q: West winds prevail and affect wind turbines most. Shiawassee Co. is on the East side of Michigan – why plant turbines here? Seems insufficient at best! Why 600 ft. tall?

- J.F., Owosso Twp. / Bennington

A: See above.

Q: I have heard claims that wind turbine noise does not harm health. I have also heard that APEX is a good neighbor. If these claims turn out to be false, are you prepared to compensate us financially for our loss?

- A.B., Middlebury Twp.

A: Apex Clean Energy prides ourselves on the commitment we make to the communities in which we operate. We are so confident in this commitment that we are pleased to put it in writing in our contracts.

Q: Can you provide positive examples of folks living near wind farms and receiving benefits?

- N/A

A: There are many, many examples of positive stories from people and communities living with wind farms.

One local example is between 2014 and 2015, wind energy produced more than \$40 million in new revenues for Michigan's Huron, Tuscola, Sanilac and Gratiot Counties. These funds included over \$7 million for roads, bridges and senior services; more than \$9.5 million for schools; and \$9 million for services, including fire, law enforcement and emergency response.

This video also provides a deeper understanding of the true feelings of a property owner from an Apex project in Hoopston, Illinois. [Click to play:](#)



Q: Are you willing to work with the community on revisiting the ordinance to alleviate resident concerns?

- N/A

A: Absolutely! We are happy and eager to work with the Shiawassee County Planning Commission, the Shiawassee County Board of Commissioners, individual townships and other key stakeholders to answer questions or address concerns associated with a reasonable wind ordinance.

Please contact us at info@maplerapidswind.com with any questions you may have.

Comments

Everyone uses electric power. It has to be made somewhere, might as well be here.

- J.G., Henderson/Rush Twp.

A: We agree!

And, we'd like to sweeten the pot. With the construction of Maple Rapids Wind, Shiawassee County has an opportunity to help Michigan take a strong step in the direction of energy independence while guaranteeing a sustained long-term revenue source for local municipalities, private land owners, and local school districts.

Learn More About Apex

This video will give you a better understanding of who we are as a company, and why we do what we do. You may also visit our website at www.apexcleanenergy.com.

