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Dear CEC Commissioners and Staff –

I have been an active participant in several of workshops for Reducing Impacts to Birds and Bats from Wind Energy Development since August 2006 and have provided specific written comments on 3 previous drafts of the guidelines.

Thus I was struck, as I participated by phone on the August 13, 2007 Commission hearing, that a single issue continues to dominate so much of the discussion and impede the progress of the Guidelines. That issue is the relationship (or lack thereof) between pre-construction levels of bat activity (measured with acoustic detectors) and mortality levels of bats during operations of a facility. That this continues to be a sticking point is somewhat surprising because, it seems to me, that there is nearly unanimous agreement that this relationship is poorly understood.

This emphasizes the importance of gaining a better understanding of this relationship sooner than later for a number of reasons, one which the uncertainty it represents to so many of the stakeholders to which they seem averse. For instance, if pre-construction activity levels are not an accurate means of assessing risk to bats, then the justification for requiring pre-construction surveys in the first place may need to be rethought. Importantly, the only way we can only understand this relationship is to begin to collect the requisite information from a number of sites in a number of different habitats. The required data is pre-construction activity data collected over a relevant time period and subsequent data from carcasses searches during operations at the same site. It is important that these are collected in a standardized manner such that data is comparable among facilities. The most recent draft of the guidelines does a good job at providing guidance for such standardization.

Both pre-construction activity monitoring and operations fatality monitoring are currently recommended in the guidelines and there seems to be acceptance, or resignation, by many wind energy operators that these recommendations will go forward. The two primary arguments that have been posed against this approach are 1) the wind industry should not be required to support “research” into the proper tools and techniques to assess risk to bats and 2) the level of pre-construction survey effort is too onerous and costly for application at each facility. First, if these guidelines are heeded by local permitting agencies then wind energy companies will likely be required to conduct some level of both pre-construction and post-construction work to gather site-specific information. This information itself does not constitute research in my opinion. However it has the potential to contribute to valuable research, when combined with similar data from other locations. Importantly it can do so without placing any extra burden on developers beyond those required satisfy basic permit requirements.

Second, the current draft of the guidelines provides standardization in the form of a recommended density of acoustic detectors that should be deployed at a proposed wind energy facility (1 sq. mi – **Ch.3 Line 1978**). I interpret this recommendation as an excellent attempt to scale survey effort to the size of the proposed wind facility. However this density has met some resistance from stakeholders. I believe research which quantitatively determines appropriate densities and placement of detectors is needed before scientifically defensible recommendations on this subject can be made. However, establishing the link between pre-construction activity and operations mortality is too important to be sidetracked by a disagreement over appropriate

densities. It is more important to make a mutually agreeable estimate of an appropriate density of detector stations that allows us to move forward to addressing the overarching question. With that in mind I propose that **rather than a density of 1 detector station/ sq mi. (Ch.3 Line 1978), acoustic detectors should be placed on EACH meteorological tower used during pre-project wind screening.** Wind energy companies want to reliably predict wind characteristics (and its variability) throughout the site prior to constructing turbines and do so by locating meteorological towers that attempt to capture variation in habitat and terrain that occurs in the project area. As such, the allocation of detector stations that I propose would serve as a surrogate means of scaling survey effort for bats to the project size and assure that much-requested “flexibility” is built into the guidelines. My expectation is that this may somewhat reduce the total number of detector stations at an individual site to a level that may be more acceptable to wind energy developers yet likely to provide enough information to help evaluate relationships between pre-construction activity levels and fatalities during operations.

I support the current recommendation (**Ch.3 Line 1974**) for two detectors per station with one near ground level and one up higher on the tower because it is still unclear which, if either, is the best predictor of bats at risk of collision. However I have two specific recommendations: first the **“ground level” detector should be elevated somewhat above the ground (e.g. 1.5 meters).** Previous work I conducted showed that detectors at ground level tend to record fewer calls because of increased clutter from vegetation at ground level itself (Weller and Zabel 2002 – a copy can be provided upon request). This will be particularly important for facilities that are proposed in areas with low-lying vegetation (e.g. grassland, pasture, shrub fields). The second recommendation is for the **elevated detector to be placed as high as possible on the meteorological tower** without interfering with weather monitoring equipment – rather than at 30 m. The reason for elevating detectors is to gather information about echolocation activity as close as possible to the rotor swept zone. The previous recommendation for 30 m (Lausen et al. 2006) was based on logistical constraints posed at a particular wind facility (E. Baerwald pers. Com.) and a higher elevation would have been used if it was available. Additionally, heights of meteorological towers vary such that there is no reason to attach bat detection equipment at lower elevations when they could be attached higher nor should towers which are < 30m be avoided as attachment locations for bat detection equipment.

Finally, and perhaps most importantly, one glaring omission from the draft guidelines to date is a discussion of the disposition of monitoring data once it is collected. What good is a recommendation for collection of pre-construction activity data and operations mortality data if there is no central collection point for the collation and analyses of these data? Construction of a database that meets the needs and addresses the concerns of all parties will be a challenge, but it is an essential central component of any efforts that attempt to analyze trends in data collected at multiple sites over multiple time periods. Although construction of such a database is likely beyond the scope of the current guidelines, I believe that the need for such a database should be explicitly recognized in the final version of these guidelines.

Sincerely,

Ted J. Weller

Literature Cited

- Lausen, C., E. Baerwald, J. Gruver, and R. Barclay, "Bats and Wind Turbines: Pre-Siting and Pre-Construction Survey Protocols," in M. Vonhof (ed.), *Handbook of Inventory Methods and Standard Protocols for Surveying Bats in Alberta*, Appendix 5. Alberta Sustainable Resource Development, Fish and Wildlife Division, Edmonton, Alberta, 2002, Revised 2005, 2006. Available at www.wbwg.org/Papers/TurbineProtocol15May06R.pdf
- Weller, T. J. and C.J. Zabel. 2002. Variation in bat detections due to detector orientation in a forest. *Wildlife Society Bulletin* 30(3):922-930.