Michael Rauchle, FAA/AFS-420, briefed on proposed enhancements to the charting of wind turbine farms on VFR charts. The Flight Procedures and Airspace Group is responsible for evaluating the VFR effect of any new obstructions in the National Airspace System (NAS), including wind turbine farms. Wind turbine construction has increased significantly in the NAS and along with the additional numbers of turbines, their heights are increasing. Wind turbines greater than 499’ AGL present potential increased safety risk in the NAS as the unlit wind turbine blade tips affect flight operations in both Class G (uncontrolled) and Class E (controlled) airspace. The team hopes to mitigate the safety risk by making charting improvements.

Slide 5 shows a current wind turbine farm depiction near Albuquerque, NM. Slide 6 shows a wind turbine farm in a congested area near Palm Springs, CA. Michael pointed out that the dashed line that borders the wind farm is very similar to the line that borders the Class D airspace and that there is a lot of clutter making it hard to discern the wind turbine farm among the other features. Michael said his proposal is intended to increase visual conspicuity, making wind turbine farms stand out, particularly near congested areas, and to improve VFR pilot awareness without creating excess chart clutter. He explained that there were about 25,000 wind turbines in 2011. Most were below 499’ AGL, with an average of 408’. Now there are over 75,000 wind turbine farms in the NAS and the average height is greater than 499’ AGL. This creates an increased hazard to VFR pilots.

Shawn Smith, FAA/AFS-420, shared the team’s two proposed depictions. In the first proposed examples (slides 15-16) the outline has been changed to a dotted outline and a diagonal line interior fill has been added. The boxed elevation is located within the confines of the wind farm, but there is latitude to move the elevation box where space allows. They propose depicting the turbine symbol itself in pairs. Lastly, they propose that a caution box be applied to all wind turbine farms greater than 499’ AGL. For the second example at Palm Springs, (slides 18-19), the dashed outline is retained, but increased in line weight. It has the same fill as the other proposed example. In this example, the boxed elevation is located outside the wind turbine farm due to space constraints. The caution box is below the wind turbine farm. An alternate proposal for the same wind turbine farm (slides 20-21) uses a dotted line for the border and a horizontal fill instead of diagonal lines. Shawn said this proposal will be posted to the ACM website and feedback would be appreciated.

Kevin Allen, American Airlines, said chart clutter is the most important thing to consider. He thinks the caution box is unnecessary and adds to the clutter. He believes the highest elevation box is sufficient.

Rich Boll, NBAA, asked about the subtle color shift in the examples. Michael said the example were done in a drafting environment and the colors are not true. He confirmed that they are not proposing any color changes. Rich asked if masking the area had been considered. Mike said that was considered but they didn’t want to occlude any of the underlying features. He said Canada does something similar to
what Rich is suggesting (slide 27) and that if Rich feels strongly about it, he should send them that feedback. Rich said he would like to see more examples presented at the next ACM.

A number of audience participants voiced that without examples showing true chart colors, it is impossible to properly evaluate the charting changes and to provide good feedback. Valerie Watson, FAA.AJV-A250, agreed and asked if Visual Charting can provide prototypes in true color. Katie Murphy, FAA/AJV-A214, said her team will work on that so they can be included in the review document posted to the ACM website.

Mike Crim, GA Pilot, said he prefers the 45 degree fill versus the horizontal fill, but wonders if the fill is even needed and may add more clutter in already cluttered areas. Mike suggested they look at the fill on a big farm in an uncongested area to how the fill clutters the chart. He also asked if they can combine the caution box and the elevation box since there is duplicated information. Valerie agreed that showing both the boxed caution note and the highest elevation box is redundant and adds unnecessary clutter. She also said that it may cause a legal issue if someone hits an unlit blade at a location that doesn’t carry the caution note. She believes the single boxed numerical elevation is sufficient and the information about unlit blade tips should be handled through pilot education. Michael said Aeronautical Information Manual (AIM) updates and outreach are part of the implementation plan.

Mike Stromberg, IPA/UPS, said he prefers the dotted outline, but noted that the dotted leader line connecting the wind farm to the elevation box was confusing. He also suggested the proponents take this proposal to Air Venture in order to get feedback from more GA pilots.

Jim McClay, AOPA, pointed out that there is a Document Change Proposal (DCP) regarding wind turbine radar interference. Shawn said they had also seen the DCP and were working with the submitter, as well as with Rune Duke, FAA/AFS-001, on the update.

Gary Fiske, FAA/AJV-P310, asked whether it was a good idea to allow the wind turbine farms to continue to increase in height and how much control the FAA has over limiting the vertical height. Michael said they have similar concerns. Their group evaluates for VFR effect and thinks it might be a good idea to have an offline discussion with the Air Traffic Obstruction Evaluation Group as they set the policy.

Valerie summarized Michael and Shawn will work with VFR Charting to create true color examples that will be posted on the ACM website with the proposal to solicit input.

*Post-ACM Note: The presentation has been updated to include true color examples. See slides 29-34.