

STATEMENT OF NANCY KALINOWSKI, VICE PRESIDENT, SYSTEM OPERATIONS SERVICES, AIR TRAFFIC ORGANIZATION, FEDERAL AVIATION ADMINISTRATION BEFORE THE HOUSE ARMED SERVICES COMMITTEE, SUBCOMMITTEE ON READINESS ON THE IMPACT OF WIND FARMS ON MILITARY READINESS, JUNE 29, 2010.

Chairman Ortiz, Congressman Forbes, Members of the Subcommittee:

Thank you for the opportunity to appear before you today. My name is Nancy Kalinowski and I am the Vice President of System Operations Services for the Federal Aviation Administration (FAA). In that capacity, I am charged with overseeing the process by which we evaluate the impact of proposed construction on the navigable airspace. Any proposed structure that could potentially interfere with navigable airspace must be evaluated by my office. The evaluation results in an agency finding of whether the proposed structure is a hazard for air navigation. During the evaluation, our Obstruction Evaluation Services office works with the individual or entity that submits the proposal, as well as other interested FAA offices and government agencies, as required. In recent years, as the need for alternative energy has become a major focus of government and industry, the volume of proposed wind turbines submitted to the FAA for review has increased dramatically. As such, it is certainly fitting to discuss how we review these proposals to understand the process and evaluate potential improvements.

The FAA is vested with broad authority to manage the navigable airspace and develop plans and policies for its use. Whether by regulation or agency order, the FAA ensures the safety of aircraft and efficient use of the airspace. Navigable airspace is a limited national resource and the FAA's primary mission in this context is to preserve that

resource for aviation; however, we are also called upon to negotiate equitable solutions to conflicts over the use of the airspace for non-aviation purposes. There is a statutory requirement that a person or entity (a “proponent”) give adequate public notice of the construction, alteration, establishment or extension of any structure when such notice would ensure the safety of air commerce as well as the efficient use and preservation of navigable airspace and/or airport capacity. Generally, public notice is required if the structure is more than 200 feet in height above ground level, near or on an airport (military or public use) or heliport, or if such a notice is specifically requested by the FAA. The notice provides the FAA with the opportunity to identify the potential aeronautical hazards to minimize any adverse affects to aviation. It is the proponent’s responsibility to propose mitigation in response to identified hazards. If the FAA can take action to address the hazard, that action can be part of the mitigation plan, but the cost of mitigation, including upgrading navigational aids, if required, is borne by the proponent. Mitigating actions could also include revising published data or issuing a Notice to Airmen (NOTAM) to alert pilots to airspace or procedural changes made because of a structure. In addition, mitigation could include recommending appropriate markings and lighting to make the structure visible to pilots or depicting structures on aeronautical charts to inform pilots and improve safety.

Structures that require notice may include buildings to antenna towers – essentially anything that meets the criteria noted above. This would include wind turbines and the new generation of wind turbine generators, which can be more than 400 feet in height and have blades that spin up to 200 miles per hour. Each wind turbine is evaluated

separately, but the cumulative effect of the wind turbines on navigable airspace will obviously be more significant based on the total number of turbines grouped together. The number of wind turbine cases handled by the FAA has increased from 3,030 in 2004 to 25,618 last year. To date in 2010, we have 18,685 wind turbine cases. One concern that the wind turbines raise is that the blade tips rotate above the radar, thus affecting the capability of the target to be received on the radar equipment. Additionally, they reflect radio waves, and exceed the line of sight protection criteria. To give you an idea of the impact of wind turbines on long range radar, there is a radar cross section spectrum that identifies how clearly a range of objects are picked up on the radar. Insects and birds are at the low end. Conventional cruise missiles are in the mid range. Most aircraft are a little higher in the spectrum, with large aircraft (e.g., a Boeing 747) and the space shuttle at the highest end of the spectrum. Wind turbine blades spinning, in some instances, at more than 200 miles per hour are picked up by radars with a signal strength greater than a Boeing 747. Because the radar repeatedly sees this large return, the radar will not pick up actual aircraft in the same area.

The clutter that is created by wind turbines can result in a complete loss of primary radar detection above a wind farm. When that clutter occurs, it appears at all altitudes, so simply directing the aircraft to a different altitude does not solve the problem. Similarly, on the Next Generation Weather Radar (NEXRAD), wind farm activity looks remarkably like storm activity, thus complicating the communication of precise weather information by controllers to pilots. (Wind turbine impacts on NEXRAD, which are owned and operated by the National Oceanic and Atmospheric Administration, are not currently

considered in FAA's evaluation process.) Existing FAA radars have limited capability to filter out clutter. The radar can be modified by increasing the sensitivity to reduce clutter from the wind turbines, but in doing so, what the radar can see is also reduced, to the point where actual aircraft targets can drop off. Consequently, there are real and significant issues that must be evaluated by the government prior to the approval of wind turbines.

Although not an issue of consideration in the evaluation process, another issue of some concern is that there is competition for the land which both the radars and the wind turbines need to occupy. Lease holders who currently have primary radars are now being offered substantial financial incentives not to renew their leases with the FAA and instead, lease to companies that want to install wind turbines. This puts the FAA in the undesirable position of having to condemn property at fair market value to avoid losing the use of the navigational aid. The call for the FAA to simply move its radars to accommodate requests to install wind turbines fails to take into account that this is not a realistic option for a number of reasons. The FAA cannot take down a radar without an unacceptable loss of coverage. Even assuming an acceptable, alternate site could be identified, the radar could not simply be moved. Rather, a new radar would have to be installed at the new location. The reality is that the FAA does not have extra radars available for replacement and there are no spare long range radars. Even if a new radar were available, moving the radar site would require changes to the national airspace system. Airways, reporting points, and airspace fixes are parts of the airspace system that could be impacted. Depending on the situation, such changes could require regulatory

action. The bottom line is that moving radars around the country is a costly, disruptive, unacceptable, and unworkable proposition. It may sound simple, but in fact, it is not something the FAA can accommodate or the taxpayers can afford.

So having set forth the complexity and concerns of locating wind turbines near primary radars, let me now turn to how we attempt to strike the balance between the need for an uninterrupted radar signal and the clean energy that wind turbines supply. The current regulatory requirement is that the proponents must file notice with the FAA as early in the planning process as possible, but no later than 30 days prior to the date the proposed construction is expected to begin. The 30 day timeframe has been in place for 45 years and was appropriate for single, stationary structures that the FAA largely dealt with at that time. Wind turbines have a cumulative effect, so the evaluation of their impact is significantly more complicated than single, stationary structures.

Ninety-seven percent of the notices the FAA receives are sent electronically, where the proponents simply fill out a form online. The FAA acknowledges receipt of the notice and, after an initial study, issues a determination of whether or not a hazard exists. The initial study normally takes 30 days, but as noted, a wind turbine's cumulative implications can require more extensive evaluation within the FAA, the Department of Defense (DoD), and the Department of Homeland Security (DHS). Each time the status of the applicant's proposal is changed, the applicant will be notified by FAA of the change. The initial evaluation includes review by FAA's Offices of Airports, Flight Standards, Frequency Management, and appropriate military organizations. The offices

typically respond online with whether they have an objection and what the objection is. It is then incumbent on the proponent to propose mitigation.

The FAA's authority to issue hazard determinations is limited to the scope of Part 77 of Title 14, Code of Federal Regulations. The FAA lacks the authority to evaluate impacts to airspace not within our jurisdiction. For example, if wind turbines are located more than 12 miles offshore and, therefore, are not in U.S. territorial waters, the FAA lacks the authority to declare them a hazard, even if the military has concerns with the placement or cumulative impact of those wind turbines.

Our role in making hazard determinations can require the FAA to facilitate the exchange of information between the proponent and the objecting governmental entity. This process can take a considerable period of time depending upon how well negotiations proceed between the parties.

In conclusion, the FAA has an efficient means of processing wind turbines proposals, which includes evaluating all valid aeronautical comments, reviewing all pertinent analytical reports, and issuing determinations that take into account all comments and findings. Although we believe the process works well, we are always considering potential improvements and modifications, including whether the 30 day review is realistic when considering the latest highly complex structures, a grouping of which can have an unwanted cumulative effect. We are open to discussion of how to improve the process.

Thank you for the opportunity to describe FAA's role in this very important process.

This concludes my statement. I will be happy to answer your questions at this time.