

## **USFWS Monthly Update of FAA Wind Turbine Data - Basic Instructions and General Information:**

### General Information:

#### Description:

ESRI point feature classes derived from the FAA's Obstruction Analysis - Airport Airspace Analysis (OE-AAA) database and representing wind turbines and MET towers from 1995 through the first update of the current month. Four separate feature classes depict sites classified by FWS staff as 'Determined with a Built Date', 'Determined with no Built Date', 'Not Yet Determined' and 'Determined Hazard'.

These categories are defined as follows:

Determined with Built Date - Wind turbines that have been determined by the FAA to pose no hazard to air navigation and have a built date in the FAA database. This category includes records in the database where STATUS = Determined and DTBUILT is not NULL.

Determined no Built Date - Wind turbines that have been determined by the FAA to pose no hazard to air navigation but do not yet have a built date in the FAA database (e.g. are not yet operational). This category includes records in the database where STATUS = Determined and DTBUILT is NULL and DETERMINATION = NULL, No Hazard, Extention, Extention Denied, Feasibility Study, M&L or M&L Denied.

Determined Hazard - Wind turbines that have been determined by the FAA to pose a hazard to air navigation. This category includes records where STATUS = Circularization; STATUS = Interim and DETERMINATION = Presumed Hazard; or STATUS = Determined and DETERMINATION = Hazard or Presumed Hazard.

Not Yet Determined - Wind turbine projects that have applied to the FAA for a determination of hazard or no hazard. FAA is in the process of performing an aeronautical study to determine whether or not the turbines poses a hazard to air navigation. This category in records where STATUS = Accepted, Add Letter or Work in Progress.

#### Purpose:

To provide basic information on the status and location of wind turbines and met towers throughout the US based on available FAA data.

#### Access\_Constraints:

Feature classes are available for download from a secure FWS ftp site. Must be a FWS employee to download. Active Directory username and password required.

Use\_Constraints:

See data source for any constraints:

<https://oeaaa.faa.gov/oeaaa/external/portal.jsp>

The link below relates more specifically to the positional accuracy of the data:

<https://oeaaa.faa.gov/oeaaa/external/content/surveyAccuracy.jsp>

General USFWS disclaimer:

USFWS gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data. In addition, the USFWS shall not be held liable for improper or incorrect use of the data described and/or contained herein.

Point\_of\_Contact for Data served from FWS:

Michael Dick - Biologist (IT)  
US Fish and Wildlife Service  
Division of Ecological Services, Southwest Region  
Email: [mike\\_dick@fws.gov](mailto:mike_dick@fws.gov)  
Hours\_of\_Service: 8am - 5pm

Source:

Raw data (csv format) obtained from Federal Aviation Administration Obstruction Evaluation / Airport Airspace Analysis (OE-AAA) database

(<https://oeaaa.faa.gov/oeaaa/external/public/publicAction.jsp?action=showCaseDownloadForm>). Data used was for "Off Airport Cases" for Regions WTW and WTE from 2008-present.

GIS data - US Fish and Wildlife Service

Online Availability:

[https://www.fws.gov/southwest/es/Energy/Energy\\_Wind/Energy\\_Wind\\_FAA.html](https://www.fws.gov/southwest/es/Energy/Energy_Wind/Energy_Wind_FAA.html)

Update Frequency:

Monthly - FAA updates their database every Saturday. This data will be updated ASAP after the first Saturday of each month.

Description of file types:

- KML (keyhole markup language) – This file is used in Google Earth.

To use, start Google Earth, click File, then click Open and navigate to the location of the kml (or kmz) file.

- KMZ – a zipped KML file. Open same as above.
- LYR – ESRI ArcGIS layer file. There is one of these associated with each feature class. The .lyr file contains only the symbology for its corresponding feature class. To Use, start ArcMAP, click Add Data and navigate to the desired .lyr file.

**NOTE:** Because of the way the .lyr files were created, when you add them to ArcMap, they may appear with a red exclamation point next to them in the Table of Contents. This means that the link to their source data has been lost. Right-click on the layer name, scroll down to Data and select Repair Data Source, navigate to where the associated feature classes now reside, select the appropriate feature class and click add. This should fix the links for all layer files within that same folder.

- Geodatabase(File) – ESRI data storage format. These geodatabases were created using ArcGIS 10. In Windows explorer, this file will appear as folder with a .gdb file extension. In ESRI ArcCatalog, it will appear as a gray container. The geodatabase for a particular region contains the following four feature classes, based on the FWS\_Status attribute:

DETERMIED with Built Date  
DETERMINED with no Built Date  
DETERMINED Hazard  
Not Yet Determined

- Excel – The raw data is provided in two Microsoft Excel formats. The database as a whole is provided in .xlsx format. There is also an older .xls format provided where data for each region is provided on separate tabs within the worksheet.

#### Symbology for layer (.lyr) and Google Earth (.kmz) files:

- Determined with Built Date: black triangle
- Determined with no Built Date: large green dot
- Determined Hazard: small red dot
- Not Yet Determined: medium yellow dot

#### Spatial Reference Information:

Coordinate System: Geographic

Units: Decimal degrees

Horizontal Datum: North American Datum of 1983

Ellipsoid\_Name: Geodetic Reference System 80

Entity and Attribute Information:

**\*\*NOTE – Additional attribute definitions from the FAA Web Application Programming Interface (API) Restful Services User Guide (Glossary section) have been appended to the end of this document. The FAA user guide can be found at: <https://oeaaa.faa.gov/oeaaa/external/public/publicAction.jsp?action=showCaseDownloadForm>**

Attribute:

Attribute\_Label: FID

Attribute\_Definition: Internal feature number.

Attribute\_Definition\_Source: ESRI

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute\_Label: Shape

Attribute\_Definition: Feature geometry.

Attribute\_Definition\_Source: ESRI

Attribute\_Domain\_Values:

Unrepresentable\_Domain: Coordinates defining the features.

Attribute:

Attribute\_Label: InUpd

Attribute\_Definition: N=Record no longer in FAA Database;Not Updated=Record prior to 2008 and not updated;Null=Record in current update

Attribute\_Definition\_Source: USFWS

Attribute:

Attribute\_Label: ASN

Attribute\_Definition: Study Number

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: PASN

Attribute\_Definition: Prior Study Number

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: STATUS

Attribute\_Definition: Status

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: DETERM

Attribute\_Definition: Determination

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: EntDate

Attribute\_Definition: Entered Date

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: RecDate

Attribute\_Definition: Received Date

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: CompDate

Attribute\_Definition: Completion Date

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: ExpDate

Attribute\_Definition: Expiration Date

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: LATITUDE

Attribute\_Definition: Latitude

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: LONGITUTDE

Attribute\_Definition: Longitude

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: DATUM

Attribute\_Definition: Horizontal Datum

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SurvAccy

Attribute\_Definition: Survey Accuracy

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: MLtype

Attribute\_Definition: Marking Lighting Type

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: MLtype2

Attribute\_Definition: Marking Lighting Type Other

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: StrName

Attribute\_Definition: Structure Name

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: StrCity

Attribute\_Definition: Structure City

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: StrST

Attribute\_Definition: Structure State

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: NrAirprt

Attribute\_Definition: Nearest Airport

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: Dist2Aipt

Attribute\_Definition: Distance From Airport

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: Dir2Airpt

Attribute\_Definition: Direction From Airport

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: OnAirprt

Attribute\_Definition: On Airport

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: PropDes

Attribute\_Definition: Proposal Description

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: LocDes

Attribute\_Definition: Location Description

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: NoticeOf

Attribute\_Definition: Notice Of

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: Duration

Attribute\_Definition: Duration

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: DurDays

Attribute\_Definition: Duration Days

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: DurMnths

Attribute\_Definition: Duration Months

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: WsBegDt

Attribute\_Definition: Work Schedule Beginning Data

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: WsEndDt

Attribute\_Definition: Work Schedule End Date

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: DtBuilt

Attribute\_Definition: Date Built

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: FCCnum

Attribute\_Definition: FCC Number

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: NACGnum

Attribute\_Definition: NACG Number

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: StrType

Attribute\_Definition: Structure Type

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: StrType2

Attribute\_Definition: Structure Type Other

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: AglDet

Attribute\_Definition: AGL Height Det

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: AglDne

Attribute\_Definition: AGL Height DNE

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: AglProp

Attribute\_Definition: AGL Height Proposed

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: Elev

Attribute\_Definition: Elevation  
Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: AmslDet  
Attribute\_Definition: AMSL Height Det  
Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: AmslDne  
Attribute\_Definition: AMSL Height DNE  
Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: AmslProp  
Attribute\_Definition: AMSL Height Proposed  
Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: RepAttn  
Attribute\_Definition: Representative Attn Of  
Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: RepCity  
Attribute\_Definition: Representative City  
Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: RepCntry  
Attribute\_Definition: Representative Country  
Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: RepEmail  
Attribute\_Definition: Representative Email  
Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: RepName  
Attribute\_Definition: Representative Name  
Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: RepFax  
Attribute\_Definition: Representative Fax  
Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: RepPH  
Attribute\_Definition: Representative Primary Phone  
Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: RepPHx



Attribute\_Definition: Representative Primary Phone Ext

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: RepST

Attribute\_Definition: Representative State

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: RepAddr1

Attribute\_Definition: Representative Address 1

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: RepAddr2

Attribute\_Definition: Representative Address 2

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: RepZip

Attribute\_Definition: Representative Postal Code

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SprAttn

Attribute\_Definition: Sponsor Attn Of

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SprCity

Attribute\_Definition: Sponsor City

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SprCntry

Attribute\_Definition: Sponsor Country

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SprEmail

Attribute\_Definition: Sponsor Email

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SprName

Attribute\_Definition: Sponsor Name

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SprFax

Attribute\_Definition: Sponsor Fax

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SprPH

Attribute\_Definition: Sponsor Primary Phone

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SprPHx

Attribute\_Definition: Sponsor Primary Phone Ext

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SprST

Attribute\_Definition: Sponsor State

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SprAddr1

Attribute\_Definition: Sponsor Address 1

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SprAddr2

Attribute\_Definition: Sponsor Address 2

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SprZip

Attribute\_Definition: Sponsor Postal Code

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: SigCtrlNum

Attribute\_Definition: Signature Control Number

Attribute\_Definition\_Source: FAA

Attribute:

Attribute\_Label: LatDD

Attribute\_Definition: Latitude (decimal degrees)

Attribute\_Definition\_Source: USFWS

Attribute:

Attribute\_Label: LonDD

Attribute\_Definition: Longitude (decimal degrees)

Attribute\_Definition\_Source: USFWS

Attribute:

Attribute\_Label: FWSRegion

Attribute\_Definition: USFWS Region (number)

Attribute\_Definition\_Source: USFWS

Attribute:

Attribute\_Label: FWSStatus

Attribute\_Definition: Status as classified by FWS Staff

Attribute\_Definition\_Source: USFWS

## Data Processing:

These are the basic steps to create the Excel database , KML and GIS files:

- 1) Download WTE and WTW files (2008 – present) then cut/paste to new update file.
- 2) Check data for misalignment issues and fix.
- 3) Convert lat/longs from dms to dd for use in ESRI ArcGIS software and populate LatDD and LonDD
- 4) Populate FWSRegion via lookup table.
- 5) Populate FWSStatus using the following Excel formulas:
  - Determined with Date Built given:  
**=IF(AND(C2="Determined",AD2<>""),"DETERMINED - With Built Date", "")**
  - Determined, but no Date Built given:  
**=IF(AND(C2="Determined",AD2="",OR(D2="",D2="No Hazard",D2="Extension", D2="Extension Denied", D2="Feasibility Study", D2="M&L",D2="M&L Denied",D2="M&L Change")),"DETERMINED - No Built Date", "")**
  - Determined as Hazard:  
**=IF(OR(C2="Circularization",C2="Interim",(AND(C2="Interim",D2="Presumed Hazard"))),(AND(C2="Determined",AD2="",OR(D2="Hazard",D2="Presumed Hazard")))), "DETERMINED - Hazard", "")**
  - Not Yet Determined:  
**=IF(OR(C2="Accepted",C2="Add Letter", C2="Work In Progress"),"Not Yet Determined", "")**
- 6) Open previous month's master file and save as with current month. Update with records from the new update.
- 13) In Master, add 4GIS, NAD83 and NAD27
- 14) In Master, copy AllData to 4GIS and modify for use in GIS
- 15) In Master (4GIS tab), sort records by datum (for records with no datum, populate with NAD83), then copy/paste into their respective tabs (with headers). In the NAD27 and NAD83 tabs, copy all data for the appropriate Datum.
- 18) Using ESRI ArcGIS 10.6.1, create feature classes, symbolized layer files and kmz files.