



Fact Sheet on the Dangerous Effects Low-Level Obstacles Pose to the Aerial Application Industry

Low-level obstacles on or near agricultural cropland throughout the U.S. is an area of concern to the aerial application industry. The number of telecommunications, wind energy and other towers erected in agricultural regions throughout the country has increased significantly over the past several years and the demand for these towers will only continue as wind energy development and communication needs are projected to grow considerably across the country. These vertical obstacles are a major safety concern to aerial applicators and can significantly hamper their access to cropland, in turn detrimentally affecting agricultural production.

Safety is NAAA's and the aerial application industry's primary concern with wind energy turbines, meteorological evaluation towers (METs), real time kinematic (RTK) towers, "flying" wind turbines, and other obstructions because in many cases they are not properly marked, or lit nor do they display other cautionary devices in or near agricultural areas where aerial applicators are spraying. Sadly, since 2003, 9.5 percent of aerial application fatalities were the result of collisions with towers and 12.2 percent were the result of collisions with wires. Wire accidents are included in these statistics since the wind developments must install wires to connect the output of the turbines to the electrical power grid. These collisions are almost always fatal. Wind energy towers pose the greatest safety and accessibility threats to agricultural aviators not only because of their size, but also because they are expected to become more widespread in the coming years. These towers are often clustered closely together, creating ominous obstacles for pilots.

Without sensible placement and proper marking of towers and all obstacles in agricultural areas, farmers may be at risk of losing important aerial application services performed on their cropland. Towers erected directly in the flight path of aerial applicators' landing strips and/or hampering the accessibility of treatable cropland could literally shut down aerial application operations and/or create a hazardous environment for applicators. This would detrimentally affect, in some instances, the only method farmers have available to them when the time comes to apply seeds, fertilizers and crop protection chemicals, necessary to foster crop growth. Aircraft help in treating wet fields when crop foliage is too dense to allow ground rigs to enter and it also results in no soil compaction. An aircraft is by far the most rapid form of application.

NAAA is concerned that as the demand for communication, wind energy and other towers increases—as projected—farmers will enter into leasing agreements with tower construction companies to erect these obstacles on their land without taking into account the safety and agricultural production issues of the aerial applicator. In 2010, NAAA launched a special towers section of its website, www.agaviation.org/towers.htm, which provides tools to educate the public on the dangers unmarked obstacles pose to pilots of low-flying aircraft; and addresses the safety and accessibility concerns associated with wind turbines. The tools illustrate how poor tower marking and improper wind turbine siting put pilots' lives and farmers' livelihood at risk.

Meteorological Evaluation Towers (METs): The FAA attempted to address this issue on marking when it released an Advisory Circular providing recommended guidance in 2011 for marking MET towers (towers used to assess the viability of wind farms) less than 200 feet above ground level (AGL) in remote and rural areas. These towers have the ability to be erected in a matter of hours, without notice being given to pilots, and are frequently unmarked and unlighted as they fall just below the FAA height requirements for marking and lighting.

The Agency concurred with some of NAAA's recommendations for marking, except for those requesting lighting of the tower and the creation of a national database. NAAA has the support of the National Transportation Safety Board (NTSB) on tower marking provisions. In regards to METs the NTSB made recommendations to the FAA in 2013 to: (1) create and maintain a publicly accessible national database for the required registration or all meteorological evaluation towers; and (2) amend 14 Code of Federal Regulations Part 77 to require all meteorological evaluation towers be registered, marked, and—where feasible—lighted. The FAA responded to the NTSB recommendation by indicating that they are awaiting the results of their tower database feasibility study (discussed below) and expect to respond to their recommendations by the end of January, 2014.

Because the aforementioned FAA AC only provides guidance for marking MET towers, NAAA had also been seeking to expand the AC and pursue guidance and official laws or ordinances applicable to *all* types of obstacles and towers—guy wired and free-standing alike. However, the Agency recently responded to this request by stating that to expand marking guidance for structures other than METs is not based on safety of flight issues. The FAA considers the guidance used for METs to not be feasible or warranted for other structures under 200 feet, as other structures do not carry the same visibility concerns of skeletal METs, and additional marking guidance may cause an undue burden on the public. NAAA is extremely disappointed by this narrow sighted and unjustified perspective of low-level safety and will continue to work with the FAA to ensure safety remains a top priority. Regardless of not being able to expand the AC, still having MET marking guidelines, even though not specifically mandatory, they would, according to FAA's Office of Chief Counsel, very likely result in liability for a tower company whose tower was struck as a result of not marking the tower. Case law shows that FAA Advisory Circulars have been used to establish a standard of care that, if not followed, have established negligence and subsequently liability in a number of cases by the neglecting party. In January 2014 NAAA sent letters to the American Wind Energy Association and U.S. MET tower manufacturers nationwide indicating this fact, and we are awaiting their response. NAAA also made this information available to its members to use in sending letters to parties responsible for erecting towers in their local area.

There has been significant progress on mandating MET tower marking at the state level, with the states of Kansas, North Dakota, Idaho, Missouri, California, Montana, Nebraska, South Dakota and Wyoming, all requiring MET marking of some kind. The states Colorado, Texas, Washington and Oklahoma are making progress on enacting their own MET laws as well.

(See reverse side for more information)

RTK Towers: A more recent potential hazard in some parts of the country is the erection of RTK towers, for use with farm and construction equipment auto-steering. These obstacles can be deployed at any location in a matter of hours catching a low-level pilot off guard. The RTK towers are similar to METs in their difficulty to see, but usually measure only 105 feet in height and are supported with guy wires. Safety dictates the towers should be marked for maximum visibility to low level aviation.

Airborne Wind Energy Systems (AWES): The newest potential obstacle for aerial applicators is the development of “flying” wind turbines. This technology uses a “tethered kite” with the tether being the electrical conduit from the generator to the ground. This poses great concern because of the “flying” turbine’s capability to literally lift from the ground as wind speeds allocate. NAAA submitted our concerns to the FAA in a response to their “Notice of policy and request for information” on potential effects of Airborne Wind Energy Systems (AWES) to the airspace.

Delayed Feasibility Study: NAAA worked hard for the inclusion of language in the 2012 FAA Reauthorization Bill directing the Administrator of the FAA to conduct a feasibility study on the development of an online public resource that would list the location and height of potential low-altitude aviation obstructions, such as guy-wire and free-standing towers. The bill gave the Administrator one year deadline to conduct the study and report to Congress, however that deadline passed in February 2013 and the agency has failed to submit the report. FAA Administrator Huerta has indicated the report is in final executive review for the past several months, but has given no indication as to when the report will be released.

NAAA is keeping close tabs on the study’s development to ensure it is completed and favorably reports on the development of a tower location database. While the Association realizes this would substantiate strictly a voluntary database and would not be combined with the already existing required FAA database delineating towers more than 200 feet in height, simply having a voluntary database to begin recording tower locations would be the first step in the right direction in protecting low-level pilots from the many unknown dangers they confront on a daily basis.

The Association has urged federal agencies that help to subsidize and promote wind energy, such as the USDA and DoE, to help in its campaign to inform the public that improper placement of wind towers may pose significant dangers to low-level aviation operations and may negatively affect agricultural production. NAAA has established the following safety guidelines that it requests are met before constructing towers (including wind turbines and the associated meteorological towers) so they will pose a reduced risk for aerial applicators:

NAAA Tower Safety Guidelines

- Towers should not be erected on prime agricultural land in a manner that may inhibit aerial applicators’ access and ability to treat the land.
- Petitions for constructing towers should be provided to the local government zoning authority, landowners and/or farmers and aerial applicators within at least a one-half mile radius of a proposed tower, as well as the state or regional agricultural aviation association, no later than 30 days before tower construction permits are considered for approval. This information should include the proposed location of:
 - each turbine generator
 - each meteorological tower including the height to be associated with the wind farm
 - the distribution sub-station and any connecting power lines from the generators
 - power lines connecting the sub-station to the existing electrical power grid.
- If a proposed tower is to be constructed on prime agricultural land or in the vicinity of such land in a way that may inhibit an aerial applicator’s access, person(s) that own and/or farm such land should be made aware by the entity responsible for that tower that it may result in the land no longer being accessible to aerial applicators, and in the event of a pest outbreak or plant disease a crop on such land may be put in jeopardy of not being treated.
- In the event that a proposed tower is constructed on prime agricultural land or in the vicinity of such land, towers should be freestanding and without guy wires. Furthermore, towers should be well lit and or equipped with strobe lights and properly marked so they are clearly visible to aerial applicators.
- Towers both free-standing and guy-wired should be marked with aviation orange / white stripes with strobe lighting. If guy-wired they should be equipped with four high-visibility cable balls on the outer guy wires (one on each at 37m [approximately half way up the tower] with a diameter of 53 cm). In addition, these towers should be equipped with 16 foot high-visibility sleeves, one per each anchor on each of the outer guy wires. These marking mechanisms must be maintained frequently to ensure their visibility and attachment to the wires.
- Obstacles’ exact locations should be logged in available databases that exist providing the precise geographical coordinates of the obstacles.
- Transponders or ADSB Out signals should be equipped on all towers.
- In the event that a number of proposed towers are to be constructed on prime agricultural land or in the vicinity of such land, the towers should be constructed in a linear pattern, rather than a random, clustered pattern that would make an area completely inaccessible by air.
- During construction and upon completion, the operator of the wind farm should provide detailed field layout information to the local government zoning authority and make this information available to those working in close proximity to that area.
- Recommendations apply to both ground affixed and mobile obstacles to manned low-level obstacles.

NAAA represents over 1,800 members in 46 states. NAAA member operator/pilots are licensed as commercial applicators that use aircraft to enhance food, fiber and bio-fuel production, protect forestry, and control health-threatening pests. Furthermore, through its affiliation with the National Agricultural Aviation Research & Education Fund (NAAREF), NAAA contributes to research and education programs aimed at enhancing the efficacy and safety of aerial application.

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Updated March 2014

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