

TOWERS: CHALLENGING OBSTACLES TO THE AERIAL APPLICATION INDUSTRY

NAAA Working To Make Towers More Visible Through National Competition And Legislation



An Ag Cat sprays a field that is near towers. You can see the guy wire in the left portion of the photo. Photo courtesy Craig Bair, Ag Flight Inc.

One of the most dangerous obstacles for an ag pilot is a tower, such as a wind turbine tower, cell phone tower or meteorological testing tower. The National Agricultural Aviation Association (NAAA) has been working hard to make towers more visible for ag pilots and to develop policies that prevent ag pilots from the perils of towers and their ability to access ag land.

Background

The past decade has seen an increasing number of communication towers constructed as a result of an escalating demand for mobile phones and digital television networks. A statistic often used by the U.S. Fish and Wildlife Service states that there are more than 85,000 communication towers in the United States and they are being

constructed at a rate of about 7,000 each year.

But growing at an even greater rate are towers to generate wind-powered energy. According to the American Wind Energy Association (AWEA), the U.S. wind energy industry installed 3,188 wind towers in 2007, expanding the nation's total wind power generating capacity by 45 percent in a single calendar year. American wind farms

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will generate an estimated 48 billion kilowatt-hours (kWh) of wind energy in 2008, just over 1 percent of the U.S. electricity supply, powering the equivalent of over 4.5 million homes. Currently there are wind towers in 34 states and they could provide 20 percent of the electricity in some areas of the country by 2010. That poses a real concern to the aerial application industry, not just in terms of safety, but also in terms of accessing farmer's fields to treat their crops, since many prime wind-energy development areas are located in rural, agriculturally rich areas.

The obvious concerns that the aerial application industry has with towers being constructed in rural areas is related to safety. A single fatal accident in the industry is one too many, and in the past decade there have been 8 fatal accidents involving collisions with towers and an additional 18 fatalities involving collisions with power lines. That means that over 26 percent of the fatal accidents reported over the last ten years have involved collisions with wires or towers. With an expected boom in wind-energy tower construction in rural areas and power lines to deliver the electricity to the

No Guy Wire Left Behind Competition

"No Guy Wire Left Behind" is an exciting new challenge for anyone who wants to make a difference. This contest will pay \$1,000.00 for the best guy wire marking design. The winning design will ultimately be attached to guy wires across America to help protect agricultural aircraft.

Scoring will be based on several factors including the low cost of the marker, visibility for pilots, how well the marker moves in the wind, how the system attaches to the guy wire, resistance to weather deterioration and the design concept drawing in the application.

Points will also be awarded if the applicant is an NAAA member.

The deadline for entering the contest is September 1, 2008 and an application form and further details can be downloaded from the NAAA Website at www.agaviation.org.

The designs will be reviewed at the October 2008 NAAA Board Meeting in Boise, ID, and the winner will be announced at the NAAA Convention in Las Vegas from December 8-11, 2008. Winner does not need to be present to win.



consumer, aerial applicators will be even more at risk. Also, there is the concern that with wind-energy towers peppered across America's ag land, it will be extremely difficult to access a farmer's land by aircraft to treat it.

According to the AWEA, new 1.8 megawatt wind-energy towers that are being constructed today have rotor disk diameters of over 260 feet, which is larger than the wingspan of a Boeing 747. When installed on a tower base, the top of the tri-blade disk is over 400 feet above the ground. The spacing of the towers is two-to-three rotor diameters apart, or a few thousand feet. There is no single pattern relative to the formation of a cluster of wind towers. Logic dictates that the best layout of a cluster of wind towers for an aerial applicator—other than the towers not existing—is for them to be placed in a linear fashion, but this is not necessarily the layout favored by wind farm designers. Areas with a larger cluster of wind towers are determined based on a variety of factors, such as proximity to roads so that they can be serviced easily, acceptability of the location by the landowner, and sufficient air movement to move the turbines and generate the electricity. The location is doubly hazardous because the wind farm must be located near large transmission lines to distribute the electricity generated. In addition, operators should remember that each wind farm will usually have at least one meteorological tower to sense and record wind patterns and possibly control the orientation of the farm's rotating turbine blades. These smaller towers are usually around 300 feet in height and are marked and lighted but are still much easier to miss in your area scan

when compared to the larger towers with the rotating blades.

The good news for aerial applicators is that at a height of over 200 feet, they fall into Federal Aviation Administration (FAA) rules requiring them to be lit. Also, new wind-energy towers constructed today are freestanding with no guy wires. Guy wires are difficult for aerial applicators to see and can sheer off an ag plane's wing. The bad news is that the developers are asking the FAA for permission to light only the outer perimeter towers in the cluster.

One way a potential wind-energy tower location is analyzed to determine if air movement is sufficient is to erect a meteorological testing tower. These testing towers can also jeopardize the safety of aerial applicators. These towers may be more dangerous than the wind turbine towers because they have no rotors, making them less visible. Furthermore, these towers use guy wires, which ag pilots have a hard time seeing, to anchor them in place. Meteorological testing towers are also typically below 200 feet in height and thereby exempted from marking and lighting requirements if not near a public airport. The good news is that they are not permanent; they stay in place for a few seasons to generate an appropriate amount of data to determine whether a site is suitable for the larger wind-energy towers. The bad news is that they go up quickly and, as just mentioned, can be difficult to see. Moreover, some counties don't require permits for towers that are not erected on cement, and a majority of temporary meteorological testing towers are not erected on cement.

Towers not only affect the aerial application industry; they also kill

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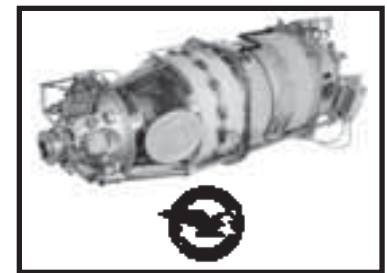
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birds. According to the U.S. Fish and Wildlife Service, there are millions of birds that are killed each year in the U.S. after being attracted by the lights on communication towers and colliding with the tower's structure or guy wires during night migration. Most incidents happen in poor weather with low cloud cover during the spring or fall. At least 231 species have been affected.

NAAA and Members Working to Bring More Awareness

NAAA has been actively pursuing ways to ensure that tower construction neither jeopardizes the safety of aerial applicators, nor makes prime agricultural land inaccessible to aerial application. The Association has met with congressional offices to garner support for national legislation to make the 1.8-cent per kilowatt-hour tax credit for wind-generators conditional upon not developing them on prime ag land. This approach has not been met with much support as a result of a diversified and powerful coalition of wind-energy advocates consisting of the AWEA, some environmental groups and the American Farm Bureau Federation. In general, the Federal government has limited jurisdiction over where towers, generators or transmission wires are placed, unless it is on Federal land or near public airports. State, county and local governments are the primary entities that determine

the location or zoning of towers, generators and transmission lines.

Another legislative approach NAAA is taking related to towers is to urge Congress to authorize the FAA to conduct a study on the effects wind energy towers have on aviation sites. Legislation authorizing such a study was introduced by Congressman Neugebauer (R-TX) in the House of Representatives and was included in that legislative body's version of the FAA Reauthorization bill that passed last year. The Neugebauer amendment calls on the FAA Administrator to lead a study with the appropriate leaders of the Armed Services, the Department of Defense, the Department of Homeland Security and the Department of Energy pertaining to the safe height and distance that wind turbines may be installed in relation to aviation sites.

NAAA is currently urging the Senate to adopt the Neugebauer language when it takes up FAA Reauthorization language and to expand the study to include both aviation sites and operations. Unfortunately, because of partisan bickering this presidential election year, it appears that the FAA Reauthorization legislation will be postponed until 2009.

The language also directs the FAA to investigate the feasibility of developing a publicly searchable, Internet-based tool that would enable stakeholders such as industry, land

owners and airspace users to know in advance whether the site on which they wish to build wind turbines would have a negative impact on aviation.

Scott Schertz, NAAREF President, 2005 NAAA President and operator of Schertz Aerial Service in Hudson, IL has reported that he has communicated with several wind energy companies that are securing land for the purpose of constructing wind farms. Some companies are willing to work with applicators, and others don't want to be bothered. The cooperative companies have verbally agreed to stop the blade rotation while the spraying is conducted in fields; but until construction begins and the towers start working, you don't know for sure whether or not the company will hold up its verbal agreement. Schertz added, "It is very important to contact and work with these companies in order to have the opportunity to provide your input into the operation of the wind farms."

Operators have also been able to influence the marking and lighting of some towers that are not required to be lighted by FAA regulations. In an interview filmed for the 07-08 PAASS Program, Reid Potter of Lakeland Dusters Aviation in Corcoran, Calif. observed, "If we find a tower that isn't lighted and we think it should be, I call the owner and ask why it is not lighted. The usual reply is that it is not required to be lit. I tell them that we frequently work in the area and would like to see a light



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on it for our safety. If they are reluctant to take action, I say that if someone is injured by this tower not being lit, I assume that they will be responsible for the damages. That usually gets action and we will end up with lights on that tower.”

Guy Wire Design Competition

The NAAA Safety and Federal Aviation Regulations Committee has taken a proactive approach to help solve the problem and work to save the lives of ag pilots. Many companies have stated to NAAA members that they don't place guy wire markings on their towers and electric poles because of the expense of the marking, as well as the labor cost to have them installed. The NAAA Committee has announced that they have developed a competition, which includes a \$1,000.00 prize, to the best guy wire marker system. See the box on page 18 for further details.

The following are some important points to think about and discuss with

farmer and land owners when towers may be erected in your area:

- It is important to communicate with the wind energy companies and any other companies who are proposing towers in your area. If you don't communicate the issue of erecting towers on farmland, they don't know that there is an issue.
- Besides speaking with the wind energy or other tower companies, you should also have a conversation with the farmers and land owners in your area about these same issues. You should state that there are issues with spraying a field where there are towers. If an ag pilot can't get in to spray the fields, how will that affect their crops?
- It has also been stated that the presence of a wind farm can negatively affect the value of the farmland. The farmer may not have thought about all the issues that may be involved with towers on their land.
 - The appraised value of the farmland could be less due to the fact that there is a contractual obligation

on the property to lease to a tower company.

- Because of towers on the property, the land is not available to use for developmental purposes.
- Make sure the farmer or land owner is well informed of his contract with the company that will be erecting towers on their land.
 - Will the farmer have any say in where the towers are erected?
 - When the contract expires or if the tower is decommissioned:
 - Will the tower be removed at the expense of the entity that did the erection?
 - Will the concrete base be removed from the ground and if so, to what depth? And again, at who's expense?
 - Is the farmer or land owner to be paid a monthly fee or are they to be paid a royalty based on electricity produced and is any payment received if the tower is not in operation for maintenance or any other reason? ✕

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