

Question	Answer
<p>If the Heritage Wind Project were to be sold, and Apex not hired to manage the facility how does Apex ensure that environmental compliance is met?</p>	<p>Article 10 results in a certificate of public good and it has a number of conditions that are in effect for the duration of the operation of the project so whether it be Apex operating the project or another operator of the project they would still be bound by the same conditions and requirements. A certificate is required for a transfer if it's sold to another entity and that transfer needs to be approved by the siting board and the new owner would have to agree to all the conditions in the certificate before the transfer is approved.</p>
<p>Why aren't forums such as the one you are holding tonight done prior to getting landowners signed up so that the entire town is aware of your presence and your intentions? What is your big secret?</p>	<p>I wouldn't characterize it as a big secret. We had some open houses, we invited landowners, we spoke with the public officials. A lot of what we hoped and share tonight is a culmination of quite a bit of work in laying out the project and determining where turbines may be, where landowners have chosen to participate, and so forth. So very early in the stage, again we didnt keep it as a secret we went to the county officials as well as talked to the landowners, did not try to keep it a secret but at that stage did not know which landowners were interested in participating and didnt have much configuration or any configuration details at all.</p>
<p>Is this project being proposed in a manner that meets or exceeds, in a beneficial manner to the residents of Barre, all current Town of Barre ordinances?</p>	<p>In particulat the tip height. I believe the Town of Barre wind ordinance was established in 2009, or 2007, several years ago at which time the 500 foot height restriction was adequate to cover any expected turbine height at that time. Subsequently over time turbines have gotten taller, rotor blades have gotten longer, tip heigh has increased so it is not what we are proposing. It does not conform to the 500 foot as well. There is a property line steback as well as a few sound specification details, for example there was a lack of specificity about the units associated with a level, those are more corrections as opposed to changes that need to be clarified. Theres a number of setback provisions we've discussed with the town of barre in our proposal to amend their zoning ordinance. And I would propose that we detail those in response to this question on our website. (Addendum: The Heritage Wind proposal includes the following physical setbacks to buildings and features: physical setbacks to buildings and features:</p> <ul style="list-style-type: none"> •Houses: 1500' •Roads: 1000' •Barns/Out Buildings: 1000' •Non-participating parcel boundaries: TH x 1.5 •Participating parcel boundaries: Blade Length)
<p>How many times has Apex Clean Energy walked away from a proposed site when they discovered that there would be significant environmental impact?</p>	<p>I don't have the specific answer to that, when you say walked away that seems to imply that you were somewhat committed to that site. One of the early stage steps in evaluating a project is a fatal flaw. Before a project to actually become a project is quite a bit of analysis that goes into it. We have a 50 or 60 person staff that looks at all of these different things including wildlife issues. We would work with a firm like EDR as well as our internal permitting or environmental experts to look at some of the sensitive habitats. Some of those are not apparent until studies are done. I have to check with folks internally to see what the answer to that is as far as numbers. (Addendum: No permits or project approvals on Apex Clean Energy projects have been denied due to environmental impact.)</p>
<p>Can a turbine cause health issues such as headaches? Heart attacks? Miscarraiges?</p>	<p>There have been numerous peer-reviewed studies done that indicate there is no correlation between turbines and health.</p>
<p>"Having developed multiple projects in New England and New York that are now in operation." Taken from forum handout agenda. How many projects exactly are "multiple projects" that are operational now? New England? New York?</p>	<p>The projects that I have been involved in include two in New York, one in Vermont and one in Massachusetts.</p>
<p>If Apex sells out to another energy company do new contracts have to be drawn up or are the previous ones transferred to the new company?</p>	<p>The contracts are assigned by home, so they would be signed to the new owner of the company. The project company itself could be sold so then the agreement would still be with the same party.</p>

Question	Answer
If the proposed project is approved, how do you intend to offset property value decrease?	There have been a number of studies showing that property values are not negatively affected. There has been some studies that show and indicate otherwise but the vast majority of studies show that there is no negative impact of property values in proximity to turbines. Not just by number of studies but by number of homes and transactions considered. The data suggesting that there is no negative correlation vastly outweighs any indication that there would be a negative impact. It has been studied extensively.
What is the value of this proposed project?	Something around \$200 million. It depends specifically on the final turbine chosen and final configuration but it would be an excess of \$200 million for margin cost.
What percentage of tax decrease do you anticipate for Barre Residents, overall Town, County, and School taxes?	That's really going to be up to the taxing jurisdictions and their leadership to determine what to do with the money that comes from the project but we can estimate what we would be paying into a community benefits pool which we assume to be about \$7,500 per rated megawatt.
How far do the wind turbines have to be from the airport?	Ultimately that will be a determination that the FAA makes. The turbines sited on this map are no closer than 2.5 nautical miles from the airport.
What are the readings of the current 3 Meteorological Towers in the Town of Barre?	We don't publish comprehensive wind data from the meteorological towers. We do send in reports on their functionality to the town but I can say that they confirm that the town of Barre is what the IAEC is classified as a class 3 wind speed.
How many years will the proposed jobs by the developer for the local community (residents within Orleans County) be for?	I would expect for the life of the project. For an example a wind turbine technician, a high paying skill laborer job that would be required throughout the life of the project.
What is the number of permanent full time local jobs will be created for Barre, or Orleans County residents and what are the wages for these jobs?	We would expect up to 8 high paying full-time technical jobs, permanently attached to the project. The median U.S. salary for a wind turbine technician in 2015 was \$51,050 annually.
When you are organizing the questions that are to be answered are you removing any questions to definitely not be answered this evening? Will all the questions including this one be answered online in March?	Any of the questions that we received were placed into clear boxes on stage to organize who to ask each question. They will all be answered on our website by March 28th.
Should the proposed project be approved and a property owner is unable to sell their property for an appraised value that was given just prior to approval, will Apex or its successors/assigns, purchase that property from the owner for that appraised value?	We don't have any program like that. There are 25 operating wind farms in the state that have been well accepted in communities and the evidence does not support that there is an issue.
Since non participants have no choice in whether turbines are erected in our community, are you giving the Barre residents a written guarantee that our assessments won't plummet once the turbines are erected?	There have been a number of studies showing that property values are not negatively affected. There has been some studies that show and indicate otherwise but the vast majority of studies show that there is no negative impact of property values in proximity to turbines. Not just by number of studies but by number of homes and transactions considered. The data suggesting that there is no negative correlation vastly outweighs any indication that there would be a negative impact. It has been studied extensively.
What are the five separate ways the community benefits?	There are many community benefits. Five examples would be payments to the taxing jurisdictions, payment to landowners who are the economic drivers of the community, 6-8 local full time jobs, up to 300 temporary construction jobs, and increased business to local stores and restaurants.
How exactly are all the windmills connected to the grid?	Turbines are connected one to the other by underground transmission back to a central project substation and then that substation is connected to existing grid infrastructure.
World wide scientists say unless we cut our carbon use we will be beyond the ability to make a difference in 10 years. When is the earliest your project will be online?	The earliest we would expect to be online is 2021.
How can Apex reassure Barre residents that their tv, radio and cell phone service won't be interrupted or ruined by industrial wind turbines?	Exhibit 26 of the Article 10 application will be an assessment of the project's potential impacts on communication systems- AM/FM, microwave, cellular, etc. Those studies are currently in process and they will be summarized in the application and there will be mechanisms for addressing resolutions should issues come up.
Have you ever applied for variances to the setback restriction? Are leasees permitted to publicly oppose any variance applications?	Theoretically a variance application was submitted just by a legal standard. Typically a landowner would indicate in support for that variance application. It is usually a requirement of the local code.
Is there a building in WNY as tall as your tallest tower?	We are not aware of any.

Question	Answer
<p>Why is the mailer not being sent to every resident of Barre for visual impact? Why make the busy working residents of Barre come to you?</p>	<p>The Article 10 regulations are pretty clear in terms of how the consultation and who should be consulted for visual impacts. It states municipal planning representatives and various state agencies. There are other studies that will result in direct mailers to all community residents, one of which will be a private well survey. What we've seen is the response rate is not very good for that information, so by sending it directly to municipal planning reps, in this case town planners, town historians, town executives, the idea is we are casting a pretty wide net with a small group of people to provide us information, and then by providing the opportunity for daily interaction at the Heritage Wind office it's a way to solicit that information and we feel we'll get better information back through that mechanism.</p>
<p>Natural Resources Wetland and Stream Delineation. Initiated during growing season of 2018 to be completed this spring. How is less than a year an effective time frame to gather necessary data?</p>	<p>We are talking about a 500 foot corridor along the project components and we go out in groups of two for safety reasons and we are able to piggyback and the wetland delineation effort from a ground study standpoint can be done fairly quickly so it doesn't take an entire year to achieve that level of study. The work that was done in the fall early season 2018 roughly 20-30% of the facility study and the remaining balance will be completed in the spring.</p>
<p>What are the current requirements in NYS for wind developers to monitor and report bird and bat fatalities?</p>	<p>That will be worked out through this process. I don't know that there will be an environmental monitoring program aligned with the net conservation benefit plan and the avian risk assessment, which will be reviewed by and agreed upon by the DEC and their input will be directly put into it. That on a project by project basis the specific proposed construction plan can be vetted and agreed upon. The state has guidelines for post-construction monitoring and those guidelines will be a condition to the certificate.</p>
<p>During the migration seasons, Canadian, Snow geese, bats and many smaller species of birds fly over a huge area of Barre. Shouldn't these species be protected and what happens to the migration patterns? We look forward to seeing this migration every year.</p>	<p>With respect to migration there have been many studies already performed that were included in the PSS. Those will be assessed in relation to the proposed layout and potential impacts will be described in Exhibit 22. With respect to bat species we have been in discussion with the DEC and there is an assumed presence aspect to the bats where we are looking at adaptive management and various curtailment regimes to avoid impacts to bats so that information will be provided in Exhibit 22.</p>
<p>At the environmental presentation that Dave Phillips did on January 16, 2019, he mentioned that bird deaths around industrial wind turbines have been significantly higher than projected. What steps have been taken to identify the bat population in the Town of Barre and protect this population?</p>	<p>With respect to protecting a bat species for this project there will be an adaptive management plan worked through the Article 10 process and an agreement with the New York State DEC and there are several steps that could be implemented over the operations of the project to limit impact to bat species. A primary component would be curtailment which means that at certain wind speeds at certain times of the year the turbines would not spin thus avoiding impacts. Through ongoing discussions with the DEC and looking at various different adaptive management regimes impacts can be avoided and/or minimized.</p>
<p>When was the species inventory started?</p>	<p>The species inventory was initiated in 2016 with some of the initial wildlife studies and is continuing through all facets of field work whether its wetland delineations, vernal pool assessments or upcoming wetland delineations that will occur in 2019.</p>
<p>Who determines the "value" of the wetland?</p>	<p>The methodology that is documented in the PSS and agreed to by the NYS DEC is called the US Army Corp of Engineers highway methodology. This methodology is established by the fed gov to essentially come up with a standardized approach on how to assess functions and values because it can be subjective. Through the process of developing the PSS there has been an agreement to use the highway methodology and that has been consistent with several other article 10 projects as well.</p>
<p>Other than bird and bats what other environmental studies (other than vernal pool) are being done?</p>	<p>There will be several in support of exhibits 22 and 23. The biggest is probably the wetland stream delineation report. There will be an invasive species control plan, invasive species baseline survey, habitat fragmentation analysis, net conservation benefit plan for species, avian risk assessment, vernal pool assessment, spill prevention and counter control measures, our water quality report along with the stormwater pollution prevention plan. There may be others and I'm happy to provide in writing what was outlined in the PSS in terms of all the supporting studies because of the volume of 40 exhibits with probably upwards of 60 appendices, but those are the big ones.</p>

Question	Answer
<p>Why is there only one vernal pool study in the spring of 2018? Why not this spring as well? Shouldn't these studies be done for at least 2 years?</p>	<p>The methodology used for the vernal pool study was based on NYS does not have a vernal pool identification standard, several other states do. There was a collection or review of various other states, including Pennsylvania and Massachusetts, that were used as the guidelines of that. And it does have a two step component and I apologize for not being explicit in the discussion, and it is not so much about the years as it is about looking at it in the early spring and going back in the summer to make sure that the vernal pools in fact dried up and that work has occurred. And as part of the delineation work that will happen in early 2019 we will be double checking the vernal pool assessment from 2018. But as far as the standards that exist there is not a two year standard.</p>
<p>If the proposed project is approved, who's satisfaction are the roads repaired to after construction?</p>	<p>There is a road use agreement that would need to be agreed to through the town. Usually that agreement is required to do a pre-construction survey of the roads and then a post-construction survey of the roads to make sure they were repaired to the road use agreement. Typically the standard would be to leave the roads in the same or better condition than we found them.</p>
<p>If the date and time for possible flicker could be identified using your computer system will you make the residents aware of those potential times so that they can plan accordingly?</p>	<p>It will be reported in the Article 10 application. The study looks at every day of the year and it will tell you on say March 22nd there was a potential of flicker occurring, of course the wind speed and the wind direction have to be correct and it has to be a sunny day, but it will say the start time and the end time, and there will be a calendar that shows every day has the potential for it to occur.</p>
<p>You mentioned that "modern" turbines but have x.y.z BUT Ben Yazman just spoke that the turbines now be proposed are the newest, brand new, model. Would this increase the distance of shadow flicker? With a bigger model what new issues does shadow flicker pose?</p>	<p>Shadow flicker is geometry so the larger turbine would have a longer shadow, so it would require us to site more conservatively.</p>
<p>Why is the shadow flicker setback just for a residence and not the property (non participating)? The non participating property owner should have the rights to use their entire property.</p>	<p>Shadow flicker needs to be measured at a receptor so that's why homes are used rather than the middle of a corn field where nobody would be to experience shadow flicker. The shadow flicker is more apparent when it's coming through a window because a window would have light coming through it which gets blocked out by the shadow. In a case where you're in a field or an open place you can certainly see the shadow coming but you don't receive the experience of your window being blocked out.</p>
<p>What is the maximum wind speed for the turbines you are proposing?</p>	<p>Roughly anywhere from 22 to 24 meters per second, which is about 50-55 miles per hour.</p>
<p>What would be the minimum wind speed needed for the turbines you are proposing?</p>	<p>3 meters per second, which is about 6.6 miles per hour.</p>
<p>Flicker- as you state 25 hour per year nonparticipating tiodete. How many has for participating parties or leaseholders? Don't count.</p>	<p>The internal Apex standard is 40 hours per year.</p>
<p>Shadow flicker. You say distance matters so to say a cloud goes in front of the sun would a seam to make a shadow on ground- but you say no!! Who is wrong you or phisic.</p>	<p>I was referring that the shadow flicker from the turbine is blocked by clouds. If it's cloudy you don't have sunshine behind the turbine to have the flicker occur.</p>
<p>Has shadow flicker study been conducted to help site the turbine?</p>	<p>That is normally done once the layout is finalized and it is then done through an independent group to confirm that we are meeting the regulations.</p>
<p>On a flat area, how far will shadow flicker transmit during sunrise and sunset with the potential of maximum sunlight? If a tower is sited beyond the limits, what happens?</p>	<p>I think I would have to actually look at it with speciifc numbers but there is an aspect of the near horizon diffuse light that limits the maximum number. There are two potential answers: we would either work on siting the turbine to adjust for that or we curtail the turbine that variates specific time periods to limit the shadow flicker during the expected windows.</p>
<p>Iberdrola told pur town in 2008 that there wasn't enough wind in Barre to make it successful and consequently pulled out... what has changed in 11 years?</p>	<p>The turbine blades have gotten quite a bit longer and so the minimal threshold wind speed for a viable wind project has gone down over the last 12 years.</p>
<p>As turbines are being built, how much habitat/trees would be cut down?</p>	<p>We don't know the answer to that as of yet. In the PSS there is a table that indicates by project component how large the potential work area would be. The area around each turbine from the PSS was a 250 foot area of land disturbance. So there is the potential for forest and grassland imoact. That will be fully laid out in the application once the final layout is determined.</p>

Question	Answer
According to the article 10 process, what information (if any) are you required to share with the community?	The Article 10 application in full will be available both at the local document repository and the town offices. It will also be available publicly online on either or both the Heritage website and the Department of Public Service website. All of that information will be included as a part of notices that are submitted and precede the filing of the application. There will also be newspaper notifications when the application is filed. There will be notifications to the municipal officials when the application is filed. There will be advanced notice and the application will be available for individuals in the town to view.
When do you anticipate to submit an application for this project?	Some time in May or June of this year.
Does the article 10 process have any requirements for the amount of electricity that is produced by a project? Other than minimum 25 MW project to go through the article 10 process.	Article 10 is part of the evaluation of interconnection and electric system modeling through a facility. It will look at certain production numbers. In terms of requirements, the requirement for proceeding through Article 10 is that the nameplate capacity of the facility is 25 megawatts or more.
What is your projected timeline for the article 10 process?	From the date that we file the application the siting board has to render a decision on the application within 12 months.
Who takes legal responsibility if a new company is not complying with their signed agreement?	If that means with respect to the certificate of permit conditions, then in that instance the siting board has the department of public service staff that can enforce the conditions of the certificate. Therefore DPS staff, a state agency, would enforce the certificate conditions.
Does the article 10 process have any requirement that the developer, or project remains active for a minimum amount of operational time?	No, Article 10 does not have a minimum in terms of at what point an unoperational unit would need to be decommissioned or anything like that. That is going to be subject to the independent original decommissioning plan that is going to be submitted as part of the Article 10 application. That plan is likely to have timeframe for inoperability and at what point turbines would be decommissioned.
Does the article 10 process have any requirement for studies to be performed after a project has been approved. If so who regulates this process?	There are a number of studies that will be performed after the project is operational. One is a post-construction noise study. The enforcement of that and review of that and approval of the compliance filing associated post-construction noise study is going to the department of public service staff, the state agency regulating Article 10.
In regards to the hourly sound level annual sound modeling what percent of the year? As a resident the variability in sound is frustrating as this is what will wake us up at night, or be disturbing when we are trying to reside and enjoy our home?	The modeling calculation that was presented intends to calculate the loudest sound level over the course of a day or night, so we look at the highest wind speed and use that to calculate the expected sound levels. Obviously if the wind drops during the course of the night sound levels will go down. The highest sound levels are based on the highest wind speed.
Why is the goal for sleep, 45 dBA, higher than the W.H.O. recommendations?	That is the exterior sound level, and that is a W.H.O recommendation. And that is a short term recommendation. W.H.O also has an annual nighttime recommendation of 40 dBA, but that is for every hour of the night over the course of a year. In that case you would need to calculate all of the wind speeds over the course of a night for a year. That is not the same at the 45 dBA short term value.
Where were your sound measuring devices located in our community?	The specifics of all that will be discussed in the Article 10 application.
How long have you studied Barre's wind speeds? With a bigger turbine increase, how would your data for wind account over 600 feet height change?	I assume that the wind speed that generates that sound is achievable during any time of the year. We calculate that 45 dBA as a hub height wind speed, whether that is at 500 feet, 600 feet, or 650 feet.
Rob, as an expert on sound associated with wind turbines, if you lived in a rural area like Barre, NY at what distance would you be comfortable living and sleeping from one of the over 680' proposed wind turbines?	This is going to be set up so that whatever the distance is, to achieve that sound level or less will be at a different distance, not one distance. It's going to depend on the turbine configuration. Sound is really based on the sound level and less on the distance away. They are related certainly, sound level and distance are related, but it's not just one number like 1500 feet away to be at 45 dBA or less so you can get a good nights sleep.
For sound level prediction process are business locations, or other sensitive receptors other than homes used?	Yes. The project teams are in the process right now of identifying all of the sensitive receptor sites in the area. That inventory will be part of the application. The sensitive receptors are in the process of being formatted in accordance with the NYS Office of Real Property Taxes and Classification Codes as agreed to through the PSS stipulation process, and that will include all parcels within one mile of the potential turbines and it will be based on the actual tax classification code.
How was the 45db setback used previously determined?	The 45 has been used as a guideline to prevent sleep disturbance. Exterior to the home that is used as a number, 45 or less, so there is no sleep disturbance at night.

Question	Answer
For measuring sound are you using averages or immediate sound levels?	The instrumentation is constantly recording a sample. It's going to record a lot of different statistics and for the baseline condition we record it in terms of 10 minute increments so those 10 minute periods will have an equivalent sound level average or LEQ average. It is not an average however, it is the energy average which is bounded by the highest possible sound in that 10 minute period.
If we don't hear it, can it still injure our hearing? Can it impact our health?	I assume this question is referring to infrasound and low frequency sound. There is a lot of low frequencies, there is no issue there. Many peer reviewed studies have come out and shown that there is no medical impact from operating wind turbines in regard to infrasound or anything else.
How does your sound decibel graph show deviation of sounds and are wind turbine sounds consistent? Does it change similar to a current day in Barre?	The data they showed tonight in the slide from the project site are 10 minute points. It's a summation of every 10 minutes over a two week period. The variation showed tonight that occurs today you'll never see that in a wind turbine. You'll never go from 15 db to 55 db. When wind turbines are operating there is a much narrower range of sound from that turbine. Generally anywhere from 25 to 45 db, depending on how far away you are from it. Once its operating that's the only source, that background is steady.
With the tower taking up such little usable farmland, how much is each lease paid per tower?	The leases provide for a minimum payment of \$5,000 per rated megawatt. The increases in turbine technology increases the capacity leading to increased payments. That is a minimum payment. Leases could also have a clause regarding revenue share, which would be a percentage of the revenue made off of the project assuming it's above that minimum.
What is the setback requirement for substations?	Typically there is a standard in the local law that would apply to any type of structure. The standard Apex setback is 1.5 times the tip height.
Decommissioning if you go bankrupt? Do you know of any bankrupt companies that did not remove the towers?	The Article 10 process requires financial stability to do that decommissioning so regardless of the status of the project company that security could be pulled and the project could be decommissioned.
Have you or any of your company take any down? And why not?	No we have not. We are a young company and our first project started operating in 2012, and the lifespan of these projects are 25 to 30 years.
If Apex or Heritage ceases to operate in the Town of Barre, what is the required procedure for dismantling the towers? What is the requirement if either company goes bankrupt? Can Apex sell or lease the project without the permission of the Town of Barre?	The Article 10 process requires financial stability for decommissioning before a project is built. Decommissioning is basically the reverse of construction—breaking the towers down piece by piece, removing the top four feet of the foundation, and reclaiming the roads. In previously permitted projects in the state, the town has had access to the financial security and there is a decommissioning agreement that outlines the steps that the town would take to access that money. If there was a transfer of the certificate from the project company to another entity, that transfer would require the approval of the state siting board.
Has Apex ever been through the decommissioning process and if so what is the cost per turbine? Do you allow for inflation? What do you do with the turbine parts?	No we have not. Our first project started operating in 2012, and the lifespan of these projects are 25 to 30 years.
If the proposed project is approved, where is the money going to be for decommissioning and what percentage increase per year?	Depending on the way the decommissioning plan is written, sometimes they are recalculated every five years or some increment to readjust the estimate. The estimate is certified by a professional engineer who does the calculation based on precise modeling data, but most of the time it is just as the project goes along.
How many turbines have you overseen in decommissioning? Complete decommissioning?	We have not decommissioned any projects yet. Our first project started operating in 2012, and the lifespan of these projects are 25 to 30 years.
Would the 4 ft decommissioning still remain with larger scale turbines? Would it increase?	It would stay the same. Regardless of turbine size, the foundation design will likely be about 10 to 11 feet deep. A larger turbine requires a larger foundation, but not in depth. Instead, the foundation is usually increased in diameter or the thickness of the base to add more mass and concrete.
Will multiple sites be under construction simultaneously?	Yes. There's typically a plan of installation with roads first, foundations next, and the turbines coming after that. The plan of installation works its way across the project footprint so that cranes can move in one direction and don't have to backtrack. Several foundations will be poured at once and several turbines erected at once.

Question	Answer
Will collection cables in wooded areas be tracked by shortest distance or parallel to access roads?	There are forests and wetlands here that will require the project to go under or around those geographic features in the shortest way possible. Using our wetland deliniation, we look at each instance individually to see if we should try to find a way to go around or beneath them. It is an iterative process that has already begun using some of the preliminary layout and environmental information. All the measures taken to avoid impacts and site turbines in ways that will maximize avoidance of geographic features will be documented in Exhibit 9 of the Article 10 application.
Are nacelles rotational or will they be in a fixed position?	Both the nacelle and the blades rotate to face the wind.

Construction Engineering

Question	Answer
Will our current transmission lines going through our community need to be upgraded to be upgraded to be able to utilize energy produced if the proposed project is approved?	No. The only transmission line work necessary would be to accommodate the interconnection of the project onto the existing transmission system which requires building a new substation between Lockport-Mortimer Lines #113 and #114. These lines would be temporarily cut to allow the new substation to tap in. No additional upgrade work will be required.
How much farmland use is impacted by one tower?	Turbines typically cover 1/2 to 1/4 acre, and farming can typically take place right up to the base of the tower.
How are residents that rely on well water going to be protected from possible pollution from the turbines?	Wells should not be impacted by the wind project. Pre construction well surveys are performed to locate wells and construction methods are adopted to ensure wells are not impacted—setbacks, blasting plan, etc. Foundations are made of concrete and will not pollute the groundwater. Any spills are handled under an approved SPCC plan and treated the same way a spill in routine transportation or agriculture would be managed. During construction, Heritage like many large-scale construction projects, will employ best runoff and erosion control practices. No raw concrete will be allowed to enter water sheds. After construction, best practices will be employed to stabilize the ground surrounding turbines to control erosion. Once hardened, the concrete foundations are inert and will be mostly covered in earth. They will not leach effluent into local wells, aquifers, or streams, just as the foundation of your home does not leach effluent into local wells, aquifers, or streams.
How will the bases for the proposed turbines affect water sources for local wells?	The maximum depth of a wind turbine foundation will be 11 feet and should not affect local wells.
How deep are your base in ground? I think you will disrupt aquifer??	The maximum depth of a wind turbine foundation will be 11 feet and should not affect local wells.
Could proposed construction of these concrete bases change/divert water sources from existing wells?	The maximum depth of a wind turbine foundation will be 11 feet and should not affect local wells.
How does Apex plan to protect children who are playing in their yards from "ice throw" from such large turbines?	Safety is a core principle for Apex Clean Energy. Ice throw is addressed in Section 2.15 on pages 62 and 64 of the PSS.
To your knowledge do rotors ever break off? Do ice storms affect wind turbines?	Safety is a core principle for Apex Clean Energy. Ice throw is addressed in Section 2.15 on pages 62 and 64 of the PSS.
To build one of the turbines how much fuel is used on average to clear the land, dig and place the foundation, transport the turbine and build the turbine?	Fuel consumption during construction is not calculated on a per turbine basis. However, reasonable assumptions for machine hours per turbine and fuel consumption per machine hour would be roughly comparable to the fuel oil consumption of an average 2,000 square foot home for one to two months in winter.
The power generated here, is it going directly into the local grid, or is it being sent someplace else? (such as down state or out of state?)	The power will go directly into the grid.
What is the maximum speed of the proposed turbines in mph (of the blades?)	The tip of the blade will move approximately 150-180 mph while rotating.
To build one of the turbines that you are proposing how much concrete is used?	600 to 1000 cubic yards.
For the proposed project, how many truck loads per turbine? (total, cement, rebar, blades, etc)	Approximately 100.
If the proposed project is approved, where is the gravel coming from for the concrete construction?	Apex Clean Energy makes every effort possible to source products and services from local vendors or the closest available to the project area.
Will you source all of your equipment, lodging, construction needs within Orleans County?	Apex Clean Energy makes every effort possible to source products and services from local vendors or the closest available to the project area.

Construction Engineering

Question	Answer
If the proposed project is approved, how many driveways and access roads will need to be constructed?	Each turbine will require an access road. If conditions allow, several turbines may be placed along the same access road. Road length is not finalized but in total is expected to be below 20 miles.
If the proposed project is approved, how many miles of driveways and access roads will need to be constructed?	Each turbine will require an access road. If conditions allow, several turbines may be placed along the same access road. Road length is not finalized but in total is expected to be below 20 miles.
If the proposed project is approved how will Apex (Heritage Wind LLC) manage and minimize any transportation problems for my commute based on large trailers bringing equipment in?	Apex Clean Energy/Heritage Wind will have to file a transportation plan with the New York State Department of Transportation. Plans will address movement during peak travel times
Where are the substations and transfer stations located and will new high voltage power lines be required for the proposed project?	A new substation will be constructed to accommodate the project approximately at (-78.180, 43.164). No new high voltage power lines will be required for the project.
How many collection stations are associated with the proposed project?	One.
If the project is approved, where is the staging area going to be?	This is still to be determined as of March 2019.
For the proposed project, what is the maximum transported weight per load? What is the maximum per axle load?	Exact axle load would be dependent on final turbine selection but will conform with state transportation requirements and any impact to local roads will be addressed in the road use agreement.
How many yards of concrete will be used per turbine foundation for the proposed turbines?	600 to 1000 cubic yards
How many acres will the staging area be?	15 acres.
Will the staging area be cement, gravel, rolled soil etc?	Gravel.
Where will the proposed staging area for the Heritage Wind project be?	This will be determined once final engineering is complete.
How deep are the collection lines buried?	At a minimum of 42" or as required by leases and permits
The "33" turbines proposed in Barre would be bigger than any currently working turbines in the States. Q: How would your engineering/construction differ than your previous experience? Q: Would the roads and shoulders need to be changed from the information you just gave based on a less tall turbine model? What about a change in concrete?	Engineering and construction will account for the larger turbines where necessary. The amount of concrete in the foundation will vary based on many factors including the size of the turbine.
How many of the current proposed turbine locations will require blasting for the foundation? Which turbines are these?	Foundations will be approximately 75 feet in diameter and 11 feet deep. The need for blasting will depend on the depth of bedrock at each turbine location. Whether blasting is needed will be determined during the final geotechnical investigation. Foundations will require approximately 800 to 1,000 cubic yards of concrete for each foundation and 70 tons of rebar
Will blasting be requires for the foundations?	Foundations will be approximately 75 feet in diameter and 11 feet deep. The need for blasting will depend on the depth of bedrock at each turbine location. Whether blasting is needed will be determined during the final geotechnical investigation. Each foundation will require approximately 800 to 1,000 cubic yards of concrete and 70 tons of rebar.
What is the size of the excavation required for each turbine, diameter and depth, for the turbines you are proposing?	Foundations will be approximately 75 feet in diameter and 11 feet deep.

Question	Answer
You propose turbines approximately 600 feet tall. Soil composition is one of many factors in the depth of the foundation required to stabilize any structure. Have you taken core soil samples for this project? What is the depth of the excavation you will do in this project? Is there rock or granite below the surface in the region that would require blasting?	Soil samples will be taken at each turbine location. Foundations will be approximately 75 feet in diameter and 11 feet deep. The need for blasting will depend on the depth of bedrock at each turbine location. Whether blasting is needed will be determined during the final geotechnical investigation.
How many tons of rebar per foundation of the proposed turbines?	Each foundation will require approximately 800 to 1,000 cubic yards of concrete and 70 tons of rebar.
Can you show the projected travel route for each component?	This is covered in Sections 2.25 on pages 134 to 136 in the PSS. A preliminary transportation plan, including proposed routes, will be included in the Article 10 Application.
To build one of the turbines that you are proposing how much iron ore is used?	No iron ore is used.
For the proposed project, how much does a nacelle weigh?	The nacelle will weigh approximately 300,000 to 400,000 lbs., depending on the final generator configuration.
Where are the proposed turbine components manufactured? Towers, generators, blades	Nordex has production facilities in Germany, Brazil, Spain and India: http://www.nordex-online.com/en/company-career/key-figures-and-facts.html
For the proposed project, how much does a turbine blade weigh?	The blades will weight approximately 30,000 to 40,000 lbs.
How far around can the nacelle rotate to capture the wind?	The nacelle can rotate 360 degrees to capture energy from the wind.
To build one of the turbines that you are proposing how much steel is used?	Each foundation will have approximately 70 tons of steel rebar.
In the event of a polar vortex if we experience sub zero temperatures do the turbines have the capacity to heat the interior and use electricity to protect the generator?	The generators are designed to function during extreme cold weather.
Has a lifecycle analysis of wind turbines been performed with regard to construction, transportation of material, loss of vegetation, building materials for turbines etc? What is the outcome with respect to carbon emissions? Nox?	Wind turbines repay their energy footprint in 5 to 8 months.
If no complaints or concerns are raised in an area of a wind facility managed by Apex Clean Energy, how frequently does an Apex Clean Energy employee go out and estimate impacts of the wind facility projects per year?	The Apex Clean Energy asset management team monitors 14 renewable energy facilities 24/7/365 with both on-site and remote manpower. On-site maintenance workers include original equipment manufacturers, turbine technicians, and Apex Clean Energy employees that typically inspect each turbine at least three to four times a year, unless any issues arise and if so, the turbines will be inspected more frequently.
What transmission constraints currently exist for the proposed Heritage Wind Project which might impede the delivery of electricity from the project to downstate?	The project has been through a rigorous future energy market simulation to identify congestion and curtailment risk. The analysis did not identify any transmission constraints that would limit deliverability to any zone in NY.

Question	Answer
Will EMS need any specialized equipment for responses on turbine sites? If so will the company assist with the cost?	Not our knowledge, but one of the many benefits of a PILOT and Host Community Agreement is the ability to bring new funds to municipalities to purchase new equipment or to improve or build new infrastructure.
What percentage of production are the current wind turbines in NYS making compared to the predicted amount for these projects? Ideally is you could list each project, what the current amount of electricity that they are currently producing, and what they predicted they would be producing?	<p>You would have to contact the individual plants for that information. We have the following information on New York State Wind Farms that we have independently researched: COPENHAGEN • 80 MW • 40 turbines • January 2019 • Lewis & Jefferson Counties • Towns of Denmark, Champion & Rutland; ARKWRIGHT SUMMIT • 78.4 MW • 36 turbines • October 2018 • Chautauqua County • Town of Arkwright; JERICO RISE • 77.7 MW • 37 turbines • December 2016 Franklin County • Towns of Chateaugay & Belmont; ORANGEVILLE • 94 MW • 58 turbines • March 2014 Wyoming County • Town of Orangeville; MARSH HILL • 16.2 MW • 10 turbines • January 2014 Steuben County • Town of Jasper; MARBLE RIVER • 216 MW • 70 turbines • November 2012 Clinton County • Towns of Clinton & Ellenburg; HOWARD • 55.35 MW • 27 turbines • February 2012 Steuben County • Town of Howard; STEEL WINDS 1&2 • 35 MW • 14 turbines • April 2007/January 2012 • Erie County • City of Lackawanna and Town of Hamburg; HARDSCRABBLE • 74 MW • 37 turbines • March 2011 Herkimer County • Towns of Little Falls, Norway, & Fairsfield; NOBLE WETHERSFIELD • 126 MW • 84 turbines • March 2009 • Wyoming County • Town of Wethersfield; HIGH SHELDON • 112.5 MW • 75 turbines • March 2009 Wyoming County • Towns of Sheldon & Wethersfield; NOBLE CHATEAUGAY • 107 MW • 71 turbines • January 2009 • Franklin County • Town of Chateaugay; NOBLE ALTONA • 97.5 MW • 65 turbines • January 2009 Clinton County • Town of Altona; NOBLE CLINTON • 102 MW • 67 turbines • April 2008 Clinton County • Town of Clinton; NOBLE BLISS • 101 MW • 67 turbines • March 2008 • Wyoming County • Towns of Eagle & Arcade; NOBLE ELLENBURG • 81 MW • 54 turbines • March 2008 Clinton County • Town of Ellenburg; MAPLE RIDGE • 321.75 MW • 195 turbines • January 2006 • Lewis County • Towns of Martinsburg, Lowville, Harrisburg and Watson; MUNNSVILLE • 34.5 MW • 23 turbines • November 2007 • Madison County • Towns of Stockbridge, Eaton, Madison and Augusta; COHOCTON/DUTCH HILL • 125 MW • 35 turbines • January 2009 • Steuben County • Towns of Cohocton, Avoca & Prattsburgh; FENNER WIND FARM • 30 MW • 20 turbines • December 2001 • Madison County • Town of Fenner; WETHERSFIELD WIND FARM • 6.6 MW • 10 turbines October 2000 • Wyoming County • Town of Wethersfield; MADISON WIND FARM • 11.6 MW • 7 turbines September 2000 • Madison County • Town of Madison</p>
Where can we go to find similar turbines to what you are proposing for the Town of Barre?	There are a number of projects in New York that have recently submitted permit applications, or that are submitting permit applications with turbines at a similar scale as those proposed for Heritage Wind. Some of these projects should be built within the next one to three years. At this time, the Bluestone Wind Farm Project, in the Towns of Windsor and Sanford, New York, is probably the closest project with similar sized turbines.

Question	Answer
How many industrial wind turbines are currently in NYS?	Our independent research shows the following wind farms with the noted number of turbines in the State of New York: COPENHAGEN • 80 MW • 40 turbines • January 2019 • Lewis & Jefferson Counties • Towns of Denmark, Champion & Rutland; ARKWRIGHT SUMMIT • 78.4 MW • 36 turbines • October 2018 • Chautauqua County • Town of Arkwright; JERICO RISE • 77.7 MW • 37 turbines • December 2016 Frank-lin County • Towns of Chateaugay & Belmont; ORANGEVILLE • 94 MW • 58 turbines • March 2014 Wyoming County • Town of Orangeville; MARSH HILL • 16.2 MW • 10 turbines • January 2014 Steuben County • Town of Jasper; MARBLE RIVER • 216 MW • 70 turbines • November 2012 Clinton County • Towns of Clinton & Ellenburg; HOWARD • 55.35 MW • 27 turbines • February 2012 Steuben County • Town of Howard; STEEL WINDS 1&2 • 35 MW • 14 turbines • April 2007/January 2012 • Erie County • City of Lackawanna and Town of Hamburg; HARDSCRABBLE • 74 MW • 37 turbines • March 2011 Herkimer County • Towns of Little Falls, Norway, & Fairsfield; NOBLE WETHERSFIELD • 126 MW • 84 turbines • March 2009 • Wyoming County • Town of Wethersfield; HIGH SHELDON • 112.5 MW• 75 turbines • March 2009 Wyoming County • Towns of Sheldon & Wethersfield; NOBLE CHATEAUGAY • 107 MW • 71 turbines • January 2009 • Franklin County • Town of Chateaugay; NOBLE ALTONA • 97.5 MW• 65 turbines • January 2009 Clin-ton County • Town of Altona; NOBLE CLINTON • 102 MW • 67 turbines • April 2008 Clinton County • Town of Clinton; NOBLE BLISS • 101 MW• 67 turbines • March 2008 • Wyoming County • Towns of Eagle & Arcade; NOBLE ELLENBURG • 81 MW • 54 turbines • March 2008 Clinton County• Town of Ellenburg; MAPLE RIDGE • 321.75 MW • 195 turbines • January 2006• Lew-is County • Towns of Martinsburg, Lowville, Harrisburg and Watson; MUNNSVILLE • 34.5 MW • 23 turbines • November 2007• Madi-son County • Towns of Stockbridge, Eaton, Madison and Augusta; COHOCTON/DUTCH HILL • 125 MW • 35 turbines • January 2009 • Steuben County • Towns of Cohocton, Avoca & Prattsburgh; FENNER WIND FARM • 30 MW • 20 turbines • December 2001• Madison County• Town of Fenner; WETHERSFIELD WIND FARM • 6.6 MW • 10 turbines October 2000• Wyoming County• Town of Wethersfield; MADISON WIND FARM• 11.6 MW• 7 turbines September 2000 • Madison County • Town of Madison
What is the wind project benefit for the projects that have gone through the article 10 process?	The Cassadaga Wind Farm is the only wind energy project to have gone through the Article 10 permitting process completely and been approved - https://www.rtoinsider.com/nyiso-everpower-wind-cassadaga-wind-project-84795
Can emergency medical flights such as mercy flight be affected negatively by a wind farm in Barre?	Safety is a core principal of Apex Clean Energy, and we are committed to working with the Federal Aviation Administration and Mercy Flight to mitigate any perceived issues.
Is there a possibility Mercy Flight might not be able to get to a victim due to the turbines?	Safety is a core principal of Apex Clean Energy, and we are committed to working with the Federal Aviation Administration and Mercy Flight to mitigate any perceived issues.
How is Mercy Flight or other helicopters supposed to get in the area because they are just above the tree tops?	Safety is a core principal of Apex Clean Energy, and we are committed to working with the Federal Aviation Administration and Mercy Flight to mitigate any perceived issues.
How many peer reviewed studies have been done on the impact of 591' industrial scale wind turbines?	We are not aware of any specific studies that have been conducted in relation to turbines at the 591' height.
How many peer reviewed studies have been done on the impact of 591' industrial scale wind turbines in the town of Barre?	We are not aware of any specific studies that have been conducted in relation to turbines at the 591' height.

Question	Answer
At what point does a negative impact effect the project's existence?	Any fatal flaws that are identified would definitely impact a project's existence.
To whom it may concern, I have yet to see the one area that is proposed, near my property, be dry enough for G. Mathes to cultivate. It is one of the lowest, swampy areas around. So how do you propose to put a huge structure on what amounts to swamp land? Should this be looked at as a wetland? Opposed Barre Resident.	As indicated in Section 22(i) of the PSS, the boundaries of all wetlands and streams will be defined within 500 feet of all facility components (e.g., wind turbines, collection lines, access roads, substation, O&M building). These boundaries will be used to inform the siting of facility components in order to avoid and minimize impacts to wetlands and streams. Measures taken to avoid and minimize wetland and stream impacts will be addressed in Exhibit 22 of the Article 10 Application. Wind turbine locations will be located in existing agricultural fields or other upland areas away from wetland and stream resources to the greatest extent possible.
Tip height, how do current models compare to Orangeville?	Orangeville used the 58 GE Energy 1.6-100 turbine model. It is listed as having a hub height of 80-100 meters and a diameter of 100 meters, meaning a tip height of ~150 meters (about 492 feet). The Nordex 149 being considered for Heritage has a tip height of 655 feet.
Is all the energy that wind turbines generate useful (can be utilized)? On average, if not what percentage is lost?	Small electrical losses would occur in the collection system, approximately an average of 2.5% in energy, but would vary depending on the energy production.
What is the carbon footprint of your proposed turbines for the lifetime, including the time of construction and decommissioning?	A typical wind project repays its carbon footprint in six months or less, providing decades of zero-emission energy.
What is the carbon footprint of one of your proposed turbines for the year in which it is built, including the time of construction?	A typical wind project repays its carbon footprint in six months or less, providing decades of zero-emission energy.
Is the preexisting Niagara Falls Hydroelectricity facility more or less "green" than the proposed Heritage Wind Project?	Both hydroelectric power and wind power are considered green, renewable energy sources.
Where in NYS is there a deficit of electricity production compared to use?	This question should be directed to the New York Public Service Commission or the New York State Energy Research & Development Authority.
Why do you continue to refer to a wind farm as 200 megawatts when you know the actual output is 33% of that at best?	A power generation plant capacity is typically referred to as nameplate capacity, which is the full amount a generating facility could produce if it were operating at full capacity. For the Heritage Wind project, the nameplate capacity will be approximately 158.4 MW. The current turbine being modeled for the project design is a 4.8 MW turbine. 4.8 MW x 33 turbines equals a project nameplate capacity of 158.4 MW. Power generation plants rarely operate at their nameplate capacity. For example, the Kintigh Generating Station in Somerset, New York, has a nameplate capacity of 675 MW but has operated with a nominal capacity factor (NCF) of less than 20% in recent years. The Heritage Wind project will operate with an NCF of approximately 33%.
How much energy does each wind turbine generate (rated) that you are proposing? Is that figure for 24/7 use?	Each turbine currently modeled for Heritage Wind is 4.8 MW at full capacity.
Jim muscato-Who are you employed under?	Jim Muscato is an attorney with the Albany, New York firm of Young/Sommer LLC which is the firm contracted with by Heritage Wind and Apex Clean Energy.
How much electricity would be "lost" in line loss if this electricity is hypothetically sent to NYC (is purchased for NYC)?	The electricity from the Heritage Wind project will be fed into the New York state electric grid.

Sound

Question	Answer
Follow up for Rob so what sound level would you be comfortable residing to one of these turbines in the town of Barre? (Sound level rather than distance)	A sound level of 45 dBA or lower would enable me to sleep undisturbed, even with windows open.
What is the current decibel you live, work and sleep at? Do you sleep at 45 dBA?	Sound levels in my office are between 45 and 50 dBA all day except during conversation when they are around 60 dBA. I have never measured sound levels in my home but they are probably similar to any house with appliances, HVAC system, and an Interstate highway nearby.
Robert O'Neil- Late February to mid-March is the winter time measurement period? Why such a short time frame?	Sound levels were measured for over two weeks which is the time period recommended by the NYS DPS, and provides for an ample sample size of the variation in sound levels within a community.
How can they be accurate numbers if we don't have turbines of the height and wnd length proposed in Barre?	Newer technology has allowed for quieter turbines, even with the increase in height. Sound power largely varies with blade tip speed and the larger turbines are actually trending down in peak tip speed through lower limits or rotational speed.
Would lesser decibels still be heard?	Not sure of the specific question. If you mean will sound levels less than 45 dBA still be heard, then the answer is "yes, at times." It will depend on other sources of sound at the time (winds; traffic; farm equipment; etc). Audibility of a sound is not a criteria or standard.
If the turbines are the loudest source in our rural community, especially at night, how will Apex Clean Energy protect the tranquility of our home?	Wind turbines ar not necessarily the loudest source of sound in the community. Ambient sound levels can at times be much higher at a receptor than the contribution from wind turbines. Low ambient sound levels typically occur in conditions of low wind speed when the turbine sound would be reduced from peak levels. Most people report that wind turbine noise is extremely low relative to other background noise, even in rural areas.
Why did the World Health Organization recommend 38db set back now?	The WHO findings confirm that there is no evidence that wind turbine noise affects health. This is in line with the available evidence and observations at wind farms across the world. Despite repeated studies and measurement, the WHO itself admits that it does not have sufficient evidence to be able to say that wind turbines cause any of the studied health impacts. It is only issuing these conditional suggestions out of an abundance of caution, not because of any real evidence.
How can you make the 500' turbines comply with the WHO maximum decibels of 38 for our citizens' health?	The WHO findings confirm that there is no evidence that wind turbine noise affects health. This is in line with the available evidence and observations at wind farms across the world. Despite repeated studies and measurement, the WHO itself admits that it does not have sufficient evidence to be able to say that wind turbines cause any of the studied health impacts. It is only issuing these conditional suggestions out of an abundance of caution, not because of any real evidence.

Question	Answer
Do you plan to adhere to WHO 2018 guidelines regarding noise and wind turbines? If not, why not?	The WHO findings confirm that there is no evidence that wind turbine noise affects health. This is in line with the available evidence and observations at wind farms across the world. Despite repeated studies and measurement, the WHO itself admits that it does not have sufficient evidence to be able to say that wind turbines cause any of the studied health impacts. It is only issuing these conditional suggestions out of an abundance of caution, not because of any real evidence.
You referenced that there is infrasound all around us during the day (riding on a lawn mower etc); however, this is not the case when residents in our community are trying to sleep in the safety of their home. You admit that infrasound from wind turbines can indirectly correlate with annoyance and sleep deprivation, which can lead to many other problems, including inability for one to do their job. How will you protect the residents of our community from having to go through this? Will you shut off the turbines at night?	Infrasound is always present.
What will Apex do if the sound level exceeds the 45 dBA at a non-participating residence?	The applicant is required to fix it. They have to make it less than 45 decibels, that will be part of the permit condition. Ultimately, if the project is approved it will be approved with a number of conditions. A lot of the conditions will reflect mitigation measures and other regulatory standards that have been mentioned here tonight. If the project is not in operation in compliance with those certificate conditions then there are enforcement mechanisms that will be built into the certificate as well as under the law that would force compliance with those certificate conditions.
If the proposed project is approved and a resident believes the sound level exceeds the limit at a non participating residence will the developer pay for the resident to hire an expert to perform the studies to ensure that the sound is within the limits?	The process for sound compliance testing after the wind turbines are up and operating will be spelled out in the post-construction compliance protocol and complaint response procedures developed as part of the application. The applicant would be responsible for the cost of compliance monitoring.
Ambient night time background noise may be as low as 20-25 dBA. However, wind at higher elevation will result in turbine operation. NY State Dept of Health has stated that noise level increases of 6-10 dBA can be annoying. How will you mitigate this nuisance to surrounding property owners?	Avoidance and mitigation efforts are covered in section 1.5 on pages 7 and 8 of the PSS. In circumstances when sound levels are in the 25 to 30 dBA range, ground-level wind speeds are typically calm. Under these conditions, the wind turbines will not be operating even though wind speeds might be higher at hub height. Even under some operating conditions when wind turbines are "audible", it does not automatically make them "annoying" as many sounds are audible in a community.
This study that you used to deny that vibroacoustic disease exists (in the lighthouse question responses is 6 years old, have their not been any more recent studies that deny or approve this? Especially, because the wind industry so proudly shares their improvement in efficiency over the past 10 years. "The independent, unbiased literature found that this is not a real disease caused by wind turbines (Wind Turbine Health Impac Study: Report of Independent Expert Panel, January 2012, Prepared for: Massachussetts Department of Environmental Protection, Massachussetts Department of Public Health)."	There are more than 20 peer-reviewed, scientific studies that find no negative health impacts. Most recently, "There is no authoritative evidence that sound from wind turbines represents a risk to human health among neighboring residents." —Peter S. Thorne, David Osterbert and Kerri Johannsen, "Wind Turbines and Health," Environmental Health Sciences Research Center, Iowa Policy Project and Iowa Environmental Council, January 2019.

Sound

Question	Answer
<p>According to your response to the Lighthouse project questions this was stated: "A recent study done in Massachussetts is conclusive on this issue. Studies have demonstrated that noise above 45 dBA can cause annoyance and sleep deprivation. Sleep deprivation can cause health effects, but not infrasound or low to moderate level sound directly." An overconsumption of food does not directly cause diabetes or a lot of other health problems, but indirectly it has an impact on the body, just like infrasound specifically at night can have significant indirect impacts on ones home, where they are supposed to be safe. Why is Apex so dismissive and misleading on this?</p>	<p>There are more than 20 peer-reviewed scientific studies that find wind energy has no negative health impacts. Most recently, a study found that "There is no authoritative evidence that sound from wind turbines represents a risk to human health among neighboring residents." —Peter S. Thorne, David Osterbert and Kerri Johannsen, "Wind Turbines and Health," Environmental Health Sciences Research Center, Iowa Policy Project and Iowa Environmental Council, January 2019.</p>
<p>Was sound level monitoring done in random locations or at specific locations in relation to possible turbines sites?</p>	<p>The sound level monitoring locations were selected to represent residences throughout the project footprint in relation to potential wind turbine locations.</p>
<p>If you follow the most recent 2018 (WHO) World Health Organizations recommended sound setback, where would that distance be in the flat area like Barre?</p>	<p>The 2018 WHO guideline is a conditional recommendation for a 45 dBA ANNUAL Lden sound level. For a lot of reasons, this is not the same as a 38 dBA limit. From the 2018 WHO guideline, "...it may be concluded that the acoustical description of wind turbine noise by means of Lden or Lnight may be a poor characterization of wind turbine noise..." Therefore, there is no recommended sound setback from this document. Turbines will be sited with a setback sufficient to meet a limit of 45 dBA short-term.</p>
<p>Have you or will you, interview people living among the turbines and evaluate their claims relating to excessive noise and report the results to the public?" An excellent place to start would be Arkwright where the claim is sounds like a jet airplane that never ends.</p>	<p>After commercial operations has begun, monitoring equipment will be placed by an independent sound engineer validating decibal level 45 dba are met. All Apex-managed wind farms have staff members who manage all community interactions, including any complaint resolution. The facilities manager is typically the point person to handle any landowner or resident concerns.</p>
<p>Has the Town of Barre set maximum sound restrictions if not will they? -if a tower exceeds decimal requirements, is the company required to remedy the violation immediately? if not, by when? -Has your company ever been sited for exceeding sound restrictions? - Are there actual sound restrictions or Are there just guidelines? -How does tower sound effect animals?</p>	<p>Wind farm permits vary state to state, but there is typically a sound element to all permits. Sound levels during commercial operations that did not meet requirements were mitigated and verified to acceptable limits. This occurred one time at an Apex-managed facility and Apex prioritized implementing mitigation techniques that brought the facility into compliance. As a clean energy source, wind is one of the most compatible with wildlife and animals. You will often find farm animals and wild animals close to turbines, with farming operations continuing up to the base of the turbine. The wind industry has taken a systematic approach to identifying potential impacts on bats and other wildlife, and is engaged in initiatives to reduce, if not eliminate, those impacts.</p>
<p>WIND Blowing Toward Home BUT You Hear A Plane After IT goes over? WinD Blowing Past IT spinning on NOT IT WILL make Noise?? IF IT WAS NOT THERE NO NOISE !!</p>	<p>Unclear question.</p>

Municipal Wind Ordinance

Question	Answer
<p>Ben Yazman made a comment that if the Town Board didn't decrease the set backs, only a couple of turbines would qualify to be set up, the Town Board did not change the set backs, why are you still here?</p>	<p>The Heritage Wind project is being designed in accordance with appropriate standards found acceptable in New York. The project will meet or exceed such standards. However, Barre's wind ordinance is more than a decade old and in need of technical upgrades. That is why we will continue to respectfully seek a wind ordinance change by the town board.</p>
<p>If you are required to abide by the current Town of Barre Wind Ordinance how many of the current proposed wind turbine sites would be able to be built if the proposed project is approved?</p>	<p>The current ordinance contains certain errors and or ambiguities in addition to height limits that are not current with respect to the advancement of turbine technology. Given the technical defects in the ordinance, it is not possible to answer the question. However, a change in the height limit would be critical to the project moving forward.</p>
<p>Does your map with proposed turbine locations currently meet the Town of Barre current wind ordinance?</p>	<p>The Heritage Wind project is being designed in accordance with appropriate standards found acceptable in New York. The project will meet or exceed such standards. However, Barre's wind ordinance is more than a decade old and in need of technical upgrades. That is why we will continue to respectfully seek a wind ordinance change by the town board.</p>
<p>If the Barre Zoning restricts wind turbines over 500 ft, and you need to have turbines taller to be profitable, why are you still looking at this area?</p>	<p>The Heritage Wind project is being designed in accordance with appropriate standards found acceptable in New York. The project will meet or exceed such standards. However, Barre's wind ordinance is more than a decade old and in need of technical upgrades, and a change in the height limit would be critical to the project moving forward. That is why we will continue to respectfully seek a wind ordinance change by the town board.</p>

Question	Answer
Have Dave Phillips, Jennie Geiger, Ryan Henning, Hank Seltser, or Sarah Lindermann been to the Town of Barre and looked at the specific proposed turbine locations?	Yes. Apex Clean Energy develops, constructs, and operates utility-scale wind and solar power facilities across North America. That is our business model and we serve our customers who are looking to clean energy procurement as a strategic business decision to support their growth and business bottom line.
Of the projects that Apex Clean Energy currently manage what is their protocol for monitoring and responding to impacts?	For two years after commercial operations start, avian studies are conducted by an independent environmental company. All impacts are documented and information provided to environmental protection agencies for recording.
Of the projects that Apex Clean Energy currently manage what percentage of the turbine locations in the preliminary scoping statement (or similar documents in other states) are the same when constructed?	Building a wind farm is a complex process. Signing leases, determining buildable land, environmental and cultural studies are ongoing up until the final permit application is submitted. Heritage Wind submitted a preliminary array with the Preliminary Scoping Statement as a courtesy. Since then, continued work has allowed for array adjustments. Once the Article 10 permit application is submitted, there should be no additional adjustments unless called for by the Siting Board.
CAN U TELL US WHAT HAPPENED TO THE GALLO ISLAND PROJECT	Apex is an energy company that is focused on bringing successful renewable energy projects to market. Development of renewable energy projects is a time and resource intensive business and maintaining one of the nation's strongest project portfolios is our core focus. We continuously review our development assets to maintain the proper balance of risk and opportunity in our nationwide portfolio of development assets, and when adjustments are required we make them.
Has Apex Clean Energy ever performed an impact study of the industrial wind facilities that they have been part of the process after construction? If the answer is yes where can we find this study? If the answer is no why not, if there proposed projects are as great as the developer thinks they are?	We are unclear of what type of impact studies you are referring to, but there have been environmental impact studies that should be available by FOIA.
Have you every been denied a proposed project due to environmental impact? Please give a specific example.	No permits or project approvals on Apex Clean Energy projects have been denied due to environmental impact.
Why aren't Apex employees living in the communities where they propose projects? Shouldn't there be a local employee for issues that will arise?	We do have employees who live in project areas of Apex Clean Energy. Two employees who work in our Albion and Barker offices live in nearby Buffalo, one who recently moved there from Newfane where she grew up.
How many operating wind farm facilities does the Apex Clean Energy team monitor? How frequently does an Apex Clean Energy employee visit each turbine?	The Apex Clean Energy Asset Management team monitors 14 wind farms. On-site maintenance works are made up of original equipment manufacturers and Apex Clean Energy employees they typically evaluate each turbine three to four times a year, unless any issues arise and if so, the turbines will be visited and evaluated more frequently.

Apex Company_Personnel

Question	Answer
Do any of the experts here this evening live, or own personal property near a wind facility? If yes, how far is the closest one?	Jessica Walsh lives about 3.75 miles from a wind turbine. Carmen O'Keefe is 6.5 miles from a wind turbine. The turbines are from the Steel Winds project in Lackawanna, NY.
How many full time local residents (within the county of the wind facility) does Apex have in each of the projects that Apex Clean Energy manages?	Typically our asset management employees live within the county or a neighboring county to the wind farm.
How many full time local (residents of Orleans County) employees will Apex Clean Energy have for the Heritage Project?	We will have up to 8 full-time permanent jobs at Heritage Wind project and every effort will be made to hire local people if they meet the job requirements.
How often does Apex Clean Energy employees visit every turbine of the wind facilities that they manage?	The Apex Clean Energy Asset Management team monitors 13 wind farms and one solar farm. On-site maintenance works are made up of original equipment manufacturers and Apex Clean Energy employees that typically evaluate each turbine three to four times a year, unless any issues arise and if so, the turbines will be visited and evaluated more frequently.
If the proposed project is approved, and you sell the project during construction how do you ensure that public concerns are handled?	Any agreements that are made on behalf of Heritage Wind are binding with the sale of the project.
Do larger turbines also have larger negative impacts?	Larger turbines innovated through newer technology actually offer the benefits of generally being quieter and utilizing less land since there is a need for fewer of them.
If Apex wants to partner with our community, is there a guarantee of how long you will own this project?	Any agreements that are made on behalf of Heritage Wind are binding with the sale of the project.
How many wind facility projects does Apex Clean Energy currently manage that have been sold?	Apex Clean Energy currently manages the following assets: Oldman 2, Wintering Hills, Hoopston, Cameron, Idaho Wind (consisting of multiple farms), Midway, Cotton Plains, Old Settler, and Phantom Solar. Of these, Hoopston, Cameron, Midway, Cotton Plains, Old Settler and Phantom Solar were developed by Apex Clean Energy and purchased by others.
Why does Apex sell a majority of their projects before they are complete or developing electricity?	Apex Clean Energy develops, constructs, and operates utility-scale wind and solar power facilities across North America. That is our business model and we serve our customers who are looking to clean energy procurement as a strategic business decision to support their growth and business bottom line.
In comments for the Lighthouse project an Apex representative stated that moving the turbines inland would reduce wind speeds, significantly reducing the profitability of the project. Isn't the Town of Barre inland?	Barre is a prime location for Heritage Wind as it is adjacent to existing transmission lines on private land. The area under consideration is suitable for a wind energy project for a variety of reasons, including local wind data verifying the wind resource, existing high-voltage power lines, expansive private land, and proximity to state highways.
How many Wind facility projects does Apex Clean Energy currently own and operate?	Apex Clean Energy currently manages the following assets: Oldman 2, Wintering Hills, Hoopston, Cameron, Idaho Wind (consisting of multiple farms), Midway, Cotton Plains, Old Settler and Phantom Solar.

Question	Answer
How many wind facility projects has Apex developed through to construction?	Eleven.
Have any of the locations where Apex Clean Energy has developed a project, requested the developer come back and build more? If yes, how many and where?	Yes, project areas in Oklahoma and Texas.
What is Apex/Heritage Wind's projected net income over the life of the project, including any sale of the project to the next owner?	Apex Clean Energy is a private company and financial information is not for release.
What projects have you developed in the US? Are you still operating/managing those projects? If not why?	Yes. Apex Clean Energy develops, constructs, and operates utility-scale wind and solar power facilities across North America. That is our business model and we serve our customers who are looking to clean energy procurement as a strategic business decision to support their growth and business bottom line. Our projects are listed here: https://www.apexcleanenergy.com/projects/ .
Does Apex Clean Energy have investors? If so, is this public information?	Yes, here is a recent press release: https://www.apexcleanenergy.com/news/apex-clean-energy-secures-120-million-in-financing-from-ares-capital-corporation/
How much tax incentives/subsidies do you receive?	The production tax credit (PTC) is the tax credit provided to operating wind energy facilities. The credit is based on the annual production of the wind facility, so no credit is received until after the project is in operation. In 2015, Congress and the wind industry agreed on a stable phase-out of the PTC beginning in 2020.
How much tax incentives/subsidies do you expect to receive?	The production tax credit (PTC) is the tax credit provided to operating wind energy facilities. The credit is based on the annual production of the wind facility, so no credit is received until after the project is in operation. In 2015, Congress and the wind industry agreed on a stable phase-out of the PTC beginning in 2020.
The ALJ's at Galloo had serious concerns about your studies and your character. Why should citizens believe your wildlife studies regarding your two remaining projects in New York after the events that transpired at Galloo?	Apex is a leader in U.S. wind energy development with an excellent track record of successful partnership with wildlife agencies and organizations across the country.
If the proposed project is approved, what protocols will be established to deal with complaints of noise, shadow flicker, and infrasound?	All Apex-managed wind farms have staff members who manage all community interaction, including any complaint resolution. The facilities manager is typically the point person to handle any landowner or resident concerns.

Public Engagement

Question	Answer
How tall are the turbines in the flyer that was used to promote this event?	The photo on the flyer is a stock photo we purchased. Apex Clean Energy does not have any wind energy projects that are currently built in New York. We typically try to find images for advertising that look similar to the areas where we are developing. This image on your program tonight reminded us of Barre, a right-to-farm community, that is rather flat and populated with agriculture.
Was the picture used to promote this event altered (turbines added, house added, buildings added)?	There was no alteration to the photo. You can find the stock photo we purchased here: https://www.istockphoto.com/photo/wind-turbine-farm-gm494440980-77445539
Where was the picture with the home and turbines used to promote this event taken?	The photo on the flyer is a stock photo we purchased. Apex Clean Energy does not have any wind energy projects that are currently built in New York. We typically try to find images for advertising that look similar to the areas where we are developing. This image on your program tonight reminded us of Barre, a right-to-farm community, that is rather flat and populated with agriculture. The stock photo we purchased can be found here: https://www.istockphoto.com/photo/wind-turbine-farm-gm494440980-77445539
Why did Apex send out multiple postcards promoting the project this past year, but none when they arrive in our community back in 2016?	We have implemented various public engagement strategies since 2016. Our first order of business when launching Heritage Wind was to meet with all stakeholders face to face by opening a project office and by offering open houses for people to meet with us at the office or at the town hall. Since 2016, we have held multiple open houses and our project office is open two days a week. We have also sponsored and attended various community outreach events such as the Orleans Fair and the Albion Strawberry Festival, where we have answered questions and received feedback from stakeholders. We did send several postcards last year, and most recently we have implemented events such as our February Community Forum event and "Meet the Experts" events in January and March of 2019.
You are on the board of ACE NY. What role does ACE NY play in advancing your projects in New York? They report lobbying on their 990 forms. What role do you expect their lobbyists to perform in relation to your projects in the State of New York?	The mission of ACE NY is to promote the use of clean, renewable electricity technologies and energy efficiency in New York State, in order to increase energy diversity and security, boost economic development, improve public health, and reduce air pollution. We have participated with ACE NY in a clean energy lobby day each spring, and since they are based in Albany, they are often the eyes and ears of the industry within the capital city and lobby on behalf of the clean energy industry on issues important to us.
Do your lobbyists meet on your behalf with individuals in the agencies for siting industrial wind projects in New York?	We follow all applicable New York and federal lobbying laws. All of our lobbying reports are available, as applicable, through JCOPE and the Clerk of the U.S. House of Representatives or the U.S. Secretary of State.
You pay lobbyists to lobby for you at the federal level. You send your staff to Washington. How many paid lobbyists do you have working to advance your projects in New York?	We have one employee who is a registered New York lobbyist and one who is a registered federal lobbyist at Apex Clean Energy. We also contract with firms out of Albany and Washington, DC.

Development

Question	Answer
How is a "non-participating" home defined?	Any property in the Town of Barre that does not have a signed agreement with Heritage Wind.
Does every person that has a wind turbine on their property get financial compensation?	Yes. The leases provide for a minimum payment of \$5,000 per rated megawatt. The improvements in turbine technology help increase the total project capacity, which leads to increased payments. Leases could also have a clause regarding revenue share, which would be a percentage of the revenue made off of the project, assuming it is above the \$5,000 minimum.
What neighbors that do not have wind turbines get compensated for the quality of life issues that may or may not affect them?	All residents of the town of Barre will benefit from the forthcoming PILOT and Host Community Agreement with the town. Other towns have used the funding to eliminate or lower taxes, refurbish or build new infrastructure, and purchase town equipment, among other things.
What is the distance you have to stay away from turbines when hunting water fowl or other animals?	Farmers can farm right up to the turbine base. Hunters can do the same if they have permission from the landowner to hunt on the property.
If the proposed project were to be approved, what regulations are in place to ensure that construction is done in compliance with requirements that are put in place? I am requesting that you please share the completed setback maps of 5 projects that Apex Clean Energy has worked on and the same map or aerial picture with the actual industrial turbines in place, clearly showing that all setbacks were met.	Apex is required to follow all state and local regulations regarding construction. You can access information about Apex project locations at https://www.apexcleanenergy.com/projects/ .
If the proposed project is approved and a resident of the community has a complaint or concern how do they address this?	Section 1001.19(m) of the Article 10 regulations requires a complaint-handling protocol, which will be submitted as part of the Article 10 application.
Is there any type of distance where an adjacent property would not be allowed to construct any time of buildings due to their proximity to the proposed turbines?	From our work and our perspective, we do have elements within our agreements that prevent somebody who we have an agreement with from building a high structure within a certain distance of our turbines. Other than that, we don't have any further prohibition of such activities.
Has the up to 33 turbines been officially shared in the article 10 process?	The most recent layout was released on February 28 at the community forum. This is subject to change. The final layout will be shared in the Article 10 application.
Does the current layout consider the collection lines?	The layout released at the Feb 28 community forum does not include collection lines.
Would you hire a permanent wind turbine technicians for the Heritage Wind project? Or hire them through a company? Would these individuals reside in Orleans/Genesee county?	If we are the asset manager, we always hire with an expectation for the life of the project. For example, a wind turbine technician, a high-paying skilled-laborer job, would be required throughout the life of the project. Our goal would be to hire in Orleans County first, or a neighboring county.
Follow up for Neil Habig- in regards to requirement transfer who regulates and ensures that those requirements are met?	If that means with respect to the certificate of permit conditions, then in that instance the siting board has the department of public service staff that can enforce the conditions of the certificate. Therefore, staff from DPS, a state agency, would enforce the certificate conditions.
In the early screening process, what existing data was used to assess the risk issues for the proposed Heritage Wind project? Please provide access to this data.	Publicly available wetlands mapping, publicly available topographic mapping, county GIS records, federal resource mapping, and FAA and DOD screening tools.
What permit impacts does Heritage Wind LLC (Apex Clean Energy) plan to use for the proposed project?	It is not clear what this question is asking, but the Article 10 application will assess all impacts under the 41 different exhibits required under the regulation.
Can you please provide our community a map with the proposed locations, access roads, underground lines, staging area, collection stations, etc?	That map will be a part of our Article 10 permit application.

Development

Question	Answer
We ask for transparency, what is the height and blade lengths of the turbines and buildings is any in the structures that you can see?	The turbine tip height for the Nordex 149 that is currently being considered is 655 feet. The rotor diameter is 149 meters or 489 feet.
What avoidance and minimization measures have been established for the Town of Barre?	Impact avoidance measures are covered in Section 1.5 on pages 7 and 8 of the PSS.
We already know that the first met tower has not produced enough wind to sustain these turbines. Have you adjusted your figures on dollar amounts that the taxpayers would receive toward the schools/town? If so what are the new amounts.	Payments in Lieu of Taxes are calculated based on the nameplate capacity of a wind energy facility, not the output. The preliminary estimate for these payments is based on the capacity of the current layout, which is 158.4 MW.
Why; as industrial wind turbines get larger; does Apex keep trying to make the setbacks shorter? And why aren't setbacks from property lines not from houses?	Apex is proposing setbacks consistent with what has been used in other communities where wind turbines have been well accepted for many years. In fact, Apex is not requesting a shorter setback to dwellings and supports a larger setback.
What is the setback distance that you are currently using for this proposed projects from property lines?	1.5 times tip height to nonparticipating parcels.
Are the turbines you are currently proposing going to be the final ones?	Not necessarily. As we announced, there may be slight modifications to the layout and turbine model before the Article 10 permit application is filed.
Based on your proposed turbines, how does the housing density in the Town of Barre compare with the comparable turbines in other areas? Please source where you found this information, the hub height and blade length of these facilities and housing density?	The Heritage Wind project aerial map provided shows locations of homes and buildings. The project design is not based on density of homes, but rather on adequate spacing from homes and buildings to meet sound limits and be operated in a safe and responsible manner.
According to Article 10 are you allowed to change the type of turbines that you would like to use for the project?	Provided key parameters like sound power and dimensions are similar or lesser, there is accomodation for change. If material impacts of the proposed development change, then restudy of those changes are required.
If you submit an application for the Heritage Wind project will you have to identify the turbines that you will use for the project?	A proposed turbine model will be a part of the Article 10 permit application.
If the proposed project is approved, how many jobs will be created after the proposed turbines are up and working, and what will they be doing, how much do they get paid?	Heritage Wind will create up to 8 full-time, local positions. The median U.S. salary for a wind turbine technician in 2015 was \$51,050 annually. As the U.S. economy continues to evolve, wind is creating the careers of the future: wind turbine technician is one of America's two fastest-growing jobs, along with solar installer, according to the U.S. Bureau of Labor Statistics.
In your (the development board) opinion, what should the Town of Barre do next to benefit its town residents?	Our recommendation would be to negotiate a beneficial PILOT and Host Community Agreement and revise a very outdated wind ordinance.
I just read that ice on the blades weakens them and makes the turbines up to 20% less efficient. Why would you approach a community that has 5-6 months of winter every year as a good place for a wind farm?	Wind turbines are engineered to operate efficiently in colder climates. Cold-climate projects comprise a staggering 25% of the world wind market, according to consultancy BTM in its latest World Market Update (https://www.windpowermonthly.com/article/1183991/harnessing-wind-energy-icy-climes).
The Heritage Wind website says, "Local wind data confirms that the area under consideration is ideal for a project of this size, which would produce enough safe, pollution-free energy to power up to 53,000 New York homes." Please explain in detail how you calculated this. Is this figure determined by peak wind power or capacity factor?	To calculate, we use nameplate MW (the MAX) and project net capacity factor, plus the state average. Then actual MW will be calculated and we share U.S. homes that would be powered. Since the project is currently estimated to be at 158.4 MW, rather than the original 200 MW estimate, we estimate 41,719 will be powered.
What is the expected annual output in megawatt hours for the facility, net of internal usage and power required for the grid?	433,173 MWh/yr

Development

Question	Answer
What is the expected annual output in megawatt hours for a single proposed turbine, net of internal usage and power required for the grid?	13,126 MWh/yr
The numbers that have been proposed for the Heritage Wind Project in a PIL OT is \$1.5 million for a 200 MW project, which equates to \$7,500/MW. Cohocton/Dutch Hill Wind Farm is receiving \$8743.47/MW (between the Community Benefit and the County, Town, and School Taxes). Noble Bills Wind Farm is receiving \$7983.21 (between the tax oayment and the Eagle Host Community agreement benefits). The proposed turbines for the Town of Barre are 200' taller than those in these communities, with greater negative impacts why is the porposed financial benefit to our community significantly less than these communities?	The current estimated PILOT and Host Community Agreement is \$1.1 million/year based on 158.4 MW project and 33 turbines. The average per turbine payment in New York is \$8,000 MW.
What will the overall tax breaks will everyone receive that lives in Barre?	This is to be determined through PILOT and Host Community Agreement negotiations.
What is the distance required between 2 industrial scale wind turbines being proposed?	This distance depends on the turbine and turbine manufacturer siting requirements. Typically, a minimum spacing is greater than 2 rotor diameters and on average closer to 2.5 or 3 RD.
What is the estimated total cost of project verses total income of project over life of project.	Apex Clean Energy is a private company and we are not releasing any preliminary cost/income information at this time. This informaion will be provided in the application but may be redacted for the general public. Parties to the proceeding may view such informaiton provided they agree to a protective agreement as required by the Administrative Law Judges.
How many years will it take for 1 of the proposed industrial wind turbine to pay for itself in electricity produced? Including subsidies? Not including subsidies?	We do not have this information at this time.
Neil Habig looked at the proposed map for our project, and when we identified where our home is located, he said that the proposed turbines in the area would have an aggregate sound, and that would be too many turbines too close to our home. Tha maps have not changed, how do we know that we will be protected?	Without regard to the suppositions presented in the quesiton, the project will be required to be in compliance with sound standards as established by the Siting Board.
According to Bloomberg and other press sources, wind speeds in the US have been dropping. These same reports note that wind companies often estimate wind production based on speeds that are averaged over a period of several and which, therefore, underestimate wind production. Do you deny a decrease in average wind speeds in the US and in this area? How exactly do you calculate average wind speeds for this project?	We collect data on-site and correlate it with several reanalysis products and other publicly available data going back as much as 30+ years. Once we determine correlation values and long term averages, we will adjust the on-site data to what we have calculated will be the long term average wind speed at each tower location. This is true not only at the Heritage site, but across our entire portfolio. Through this long-term research and measurement, we can see any variability and account for it.
Why would you build these massive turbines along the Clarendon-Linden fault line? Couldn't they produce vibrations that could possibly cause earthquakes?	We are not aware of any scientific information pointing to vibrations from wind turbines contributing to earthquakes.
What is the useful life of wind turbines? 1.5 million dollars plus decommissioning and lease agreements, maintenance, incentives for towns. How much energy at what cost must be had to make it profitable?	The average life of a wind turbine is 25 to 30 years. Wind's cost has declined by 66 percent over the past seven years, with improved technology and U.S.-based manufacturing making it competitive with other energy sources. Renewable energy is uniquely able to offer fixed-priced contracts because renewable energy has no fuel cost and therefore no fuel price risk. Utilities and consumers like wind because it "acts as a hedge against future volatility of natural gas prices," much like a fixed-rate mortgage protects homeowners against interest fluctuations.

Development

Question	Answer
How will the proposed project directly impact the Orleans County economy, outside of any HCA or Pilot?	We estimate up to 8 full-time jobs at the Heritage Wind project once operational and up to 200 temporary jobs during construction. Those workers will need places to live, eat, shop, and recreate, adding more money to the local Orleans County economy.
How does Heritage Wind LLC (Apex Clean Energy) monitor and respond to impacts if they no longer own or manage the project?	If we have sold the project and we are no longer the asset manager, then the responsibility for any impacts and responses are no longer the responsibility of Apex Clean Energy.
What will the specific local (within the Town of Barre) job titles be created by this project?	Jobs at the Heritage Wind project will include a facilities manager and a team of wind turbine technicians that serve as the maintenance crew.
What is the number of permanent part time local jobs will be created for Barre, or Orleans County residents and what are the wages for these jobs?	We would expect up to 8 high-paying full-time technical jobs permanently attached to the project. The median U.S. salary for a wind turbine technician in 2015 was \$51,050 annually.
What is the average amount of time wind turbines is functional (of the year)?	Turbine availability is generally above 95% after the first year of operation, meaning that the tubines would be available to run more than 95% of the year, though there may be times when the wind is below operating speed or the grid is out of service.

Question	Answer
Have there been any geological studies done in the East Barre area?	Section 2.21 of the PSS covers geology, seismology and soils (page 88).
What are the NYS requirements to report bird and bat deaths in or around industrial wind turbines?	Section 2.22(h) of the PSS discusses avian and bat post-construction monitoring. The specific details of the post-construction monitoring program, including reporting requirements, will be developed for the facility in consultation with the NYSDEC, NYSDPS, and USFWS. The post-construction monitoring program will be consistent with NYSDEC guidelines and will be in place prior to the start of Facility operation. Exhibit 22 of the Article 10 application will include additional details regarding post-construction studies that will be conducted for the Facility.
Will turbines be equipped with radar to sense migratory birds?	The Facility will be designed to avoid and minimize bird and bat collision mortality to the greatest extent practicable. As indicated in Section 2.22(h) of the PSS, Exhibit 22 of the Article 10 application will include details on bird and bat impact avoidance, minimization, and mitigation measures. A post-construction monitoring plan will also be developed for the facility in consultation with the NYSDEC, NYSDPS, and USFWS.
For the proposed project are you considering turning off the turbines during bird migratory periods? Turning off turbines at night to protect bats?	Curtailment during specific periods is a mitigation strategy that the applicant may consider to avoid and minimize impacts to bird and bat species. The need for and feasibility of curtailment will be determined based on data collected during pre-construction surveys, the Avian Risk Assessment prepared for the facility, and in consultation with the NYSDEC and/or USFWS. This information will be included in Exhibit 22 of the Article 10 application.

Question	Answer
How far from a turbine of 591' tip height do you examine for bats, song birds, raptors? How are these numbers determined?	This question is in reference to fatality monitoring under turbines. The area evaluated is generally recommended by the agencies, but there is a lot of research that we rely on to evaluate that, and it can depend on the focus of the monitoring required. Most bats fall very close to a tower, within about 40 meters. When monitoring for bats, it is wasted effort to focus a search out beyond that distance. For raptors, individuals can fall even beyond the rotor radius. For these studies, we utilize what is called an area correction factor, where if we do a survey out to 60 or 100 meters, then compensate for those areas we haven't studied by mathematically modeling the portion of study specimens that were not detected. There are a number of techniques and considerations that go into which areas to choose that will provide the most accurate search results. These methods have been used and improved upon with the study of hundreds of wind projects over the past 20 years. An appropriate technique for this site will likely include studying a combination of roads and pads at a high number of turbines, and cleared plots at a number of representative turbines.
Can we see the setback map including municipal infrastructure, environmental features (streams, wetlands, birdfly ways, property lines, homes and structures) for the Town of Barre NY? If this map is not ready how were the turbine locations that have been shared determined?	Facility design is an interactive process that considers multiple factors, including setbacks, environmental impacts, and human health. A setbacks map, based on the final permit layout, will be included in Exhibit 11 of the Article 10 application. Compliance with local setback regulations will also be discussed in detail in Exhibits 6 and 31 of the Article 10 application.
For the Town of Barre what state agencies have been communicated with in regards to reducing environmental conflicts? What were the dates of these meetings/discussions? Who did you speak with?	The applicant has consulted with the NYSDEC and NYSDPS in regards to reducing environmental conflicts. Resource-specific studies (e.g., wildlife surveys) have been designed in consultation with these agencies prior to being conducted.
For the Town of Barre what federal agencies have been communicated with in regards to reducing environmental conflicts? What were the dates of these meetings/discussions? Who did you speak with?	The applicant has consulted with the USFWS in regards to reducing environmental conflicts.
What are the specific environmental concerns for the Town of Barre that will be impacted by this proposed project from the vantage point of the developer (Heritage Wind LLC). Please be specific in identifying species concerns, wetland locations, etc.	Specific environmental concerns evaluated include impacts to plant communities, soils, invasive species, wildlife species, wildlife habitat, wildlife travel corridors, protected species, wetlands, streams, agricultural land, groundwater, surface water resources, and stormwater. The potential impacts to these environmental resources are addressed in Section 2.22 and 2.23 of the PSS. Avoidance, minimization, and mitigation of these impacts will be discussed in detail in Exhibits 22 and 23 of the Article 10 Appliation.

Question	Answer
For the Town of Barre what federal agencies have been communicated with in regards to reducing environmental conflicts? What were the dates of these meetings/discussions? Who did you speak with?	Please refer to the responses to similar comments above.
What are the current studies being performed by Apex Clean Energy in the Town of Barre?	Current and/or completed studies regarding natural resources include wildlife surveys (small bird use, large bird use, eagle use, fall migratory raptors, wintering raptors, spring migratory raptors, breeding birds, raptor nests), vernal pool surveys, wetland and stream delineations, habitat fragmentation analysis, invasive species baseline survey, and plant and wildlife species inventory. Additional studies to be conducted for the Article 10 application include a shadow flicker analysis, a noise impact study, archaeological and historic resources studies, a visual impact analysis, communication resources studies, and an EMF study. All of these studies are described in the PSS.
US and Canada Fatality studies powerpoint that was shown stated that studies were excluded for a variety of reasons and then says etc. Can you please list all of the reasons that a study would not have been used for this slide?	The applicant is unsure which presentation is being referenced. However, the Article 10 application will include an Avian Risk Assessment, a Cumulative Impacts Assessment, and a Net Conservation Benefit Plan. These documents will reference numerous post-construction fatality/mortality studies, datasets, and literature associated with operational wind energy projects.
What are the environmental risks that have been identified in the Town of Barre? How are these identified risks being protected?	Potential impacts to plant communities, soils, invasive species, wildlife species, wildlife habitat, wildlife travel corridors, protected species, wetlands, streams, agricultural land, groundwater, surface water resources, and stormwater are all risks associated with the facility. The facility will be sited and designed to minimize all of these risks to the greatest extent practicable, including but not limited to: avoidance of siting facility components in wetlands, sensitive vegetative communities, and wildlife habitat (where practicable), utilizing previously disturbed areas, adhering to seasonal work restrictions and construction limits, and utilizing best management practices during construction (including implementation of erosion and soil control measures in accordance with a Stormwater Pollution Prevention Plan [SWPPP] prepared for the facility). Sections 2.22 and 2.23 of the PSS discuss potential environmental impacts from construction and operation of the facility. Additional information will be provided in Exhibits 22 and 23 of the Article 10 application.

Question	Answer
Who is in charge of estimating,, and determining, what the bat kill will be for the proposed project, and what is the threshold for too much?	EDR and Dr. Paul Kerlinger will prepare the following required documents for the Article 10 application: Avian Risk Assessment, Cumulative Impacts Assessment, Habitat Fragmentation Analysis, and Net Conservation Benefit Plan. The Cumulative Impacts Assessment and the Net Conservation Benefit Plan in particular will assess and quantify both direct and indirect facility-related impacts to bat and bird species. These documents will be prepared based on the results of site-specific pre-construction surveys completed for the facility and a wide range of existing literature regarding avian and bat impacts associated with other operational wind energy projects. Based on these assessments, the applicant will develop appropriate impact avoidance, minimization, and mitigation measures in consultation with the NYSDEC and the USFWS. These documents will be provided as appendices to Exhibit 22 of the Article 10 application.
Who is in charge of estimating,, and determining, what the bat kill will be for the proposed project, and what is the threshold for too much?	Please refer to the response to the previous question.
What do you mean by wetland function?	Wetland functions are ecosystem properties that result from the biologic, geologic, hydrologic, chemical, and/or physical processes that take place within a wetland. In other words, wetland functions are self-sustaining properties of a wetland ecosystem that exist in the absence of society and result from both living and non-living components of a specific wetland. These functions typically include: groundwater recharge/discharge, floodflow alteration, fish and shellfish habitat, sediment/toxicant/pathogen/pollutant retention, nutrient removal/retention/transformation, production (nutrient) export, sediment/shoreline stabilization, wildlife habitat.

Question	Answer
<p>Are there any studies currently about bird mortality and risk with the proposed turbines model and scale for the proposed Heritage Wind project?</p>	<p>As indicated in the responses to previous questions, several required documents associated with avian and bat impacts will be prepared for the Article 10 application. These documents include an Avian Risk Assessment, a Cumulative Impacts Assessment, a Habitat Fragmentation Analysis, and a Net Conservation Benefit Plan. The Cumulative Impacts Assessment and the Net Conservation Benefit Plan in particular will assess and quantify both direct and indirect facility-related impacts to bat and bird species. These documents will be prepared based on the results of site-specific pre-construction wildlife surveys completed for the facility and a wide range of existing literature regarding avian and bat impacts associated with other operational wind energy projects for which post-construction mortality data have been gathered. Based on these assessments, the applicant will develop appropriate impact avoidance, minimization, and mitigation measures in consultation with the NYSDEC and the USFWS.</p>
<p>What would the impact be to the birds, bats, etc habitat?</p>	<p>Potential impacts to birds and bats due to construction and operation of the facility are discussed in Section 2.22 of the PSS. Potential construction impacts may include incidental injury and mortality due to construction activity, habitat disturbance and loss, and indirect displacement. Potential operational impacts may include loss of habitat, forest/grassland fragmentation, wildlife displacement, and collision. All of these potential impacts will be discussed in detail in Exhibit 22 of the Article 10 application.</p>
<p>For this project when an outside group is hired to perform a study, for example environmental, what level of input do you have with the company?</p>	<p>Many factors go into the development of each study for this project including: the experience and knowledge of the outside group, the requirements of federal and state regulations (including the Article 10 regulations and facility-specific stipulations), industry standards, and coordination/consultation with state and federal agencies, where applicable.</p>
<p>What environmental companies have you worked with for the proposed Heritage Wind project?</p>	<p>Apex has consulted with Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR), and Ecology and Environment, Inc. (E&E).</p>
<p>For folds north of the turbine array, will cell service be affected? How? What precedent can you cite?</p>	<p>This is covered in Section 2.26 on page 139 of the PSS.</p>

Question	Answer
<p>In October 2018 a 3 MW Vesta turbine had the nacelle detach from the tower and fall to the ground, the project had only recently been completed and commissioned. How has Vesta the company that you are proposing to use their turbines for the proposed Town of Barre learned from this, and how will Apex Clean Energy ensure that this type of failure does not occur in our community?</p>	<p>Although extremely rare, turbine failures have occurred. The turbines installed for the facility will be certified according to international engineering standards and will be sited to protect the public in the unlikely event of tower collapse. Turbine safety manuals will be provided to NYS DPS and tower collapse will be addressed in Exhibits 15 and 18 of the Article 10 application.</p>
<p>If the proposed project is approved, how many acres of deforestation will take place?</p>	<p>Acreage of impact, including tree clearing, will be calculated based on the permit layout for the facility (the currently proposed layout at the time of Article 10 application filing). As required by the Article 10 regulations, detailed information regarding tree clearing impacts will be provided in Exhibit 22 of the Article 10 application.</p>
<p>Will the proposed turbines be equipped with radar to sense proximity of aircraft, only then illuminating any flashing red warning lights? At what distance?</p>	<p>Apex will consider aircraft detection lighting systems if practicable and necessary at the facility site. Lighting of the turbines will be in accordance with Federal Aviation Administration (FAA) regulations. Exhibit 18 of the Article 10 application will include additional information on turbine lighting.</p>
<p>Over the course of the last couple years, we have seen a family of bald eagles, falcons, hawks, Loggerhead Shrikes, spotted salamanders, snowy owls, and a bog turtle on East Barre Road. There are many more from the endangered, threatened, and special concern list. What will the turbines do to the ecological balance of our town?</p>	<p>Ecological impacts, including impacts to threatened and endangered species will be discussed in detail in Exhibit 22 of the Article 10 application. Impacts to federal and state protected species, specifically, will be discussed in consultation with the NYSDEC and the USFWS, as applicable, and will be presented in the Net Conservation Benefit Plan prepared for the Article 10 application. This document will describe avoidance, minimization, and mitigation measures proposed to reduce impacts to protected species and provide a net conservation benefit to the species in question.</p>
<p>Dave Phillips, shared at the previous environmental open house that birds adapt and avoid an area with industrial wind turbines, would that mean that the entire project area would be considered a loss of habitat for these species? Please explain your response.</p>	<p>In many cases, proposed facility components will be located/installed in previously disturbed areas that do not represent suitable habitat for most wildlife species (e.g., existing agricultural fields used for row crop production, existing farm roads). In addition, many impacts related to component installation will be temporary in nature (e.g., buried collection line installation). However, changes to all ecological community types/land cover types will be described in the discussion of impacts to plant communities in Exhibit 22 of the Article 10 application. Impacts to sensitive wildlife habitats (e.g., grassland) will also be addressed in the Article 10 application, along with a discussion of measures to avoid, minimize, and mitigate these impacts.</p>

Shadow Flicker

Question	Answer
How do you determine if there is too much flicker, and who sets that standard?	The town has a standard of 25 hrs/year for nonparticipants. Shadow flicker is assessed in preconstruction modeling and verified through an independent consult using the turbine positions and residents' locations.
For the proposed turbines, at what wind speed will the turbines be started? At what rated rotational speed (in mph)? What is the tip speed (in mph)?	The turbine will start spinning at 3 meters per second, which is about 6.6 miles per hour. The rated rotational speed is about 12 to 13 rotations per minute, so the speed at the tip for the N149 at 12RPM would be roughly 210 mph.
So is shadow flicker just minutes a day certain times of the year?	Correct.

Question	Answer
<p>What will happen if the turbines affect me or my family's health negatively? Who is held responsible?</p>	<p>Hundreds of thousands of people around the world live near and work in proximity to operating wind turbines without ill health effects. Credible, peer-reviewed scientific data and various government reports in the United States, Canada, Australia, and the United Kingdom—now totaling more than 20—refute the claim that wind farms cause negative health impacts.</p>
<p>If the proposed project is approved, what major health concerns do the residents of Barre need to be concerned about?</p>	<p>There are more than 20 operating wind farms in the state of New York, generating more than \$15 million yearly for local communities, counties, and schools. These wind farms are helping to create healthy and thriving communities. We'd be happy to discuss any health issues more in depth and may consider an event in the near future to address some of the egregious misinformation that is out there about wind energy and health.</p>
<p>If the proposed project is approved, how do you intend to handle health issues that occur with the public (examples: cardiovascular, neurological, reproductive)?</p>	<p>Hundreds of thousands of people around the world live near and work in proximity to operating wind turbines without ill health effects. Credible, peer-reviewed scientific data and various government reports in the United States, Canada, Australia and the United Kingdom—now totaling more than 20—refute the claim that wind farms cause negative health impacts.</p>

Leaseholder

Question	Answer
If a leaseholder regrets signing a lease because of the harm these may cause his/her neighbors or friends, is there any way they can get out of their contract?	If a leaseholder has any issues with his or her contract, we would ask that they speak to us about it.
How many leaseholders for the proposed Heritage Wind project are farmers?	We do not tally the number.
How many leaseholders for the proposed Heritage Wind project are not farmers?	We do not tally the number.
What percentage of leaseholder for the proposed Heritage Wind project live in the town of Barre?	We do not tally the number.
If the proposed project is approved, and the project doesn't see a profit for ten years do the leaseholders still get paid?	Yes.
If the proposed project is approved, and the project doesn't see a profit do the leaseholders still get paid?	Yes.
Can landowners have a say how gravel roads are routed?	We always allow for input from our landowners.