

Sent: Tuesday, July 14, 2015 11:31 AM
Subject: SEC Rules

David, 13 July 2015

I still have to spend some time on my consulting business, so I will be in Europe, on pleasure, but checking windmills on flat, open land. I cannot make the late August hearings on rules. Therefore I am requesting that you include my still ongoing requests to include more meteorology in the rules. My main concerns are that the applicant be required to at least demonstrate that he can ignore meteorology for good and enunciable reasons. So far he has ignored meteorology, but with no reasons given, and with little blowback from the SEC. Secret (proprietary) models can't do the job. I must depend on your lawyerly expertise to know where in the rules my concerns are best addressed. If you want me to overload you with more meteorological background and support, I can certainly do that.

When I discuss these issues with other professional meteorologists they find it difficult to understand the reasons for the SEC's hesitance to seriously include the "weather factor". The centrality of the minute-to-minute, hour-to-hour and day-to-day weather changes (as contrasted with averages and models) in the operation of an IWF, and its effects on the surrounding neighborhood are so fundamental, and affect so many of the issues before your committee that they require inclusion on almost every rule in your book. But the urgency to consider the effects of the enormous and rapid changes in the meteorology of IWFs is not there. It's almost as if you realize its importance is so fundamental, and affects some many of your deliberations, that you prefer to keep Pandora's box closed.

Just a few of the many meteorological effects which have been slighted:

1. The effect on the visual impacts of an elevated, isolated facility due to the simple effect of its elevation on its visibility. The visibility of an elevated view will almost always be more than that of the same object viewed horizontally, due to both the changing meteorological visibility from (ground-based) water and dust particles, and the apparent decrease in cloudiness clouds with rising elevation. The simplest way to demonstrate this effect is to note that it is a common occurrence for the horizontal visibility to be restricted to a few miles, while the elevated sun at 93 million miles is easily seen.
2. The occurrence of icing on the turbine blades will almost surely occur under only very specific wind directions, a major determinant of the safety zone.
3. Shadow flicker is very dependent on the difference in elevation between the source and the observer. Both its frequency and its severity will change by orders of magnitude with changes in this elevation difference.
4. Noise generation and broadcast vary directly with the the wind, wind shear, and atmospheric stability. Since these are highly correlated in time, using their average or typical values is not just misleading, it is a deliberate misdirection.
5. The use of models and the weather data allegedly driving them is constantly obscured by "proprietary". Applicants cannot simply shout "proprietary" and make us assume that what they used or how they used a model, and data, was proper. Imagine that was even ONE "perfect" model, wouldn't every operator use it? It wouldn't be proprietary! Obviously there are different models, because there is no perfect one. How imperfect are the models? What "simplifying assumptions" did they make? There is only one way to tell. I have the same data they do, and I can check, but not without knowing the geometry, trigonometry, astronomy and meteorology of the model. I am qualified to testify in all four areas. In the past I have found serious problems with such models and the data selected by applicants

for testing them. Just one thought to keep in mind, no two snowflakes are alike, nor are any two hills, their meteorology, or their model.

The use of averages or models by any applicant should require a demonstration that such average data meteorological data are not correlated in time, prior to any averaging. Averaging correlated data (most meteorological data are intercorrelated) violates the most basic statistical rule.

All the above require that your new rules require the applicant to demonstrate that he has taken meteorology into account in a proper way, before any results which depend on that meteorology even be considered.

Your committee and your applicants have asked questions about why there aren't any Stoddard residents at your hearings. The answer is simple, few have ever heard of the AWE proposal, its denial, and its rebirth. When I showed some of the new material from AWE to the Stoddard Planning Board, demonstrating its tremendous impact on Stoddard, I was suspected of misrepresentation. Stoddard is in Cheshire county and its residents read the Keene Sentinel. That has to change.

I can suggest specific language changes and additions, if you point me to where it belongs.

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