

indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9501-OE.

**Signature Control No: 310523101-326627726**

( DNH -WT )

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

## Additional information for ASN 2016-WTE-9501-OE

### Abbreviations:

AGL, Above Ground Level  
AMSL, Above Mean Sea Level  
ARTCC, Air Route Traffic Control Center  
ASN, Aeronautical Study Number  
ATC, Air Traffic Control  
CFR, Code of Federal Regulations  
IFR, Instrument Flight Rules  
MIA, Minimum IFR Altitude  
NM, Nautical Mile  
VFR, Visual Flight Rules

The proposed structures are part of a wind turbine farm consisting of 49 wind turbines that would be located approximately 20.44 - 24.39 NM north of the Airport Reference Point for the Turtle Lake Municipal Airport (91N), Turtle Lake, ND. While all exceed the notice criteria of 14 CFR Part 77, only 38 exceed Obstruction Standards. The ASNs with coordinates, AGL heights, and AMSL heights are as indicated on page one.

The proposed structures would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(4): A height that increases a minimum instrument flight altitude within an en route area; They would increase the Minneapolis ARTCC (ZMP) MIA: ZMP\_TAV\_2016 sector PDVL01 MVA from 3,500 feet AMSL to 3,700 feet AMSL.

The proposals were not circularized to the public for comments, as current FAA policy exempts from circularization those proposals which only require internal FAA review. The identified effects are to altitudes and systems that are used by ATC and not published for public use. Therefore public comment is not required.

The aeronautical study disclosed that amending the MIA in the area of the turbines would not impact a significant number of operations. The proposed structures would not have a significant adverse effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on VFR traffic pattern operations at 91N or any known public use or military airports. The proposals would have no effect on existing or proposed VFR arrival or departure operations. At 495 feet AGL they would not have a substantial adverse effect on VFR en route flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

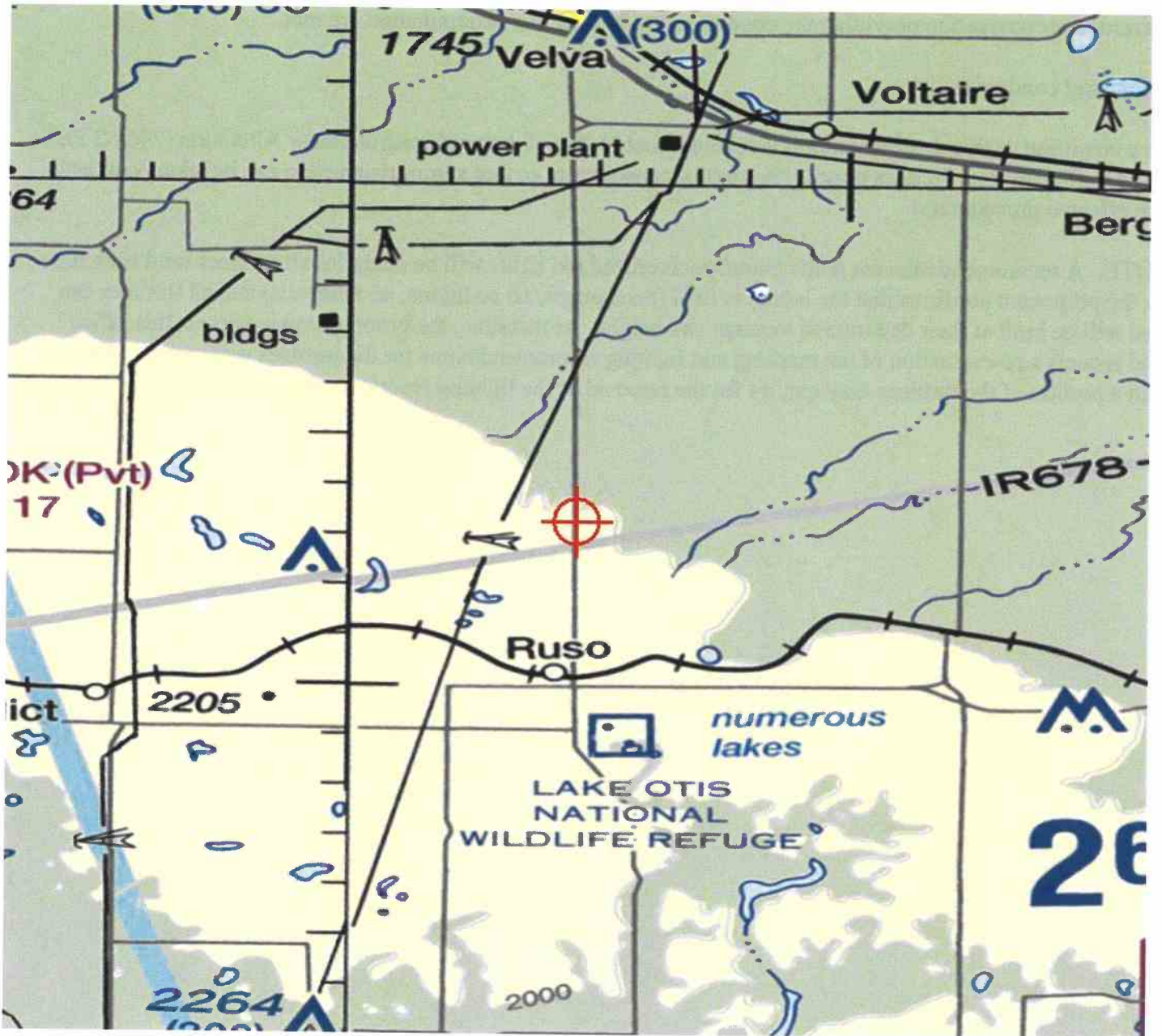
The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed structures would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s).

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Mail Processing Center  
Federal Aviation Administration  
Southwest Regional Office  
Obstruction Evaluation Group  
10101 Hillwood Parkway  
Fort Worth, TX 76177

Aeronautical Study No.  
2016-WTE-9504-OE

Issued Date: 03/24/2017

William Behling  
Capital Power Corporation  
155 Federal Street, Suite 1200  
Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine NF23
Location:	Ruso, ND
Latitude:	47-52-42.83N NAD 83
Longitude:	100-56-04.51W
Heights:	2135 feet site elevation (SE) 495 feet above ground level (AGL) 2630 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

our request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

This determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before April 23, 2017. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager, Airspace Policy & Regulation, Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591.

This determination becomes final on May 03, 2017 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Regulations & ATC Procedures Group via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as

indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace of aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9504-OE.

**Signature Control No: 310523104-326627734**

( DNH -WT )

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

## Additional information for ASN 2016-WTE-9504-OE

### Abbreviations:

AGL, Above Ground Level  
AMSL, Above Mean Sea Level  
ARTCC, Air Route Traffic Control Center  
ASN, Aeronautical Study Number  
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NM, Nautical Mile  
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The proposed structures are part of a wind turbine farm consisting of 49 wind turbines that would be located approximately 20.44 - 24.39 NM north of the Airport Reference Point for the Turtle Lake Municipal Airport (91N), Turtle Lake, ND. While all exceed the notice criteria of 14 CFR Part 77, only 38 exceed Obstruction Standards. The ASNs with coordinates, AGL heights, and AMSL heights are as indicated on page one.

The proposed structures would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(4): A height that increases a minimum instrument flight altitude within an en route area; They would increase the Minneapolis ARTCC (ZMP) MIA: ZMP\_TAV\_2016 sector PDVL01 MVA from 3,500 feet AMSL to 3,700 feet AMSL.

The proposals were not circularized to the public for comments, as current FAA policy exempts from circularization those proposals which only require internal FAA review. The identified effects are to altitudes and systems that are used by ATC and not published for public use. Therefore public comment is not required.

The aeronautical study disclosed that amending the MIA in the area of the turbines would not impact a significant number of operations. The proposed structures would not have a significant adverse effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on VFR traffic pattern operations at 91N or any known public use or military airports. The proposals would have no effect on existing or proposed VFR arrival or departure operations. At 495 feet AGL they would not have a substantial adverse effect on VFR en route flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

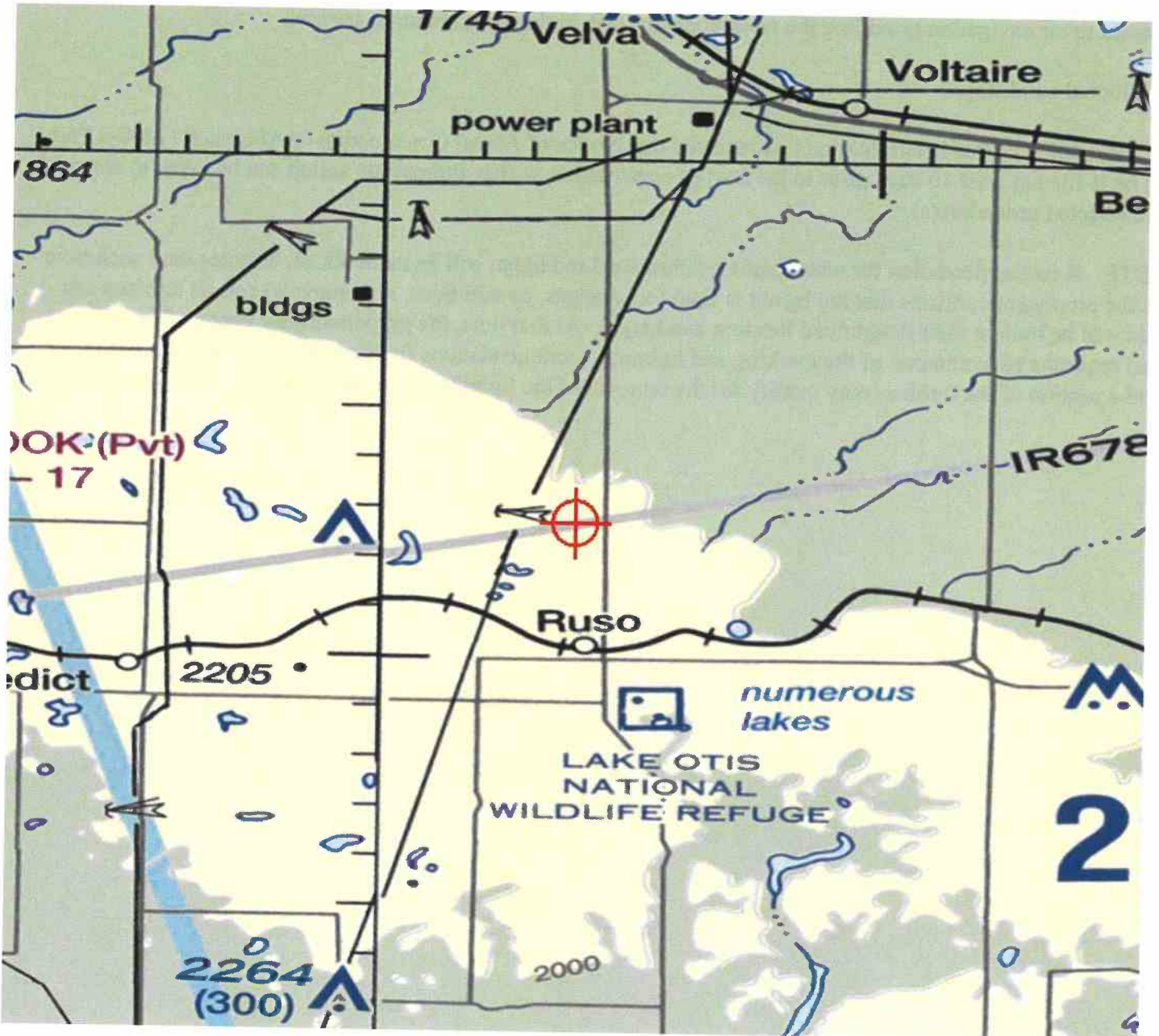
The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed structures would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s).

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2016-WTE-9505-OE

Issued Date: 03/24/2017

William Behling  
 Capital Power Corporation  
 155 Federal Street, Suite 1200  
 Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF24  
 Location: Ruso, ND  
 Latitude: 47-52-21.95N NAD 83  
 Longitude: 100-55-31.19W  
 Heights: 2123 feet site elevation (SE)  
 495 feet above ground level (AGL)  
 2618 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

our request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

This determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

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An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9505-OE.

**Signature Control No: 310523105-326627725**

( DNH -WT )

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

## Additional information for ASN 2016-WTE-9505-OE

### Abbreviations:

AGL, Above Ground Level  
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The aeronautical study disclosed that amending the MIA in the area of the turbines would not impact a significant number of operations. The proposed structures would not have a significant adverse effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

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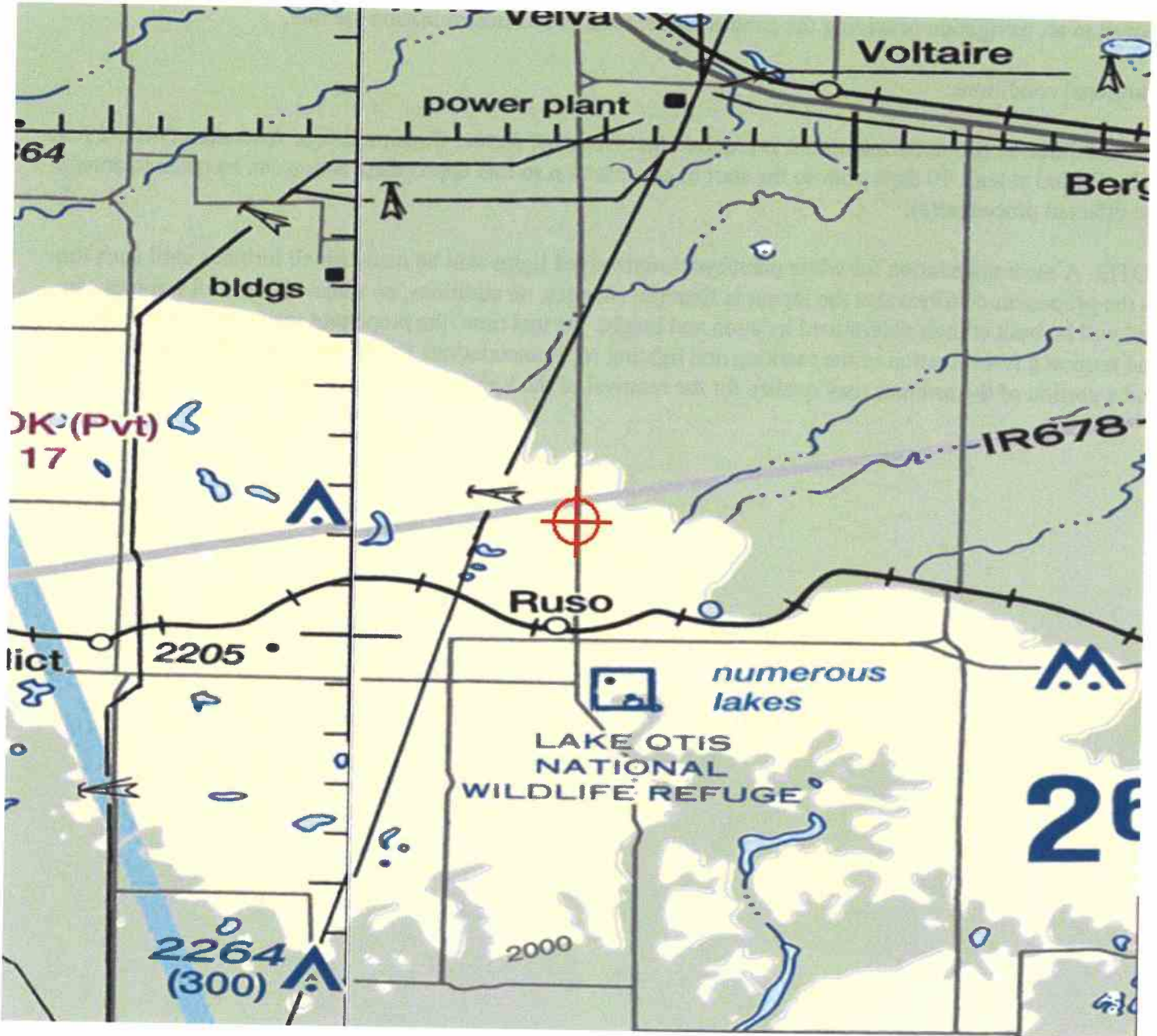
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Therefore, it is determined that the proposed structures would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s).

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Mail Processing Center  
Federal Aviation Administration  
Southwest Regional Office  
Obstruction Evaluation Group  
10101 Hillwood Parkway  
Fort Worth, TX 76177

Aeronautical Study No.  
2016-WTE-9507-OE

Issued Date: 03/24/2017

William Behling  
Capital Power Corporation  
155 Federal Street, Suite 1200  
Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF26  
Location: Ruso, ND  
Latitude: 47-51-57.39N NAD 83  
Longitude: 100-55-35.55W  
Heights: 2151 feet site elevation (SE)  
495 feet above ground level (AGL)  
2646 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

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- At least 10 days prior to start of construction (7460-2, Part 1)  
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See attachment for additional condition(s) or information.

our request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

This determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
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NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9507-OE.

**Signature Control No: 310523107-326627731**

( DNH -WT )

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

## Additional information for ASN 2016-WTE-9507-OE

### Abbreviations:

AGL, Above Ground Level

AMSL, Above Mean Sea Level

ARTCC, Air Route Traffic Control Center

ASN, Aeronautical Study Number

ATC, Air Traffic Control

CFR, Code of Federal Regulations

IFR, Instrument Flight Rules

MIA, Minimum IFR Altitude

NM, Nautical Mile

VFR, Visual Flight Rules

The proposed structures are part of a wind turbine farm consisting of 49 wind turbines that would be located approximately 20.44 - 24.39 NM north of the Airport Reference Point for the Turtle Lake Municipal Airport (91N), Turtle Lake, ND. While all exceed the notice criteria of 14 CFR Part 77, only 38 exceed Obstruction Standards. The ASNs with coordinates, AGL heights, and AMSL heights are as indicated on page one.

The proposed structures would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(4): A height that increases a minimum instrument flight altitude within an en route area; They would increase the Minneapolis ARTCC (ZMP) MIA: ZMP\_TAV\_2016 sector PDVL01 MVA from 3,500 feet AMSL to 3,700 feet AMSL.

The proposals were not circularized to the public for comments, as current FAA policy exempts from circularization those proposals which only require internal FAA review. The identified effects are to altitudes and systems that are used by ATC and not published for public use. Therefore public comment is not required.

The aeronautical study disclosed that amending the MIA in the area of the turbines would not impact a significant number of operations. The proposed structures would not have a significant adverse effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on VFR traffic pattern operations at 91N or any known public use or military airports. The proposals would have no effect on existing or proposed VFR arrival or departure operations. At 495 feet AGL they would not have a substantial adverse effect on VFR en route flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

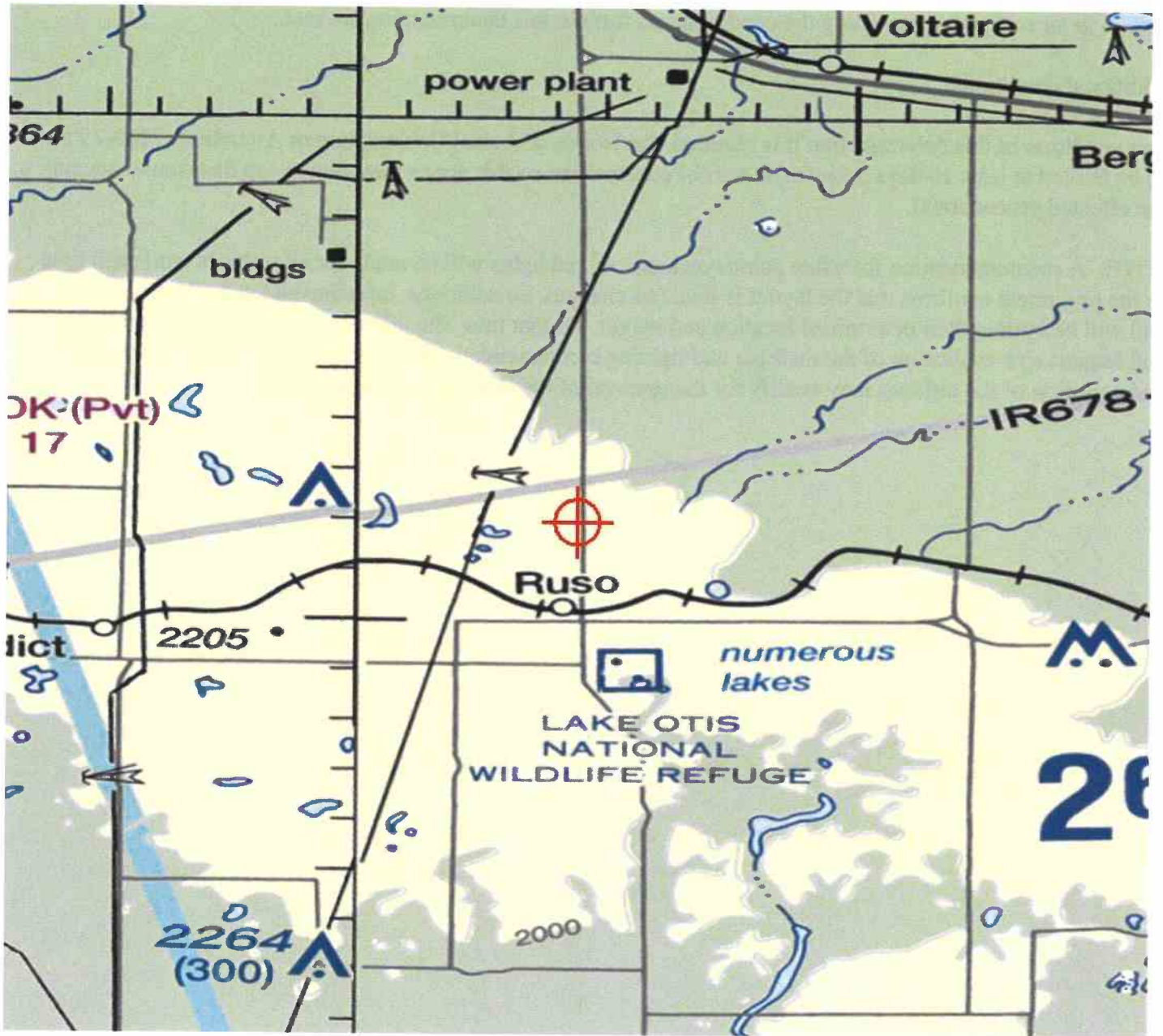
The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed structures would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s).

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2016-WTE-9510-OE

Issued Date: 03/24/2017

William Behling  
 Capital Power Corporation  
 155 Federal Street, Suite 1200  
 Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF30  
 Location: Ruso, ND  
 Latitude: 47-51-03.66N NAD 83  
 Longitude: 100-56-25.22W  
 Heights: 2146 feet site elevation (SE)  
 495 feet above ground level (AGL)  
 2641 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

our request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

This determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before April 23, 2017. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager, Airspace Policy & Regulation, Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591.

This determination becomes final on May 03, 2017 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Regulations & ATC Procedures Group via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as

indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace for aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9510-OE.

**Signature Control No: 310523110-326627797**

( DNH -WT )

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

## Additional information for ASN 2016-WTE-9510-OE

### Abbreviations:

AGL, Above Ground Level  
AMSL, Above Mean Sea Level  
ARTCC, Air Route Traffic Control Center  
ASN, Aeronautical Study Number  
ATC, Air Traffic Control  
CFR, Code of Federal Regulations  
IFR, Instrument Flight Rules  
MIA, Minimum IFR Altitude  
NM, Nautical Mile  
VFR, Visual Flight Rules

The proposed structures are part of a wind turbine farm consisting of 49 wind turbines that would be located approximately 20.44 - 24.39 NM north of the Airport Reference Point for the Turtle Lake Municipal Airport (91N), Turtle Lake, ND. While all exceed the notice criteria of 14 CFR Part 77, only 38 exceed Obstruction Standards. The ASNs with coordinates, AGL heights, and AMSL heights are as indicated on page one.

The proposed structures would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(4): A height that increases a minimum instrument flight altitude within an en route area; They would increase the Minneapolis ARTCC (ZMP) MIA: ZMP\_TAV\_2016 sector PDVL01 MVA from 3,500 feet AMSL to 3,700 feet AMSL.

The proposals were not circularized to the public for comments, as current FAA policy exempts from circularization those proposals which only require internal FAA review. The identified effects are to altitudes and systems that are used by ATC and not published for public use. Therefore public comment is not required.

The aeronautical study disclosed that amending the MIA in the area of the turbines would not impact a significant number of operations. The proposed structures would not have a significant adverse effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on VFR traffic pattern operations at 91N or any known public use or military airports. The proposals would have no effect on existing or proposed VFR arrival or departure operations. At 495 feet AGL they would not have a substantial adverse effect on VFR en route flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

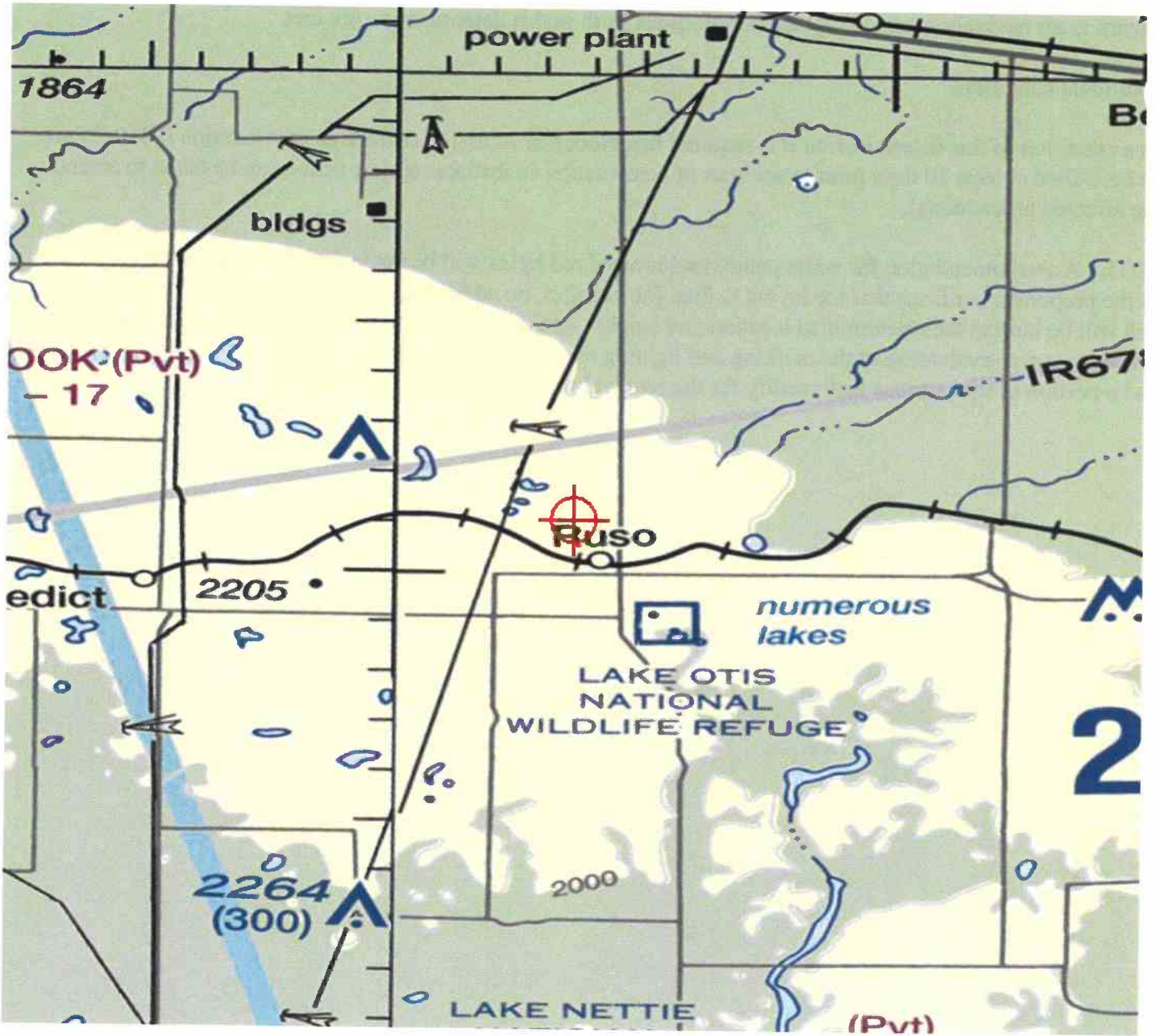
The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed structures would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s).

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2016-WTE-9511-OE

Issued Date: 03/24/2017

William Behling  
 Capital Power Corporation  
 155 Federal Street, Suite 1200  
 Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF31  
 Location: Ruso, ND  
 Latitude: 47-51-25.47N NAD 83  
 Longitude: 100-56-20.30W  
 Heights: 2163 feet site elevation (SE)  
 495 feet above ground level (AGL)  
 2658 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

our request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

This determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before April 23, 2017. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager, Airspace Policy & Regulation, Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591.

This determination becomes final on May 03, 2017 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Regulations & ATC Procedures Group via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as

indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9511-OE.

**Signature Control No: 310523111-326627800**

( DNH -WT )

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

## Additional information for ASN 2016-WTE-9511-OE

### Abbreviations:

AGL, Above Ground Level  
AMSL, Above Mean Sea Level  
ARTCC, Air Route Traffic Control Center  
ASN, Aeronautical Study Number  
ATC, Air Traffic Control  
CFR, Code of Federal Regulations  
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The proposed structures are part of a wind turbine farm consisting of 49 wind turbines that would be located approximately 20.44 - 24.39 NM north of the Airport Reference Point for the Turtle Lake Municipal Airport (91N), Turtle Lake, ND. While all exceed the notice criteria of 14 CFR Part 77, only 38 exceed Obstruction Standards. The ASNs with coordinates, AGL heights, and AMSL heights are as indicated on page one.

The proposed structures would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(4): A height that increases a minimum instrument flight altitude within an en route area; They would increase the Minneapolis ARTCC (ZMP) MIA: ZMP\_TAV\_2016 sector PDVL01 MVA from 3,500 feet AMSL to 3,700 feet AMSL.

The proposals were not circularized to the public for comments, as current FAA policy exempts from circularization those proposals which only require internal FAA review. The identified effects are to altitudes and systems that are used by ATC and not published for public use. Therefore public comment is not required.

The aeronautical study disclosed that amending the MIA in the area of the turbines would not impact a significant number of operations. The proposed structures would not have a significant adverse effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on VFR traffic pattern operations at 91N or any known public use or military airports. The proposals would have no effect on existing or proposed VFR arrival or departure operations. At 495 feet AGL they would not have a substantial adverse effect on VFR en route flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

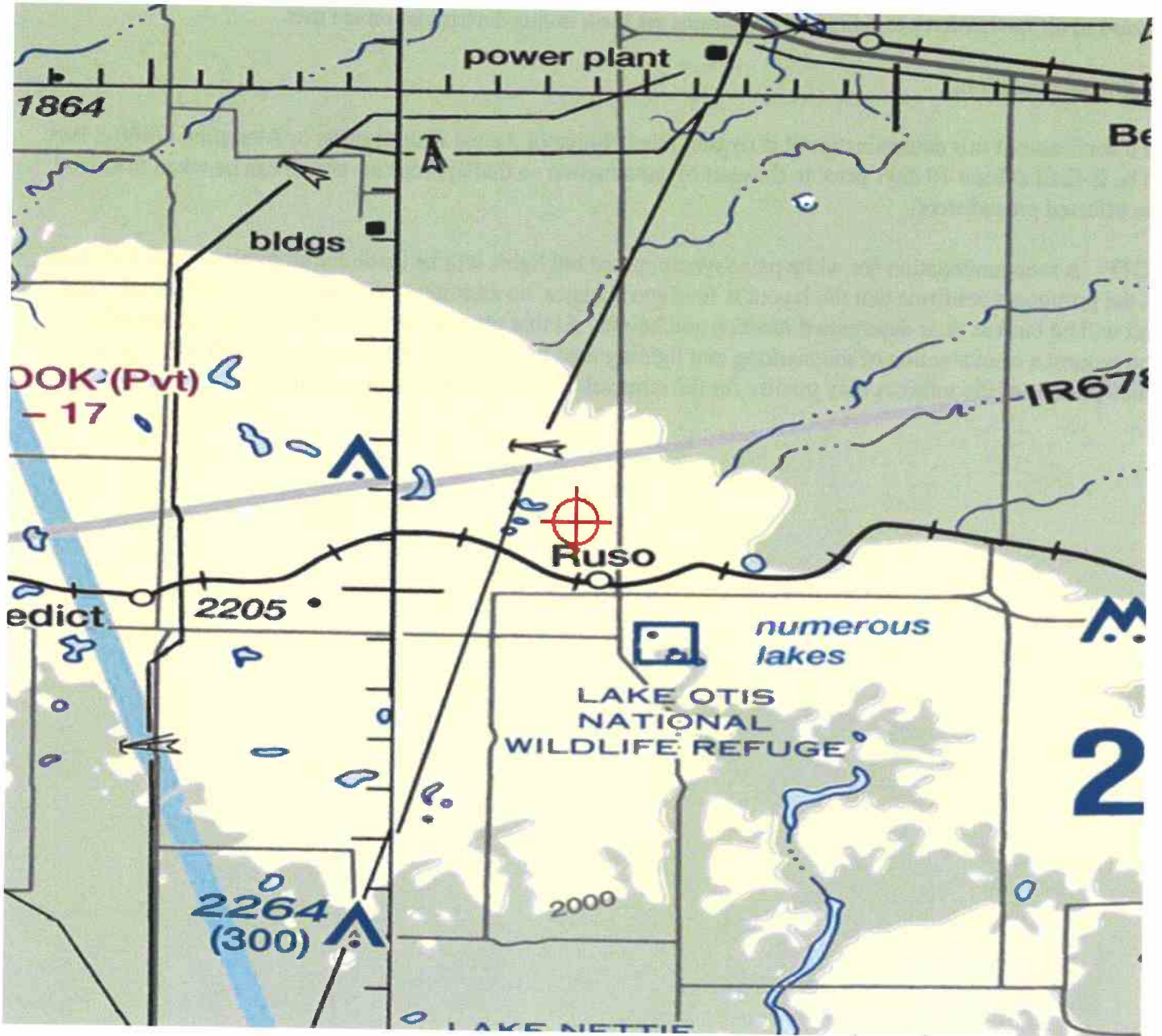
The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed structures would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s).

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Proposed Case for : 2018-WTE-10408-OE

**For information only.**

This proposal has not yet been studied. Study outcomes will be posted at a later date. Public comments are not requested, and will not be considered at this time.

Overview					
Study (ASN): 2018-WTE-10408-OE	Received Date: 11/01/2018				
Prior Study: 2016-WTE-9512-OE	Entered Date: 11/01/2018				
Status: Work In Progress	Map: <a href="#">View Map</a>				
Construction Info					
Notice Of: EXIST	Structure Summary				
Duration: PERM (Months: 0 Days: 0)	Structure Type: Wind Turbine				
Work Schedule: 07/24/2018 to 10/22/2018	Structure Name: NF32				
	FCC Number:				
Structure Details					
Latitude (NAD 83): 47° 51' 13.34" N	Height and Elevation				
Longitude (NAD 83): 100° 55' 53.72" W					
Datum: NAD 83	Site Elevation: 2164				
City: Ruso	Structure Height: 492				
State: ND	Total Height (AMSL): 2656				
Nearest County: McHenry					
	Frequencies				
	Low Freq	High Freq	Unit	ERP	Unit

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Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2016-WTE-9513-OE

Issued Date: 03/24/2017

William Behling  
 Capital Power Corporation  
 155 Federal Street, Suite 1200  
 Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF33  
 Location: Ruso, ND  
 Latitude: 47-51-23.76N NAD 83  
 Longitude: 100-55-30.04W  
 Heights: 2148 feet site elevation (SE)  
 495 feet above ground level (AGL)  
 2643 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

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- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

our request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

This determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
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This determination becomes final on May 03, 2017 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Regulations & ATC Procedures Group via telephone -- 202-267-8783 - or facsimile 202-267-9328.

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indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace of aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9513-OE.

**Signature Control No: 310523113-326627805**

( DNH -WT )

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

## Additional information for ASN 2016-WTE-9513-OE

### Abbreviations:

AGL, Above Ground Level  
AMSL, Above Mean Sea Level  
ARTCC, Air Route Traffic Control Center  
ASN, Aeronautical Study Number  
ATC, Air Traffic Control  
CFR, Code of Federal Regulations  
IFR, Instrument Flight Rules  
MIA, Minimum IFR Altitude  
NM, Nautical Mile  
VFR, Visual Flight Rules

The proposed structures are part of a wind turbine farm consisting of 49 wind turbines that would be located approximately 20.44 - 24.39 NM north of the Airport Reference Point for the Turtle Lake Municipal Airport (91N), Turtle Lake, ND. While all exceed the notice criteria of 14 CFR Part 77, only 38 exceed Obstruction Standards. The ASNs with coordinates, AGL heights, and AMSL heights are as indicated on page one.

The proposed structures would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(4): A height that increases a minimum instrument flight altitude within an en route area; They would increase the Minneapolis ARTCC (ZMP) MIA: ZMP\_TAV\_2016 sector PDVL01 MVA from 3,500 feet AMSL to 3,700 feet AMSL.

The proposals were not circularized to the public for comments, as current FAA policy exempts from circularization those proposals which only require internal FAA review. The identified effects are to altitudes and systems that are used by ATC and not published for public use. Therefore public comment is not required.

The aeronautical study disclosed that amending the MIA in the area of the turbines would not impact a significant number of operations. The proposed structures would not have a significant adverse effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on VFR traffic pattern operations at 91N or any known public use or military airports. The proposals would have no effect on existing or proposed VFR arrival or departure operations. At 495 feet AGL they would not have a substantial adverse effect on VFR en route flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

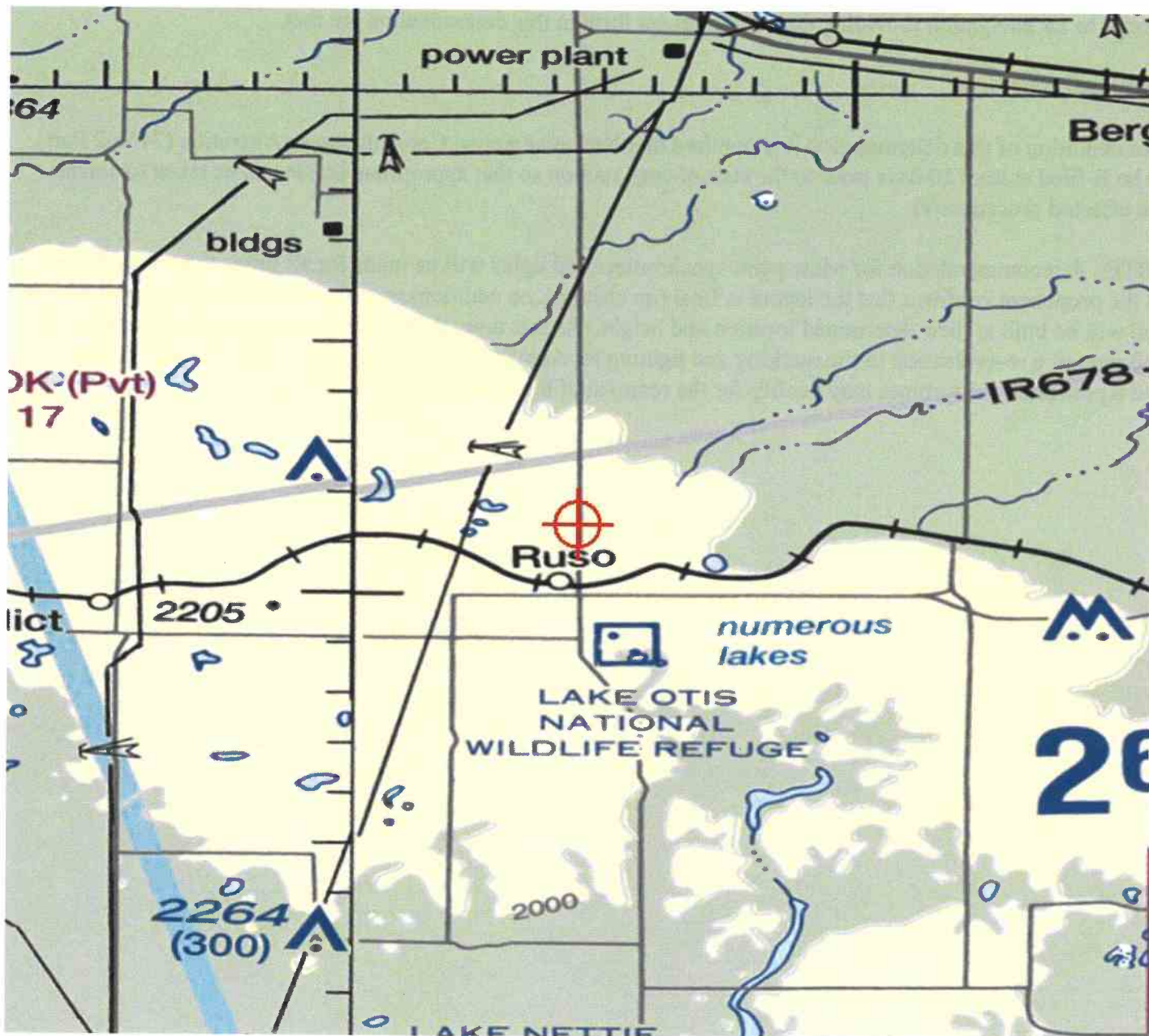
The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed structures would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s).

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Mail Processing Center  
Federal Aviation Administration  
Southwest Regional Office  
Obstruction Evaluation Group  
10101 Hillwood Parkway  
Fort Worth, TX 76177

Aeronautical Study No.  
2016-WTE-9514-OE

Issued Date: 03/24/2017

William Behling  
Capital Power Corporation  
155 Federal Street, Suite 1200  
Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF34  
Location: Ruso, ND  
Latitude: 47-51-00.29N NAD 83  
Longitude: 100-55-15.46W  
Heights: 2145 feet site elevation (SE)  
495 feet above ground level (AGL)  
2640 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

This determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

**NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.**

This determination is subject to review if an interested party files a petition that is received by the FAA on or before April 23, 2017. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager, Airspace Policy & Regulation, Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591.

This determination becomes final on May 03, 2017 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Regulations & ATC Procedures Group via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as

indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9514-OE.

**Signature Control No: 310523114-326627868**

( DNH -WT )

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Abbreviations:

AGL, Above Ground Level

AMSL, Above Mean Sea Level

ARTCC, Air Route Traffic Control Center

ASN, Aeronautical Study Number

ATC, Air Traffic Control

CFR, Code of Federal Regulations

IFR, Instrument Flight Rules

MIA, Minimum IFR Altitude

NM, Nautical Mile

VFR, Visual Flight Rules

The proposed structures are part of a wind turbine farm consisting of 49 wind turbines that would be located approximately 20.44 - 24.39 NM north of the Airport Reference Point for the Turtle Lake Municipal Airport (91N), Turtle Lake, ND. While all exceed the notice criteria of 14 CFR Part 77, only 38 exceed Obstruction Standards. The ASNs with coordinates, AGL heights, and AMSL heights are as indicated on page one.

The proposed structures would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(4): A height that increases a minimum instrument flight altitude within an en route area; They would increase the Minneapolis ARTCC (ZMP) MIA: ZMP\_TAV\_2016 sector PDVL01 MVA from 3,500 feet AMSL to 3,700 feet AMSL.

The proposals were not circularized to the public for comments, as current FAA policy exempts from circularization those proposals which only require internal FAA review. The identified effects are to altitudes and systems that are used by ATC and not published for public use. Therefore public comment is not required.

The aeronautical study disclosed that amending the MIA in the area of the turbines would not impact a significant number of operations. The proposed structures would not have a significant adverse effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on VFR traffic pattern operations at 91N or any known public use or military airports. The proposals would have no effect on existing or proposed VFR arrival or departure operations. At 495 feet AGL they would not have a substantial adverse effect on VFR en route flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed structures would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s).

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Proposed Case for : 2018-WTE-9463-OE

**For information only.**

This proposal has not yet been studied. Study outcomes will be posted at a later date.  
Public comments are not requested, and will not be considered at this time.

Overview					
Study (ASN): 2018-WTE-9463-OE	Received Date: 10/04/2018				
Prior Study: 2017-WTE-9697-OE	Entered Date: 10/04/2018				
Status: Work In Progress	Map: <a href="#">View Map</a>				
Construction Info					
Notice Of: EXIST	Structure Summary				
Duration: PERM (Months: 0 Days: 0)	Structure Type: Wind Turbine				
Work Schedule: 07/24/2018 to 12/22/2018	Structure Name: NF39				
	FCC Number:				
Structure Details					
Latitude (NAD 83): 47° 51' 50.96" N	Height and Elevation				
Longitude (NAD 83): 100° 53' 27.78" W					
Datum: NAD 83	Site Elevation: 2106				
City: Ruso	Structure Height: 492				
State: ND	Total Height (AMSL): 2598				
Nearest County: McHenry					
	Frequencies				
	Low Freq	High Freq	Unit	ERP	Unit

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 Southwest Regional Office  
 Obstruction Evaluation Group  
 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2016-WTE-9519-OE

Issued Date: 03/24/2017

William Behling  
 Capital Power Corporation  
 155 Federal Street, Suite 1200  
 Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF41  
 Location: Ruso, ND  
 Latitude: 47-52-02.93N NAD 83  
 Longitude: 100-52-51.33W  
 Heights: 2057 feet site elevation (SE)  
 495 feet above ground level (AGL)  
 2552 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

our request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

This determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before April 23, 2017. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager, Airspace Policy & Regulation, Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591.

This determination becomes final on May 03, 2017 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Regulations & ATC Procedures Group via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as

indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace for aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9519-OE.

**Signature Control No: 310523119-326627884**

( DNH -WT )

Mike Helvey  
Manager, Obstruction Evaluation Group

Attachment(s)  
Additional Information  
Map(s)

## Additional information for ASN 2016-WTE-9519-OE

### Abbreviations:

AGL, Above Ground Level  
AMSL, Above Mean Sea Level  
ARTCC, Air Route Traffic Control Center  
ASN, Aeronautical Study Number  
ATC, Air Traffic Control  
CFR, Code of Federal Regulations  
IFR, Instrument Flight Rules  
MIA, Minimum IFR Altitude  
NM, Nautical Mile  
VFR, Visual Flight Rules

The proposed structures are part of a wind turbine farm consisting of 49 wind turbines that would be located approximately 20.44 - 24.39 NM north of the Airport Reference Point for the Turtle Lake Municipal Airport (91N), Turtle Lake, ND. While all exceed the notice criteria of 14 CFR Part 77, only 38 exceed Obstruction Standards. The ASNs with coordinates, AGL heights, and AMSL heights are as indicated on page one.

The proposed structures would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(4): A height that increases a minimum instrument flight altitude within an en route area; They would increase the Minneapolis ARTCC (ZMP) MIA: ZMP\_TAV\_2016 sector PDVL01 MVA from 3,500 feet AMSL to 3,700 feet AMSL.

The proposals were not circularized to the public for comments, as current FAA policy exempts from circularization those proposals which only require internal FAA review. The identified effects are to altitudes and systems that are used by ATC and not published for public use. Therefore public comment is not required.

The aeronautical study disclosed that amending the MIA in the area of the turbines would not impact a significant number of operations. The proposed structures would not have a significant adverse effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on VFR traffic pattern operations at 91N or any known public use or military airports. The proposals would have no effect on existing or proposed VFR arrival or departure operations. At 495 feet AGL they would not have a substantial adverse effect on VFR en route flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

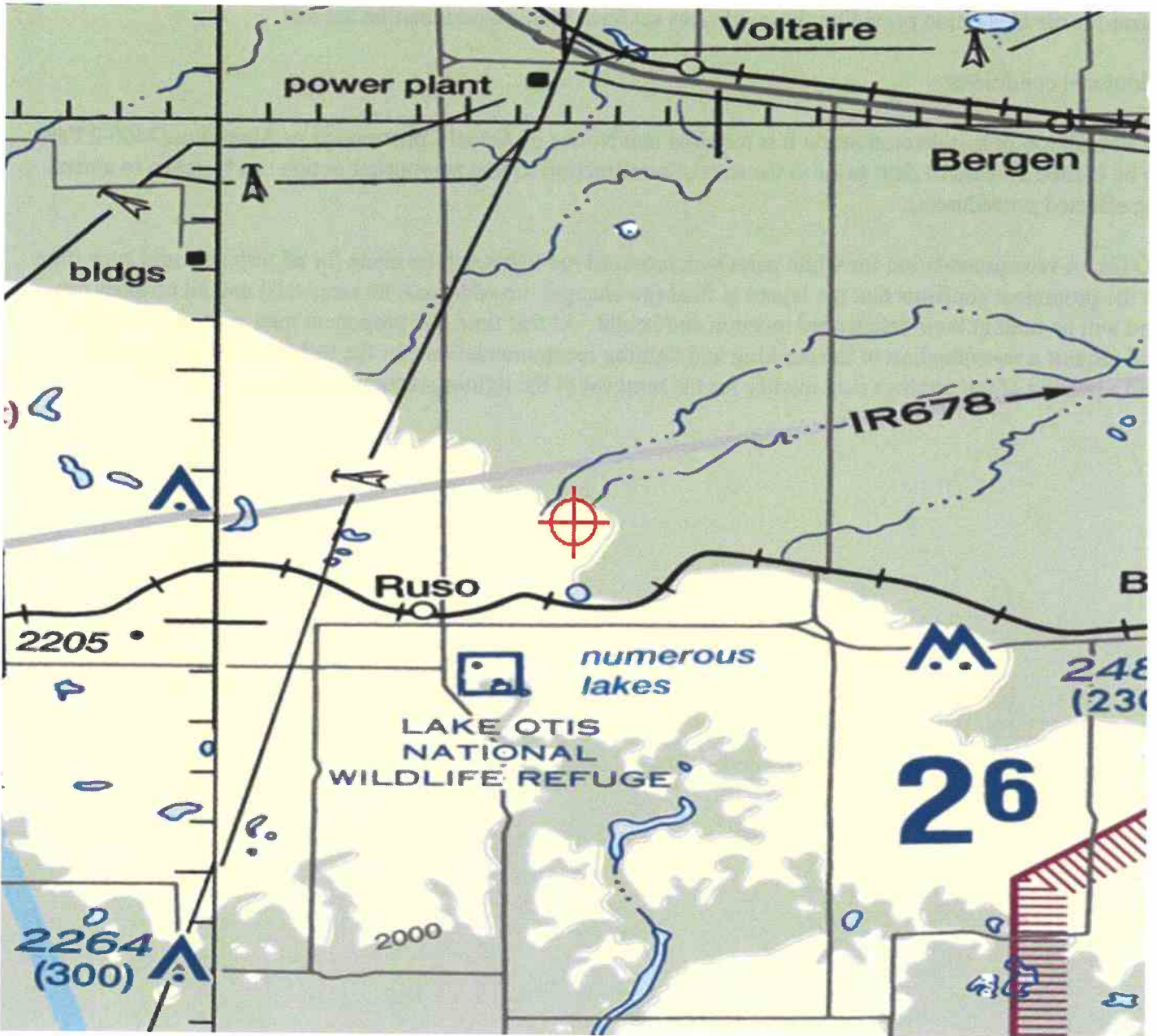
The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed structures would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s).

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2016-WTE-9520-OE

Issued Date: 03/24/2017

William Behling  
 Capital Power Corporation  
 155 Federal Street, Suite 1200  
 Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF42  
 Location: Ruso, ND  
 Latitude: 47-51-34.43N NAD 83  
 Longitude: 100-52-58.91W  
 Heights: 2094 feet site elevation (SE)  
 495 feet above ground level (AGL)  
 2589 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

our request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

This determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
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NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before April 23, 2017. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager, Airspace Policy & Regulation, Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591.

This determination becomes final on May 03, 2017 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Regulations & ATC Procedures Group via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as

indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace for aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9520-OE.

**Signature Control No: 310523120-326627888**

( DNH -WT )

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

## Additional information for ASN 2016-WTE-9520-OE

### Abbreviations:

AGL, Above Ground Level

AMSL, Above Mean Sea Level

ARTCC, Air Route Traffic Control Center

ASN, Aeronautical Study Number

ATC, Air Traffic Control

CFR, Code of Federal Regulations

IFR, Instrument Flight Rules

MIA, Minimum IFR Altitude

NM, Nautical Mile

VFR, Visual Flight Rules

The proposed structures are part of a wind turbine farm consisting of 49 wind turbines that would be located approximately 20.44 - 24.39 NM north of the Airport Reference Point for the Turtle Lake Municipal Airport (91N), Turtle Lake, ND. While all exceed the notice criteria of 14 CFR Part 77, only 38 exceed Obstruction Standards. The ASNs with coordinates, AGL heights, and AMSL heights are as indicated on page one.

The proposed structures would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(4): A height that increases a minimum instrument flight altitude within an en route area; They would increase the Minneapolis ARTCC (ZMP) MIA: ZMP\_TAV\_2016 sector PDVL01 MVA from 3,500 feet AMSL to 3,700 feet AMSL.

The proposals were not circularized to the public for comments, as current FAA policy exempts from circularization those proposals which only require internal FAA review. The identified effects are to altitudes and systems that are used by ATC and not published for public use. Therefore public comment is not required.

The aeronautical study disclosed that amending the MIA in the area of the turbines would not impact a significant number of operations. The proposed structures would not have a significant adverse effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on VFR traffic pattern operations at 91N or any known public use or military airports. The proposals would have no effect on existing or proposed VFR arrival or departure operations. At 495 feet AGL they would not have a substantial adverse effect on VFR en route flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

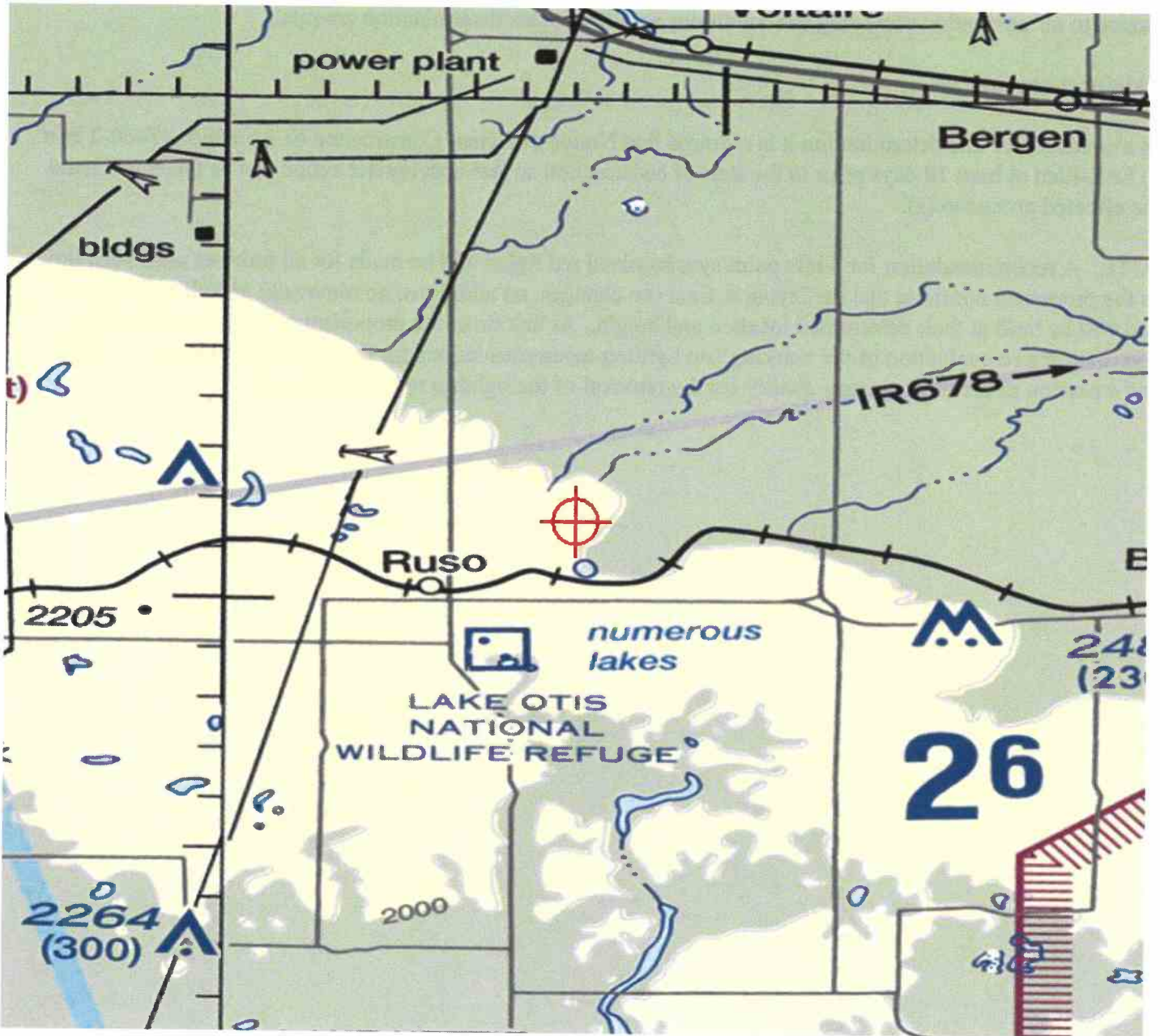
The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed structures would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s).

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2016-WTE-9521-OE

Issued Date: 03/24/2017

William Behling  
 Capital Power Corporation  
 155 Federal Street, Suite 1200  
 Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF43  
 Location: Ruso, ND  
 Latitude: 47-51-20.08N NAD 83  
 Longitude: 100-53-18.90W  
 Heights: 2099 feet site elevation (SE)  
 495 feet above ground level (AGL)  
 2594 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

our request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

This determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before April 23, 2017. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager, Airspace Policy & Regulation, Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591.

This determination becomes final on May 03, 2017 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Regulations & ATC Procedures Group via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as

indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace of aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9521-OE.

**Signature Control No: 310523121-326628005**

( DNH -WT )

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

## Additional information for ASN 2016-WTE-9521-OE

### Abbreviations:

AGL, Above Ground Level  
AMSL, Above Mean Sea Level  
ARTCC, Air Route Traffic Control Center  
ASN, Aeronautical Study Number  
ATC, Air Traffic Control  
CFR, Code of Federal Regulations  
IFR, Instrument Flight Rules  
MIA, Minimum IFR Altitude  
NM, Nautical Mile  
VFR, Visual Flight Rules

The proposed structures are part of a wind turbine farm consisting of 49 wind turbines that would be located approximately 20.44 - 24.39 NM north of the Airport Reference Point for the Turtle Lake Municipal Airport (91N), Turtle Lake, ND. While all exceed the notice criteria of 14 CFR Part 77, only 38 exceed Obstruction Standards. The ASNs with coordinates, AGL heights, and AMSL heights are as indicated on page one.

The proposed structures would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(4): A height that increases a minimum instrument flight altitude within an en route area; They would increase the Minneapolis ARTCC (ZMP) MIA: ZMP\_TAV\_2016 sector PDVL01 MVA from 3,500 feet AMSL to 3,700 feet AMSL.

The proposals were not circularized to the public for comments, as current FAA policy exempts from circularization those proposals which only require internal FAA review. The identified effects are to altitudes and systems that are used by ATC and not published for public use. Therefore public comment is not required.

The aeronautical study disclosed that amending the MIA in the area of the turbines would not impact a significant number of operations. The proposed structures would not have a significant adverse effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on VFR traffic pattern operations at 91N or any known public use or military airports. The proposals would have no effect on existing or proposed VFR arrival or departure operations. At 495 feet AGL they would not have a substantial adverse effect on VFR en route flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

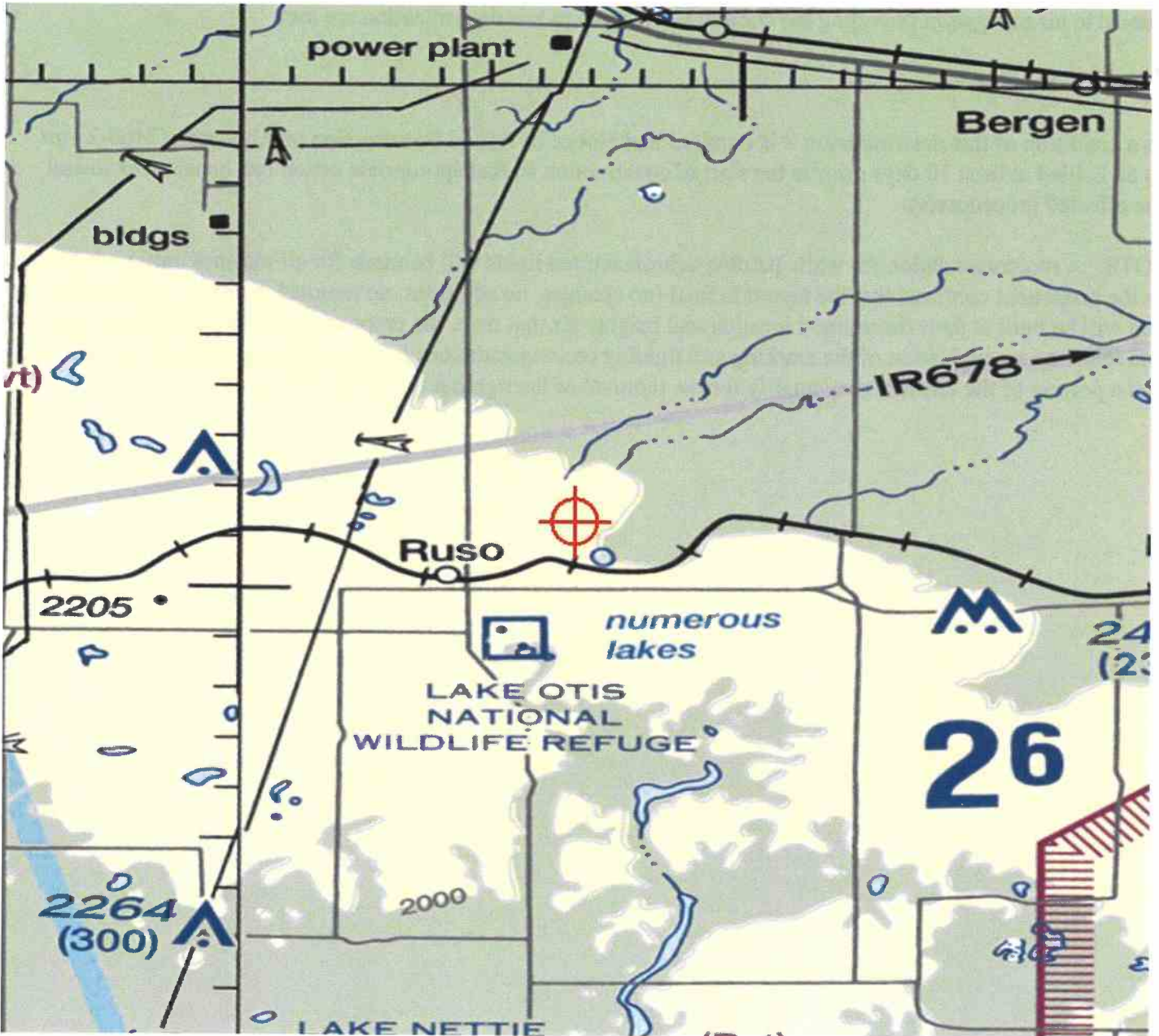
The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed structures would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s).

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2016-WTE-9526-OE

Issued Date: 03/24/2017

William Behling  
 Capital Power Corporation  
 155 Federal Street, Suite 1200  
 Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF54  
 Location: Ruso, ND  
 Latitude: 47-52-18.65N NAD 83  
 Longitude: 100-55-57.93W  
 Heights: 2150 feet site elevation (SE)  
 495 feet above ground level (AGL)  
 2645 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

our request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

This determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before April 23, 2017. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager, Airspace Policy & Regulation, Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591.

This determination becomes final on May 03, 2017 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Regulations & ATC Procedures Group via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as

indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace for aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9526-OE.

**Signature Control No: 310523126-326628015**

( DNH -WT )

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

## Additional information for ASN 2016-WTE-9526-OE

### Abbreviations:

AGL, Above Ground Level  
AMSL, Above Mean Sea Level  
ARTCC, Air Route Traffic Control Center  
ASN, Aeronautical Study Number  
ATC, Air Traffic Control  
CFR, Code of Federal Regulations  
IFR, Instrument Flight Rules  
MIA, Minimum IFR Altitude  
NM, Nautical Mile  
VFR, Visual Flight Rules

The proposed structures are part of a wind turbine farm consisting of 49 wind turbines that would be located approximately 20.44 - 24.39 NM north of the Airport Reference Point for the Turtle Lake Municipal Airport (91N), Turtle Lake, ND. While all exceed the notice criteria of 14 CFR Part 77, only 38 exceed Obstruction Standards. The ASNs with coordinates, AGL heights, and AMSL heights are as indicated on page one.

The proposed structures would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(4): A height that increases a minimum instrument flight altitude within an en route area; They would increase the Minneapolis ARTCC (ZMP) MIA: ZMP\_TAV\_2016 sector PDVL01 MVA from 3,500 feet AMSL to 3,700 feet AMSL.

The proposals were not circularized to the public for comments, as current FAA policy exempts from circularization those proposals which only require internal FAA review. The identified effects are to altitudes and systems that are used by ATC and not published for public use. Therefore public comment is not required.

The aeronautical study disclosed that amending the MIA in the area of the turbines would not impact a significant number of operations. The proposed structures would not have a significant adverse effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on VFR traffic pattern operations at 91N or any known public use or military airports. The proposals would have no effect on existing or proposed VFR arrival or departure operations. At 495 feet AGL they would not have a substantial adverse effect on VFR en route flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

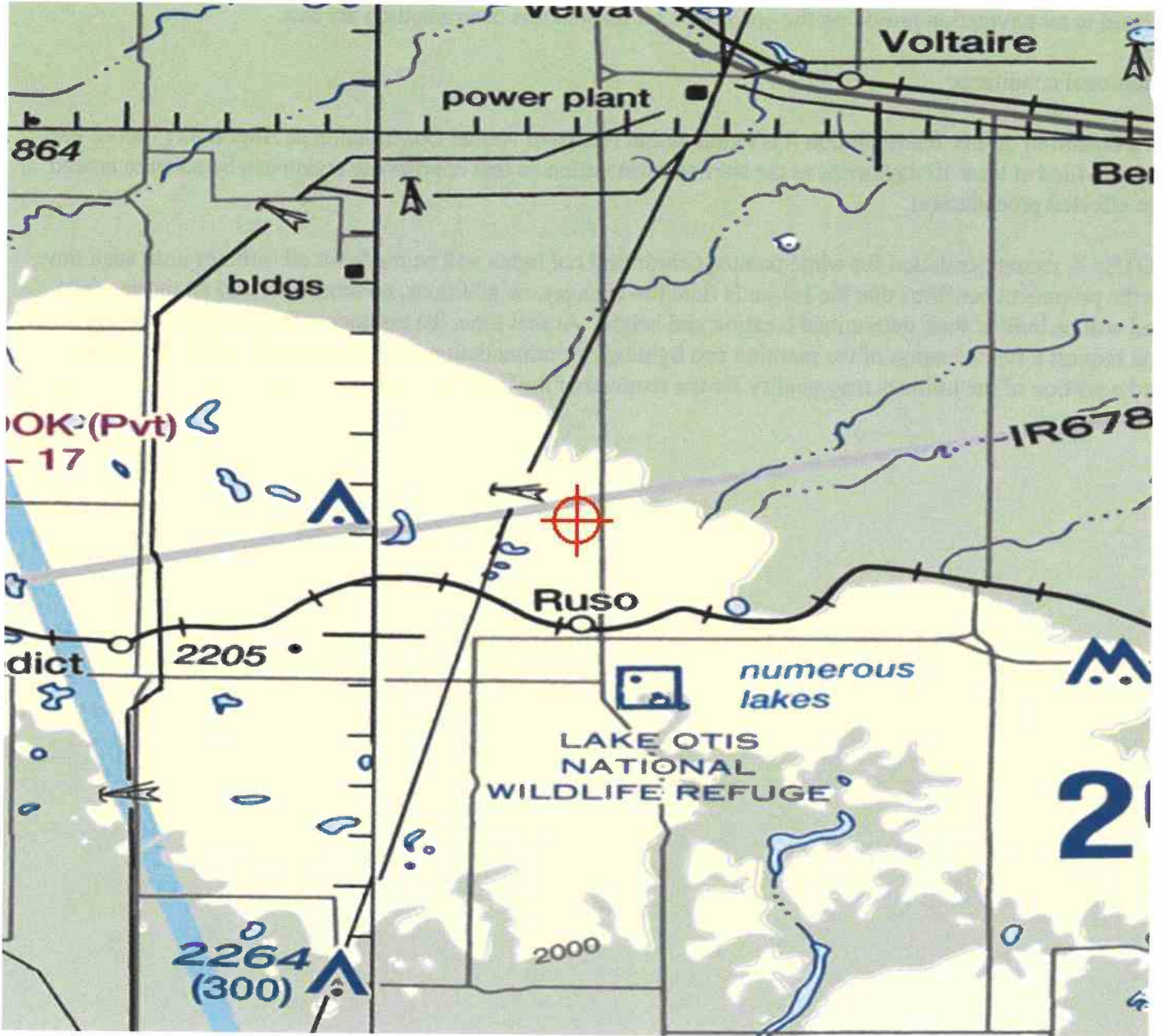
The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed structures would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s).

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2017-WTE-9698-OE

Issued Date: 12/28/2017

William Behling  
 Capital Power Corporation  
 155 Federal Street, Suite 1200  
 Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF58  
 Location: Ruso, ND  
 Latitude: 47-51-02.39N NAD 83  
 Longitude: 100-54-46.78W  
 Heights: 2108 feet site elevation (SE)  
 492 feet above ground level (AGL)  
 2600 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

**See attachment for additional condition(s) or information.**

This determination expires on 06/28/2019 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above (provided the AGL height does not exceed 499 feet). If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (816) 329-2523, or [steve.phillips@faa.gov](mailto:steve.phillips@faa.gov). On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-WTE-9698-OE.

**Signature Control No: 350561856-352017606**

Steve Phillips  
Specialist

( DNE -WT )

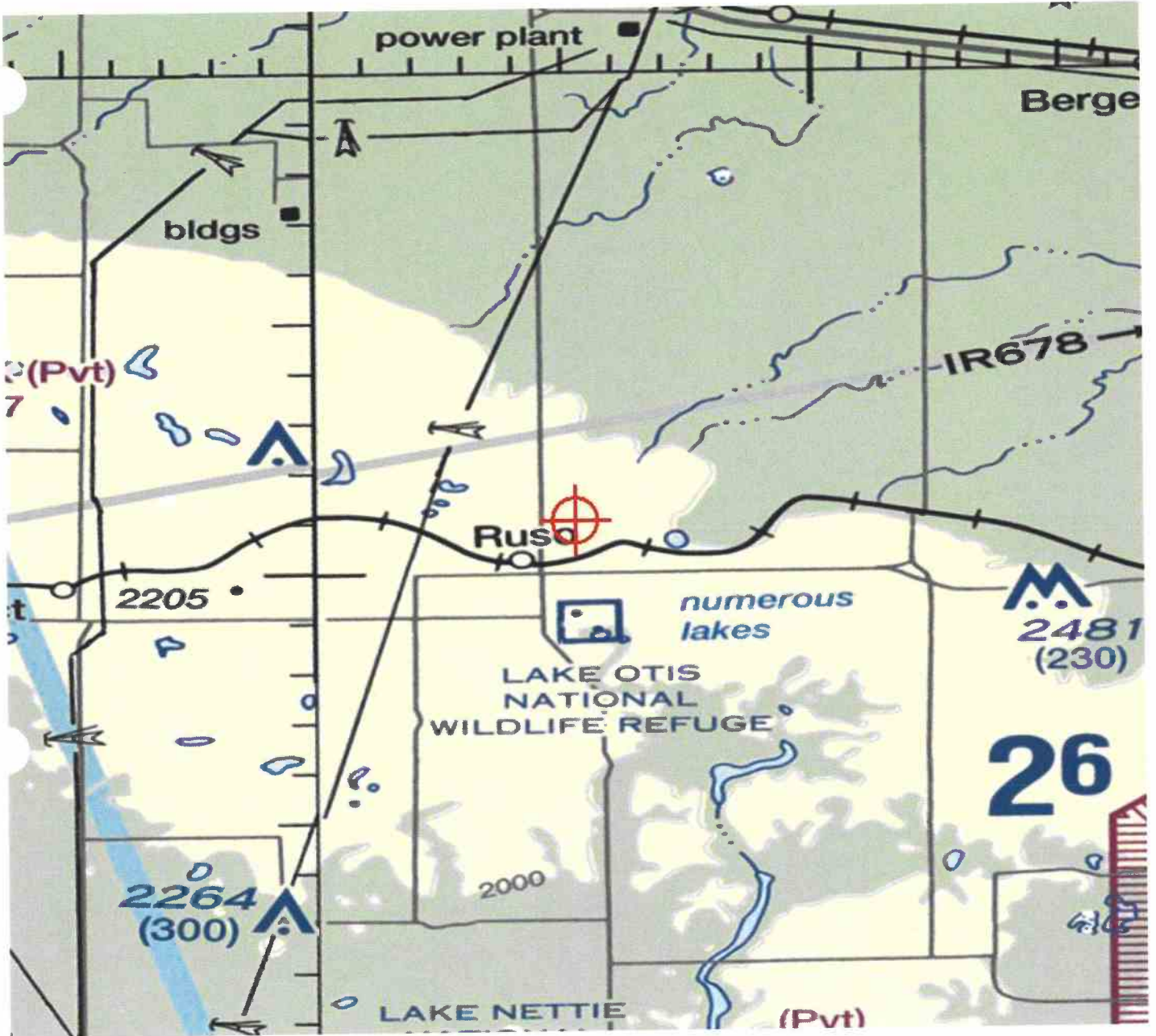
Attachment(s)

Additional Information

Map(s)

**Additional information for ASN 2017-WTE-9698-OE**

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2016-WTE-9529-OE

Issued Date: 03/24/2017

William Behling  
 Capital Power Corporation  
 155 Federal Street, Suite 1200  
 Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF60  
 Location: Ruso, ND  
 Latitude: 47-52-06.74N NAD 83  
 Longitude: 100-53-50.95W  
 Heights: 2078 feet site elevation (SE)  
 495 feet above ground level (AGL)  
 2573 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

our request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

This determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before April 23, 2017. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager, Airspace Policy & Regulation, Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591.

This determination becomes final on May 03, 2017 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Regulations & ATC Procedures Group via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as

indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace for aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Steve Phillips, at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9529-OE.

**Signature Control No: 310523129-326628143**

( DNH -WT )

Mike Helvey  
Manager, Obstruction Evaluation Group

Attachment(s)  
Additional Information  
Map(s)

## Additional information for ASN 2016-WTE-9529-OE

### Abbreviations:

AGL, Above Ground Level

AMSL, Above Mean Sea Level

ARTCC, Air Route Traffic Control Center

ASN, Aeronautical Study Number

ATC, Air Traffic Control

CFR, Code of Federal Regulations

IFR, Instrument Flight Rules

MIA, Minimum IFR Altitude

NM, Nautical Mile

VFR, Visual Flight Rules

The proposed structures are part of a wind turbine farm consisting of 49 wind turbines that would be located approximately 20.44 - 24.39 NM north of the Airport Reference Point for the Turtle Lake Municipal Airport (91N), Turtle Lake, ND. While all exceed the notice criteria of 14 CFR Part 77, only 38 exceed Obstruction Standards. The ASNs with coordinates, AGL heights, and AMSL heights are as indicated on page one.

The proposed structures would exceed the obstruction standards of 14 CFR Part 77 as follows:

Section 77.17(a)(4): A height that increases a minimum instrument flight altitude within an en route area; They would increase the Minneapolis ARTCC (ZMP) MIA: ZMP\_TAV\_2016 sector PDVL01 MVA from 3,500 feet AMSL to 3,700 feet AMSL.

The proposals were not circularized to the public for comments, as current FAA policy exempts from circularization those proposals which only require internal FAA review. The identified effects are to altitudes and systems that are used by ATC and not published for public use. Therefore public comment is not required.

The aeronautical study disclosed that amending the MIA in the area of the turbines would not impact a significant number of operations. The proposed structures would not have a significant adverse effect on any existing or proposed arrival, departure, or en route IFR operations or procedures.

Study for possible VFR effect disclosed that the proposals would have no effect on VFR traffic pattern operations at 91N or any known public use or military airports. The proposals would have no effect on existing or proposed VFR arrival or departure operations. At 495 feet AGL they would not have a substantial adverse effect on VFR en route flight operations.

The proposed structures would be appropriately obstruction marked/lighted to make them more conspicuous to airmen should circumnavigation be necessary.

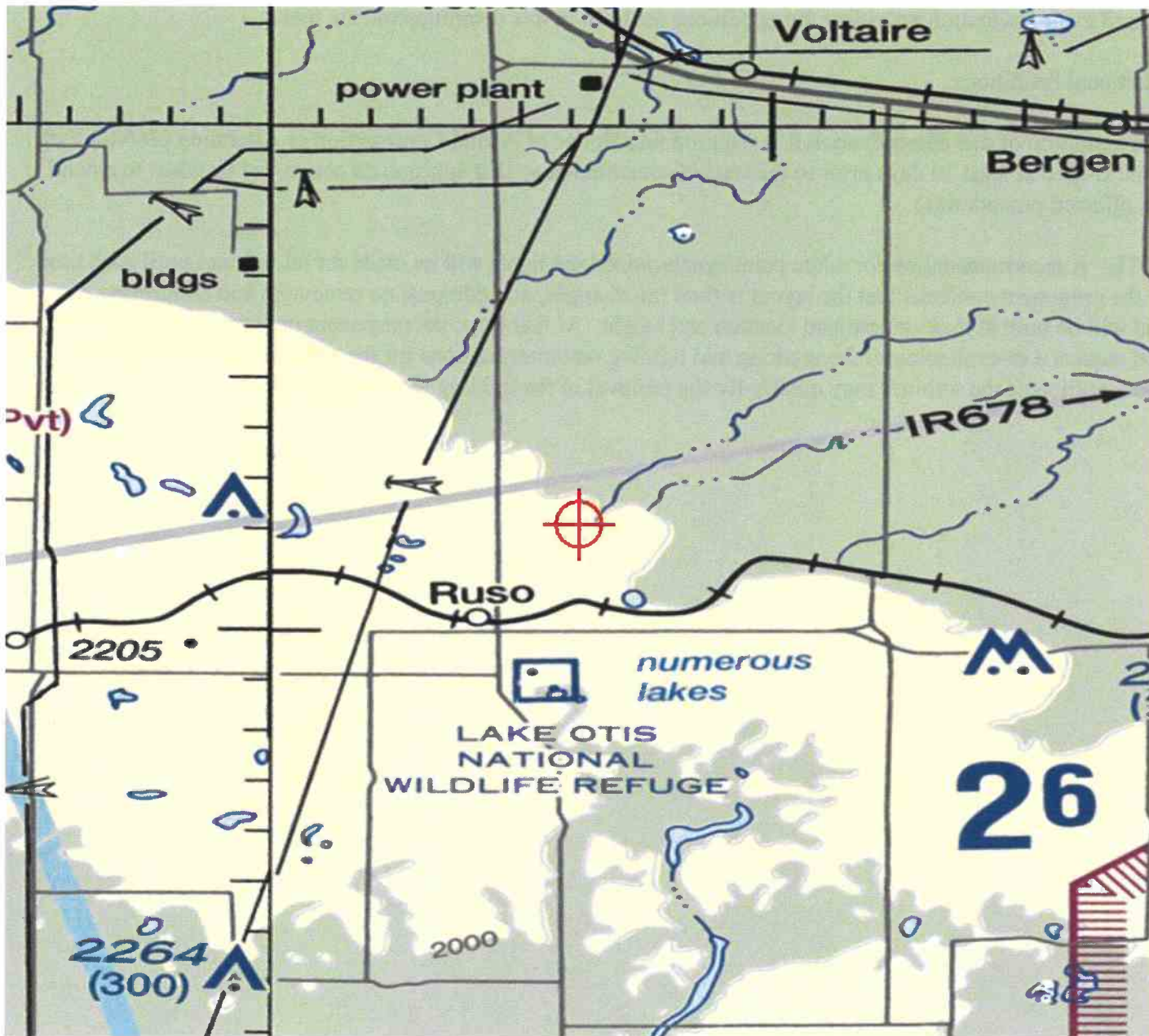
The cumulative impact of the proposed structures, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed structures would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Additional conditions:

As a condition of this determination it is required that Notice of Actual Construction or Alteration (7460-2 Part 1) be E-filed at least 10 days prior to the start of construction so that appropriate action can be taken to amend the effected procedure(s).

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2016-WTE-9531-OE

Issued Date: 03/24/2017

William Behling  
 Capital Power Corporation  
 155 Federal Street, Suite 1200  
 Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF62  
 Location: Ruso, ND  
 Latitude: 47-52-23.33N NAD 83  
 Longitude: 100-53-01.94W  
 Heights: 2017 feet site elevation (SE)  
 495 feet above ground level (AGL)  
 2512 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

**See attachment for additional condition(s) or information.**

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

his determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9531-OE.

**Signature Control No: 310523131-326630508**

( DNE -WT )

Steve Phillips

Specialist

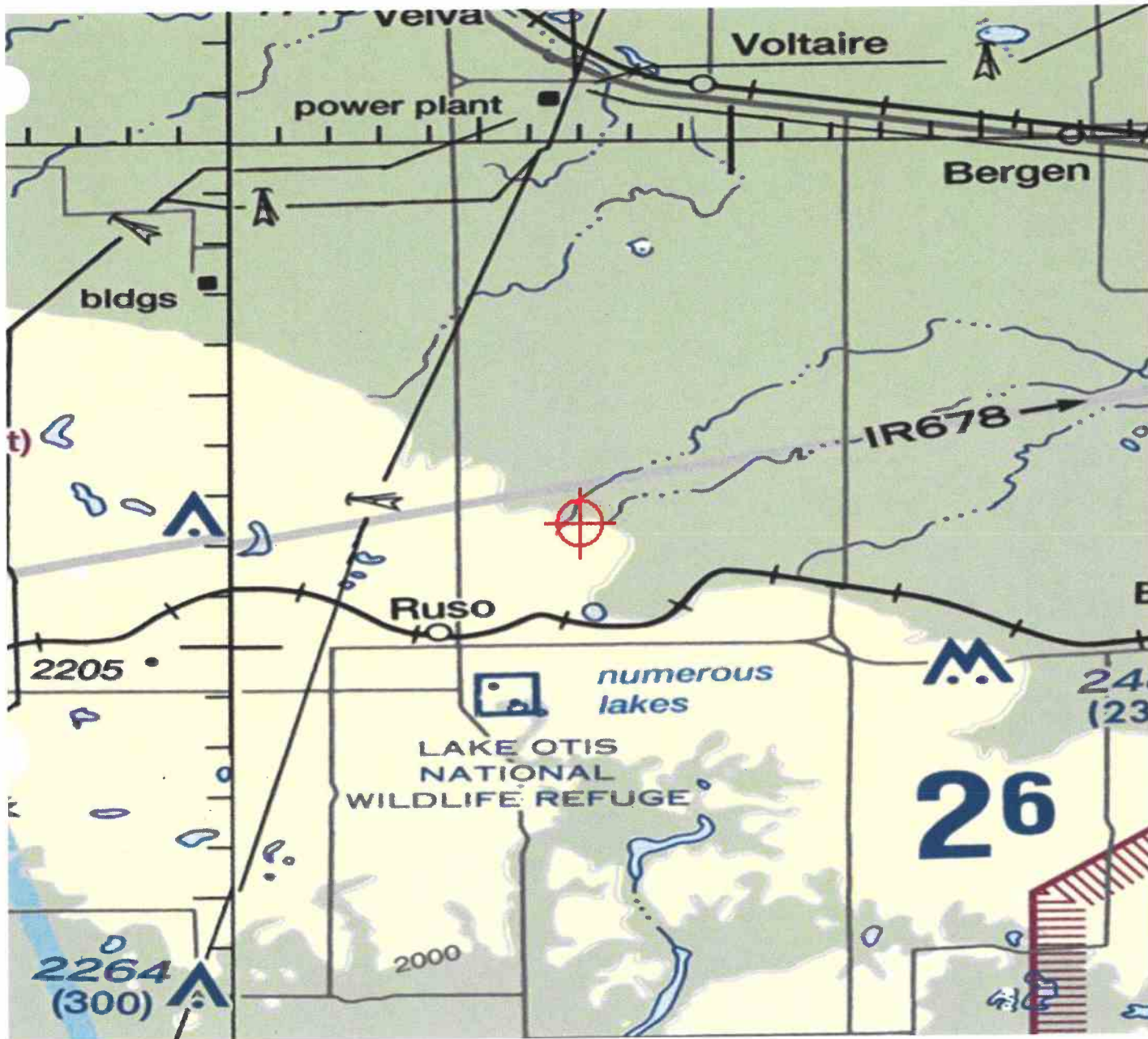
Attachment(s)

Additional Information

Map(s)

**Additional information for ASN 2016-WTE-9531-OE**

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





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 Obstruction Evaluation Group  
 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2016-WTE-9532-OE

Issued Date: 03/24/2017

William Behling  
 Capital Power Corporation  
 155 Federal Street, Suite 1200  
 Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF63  
 Location: Ruso, ND  
 Latitude: 47-51-59.32N NAD 83  
 Longitude: 100-52-26.55W  
 Heights: 2029 feet site elevation (SE)  
 495 feet above ground level (AGL)  
 2524 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

**See attachment for additional condition(s) or information.**

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

nis determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9532-OE.

**Signature Control No: 310523132-326630514**

( DNE -WT )

Steve Phillips

Specialist

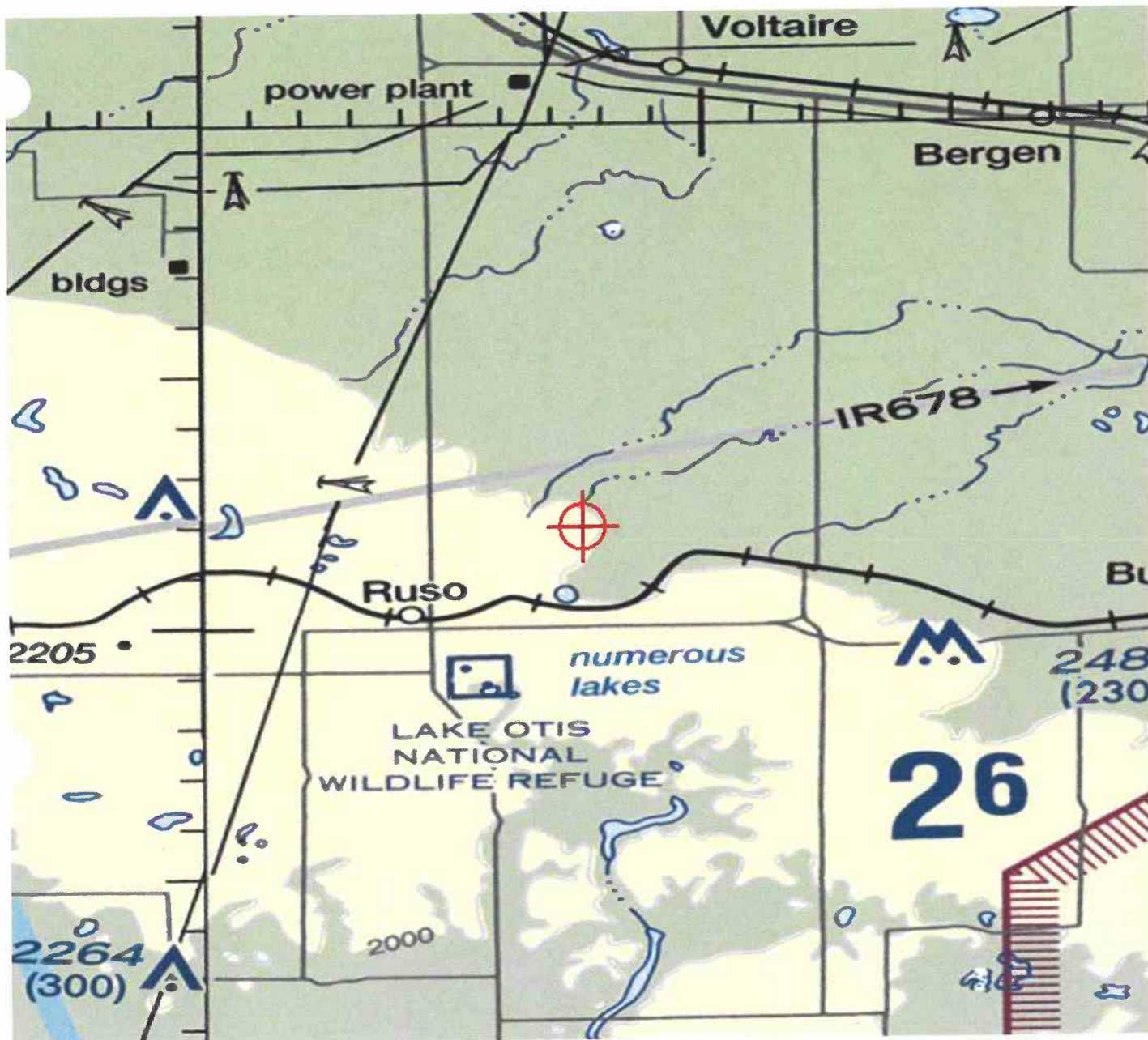
Attachment(s)

Additional Information

Map(s)

**Additional information for ASN 2016-WTE-9532-OE**

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





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 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2016-WTE-9533-OE

Issued Date: 03/24/2017

William Behling  
 Capital Power Corporation  
 155 Federal Street, Suite 1200  
 Boston, MA 02110

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine NF64  
 Location: Ruso, ND  
 Latitude: 47-52-15.91N NAD 83  
 Longitude: 100-52-08.28W  
 Heights: 1957 feet site elevation (SE)  
 495 feet above ground level (AGL)  
 2452 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

**See attachment for additional condition(s) or information.**

Your request for consideration to utilize an Aircraft Detection Lighting System to operate the recommended lighting is not approved. See attached for additional condition(s) or information.

This determination expires on 09/24/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (816) 329-2523. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-WTE-9533-OE.

**Signature Control No: 310523133-326630460**

( DNE -WT )

Steve Phillips

Specialist

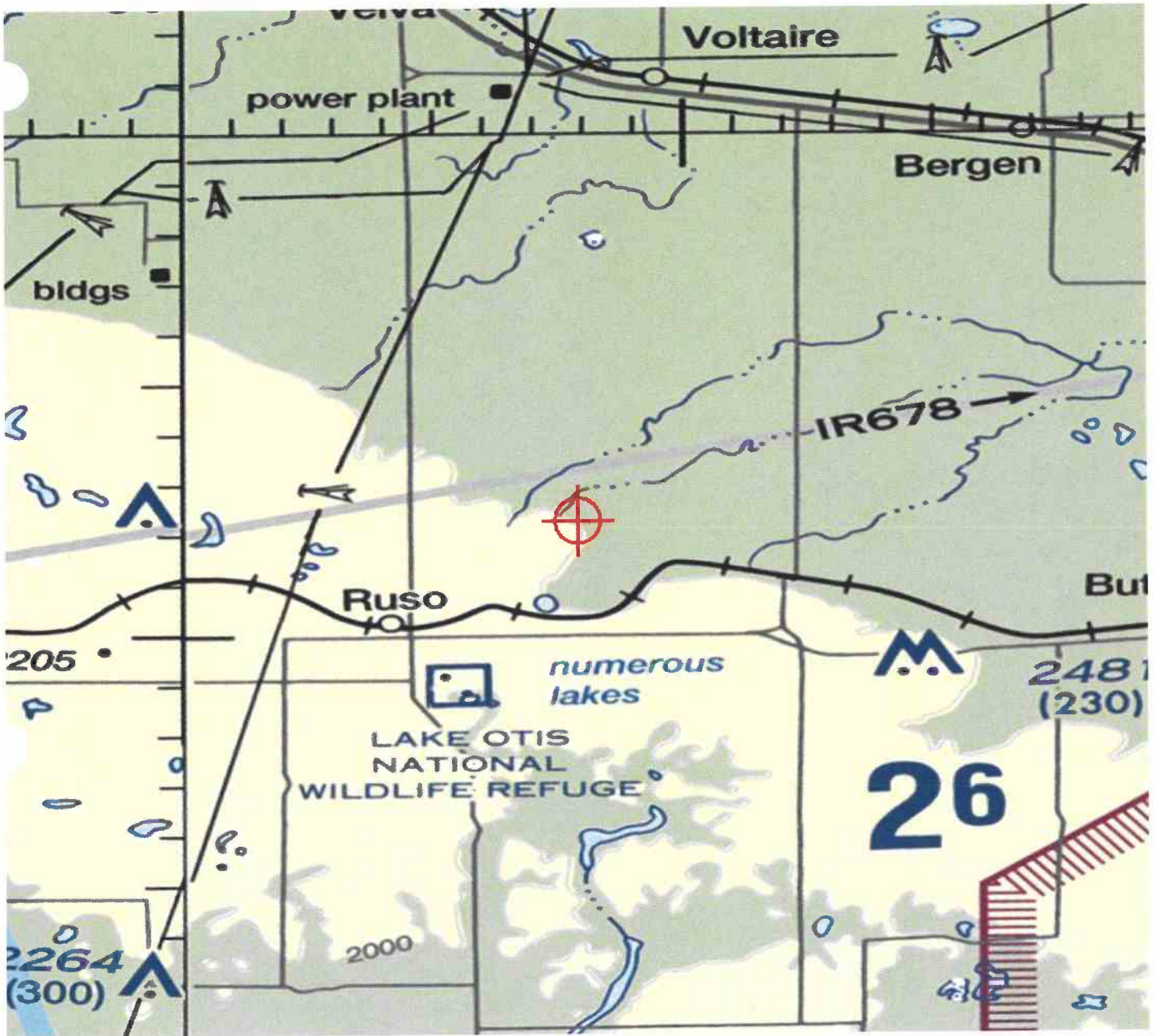
Attachment(s)

Additional Information

Map(s)

**Additional information for ASN 2016-WTE-9533-OE**

NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.





Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 10101 Hillwood Parkway  
 Fort Worth, TX 76177

Aeronautical Study No.  
 2018-WTE-6675-OE

Issued Date: 09/26/2018

Matt Martin  
 Capital Power  
 155 Federal Street  
 Suite 1200  
 Boston, MA 02210

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Met Tower (w/WT Farm) NF Met  
 Location: Ruso, ND  
 Latitude: 47-53-18.50N NAD 83  
 Longitude: 100-57-44.80W  
 Heights: 2147 feet site elevation (SE)  
 290 feet above ground level (AGL)  
 2437 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, paint/red lights - Chapters 3(Marked),4,5(Red),&12.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part 1)
- Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

**See attachment for additional condition(s) or information.**

This determination expires on 03/26/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.

(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above (provided the AGL height does not exceed 499 feet). If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

we can be of further assistance, please contact our office at (816) 329-2524, or [brian.a.barnes@faa.gov](mailto:brian.a.barnes@faa.gov). On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-6675-OE.

**Signature Control No: 370310171-386073660**

( DNE -WT )

Brian Barnes

Specialist

Attachment(s)

Additional Information

Map(s)

## **Additional information for ASN 2018-WTE-6675-OE**

As a condition to this Determination, the structure should be lighted with red obstruction lights and marked as noted below:

### **Painting.**

The meteorological evaluation tower (MET) should be painted in accordance with the criteria contained in Chapter 3, paragraphs 3.1 through 3.4, specifically, with alternate bands of aviation orange and white paint. In addition, paragraph 3.5 states that all markings should be replaced when faded or otherwise deteriorated.

### **High-Visibility Sleeves.**

It is recommended that several high-visibility sleeves be installed on the MET's outer guy wires. One high-visibility sleeve should be installed on each guy wire, as close to the anchor point as possible, but at a height well above the crop or vegetation canopy. A second sleeve should be installed on the same outer guy wires midway between the location of the lower sleeve and the upper attachment point of the guy wire to the MET. The use of sleeves should not impact the placement of spherical marker balls.

### **Spherical Markers.**

It is also recommended that high-visibility aviation orange spherical marker (or cable) balls be attached to the guy wires. The FAA recommends a total of 8 high visibility spherical marker (or cable balls) of aviation orange color attached to the guy wires; 4 marker balls should be attached to guy wires at the top of the tower no further than 15 feet from the top wire connection to the tower, and 4 marker balls at or below the mid point of the structure on the outer guy wires.

The FAA recognizes that various weather conditions and manufacturing placement standards may affect the placement and use of high-visibility sleeves and/or spherical markers. Thus, some flexibility is allowed when determining sleeve length and marker placement on METs.

TOPO Map for ASN 2018-WTE-6675-OE

