**STATE OF VERMONT**
**PUBLIC SERVICE BOARD**

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| Joint Petition of Green Mountain Power Corporation, Vermont Electric Cooperative, Inc., Vermont Electric Power Company, Inc., and Vermont Transco LLC, for a Certificate of Public Good, pursuant to 30 V.S.A. Section 248, for authority to construct up to a 63 MW wind electric generation facility and associated facilities on Lowell Mountain in Lowell, Vermont, and the installation or upgrade of approximately 16.9 miles of transmission line and associated substations in Lowell, Westfield and Jay, Vermont. | ) | January 20, 2012<br><br>Docket No. 7628 |

**BRIEF OF LMG, ALBANY AND CRAFTSBURY REGARDING THE NOISE MONITORING PLAN FOR THE KINGDOM COMMUNITY WIND PROJECT**

NOW COME the Lowell Mountains Group ("LMG") and the towns of Craftsbury and Albany ("Towns"), by and through attorney Jared Margolis,[1] and hereby provide the following Brief regarding the noise monitoring plan for the Kingdom Community Wind Project.

After considering the pre-filed testimony and the responses provided during the technical hearings in this matter, it has become evident that the Towns/LMG and GMP are not as polarized on several of the concerns that have been raised by the noise monitoring plan than previously thought. This is due, perhaps, to one of the remaining concerns that the Towns/LMG do have – the lack of specificity in GMP's proposed plan, which made it hard to discern what its intentions were. Given that the Towns/LMG and GMP appear to agree on how several of the parameters of the monitoring will be done, what we are left with are just a few issues that the Towns and LMG would like the Board to consider in ruling on the proposed plan.

Most importantly, the Board needs to ensure that the plan is clear, and that sufficient monitoring will be done to protect the health and well-being of neighboring residents. Therefore,

[1] Attorney Margolis has been given permission by LMG to sign this Brief on their behalf.

even for those instances where it turns out that GMP and the other parties are in agreement, the particulars of the plan need to be more fully described. The Towns and LMG support the Department of Public Service's position that it may be helpful to have a third party review the monitoring and determine whether it is adequate (i.e. whether appropriate monitoring locations are chosen and whether the monitoring is capturing adequate data to ensure compliance); however, in order for that review to take place, the plan itself must be sufficiently detailed for the reviewing party to have a basis for their review.

The fundamental difference between the Towns/LMG and GMP is that while the Towns/LMG are first and foremost concerned with establishing that neighboring residents are protected, GMP appears determined to create a plan that gives them the ability to disregard and avoid potential violations of the Board's noise standard. GMP wants to leave the door open to using monitoring locations where background noise will render data useless, and a complaint resolution protocol that would allow it to avoid investigating potential violations. Moreover, GMP is fixated on the number of hours they will monitor but refuses to adhere to a minimum requirement of usable data. This is a difference of opinion that comes down to quantity versus quality. Where the issue at stake is the health of neighboring residents, this Board should be wary of any attempts to hide behind obscured data, and require a minimum amount of usable data to ensure compliance and a complaint protocol that will work to resolve potential violations, not avoid them.

1. The Sheffield Plan

The Towns and LMG are concerned that GMP appears to have taken the words of the Board, which required GMP to provide a plan that is "consistent with the Plan recently approved by the Board in Docket 7156," too literally, and attempted to use that statement to block any attempt by the Board or the parties to consider improvements to that plan, which could be implemented here to provide more protections for the public health. GMP has disregarded several of the Towns/LMG' suggested changes to the noise monitoring plan based only on the assertion that the provisions are "not consistent with the Sheffield protocol." In many cases, GMP does not state that these provisions are unnecessary or unduly costly, but merely rejects them as going above and beyond what the Board required in Docket 7156. This is entirely unfounded.

GMP fails to understand that consistency with the 7156 Plan was a minimum requirement made by the Board, and was only necessary because the bullet points contained in Mr. Kaliski's initial testimony (as well as his statements before the Board in the technical hearings last year) indicated that the Petitioners intended to do less monitoring than was required in Docket 7156, and provide even less opportunity for complaint resolution. This statement in the Board's Order was not intended to limit the plan to the bare requirements of the Sheffield Plan, but rather was intended to ensure that the starting point for review by the Board and parties was a plan that was, at a minimum, consistent with the Plan in the Sheffield Docket.

An excellent example of this is the background monitoring that GMP plans on conducting. Mr. Kaliski testified that GMP's proposed methods 4 and 3 have been given top priority merely because they are from the Sheffield plan, and "the order was to be consistent with the Sheffield Plan." Dec. 13, 2011 Tr. at 89. Mr. Kaliski went on, however, to state that GMP proposed alternate methods, since he thought that the Sheffield background monitoring plan "may not work in certain situations." *Id*. If the Petitioner's own expert does not believe that the protocols set forth in the Sheffield Plan are the best available, then it is unclear why those should be given highest priority.  GMP has rejected the Towns/LMG's proposal to establish a long-term background noise level for each monitoring location following ANSI S12.9 Part 3 (2008), using either an observer or audio recording to eliminate short-term background sound as set forth in the ANSI standard, based only on the claim that it is inconsistent with the Sheffield plan.  Ex. KHK-5 at 9.  This method, however, is the most accurate and would provide a standard that is consistent and not subject to the disadvantages identified in GMP's proposed methods.  GMP has provided no valid basis for ignoring this recognized standard for establishing background sound levels.

The Towns urge the Board not to forget that the purpose of the noise monitoring plan is to ensure that the Project is not exceeding a noise standard that this Board found to be necessary to protect the public health.  Order at 101.  GMP's stubborn insistence that anything not included in the Sheffield Plan should be disregarded here is unfounded and unnecessary.  This Board can and should continue to improve upon the means being employed to protect the public health, and take what has been presented in this case to improve on that plan.

2. Minimum Number of Hours

The Towns and LMG have suggested that the Board require a minimum number of hours of usable data.  Specifically, the Towns and LMG request the Board require that at least 168 hours of data at each monitoring location be usable data, meaning for at least 168 hours of each study period: 1) the background sound pressure levels shall not be above the 45 dBA criterion, 2) it is not raining, and 3) wind levels at the ground are less than 5 m/s.  These criteria will ensure that turbine noise levels at each location are established for at least 168 hours, representing half of the monitoring period.  The Towns and LMG further suggest that to establish actual noise levels experienced by neighboring residents, all turbines must be operating during this time period. Moreover, the 168 hours should include at least 48 hours when 100% of the wind turbines are expected to be operating at their maximum sound power, and when Petitioners' modeling indicates it is likely that the noise reduced operation (NRO) mode will be triggered. This will ensure that true worst case turbine noise levels are monitored.

The imposition of a minimum amount of usable data would do two things: 1) ensure that GMP chooses monitoring locations that are least affected by road noise to ensure that background sound levels do not render much of the data collected unusable, and 2) ensure that sufficient data is being collected to confirm that there is no violation of the noise standards under the conditions that would have the potential to exceed those standards. This second point is incredibly important when monitoring for noise levels that have been shown to cause adverse health impacts even at low levels. If the weather during a two week monitoring period is not indicative of the potential noise levels that people may be experiencing at other times, especially the worst-case noise levels they may experience, then the monitoring may not capture a violation, even though violations may be occurring at other times and under other conditions.

This is one of the remaining issues regarding which GMP will make no concessions. The Board, however, must be cognizant of the fact that in order to ensure that the project is not violating the standards and having an undue adverse impact on the public health, the monitoring must be sufficiently robust. As Mr. Blomberg explained at the hearings, the difference between the approach that LMG and the Towns recommend and GMP's methodology is one of quality versus quantity. While GMP would have this Board find that the number of hours they plan to monitor is sufficient in and of itself, LMG and the Towns want to ensure that the monitoring periods provide sufficient usable data to assess compliance.

The fact is that for 85% of the time, there will be no monitoring. Mr. Kaliski readily admitted that there is the potential for conditions to exist outside of the monitoring periods that would cause a violation of the noise standard, and yet those violations would not be caught if the meteorological conditions causing the violation did not occur during the monitoring period.[2] While Mr. Kaliski testified that his modeling shows that there is a high likelihood of the monitoring capturing sound levels within 1 dB of the maximum sound level during any two-week monitoring period, this analysis was based on only 1 year of weather data, and was done using the CADNA-A model, which has a +- 3 dBA margin of error. Dec. 13, 2011 Tr. at 16-17. Weather can vary significantly from year to year, and week to week. Mr. Kaliski's claim is therefore unreliable, and does not provide any assurance that the monitoring will be sufficient to ensure that the Board's noise standard is being met. Since GMP's noise analysis showed that we can expect residences in the area to experience noise levels of 42-43 dBA, any small difference in noise levels could result in a violation of the standards necessary to protect the public health. As such, a minimum number of hours of usable data is necessary to ensure that the standards are being met during the 85% of the time during which no monitoring is taking place.

*a. Maximum Sound Output*

Under GMP's proposed plan, there is the potential for the monitoring periods not to capture sufficient data when the turbines are operating at maximum sound output. Dec. 13, 2011 Tr. at 21. As Mr. Blomberg explained in his testimony, a failure to capture noise levels when the turbines are operating at maximum sound power is not sufficient to show compliance with the Board's noise standard, since maximum sound output would be indicative of potential worst case noise conditions. Blomberg Pf. at 1. Measurements in less than worst case conditions cannot

[2] *See* Dec. 13, 2011 Tr. at 21 (where Mr. Kaliski admitted that there is the potential for violations of the noise standard to occur outside of the monitoring periods that aren't captured during the monitoring periods).

show compliance with the noise criteria because they are not indicative of whether the project is in compliance under all conditions (i.e. there may be conditions when the noise levels are higher). If monitoring does not occur in worst case conditions, then the board has no idea if its criteria are met.

Mr. Kaliski admitted that there is the potential, under GMP's proposed plan, for a monitoring period never to capture maximum sound output, and yet if the turbines were operating at maximum sound power during other times (i.e. the following week or month), then the impact on neighboring residents during that time when the turbines are operating at maximum sound output would not be captured by the monitoring. Dec. 13, 2011 Tr. at 21. While Mr. Kaliski may believe that the chances of this are small, a requirement that the monitoring include 48 hours during which the turbines are operating at maximum sound output (representing only about 14% of the monitoring periods) would assure that, at the very least, some minimal amount of data is captured to ensure compliance with the standard. Because this is an issue of public health, there is no reason to hope or even assume that sufficient data will be captured – the Board must ensure and require that sufficient data be captured in order to confirm that the standard is being met.

Rather than ensure that the standard is being met, GMP would have this Board only require that "[t]he conditions shall include periods when at least 90% of the wind turbines are expected to be operating at their maximum sound power." This is insufficient to protect the public health, and is also incredibly vague. First, GMP does not explain what is meant by "periods," and Mr. Kaliski admitted that this could mean that maximum sound power is captured for only a few hours. *Id*. at 77. This is because his proposed plan intentionally does not have a requirement for the number of hours. While Mr. Kaliski did state that a two hour period would not meet "the spirit of what the Board is looking for," this is excessively inexplicit for a plan intended to ensure that the public's health is being protected. *Id.*

Second, the Board should require that 100% of the turbines be operating at maximum sound power, not merely 90% as GMP requests. This will ensure that the actual worst-case conditions are being met, and would prevent GMP from monitoring when several turbines are offline, since that would not be indicative of the actual noise levels people will experience during the times when 100% of the turbines are operational. Instead of relying on Mr. Kaliski's assurance that "what we'll be doing is looking for periods of sustained wind," the Board should require a minimum number of hours when 100% of the turbines are operating at maximum sound output, so that the "spirit of what the Board is looking for" is made explicit. *Id*.

*b. 168 hours of usable data is reasonable*

It is readily apparent that the minimum number of hours of usable data that the Towns and LMG believe should be applied is reasonable and would be met if GMP chooses appropriate monitoring locations. Even Mr. Kaliski admitted that the data requirements suggested by the Towns and LMG would not be hard to meet. The SCADA data from the turbines is provided in real-time to GMP, and would show the sound power levels of the turbines throughout the monitoring period. Dec. 13, 2011 Tr. at 7-8. Similarly, weather data is readily available, and GMP could easily extend the monitoring period if a large storm occurred that made several days of data unusable. *Id*. at 9-10. In fact, Mr. Kaliski admitted that it would only be a "rare event" that would result in a failure to achieve the 168 hour minimum requirement proposed by the Towns and LMG. *Id*. at 26. Such a rare event would easily be seen in the weather reports, and monitoring could be extended accordingly. The cost of extending the monitoring period would be minimal – estimated at under $2,000 per monitoring location, for a total of $8,000-10,000 depending on the number of monitoring locations. *Id*. at 11-12.

The Towns and LMG are not hereby attempting to make monitoring more difficult and expensive, but rather are concerned with the adequacy of monitoring for noise levels that can impact the health and well-being of those living in the shadow of this Project. That being said, the Towns and LMG are not suggesting that GMP needs to first download the data from the monitoring, review it and then go back out for more monitoring should the 168 hour requirement not be met. There are several ways to avoid this. First, it is readily apparent from GMP's own analysis that the 168 hour requirement would be met for all sites, except for the Christiansen property, and then only for background noise (due to road traffic from Route 100). Tr. at 27-28.[3] This, however, could easily be resolved by choosing a location for monitoring that was not as impacted by noise from Route 100. This, it turns out, appears possible, since Mr. Kaliski now admits that there is a location on the Christensen property where a berm would block traffic noise, but not block the turbine noise, which is precisely the location that Mr. Blomberg used for his monitoring of background noise levels in this area. *Id*. at 28-29. By choosing this location for the monitoring, it appears that the 168 hour data requirement would be met.

Second, GMP could use weather data to determine the likelihood of meeting the 168 hour requirement. Just as Mr. Kaliski stated that he would use weather forecasting to choose a satisfactory monitoring period, the weather during that period can be assessed on a daily basis to determine whether it is within the parameters identified by Mr. Kaliski that would result in sufficient usable data. In other words, if an unexpected storm, or consistently high winds or

[3] Mr. Kaliski: "All the other sites were -- showed that the background levels were below 45 decibels for 168 hours or more." *Id*.

other meteorological conditions persist that would render too much data useless, the monitoring period could simply be extended to ensure sufficient usable data.

Lastly, there remains Mr. Kaliski's claim that while the method discussed above would provide a general idea of the conditions present during monitoring, he would still need to download the data to see if the 168 hour requirement had been met. *Id.* at 8. In fact, Mr. Kaliski specifically testified that it is his belief that the minimum number of hours requested by the Towns and LMG could readily be met, but that it was the process of downloading the data and then having to go back out into the field if the amount of data turned out to be less than the 168 hours to which GMP objected. *Id*. at 25-26. The Towns and LMG understand that this would add cost to the project; however, these costs are minimal and warranted to protect the public health. Nevertheless, the Towns and LMG would certainly be agreeable to a condition that provides some leeway, so that GMP does not have to go back out and conduct additional monitoring should the data collection show that, for example, 164 hours of data were collected, rather than 168. To that end, the Towns and LMG propose that the Board incorporate a minimum data requirement as previously requested, but that the Board include a 5% margin of error for this requirement. That way, as long as GMP is at least close to the 168 hour requirement, no additional data collection would be necessary.

3. Monitoring Locations

The locations used for the monitoring will dictate the results of the monitoring, and thereby provide the only basis the Board will have to determine whether the Project is in compliance with the noise standards necessary to protect the public health. The Towns and LMG are concerned that the locations for the monitoring, if left entirely to GMP's choosing, could not only render much of the data collected useless (through locations with excessive background noise),[4] but also could result in data that is not representative of the actual noise levels being experienced by neighboring residents.

The micrositing of the monitoring locations is not, in GMP's plan, subject to Board approval. Mr. Kaliski testified that this is because the Sheffield protocol does not call for approval of micrositing for the monitoring. Dec. 13, 2011 Tr. at 108-109. As Mr. Knauer commented, the Board does have the ability to improve upon the Sheffield plan, and, as discussed above, the contents of the Sheffield plan should not be a reason to reject increased oversight to ensure that suitable locations are chosen for the monitoring. *Id.* The Towns and LMG agree with DPS that a third party could be brought in to review the locations, and thereby provide assurances to the Board and the parties that the locations GMP has chosen meet the requirements of the Board's Order and will provide suitable data to determine compliance with the standard. However, that will require some more specificity regarding what the plan requires for monitoring locations.

While GMP's plan merely requires locations that are in line of sight of the turbines and not obscured by structures, the Towns and LMG believe that the protocol should specify that monitoring take place in worst-case locations. Choosing worst-case locations ensures that no other residences will experience noise levels higher than what is being reported. This is incredibly important, since GMP has proposed monitoring at only 4 locations, and the results of GMP's modeling indicates that noise levels at several residences is likely to be very close to the Board's noise standard. If the noise levels at the monitoring locations are not indicative of the actual worst-case noise levels experienced by neighboring residents, then the monitoring may overlook violations of the noise standards, which would not be in the public good. Only through

[4] *See* Blomberg Nov. 7, 2011 Pf. at 2.

the use of worst-case locations (i.e. those locations receiving the highest levels of turbine noise and least background noise from road traffic or other sources such as streams and rustling leaves) can the Board be ensured that all other locations are meeting the noise standard as well.

GMP's "line of sight not obscured by structures" protocol in no way guarantees a worst case noise level. In fact, there are numerous scenarios that in which that protocol would not provide a worst case noise level. For example, structures are not the only potential barrier. Terrain features could block line of sight to turbines in one part of a yard, but not others. Using GMP's criteria, GMP could monitor the quieter location and potentially avoid discovering an exceedance of the Board's noise criteria by using terrain features (but not structures) to block sound. LMG and the Towns' proposal simply makes the monitoring protocol more clear, by requiring locations that are not obstructed by terrain features as well as structures (to the extent possible), and therefore provide a true worst-case noise level for the monitoring location.

Similarly, the number of turbines in direct line of sight is also important. Using GMP's criteria, they might use an area where fewer turbines are in line of sight, ignoring noisier locations where more turbines are heard and seen. The impact on the accuracy of the monitoring is quiet clear. GMP's criterion allows GMP to select quieter measurement locations, which means that potential exceedances of the Board's noise criteria may be missed by GMP's noise monitoring. LMG and the Towns' propose that this be limited by requiring GMP to undertake monitoring in the locations that most accurately reflect worst-case noise levels to ensure compliance with the noise standards intended to protect public health. The Towns and LMG therefore request that the Board require that GMP use monitoring locations that will provide the worst-case noise conditions associated with the Project, and that a third party independent review be undertaken to confirm that GMP has chosen such locations.

The Towns and LMG also request that the Board require GMP to monitor at more than just 4 locations.  There is an incredible amount of variability in terrain and exposure to the turbines throughout the Project area.  Monitoring at an insufficient number of locations will result in insufficient data, and will not be indicative of the noise levels that are being experienced throughout the surrounding residences.  Noise monitoring data from only 4 locations is insufficient to account for these spatial variability concerns.   Blomberg Pf. at 4.  Therefore, LMG and the Towns proposed a 5th measurement location (the Dyer-Dunn camp) and the use of the Gebbe residence to meet the spatial variability concerns.

Furthermore, GMP is relying on inside-to-outside testing at the primary monitoring locations to be used as reference for “similar structures” under the complaint resolution protocol. Having only 4 reference structures is very limiting, and may result in a “similar structure” being used that is not very “similar.”  Having additional reference locations for the interior noise level analysis will provide additional flexibility and more points of comparison to ensure that the Board’s standards are being met.

Lastly, the Towns and LMG are concerned that the monitoring will not establish noise levels at locations that may experience noise levels higher than what is found at the monitoring locations.  For example, the monitoring for the Route 100 area will apparently be at the Christensen residence; however, while the Christensen residence may be the best location logistically, it does not appear to represent the highest noise levels that may be experienced by residents in that area.  As Mr. Kaliski testified, there are several residences that are many hundreds of feet (over 700 feet) closer to the project site in that area.  Dec. 13, 2011 Tr. at 34. Mr. Kaliski further testified that GMP would not extrapolate the data, but would only report the actual noise levels at the monitoring locations, and agreed that the levels at the residences closer to the Project could be higher than what is being reported. *Id*. at 35.[5] The question remains unanswered as to how the Board will be assured that the Project is not violating the noise standard at these locations. The Towns and LMG suggest that if the noise levels at the Christensen property are within 3 dBA of the standard, then additional nighttime testing at the residences nearer to the project be conducted, as well as inside-to-outside testing (where requested by a homeowner) to ensure that the standards are being met at those locations.

4. Complaint Resolution

The Towns and LMG remain concerned that GMP has devised a complaint resolution protocol that would allow them to avoid investigating violations, rather than provide a means for ensuring that the health of neighboring residents is not being put at risk. Mr. Kaliski even admitted during the hearings that the complaint resolution protocol that he created could very well result in violations of the interior noise standard not being verified through sound testing. This is unwarranted, and the Board must ensure that the complaint resolution protocol does not result in violations going unresolved.

The Board found that the WHO Guidelines document indicates that sound levels are usually reduced, when windows are slightly open, by 10 to 15 dBA. Order at 99 (citing Exh. ALB-RJ-5 at Chapter 1, 9-11).[6] Both Dr. McCunney and Dr. Irwin testified that the attenuation

[5] Q. So if your monitoring indicates 44 decibels exterior at the Christiansen property, you meet the standard, right?
A. We meet the standard at that property, yes.
Q. But it's possible for the noise level to be above 45 decibels in that situation at these other houses and you wouldn't be reporting that, correct?
A. That would be a possibility. Yes.

[6] At the hearings, Mr. Kaliski mistakenly claimed that the WHO Guidelines state that sound attenuation with windows open would be 15 dBA. Tr. at 49. This is simply wrong. The WHO Guidelines clearly state that attenuation is expected to be 10-15 dBA with windows "slightly open." It is somewhat

of sound by structures from outside to inside varies based on the construction of the house, its age, the quality of the windows, and numerous other factors, and that older homes, homes with less insulation and homes with their windows wide open may not be able to attenuate sound by 15 dBA. Feb. 10 Tr. at 165; Feb. 24 Tr. at 55-56. Mr. Kaliski has not done any testing or undertaken any analysis of the amount or type of insulation in the homes that will be impacted by noise from this Project, and therefore it remains unknown what the attenuation by these structures may be. Dec. 13, 2011 Tr. at 50-51. For homes that may have less insulation or are older, and especially when windows are fully open, attenuation may very well be 10 dBA or less.

Under GMP's complaint resolution protocol, however, additional sound testing in response to a complaint would not need to be done unless the exterior noise levels were within 3 dBA of the 45 dBA standard. The following excerpt from the transcript details the danger of GMP's protocol:

> Q. So let's say a structure could only attenuate noise in certain situations. Let's say in the summer with the windows wide open by 10 decibels.
> A (Mr. Kaliski). Yes.
> Q. And this residence has not had inside-to-outside level reduction testing and the modeling shows that the exterior noise levels would be 41.5. You would not need to investigate that complaint, correct?
> A. Again, it's written in here that the operator will respond to the complaint, but they are not required to do additional sound testing.
> Q. So in that situation you would not be able - you would not be required to do additional sound testing?
> A. That's correct.
> Q. And if attenuation was only 10 decibels, what would be the interior noise level?
> A. If you said 41.5, it would be 31.5.
> Q. And that doesn't meet the standard, does it?
> A. That's correct.
> Q. But you wouldn't know. You would never find out because you wouldn't need to investigate that situation. Correct?
> A. It would be investigated, but it wouldn't be done -- the additional sound testing wouldn't be done.

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surprising and concerning that Mr. Kaliski does not know this, since it was presented as evidence during the initial technical hearings in this matter.

> Q. And so there would never be confirmation whether the standard is being met?
> A. Not under the plan.

Dec. 13, 2011 Tr. at 51-52. Therefore, GMP's protocol would allow for some potential violations of the interior noise standard to go unresolved. This is clearly unwarranted. The Towns and LMG suggest that rather than a 3 dBA standard for conducting additional sound testing, the Board require a 5 dBA standard, so that the above scenario does not occur.

Similarly, the complaint protocol should specify that inside-to-outside testing is to be done at a complaint location if the homeowner requests it, rather than rely on "similar structures." During the hearing, the following discussion took place between Mr. Cotter and Mr. Kaliksi:

> MR. COTTER: So it sounds to me like the first thing that you're going to do is look to see if the Day's residence or the Nelson's residence or one of these primary monitoring locations is similar enough to the complaining party to just say we're going to assume that the Day's attenuation applies at this house as well, and it's only if you don't have a similar enough structure that you will seek landowner permission to do the outdoor-to-indoor testing and that seems backwards to me.
> MR. KALISKI: I think we would be -- I don't think it was my intent to leave that out as an option for a homeowner.

Tr. at 100-101. This is another instance of GMP's plan being too vague and confusing, and the Board should require that the Noise Monitoring Plan reflect what Mr. Kaliski now claims was his intent – that inside-to-outside testing be made available to any resident who believes that the interior noise levels they are experiencing are higher than the standard that this Board has stated is necessary to protect the public health.

The Towns and LMG are also concerned about the amount of time that GMP will take to address complaints. GMP's plan allows it to wait until the next monitoring period – up to 3 months later – to conduct testing in response to a complaint. This, however, does not assure that the Project is meeting the Board's noise standard during the conditions that exist at the time the complaint was made. Not only can weather change significantly over a three month period, with concurrent changes in the noise levels being experienced at residences due to different wind speeds at hub height and ground level, but the physical landscape may differ greatly, due to changes in foliage and snow cover. Mr. Kaliski admitted that these changes could affect the noise levels being experienced at neighboring residences by "a few decibels." Dec. 13, 2011 Tr. at 55. Therefore, pursuant to GMP's proposal, if a resident is experiencing noise levels above the Board's noise standard during the winter, when there is no foliage on the trees and snow covers the ground, GMP may not undertake any testing until the spring, when leaves on the trees block noise from the turbines, and softer ground cover reduces noise impacts. The testing may then result in GMP finding that the noise standard is being met, even though it is actually being violated throughout the winter.

Mr. Kaliski also suggested that if certain conditions (i.e. winter conditions) are the basis for a complaint, GMP may not investigate the potential noise violation for an entire year, until those same conditions exist. *Id.* at 56. This is not sufficient to protect the public's health. LMG and the Towns suggest that a more reasonable turnaround time be instituted for complaint resolution. The Board should require that sound testing in response to a complaint, where necessary, be initiated within 4 weeks of a complaint being made. If conditions are significantly different at that time, follow-up testing should be conducted when the same conditions that lead to the complaint are present; however, the initial testing must be done promptly to ensure that neighboring residents are not being exposed to adverse levels of noise for prolonged periods of time.

5. Determining a Violation

It became evident during the hearings that Mr. Kaliski intended to round down the results of the noise monitoring, and thereby find that even a 1 hour Leq of 45.49 did not constitute a violation of the 45 dBA standard. This is unfounded, and the Board must clarify that this was not the intent of the Order.

While Mr. Kaliski argued during the hearings that such rounding is commonplace in the field of environmental compliance, there is nothing in the record to support this statement, and the Towns and LMG submit that this is not a common way to assess violations of noise ordinances, which are usually set as hard limits. This is, in fact, consistent with the Board's findings. In the Order the Board stated "[w]e have found that a maximum project-related noise level of 45 dBA (exterior)(Leq)(1 hr) or 30 dBA (interior)(Leq)(1 hr) level at a residence is necessary to protect health. Order at 101. As a <u>maximum</u>, this level cannot be exceeded.

This is yet another example of GMP taking every effort to avoid the possibility of being found in violation of the Order. While LMG, the Towns and the Board all seemed to have understood this, apparently GMP requires the Board to make this a specific finding to ensure that it is clear. The Board should therefore make it clear to GMP that, as Charman Volz stated, "[t]here's no rounding. You go over 45 you're over 45." Dec. 13, 2011 Tr. at 67.

6. Reflection off Homes

There remains a dispute regarding how far from a residence the monitoring equipment should be, since the distance may impact the results of the monitoring due to reflection of noise. While GMP insists that the regulations require the monitoring equipment to be at least 25 feet from a residence, the Towns and LMG have pointed out that the standard does not, in fact, require this, and that the impacts of reflection should be taken into account in determining compliance, since the reflected noise represents the reality that people will experience around their homes. *See* Blomberg Pf. at 4.

Ignoring the effects of noise reflection is unwarranted for a standard that deals with public health impacts. Noise measured within 25 feet of a home may more accurately reflect the actual noise levels neighbors' experience. *Id.* Porches and decks are places of frequent human use and are often within 25 feet of a structure. *Id.* Mr. Kaliski even admitted that people sitting or sleeping on their porch could experience noise levels that were impacted by reflection. Dec. 13, 2011 Tr. at 36-37. Dr. Irwin testified that people should have the right and ability to sleep with their windows entirely open, or even outside their homes without suffering undue adverse health impacts from noise. Feb. 24 Tr. at 56. Mr. Kaliski admitted that if all of the windows on the side of a house facing the turbines are open, reflection off the interior walls in the home could increase noise levels by up to 3 dBA. Dec. 13, 2011 Tr. at 36. He further stated that if someone was sleeping on their porch, the noise levels they would experience could be 3 dBA higher than what GMP is reporting due to reflection. *Id*. at 39. This could easily result in a violation of the noise standard intended to protect the public health.[7] Measurements taken should reflect the real world noise levels experienced by neighbors; yet GMP seeks to eliminate the possibility of monitoring in areas where structures reflect noise, since this reflection could increase the impacts.

LMG and the Towns feel that the noise criteria were designed to protect human health and well-being, and that noise measurements should therefore reflect the actual levels people experience. Just because the turbine noise is reflected off the neighbor's own pre-existing homes

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[7] The results of GMP's modeling indicates that some residences may experience noise around 42-43 dBA. Tr. at 40. An increase of 3 dBA due to reflection could therefore cause a violation of the noise standard.

doesn't make it any less of a health issue, and is no justification for excluding it. Blomberg Pf. at 4. The Towns and LMG therefore believe that where it is readily apparent that there are porches or other areas of recreation within 25 feet of a monitored residence, monitoring should be done at 6 feet from the residence as well as 25 feet to determine the noise levels that people are actually experiencing.

7. Monitoring at Camps

GMP has refused to conduct noise monitoring at camps, including the Dyer-Dunn and Gebbe camps, claiming that the Board's noise standard does not apply to these residences. This is incorrect. The noise standard states that "project-related sound levels at any existing surrounding residences do not exceed 45 dBA (exterior)(Leq)(1 hr) or 30 dBA (interior bedrooms)(Leq)(1 hr)." That does not distinguish between camps and full-time residences. People sleep in camps, and camps can be used for many weeks if not months. People go to camps to, among other recreational pursuits, enjoy peace and quiet. The Lowell zoning regulations do not distinguish between a residence and a camp. There is no basis for making the distinction that GMP has made, other than to avoid having to ensure that the noise standard is being met at these locations, and that the health of those people who are using the camps is protected.

The purpose of the plan should be that monitoring occur at the most impacted locations in order to ensure compliance and protect the public health. Blomberg Pf. at 3. The Dyer-Dunn property is in a very quiet area close to the Project site and the Gebbe property is the most impacted in the Eden Road area, and therefore they should be used to assess compliance.[8] The

[8] While Mr. Kaliski alluded to an agreement between the Gebbe property owners and GMP regarding noise levels and suggested that the agreement holds that the Board's noise standard does not apply to the

Gebbe property is also a good site, since it is large enough to avoid contaminating noise sources. The Towns and LMG are concerned that other locations along Eden Road would be impacted by traffic-related noise, and are further from the Project, which would not ensure that the results were indicative of the impacts on the nearest residence – the Gebbe property. These properties should therefore be included as monitoring locations to ensure compliance with the Board's noise standards.

8. Monitoring below 14 degrees

GMP's plan states that all data taken during times when temperatures are below 14 degrees will be disregarded. Ex. KHK-5 at 10. This is not necessary, nor is it protective of public health. As Mr. Kaliski testified, he has confidence in the monitoring equipment at temperatures below 14 degrees. Dec. 13, 2011 Tr. at 112. He further stated that sound level meters can operate below 14 degrees, and that he has personally operated them below that temperature. *Id.* However, Mr. Kaliski states that he cannot here, because he has to meet the ANSI standard. Dec. 13, 2011 Tr. at 110-112. This is incredibly confusing, since it is not clear why Mr. Kaliski believes he is tied to a standard in this case that he has apparently not followed in prior monitoring protocols. Regardless, Mr. Kaliski stated it would be better to entertain a less restrictive requirement for this standard; therefore, the Board should allow for and require that data collected below 14 degrees be included in the monitoring results. *Id*.

This is especially important given that winter noise levels may be higher, due to high wind speeds and a lack of foliage. Furthermore, Mr. Kaliski testified that in his opinion, "the [Board's] standard is based on essentially sleep disturbance which is a nighttime impact." *Id*. at

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Gebbe camp, no such agreement is in the record, and the Board's Order does not state that the noise standard would not apply to the Gebbe property.

43. Since temperatures are more likely to drop below 14 degrees at night, there is the potential for GMP's proposal to render useless much of the nighttime data collected during the winter monitoring periods. This would clearly not be protective of public health. The Towns and LMG therefore request that the Board either allow data collected below 14 degrees to be included in the results (which Mr. Kaliksi testified would not be a problem), or require GMP to extend the winter monitoring to include additional nights of monitoring if temperatures drop below 14 degrees during the winter monitoring periods (i.e. 1 additional night of monitoring for every night where temperatures are below 14 degrees for more than 5 hours).

9. Conclusion

For the foregoing reasons, the Board should incorporate the suggestions made by the Towns and LMG, and require GMP to create a Noise Monitoring Plan consistent with the comments herein, and with sufficient specificity to allow for third party review.

Dated at Jericho, VT this 20th day of January, 2012.

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