FAA Informational Briefing:

Proposed Enhancements to Aeronautical Charting of Wind Turbine Farms

Presented to:Aeronautical Charting Meeting,
Charting Group 22-01By:Mike Rauchle and Shawn Smith,
Aviation Safety Inspectors, AFS-420Date:April 26, 2022



Federal Aviation Administration

Introductions

• Mike Rauchle

Aviation Safety Inspector, Flight Technologies and Procedures Division, Flight Procedures and Airspace Group (AFS-420)

Shawn Smith

Aviation Safety Inspector, Flight Technologies and Procedures Division, Flight Procedures and Airspace Group (AFS-420)



Purpose

- Provide an Informational Briefing to ACM's Charting Group regarding:
 - The proliferation of Wind Turbine Growth and Size over time has driven the need for VFR Aeronautical Charting enhancements to improve visual conspicuity
 - For wind turbines >499' AGL, there is increased safety risk in the NAS for unlit wind turbine blade tips that affect flight operations in:
 - Class-G (uncontrolled) Airspace
 - Class-E (controlled) Airspace
 - Charting Improvements = Safety Risk Mitigation



Overview / Agenda

- Review current VFR charting depictions of Wind Turbine Farms
- Review 2011 ACM charting proposal for history/perspective
- Review Wind Turbine data and trends
- Share FAA's new proposal -VFR charting improvements (2x options)
- ACM Charting Group Feedback opportunity
- Q&A



Current Wind Turbine Farm Depictions: Albuquerque, NM Example





Current Wind Turbine Farm Depictions: Palm Springs, CA Example





Historical 2011 ACM Proposal:

FAA Control Number: 11-01-236

AERONAUTICAL CHARTING FORUM Charting Group

RECOMMENDATION DOCUMENT

FAA Control # (11-01-236)

Subject:

New symbol for VFR Sectional Charts.

Background/Discussion:

At the request of many pilots in Michigan, we recommend that a new symbol be developed to differentiate between radio towers and wind turbines.

Recommendations:

Utilize a new symbol to depict wind turbines on VFR charts.



<u>Comments:</u> Provide better landmarks for pilots to increase situational awareness.

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The 2011 Proposal Highlights:

- 25,000 Wind Turbines at that time (now >75,000K)
- PREVIOUS: CURRENT:









USGS Wind Turbine Map (2022):



SOURCE: https://www.sciencebase.gov/catalog/item/57bdfd8fe4b03fd6b7df5ff9



Wind Turbine Data and Trends





Wind Turbine Data and Trends





Wind Turbine Growth (>499ft AGL)





Wind Turbine Growth (>599ft AGL)





Current Wind Turbine Farm Depictions:

Albuquerque, NM Example



CAUTION: Not To Be Used For Navigation

Federal Aviation Administration

Proposed Chart Example #1

Proposed Chart Example #1 (Enlarged)

Current Wind Turbine Farm Depictions: Palm Springs, CA Example

Proposed Chart Example #2a

Proposed Chart Example #2a (Enlarged)

KPSP with Dotted Border (Alternate Proposal #2b)

KPSP (Alternate Proposal #2b, Enlarged)

FAA Requests Stakeholder Feedback:

- ACM Charting Group Feedback Opportunity
 - 9-AMC-AVS-ACM-INFO@faa.gov
 - In the SUBJECT LINE please state:
 - "Wind Turbine Charting Proposal Feedback"
- Timeline
 - 90 Days (Deadline August 1, 2022)
- Next ACM CG Meeting October 2022
 - FAA will brief the group on feedback consensus and inform the group of the final decision

Questions & Answers

• THANK YOU!

BACKUP SLIDES

Proposed Charting Spec. Changes:

- Propose to change the outline border of the wind turbine farm from dashed lines to segmented dots (zipper).
- Propose to chart the wind turbine symbol in pairs.
- Propose to add 45 degree (diagonal), parallel lines for interior fill, .075 line spacing.
- Propose to chart a new Caution Note (Only for wind turbines taller than 499' AGL.)
- Retain existing color palate (aeronautical blue)

Charting a taller obstruction within the wind turbine farm:

Canadian Example For Comparison:

Canada

- Canada is ranked #9 in terms of installed wind power capacity (MW)
- Considerable low altitude General Aviation
- Not ICAO compliant charting; difference isn't noted in AIP

Reference: Canada VNC

Implementation

- Inter-Agency Air Committee (IAC) meeting (FAA, NGA)
- Aeronautical Charting Publication Schedule
 - FAA Aeronautical Information Services (AIS)
 Charting Team's internal process
- Update the Aeronautical Chart Users Guide
- ICAO Difference (AIP)
 - 2.4.1 "Symbols do not universally conform"

Albuquerque, NM

Albuquerque, NM Zoomed In

Palm Springs, CA

Palm Springs, CA Zoomed In

SW Kansas

SW Kansas Zoomed In

