State of Maine
Land Use Regulation Commission

Maine Mountain Power LLC
Redington Township, Franklin County
Zoning Petition ZP 702

REBUTTAL TESTIMONY OF
THOMAS HEWSON JR. (ENERGY VENTURES ANALYSIS INC)
ON BEHALF OF FRIENDS OF THE WESTERN MOUNTAINS
BEFORE THE MAINE LAND USE REGULATION COMMISSION
IN THE MATTER OF THE REZONING PETITION OF MAINE MOUNTAIN POWER LLC TO PLACE A 90 MW WIND PLANT IN REDINGTON TOWNSHIP AND WYMAN TOWNSHIP IN FRANKLIN COUNTY, MAINE

In the filed summary statements by the applicant, Conservation Law Foundation and Ed Holt & Associates, challenges were made to my filed and direct testimony provided to the Commission on behalf of the Friends of the Western Mountains. They challenged my four major findings, namely:

- Project power output estimates unsupported and likely overstated
- No demonstrated need for the Redington Mountain Wind project
- Project's local economic impacts unstudied with no examination of offsetting economic costs
- Project will provide no incremental air pollution benefits

I found their arguments off target and misleading. I continue to stand by each finding as outlined below.

1. Project power output estimates unsupported and likely overstated

Project output estimates are important since they are used to derive many of the claimed project benefits and are fundamental to the project economics. These data are also an essential element to the investors **and to the Commission in determining the site suitability for a wind project**. I testified that the supporting documentation and reports

often required by a lender were not provided in the application or in subsequent testimony.

The simple fact is that these data still have not been provided. Mr. Mann agrees. He argues that "*such* [detailed and confidential] *data is not routinely made public and also in large part because a competitor is an intervenor in the proceedings*."[1] TransCanada in their live testimony concurs with my view that the wind data should be an important element for LURC's determination and announced that they would provide some limited wind resource data as part of their application. In some other proceedings (e.g. East Haven Wind Farm proceeding in front of the Vermont Public Service Board Docket 6911), some aggregated wind information and study assumptions used to derive power output estimates were provided. Finally, as we learned during testimony, the applicant provided some wind and generation data to Colin High for his avoided emissions calculations on behalf of the Conservation Law Foundation and to Mr. Bulow of Vestas for his review. I have often wondered that if the applicant controls the wind development rights to the site and the wind data is applicable only to that site, how will the applicants be harmed by releasing site aggregated data to agencies needing to make zoning decisions on its suitability as a wind project site?

Secondly, Mr. Mann argues that my concerns about the output claims (Namely, that they were above the highest performing wind projects in the east; that there are documented icing problems at high northeastern mountain elevations; and that the project would be among the first applications of the V-90, 3 MW turbine) were "misplaced"[2] since a professional analysis was performed and later found to be reasonable by Mr. Bulow (Vestas). However, without the applicant data and assumptions, neither LURC nor I can determine whether any of my concerns are misplaced. Icing problems were identified in the applicant's wind monitoring permit extension request, however no data was provided to quantify the extent of the problem. Nor was the operational history of the V-90 turbine discussed.

[1] Mr. Mann's August 10, 2006 comments, pg 4
[2] Mr. Mann's August 10, 2006 comments, pg. 3

Finally, I do agree with Mr. Mann that my comparison of his claims to other eastern wind projects maybe far from perfect[3], but by withholding critical data, the applicant has left no other path to independently judge their power output claims. I would gladly revise my findings accordingly if Mr. Mann would share his data.

2. No demonstrated need for the Redington Mountain Wind project

I testified (1) Maine does not need the Redington Mountain Wind project to meet its in-state power needs since it is already a large net power exporter (2) the project is not needed to meet Maine's 30 percent renewable portfolio standard that is already far exceeded and (3) Redington Mountain Wind may receive only a minimal generation capacity credit[4] (roughly 9 MW) towards the New England power pool reserve margin requirements and therefore would not displace any new conventional powerplant construction (nuclear, fossil fuel, biomass, etc.) in either Maine or the New England power pool.

Responses by Mr. McLeish (applicant) and Ms. Nagusky (OEIS) focused on my findings about Maine's renewable power supply surplus. They disagree with me countering that Maine needs to support new renewable projects such as Redington Mountain Wind to comply with the Act to Enhance Maine's Independence and Security (H.P. 1439-L.D. 2041) signed in June 2006[5].

This disagreement can be easy resolved by simply reading the act. Specifically, the Section 3210-C4 of the Act directs the Public Utility Commission to first "*select capacity resources that are competitive and the lowest price when compared to other available offers for capacity resources of the same or similar contract duration.*" These capacity

[3] Ibid
[4] ISO-NE Manual 20 (Installed Capacity Manual- Rev 12 effective date 1/1/06) contains the methodology for assigning capacity credits for wind projects in Supplement D. Currently the 3 New England wind projects have credited capacity of only 10% of nameplate capacity. This translates to 9 MW for the proposed Redington Mountain Wind project.
[5] Mr. McLeish Section III pg. 2 of his 8/11/06 comments. Ms Nagusky pg. 2 and 4 of 8/11/06 comments.

resources can be from fossil-fired, renewable, energy efficiency programs or other generation capacity alternatives. If there are several projects that offer the lowest price, then priority is first given to energy conservation programs, next to Maine renewable projects, then to no net carbon emitting projects and then to non-renewable capacity resources in Maine. Bottom line is that Maine law supports selecting the lowest cost capacity resources independent of whether they are renewable, non-renewable or energy conservation resources. The law gives preference to renewable projects only in cases of a tie and lack of cost-effective energy conservation resources. In the law's provisions, the policy of increasing new renewable capacity market share to 10 percent by 2017 is only a goal, without any effective implementing program authority.

Mr. Holt (Ed Holt & Associates) agrees[6] and recognizes the Act as not setting a mandatory and enforceable requirement but argues this distinction is irrelevant[7] since it is a stated policy goal. However, this position directly counters my experience with state legislatures. If the Maine legislature thought renewable energy was more important than lower cost energy alternatives, they would have written the law differently and made the 10 percent new renewable energy capacity a mandatory requirement—not a goal.

As a result, the existing 30 percent renewable portfolio standard requirement remains Maine's only enforceable renewable mandate. No one contests that Maine already has sufficient resources to exceed this RPS mandate. Even Mr. Hinchman of the Conservation Law Foundation concedes that Maine "*has long exceeded its [*renewable energy*] quota.*"[8]

Finally, Mr. Holt argues that renewable power would reduce the energy costs to Maine consumers[9]. I disagree. If renewable energy sources were indeed the lowest cost alternative, they would not require the RPS mandates and large financial

[6] Mr. Holt Post Hearing Comments pg. 2
[7] Ibid pg. 2
[8] Pg. 3 of Post Hearing Written Comments of the Conservation Law Foundation
[9] Mr. Holt Post Hearing Comments pg. 1

ratepayer/taxpayer subsidies that it currently receives. Even with these subsidies, Maine ratepayers must pay a large premium for renewable energy above the standard offer price.

3. Project's local economic impacts unstudied with no examination of offsetting economic costs

Neither the applicant nor Franklin County has provided local economic impact studies on the Redington Mountain Wind project. Most of the $150 million project investment will go to equipment suppliers and specialized contractors from outside Maine. Much of the project operations support staffing can also come from outside Franklin County. Further, no study was conducted on the impact of this wind project on local tourism or on the local Stratton biomass project. Unfortunately, the applicant chose not to offer any additional testimony once these issues were raised. Therefore, my conclusion remains unchanged.

However, I do applaud the applicant for updating the information contained in the application on the projected employment, estimated property tax payments and lease payments in their testimony. I assume that the updated testimony data should replace the application on these and other matters where the documents are inconsistent.

4. Project will provide no incremental air pollution benefits

My final finding was that the project would provide no incremental air pollution benefits. This conclusion was based upon a comparison of future emissions with and without the project. A summary of the arguments and responses to my critics are provided below.

<u>Redington Mountain Wind vs. Competing Renewable Energy Project= No Incremental Emission Benefits:</u> Redington Mountain Wind must compete against other qualifying renewable power sources for the special set-aside renewable power market that qualifies for special financial incentives (e.g. renewable energy credits and above market price power contracts) that are essential to covering their higher production costs. This special

protected market is limited and therefore the renewable capacity to meet demand is also finite and easily calculated. The renewable market demand is comprised primarily of mandated demand created by state renewable portfolio standards (ME, CT, MA, and RI in New England), and to a much smaller degree, demand from green power purchase programs. Given its finite size, if Redington Mountain wind project were not built, the special renewable energy financial incentives could justify building another qualifying renewable power project until this limited renewable demand is reached. Therefore, one must first compare emissions from Redington Mountain Wind against another competing renewable project. Both competing renewable projects would have no incremental carbon dioxide emissions so there are simply no avoided emissions benefits as claimed by Maine Mountain Power.

Only Mr. Hinchman (Conservation Law Foundation) tries to refute my first point. He argues "*At no time did the applicant indicate they were dependent upon a state RPS program to render this project economically viable. To the contrary, the applicant provided clear evidence that they intend to market the entire production from this project (including both its energy and RECs) in Maine, which has long exceeded its RPS quota. Thus there is no basis for Hewson's assumption that RPS incentives have any effect on the viability of this project*."[10]

Unfortunately, he completely misses the crux of the matter. I agree that the applicant did testify that they sold both the power and RECs to Constellation New Energy under a 10-year fixed price contract. However, what Mr. Hinchman misses was that Constellation would have paid far less for the power alone without the Renewable Energy Credits (RECs). The offer price was much higher because it came from a qualifying renewable energy project that they can sell to its Green Power buyers (one of the special set-aside markets) for a much higher than the standard offer price. If Constellation's supply exceeds its very limited green power buyer demand, they are always free to sell the RECs separately to companies in Massachusetts, Connecticut and Rhode Island to help them meet their renewable portfolio standards. Bottom line is that this project is being built to

[10] Post Hearing Comments of Conservation Law Foundation pg. 3

meet renewable power demand and would qualify for all of its special renewable financial incentives. At no time did the applicant or the contract power buyer suggest that they would compete in conventional power markets.

Mr. Hinchman then goes on to argue that "*even if RWF's power or its renewable energy credits were sold outside Maine—most likely as part of the Massachusetts RPS program—Hewson failed to show that there is a limit or even any competition for such credits. To the contrary, Hewson acknowledged on cross examination that he was unaware that Massachusetts currently had a surplus of available RPS credits, that Massachusetts had never fulfilled its RPS quota and… is not forecasted to meet its quota through 2009…. In sum, RPS credits are not now and will not in the foreseeable future become a limiting factor on construction of renewable energy projects. Indeed, these RPS programs are specifically designed so as to incentivize rather than limit construction of new clean renewable power*."[11]

Mr. Hinchman suggests on one hand that the RPS incentives are insufficient to create competition (in Massachusetts) while on the other hand that they will not limit construction of new renewable projects either. Again, he is wrong on both counts.

I did agree that Massachusetts had a <u>deficit (not surplus)</u> of qualifying renewable energy projects in 2004 and that it likely continued on through 2005. However, the more important policy issue whether this is a temporary or a permanent deficit. I would observe that there have been several proposed New England renewable projects (mostly wind, landfill gas and biomass projects) that are now going through various stages of permitting. If all were approved, their generation would be more than sufficient to offset this deficit. This large volume of projects (including Redington and Kibby) would be eligible to receive significant REC sales revenues in Massachusetts, where RECs currently trade at over $54/MWh. No wonder there are several proposed renewable projects like Kibby and Redington Mountain. With such large ratepayer renewable

[11] Ibid pg. 3

subsidies, the Massachusetts deficit is linked more to construction timing than to lack of interest.

Mr. Hinchman also suggests that the RPS incentive does not limit construction of new clean renewable power[12]. One just needs to examine how the REC trading market works to understand how wrong he is. Fundamentally, REC market prices are set based upon supply and demand but are also often subject to price caps/penalties (e.g. in Massachusetts). Once renewable supply exceeds the renewable demand, the REC market value for subsequent incremental projects drops to near zero since ratepayers are no longer obligated to pay a premium for surplus renewable generation. Without these additional price premiums, renewable projects must then compete against conventional power sources on a cost of power and capacity basis. In these cases, excess wind projects may lose since they can offer only energy and not capacity.

Redington Mountain vs. Fossil Fuel Units= No Incremental Emissions Improvement as Emissions are Displaced but not Avoided. As mentioned above, I believe that Redington will compete against other renewable projects and therefore provide no incremental air pollution benefit. However, even if the project competes against fossil fired generators, any emissions subject to cap and trade environmental control programs may be displaced but will never be avoided. If the RMW project displaced any emissions, the generator could simply sell and/or transfer his unused emissions credits to another source that would allow that source to emit more. Alternatively, the owner could bank the allowances and use them in a future year. The amount of emission displacement should continue to decline in the future as emission requirements continue to tighten (e.g. Clean Air Interstate Rule).

To illustrate, let us assume that the project did displace the 83 tons/year of SO2 estimated by Mr. Hanisch (pg 4 of direct testimony). The owner of the displaced unit(s) could then sell or transfer his unused allowances to another unit. Currently, power industry SO2 (48 states), and ozone season NOx emissions (23 states) are subject to these

[12] Ibid pg. 3

cap & trade programs. Beginning in 2009, the NOx cap & trade program will be expanded to an annual program in the 28 states affected by the Clean Air Interstate Rule. Also, Maine and six other Northeastern states (including CT, DE, VT, NY and NJ) signed the Regional Greenhouse Gas Initiative (RGGI) in December 2005 that would establish a CO2 cap and trade program for fossil fuel units. State legislative action is needed to authorize each state's participation and to implement the program. Approval by the seven states is considered highly likely. Massachusetts also has a CO2 cap and trade program that will start even earlier than RGGI. Bottom line is that New England sources will likely be subject to cap and trade programs for SO2, NOx and CO2 by 2009. Therefore, *any Redington Mountain wind project fossil generator displacement may displace emissions but not avoid them*.

Surprisingly, Mr. Holt considers the fact that emissions are being displaced and not being avoided as a "distraction" to the Commission, suggesting that mere emissions displacement should be considered an environmental benefit[13]. Mr. Hanisch simply ignores the cap and trade program implications altogether and argues that Redington will always reduce air emissions by displacing higher cost gas and oil-fired generation.[14] He believes this conclusion was confirmed by oral testimony from Messrs High and Wilby. They too did not consider the implications of a cap and trade program.

Mr. Hinchman took a more innovative tack arguing that displaced emissions would be avoided since "*there are no cap and trade programs that would provide a real market for any unused allowances for these pollutants.*"[15] He suggests that there is no market as illustrated by the 6.86 million ton bank of unused surplus SO2 allowances at the end of 2004. What Mr. Hinchman forgets is that this bank of surplus allowances created by earlier over-compliance has been steadily depleting since 2000 (It had been 11.62 million tons on 12/31/99 and was at 5.65 million tons on 12/31/05). These banked allowances have permitted sources to emit above the 9.5 million ton limit set in the 1990 Clean Air Act. My emission allowance forecasts (and my competitor forecasts) all assume that

[13] Mr. Holt Post Hearing Comments pg 5
[14] Mr. Hanisch 8/10/06 Comments pg. 2
[15] Post Hearing Comments of Conservation Law Foundation pg. 4

these surplus allowances will eventually be consumed. Since the market allows for any surplus holder to sell their allowances at any time, does it make any business sense not to use or sell allowances that have a current market trading value of $630.92/ton? The answer should be obvious.

Finally, both Mr. Hanisch and Mr. High avoided emissions studies have over-estimated future displaced (but not avoided) emissions by relying on 2004 data. For the Redington Mountain Wind project, the issue would be its future (not past) emissions displacement over the project lifetime. Emission requirements have become stricter with time forcing the units to get increasingly cleaner and more efficient. This trend is evident in the *Draft 2004 New England Marginal Emission Rate Analysis Report* (Feb 2006) used by both Mr. Hanisch and Mr. High (for his comparison). This report shows a consistent improvement. Between 2000-2004, SO2 marginal emission rates declined by 67%, NOx rates by 72% and CO2 rates by 26%. These trends will continue as the tighter emission limitations contained in the Clean Air Interstate Rule, Regional Greenhouse Gas Initiative and state requirements (e.g. New Hampshire's HB 284) are implemented. Additional environmental legislation may be passed in the future that would further clamp down on allowable emissions. Bottom line is that by selecting 2004, both Mr. High and Mr. Hanisch have over-estimated the future displaced emissions. In any case, **there are no avoided emissions benefits**.

5. Other Issues—Transmission

For this proceeding, I made very limited comments on transmission issues. My filed testimony discussed existing literature that has concluded that a maximum limit may exist to the amount of wind capacity that can be added to the transmission grid without causing significant problems[16]. This limit could become a potential issue if both Redington and Kibby Mountain wind projects were built. TransCanada also provided testimony on their draft feasibility study results that more definitively addresses this same topic. I left it up to the Commission to decide if this was a relevant issue or not. Since the Commission has

[16] Hewson filed testimony pg. 3

ruled that they do not consider this to be a relevant issue, my response to Mr. Garwood comments on this topic would likewise also not be relevant so it was dropped. If it becomes a relevant issue, I would gladly provide a detailed response to the Commission at that time.

Second, I testified that I had not completed the complex system modeling (nor did the applicant or Mr. High) to quantify what generation would be displaced by state RPS requirements. However, I considered it likely that another renewable power project with the same output located elsewhere in the grid would displace more fossil fired generation than the Redington Mountain Wind project[17]. My judgment was based upon the Redington Mountain Wind project's location, the high renewable power generation mix of CMP's Western Transmission area and indications of potential local transmission constraints contained in the System Impact Study.

Mr. Garwood has taken issue only with the local transmission congestion point countering that the System Impact Study was not designed to identify or address transmission congestion. I agree with Mr. Garwood about these System Impact Study limitations. However, the study does contain references about Redington vs. Wyman and Harris hydro dispatching issues (pg. 17-18 and 24-25 of document included in Section I Part 5.4 of the application) that triggered a subsequent phone call to ISO-New England. According to Kevin Mankouski at ISO-New England, there are conditions in the Rumford/Jay Export Region that could trigger local transmission congestion from the Wyman Hydro Export Region. What these exact conditions are and how often they would occur, he did not say. To understand the reason Mr. Mankouski may be unable to quantify the local congestion problem scope was best described in the TransCanada pre-filed testimony (pg. 10):

"*To evaluate the impact that the Redington Project will have on potential congestion, the Commission will need a detailed assessment of the project's anticipated energy yield on a seasonal basis. Such an assessment is typically prepared by an independent consultant*

[17] Ibid pg 15

and is based upon details pertaining to wind resource characteristics, layout and other factors that would control a wind project's output. Until this information is available, it is not possible to quantify the amount or frequency of congestion in the regional CMP grid."

To my knowledge, the applicant has not performed such a definitive transmission congestion assessment for the Redington Mountain Wind project. Nor have I found any definitive congestion study referenced in Mr. Garwood's prior pre-filed or summary testimony.

Local congestion may exist as addressed in the TransCanada testimony (pg. 10) that stated, "*There appears, however, to be some congestion south of the Wyman Hydro substation with just the existing hydroelectric facilities, the proposed Redington Project and the output of SEA [*Stratton Energy Associates*]*."

The specific answer does not change the basic conclusion that given the high Maine renewable mix (41%), I consider it highly likely that another renewable project with the same output placed in another location in New England would displace more fossil fuel generation than the Redington Mountain project.

CERTIFICATION

I do hereby certify that the attached document entitled;

REBUTTAL TESTIMONY OF THOMAS HEWSON JR
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is my rebuttal testimony that was written by me for the MAINE LAND USE REGULATION COMMISSION as part of their proceeding on Rezoning Petition ZP 702.

Signed:

Thomas A Hewson Jr.
Principal
Energy Ventures Analysis Inc
Arlington VA 22209

State of Virginia, Arlington County

The above named Thomas Hewson Jr. appeared before me and made oath as to the truth of the forgoing statements.