

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

**IN THE MATTER OF THE JOINT APPLICATION)
FOR THE LOCATION APPROVAL OF THE)
CORONA WIND NORTH PROJECT AND)
FOR THE RIGHT-OF-WAY WIDTH APPROVAL)
PURSUANT TO THE PUBLIC UTILITY ACT,)
NMSA 1978, §62-9- 3)
)
DAHLIA WIND LLC, GALLINAS MOUNTAIN)
WIND LLC, PASTURA WIND LLC, AND PATTERN)
SC HOLDINGS LLC,)
)
JOINT APPLICANTS.)
)
_____)**

Case No. 22-000___-UT

DIRECT TESTIMONY OF NATHAN A. OLDAY

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS**

2 A. My name is Nathan A. Olday. My business address is 1700 West Loop South, Houston,
3 Texas 77027.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed by Burns & McDonnell Engineering Company, Inc. (“Burns
6 &McDonnell”). I hold the position of Department Manager within the Houston
7 Environmental Services Group.

8 **Q. ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?**

9 A. I am appearing on behalf of the Joint Applicants in this proceeding.

10 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND WORK BACKGROUND.**

11 A. I am a 2000 graduate of Texas A&M University with a Bachelor of Science in Wildlife
12 Ecology and Management. I have been working in the environmental consulting industry
13 since 2001 and joined Burns & McDonnell as Senior Project Manager in 2014. My
14 previous work experience includes positions as an Environmental Group Manager and
15 Project Manager for an environmental consulting firm in Houston, Texas. I have managed
16 major environmental projects and project teams, including teams of subcontractors, and
17 have prepared documents per compliance with the National Environmental Policy Act
18 (NEPA), such as environmental impact reports and statements, environmental assessments,
19 and baseline studies. My work experience includes land planning and Energy projects in
20 oil and gas, electric utility, surface transportation, and commercial markets and includes

1 permitting and consultation for compliance with Federal and state regulations such as the
2 Clean Water Act, Endangered Species Act, and National Historic Preservation Act.

3 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY**

4 A. My testimony supports the Joint Applicants’ application for location control approval by
5 the New Mexico Public Regulation Commission (“Commission”) of the Corona Wind
6 North Project, which includes both the Corona Wind North Gen-Tie System and Corona
7 Wind North Generation, pursuant to NMSA 1978, §§62-9-3, 62-9-3.2 and Commission
8 Rule 17.9.592 NMAC.

9 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY REGULATORY**
10 **AUTHORITIES?**

11 A. I submitted Direct Testimony in NMPRC Case No. 21-00281-UT. In my role with Burns
12 & McDonnell, I commonly attest to local, state, and Federal agencies concerning baseline
13 studies performed and conclusions reached pursuant to applications for various regulatory
14 approvals.

15 **Q. WHAT EXHIBIT DO YOU SPONSOR AS PART OF YOUR TESTIMONY?**

16 A. I co-sponsor Exhibit NO-1, which is the comprehensive environmental report prepared by
17 Burns & McDonnell regarding the proposed Corona Wind North Project which is the
18 subject of this proceeding.

19 **Q. WAS EXHIBIT NO-1 PREPARED BY YOU OR UNDER YOUR SUPERVISION?**

20 A. Yes. The entire document was prepared under my direct supervision, and I was also
21 individually responsible for preparing various aspects of the document.

1 **Q. FOR EASE OF REVIEW PLEASE EXPLAIN THE VARIOUS TERMS YOU USE**
2 **IN YOUR TESTIMONY WITH RESPECT TO THE JOINT APPLICATION.**

3 A. I believe it is important to make certain the references in my testimony are the same as in
4 the Joint Application. The term “Corona Wind North Generation” refers to the new
5 generation that is being added to the Corona Wind North Project and for which location
6 approval is sought in this proceeding. The term “Corona Wind North Gen-Tie System”
7 refers to the Gen-Tie System for which location approval is sought in this proceeding. The
8 term “Corona Wind North Project Study Area” refers to the area that encompasses the
9 Corona Wind North Generation area and the Corona Wind North Gen-Tie Study Corridor.
10 The Corona Wind North Gen-Tie Study Corridor is generally 1-mile wide, although it is
11 narrower in certain segments and wider in one segment, where it would pass through the
12 existing El Cabo Wind Farm, as seen in Exhibit JA-2”. The entire area encompassed by
13 the Corona Wind North Project has been studied and is reflected in the Environmental
14 Report which I am sponsoring in this proceeding. Finally, I use the terms “Pattern Energy”
15 and “Joint Applicants” or “Corona Wind North Companies” interchangeably throughout
16 my testimony and in the Environmental Report.

17 **II. THE CORONA WIND NORTH PROJECT ENVIRONMENTAL REPORT**

18 **Q. WHY WAS THE ENVIRONMENTAL REPORT PREPARED?**

19 A. The Environmental Report in Exhibit NO-1 was prepared to comply with the requirements
20 of NMSA 1978, §62-9-3 (“Siting Statute”) and Commission Rule 17.9.592 NMAC
21 (“Location Rule”) regarding the Corona Wind North Gen-Tie System and Corona Wind
22 North Generation area. The Environmental Report analyzes the location of the Corona

1 Wind North Gen-Tie System and the Corona Wind North Generation area. The total land
2 area of the Corona Wind North Project Study Area that was evaluated in the Environmental
3 Report, consists of approximately 352,843 acres of land located within Guadalupe,
4 Torrance and San Miguel Counties in New Mexico.

5 **Q. PLEASE DESCRIBE THE RELATIONSHIP BETWEEN THE CONTENT AND**
6 **ANALYSIS IN THE ENVIRONMENTAL REPORT AND THE VARIOUS**
7 **STUDIES THAT HAVE BEEN CONDUCTED AND WILL BE CONDUCTED**
8 **THAT ARE REFERENCED IN THE ENVIRONMENTAL REPORT?**

9 A. The Environmental Report relies upon a combination of conservation measures identified
10 therein as well as desktop analysis and field surveys to inform its conclusions of potential
11 environmental effects of the Corona Wind North Gen-Tie System. As discussed in the
12 Testimony of Adam Cernea Clark, environmental field reviews are ongoing and will
13 continue up until start of construction and additional environmental analysis and reports
14 will be prepared as project civil design is advanced.

15 **Q. PLEASE EXPLAIN YOUR UNDERSTANDING OF THE REQUIREMENTS OF**
16 **THE SITING STATUTE AND THE LOCATION RULE AS RELATED TO THE**
17 **CORONA WIND NORTH GENERATION AREA.**

18 A. My understanding is that the Siting Statute states that the Commission shall approve the
19 Joint Application for the location of the Corona Wind North Generation area unless the
20 Commission finds that the operations of the facilities for which approval is sought will not
21 be in compliance with all applicable air and water pollution control standards and
22 regulations existing, NMSA 1978, §62-9-3(E). Similarly, the Commission's Location

1 Rule, 17.9.592.9 NMAC, for generating facilities (“Generation Location Rule”) requires
2 an applicant to identify and show compliance, or a statement of non-compliance, with all
3 applicable air and water pollution control standards and regulations prior to beginning
4 construction and operation of the generating facilities. Sections 5.2 and 5.7 of the
5 Environmental Report provide analysis of these resources and demonstrate the Joint
6 Applicants’ compliance with the requirements of both the Siting Statute and the Generation
7 Location Rule.

8 **Q. DOES THE INFORMATION CONTAINED IN THE ENVIRONMENTAL**
9 **REPORT AND THE STUDIES UPON WHICH IT IS BASED SUPPORT THE**
10 **CONCLUSION THAT THE CORONA WIND NORTH PROJECT WILL**
11 **COMPLY WITH ALL APPLICABLE AIR AND WATER POLLUTION**
12 **CONTROL STANDARDS?**

13 A. Yes.

14 **Q. PLEASE EXPLAIN YOUR UNDERSTANDING OF THE REQUIREMENTS OF**
15 **THE SITING STATUE AND THE LOCATION RULE AS RELATED TO THE**
16 **CORONA WIND NORTH GEN-TIE SYSTEM.**

17 A. The Siting Statute and the Location Rule, 17.9.592.10 NMAC, for transmission lines
18 (“Transmission Location Rule”) identify the contents of applications for location approval
19 by the Commission of transmission lines associated with large generation facilities. The
20 Siting Statute requires the Commission to approve the location of a transmission line unless
21 the Commission finds the location will unduly impair important environmental values.
22 NMSA 1978, §62-9-3(F). Moreover, the Transmission Location Rule, 17.9.592.10(E)

1 NMAC, requires that "if preparation of a federal environmental assessment or
2 environmental impact statement is not required under NEPA in connection with the
3 transmission line, then a report, comparable to an environmental impact statement, in the
4 format prescribed in 40 C.F.R. Section 1502.10" shall be included in the application. In
5 this case, the Corona Wind North Gen-Tie System does not involve any federal actions that
6 require the preparation of an environmental assessment or environmental impact statement.

7 **Q. WHAT FORMAT IS PRESCRIBED BY 40 C.F.R. SECTION 1502.10?**

8 A. That federal regulation prescribes the following format:

9 (A) Cover sheet.

10 (B) Summary.

11 (C) Table of contents.

12 (D) Purpose of and need for action.

13 (E) Alternatives including proposed action.

14 (F) Affected environment.

15 (G) Environmental consequences.

16 (H) List of preparers.

17 (I) List of Agencies, Organizations, and persons to whom copies of the statement are
18 sent.

19 (J) Index.

20 (K) Appendices (if any).

1 **Q. DOES THE CORONA WIND NORTH PROJECT ENVIRONMENTAL REPORT**
2 **FOLLOW THE FORMAT PRESCRIBED BY 40 C.F.R. SECTION 1502.10?**

3 A. Yes. However, the “List of Agencies, Organizations, and persons to whom copies of the
4 statement are sent”, Section (I), is included as a separate document which is included in
5 the Testimony of Adam Cernea Clark.

6 **Q. WHAT ENVIRONMENTAL VALUES DOES THE ENVIRONMENTAL REPORT**
7 **ADDRESS REGARDING THE CORONA WIND NORTH GEN-TIE SYSTEM?**

8 A. The Environmental Report covers each of the environmental values identified in the Siting
9 Statute and the Transmission Location Rule. According to Section M of the Siting Statute,
10 NMSA 1978, §62-9-3(M), the environmental values the Commission may consider in
11 making this determination include:

12 (1) existing plans of the state, local government, and private entities for other developments
13 at or in the vicinity of the proposed location;

14 (2) fish, wildlife, and plant life;

15 (3) noise emission levels and interference with communication signals;

16 (4) the proposed availability of the location to the public for recreational purposes,
17 consistent with safety considerations and regulations;

18 (5) existing scenic areas, historic, cultural or religious sites and structures or archaeological
19 sites at or in the vicinity of the proposed location; and,

20 (6) additional factors that require consideration under applicable federal and state laws
21 pertaining to the location. Additionally, the Transmission Location Rule requires an

1 application for location approval of a transmission line to include testimony demonstrating
2 that the transmission line will not unduly impair important environmental values.
3 According to the Transmission Location Rule, important environmental values include, but
4 are not limited to, preservation of air and water quality, land uses, soils, flora and fauna,
5 and water, mineral, socioeconomic, cultural, historic, religious, visual, geologic and
6 geographic Resources.

7 **Q. DOES THE ENVIRONMENTAL REPORT COVER ALL OF THE**
8 **ENVIRONMENTAL VALUES IDENTIFIED IN THE SITING STATUTE AND**
9 **TRANSMISSION LOCATION RULE?**

10 A. Yes.

11 **Q. DOES THE INFORMATION CONTAINED IN THE ENVIRONMENTAL 20**
12 **REPORT AND THE STUDIES UPON WHICH IT IS BASED SUPPORT THE**
13 **CONCLUSION THAT THE CORONA WIND NORTH GEN-TIE SYSTEM WILL**
14 **NOT UNDULY IMPAIR IMPORTANT ENVIRONMENTAL VALUES?**

15 A. Yes. The Corona Wind North Gen-Tie System will comply with the requirements of the
16 Siting Statute and the Transmission Location Rule.

17

18 **THE CORONA WIND NORTH PROJECT COMPLIANCE WITH AIR AND**
19 **WATER POLLUTION CONTROL STANDARDS**

20 **1. AIR POLLUTION CONTROL STANDARDS**

21 **Q. PLEASE CHARACTERIZE THE CORONA WIND NORTH PROJECT**

1 **EXPECTED IMPACTS ON AIR QUALITY.**

2 A. Development of the Corona Wind North Gen-Tie System and Corona Wind North
3 Generation will have short-term impacts during construction. Construction equipment will
4 likely be powered with diesel or gasoline fuel. These combustibles include pollutants such
5 as nitrogen oxides, “NO”, carbon monoxide, “CO”, volatile organic compounds, “VOCs”,
6 particulate matter, “PM”, small amounts of “SO₂” and trace amounts of hazardous air
7 pollutants. Construction contractors and their equipment will be required to comply with
8 all emissions standards. Short-term fugitive dust could arise from land clearing, grading,
9 excavation, and vehicle traffic on unpaved roads. The amount of fugitive dust will depend
10 on the amount of vehicular traffic, construction activities, moisture content of the soil, and
11 wind speed. During dry periods with high winds, fugitive dust will be more prevalent than
12 during wet periods with low winds. Dust suppression methods such as watering will be
13 used in construction zones during dry periods to minimize fugitive dust impacts. The
14 fugitive dust emissions and emissions from combustion engines will be temporary (limited
15 to the construction period), limited to the construction area, and transient and likely
16 controlled with watering, these sources will not significantly contribute to reduced air
17 quality levels in the Corona Wind North Gen-Tie Study Corridor. The operation of the
18 Corona Wind North Project will result in long-term reduction of air pollutants that
19 otherwise will have been emitted into the air by conventional power plants by supplanting
20 some output from conventional power plants. The Corona Wind North Gen-Tie System
21 will facilitate the delivery of clean renewable energy that has the potential to displace
22 carbon as well as other hazardous emissions in the Southwestern United States, as a result
23 of displacing fossil-based fuel.

1 **Q. IS THE CORONA WIND NORTH PROJECT WITHIN AN AREA THAT IS IN**
2 **ATTAINMENT OF NATIONAL AND STATE AMBIENT AIR QUALITY**
3 **STANDARDS?**

4 A. Yes. Information obtained from the New Mexico Environment Department's Air Quality
5 Bureau, which has authority over air quality in all areas of New Mexico except Bernalillo
6 County and Tribal Lands, confirms that Torrance, Guadalupe, and San Miguel Counties,
7 New Mexico, in which the Corona Wind North Project will be located, are currently in
8 attainment/unclassifiable designations, which means that the EPA has determined an area
9 likely meets or is cleaner than the national and state ambient air quality standards, based
10 on available data.

11 **Q. WILL THE CORONA WIND NORTH PROJECT REQUIRE AIR POLLUTION**
12 **CONTROL PERMITS FOR CONSTRUCTION?**

13 A. Yes. One or more general construction permits, pursuant to the New Mexico Air Quality
14 Control Act (“NMAQCA”), will be required for dust suppression during construction, and
15 for aggregate crushing for use in road construction within the Corona Wind North Project.
16 See NMSA 1978, §§74-2-1 et seq. For the Corona Wind North Generation, one or more
17 separate general construction permits, pursuant to the NMAQCA, will also be required for
18 the concrete batch plants for wind turbine pad foundations and dust suppression during
19 construction. The Corona Wind North Project will also require the aforementioned general
20 construction permit for aggregate crushing for use in road construction within the Corona
21 Wind North Study Area.

1 **Q. WHEN ARE SUCH GENERAL CONSTRUCTION PERMITS TYPICALLY**
2 **OBTAINED?**

3 A. It is typical for the construction contractor to acquire such permits shortly prior to the start
4 of construction. It is my understanding that the Joint Applicants will provide copies of the
5 permits to the Commission upon request before construction has commenced.

6 **2. WATER POLLUTION CONTROL STANDARDS**

7 **Q. PLEASE CHARACTERIZE THE EXPECTED IMPACTS ON WATER**
8 **RESOURCES FROM THE CORONA WIND NORTH PROJECT.**

9 A. Development of the Corona Wind North Gen-Tie System and Corona Wind North
10 Generation will have only minimal impacts on water quality during construction and
11 should have no long-term impacts on water quality during operation. The transmission
12 facilities and structures will be sited to avoid placement near surface waters to the
13 maximum extent practicable, which are shown generally on Exhibit 6 of the Environmental
14 Report. In the event that avoidance is not possible, and any facilities eventually are sited
15 near surface waterways, the Joint Applicants will seek to permit any unavoidable fill in
16 waters of the U.S. under the Nationwide Permit Program administered by the U.S. Army
17 Corps of Engineers (“USACE”) under Section 404 of the Clean Water Act (“Section 404”).
18 In addition, the transmission facilities will be sited to avoid mapped floodplain areas,
19 shown in Exhibit 8 of the Environmental Report. The transmission facilities will be sited
20 to avoid placement on steep slopes, which will minimize erosion and runoff into surface
21 waters, to the extent practicable. Further, the Joint Applicants will require implementation
22 of a storm water management plan during construction to minimize the effects of storm

1 water runoff in the event of significant rain events. During construction, water will be used
2 to control dust on roads. The construction contractor will be required to obtain any
3 necessary water permits. Development of the Corona Wind North Generation will be
4 similar to the Corona Wind North Gen-Tie System and will have only minimal impacts on
5 water quality during construction and should have no long-term impacts on water quality
6 during operation. If avoidance is not possible, and any wind facilities eventually are sited
7 near surface waterways, the Joint Applicants will seek to permit any unavoidable fill in
8 waters of the U.S. under the aforementioned Nationwide Permit Program administered by
9 the USACE under Section 404. In addition, the Corona Wind North Generation will be
10 sited to avoid mapped floodplain areas, shown in Exhibit 8 of the Environmental Report.
11 Wind energy generation is inherently a nearly zero-water consumption technology. The
12 only primary uses of water during operations are for bathroom facilities for operations and
13 maintenance workers at the operation and maintenance building, plus occasional cleaning
14 of the wind turbine blades. A septic permit is expected to be obtained prior to operation.
15 During construction, water will be used to make concrete and to control dust on roads. The
16 construction contractor will be required to obtain any necessary water permits. In the long
17 term, wind energy generation will help conserve water compared to other sources of
18 electric generation that have major water use requirements.

19 **Q. WHAT WATER POLLUTION CONTROL PERMITS WILL THE CORONA**
20 **WIND NORTH PROJECT REQUIRE FOR CONSTRUCTION?**

21 A. Prior to construction, Joint Applicants will obtain coverage under one or more National
22 Pollution Discharge Elimination System (“NPDES”) Construction General Permit(s)
23 (“CGP”) from the United States Environmental Protection Agency pursuant to Section 402

1 of the Clean Water Act, 33 U.S.C. §1342. The requirements of the CGP include, but are
2 not limited to, the operator filing a notice of intent at least 14 days before commencing
3 construction activities, preparing a Storm Water Pollution Prevention Plan that describes
4 measures to control storm water discharge during construction and the implementation of
5 standard erosion control measures and best management practices. The Corona Wind North
6 Project is not reasonably expected to adversely affect surface or groundwater at the site
7 and will not require a permit under the New Mexico Water Quality Control Act other than
8 one or more septic permits.

9 **Q. WHEN ARE SUCH PERMITS TYPICALLY OBTAINED?**

10 A. As with construction-phase air quality permits, coverage under the NPDES CGP is
11 typically obtained just prior to construction, and a septic permit is obtained when bathroom
12 facilities are installed (Corona Wind North Generation only). Joint Applicants will obtain
13 NPDES coverage prior to start of construction. It is my understanding that the Joint
14 Applicants will commit to filing notifications with the Commission of coverage under the
15 NPDES CGP as obtained prior to construction.

16 **Q. WHAT WATER POLLUTION CONTROL PERMITS WILL THE CORONA**
17 **WIND NORTH PROJECT REQUIRE FOR OPERATION?**

18 A. Transmission line facilities and wind energy generation facilities require almost no water
19 for the operation and generation of electricity. Accordingly, no water pollution control
20 permits are needed for operation.

1 **Q. IN SUMMARY WILL THE CORONA WIND NORTH PROJECT ALSO BE IN**
2 **COMPLIANCE WITH ALL APPLICABLE AIR AND WATER POLLUTION**
3 **CONTROL STANDARDS?**

4 A. Yes, by adhering to the mitigation measures outlined in the Environmental Report and
5 conducting pre-construction surveys and obtaining necessary local, state, and federal
6 permits before construction, the Corona Wind North Project will be in compliance with
7 applicable air and water pollution control standards.

8 **3. IMPORTANT ENVIRONMENTAL VALUES**

9 **Q. HAVE THE JOINT APPLICANTS EVALUATED THE CORONA WIND NORTH**
10 **GEN-TIE SYSTEM'S POTENTIAL IMPACTS ON THE FACTORS THE**
11 **COMMISSION MAY CONSIDER IN DETERMINING WHETHER LOCATION**
12 **OF A TRANSMISSION LINE WILL UNDULY IMPAIR IMPORTANT**
13 **ENVIRONMENTAL VALUES?**

14 A. Yes. My company was retained to perform this analysis and it is included in the
15 Environmental Report. There has been a review of the factors provided in NMSA 1978,
16 §62-9-3(M), the Transmission Location Rule, and additional factors, which include
17 existing plans for development of the proposed location; fish, wildlife, and plant life; noise
18 levels; interference with communication signals; availability for recreational purposes;
19 scenic, historic, cultural or religious sites and structures or archeological sites; cemeteries
20 and burials; schools; military activities; aviation; soils; minerals and mining; geologic and
21 paleontological resources; roads; geographic resources; and hazardous materials. The Joint
22 Applicants included the analysis and evaluation of these factors, as a matter of good

1 business practice, throughout the entire area comprising the Corona Wind North Project,
2 including the Corona Wind North Generation and the Corona Wind North Gen-Tie System.
3 However, the focus of my testimony and the Environmental Report is on the Corona Wind
4 North Gen-Tie System which is the proper subject matter of the Commission's jurisdiction
5 over these additional environmental factors.

6 **Q. NOTWITHSTANDING THE COMMISSION'S LIMITED STATUTORY**
7 **JURISDICTION, HAS PATTERN ENERGY CONSIDERED POTENTIAL**
8 **IMPACTS ON THESE SAME FACTORS REGARDING THE CORONA WIND**
9 **NORTH GENERATION?**

10 A. Yes, as I have noted in my testimony, this same level of work was performed for the Corona
11 Wind North Generation area even though I understand this exceeds the requirements of the
12 Siting Statute and the Generation Location Rule and such analysis is only required for
13 transmission lines associated with large capacity power plants.

14 **Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO EXISTING**
15 **PLANS FOR OTHER DEVELOPMENT AT THE CORONA WIND NORTH**
16 **PROJECT STUDY AREA.**

17 A. The Corona Wind North Project, which includes the Corona Wind North Gen-Tie System,
18 is located mostly on private land owned by participating landowners, as well as some state
19 trust land. It is my understanding that wind development and ranching operations constitute
20 the planned development activities within the Corona Wind North Project Study Area.
21 Moreover, the Corona Wind North Project represents additional long-term revenue for the
22 State of New Mexico.

1 **Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO AIR QUALITY?**

2 A. As previously explained in my testimony, all required air permits will be obtained, and the
3 Corona Wind North Project is not expected to adversely impact air quality. The Corona
4 Wind North Gen-Tie System is anticipated to have de minimus impacts to air quality.
5 Further discussion of air resources is provided in Sections 4.2 and 5.2 of the Environmental
6 Report. Additionally, the Corona Wind North Generation is also anticipated to have de
7 minimus impacts to air quality. Over time the Joint Applicants' Projects are expected to
8 improve air quality by displacing the need for traditional means of energy generation that
9 have negative impacts to air quality.

10 **Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO WATER**
11 **QUALITY AND WATER RESOURCES?**

12 A. The Corona Wind North Gen-Tie System is not anticipated to materially impair water
13 quality and water resources. As explained previously in my testimony, all required water
14 quality permits will be obtained, if needed, and the Corona Wind North Gen-Tie System is
15 not expected to adversely impact water quality or water resources. Furthermore, the Corona
16 Wind North Generation is also not anticipated to have material negative impacts to water
17 quality. The Corona Wind North Project is anticipated to have significant positive benefits
18 to water resources by displacing water-intensive energy generation sources. Further
19 discussion of water resources is provided in Sections 4.7 and 5.7 of the Environmental
20 Report.

21 **Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO LAND USES?**

1 A. In my testimony, I describe existing land uses and explain that the Corona Wind North
2 Project facilities are expected to utilize only a small portion of the approximately 352,8439
3 acre Corona Wind North Project Study Area, leaving the large majority of the land
4 available for its existing land use, which is primarily agriculture. My understanding is that
5 Joint Applicants will locate facilities only on lands for which agreements have been
6 reached with underlying landowners. Both the Corona Wind North Gen-Tie System and
7 the Corona Wind North Generation are generally consistent with the land use policies of
8 the respective counties and will comply with the State Land Office (“SLO”) regulations on
9 state trust lands that may be used in developing the Corona Wind North Project. Further
10 discussion of land uses is provided in Sections 4.12 and 5.12 of the Environmental Report.

11 **Q. PLEASE SUMMARIZE YOUR EFFORTS TO AVOID AND MINIMIZE IMPACTS**
12 **WITH RESPECT TO FLORA AND FAUNA ON THE CORONA WIND NORTH**
13 **PROJECT AREA.**

14 A. Because of the relatively modest impacts of transmission lines to wildlife habitat and flora
15 and fauna and voluntary commitments and Best Management Practices (“BMP”) practiced
16 by Pattern Energy, the Corona Wind North Gen-Tie System will not have material impacts
17 to flora and fauna. Protection measures that would be implemented to reduce any potential
18 negative impacts to flora and fauna resources from construction activities include those
19 commitments described in Section 5.8 of the Environmental Report. These include:

20 Bio-1: Properly disposing of trash and food debris in secured containers;

21 Bio-2: Allowing wildlife that has entered the work area to leave the area on their own;

1 Bio-3: Providing environmental awareness training to all construction personnel working
2 on the Corona Wind North Gen-Tie System;

3 Bio-4: Checking for wildlife under vehicles and equipment that have been stationary for
4 more than 1 hour and each morning prior to moving or operation;

5 Bio-5: Checking trenches, excavations, and uncapped pipe segments for wildlife;

6 Bio-6: Complying with posted speed limits;

7 Bio-7: Conducting tree/vegetation clearing outside the nesting season where feasible, to
8 discourage birds from establishing nests in the Corona Wind North Gen-Tie System work
9 areas;

10 Bio-8: Conducting pre-construction nest surveys prior to initiating construction activities,
11 unless vegetation clearing has been completed prior to the nesting season;

12 Bio-9: Establishing an appropriate buffer zone around occupied raptor nests, as necessary
13 to minimize disturbance;

14 Bio-10: Design transmission line facilities to Avian Powerline Interaction Committee
15 (“APLIC”) guidance or similar in order to minimize electrocution and collision risk;

16 Bio-11: Micrositing will be completed during engineering design to avoid sensitive
17 biological resources;

18 Bio-12: Setbacks from sensitive biological resources will be implemented to protect
19 species habitat and time critical periods (e.g., breeding season); and

20 Bio-13: Install bird diverters near areas with increased risk for avian-collision risk, to
21 minimize collision risk for avian species.

1 A discussion of flora and fauna is also provided in Sections 4.8 and 5.8 of the
2 Environmental Report. As is discussed in the Direct Testimony of Adam Cernea Clark, the
3 Corona Wind North Project will implement voluntary avoidance protocols for various
4 biological resources, such as raptor nests. In addition to utilizing voluntary environmental
5 setbacks, Joint Applicants will follow APLIC guidance to implement measures that will
6 minimize collision risk with proper siting and electrocution risk with proper transmission
7 line engineering design. In areas of greater risk for avian collisions (e.g. near wetlands)
8 bird diverters will be installed to minimize collision risk for avian species. Joint
9 Applicants' implementation of APLIC guidance is discussed in greater detail in the Direct
10 Testimony of Adam Cernea Clark. The aforementioned voluntary commitments apply to
11 both the Corona Wind North Gen-Tie System and Corona Wind North Generation
12 specifically. Due to the foregoing BMPs and siting methodology discussed in the
13 Environmental Report and the Direct Testimony of Adam Cernea Clark, it is our belief that
14 the Corona Wind North Project will not have material negative impacts to sensitive flora
15 and fauna.

16 **Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO POTENTIAL**
17 **NOISE IMPACTS.**

18 A. The 345-kV transmission system and associated transmission facilities of the Corona Wind
19 North Gen-Tie System is not expected to cause an undue noise burden within the Corona
20 Wind North Project Study Area. The Corona Wind North Gen-Tie System alignment itself
21 is sparsely populated and has been setback from potential receptors. As such, there are no
22 significant concentrations of homes or other receptors. Furthermore, the Corona Wind
23 North Project Area is located entirely within private property of participating landowners

1 or within state trust land. Pattern Energy has worked with participating landowners to
2 assure appropriate setbacks from homes and other receptors. Wind turbines within the
3 Corona Wind North Generation area will be setback from any homes and other important
4 receptors, in accordance with local ordinances, and located entirely within participating
5 landowner properties or within state trust lands. Pattern Energy has sited turbines to
6 minimize sound-level concerns at neighboring homes. Further discussion of noise is
7 provided in Sections 4.3 and 5.3 of the Environmental Report and the testimony of Greg
8 Parent.

9 **Q. WILL THE CORONA WIND NORTH GEN-TIE SYSTEM INTERFERE WITH**
10 **COMMUNICATION SIGNALS?**

11 A. Development and operation of the Corona Wind North Gen-Tie System is not expected to
12 interfere with or impair communication signals. The beam paths identified, which are
13 depicted in Exhibit 20 of the Environmental Report, have been incorporated into the
14 preliminary site layout and disruption to the signal will be avoided in the final layout.
15 Pattern Energy conducted a review of coordinates at the north, south, east, and west points
16 of the Corona Wind North Gen-Tie System, with an expanded search to 35 miles from the
17 edge of the Corona Wind North Gen-Tie System endpoints, which indicates that multiple
18 microwave towers, antenna structure registration towers, or AM/FM/TV towers are
19 present. The transmission line facilities will avoid and minimize impacts to AM and FM
20 station towers to the extent practicable. Impacts with communication signals will be similar
21 for the entire Corona Wind North Generation area. The beam paths identified, have been
22 incorporated into the preliminary wind turbine layout and disruption to the signal will be
23 avoided in the final layout. Wind turbines will be sited such that they should not interfere

1 with or interrupt these communication paths, regardless of which direction the wind turbine
2 is facing. Further discussion of communication signals is provided in Sections 4.14 and
3 5.14 of the Environmental Report.

4 **Q. WILL CORONA WIND NORTH GEN-TIE SYSTEM IMPACT RECREATIONAL**
5 **USES?**

6 A. The Corona Wind North Gen-Tie System is not anticipated to impair recreational uses. The
7 Corona Wind North Gen-Tie System is in an area that is primarily agricultural land used
8 for grazing and cultivation and is not known to support major or organized recreational
9 activities. However, landowners reserve the right to recreate on their properties, provided
10 such recreation does not unduly interfere with the Corona Wind Project. Near the Corona
11 Wind North Gen-Tie System, the primary recreational activity identified is occasional
12 hunting. This activity is expected to continue throughout the Corona Wind North Project
13 Study Area (which is inclusive of the Corona Wind North Gen-Tie System). Pattern Energy
14 expects to work with landowners for a temporary period during construction to confirm
15 that there are no undue safety risks to either the construction crews or hunters. Furthermore,
16 Pattern Energy has worked with environmental specialists to create wildlife training
17 materials, which are discussed in the Direct Testimony of Adam Cernea Clark. The
18 previous discussion also applies to the Corona Wind North Generation as well. Further
19 discussion of recreational use is provided in Sections 4.12 and 5.12 of the Environmental
20 Report.

21 **Q. WHAT VISUAL IMPACT WILL THE CORONA WIND NORTH GEN-TIE**
22 **SYSTEM HAVE?**

1 A. Visual impacts from the Corona Wind North Gen-Tie System, as discussed below, will be
2 modest and consistent with the existing environment (e.g., the Corona Wind North Project
3 Study Area already has existing transmission facilities within the vicinity) and it is not
4 believed that the Corona Wind North Gen-Tie System will materially impair visual
5 resources. Furthermore, because the Corona Wind North Gen-Tie System impacts are
6 generally consistent with the goals and objectives of both the participating landowners as
7 well as the county, as evidenced by the Torrance County Comprehensive Plan promoting
8 the development of wind energy and associated transmission infrastructure. Topography
9 within the Corona Wind North Gen-Tie System is variable, including relatively flat
10 grassland, gentle slopes, small ridgelines, canyons, hills, mesas, and steep slopes.
11 Herbaceous/grassland cover types dominate the landscape, with shrub/scrub and evergreen
12 forest vegetation communities covering smaller areas of the Corona Wind North Gen-Tie
13 System. Land use within the Corona Wind North Gen-Tie System is primarily open range
14 livestock grazing. Elevation within the footprint of the Corona Wind North Gen-Tie
15 System ranges from 6,079 to 7,286 feet (1,853 to 2,221 meters [m]) above mean sea level
16 (see Exhibit 13 of the Corona Environmental Report). Torrance County has low population
17 density, particularly within the Corona Wind North Gen-Tie Study Corridor. The
18 population density for Torrance County is approximately 4.5 inhabitants per square mile,
19 with most of the population in the county's concentrated southeast of the City of
20 Albuquerque. A few inhabitable residences are within the Corona Wind North Gen-Tie
21 System Study Corridor, and other scattered rural residences and small communities are
22 nearby. The village of Encino, New Mexico, is the closest incorporated community, located
23 at the junction of U.S. Highway 60 and U.S. Highway 285, approximately 4 miles east of

1 the Corona Wind North Gen-Tie System. Travelers in proximity to the Corona Wind North
2 Gen-Tie System would include primarily local traffic along U.S. Highways 60 and 285 and
3 New Mexico State Route 3, and some regional and interstate traffic along U.S Highway 54
4 and Interstate 40 (I-40). No designated federal or state scenic routes or byways were
5 identified in the Corona Wind North Gen-Tie System Study Corridor but the nearest federal
6 byway is Historic Route 66 National Scenic Byway which is co-located with I-40
7 approximately 0.7 miles north of the northernmost point of the Corona Wind North Gen-
8 Tie System. No national or state parks, preserves, recreation areas, or monuments are in
9 the Corona Wind North Gen-Tie System Study Corridor. The northern end of the Corona
10 Wind North Gen-Tie System is within 0.7 miles of the Route 66 National Scenic Byway.
11 The closest national park is the Gran Quivira Unit of Salinas Pueblo Missions National
12 Monument, which is approximately 29 miles southwest of the Corona Wind North Gen-
13 Tie System. There are no BLM-managed sites or National Parks Service (NPS) National
14 Natural Landmarks within 50 miles of the Corona Wind North Gen-Tie System. The
15 nearest state parks are Villanueva State Park, Manzano Mountains State Park, Sumner Lake
16 State Park, and Santa Rosa Lake State Park, all of which are located more than 35 miles
17 from the Corona Wind North Gen-Tie System (NMEMNRD, 2021). Further discussion of
18 visual and scenic resources is provided in Sections 4.11 and 5.11 of the Environmental
19 Report. The previous discussion also applies to the Corona Wind North Generation area.
20 The wind turbines will be visible in the local area. The Corona Wind North Generation
21 wind turbines will be similar in style to the ones already operating in this region of the
22 State of New Mexico.

1 **Q. WHAT IMPACT WILL THE CORONA WIND NORTH GEN-TIE SYSTEM HAVE**
2 **ON HISTORIC, CULTURAL, AND ARCHAEOLOGICAL RESOURCES?**

3 A. Impacts to historical, cultural, and archaeological resources from the Corona Wind North
4 Gen-Tie System are expected to be de minimis, if any. Along the proposed transmission
5 line, a number of historic and archaeological sites have been recorded. Sites range from
6 historical homesteads to prehistoric archaeological artifact scatters and there are also a
7 number of isolated findings. Within the Corona Wind North Project Study Area, similar
8 historic and archaeological resources are present. Cultural resource surveys will be
9 completed prior to ground disturbance activities on state lands as well as private land where
10 desktop review does not identify a low likelihood of cultural resources occurrence. The
11 Corona Wind North Gen-Tie System will avoid impacts to historic, cultural, and
12 archeological resources that are discovered during construction on both private and state
13 land to the maximum extent practicable. Pattern Energy's avoidance protocols and siting
14 philosophy is discussed in greater detail in the Direct Testimony of Adam Cernea Clark
15 and the Environmental Report. Pattern Energy will implement an Unanticipated
16 Discoveries Protocol to properly address unexpected discoveries that may be encountered
17 during construction. Further discussion of historic, cultural, and archeological resources is
18 provided in Sections 4.9 and 5.9 of the Environmental Report. The foregoing avoidance
19 strategies apply as well to the Corona Wind North Generation.

20 **Q. WILL THE CORONA WIND NORTH GEN-TIE SYSTEM IMPACT**
21 **CEMETERIES OR BURIALS?**

22 A. One known cemetery, Negra Cemetery, was identified within the footprint of the Corona
23 Wind North Gen-Tie System Study Corridor. See Exhibit 11 of the Environmental Report

1 for a depiction of this cemetery location. There could be unidentified formal and informal
2 cemeteries associated with the active and abandoned ranches within the footprint of the
3 proposed transmission line. The Corona Wind North Gen-Tie System will avoid these sites
4 and any unanticipated discoveries during construction as discussed in Sections 4.10 and
5 5.10 and identified on Exhibit 11 of the Environmental Report. No religious sites or
6 cemeteries are located within the Corona Wind North Generation area. However, six
7 cemeteries are located within one mile including: Encino Cemetery, Guadalupe Cemetery,
8 Negra Cemetery, Old Pintada, Red Hills Cemetery, Sombrio Cemetery, Tapia Cemetery.
9 Additional unknown or abandoned cemeteries could be within the footprint. Further
10 discussion of cemeteries and burials is provided in Sections 4.10 and 5.10 of the
11 Environmental Report. The foregoing applies as well to the Corona Wind North Project
12 Study Area as a whole.

13 **Q. WILL THE CORONA WIND NORTH GEN-TIE SYSTEM IMPACT ANY**
14 **SCHOOLS?**

15 A. No. The Corona Wind North Gen-Tie System will not physically impact schools. The
16 closest schools are: Corona Public Schools, approximately 7 miles south of the southern
17 end of the Corona Wind North Gen-Tie System; Moriarty Elementary School,
18 approximately 18 miles west of the northwest corner of the Corona Wind North Gen-Tie
19 System; and Vaughn Municipal Schools, approximately 18 miles east of the approximate
20 mid-point of the Corona Wind North Gen-Tie System (Exhibit 18). No adverse direct or
21 indirect impacts to schools will occur as a result of the construction, operation, and
22 maintenance of the transmission line facilities. Siting of transmission line facilities will
23 follow industry standard siting guidelines. The previous land use impacts identified for the

1 Corona Wind North Gen-Tie System also apply for the Corona Wind North Generation.
2 The planned use of state trust land will contribute meaningful revenue to the state that is
3 earmarked for the benefit of schools. Further, payments-in-lieu-of-taxes associated with
4 industrial revenue bonds to be negotiated with counties and municipalities will have major
5 impacts on the long-term fiscal outlook of schools in the area. Further discussion of schools
6 is provided in Sections 4.12 and 5.12 of the Environmental Report.

7 **Q. WILL THE CORONA WIND NORTH GEN-TIE SYSTEM IMPACT ANY**
8 **RELIGIOUS SITE?**

9 A. No. The Corona Wind North Gen-Tie System will avoid impacts to known religious
10 buildings and sites in the area. Further discussion of religious sites is provided in Sections
11 4.10 and 5.10 of the Environmental Report. The foregoing applies as well to the Corona
12 Wind North Project Study Area generally.

13 **Q. WILL THE CORONA WIND NORTH GEN-TIE SYSTEM CONFLICT WITH**
14 **MILITARY ACTIVITIES?**

15 A. No. The Corona Wind North Gen-Tie System will not conflict with military activities.
16 Further discussion of military activities is provided in Sections 4.19 and 5.19 of the
17 Environmental Report. Pattern Energy has communicated with local military bases and is
18 working with the United States Department of Defense (“DoD”) and local military bases
19 to address potential impacts on military activities in the area. Pattern Energy will continue
20 to coordinate with military bases.

21 **Q. WILL THE CORONA WIND NORTH GEN-TIE SYSTEM ADVERSELY AFFECT**
22 **AVIATION**

1 A. No, the Corona Wind North Gen-Tie System will not adversely affect aviation. Military
2 training routes occur in the vicinity of the Corona Wind North Gen-Tie System (see Exhibit
3 21 of the Environmental Report). However, none of these routes would be adversely
4 impacted by the Corona Wind North Project as a whole. Pattern Energy will work with the
5 United States Federal Aviation Administration (“FAA”) to request Determination of No
6 Hazard (“DNH”) for the new proposed transmissions facilities. Based on the height of
7 transmission line facilities and the location of military and aviation resources, the
8 transmission line facility construction, operation, and maintenance, within the Corona
9 Wind North Gen-Tie System will not impact military activities and aviation. As discussed
10 in the previous answer, Pattern Energy is working closely with local military bases and the
11 DoD as well as the FAA. This work has been underway for several years and is complete
12 with respect to the Corona Wind North Project. Prior to construction, Pattern Energy will
13 submit requests for a DNH to the FAA for each proposed wind turbine site, plus extra
14 locations as alternates in case issues arise with any requested turbine location. This Form
15 FAA 7460-1 process (Notice of Proposed Construction or Alteration) is required by the
16 FAA for any structure over 200 feet. Upon review of the Joint Applicant's Form FAA 7460-
17 1, the FAA will consider aviation safety, airport approaches, and military flight activities.
18 Turbines will be lit with FAA-compliant safety lighting per the turbine- specific
19 recommendations resulting from the 7460-1 process. Turbines will be lit no more than
20 required by the FAA. Further discussion of aviation is provided in Sections 4.19 and 5.19
21 of the Environmental Report.

22 **Q. WILL THE CORONA WIND NORTH GEN-TIE SVSTEM ADVERSELY AFFECT**
23 **SOILS?**

1 A. No significant adverse impact to soils is anticipated. Soils within in the Corona Wind North
2 Gen-Tie System are shown on Exhibit 5 of the Environmental Report. The finished
3 footprint of the Corona Wind North Gen-Tie System will cover only small portion of the
4 land in the Corona Wind North Project Study Area, leaving the remaining areas in their
5 prior uses. In addition, topsoil is planned to be stockpiled and replaced, and erosion control
6 and best management practices will be employed during construction, in compliance with
7 the Storm Water Pollution Prevention Plan that would be implemented for the Corona
8 Wind North Project. The Corona Wind North Gen-Tie System is consistent with the East
9 Torrance Soil and Water Conservation District Long Range Land Use Plan. The same
10 discussion and conclusion applies to the Corona Wind North Generation. Further
11 discussion of soils is provided in Sections 4.5 and 5.5 of the Environmental Report.

12 **Q. WILL THE CORONA WIND NORTH GEN-TIE SYSTEM ADVERSELY AFFECT**
13 **MINERALS OR MINING?**

14 A. No. There are no currently active oil and gas leases on any public lands in Torrance County.
15 System (see Exhibit 3 of the Environmental Report). According to the NM OCD Oil and
16 Gas Map, there are no active hydrocarbon extraction activities within one mile of the
17 Corona Wind North Generation area (NM OCD, 2022) (Exhibit 3). Also, according to the
18 New Mexico Oil Conservation Division (NM OCD) Oil and Gas Map, there are no active
19 hydrocarbon extraction activities within one mile of the Corona Wind North Gen-Tie
20 System Survey Corridor (NM OCD, 2022) (Exhibit 3).

21 According to the New Mexico Mining and Minerals Division (NM MMD), Torrance
22 County has had 41 mine registration and/or permit applications for the extraction of
23 aggregate, caliche, dimension & flagstone, limestone, copper, gold, and silver. Sixteen of

1 these are listed as active mines, all for the extraction of dimension & flagstone or aggregate
2 material (NM MMD, 2022). According to the USGS Mineral Resources Data System
3 (MRDS), no current producers occur within the footprint of the Corona Wind North Gen-
4 Tie System (USGS, 2011). In addition to Torrance County's 41 mine registration and/or
5 permit applications mentioned in Section 4.4.3, Guadalupe County has had 44 applications
6 and San Miguel County has had 48 applications for the extraction of aggregate, caliche,
7 dimension & flagstone, and zinc. Ten in Guadalupe County and eight in San Miguel
8 County are listed as active mines, all for the extraction of aggregate, caliche, or dimension
9 & flagstone material (NM MMD, 2022). According to the MRDS, no current producers
10 occur within the footprint of the Corona Wind North Generation area (USGS, 2011).

11 **Q. WILL THE CORONA WIND NORTH GEN-TIE SYSTEM ADVERSELY AFFECT**
12 **GEOLOGIC OR PALEONTOLOGICAL RESOURCES?**

13 A. No. Geology in the Corona Wind North Gen-Tie System is shown on Exhibit 2 of the
14 Environmental Report. Gems, minerals, and rocks of interest may exist in the Corona Wind
15 North Gen-Tie System just as they may exist in many parts of New Mexico.
16 Paleontological finds also have occurred in many parts of New Mexico. While no
17 paleontological resources are known in the Corona Wind North Gen-Tie System, in the
18 event any are identified, current or planned activity in the affected area will stop, and Joint
19 Applicants will make notifications to the appropriate authorities and consultations
20 regarding follow-up activities will occur, in accordance with the Unanticipated Discoveries
21 Protocol. This same discussion also applies to the Corona Wind North Generation. Further
22 discussion of geology and paleontology resources is provided in Sections 4.4, 4.6, 5.4 and
23 5.6 of the Environmental Report.

1 **Q. WILL THE CORONA WIND NORTH GEN-TIE SYSTEM ADVERSELY AFFECT**
2 **ROADS?**

3 A. Roads are shown on Exhibit 15 of the Environmental Report. Prior to construction, Pattern
4 Energy plans to negotiate and execute a road use agreement with Torrance County. The
5 road use agreement will identify the county roads that the Corona Wind North Gen-Tie
6 System are allowed to use for heavy haul vehicles, mainly during construction. It will
7 identify responsibilities for maintenance and upkeep of these county roads during and after
8 construction, especially for wear and tear or damage caused by the Corona Wind North
9 Gen-Tie System-related traffic. The agreement will establish traffic safety measures to
10 confirm the safety of the driving public. The road use agreement will address dust
11 mitigation measures on county roads resulting from construction traffic. The pre-
12 construction conditions of county roads will be documented, prior to construction, typically
13 by video recording, and the Corona Wind North Gen-Tie System will confirm that county
14 roads are generally in the same or better condition upon completion. Financial security will
15 be proposed to confirm Pattern Energy's compliance with the agreement. Prior to the
16 movement of any super-load trucks on other public roads, Pattern Energy will consult with
17 any necessary state and federal transportation authorities and will obtain any required
18 permits. Discussion of road use is provided in Sections 4.20 and 5.20 of the Environmental
19 Report.

20 **Q. WILL THE CORONA WIND NORTH GEN-TIE SYSTEM ADVERSELY AFFECT**
21 **GEOGRAPHIC RESOURCES?**

22 A. No. There are no national parks or state parks in the vicinity of the Corona Wind North
23 Gen-Tie System Study Corridor. The closest national park is the Gran Quivira Unit of

1 Salinas Pueblo Missions National Monument, which is approximately 29 miles southwest
2 of the System (NPS, 2021a). There are no BLM-managed sites or National Parks Service
3 (NPS) National Natural Landmarks within 50 miles of the Corona Wind North Gen-Tie
4 System (BLM, 2022a; NPS, 2021b). The nearest state parks are Villanueva State Park,
5 Manzano Mountains State Park, Sumner Lake State Park, and Santa Rosa Lake State Park,
6 all of which are located more than 35 miles from the Corona Wind North Gen-Tie System.
7 A discussion of geographic resources is provided in Sections 4.18 and 5.18 of the
8 Environmental Report.

9 **Q. DOES PATTERN ENERGY EXPECT TO ENCOUNTER RADIOACTIVE WASTE**
10 **OR RADIATION HAZARDS?**

11 A. No. Transmission projects and wind generation projects do not generate or contain
12 radioactive waste or radiation hazards, as noted in Sections 4.15 and 5.15 of the
13 Environmental Report.

14 **Q. DOES PATTERN ENERGY EXPECT TO ENCOUNTER ASBESTOS OR OTHER**
15 **MATERIALS THAT REQUIRE SPECIAL HANDLINGS?**

16 A. No. The vast majority of the Corona Wind North Gen-Tie System has never had any
17 construction activity or structures or facilities that could have included asbestos or other
18 materials that require special handling, so all or nearly all the Corona Wind North Project's
19 related construction activity will be sited away from such materials. Prior to construction,
20 Pattern Energy will perform a Phase 1 Environmental Screening Assessment to identify
21 any hazardous materials, substances, or facilities in the Corona Wind North Gen-Tie
22 System, and any such items identified will be avoided. Further, in the unlikely event that

1 there are hazardous materials or wastes that are present at the site and associated with the
2 Corona Wind North Project will be properly contained, and a spill response plan will be in
3 place to confirm that, in the event of an accidental spill or leakage, there will be no
4 contamination or transmission downstream. The same discussion applies to the Corona
5 Wind North Project Study Area as a whole. Discussion of hazardous materials is provided
6 in Sections 4.16 and 5.16 of the Environmental Report.

7 **Q. WHAT EFFORTS WILL PATTERN ENERGY MAKE TO PROTECT PUBLIC**
8 **SAFETY AROUND THE CORONA WIND NORTH PROJECT?**

9 A. Safety will remain a priority of the Corona Wind North Project throughout construction,
10 operation, and eventual decommissioning. Pattern Energy will comply with all
11 manufacturer specifications and relevant OSHA requirements to confirm the safety of
12 residents, employees, contractors, livestock, the public, and other users of the land.
13 Additionally, appropriate county emergency responders and fire districts will be contacted
14 to confirm appropriate plans are in place at the Corona Wind North Project to quickly
15 respond to any emergencies. Pattern Energy will communicate with appropriate county fire
16 departments in order to coordinate emergency response plans prior to the start of
17 construction. Pattern Energy will work with the departments to confirm the safety of the
18 firefighters, employees, landowners, neighbors, livestock, and other users of the land. The
19 Corona Wind North Project's employees and contractors will all participate in fire
20 prevention/fighting training to confirm their preparedness and participation in fire
21 protection. An annual firefighting practical examination will be completed onsite,
22 including a live drill, to confirm the Corona Wind North Project's employees have
23 maintained their training. This training will be offered to the local fire departments too.

1 The Corona Wind North Project will have emergency response plans in place to respond
2 to various natural disasters, even though the Corona Wind North Project Study Area
3 generally is not considered to be a high-risk site. Within the Corona Wind North Project
4 Study Area, electrical substations and transformers will be located inside locked fences or
5 enclosures, and they will be clearly marked to show that energized electrical equipment is
6 located inside. Modern wind turbines are inherently unclimbable by the general public,
7 since there are no exterior ladders or lattice work, and interior ladders are secured behind
8 locked doors located at the bases of the turbine towers. Discussion of public safety is
9 provided in Sections 4.17 and 5.17 of the Environmental Report.

10 **Q. HAS PATTERN ENERGY IDENTIFIED PROTECTION MEASURES IT WILL**
11 **IMPLEMENT TO AVOID AND MANAGE IMPACTS TO RESOURCES YOU**
12 **REVIEWED ABOVE?**

13 A. Yes. The measures Pattern Energy will implement are identified in Section 5.0 of the
14 Environmental Report. Additionally, Pattern Energy has developed additional best
15 management practices in collaboration with the New Mexico State Lands Office that are
16 discussed in the prepared direct testimony of Adam Cernea Clark.

17 **Q. WILL THE CORONA WIND NORTH PROJECT RESULT IN**
18 **ENVIRONMENTAL BENEFITS?**

19 A. Yes. To the extent that the electric generation by the wind component of the Corona Wind
20 North Project displaces generation from fossil-fuel fired sources such as coal and gas
21 generation, it will result in reduced emission of greenhouse gases and air pollutants, which
22 will benefit the State of New Mexico and the region. The renewable energy generation will

1 conserve scarce water resources and will not discharge pollutants. The Corona Wind North
2 Project will use only a small portion of the land area, leaving the remaining land available
3 for pre-existing uses such as agriculture, rangeland and wildlife habitat. Micro-siting of the
4 transmission line facilities and wind turbines will avoid sensitive resources. Furthermore,
5 the energy of the Corona Wind North Gen-Tie System provides an electrical transmission
6 link to the areas high-wind speed resources and the electric grid, which benefit should
7 continue long into the future irrespective of the life of the Corona Wind North Project.

8 **IV. LAND USE, LAND OWNERSHIPS AND COMPLIANCE WITH LAND USE**
9 **STATUTES AND ADMINISTRATIVE REGULATIONS**

10 **Q. PLEASE DESCRIBE THE EXISTING LAND OWNERSHIP AND LAND USES ON**
11 **THE CORONA WIND NORTH PROJECT STUDY AREA.**

12 A. The Corona Wind North Project Study Area encompasses approximately 352,843 acres on
13 primarily private land, as well as some state trust land. About 60% to 70% of Corona Wind
14 North Study Area is expected to consist of private land, and about 30 % to 40% of which
15 may consist of state trust land. No federal land is planned to be used. Pattern Energy has
16 applied to the SLO for a real estate lease for about 117,476 acres of state trust land. It is
17 possible that additional private landowners and state trust land parcels will be incorporated
18 into the Corona Wind North Project Study Area. The type of land ownership is shown on
19 Exhibit 19 of the Corona Environmental Report. The current land use of the Corona Wind
20 North Gen-Tie Study Corridor is predominantly agricultural, with a mix of grazing,
21 cultivation, dairies, and Conservation Reserve Program uses.

1 **Q. WILL THESE USES CONTINUE FOLLOWING CONSTRUCTION OF THE**
2 **WIND FARMS?**

3 A. Yes. When construction is complete, the Corona Wind North Project's facilities are
4 expected to utilize a small portion of the approximately 352,843-acre Corona Wind North
5 Project Study Area, thus leaving the remaining unutilized land available for its existing
6 land use. As discussed above, the Corona Wind North Project will not interfere with land
7 use in the vicinity of the Corona Wind North Project. In some ways, the Corona Wind
8 North Project will enhance the ability of landowners to utilize their land for agriculture
9 because the Corona Wind North Project will make annual payments to landowners that will
10 be a steady new income stream, independent of commodity prices, drought, and other
11 factors that affect the economics of agriculture. In some cases, the extra income from the
12 Corona Wind North Project may enable landowners to stay on their land and reinvest in
13 and continue their current agricultural practices.

14 **Q. HAS PATTERN ENERGY SECURED LAND RIGHTS FOR THE CORONA WIND**
15 **NORTH PROJECT FROM THE PRIVATE LANDOWNERS?**

16 A. Yes. I am informed that Pattern Energy has executed lease option agreements for the
17 private acreage. Lease option agreements provide for a right to both develop, construct,
18 and operate wind facilities and transmission infrastructure. Additional landowners adjacent
19 or nearby the Corona Wind North Project Study Area may yet contact Pattern Energy with
20 an interest in signing a lease agreement, and Pattern Energy intends to continue to entertain
21 such inquiries. The location control approval, if granted by the Commission, is only
22 intended to apply to land within the Corona Wind North Gen-Tie System that is currently
23 or ultimately signed for the Corona Wind North Projects' use.

1 **Q. DOES THE CORONA WIND NORTH PROJECT REQUIRE STATE LANDS?**

2 A. It is my understanding that state trust land is not necessarily required for the Corona Wind
3 North Project viability, but its inclusion will enhance flexibility of turbine and facilities
4 siting. Because the alignment of the Corona Wind North Gen-Tie System is dependent on
5 the locations of wind turbines, the amount and location of state trust lands to be leased by
6 the Corona Wind North Project indirectly affects the alignment and location of the Gen-
7 Tie System. At this time, it is estimated that the Joint Applicants will locate facilities on
8 up to approximately 117,476 acres of state trust lands.

9 **Q. WHAT LAND USE STATUTES AND ADMINISTRATIVE REGULATIONS**
10 **APPLY TO THE CORONA WIND NORTH PROJECT AREA, SPECIFICALLY**
11 **TO THE CORONA WIND NORTH GEN-TIE SYSTEM?**

12 A. As part of Torrance County's Goals and Objectives in the Torrance County Comprehensive
13 Land Use Plan, the potential for wind and solar generated power is encouraged to be
14 investigated in order to improve and expand Torrance County-wide infrastructure to
15 enhance the quality of life and support economic development. The Torrance County
16 Zoning Ordinance encourages the development of businesses that harness wind energy.
17 The Special Use District ("SUD") permitting process for wind energy facilities are to foster
18 the development of the County's wind power resources while preserving traditional land
19 uses. As indicated in the Torrance County Zoning Ordinance, wind energy facilities within
20 a special use district are subject to a Wind Energy Facility Permit if the County
21 Commission approves a special use district for a Wind Energy Facility. The Wind Energy
22 Facility Permit specifies additional conditions that apply to the Wind Energy Facility.
23 Because the Corona Wind North Project may use up to approximately 117,476 acres of

1 state trust land, certain of the Joint Applicants have submitted applications for leases to the
2 SLO and will submit additional applications in the near future. The SLO's business leasing
3 regulations, Rule 19.2.9 NMAC, apply to leasing of state trust lands.

4 **Q. IN SUMMARY, WILL THE CORONA WIND NORTH GEN-TIE SYSTEM**
5 **COMPLY WITH EXISTING STATE, COUNTY, OR MUNICIPAL LAND USE**
6 **STATUTORY OR ADMINISTRATIVE REGULATION?**

7 A. Yes. As demonstrated in my testimony and exhibits, both the Corona Wind North Gen-Tie
8 System and the Corona Wind North Generation will comply with applicable state and
9 county land use statutes and administrative regulations. There are no municipal land use
10 regulations that apply to the Corona Wind North Project. Torrance County encourages the
11 development of businesses that harness wind energy and has SUD permitting process to
12 foster the development of Torrance County's wind power resources while preserving
13 traditional land uses. The SLO will apply its leasing regulations to issue the real estate lease
14 with which the Corona Wind North Projects will comply if a SLO lease is granted and
15 utilized.

16 **Q. DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?**

17 A. Yes, it does.

Exhibit NO-1 Corona Wind North Project Environmental Report



Dahlia Wind LLC, El Corazon Wind LLC, Gallinas Mountain Wind LLC, Pastura Wind LLC, and Pattern SC Holdings LLC (the “Corona Wind North Companies”)

**Corona Wind North Project
Project No. 131336**

4/11/2022

Exhibit NO-1 Corona Wind North Project Environmental Report

prepared for

**Dahlia Wind LLC, El Corazon Wind LLC, Gallinas
Mountain Wind LLC, Pastura Wind LLC, and Pattern
SC Holdings LLC (the “Corona Wind North
Companies”)**

**Corona Wind North Project
New Mexico**

Project No. 131336

4/11/2022

prepared by

**Burns & McDonnell Engineering Company, Inc.
Houston, Texas**

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LIST OF TERMS AND ABBREVIATIONS

<u>Term or Abbreviation</u>	<u>Definition</u>
AC	alternating current
ACSR	aluminum conductor steel reinforced
ACSS	aluminum conductor steel supported
APLIC	Avian Power Line Interaction Committee
BGEPA	Bald and Golden Eagle Protection Act
BIA	Bureau of Indian Affairs
BISON-M	Biota Information System of New Mexico
BLM	U.S. Bureau of Land Management
BLS-SW	Bureau of Labor Statistics, Southwest Information Office
BMPs	best management practices
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
CFR	Code of Federal Regulations
CLUP	Comprehensive Land Use Plan
CO	carbon monoxide
Commission	New Mexico Public Regulation Commission
Corona Wind North Companies, or Joint Applicants	Dahlia Wind LLC, El Corazon Wind LLC, Gallinas Mountain Wind LLC, Pastura Wind LLC, and Pattern SC Holdings LLC
Corona Wind North Generation	proposed wind generation facilities totaling up to approximately 1,500 MW of new generation
Corona Wind North Gen-Tie System	transmission system to facilitate interconnection, or tie-in, of the Corona Wind North Generation to the electrical grid
Corona Wind North Project, or Project	Corona Wind North Generation and Corona Wind North Gen-Tie System
dBA	A-weighted decibels
DNH	Determination of No Hazard

<u>Term or Abbreviation</u>	<u>Definition</u>
ECOS	Environmental Conservation Online Service
EPA	U.S. Environmental Protection Agency
ER	Environmental Report
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FSA	Farm Service Agency
ft	feet
GAP	Gap Analysis Program
GIS	geographic integration systems
GLO	General Land Office
GRT	gross receipts tax
HUC 10	10-digit Hydrologic Unit Code
I-	Interstate
IPaC	Information for Planning and Consultation
kcMil	thousand circular mil
kV	kilovolt
m	meters
MBTA	Migratory Bird Treaty Act

<u>Term or Abbreviation</u>	<u>Definition</u>
MRLC	Multi-Resolution Land Characteristics Consortium
MW	megawatt
NAIP	National Agriculture Imagery Program
NASS	National Agricultural Statistics Service
NESC	National Electrical Safety Code
NHD	National Hydrography Dataset
NLCD	National Land Cover Database
NMAC	New Mexico Administrative Code
NM CHAT	New Mexico Crucial Habitat Assessment Tool
NMCRIS	New Mexico Cultural Resource Information System
NMDGF	New Mexico Department of Game and Fish
NMDOT	New Mexico Department of Transportation
NMED-AQB	New Mexico Environment Department Air Quality Bureau
NMED-SWQB	New Mexico Environment Department Surface Water Quality Bureau
NM MMD	New Mexico Minerals and Mining Division
NM OCD	New Mexico Oil Conservation Division
NMSA	New Mexico Statutes Annotated
NO _x	nitrogen oxide
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory

<u>Term or Abbreviation</u>	<u>Definition</u>
NWP	Nationwide Permit
O&M	operations and maintenance
OHWM	ordinary high-water mark
OPGW	optic ground wire
PLJV	Playa Lakes Joint Venture
PLSS	Public Land Survey System
PM	particulate matter
ROW	right-of-way
SGP CHAT	Southern Great Plains Crucial Habitat Assessment Tool
SLO	State Land Office
SO ₂	sulfur dioxide
SPCC	Spill Prevention, Containment, and Countermeasures Plan
SPS	Special Protection System
SSURGO	Soil Survey Geographic
Staff	Commission Staff
Study Area	land covered by the Corona Wind North Generation and Corona Wind North Gen-Tie System Study Corridor
Study Corridor	a generally 1-mile-wide corridor which contains the proposed route of the Corona Wind North Gen-Tie System
SWCD	Soil and Water Conservation District
SWPPP	Stormwater Pollution Prevention Plan
USDA	U.S. Department of Agriculture
UDP	Unanticipated Discovery Protocol
USFWS	U.S. Fish and Wildlife Service

<u>Term or Abbreviation</u>	<u>Definition</u>
USGS	U.S. Geological Survey
VOCs	volatile organic compounds

1.0 SUMMARY

Pattern Energy and its affiliates (Dahlia Wind LLC, El Corazon Wind LLC, Gallinas Mountain Wind LLC, Pastura Wind LLC, and Pattern SC Holdings LLC; collectively the “Corona Wind North Companies,” hereafter referred to as the “Joint Applicants”) are proposing to construct and operate up to 1,500 megawatts (MW) of new wind energy facilities and associated high-voltage transmission lines, as part of the Corona North Wind Project (the “Project”), located in Guadalupe, San Miguel, and Torrance Counties. This report addresses wind generation land not yet approved for generation location control by the Commission (the “Corona Wind North Generation” area) as well as an extension of an existing transmission system to facilitate interconnection, or tie-in, of the Corona Wind North Generation to the electrical grid (the “Corona Wind North Gen-Tie System”).

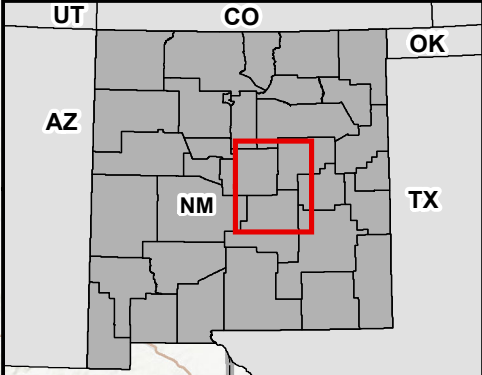
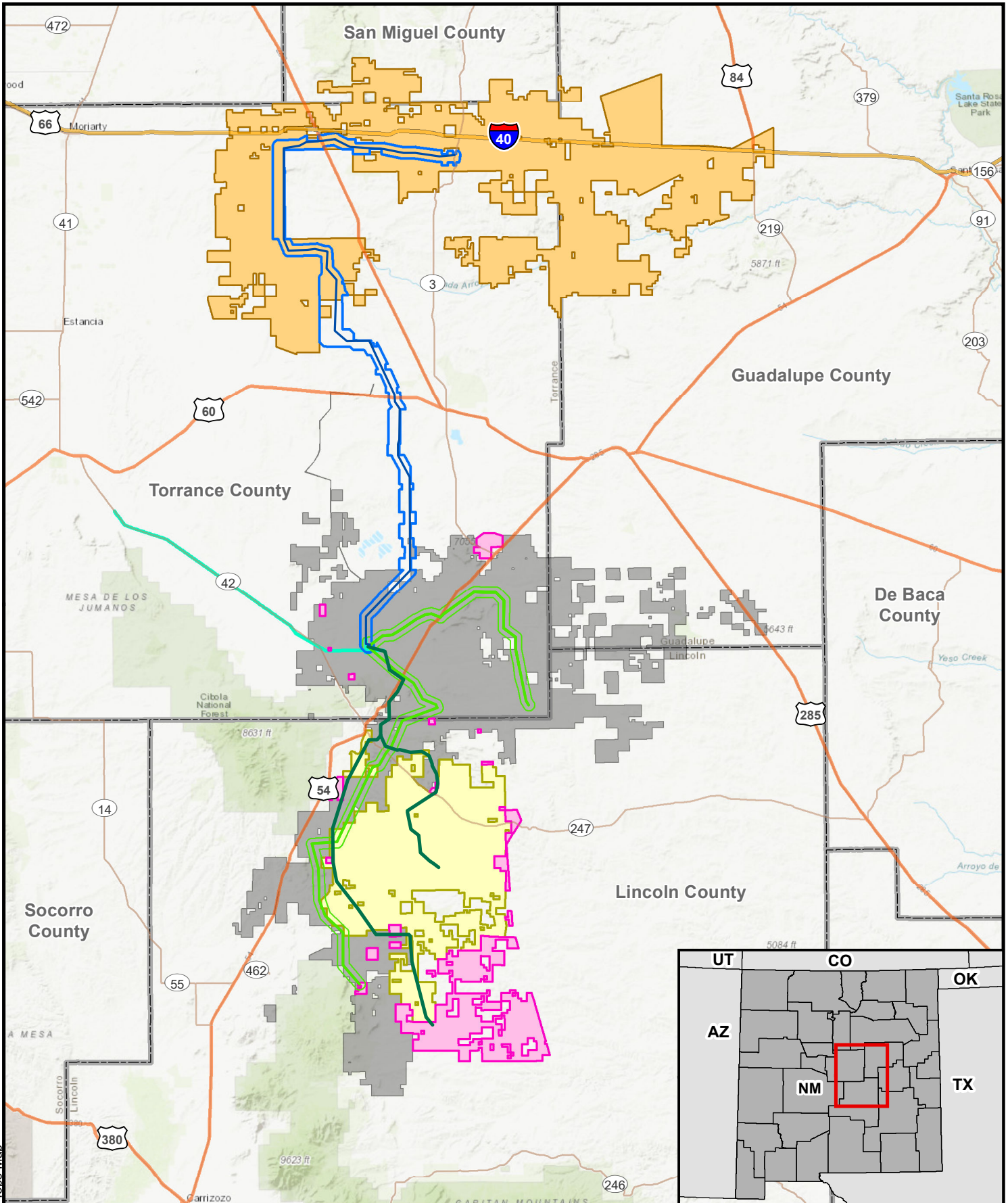
This report responds to the requirement of the Commission for a report, in the form provided in Code of Federal Regulations, Title 40, Section 1502.10 (40 CFR §1502.10), for location of transmission lines of 230 kilovolt (kV) or greater associated with a large-capacity power plants capable of 300 megawatts (MW) or more of generation that do not require an Environmental Assessment or Environmental Impact Statement pursuant to the National Environmental Policy Act. The New Mexico location control statute, New Mexico Statutes Annotated 1978, Section 62-9-3, Subsection F (NMSA 1978 §62-9-3.F), provides that the Commission shall approve the location of the transmission line unless the Commission finds that the location will unduly impair important environmental values.

1.1 Background

The Commission has previously provided location control approval of a total of 3,200 MW of wind generation for projects owned by the Joint Applicants in Lincoln and Torrance Counties in Case Nos. 17-00221-UT and 18-00065-UT and 20-0008-UT, as well as a large generation tie-in transmission system (the “Corona Gen-Tie System”), which was approved in Case Nos. 18-00065-UT and 20-0008-UT. The Commission is also currently reviewing an application for the 2021 Corona Generation Expansion and 2021 Revised Corona Gen-Tie System under Case No. 21-00281-UT. The footprints of these previously approved and pending approval wind generation areas and gen-tie systems are shown on Figure 1-1.

The current proposal included in this Environmental Report (ER) consists of both wind generation and transmission project analysis. With respect to wind generation, this environmental review applies to new wind generation facilities totaling up to approximately 1,500 MW of new generation, hereafter referred to as the “Corona Wind North Generation.” With respect to project transmission analysis, this environmental review applies to a 69.3-mile generation tie-in transmission system, the aforementioned

Path: C:\TEMP\WORK\131336 Pattern Energy North\1 WEST ROUTE\MXD\Figure 1.1 - Overall Map.mxd vakarpov 4/7/2022
 Service Layer Credits: ESRI Topo Map



- ▬ Corona Wind North Gen-Tie System and Study Corridor
- Corona Wind North Generation Area
- 2021 Corona Generation Expansion
- Mesa Canyon Project Area
- ▬ 2021 Revised Corona Gen-Tie System
- ▬ Existing SunZia Transmission Line
- ▬ Previously Approved Corona Gen-Tie System and Corridor
- Previously Approved Corona Wind Footprint

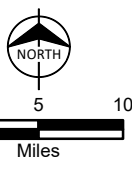


Figure 1-1
 Corona Wind North Project Footprint
 Corona Wind North Companies
 Torrance, Guadalupe, and
 San Miguel Counties, NM

“Corona Wind North Gen-Tie System,” to allow for the efficient interconnection to the grid of up to 1,500 MW of wind energy in Guadalupe, San Miguel, and Torrance Counties.

1.1.1 Proposed Project

The Joint Applicants are proposing the Corona Wind North Gen-Tie System, approximately 69.3 miles (365,904 ft) of new 345 kV transmission line and up to six new step-up substations to serve wind turbine generation projects in Guadalupe, San Miguel, and Torrance Counties that would interconnect to the eastern terminus of the SunZia Transmission System. The Joint Applicants are also proposing the Corona Wind North Generation, consisting of 1,500 MW on 327,895 acres of new wind generation area. Figure 1-1 provides an overview of the proposed Corona Wind North Project (consisting of the Corona Wind North Generation and Corona Wind North Gen-Tie System).

The Corona Wind North Gen-Tie System requires a right-of-way (ROW) width of approximately 180 ft across primarily private land for which the Joint Applicants have obtained, or will obtain, agreements with the underlying landowners prior to commencement of construction. The Joint Applicants are requesting a ROW width determination pursuant to NMSA 1978 §62-9-3.2 to the extent such approval may be required by law.

This ER provides a review of the existing environment surrounding the Corona Wind North Generation and Corona Wind North Gen-Tie System and analyzes the potential environmental impact resulting from construction and operation of the Project. The affected environment (existing condition) for the environmental values provided in NMSA 1978 §62-9-3.M, Commission Rule 17.9.592 New Mexico Administrative Code (NMAC), and additional resource areas identified to be of interest by Commission Staff (Staff) are evaluated in this ER. The resources addressed in this ER include: air resources; water resources; biological resources; land use (including recreation and schools); visual and scenic; cultural, historic, and archaeological resources; religious resources; geology and paleontology; soils; minerals and mining; socioeconomic; roads; noise; communication signals; military activities and aviation; geographic resources; radioactive waste and radiation hazard; hazardous materials; and safety.

The discussion for each resource includes data sources used, current regional conditions, and conditions within the Corona Wind North Gen-Tie System Study Corridor (47,891 acres), a generally 1-mile-wide corridor which contains the proposed route of the generation tie-in transmission system, and the Corona Wind North Generation area (327,895 acres). The environmental consequences (potential impacts) for the resources identified above were addressed to determine whether the proposed transmission line and step-up substation(s) would, “unduly impair important environmental values,” as provided in NMSA 1978

§62-9-3.F. Impact evaluations for each resource are discussed in the context of the Corona Wind North Gen-Tie System alongside Best Management Practices (BMPs) that can help manage impacts.

2.0 INTRODUCTION AND PURPOSE AND NEED

The Joint Applicants are proposing to locate the Corona Wind North Generation and Corona Wind North Gen-Tie System in Guadalupe, San Miguel, and Torrance Counties, New Mexico. Approximately 69.3 miles (365,904 ft) of new 345-kV AC transmission line would be developed to transmit energy generated at new proposed wind turbine generation areas totaling approximately 327,895 acres. A sum total of 352,843 acres of land (327,895 acres of the Corona Wind North Generation area and 47,891 acres within the Corona Wind North Gen-Tie System Study Corridor, minus 22,943 acres of overlap between the two) are currently being negotiated with landowners. Although information about the Corona Wind North Project as a whole is discussed herein to provide overall project context, the New Mexico statutes only require a comprehensive environmental evaluation of the Corona Wind North Gen-Tie System.

2.1 Purpose and Need

The purpose and need of the Corona Wind North Gen-Tie System is to connect new wind turbine generation areas to the eastern terminus of the SunZia Transmission Line, which would allow renewable energy from the Corona Wind North Project to interconnect to the electrical grid. New wind generation area footprint totaling approximately 327,895 acres (Corona Wind North Generation area) and a corridor for 69.3 miles (365,904 ft) of new 345-kV AC transmission line totaling approximately 47,891 acres (Corona Wind North Gen-Tie System) will be acquired in Guadalupe, San Miguel, and Torrance Counties.

2.2 Decisions to be Made

The New Mexico location statute, NMSA 1978 §62-9-3.F provides the Commission shall approve the location of the transmission line unless the Commission finds that the location will unduly impair important environmental values. This ER addresses the important environmental values the Commission has identified in its location rule 17.9.592 NMAC, as well as other issues identified by Staff.

The siting statute, NMSA 1978 §62-9-3.E provides that the Commission shall approve the location of generating plants with a capacity of three hundred thousand kilowatts [300 MW] or more unless it finds that the operations of the facilities for which approval is sought will not comply with all applicable existing air and water pollution control standards and regulations.

3.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

3.1 Alternatives Considered

The Joint Applicants are proposing to construct the Corona Wind North Gen-Tie System, which will consist of an overhead 345-kV transmission line to connect the Corona Wind North Generation to the existing SunZia Transmission Line System. The final transmission line route will be determined with respect to several factors, such as, the final turbine layout, siting of the step-up substations and switchyards based on the final turbine layout, interconnection requirements, landowner coordination, geographic features, and micro-siting of poles. Measures would be undertaken to reduce impacts to important environmental resources to the extent practicable.

3.2 Proposed Project (Proponent Preferred)

The proposed action is to construct, operate, and maintain a new 345-kV transmission line located within the region of the proposed Corona Wind North Generation. It is anticipated that there will be approximately 69.3 miles (365,904 ft) of 345-kV transmission line along with the related substation facilities that would transport electricity generated at the Corona Wind North Generation to the existing SunZia Transmission Line System. The proposed action also includes construction, operation, and maintenance of up to six required step-up substations along the Corona Wind North Gen-Tie System. These step-up substations would convert lower voltage (34.5-kV) electricity generated at the Corona Wind North Generation and increase it to higher voltage electricity (345-kV) for interconnection to the transmission line. A switchyard would also be constructed within the Corona Wind North Gen-Tie System for interconnection to the SunZia Transmission Project.

3.2.1 Transmission Line

Electricity generated by the wind turbines would be gathered via buried electrical collection system lines that will be charged at 34.5-kV. The collection system circuits would be gathered at one of the Corona Wind North Project's step-up substations where the voltage would be increased from 34.5-kV to 345-kV via large power transformers. The Corona Wind North Project's step-up substations would be connected to each other via a 345-kV transmission line that would connect to the SunZia Transmission Project. The decision on the number of 34.5 to 345-kV step-up substations would be made prior to construction and would be determined by design efficiencies that reduce total electrical infrastructure needed and minimize electrical losses. The transmission line(s) would consist of an overhead line operated at 345-kV. The length of the transmission line would depend on final design. The transmission line would require a ROW width of 180 feet.

3.2.1.1 Structures

The proposed transmission structure types for the 345-kV transmission line would be wood or steel monopole, two-pole H-frame, and/or three-pole angle structures. Most structures would be self-supporting; however, in some areas, structures would be guyed to provide additional structural support. In areas that require long spans between structures, such as riparian or stream crossings, a taller, larger structure would typically be used. In areas where the line turns, the transmission line could be supported by three-pole angle transmission structures or a structure with guy wires. Typical transmission structure heights for the tangent (structures that hold the line up, but bear little tension), dead-end (structure that bears tension), and angle transmission structures (structure that supports change in line direction and bears tension) would be approximately 80 to 130 ft above the existing ground, depending on terrain and span length.

Structure spans would typically be 600 to 900 ft in length. In most cases, transmission structures would be directly embedded into the ground. Additional foundation support, such as drilled pier concrete foundations may be used in special design cases depending on geotechnical conditions. The diameter of the transmission structure poles would be approximately 3 to 5 ft, depending on framing configuration and the angle to adjacent transmission structures.

3.2.1.2 Conductors and Associated Hardware

The 345-kV transmission line would consist of three phases with each phase consisting of bundled conductors composed of two 954-thousand circular mil (kcmil) aluminum conductor steel supported (ACSS) cables or conductors of comparable capacity. An ACSS consists of 7 steel wires surrounded by 54 aluminum strands. Each conductor is approximately 1.2 inches in diameter. Minimum conductor height above the ground for the 345-kV transmission line would be 30.3 ft, at 167 degrees Fahrenheit based on National Electrical Safety Code (NESC) standards and Special Protection System (SPS) standards. At road crossings, minimum clearance would typically increase to approximately 37.3 ft above ground. Similar sized aluminum conductor steel reinforced (ACSR) cables or conductors also could be used.

3.2.1.3 Fiber Optics

Fiber optic ground wire (OPGW) cable for substation-to-substation control would be installed on top of each transmission structure in the shield wire. The outer strands would consist of aluminum wire and the entire OPGW would be approximately 0.55 inch in diameter.

3.2.2 Step-Up Substation and Adjacent Switchyard

More than one new step-up substation would be constructed within the Corona Wind North Gen-Tie System Study Corridor. The step-up substation(s) would consist of transformers; circuit breakers; switching devices; auxiliary equipment; control enclosure containing equipment for proper control; protection, monitoring; and communications; and associated equipment and facilities. The final location(s) would be determined upon the micro-siting and geotechnical examinations of proposed wind turbine locations. The principal function of the substation is to increase the voltage from the collector system (34.5-kV) to the voltage of the Corona Wind North Gen-Tie System transmission line (345-kV). The Corona Wind North Gen-Tie System would allow for the delivery of the electricity of the Corona Wind North Generation to the SunZia Transmission Project (where the voltage would then be increased to 500-kV). The step-up substation(s) would be located within a fenced area. The fence would be designed in accordance with industry standards to provide safety and security.

A switchyard and 345- to 500-kV step-up substation would be located in Torrance County. The switchyard and step-up substation would connect the electricity to the existing transmission system.

3.2.3 Right-of-Way Acquisition

ROW width for the transmission line would be 180 ft (90 ft each side of the transmission line). A 180-foot-wide ROW would accommodate the anticipated structure types, span lengths, and heights for the transmission line; would comply with electrical safety codes; would provide adequate logistical space for construction, operations, and maintenance of the line; and would provide sufficient flexibility for siting structures in the ROW. Final design will determine the structure locations and characteristics. Easements for the transmission line ROW, temporary work areas, and temporary access roads would be required for the transmission line and substations. Some public road upgrades may be necessary and will be negotiated through the Guadalupe, San Miguel, and Torrance County Roads Maintenance Departments and private landowners. The Corona Wind North Gen-Tie System on private lands would be obtained as private easements or ROWs.

3.2.4 Access Roads

The Corona Wind North Gen-Tie System would use existing roads and overland travel wherever feasible for access in order to reduce new disturbance. Some new permanent or temporary access/short spur roads may be required to access structure locations within the ROW. New access roads within the existing ROW would retain access for maintenance. Portions of existing access roads located outside of the proposed ROW may require improvements as well as new access roads (temporary or permanent). To reduce ground disturbance and/or reduce visual contrast with the landscape, the alignment of any new

temporary access roads or cross-country routes would follow landform contours in designated areas where practicable, provided that such alignment does not impact other resource values additionally. All temporary access roads would be revegetated with native or similar grasses and forbs following construction. Where ground disturbance is substantial, surface preparation and reseeding would occur. The method of restoration would normally consist of loosening the soil surface, reseeding, installing cross drains for erosion control, placing water bars in the former access road, and filling temporary ditches and swales. Impacts and protection measures for disturbance to soils, water resources, flora and fauna, and visual resources resulting from the Corona Wind North Gen-Tie System are discussed in Sections 5.5, 5.7, 5.8, and 5.11 of Chapter 5.0.

All new access that is not required for maintenance would be closed with concurrence of the landowner. Gates, where present or if installed, would be closed and/or locked, depending on the agreement with each landowner. Access roads on private property may be maintained with mutual consent of the landowner. A discussion of impacts and protection measures related to land use along the Corona Wind North Gen-Tie System is included in Section 5.12 of Chapter 5.0.

3.2.5 Laydown / Material Staging Areas

Temporary laydown material staging areas would be required to store materials and equipment and to assemble structures for the duration of construction of the Corona Wind North Gen-Tie System. The staging areas would be up to 20 acres in size and located at level areas in close proximity to existing roads within the area. The laydown staging areas would be used to store material and equipment prior to delivery to the structure sites, park vehicles, and, possibly, station a portable construction trailer. The staging areas would be surveyed for potential environmental impacts, and if any are found, the staging areas would be relocated or shifted to avoid such sensitive areas. The staging areas would be revegetated and reclaimed after completion of the Corona Wind North Gen-Tie System. Impacts and protection measures related to micro-siting staging areas and impacts due to disturbance are discussed below in Section 5.8 of Chapter 5.0.

3.2.6 Construction Activities

The proposed Corona Wind North Gen-Tie System will use standard construction and operation procedures used for other transmission projects in the western United States. Construction of the Corona Wind North Gen-Tie System is expected to take approximately 12 to 18 months, depending on the results of interconnection studies and final design. The Corona Wind North Gen-Tie System's construction schedule projects activity commencing mid-2023 and concluding by the first quarter of 2026. The

commercial operation date of the Corona Wind North Project is expected to occur in the first quarter of 2026.

3.2.6.1 Sequence of Activities

The construction of the Corona Wind North Gen-Tie System is expected to follow the sequence of: (1) new structure locations surveyed and staked; (2) laydown/materials yard and work areas cleared, as needed; (3) access roads improved or built where necessary; (4) materials distributed along centerline; (5) structure holes dug and poles framed and erected; (6) conductors installed; and (7) site cleaned-up and reclaimed. The timing of construction activities may occur at different locations throughout the construction process. This may require several crews operating simultaneously at different locations.

Temporary laydown/material staging areas would be located on existing disturbed areas or other areas on private lands along the line route with negotiated access rights from private landowners. The yards would serve as field offices, reporting locations for workers, parking space for vehicles and equipment, or sites for temporary marshalling of construction materials.

3.2.6.2 Surveying

Construction survey work for the proposed Corona Wind North Gen-Tie System consists of ascertaining soil and geotechnical conditions for foundations, determining specific pole locations, and delineation of ROW and work area boundaries, and, in some areas, roads to access work areas.

3.2.6.3 Access Road Construction

The Corona Wind North Gen-Tie System would be located in close proximity to many public roads in order to facilitate access the ROW, to the extent practicable. The construction of temporary construction access roads or overland travel may be required to allow access of construction equipment in the transmission line corridor. This may involve clearing vegetation and crushing vegetation for overland travel. In construction areas where re-contouring is not required, disturbance would be limited to overland driving, where feasible, to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access. Impacts and protection measures resulting from access road construction to soils, flora and fauna, and visual resources are discussed in Sections 5.5, 5.8, and 5.11 of Chapter 5.0.

Equipment to construct the access roads would include hand tools, bulldozers, and graders. Specific BMPs would be implemented to reduce construction impacts. For example, roads would be built at right angles to streams to the extent practicable, to limit the impact of stream crossings; existing public roads would be utilized to the extent possible; appropriately sized culverts would be installed where needed;

and road construction would include dust-control measures during construction, as required. Standard design techniques, such as installing water bars and dips to control erosion, would be included in areas with slopes. In addition, measures would be taken to reduce impacts such as rutting and soil compaction in specific locations and during certain periods of the year. Discussion of impacts and protection measures for water resources resulting from construction of the Corona Wind North Gen-Tie System is included in Section 5.7 of Chapter 5.0.

3.2.6.4 Structure Holes

Excavations for structure holes would be generally made with truck-mounted power auger equipment or a standard-sized backhoe or large excavator. Where the soil and geotechnical conditions permit, a truck-mounted power auger would be used. The foundation excavation and installation require equipment access to the foundation sites. Structure hole excavation and installation require access to the site by a power auger or drill, a crane, and material trucks.

Structure holes left temporarily open or unguarded during construction would be covered and/or fenced where practical to protect the public, livestock, and wildlife. Soil removed from foundation holes would be stockpiled on the work area and replaced or disposed, in consultation with landowners.

3.2.6.5 Structure Framing and Assembly

Pole sections, pole framing, and associated hardware would be shipped to each laydown/materials yard site by truck. Structures may be assembled offsite and transported to the appropriate pole locations by truck or helicopter. Insulator strings and stringing sheaves are installed at each ground wire and conductor position while the pole is on the ground. Stringing sheaves (pulleys) are used to guide the conductor during the stringing process for attachment onto the insulator strings. The assembled pole would then be hoisted into place by a crane. Helicopter assisted construction may be utilized for portions of the line.

3.2.6.6 Conductor Installation

Once structures are in place, a pilot line would be pulled (strung) from structure to structure and threaded through the stringing sheaves on each insulator. A larger diameter, stronger line would then be attached to the pilot line and strung. This is called the pulling line. This process is repeated until the ground wire and conductor are pulled through all insulator sheaves.

Conductor would be strung using powered pulling equipment at one end and powered braking or tensioning equipment at the other end. For public protection during wire installation, guard structures would be erected over roadways, transmission and distribution lines, structures, and other obstacles. Guard structures would consist of H-frame poles temporarily placed on either side of an obstacle. These

structures prevent ground wire, conductor, or equipment from falling on an obstacle. Equipment for erecting guard structures includes augers, line trucks, pole trailers, and cranes. Guard structures may not be required for small roads where other safety measures such as barriers, flagmen, or other traffic control devices would be used. Impacts and protection measures pertaining to safety are included in Section 5.17 of Chapter 5.0.

Conductor splicing would be required at the end of a conductor spool or if a conductor is damaged during stringing. The work would occur on work areas for the poles or pulling tensioning sites.

3.2.6.7 Helicopter Use

Access is required to each transmission structure site for construction activities, and helicopters may be used to support construction activities on unique areas that limit vehicle access. Gen-Tie construction activities potentially facilitated by helicopters may include:

- Transport of equipment and materials to transmission structure sites.
- Transmission structure placement.
- Hardware installation.
- Wire and conductor stringing operations.

All helicopter operations would be coordinated with and approved by the Federal Aviation Administration (FAA).

3.2.6.8 Step-up Substations and Switchyard

Following survey and staking of the substation and switchyard site, erosion control measures would be installed, as necessary. Site access would be prepared, including installation of culverts in drainages, if needed, to install a gravel driveway. The substation and switchyard site would be graded and fenced. Concrete pads and footing for equipment would be installed. Aggregate would be spread throughout the fenced area. Equipment would be delivered to the site and generally stored inside the fenced area, although some materials may need to be stored on the property outside the fence due to size or safety considerations. Equipment such as circuit breakers, bus work, capacitors, and dead ends would be assembled and installed. Transformers would be delivered to the site and installed. Substation control house and supervisory control and data acquisition equipment would be installed. Upon completion of construction activities, disturbed areas outside the fence would be restored and erosion control measures removed.

3.2.6.9 Construction Waste Disposal

Construction sites, laydown and material storage yards, and access roads would be kept in an orderly condition throughout the construction period. Refuse and trash would be removed from the sites and disposed of in an approved manner, including recycling options. Oils and fuels would be hauled to an approved site for disposal. No open burning of construction trash would occur at any time.

3.2.6.10 Site Reclamation

Work sites would be reclaimed using excess materials, native or similar vegetation, and topsoil stockpiled for that purpose. The contractor would dispose of excess soil materials, rock, and other objectionable materials that cannot be used in reclamation work.

Disturbed areas, with the exception of access roads, would be reclaimed, to the extent possible, to their original contour and reseeded where appropriate. Ripping and other surface scarification on construction roads or other areas would be done as necessary. Depending on the amount of soil compaction and vegetation destruction, ripping may not be required for reclamation. This would be determined on a case-by-case basis. Discussion of impacts and protection measures for disturbance to soils and flora and fauna as a result of the Corona Wind North Gen-Tie System are discussed in Sections 5.5 and 5.8 in Chapter 5.0.

3.2.6.11 Protection of Private Property and Environmental Resources

Existing improvements would be repaired or replaced if they are damaged by construction activities. All existing roads would be left in a condition generally equal to or better than their condition prior to the construction of the transmission line. Fences and gates would be installed or repaired and replaced (if they are damaged by construction activities) to their original conditions as required by the landowner.

Temporary gates would be installed only with the permission of the landowner and would be restored to original condition following construction unless otherwise agreed with the landowner. Gates would be closed and locked, depending on the agreement with the private landowners.

Prior to construction, all supervisory construction personnel would be instructed on the protection of ecological and cultural resources. To assist in this effort, the construction contract would address: (a) federal, state, and local laws regarding wetlands, vegetation, wildlife, and cultural resources; (b) the importance of these resources and the purpose and necessity of protecting them; and (c) methods for protecting sensitive resources.

All waste products, including food garbage, from construction sites would be deposited in a covered waste receptacle, or removed daily. Garbage would be hauled to a suitable and appropriately permitted disposal facility.

To reduce the number of sensitive features disturbed in designated areas, transmission poles would be sited during the engineering design process so as to avoid sensitive features such as, but not limited to, riparian areas and watercourses and/or to allow conductors to clearly span the features, within limits of standard pole design. A discussion of impacts and protection measures for the environmental resources present in the Corona Wind North Gen-Tie System are included in Chapter 5.0.

3.2.7 Operation and Maintenance

Operation and maintenance (O&M) of the Corona Wind North Project is anticipated to include activities described in the following subsections.

3.2.7.1 Operation

After the constructed Corona Wind North Gen-Tie System has been energized, land uses compatible with safety regulations and activities associated with O&M would be permitted within and adjacent to the ROW. Existing land uses such as agriculture and grazing are generally permitted within the ROW. Incompatible land uses include construction of permanent dwellings and any use requiring changes in surface elevation that would affect NESC electrical clearances of existing or planned facilities.

Safety is a primary concern in the planning and design of the Corona Wind North Gen-Tie System. An AC transmission line would be protected with power circuit breakers and related line relay protection equipment. If a conductor failure occurs, power would be automatically removed from the line. Lightning protection would be provided by overhead static and grounding wires along the length of the line. All fences, metal gates, pipelines, etc., that cross or are within the Corona Wind North Gen-Tie System ROW would be grounded to prevent electrical shock and to meet NESC requirements. A discussion on impacts and protection measures regarding safety are included in Section 5.17 of Chapter 5.0.

3.2.7.2 Maintenance

Maintenance of the transmission line would be performed as needed. When access is required for non-emergency maintenance and repairs, the same precautions taken during construction activities would be implemented to the extent practicable. Landowners would be contacted when access to their lands is required for maintenance activities on transmission lines.

Emergency maintenance would involve prompt movement of crews to repair or replace any damage. Crews would be instructed to protect vegetation, wildlife, and other environmental resources to the extent possible. Reclamation procedures following completion of repair work would be similar to those prescribed for normal construction.

3.2.7.3 Traffic Safety

Minimal additional vehicular traffic would occur on public roads in the area as a result of transmission line construction and O&M of the transmission line. Because of the low number of vehicles accessing the transmission line, minimal impacts are anticipated. The transmission line would cross County Roads C014, C063, C029, C030, C084, U.S. Route 60, and the Atchison, Topeka, and Santa Fe/BNSF railroad in Torrance County. County road use and crossings in Guadalupe, San Miguel, and Torrance Counties would also be required and would be coordinated with the New Mexico Department of Transportation (NMDOT) and the Guadalupe, San Miguel, and Torrance County Roads Maintenance Departments. Final engineering design would determine specific road crossing requirements (see additional discussion in Section 5.20).

3.2.8 Decommissioning

Decommissioning of the Corona Wind North Project will involve removal of all wind facilities. Joint Applicants will take appropriate measures to restore the development area to its pre-existing conditions. Removal and restoration efforts will generally involve:

- **Wind turbines (including towers and pad-mount transformers):** Wind turbines will be cleared, cleaned and removed from the Corona Wind North Project footprint. Any liquids, greases, etc. contained therein will also be removed safely from the site in accordance with then-existing laws and regulations.
- **Tower foundations and pad mount transformer foundations:** All foundations installed in the ground, the foundations will be cleared, cleaned and removed from the ground to at least four ft below the grade. Holes or cavities created in the ground, as a result of such removal, will be filled with topsoil of the same or similar type found at the site.
- **Overhead power and/or communication lines:** Overhead power and/or communication lines owned by the Joint Applicants and no longer in use will be cleaned and removed from the Corona Wind North Project footprint.

- **Substations:** Substations will be cleared, cleaned and removed from the Corona Wind North Project footprint and any liquids, greases, etc. contained in the substations will be removed safely from the site in accordance with then-existing laws and regulations.
- **Buried cables (power and/or communication):** All buried cables (power, fiber-optic, communication, etc.) installed in the ground will be cleared, cleaned at least three ft below the grade of the land affected. The Joint Applicants will ensure that any holes or cavities created in the ground as a result of such removal are filled with topsoil of the same or similar type found at the Project site.
- **O&M building:** Will be cleared, cleaned and removed from the Corona Wind North Project footprint. The Joint Applicants may request that the O&M building be assigned to a new owner.
- **Restoration of property:** To the extent reasonably practicable, the Project site will be returned to pre-existing conditions. The Joint Applicants will ensure that any holes or cavities created in the ground are filled with topsoil of the same or similar type found at the Project site and to the extent reasonably practicable, the surface is returned to the same condition as before the holes or cavities were dug.

4.0 AFFECTED ENVIRONMENT

4.1 Introduction

The affected environment is described below for the environmental values provided in NMSA 1978 §62-9-3.M, Commission Rule 17.9.592 NMAC, and additional resource areas identified to be of interest by Staff. These are: air resources; noise, geology and mineral resources; soil resources; paleontological resources; water resources; flora and fauna; cultural and historic archaeological resources; religious and cemetery sites; socioeconomics and environmental justice; communication signals; radioactive waste and radiation hazards; hazardous materials; safety; geographic resources; military activities and aviation; and roads. The discussion for each resource includes data sources used, current regional conditions, and conditions within the Corona Wind North Project Study Area (which consists of the Corona Wind North Gen-Tie System Study Corridor and the Corona Wind North Generation area). The proposed Corona Wind North Project Study Area is shown in Exhibit 1. Final siting of transmission facilities will depend upon the results of Southwest Power Pool interconnection studies and other factors such as landowner preferences.

This section of the ER describes the existing conditions of certain relevant resources. The primary focus is on the resources potentially affected by an electric transmission line that will enable certain wind generation systems to connect to electric markets. This area of potentially affected resources is defined as the parcels of land within the 180-foot ROW of the transmission line and associated facilities, including areas of interconnection (substations) and access roads for maintenance or operation of the line, and all areas of previously approved or currently proposed generation footprint that may be utilized for routing of the Corona Wind North Gen-Tie System. This area is shown in Exhibit 1.

4.2 Air Resources

4.2.1 Data Sources

The following data sources were reviewed to assess the existing air quality conditions of Guadalupe, San Miguel, and Tarrant Counties as crossed by the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- AirNow. 2022. *U.S. Air Quality Index*. Accessed January 2022 from: <https://www.airnow.gov/>.
- New Mexico Environment Department Air Quality Bureau (NMED-AQB). 2013. *Air Resources Manager* (map). Accessed January 2022 from: <https://aqi.air.env.nm.gov/>

- U.S. Environmental Protection Agency (EPA). 2022a. *Criteria Air Pollutants*. Accessed January 2022 from: <https://www.epa.gov/criteria-air-pollutants>.
- EPA. 2022c. *Nonattainment Areas for Criteria Pollutants (Green Book)*. Accessed January 2022 from: <https://www.epa.gov/green-book>.

4.2.2 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

The EPA sets National Ambient Air Quality Standards (NAAQS) for the six “criteria air pollutants” and using technical information provided from states designates each county as nonattainment, attainment, or attainment/unclassifiable to describe if the standards are being met (EPA, 2022a). The Corona Wind North Gen-Tie System Study Corridor crosses Torrance County, which is currently designated as attainment/unclassifiable for all criteria pollutants (EPA, 2022c). An attainment/unclassifiable designation means that EPA has determined that an area likely meets or is cleaner than the NAAQS based on available data. The attainment/unclassifiable status for Torrance County is reflective of low population density and land use dominated by agriculture or other rural uses.

4.2.3 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

The Corona Wind North Generation area is located in Guadalupe, San Miguel, and Torrance Counties which are all currently designated as attainment/unclassifiable for all criteria pollutants (NMED-AQB, 2013; AirNow, 2022). Air quality conditions within the Corona Wind North Generation area would be similar to what is described above for the Corona Wind North Gen-Tie System in Section 4.2.2.

4.3 Noise

4.3.1 Data Sources

The following data source was reviewed to assess the existing noise conditions of Guadalupe, San Miguel, and Torrance Counties as crossed by the Corona Wind North Gen-Tie System and the Corona Wind North Generation.

- U.S. Census. 2020. Accessed January 2022 from: www.census.gov.

4.3.2 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

Torrance County is a rural county located in central New Mexico with a population density below the state and national averages (U.S. Census, 2020). The county generally has relatively low ambient noise levels due to the rural setting. Noise in the Corona Wind North Gen-Tie System Study Corridor typically ranges from very quiet with natural sounds and wind dominating to noisy in localized areas near towns, at highway crossings, and in agricultural areas during cultivation activities. Additional noise is also created by existing wind energy generation turbines operating within the proximity and aircraft when operating within nearby airspace.

4.3.3 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

No unique noise is known to occur within the Corona Wind North Generation area. Guadalupe, San Miguel, and Torrance Counties are in a rural setting within central to northeast New Mexico with low population density and low ambient noise. Noise within the Corona Wind North Generation area would be similar to what is described above for the Corona Wind North Gen-Tie System, based on low population density and land uses present in the area.

4.4 Geology and Mineral Resources

4.4.1 Data Sources

The following data sources were reviewed to assess geological and mineral resources of Guadalupe, San Miguel, and Torrance Counties as crossed by the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- Green, G.N., Jones, G.E., and Anderson, O.J. 1997. *The Digital Geologic Map of New Mexico in ARC/INFO Format: U.S. Geological Survey Open-File Report 97-0052*. Accessed January 2022 from <https://mrdata.usgs.gov/geology/state/fips-unit.php?code=f35019>.
- New Mexico Mining and Minerals Division (NM MMD). 2022. *Mine Registrations and Permits Search*. Accessed February 2022 from: <https://wwwapps.emnrd.state.nm.us/MMD/MMDWebInfo/>.
- New Mexico Oil Conservation Division (NM OCD). 2022. *NM OCD Oil and Gas Map* (web application). Accessed February 2022 from: <https://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=4d017f2306164de29fd2fb9f8f35ca75>

- The Drillings. 2022. *San Miguel, Guadalupe, and Torrance Counties, New Mexico*. Accessed February 2022 from <https://thedrillings.com/usa/new-mexico>.
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). 2022. *Web Soil Survey*. Accessed March 2022 from: <http://websoilsurvey.nrcs.usda.gov>.
- U.S. Geological Survey (USGS). 2011. *Mineral Resources Data System (MRDS)*. Accessed January 2022 from: <https://mrdata.usgs.gov/mrds/>.

4.4.2 Overview

The Corona Wind North Project Study Area is located on the west side of the Great Plains physiographic province. The signature geologic deposit of the Great Plains is the Ogallala Formation, and it has been largely eroded away in the area by the Pecos River. The resulting landscape is largely a piedmont – thin to non-existent soil over a gently sloping bedrock surface. In places there are remnants of the Ogallala and younger alluvial sediments (Green et al., 1997). The bedrock itself is mostly Permian aged sedimentary rock that had been deposited in the ocean on a continental shelf. Soil type parent materials as mapped by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) are shown on Exhibit 2 (USDA NRCS, 2022).

In places there are remnants of the Ogallala Formation (contains varying proportions of sand, gravel, silt, clay, and caliche) and younger piedmont alluvial sediments. The bedrock generally consists of sedimentary rock (sandstone, limestone, siltstone, and dolomite), although isolated areas of igneous bedrock (rhyolite) have been encountered in the southern portion of the Corona Wind North Project Study Area. In most cases a weathered bedrock unit was observed immediately below the cover soil, which was underlain by more competent rock (Green et al., 1997).

4.4.3 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

There are no currently active oil and gas leases on any public lands in Torrance County, including lands administered by the U.S. Department of Interior’s Bureau of Land Management (BLM) (The Drillings, 2022). According to the New Mexico Oil Conservation Division (NM OCD) Oil and Gas Map, there are no active hydrocarbon extraction activities within one mile of the Corona Wind North Gen-Tie System Study Corridor (NM OCD, 2022) (Exhibit 3).

According to the New Mexico Mining and Minerals Division (NM MMD), Torrance County has had 41 mine registration and/or permit applications for the extraction of aggregate, caliche, dimension & flagstone, limestone, copper, gold, and silver. Sixteen of these are listed as active mines, all for the

extraction of dimension & flagstone or aggregate material (NM MMD, 2022). According to the USGS Mineral Resources Data System (MRDS), no current producers occur within the Corona Wind North Gen-Tie System Study Corridor (USGS, 2011).

4.4.4 Current Conditions and Trends, Regional Overview –Corona Wind North Generation Area

There are nine active authorized oil and gas leases on BLM-administered and other public lands in San Miguel County, one in Guadalupe County, and zero in Torrance County (The Drillings, 2022). According to the NM OCD Oil and Gas Map, there are no active hydrocarbon extraction activities within one mile of the Corona Wind North Generation area (NM OCD, 2022) (Exhibit 3).

In addition to Torrance County's 41 mine registration and/or permit applications mentioned in Section 4.4.3, Guadalupe County has had 44 applications and San Miguel County has had 48 applications for the extraction of aggregate, caliche, dimension & flagstone, and zinc. Ten in Guadalupe County and eight in San Miguel County are listed as active mines, all for the extraction of aggregate, caliche, or dimension & flagstone material (NM MMD, 2022). According to the MRDS, no current producers occur within the Corona Wind North Generation area (USGS, 2011).

4.5 Soil Resources

4.5.1 Data Sources

The following data sources were reviewed to assess the existing soil resources of Guadalupe, San Miguel, and Torrance Counties as crossed by the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- USDA NRCS. 2022. *Web Soil Survey*. Accessed March 2022 from: <http://websoilsurvey.nrcs.usda.gov>.

4.5.2 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

Table 4-1 summarizes the existing soil resources located within the Corona Wind North Gen-Tie System Study Corridor. For a visual representation of the soil resources within the Corona Wind North Gen-Tie System Study Corridor, refer to Exhibit 5.

Table 4-1: Soil Coverage Types within Corona Wind North Gen-Tie System Study Corridor

Soil Type	Estimated Acreage
Torrance County	
Bernal-Travessilla fine sandy loams	2,203.71
Chilton gravelly loam	1.87
Chilton-La Fonda complex, 1 to 9 percent slopes	1,283.62
Clovis loam, 0 to 5 percent slopes	7,578.46
Clovis soils, 0 to 5 percent slopes, eroded	1,126.41
Clovis-Dean loams, 0 to 5 percent slopes	1,963.82
Clovis and Scholle soils	473.56
Dean loam, 1 to 9 percent slopes	1,076.84
Hagerman fine sandy loam, 1 to 5 percent slopes	2,859.51
Harvey loam, 1 to 9 percent slopes	293.98
Harvey-Dean loams, 1 to 9 percent slopes	1,366.44
Karde-Willard loams, saline	892.49
Kech gravelly loam, 1 to 9 percent slopes	420.94
Kim-Pastura-Tapia loams	1,010.85
Kim-Pinon-Witt loams	939.84
La Fonda loam, 1 to 9 percent slopes	3,077.21
La Fonda-Alicia loams, 1 to 9 percent slopes	2.45
La Fonda-Rock outcrop complex	645.04
Laporte-Rock outcrop complex	1,443.26
Manzano loam, 0 to 1 percent slopes	6.41
Manzano loam, saline substratum, 0 to 1 percent slopes	660.60
Otero and Palma soils	161.04
Pastura loam, 1 to 9 percent slopes	670.01
Penistaja fine sandy loam, 1 to 6 percent slopes	420.64
Pinon channery loam, 3 to 20 percent slopes	1,703.99
Playas	44.45
Prewitt and Manzano soils	1,230.69
Rance-Gypsum land complex	1,079.62
Rock land	1,188.31
Rock outcrop-Pinon-La Fonda complex	666.78
Steep rock land	214.86
Stony steep land	915.53
Tapia loam, 0 to 5 percent slopes	1,242.98
Tapia-Dean loams, 0 to 5 percent slopes	7,932.22
Tapia and Dean soils, eroded	201.65
Willard loam, strongly saline	891.70
TOTAL	47,891^a

^a Sum of components may not add up to the total due to the overlap of some geographic integration systems (GIS) data received.

Source: USDA NRCS, 2022

4.5.3 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

Table 4-2 summarizes the existing soil resources located within the Corona Wind North Generation area in Guadalupe, San Miguel, and Torrance Counties. For a visual representation of the soil resources within the Corona Wind North Generation area, refer to Exhibit 5.

Table 4-2: Soil Coverage Types within Corona Wind North Generation Area

Soil Type	Estimated Acreage
Guadalupe County	
Bond-Hagerman complex, 1 to 10 percent slopes	3,567.79
Cardenas-Palma loamy fine sands, 0 to 3 percent slopes	288.97
Chispa-Redona association, 1 to 5 percent slopes	186.90
Clovis fine sandy loam, 0 to 3 percent slopes	10,059.20
Clovis loam, 0 to 3 percent slopes	20,765.50
Clovis-Pastura association, 0 to 3 percent slopes	5,902.00
Darvey-Silver association, 0 to 3 percent slopes	1,465.36
Deama cobbly loam, 3 to 25 percent slopes	8.26
Flugle loamy fine sand, 1 to 5 percent slopes	5,470.94
Harvey-Darvey complex, 1 to 5 percent slopes	2,334.97
Harvey-Dean loams, 3 to 15 percent slopes	2,896.87
La Fonda-Palma fine sandy loams, 5 to 15 percent slopes	980.09
Manzano loam, 0 to 2 percent slopes, rarely flooded	2,862.25
Mido loamy fine sand, 1 to 10 percent slopes	215.72
Palma fine sandy loam, 0 to 5 percent slopes	3,632.15
Palma loamy fine sand, 1 to 5 percent slopes	2,379.45
Pastura loam, 0 to 5 percent slopes	8,755.66
Pastura-Clovis association, 0 to 8 percent slopes	4,491.45
Pastura-Harvey association, 0 to 8 percent slopes	10,811.50
San Jon-Lacoca-Rock outcrop complex, 1 to 10 percent slopes	51.85
Travessilla-Hagerman-Rock outcrop complex, 1 to 15 percent slopes	12,704.00
Travessilla-Rock outcrop complex, 30 to 75 percent slopes	11,458.70
Tucumcari-Redona association, 0 to 5 percent slopes	0.05
Tuloso-Flugle association, 1 to 15 percent slopes	12.40
Winona-Gabaldon complex, 0 to 15 percent slopes	24.40
San Miguel County	
Alicia loam, 1 to 6 percent slopes	18.05
Brazito complex	0.01
Canez fine sandy loam, calcareous variant, 3 to 9 percent slopes	0.01
Karde-Vermejo association, gently sloping	43.79
Lacita loam, 1 to 9 percent slopes	131.91
Latom fine sandy loam	908.16
Las Lucas-Persayo association	12.12
Penistaja fine sandy loam, 5 to 9 percent slopes	3.42
Ribera-Sombordoro-Vibo association, moderately sloping	1,019.51
Tapia-Dean loams, 0 to 5 percent slopes	11.54

Tapia-Dean association, undulating	6,085.81
Tuloso-Rock outcrop-Sombordoro association, steep	850.25
Travessilla-Bernal-Rock outcrop association	3,187.43
Ustorthents-Rock outcrop complex, very steep	252.69
Vibo-Ribera association, undulating	2,911.99
Vibo-Rock outcrop complex, undulating	198.22
Torrance County	
Alicia loam, 1 to 6 percent slopes	583.01
Badland	915.76
Bernal-Slickspots complex	1,680.48
Bernal-Travessilla fine sandy loams	13,267.10
Chilton gravelly loam	1,756.25
Clovis loam, 0 to 5 percent slopes	22,191.80
Clovis soils, 0 to 5 percent slopes, eroded	1,665.78
Clovis-Dean loams, 0 to 5 percent slopes	1,230.78
Caliche pit	15.06
Clovis and Scholle soils	3,650.16
Dean loam, 1 to 9 percent slopes	3,973.82
Hagerman fine sandy loam, 1 to 5 percent slopes	22,365.50
Hagerman-Dean complex, 1 to 5 percent slopes	12,476.20
Harvey loam, 1 to 9 percent slopes	1,808.45
Harvey-Dean loams, 1 to 9 percent slopes	6,935.50
Ignacio fine sandy loam, 1 to 5 percent slopes	0.31
Ildefonso fine sandy loam, 0 to 5 percent slopes	959.52
Ildefonso loamy fine sand, 0 to 5 percent slopes	319.77
Karde loam, saline	982.37
Kech gravelly loam, 1 to 9 percent slopes	677.31
Kim-Pastura-Tapia loams	5,858.61
Kim-Pinon-Witt loams	2,893.72
La Fonda loam, 1 to 9 percent slopes	6,906.60
La Fonda-Alicia loams, 1 to 9 percent slopes	726.31
La Fonda-Rock outcrop complex	1,351.31
Laporte-Rock outcrop complex	11,564.10
Manzano loam, 0 to 1 percent slopes	280.37
Manzano loam, saline substratum, 0 to 1 percent slopes	714.92
Otero and Palma soils	8,017.53
Pastura loam, 1 to 9 percent slopes	3,276.48
Pastura loam, 9 to 25 percent slopes	641.61
Pedrick loamy fine sand	2,818.68
Penistaja fine sandy loam, 1 to 6 percent slopes	6,368.41
Pinon channery loam, 3 to 20 percent slopes	7,097.41
Prewitt and Manzano soils	4,247.51
Rock land	4,502.10
Rock outcrop-Pinon-La Fonda complex	2,929.14
Steep rock land	3,803.71
Stony steep land	2,684.45
Tapia loam, 0 to 5 percent slopes	3,149.13
Tapia-Dean loams, 0 to 5 percent slopes	22,927.30
Tapia and Dean soils, eroded	430.46

Willard loam	269.79
TOTAL	327,895^a

^a Sum may not add up to the total due to an overlap of GIS county soils data received.

Source: USDA NRCS, 2022

4.6 Paleontological Resources

4.6.1 Data Sources

The following data sources were reviewed to assess paleontological resources of Guadalupe, San Miguel, and Torrance Counties as crossed by the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- Green, G.N., Jones, G.E., and Anderson, O.J. 1997. *The Digital Geologic Map of New Mexico in ARC/INFO Format: U.S. Geological Survey Open-File Report 97-0052*. Accessed January 2022 from <https://mrdata.usgs.gov/geology/state/fips-unit.php?code=f35019>.
- Heckert, A.B., and Lucas, S.G. 2015. *Triassic Vertebrate Paleontology in New Mexico*. New Mexico Museum of Natural History and Science Bulletin, vol. 68, p. 77-96.
- Hunt, A.P., and Santucci, V.L. 2001. *Paleontological Resources of Lake Meredith National Recreation Area and Alibates Flint Quarries National Monument, West Texas*. New Mexico Geological Society. Guidebook 52nd Field Conference, Geology of Llano Estacado, p. 257–264.
- Leonard, A.B., and Frye, J.C. 1978. *Paleontology of Ogallala Formation, Northeastern New Mexico*. New Mexico Bureau of Mines & Mineral Resources, Circular 161.
- Lucas, S.G. 1993. *The Chinle Group: Revised Stratigraphy and Biochronology of Upper Triassic Nonmarine Strata in the Western United States*. (v. 59, p. 27-50). Museum of Northern Arizona Bulletin.
- Lucas, S.G., Heckert, A.B., and Hunt, A.P. 2001. *Triassic stratigraphy, biostratigraphy and correlation in east-central New Mexico*. New Mexico Geological Society. Guidebook 52nd Field Conference, Geology of Llano Estacado, p. 85–102.
- Paleobiology Database. Accessed January 2022 from: <https://paleobiodb.org/#/>.

4.6.2 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

No paleontological resources have been identified in the Corona Wind North Gen-Tie System Study Corridor (Paleobiology Database, 2022). Geology consists of Middle Proterozoic, Permian, Triassic, Tertiary, and Quaternary deposits within the Corona Wind North Gen-Tie System Study Corridor. These

geologic units have differing potential for yielding paleontological resources. Any discoveries which may occur during construction would be managed through an Unanticipated Discovery Protocol (UDP).

Middle Proterozoic deposits are approximately 1.8 to 1 billion years old. These granite and metamorphic rocks include the Ortega Quartzite and equivalents in northern New Mexico and quartzites in central New Mexico (Green et al., 1997). In the western portion of the Study Area, these localized deposits cluster in and around Pedernal Mountain, east of McGillivray Draw (approximately 10 miles south of Clines Corner, NM). These deposits do not contain substantive fossils but can include microfossils. There is a no to very low potential for paleontological remains in Middle Proterozoic rocks.

Permian deposits include the Yeso, Glorieta, and San Andres formations, as well as formations associated with the Artesia Group. These deposits of sandstone and limestone have metamorphosed into dolomite and other types of rocks that are called *textually mature*. Fossils did not survive that metamorphosis. The only fossils that are recovered from the Permian deposits of New Mexico are either in very fine silts or in now-coal formations; neither of which are found in the Study Area (Green et al., 1997). Potential for paleontological remains varies from very low to none.

Triassic deposits comprise the Chinle Group formations and the Santa Rosa Formation. The Chinle Formation in New Mexico has a moderate potential for containing paleontological remains such as important assemblages of tetrapod fossils, an array of vertebrate faunal assemblages, numerous bonebeds of Revueltian age, and “the best records of Apachean vertebrates in the American West” (Heckert and Lucas, 2015). In addition, the Chinle Formation can contain large amounts of silicified wood (Lucas, 1993). The Triassic Santa Rosa Formation has only yielded a few fragmentary metoposaurids in east-central New Mexico and has low potential for paleontological remains (Lucas et al., 2001).

The Tertiary period is represented by the alluvial and eolian deposits and petrocalcic soils of the Ogallala Formation. This formation has been known to contain scattered unfossiliferous megafaunal elements (such as mastodon/gomphothere bones/teeth), a variety of smaller mammals, turtles, fish, gastropods, plants, and trace fossils (Leonard and Frye, 1978; Hunt and Santucci, 2001). Given the scattered nature of the finds in the unconsolidated Tertiary Ogallala Formation, the potential for paleontological deposits is low.

Quaternary deposits include Late Pleistocene alluvium and older Piedmont alluvial, eolian, and lacustrine deposits of the Tahoka, Double Tanks, Tule, Blanco, Blackwater Draw, and Gatuna formations (Green et al., 1997). Paleontological resources are not fossiliferous and consist of an array of mammals, turtles, fish, gastropods, plants, and trace fossils (Leonard and Frye, 1978; Hunt and Santucci, 2001). Late Pleistocene

and Holocene age alluvium is stored in draws and in stream valley landforms. Given the sparse and scattered nature of the finds in the unconsolidated Quaternary deposits, the potential for paleontological deposits is low.

The alluvial deposits consist of sand and gravels that were deposited during the Lower Pleistocene into the Holocene. A diverse assemblage of not fossiliferous mammals (including bison and mammoths), birds, fish, gastropods, plants, wood, and trace fossils could occur in these deposits (Leonard and Frye, 1978; Hunt and Santucci, 2001). Given that most modern fauna developed by the Early Holocene, the potential of finding now extinct or important paleontological resources in these deposits is low.

4.6.3 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

No paleontological resources have been identified in the Corona Wind North Generation area (Paleobiology Database, 2022). Similar to the Corona Wind North Gen-Tie System Study Corridor, the geology in the area consists of Middle Proterozoic, Permian, Triassic, Tertiary, and Quaternary deposits. The northern portion of the Corona Wind North Gen-Tie System crosses portions of the Corona Wind North Generation area. As such the description of the geologic units are not reiterated here. The western portion of the Corona Wind North Generation area is dominated by Permian aged deposits which, as noted above, have no to low potential for paleontological resources. Middle Proterozoic deposits have very low to no potential for paleontological remains. Triassic, Tertiary and Quaternary deposits have differing potential for yielding paleontological resources. Within the Study Area, the Triassic-age Chinle Formation has the highest potential (moderate) for containing paleontological remains. Any discoveries which may occur during construction would be managed through an Unanticipated Discovery Protocol (UDP).

4.7 Water Resources

4.7.1 Data Sources

The following data sources were reviewed to assess the existing water resources of Guadalupe, San Miguel, and Tarrant Counties as crossed by the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell). 2022. “Desktop Wetland Evaluation, 2022 Corona Wind Update, Pattern SC Holdings LLC,” letter report to Adam Cernea Clark, Pattern SC Holdings LLC, dated March 3, 2022.

- EPA. 2022b. *Ecoregions of North America*. Accessed March 2022 from: <https://www.epa.gov/eco-research/ecoregions-north-america>.
- Federal Emergency Management Agency (FEMA). 2022. *Flood Map Service Center*. Accessed March 2022 from: <https://msc.fema.gov/portal/search>.
- Google Earth. 2022. Publicly available aerial imagery. Accessed March 2022 from: <https://www.google.com/earth/download>.
- Playa Lakes Joint Venture (PLJV). 2021. *Maps of Probable Playas, Roosevelt, New Mexico*. Accessed March 2022 from: <http://pljv.org/for-habitat-partners/maps-and-data/interactive-playa-map/>.
- USDA Farm Service Agency (USDA FSA). 2020. *National Agriculture Imagery Program (NAIP)*. Accessed March 2022 from: <https://gis.apfo.usda.gov/arcgis/rest/services>.
- USDA NRCS. 2022. *Web Soil Survey*. Accessed March 2022 from: <http://websoilsurvey.nrcs.usda.gov>.
- U.S. Fish and Wildlife Service (USFWS). 2022c. *National Wetlands Inventory (NWI) Data Mapper*. Accessed March 2022 from: <https://www.fws.gov/wetlands/data/mapper.html>.
- USGS. 2022b. *Historical Topographic Map Explorer*. Accessed March 2022 from <https://livingatlas.arcgis.com/topoexplorer/>.
- USGS. 2022c. *National Hydrography Dataset (NHD)*. Accessed March 2022 from: <https://nhd.usgs.gov/tools.html>.
- USGS and USDA NRCS. 2022. *Watershed Boundary Dataset*. Accessed March 2022 from: <https://datagateway.nrcs.usda.gov/Catalog/ProductDescription/WBD.html>.
- Western Regional Climate Center. 2016. *Climate of New Mexico*. Accessed March 2022 from: https://wrcc.dri.edu/Climate/narrative_nm.php.

4.7.2 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

The Corona Wind North Gen-Tie System Study Corridor is situated in various watersheds throughout the area of development (Exhibit 6; Table 4-3). Surface water features in the vicinity of the Corona Wind North Gen-Tie System Study Corridor include ponds, intermittent drainages and stream channels.

Table 4-3: Corona Wind North Gen-Tie System Study Corridor Watersheds

Watershed	HUC 10 ^a
Big Draw	1305000105
McGillivray Draw	1305000106

Watershed	HUC 10 ^a
City of Encino	1305000201
Town of Cedarvale	1305000202
Milagro Canyon	1306000201
Pintada Arroyo	1306000202

^a 10-digit Hydrologic Unit Code

Source: USGS and USDA NRCS, 2022

Wetlands, floodplains, and streams were inventoried for the Corona Wind North Gen-Tie System Study Corridor. The National Wetland Inventory (NWI) data documented 260.42 acres of wetlands within the Corona Wind North Gen-Tie System Study Corridor (see Table 4-4) (USFWS, 2022c). The NWI identified wetlands included three wetland types: freshwater emergent wetland, freshwater pond, and riverine (Exhibit 7). According to the USGS National Hydrography Dataset (NHD), the Corona Wind North Gen-Tie System Study Corridor has approximately 100 miles of mostly unnamed intermittent stream features (USGS, 2022c). There are no mapped ephemeral or perennial streams, and approximately 1.39 miles of artificial paths and connectors present.

Table 4-4: Corona Wind North Gen-Tie System Study Corridor Wetlands Based on U.S. Fish and Wildlife Service National Wetland Inventory Data

Wetland Type	Sum of Acres	Percentage of Corona Wind North Gen-Tie System Study Corridor Land Area
Freshwater Emergent Wetland	11.81	0.02%
Freshwater Pond	12.88	0.03%
Riverine	235.73	0.49%
Total	260.42	0.54%

Source: USFWS, 2022c

The Corona Wind North Gen-Tie System Study Corridor is part of the Southeastern Plains of New Mexico which slope gradually eastward and southeastward. This part of these eastern plains lies within the Pecos River and flows southward through the Southeastern Plains into Texas, and then southeastward to join the Rio Grande. Summer rains fall almost entirely during brief but frequently intense thunderstorms. July and August are the rainiest months over most of the State, with 30 to 40 percent of the year's total moisture falling at that time. During the warmest six months of the year, May through October, total precipitation averages 80 percent of the annual total.

General floods are seldom widespread in New Mexico. Heavy summer thunderstorms may bring several inches of rain to small areas in a short time. Because of the rough terrain and sparse vegetation in many areas, runoffs from these storms frequently cause local flash floods. Normally dry arroyos may overflow their banks for several hours, halting traffic where water crosses highways; damaging bridges, culverts, and roadways; and if in an urban area, possibly causing considerable property damage. Snowmelt during April to June, especially in combination with a warm rain, and heavy general rains during August to October may occasionally cause flooding of the larger rivers (Western Regional Climate Center, 2016).

Playa lakes are shallow, clay-lined ephemeral rainwater basins occurring throughout the Great Plains ecoregion (EPA, 2022b). There are estimated to be over 4,000 playa lakes in eastern New Mexico, none of which occur within the Corona Wind North Gen-Tie System Study Corridor (PLJV, 2021). The Corona Wind North Gen-Tie System Study Corridor lies entirely within unmapped or minimal flood hazard FEMA areas (FEMA, 2022) (Exhibit 8).

Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) performed a desktop evaluation to identify locations where wetlands and other waterbodies may exist within the Corona Wind North Project Study Area. During the desktop evaluation, data from multiple map sources were reviewed, then integrated into a single digital layer overlaid on the Study Area. A probability of wetland occurrence was then designated, based on the amount of overlap among the map sources. The following map sources were included:

- NRCS Soil Survey Geographic (SSURGO) digital data (USDA NRCS, 2022);
- USFWS NWI maps (USFWS, 2022c);
- USGS 7.5-minute topographic maps (USGS, 2022b);
- USGS NHD digital data (USGS, 2022c);
- FEMA Flood Insurance Rate Maps (FIRMs) (FEMA, 2022);
- National Agriculture Imagery Program (NAIP) 2020 and 2018 natural color aerial photography (USDA FSA, 2020); and
- Google Earth aerial imagery (Google Earth, 2022).

The majority of acreage within the Corona Wind North Project Study Area received a designation of “No Probability” of wetland occurrence (Burns & McDonnell, 2022). While the actual location and extent of wetlands and waterbodies as determined by an on-site wetland delineation may differ from the desktop

evaluation, the results of the desktop evaluation are useful to indicate areas where impacts to probable wetlands and waterbodies should be avoided or minimized.

4.7.3 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

The Corona Wind North Generation area is situated in various watersheds throughout the area of development (Exhibit 6; Table 4-5). Surface water features in the vicinity of the Corona Wind North Generation area include ponds, intermittent drainages and stream channels.

Table 4-5: Corona Wind North Generation Area Watersheds

Watershed	HUC 10 ^a
Big Draw	1305000105
McGillivray Draw	1305000106
City of Encino	1305000201
Outlet Canon Blanco	1306000106
Laguna Seca	1306000107
Milagro Canyon	1306000201
Pintada Arroyo	1306000202
Pintada Arroyo-Rio Agua Negra	1306000204

^a 10-digit Hydrologic Unit Code

Source: USGS and USDA NRCS, 2022

The Corona Wind North Generation area has 2,285.50 acres of NWI-documented wetlands, consisting of four wetland types: freshwater emergent wetland, freshwater pond, lake, and riverine. The Generation Area contains approximately 635 miles of mostly unnamed intermittent streams, 19 miles of artificial paths, and less than 1 mile of connectors (USFWS, 2022c) (Exhibit 7). No playa lakes occur within the Corona Wind North Generation area (PLJV, 2021). Approximately 312,259 acres of the Corona Wind North Generation area do not have any FEMA floodplain information; however, of the remaining FEMA mapped areas, approximately 120 acres are mapped as FEMA Zone A floodplain (FEMA, 2022) (Exhibit 8). Table 4-6 below indicates the various wetland types within the Corona Wind North Generation area.

Table 4-6: Corona Wind North Generation Area Wetlands Based on U.S. Fish and Wildlife Service National Wetland Inventory Data

Wetland Type	Sum of Acres	Percentage of Corona Wind North Generation Area
Freshwater Emergent Wetland	161.26	0.05%
Freshwater Pond	368.61	0.11%

Wetland Type	Sum of Acres	Percentage of Corona Wind North Generation Area
Lake	55.15	0.02%
Riverine	1,700.47	0.52%
Total	2,285.50	0.70%

Source: USFWS, 2022c

4.8 Flora and Fauna

4.8.1 Data Sources

The following data sources were reviewed to assess the existing biological resources of Guadalupe, San Miguel, and Tarrant Counties as crossed by the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- Cornell Lab of Ornithology. 2022. *eBird* (online database). Accessed March 2022 from: <https://ebird.org/>.
- EPA. 2022b. *Ecoregions of North America*. Accessed March 2022 from: <https://www.epa.gov/eco-research/ecoregions-north-america>.
- Multi-Resolution Land Characteristics Consortium (MRLC). 2022. *2019 National Land Cover Database (NLCD)*. Accessed March 2022 from: <https://www.mrlc.gov/>
- National Audubon Society. 2022. *Important Bird Areas*. Accessed March 2022 from: <http://www.audubon.org/important-bird-areas>.
- NatureServe. 2022. NatureServe Explorer. Accessed March 2022 from: <https://explorer.natureserve.org/Search>.
- New Mexico Avian Conservation Partners (NMACP). 2017. *Bald Eagle (Haliaeetus leucocephalus)*. Accessed March 2022 from: <http://avianconservationpartners-nm.org/wp-content/uploads/2017/01/Bald-Eagle.pdf>.
- New Mexico Department of Game & Fish (NMDGF). 2022. *Biota Information System of New Mexico (BISON-M)*. Accessed March 2022 from: <https://bison-m.org/#>.
- NMDGF and Natural Heritage New Mexico (NHNM). 2013. *New Mexico Crucial Habitat Assessment Tool (NM CHAT)*. Accessed March 2022 from: <http://nmchat.org/data.html>.
- Southern Great Plains Crucial Habitat Assessment Tool (SGP CHAT). 2022. Accessed March 2022 from: <https://www.sgpchat.org/>

- USFWS. 2022a. *Environmental Conservation Online System (ECOS) Species Profiles*. Accessed March 2022 from: <https://www.fws.gov/southeast/conservation-tools/environmental-conservation-online-system/>.
- USFWS. 2022b. *Information for Planning and Consultation (IPaC) web application*. Accessed April 2022 from: <https://ecos.fws.gov/ipac/>.
- USGS. 2022a. *Gap Analysis Project (GAP) Protected Areas Database of the U.S. (PAD-US)*. Accessed March 2022 from: <https://gapanalysis.usgs.gov/padus/>.
- WEST, Inc. 2017a. *Critical Issues Analysis for the Proposed Ancho Wind Project*. Report issued March 2017.
- WEST, Inc. 2017b. *Critical Issues Analysis for the Proposed Cowboy Mesa Wind Project*. Report issued March 2017.
- WEST, Inc. 2017c. *Raptor Nest Survey, Pattern Wind Energy Project*. Report issued August 2017.

4.8.2 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

The New Mexico Crucial Habitat Assessment Tool (NM CHAT) is a habitat classification system for crucial habitat using a relative, six-level prioritization scheme, where 1 represents most crucial areas and 6 represents least crucial areas. The NM CHAT identified approximately 11,380 acres, or approximately 24 percent, of the Corona Wind North Gen-Tie System Study Corridor as Rank 1 for Wildlife Corridors for the cougar (*Puma concolor*), which are defined as areas that link core habitats for sustaining populations across landscapes (NMDGF and NHNM, 2013). Approximately 87 percent of the Study Corridor was either Rank 3 or Rank 4 for crucial habitat, which is defined as areas that may provide high-priority wildlife corridors, mid-level priority wetland/riparian habitat, or mid-level habitat for species of concern.

The Corona Wind North Gen-Tie System Study Corridor is located within the Central New Mexico Plains, Pinyon-Juniper Woodlands and Savannas, and Pluvial Lake Basins Level IV Ecoregions (Exhibit 9) (EPA, 2022b). Considering the potential habitats present within these ecoregions, the likelihood of a special-status animal or plant species that may occur was determined by considering the species' range, habitat suitability, species' mobility, population size, and records of occurrence within or adjacent to the Corona Wind North Gen-Tie System Study Corridor (USFWS, 2022a; USGS, 2022a). Based on these factors, the likelihood of occurrence was defined for each special-status species using the following categories:

- **None** – outside the species known range, no suitable habitat within the Corona Wind North Gen-Tie System Study Corridor, restricted mobility and small population size;
- **Not likely** – outside the species known range and suitable habitat appears absent within the Corona Wind North Gen-Tie System Study Corridor; however, due to the species mobility and population size, species may occur within the Corona Wind North Gen-Tie System Study Corridor during migration or other times of the year;
- **Possible** – is located within the range of the species but contains marginal suitable habitat; species highly mobile and may occur year-round;
- **Likely** – is located within the range of the species and contains suitable habitat; records of species occurrence in the surrounding area but no records from the Corona Wind North Gen-Tie System Study Corridor; and
- **Occurs** – records of species occurrence within the Corona Wind North Gen-Tie System Study Corridor based on USFWS/NMDGF data or other survey data.

Brief species accounts are written for special-status and other protected species whose likelihood of occurrence was either possible, likely, or occurs.

4.8.2.1 Federally Listed Species

Three species that are federally listed under the Endangered Species Act (ESA) as threatened or candidate species may potentially occur in the vicinity of the Corona Wind North Gen-Tie System Study Corridor (USFWS, 2022b). Table 4-7 summarizes the list of federally protected species with potential to occur in Torrance County and an analysis of potential occurrence based on a literature review of species' specific habitat requirements (USFWS, 2022a).

Table 4-7: Federally Listed Species in the Corona Wind North Gen-Tie System Study Corridor

Common Name	Scientific Name	Federal Status ^a	Likelihood of Occurrence
Birds			
Mexican spotted owl	<i>Strix occidentalis lucida</i>	T	Possible. Study Corridor is located with the ecological range for the owl. Evergreen forest within the Study Corridor may provide suitable nesting or wintering habitat.
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	T	Not likely. Study Corridor is not likely to include riparian, wetlands, riverine, lacustrine, or otherwise suitable habitat. There is at least some potential for the

Common Name	Scientific Name	Federal Status ^a	Likelihood of Occurrence
			species to migrate through the Study Corridor.
Insects			
Monarch butterfly	<i>Danaus plexippus</i>	C	Possible. Corona Wind North Gen-Tie System Study Corridor is likely to include suitable habitat.

Source: USFWS, 2022b

^a E=Endangered, T=Threatened, C=Candidate, PT=Proposed threatened

4.8.2.2 State-listed Species

State-listed endangered or threatened wildlife species are identified for Torrance County in which the Corona Wind North Gen-Tie System Study Corridor is located (NMDGF, 2022), as shown in Table 4-8.

These species include 4 birds.

Table 4-8: State Listed Wildlife Species in the Corona Wind North Gen-Tie System Study Corridor

Common Name	Scientific Name	State Status ^a	Likelihood of Occurrence
Birds			
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	Likely. Species likely to occur within the Study Corridor as occasional winter migrant.
Peregrine falcon	<i>Falco peregrinus</i>	T	Likely. Species likely to occur in Study Corridor as year-round resident or occasional migrant.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	Not Likely. Species may migrate through Study Corridor but Study Corridor does not appear to contain suitable riparian breeding habitat.
Baird's sparrow	<i>Centronyx bairdii</i>	T	Possible. Species may occur in the Study Corridor during migration; Study Corridor is outside species' breeding range but presents suitable habitat.

Source: NMDGF, 2022

^a E=Endangered, T=Threatened

Federally- and state-listed species determined which may be likely or possible to occur within the Corona Wind North Gen-Tie System Study Corridor are further discussed in the following subsections.

4.8.2.3 Birds

Passerines, raptors, waterfowl, and waterbirds likely migrate through the Corona Wind North Gen-Tie System Study Corridor. Grassland and cropland provide stopover habitat during migration or during post breeding dispersal and may attract a broad suite of birds (SGP CHAT, 2022; USGS, 2022a). Waterfowl and waterbirds (including shorebirds) would primarily be attracted to the small emergent wetlands and

open water as stopover habitat during migration, but these resources comprise less than 1 percent of the Corona Wind North Gen-Tie System Study Corridor (MRLC, 2022).

The Baird's sparrow is a state-threatened grassland bird species that breeds in the tall grasses of the northern Great Plains and winters in northern Mexico and the southernmost areas of Arizona and New Mexico. While the Corona Wind North Gen-Tie System Study Corridor is outside of the breeding range of these species, it does fall within the migratory pathways and there is at least some potential for the species to occur within the area of the Corona Wind North Gen-Tie System Study Corridor during migration (National Audubon Society, 2022) (Exhibit 10).

4.8.2.3.1 Bald Eagle

Bald eagles are no longer listed as threatened under the ESA; however, they continue to be protected under the Bald and Golden Eagle Protection Act (BGEPA). Bald eagles are known to occur in New Mexico year-round, with larger densities during both spring and fall migration, and during the winter (Cornell Lab of Ornithology, 2022). Bald eagles are uncommon breeders in New Mexico, with less than 10 pairs estimated to occur throughout the state as of 2017 (NMACP, 2017). In New Mexico, bald eagle nests are placed in large cottonwoods or ponderosa pines, typically in the vicinity of water and often also in close proximity to concentrations of small mammals such as prairie dogs (NMDGF, 2022), none of which exist in the Corona Wind North Gen-Tie System Study Corridor. Bald eagles have been observed near Clines Corners, NM directly north of the Study Corridor, as well as near the Pecos River and the Rio Grande River, respectively 60 miles east and 60 miles west of the Study Corridor (Cornell Lab of Ornithology, 2022; WEST, 2017b). Potential bald eagle occurrence within the Corona Wind North Gen-Tie System Study Corridor would be infrequent, due to the lack of large trees for perching and lack of optimal foraging habitat. However, bald eagles may occur occasionally as migrants or transient wintering birds, and grasslands and ponds in the Corona Wind North Gen-Tie System Study Corridor may attract foraging bald eagles.

4.8.2.3.2 Raptors

Based on raptor distribution maps (WEST, 2017c), at least 15 species of diurnal raptors, including the bald eagle, 9 owl species, and 1 vulture species may occur within or near the Corona Wind North Gen-Tie System Study Corridor. The Corona Wind North Gen-Tie System Study Corridor contains limited breeding habitat for most raptors because it lacks much mature forested area, which is preferred breeding habitat for many tree-nesting raptor species. Tree-nesting species would resort to nesting in man-made structures in open herbaceous areas that encompass the Corona Wind North Gen-Tie System Study Corridor. Additionally, there are few topographic features such as ridges and large bodies of water present

that would attract migrating raptors. The Corona Wind North Gen-Tie System Study Corridor contains foraging habitat for many grassland- and wetland-associated species. Raptors could use open fields and small bodies of water where prey are present for hunting in the Corona Wind North Gen-Tie System Study Corridor.

Two state-listed threatened species, the bald eagle and the peregrine falcon, and one federally-listed species, the Mexican spotted owl, have potential to occur in the Corona Wind North Gen-Tie System Study Corridor. As discussed in Section 4.8.2.3.1 above, bald eagle habitat is lacking, but bald eagles may occur occasionally as migrants or transient wintering birds. Mexican spotted owls are typically found between 4,100 ft (1,250 m) and 9,000 ft (2,740 m) in elevation. Mexican spotted owls are residents of old growth forests and canyons containing riparian or conifer communities (USFWS, 2022a). The peregrine falcon is one of the largest falcons in North America. Peregrine falcons are associated with habitats from sea level to 13,000 ft (4,000 meters [m]), including plains, grasslands, shrublands, forests, and deserts (WEST, 2017a). Peregrine falcons show little preference for specific ecological communities, but their hunting behavior makes them most adapted to open or partially wooded habitats (WEST, 2017a). In New Mexico, the species may nest in cliffs and hunt in a variety of woodland, grassland, and shrub/scrub habitats (USGS, 2022a).

4.8.2.4 Insects

The monarch butterfly, a federally-listed candidate insect species, has the potential to occur in the Corona Wind North Gen-Tie System Study Corridor. Monarch butterflies occur through the United States and are known to migrate seasonally between the United States & Canada and Mexico. Monarch butterflies lay eggs primarily on milkweed host plants and seek out a variety of flowering plants for food. The Study Corridor appears to be dominated by herbaceous grasslands, shrub/scrub, and evergreen forest. These vegetation communities have high potential to support a diversity of blooming nectar resources, including milkweed which is crucial for the species (USFWS, 2022a). The monarch butterfly is currently listed as a candidate species which does not provide protection under the ESA.

4.8.3 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

The NM CHAT identified 90,446 acres, or approximately 28 percent, of the overall areas of development for the Corona Wind North Generation area as Rank 1 for Wildlife Corridors for the cougar (NMDGF and NHNM, 2013). This crucial habitat area is located in the western portion of the Corona Wind North Generation area. Approximately 72 percent of the Corona Wind North Generation area was either Rank 3 or Rank 4 for crucial habitat. The Corona Wind North Generation area is situated within the Central New

Mexico Plains, Pinyon-Juniper Woodlands and Savannas, and Pluvial Lake Basins Level IV Ecoregions (Exhibit 9) (EPA, 2022b).

4.8.3.1 Federally and Listed Species

Nine species that are federally listed under the Endangered Species Act (ESA) as threatened, endangered, or candidate species may potentially occur in the Corona Wind North Generation area (USFWS, 2022b). Table 4-9 summarizes the list of federally protected species with potential to occur in Guadalupe, San Miguel, and Torrance Counties and an impact analysis based on a literature review of species' specific habitat requirements (USFWS, 2022a).

Table 4-9: Federally Listed Species in the Corona Wind North Generation Area

Common Name	Scientific Name	Federal Status ^a	Likelihood of Occurrence
Birds			
Mexican spotted owl	<i>Strix occidentalis lucida</i>	T	Possible. Corona Wind North Generation area is located within the ecological range for the owl. Evergreen forest within the Project may provide suitable nesting or wintering habitat.
Piping plover	<i>Charadrius melodus</i>	T	Not likely. Corona Wind North Generation area is not likely to include dense riparian, riverine, lacustrine, or otherwise suitable habitat; however, this species may migrate through the region.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	Not likely. Corona Wind North Generation area is not likely to include dense riparian, riverine, lacustrine, or otherwise suitable habitat; however, this species may migrate through the region.
Yellow-billed cuckoo (western population)	<i>Coccyzus americanus</i>	E	Not likely. Corona Wind North Generation area is not likely to include riparian, wetlands, riverine, lacustrine, or otherwise suitable habitat. There is at least some potential for the species to migrate through the Corona Wind North Generation area.
Fishes			
Rio Grande cutthroat trout	<i>Oncorhynchus clarkia virginalis</i>	C	Not likely. The Corona Wind North Generation area is not likely to permanently impact linear waterbodies.
Insects			

Common Name	Scientific Name	Federal Status ^a	Likelihood of Occurrence
Monarch butterfly	<i>Danaus plexippus</i>	C	Possible. Corona Wind North Generation area is likely to include suitable habitat.
Plants			
Holy Ghost ipomopsis	<i>Ipomopsis sancti-spiritus</i>	E	Possible. Corona Wind North Generation area is likely to include suitable habitat.
Pecos sunflower	<i>Helianthus paradoxus</i>	T	Not likely. Corona Wind North Generation area is not likely to include riparian wetland, riverine, lacustrine, or otherwise suitable habitat.
Wright's marsh thistle	<i>Cirsium wrightii</i>	PT	Not likely. Corona Wind North Generation area is not likely to include riparian wetland, riverine, lacustrine, or otherwise suitable habitat.

Source: USFWS, 2022b

^a E=Endangered, T=Threatened, C=Candidate, PT=Proposed threatened

4.8.3.2 State-listed Species

State-listed endangered or threatened wildlife species are identified for Guadalupe, San Miguel, and Torrance Counties in which the Corona Wind North Generation area is located (NMDGF, 2022), as shown in Table 4-10. These species include 2 mammals, 14 birds, 3 bivalves, and 4 fish.

Table 4-10: State Listed Wildlife Species in the Corona Wind North Generation Area

Common Name	Scientific Name	State Status ^a	Likelihood of Occurrence
Mammals			
Least shrew	<i>Cryptotis parvus</i>	T	Not likely. Corona Wind North Generation area is not likely to include riparian, riverine, lacustrine, or otherwise suitable mesic habitat.
Pacific marten	<i>Martes caurina</i>	T	Not likely. Mature, coniferous mountain habitat not present within Corona Wind North Generation area. Species known to occur in northern portion of Santa Fe and San Miguel Counties.
Birds			
Piping plover	<i>Charadrius melodus</i>	T	Not likely. The Corona Wind North Generation will not impact waterbody shorelines. This species is only known as a rare spring migrant.
White-tailed ptarmigan	<i>Lagopus leucura</i>	E	Not likely. Corona Wind North Generation area does not include alpine tundra or timberline habitat which occur at higher elevations.

Common Name	Scientific Name	State Status ^a	Likelihood of Occurrence
Broad-billed hummingbird	<i>Cynanthus latirostris</i>	T	Not likely. The Corona Wind North Generation area is not likely to include riparian forest and is located outside of known habitat. This species is typically found in the Guadalupe Canyon in NM east of the Corona Wind North Generation area.
White-eared hummingbird	<i>Basilinna leucotis</i>	T	Not likely. The Corona Wind North Generation area does not contain montane habitat; however, this species may occur as a rare transient.
Brown pelican	<i>Pelecanus occidentalis</i>	E	Not Likely. Species primarily inhabits marine areas and is a rare visitor to New Mexico. Corona Wind North Generation area does not contain large water bodies or major rivers that may attract the species.
Boreal owl	<i>Aegolius funereus</i>	T	Not Likely. Corona Wind North Generation area is not likely to contain suitable montane forested habitat and is outside of known habitat.
Least tern	<i>Sternula antillarum</i>	E	Not likely. The Corona Wind North Generation area does not appear to contain suitable riparian habitat; some potential for species to migrate through Corona Wind North Generation area.
Neotropic cormorant	<i>Phalacrocorax brasilianus</i>	T	Not Likely. Species primarily inhabits areas on or near large bodies of water. The Corona Wind North Generation area does not contain large water bodies or major rivers that may attract the species.
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	Likely. Species likely to occur within the Corona Wind North Generation area as occasional winter visitor.
Common black hawk	<i>Buteogallus anthracinus</i>	T	Not Likely. Corona Wind North Generation area is not likely to contain suitable riparian woodland habitat.
Peregrine falcon	<i>Falco peregrinus</i>	T	Likely. Peregrine likely to occur in Corona Wind North Generation area as occasional year-round resident and migrant.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	Not Likely. Species may migrate through Corona Wind North Generation area but Corona Wind North Generation area does not appear to contain suitable riparian breeding habitat.
Gray vireo	<i>Vireo vicinior</i>	T	Possible. Species may occur in the Corona Wind North Generation area as summer resident or migrant.
Baird's sparrow	<i>Centronyx bairdii</i>	T	Possible. Species may occur in the Corona Wind North Generation area during migration; Corona Wind North Generation area is outside species' breeding range but presents suitable habitat.
Bivalves			
Paper pondshell	<i>Utterbackia imbecillis</i>	E	Not likely. The Corona Wind North Generation area is not likely to permanently impact linear waterbodies.

Common Name	Scientific Name	State Status ^a	Likelihood of Occurrence
Lake fingernailclam	<i>Musculium lacustre</i>	T	Not likely. The Corona Wind North Generation area is not likely to permanently impact linear waterbodies.
Long fingernailclam	<i>Musculium transversum</i>	T	Not likely. The Corona Wind North Generation area is not likely to permanently impact linear waterbodies.
Fish			
Suckermouth minnow	<i>Phenacobius mirabilis</i>	T	Not likely. The Corona Wind North Generation area is not likely to permanently impact linear waterbodies.
Arkansas River shiner	<i>Notropis girardi</i>	E	Not likely. The Corona Wind North Generation area is not likely to permanently impact linear waterbodies.
Mexican tetra	<i>Astyanax mexicanus</i>	T	Not likely. The Corona Wind North Generation area is not likely to permanently impact linear waterbodies.
White Sands pupfish	<i>Cyprinodon tularosa</i>	T	Not likely. The Corona Wind North Generation area is not likely to permanently impact linear waterbodies.

Source: NMDGF, 2022

^a E=Endangered, T=Threatened

Federally- and state-listed species which may be likely or possible to occur within the Corona Wind North Generation area are further discussed in the following subsections.

4.8.3.3 Birds

Passerines, raptors, waterfowl, and waterbirds likely migrate through the Corona Wind North Generation area. Grassland and cropland provide stopover habitat during migration or during post breeding dispersal and may attract a broad suite of birds (SGP CHAT, 2022; USGS, 2022a). Waterfowl and waterbirds (including shorebirds) would primarily be attracted to the small emergent wetlands and open water as stopover habitat during migration, but these resources comprise approximately 3 percent of the Corona Wind North Generation area (MRLC, 2022).

The Baird's sparrow is a state-threatened grassland bird species that breeds in the tall grasses of the northern Great Plains and winters in northern Mexico and the southernmost areas of Arizona and New Mexico. The gray vireo is a state-threatened forested bird species that breeds in open woodlands and shrublands featuring evergreen trees and shrubs. While the Corona Wind North Generation area is outside of the breeding range of these species, it does fall within the migratory pathways and there is at least some potential for the species to occur within the area of the Corona Wind North Generation area during migration (National Audubon Society, 2022) (Exhibit 10).

4.8.3.3.1 Bald Eagle

Bald eagles are state listed as threatened and protected under the Bald and Golden Eagle Protection Act (BGEPA). Bald eagles are known to occur in New Mexico year-round, with larger densities during both spring and fall migration, and during the winter (Cornell Lab of Ornithology, 2022). Bald eagles are uncommon breeders in New Mexico, with less than 10 pairs estimated to occur throughout the state as of 2017 (NMACP, 2017). In New Mexico, bald eagle nests are placed in large cottonwoods or ponderosa pines, typically in the vicinity of water and often also in close proximity to concentrations of small mammals such as prairie dogs (NMDGF, 2022), none of which exist in the Corona Wind North Generation area. Bald eagles have been observed near Clines Corners, NM which occurs in the northern part of the Corona Wind North Generation area, as well as near the Pecos River and the Rio Grande River, respectively 24 miles east and 45 miles west of the Corona Wind North Generation area (Cornell Lab of Ornithology, 2022; WEST, 2017b). Potential bald eagle occurrence within the Corona Wind North Generation area would be infrequent, due to the lack of large trees for perching and lack of optimal foraging habitat. However, bald eagles may occur occasionally as migrants or transient wintering birds, and grasslands and ponds in the Corona Wind North Generation area may attract foraging bald eagles.

4.8.3.3.2 Raptors

Based on raptor distribution maps (WEST, 2017c), at least 15 species of diurnal raptors, including the bald eagle, 9 owl species, and 1 vulture species may occur within or near the Corona Wind North Generation area. The Corona Wind North Generation area contains limited breeding habitat for most raptors because it lacks much mature forested area, which is preferred breeding habitat for many tree-nesting raptor species. Tree-nesting species would resort to nesting in man-made structures in open herbaceous areas that encompass the Corona Wind North Generation area. Additionally, there are few topographic features such as ridges and large bodies of water present that would attract migrating raptors. The Corona Wind North Generation area contains foraging habitat for many grassland- and wetland-associated species. Raptors could use open fields and small bodies of water where prey are present for hunting in the Corona Wind North Generation area.

Two state-listed threatened species, the bald eagle and the peregrine falcon, and one federally-listed species, the Mexican spotted owl, have potential to occur in the Corona Wind North Generation area. As discussed in Section 4.8.3.3.1 above, bald eagle habitat is lacking, but bald eagles may occur occasionally as migrants or transient wintering birds. Mexican spotted owls are typically found between 4,100 ft (1,250 m) and 9,000 ft (2,740 m) in elevation. Mexican spotted owls are residents of old growth forests and canyons containing riparian or conifer communities (USFWS, 2022a). The peregrine falcon is one of the largest falcons in North America. Peregrine falcons are associated with habitats from sea level to

13,000 ft (4,000 meters [m]), including plains, grasslands, shrublands, forests, and deserts (WEST, 2017a). Peregrine falcons show little preference for specific ecological communities, but their hunting behavior makes them most adapted to open or partially wooded habitats (WEST, 2017a). In New Mexico, the species may nest in cliffs and hunt in a variety of woodland, grassland, and shrub/scrub habitats (USGS, 2022a).

4.8.3.4 Insects

The monarch butterfly, a federally-listed candidate insect species, has the potential to occur in the Corona Wind North Generation area. Monarch butterflies occur through the United States and are known to migrate seasonally between the United States & Canada and Mexico. Monarch butterflies lay eggs primarily on milkweed host plants and seek out a variety of flowering plants for food. The Study Area appears to be dominated by herbaceous grasslands, shrub/scrub, and evergreen forest. These vegetation communities have high potential to support a diversity of blooming nectar resources, including milkweed which is crucial for the species (USFWS 2022a). The monarch butterfly is currently listed as a candidate species which does not provide protection under the ESA.

4.8.3.5 Plants

The Corona Wind North Generation area is dominated by herbaceous grasslands shrub/scrub, and evergreen forests. These vegetation communities have the potential to support a variety of native species including the Holy Ghost ipomopsis, a federally-listed endangered plant species. The Holy Ghost ipomopsis is typically found in open, disturbed areas on sandy or pebbly limestone derived from the Terrero and Espiritu Santo formations (NatureServe 2022).

4.9 Archaeological and Historic-Age Cultural Resources

4.9.1 Data Sources

The following data sources were reviewed to assess the archaeological and historic-age cultural resources in Guadalupe, San Miguel, and Torrance Counties as crossed by the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- BLM. 2022b. *General Land Office (GLO) Records*. Accessed February 2022 from: <https://glorerecords.blm.gov/>.
- Green, G.N., Jones, G.E., and Anderson, O.J. 1997. *The Digital Geologic Map of New Mexico in ARC/INFO Format: U.S. Geological Survey Open-File Report 97-0052*. Accessed January 2022 from <https://mrdata.usgs.gov/geology/state/fips-unit.php?code=f35019>.

- New Mexico Cultural Resource Information System (NMCRIS). 2022. Accessed February 2022 from: <https://nmcris.dca.state.nm.us>.
- USGS. 2022b. *Historical Topographic Map Explorer*. Accessed March 2022 from <https://livingatlas.arcgis.com/topoexplorer/>.

4.9.2 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

Thirteen archaeological sites and one Historic Cultural Properties Inventory (HCPI) resource have been previously recorded within the Corona Wind North Gen-Tie System Study Corridor (NMCRIS, 2022). There have been eight prehistoric sites and five historic-age archaeological sites recorded within the Corona Wind North Gen-Tie System Study Corridor, as shown in Table 4-11. Two of the sites have been determined eligible for inclusion in the National Register of Historic Places (NRHP), seven have been determined not eligible for NRHP inclusion, and four sites have no data or have not been assessed. The HCPI resource (31896) is the Atchison, Topeka and Santa Fe/BNSF Railroad and is eligible for NRHP inclusion.

Table 4-11: Archaeological Sites within the Corona Wind North Gen-Tie System Study Corridor

Site	Site Type	NRHP Eligibility
144071	Historic	Not Eligible
153074	Historic	Not Eligible
172658	Prehistoric	Not Eligible
172659	Prehistoric	No Data
174967	Historic	No Data
187525	Historic	Eligible
195865	Prehistoric	Undetermined
195867	Historic	Not Eligible
195869	Prehistoric	Not Eligible
195871	Prehistoric	Not Eligible
195873	Prehistoric	Undetermined
195874	Prehistoric	Not Eligible
195875	Prehistoric	Eligible

Source: NMCRIS, 2022

The review of geology and historic-age maps indicates that undocumented cultural materials, both prehistoric and historic-age, may be located within the Corona Wind North Gen-Tie System Study Corridor, particularly around springs, major drainages and their tributaries, and in areas where ranches, roads, and railroads appear on historic-age topographic maps (BLM, 2022b; USGS, 2022b; Green et al., 1997).

4.9.3 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

A total of 72 archaeological sites, 10 HCPI resources, and one NRHP district have been previously recorded within the Corona Wind North Generation area (NMCRIS, 2022). There have been 44 prehistoric sites, 19 historic-age sites, and 4 multicomponent sites recorded within the Corona Wind North Generation area, as shown in Table 4-12. Five sites have no site type listed in NMCRIS. Thirteen of the sites have been determine eligible for inclusion in the NRHP, 9 have been determined not eligible for NRHP inclusion, and 50 sites have not been assessed or have no eligibility determination listed in NMCRIS.

Table 4-12: Archaeological Sites within the Corona Wind North Generation Area

Site	Site Type	NRHP Eligibility
1288	Unknown	No data
1290	Prehistoric	No data
1564	Prehistoric	No data
1843	Prehistoric	Eligible
2052	Prehistoric	Not Eligible
2053	Prehistoric	Undetermined
2106	Prehistoric	No data
2110	Historic	Undetermined
6301	Prehistoric	No data
6804	Unknown	No data
55715	Historic	No data
55731	Prehistoric	No data
59971	Prehistoric	No data
60939	Historic and Prehistoric	Eligible
60940	Unknown	No data
60951	Prehistoric	No data
60952	Prehistoric	No data
60953	Prehistoric	No data
60954	Historic	Undetermined
60988	Unknown	No data
65331	Prehistoric	No data
70090	Unknown	Not Eligible
70091	Prehistoric	Undetermined
76950	Prehistoric	Undetermined
87041	Historic	No data
87042	Prehistoric	No data
87043	Historic	No data
89545	Prehistoric	No data

Site	Site Type	NRHP Eligibility
101041	Prehistoric	No data
101701	Prehistoric	No data
109487	Prehistoric	No data
109566	Prehistoric	No data
124539	Prehistoric	No data
129127	Prehistoric	No data
129148	Historic and Prehistoric	No data
129298	Prehistoric	No data
130923	Prehistoric	No data
139362	Historic	Eligible
142041	Historic and Prehistoric	Eligible
142042	Historic	Not Eligible
144332	Prehistoric	No data
145232	Prehistoric	No data
145233	Prehistoric	No data
145234	Historic	Not Eligible
145235	Prehistoric	Eligible
150438	Prehistoric	Eligible
151713	Prehistoric	Eligible
172608	Prehistoric	Not Eligible
172609	Historic	Eligible
172658	Historic	Undetermined
172659	Prehistoric	Undetermined
177596	Prehistoric	Eligible
187496	Prehistoric	Eligible
187497	Prehistoric	Undetermined
187498	Prehistoric	Eligible
193831	Historic and Prehistoric	Undetermined
193832	Historic	Not Eligible
193833	Historic	Eligible
193834	Historic	Undetermined
195865	Prehistoric	Undetermined
195866	Prehistoric	Undetermined
195867	Prehistoric	Undetermined
195869	Prehistoric	Not Eligible
195871	Prehistoric	Eligible
195873	Historic	Undetermined
195874	Historic	Undetermined
195875	Prehistoric	Undetermined
197525	Historic	Undetermined
197526	Historic	Undetermined
198776	Prehistoric	Not Eligible

Site	Site Type	NRHP Eligibility
199078	Historic	Not Eligible
199303	Historic	Undetermined

Source: NMCRIS, 2022

There have been 10 structures recorded within the Corona Wind North Generation area, as shown in Table 4-13. One of these HCPI resources have been determine eligible for inclusion in the NRHP, eight have been determined not eligible for NRHP inclusion, and one has not been assessed.

Table 4-13: HCPI Resources within the Corona Wind North Generation Area

Site	Resource Type	Site Type	NRHP Eligibility
42558	Structures	Williams Ranch Windmill, Water Tank, Water Troughs	Not Eligible
42587	Structure	Unnamed fence	Not Eligible
42588	Structure	Unnamed fence	Not Eligible
42589	Structure	Highland Road	Undetermined
42970	Structure	NM Highway 6; Alternate Route 66; Santa Rosa Cutoff	Eligible
42971	Structure	Unnamed road	Not Eligible
46390	Structure	No Data	Not Eligible
47834	Structure	Unnamed windmill	Not Eligible
47995	Structure	Allan well	Not Eligible
51203	Structures	Check dams	Not Eligible

Source: NMCRIS, 2022

The review of geology and historic-age maps indicates that undocumented cultural materials, both prehistoric and historic-age, may be located within the Corona Wind North Generation area, particularly around springs, major drainages and their tributaries, and in areas where ranches, roads, and railroads appear on historic-age topographic maps (BLM, 2022b; USGS, 2022b; Green et al., 1997).

4.10 Religious and Cemetery Sites

4.10.1 Data Sources

The following data sources were reviewed to assess the existing religious and cemetery sites in Guadalupe, San Miguel, and Torrance Counties as crossed by the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- American Cemeteries. 2022a. *Guadalupe County, NM Cemeteries*. Accessed February 2022 from: <http://www.americancemeteries.org/new-mexico/guadalupe-county>.
- American Cemeteries. 2022b. *San Miguel County, NM Cemeteries*. Accessed February 2022 from: <http://www.americancemeteries.org/new-mexico/san-miguel-county>.

- American Cemeteries. 2022c. *Torrance County, NM Cemeteries*. Accessed February 2022 from: <http://www.americancemeteries.org/new-mexico/torrance-county>.
- Esri. 2022. GIS data for religious sites and cemeteries in Guadalupe, San Miguel, and Torrance Counties, New Mexico. Accessed February 2022 from <https://www.esri.com>.

4.10.2 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

No religious institutions were identified within the Corona Wind North Gen-Tie System Study Corridor (American Cemeteries, 2022c; Esri, 2022) (Exhibit 11). One cemetery, Negra Cemetery, was identified within the Corona Wind North Gen-Tie System Study Corridor (American Cemeteries, 2022c) (Exhibit 11). Unknown or abandoned cemeteries or religious sites could be within the footprint.

4.10.3 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

No religious sites or cemeteries are located within the Corona Wind North Generation area (American Cemeteries, 2022a, 2022b; 2022c; Esri, 2022) (Exhibit 11). Six cemeteries are located within one mile of the Corona Wind North Generation area: Encino Cemetery, Guadalupe Cemetery, Negra Cemetery, Old Pintada, Red Hills Cemetery, Sombrio Cemetery, Tapia Cemetery (American Cemeteries, 2022a, 2022b; 2022c; Esri, 2022) (Exhibit 11). Unknown or abandoned cemeteries could be within the footprint.

4.11 Visual and Scenic Resources

4.11.1 Data Sources

The following data sources were reviewed to assess the existing visual and scenic conditions of Guadalupe, San Miguel, and Torrance Counties as related to the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- BLM. 2022a. *Explore Your Public Lands*. Accessed February 2022 from: <https://www.blm.gov/visit>.
- BLM. 2022c. *National Data Viewer*. Accessed January 2022 from: <https://blm-egis.maps.arcgis.com/apps/webappviewer/index.html?id=6f0da4c7931440a8a80bfe20eddd7550>
- EPA. 2022b. *Ecoregions of North America*. Accessed March 2022 from: <https://www.epa.gov/eco-research/ecoregions-north-america>.
- Federal Highway Administration (FHWA). 2022. *America's Byways*. Accessed March 2022 from: <https://www.fhwa.dot.gov/byways/>.

- National Park Service (NPS). 2021a. *Find A Park: New Mexico*. Accessed December 2021 from: <https://www.nps.gov/state/nm/index.htm>
- NPS. 2021b. *National Natural Landmarks Directory*. Accessed December 2021 from: <https://www.nps.gov/subjects/nl/landmarks/nation.htm>
- NMDOT. 2012a. *Explore New Mexico's Scenic Byways*. Accessed December 2021 from: <https://www.dot.state.nm.us/content/nmdot/en/byways.html>.
- New Mexico Energy, Minerals and Natural Resources Department (NMEMNRD). 2021. *Find A Park*. Accessed December 2021 from: <https://www.emnrd.nm.gov/spd/find-a-park/>.
- U.S. Census. 2020. Accessed January 2022 from: www.census.gov.

4.11.2 Overview

The combined Corona Wind North Project Study Area encompasses approximately 352,843 acres of private and state lands within the Southwestern Tablelands Level III Ecoregion (EPA, 2022b) located within Guadalupe, San Miguel, and Torrance Counties. The EPA Ecoregions description for the Southwestern Tablelands states:

The Southwestern Tablelands flank the High Plains with red hued canyons, mesas, badlands, and dissected river breaks. Unlike most adjacent Great Plains ecological regions, little of the Southwestern Tablelands is in cropland. Much of this region is in sub-humid grassland and semiarid range land. The potential natural vegetation is grama-buffalo grass with some mesquite-buffalo grass in the southeast, juniper-scrub oak-midgrass savanna on escarpment bluffs, and shinnery (midgrass prairie with open low and shrubs) along the Canadian River.

More specifically, the Corona Wind North Project Study Area occurs within the Central New Mexico Plains, Pinyon-Juniper Woodlands and Savannas, and Pluvial Lake Basins ecoregions containing mostly short-grass prairie and some pinyon-juniper shrubland communities (EPA, 2022b). Common vegetation of the Southwestern Tablelands includes grama grasses (*Bouteloua gracilis*), buffalo grass (*B. dactyloides*), piñon pine (*Pinus* spp.), junipers (*Juniperus* spp.), and scrub oak (*Quercus gambelii*). The Study Area is bounded to the north by the foothills of the Southern Rocky Mountains, to the east by the plains of the Conchas and Pecos River drainage basins, and to the west by the Manzano Mountains. South of the Study Area, the landscape continues as Central New Mexico Plains and Pinyon-Juniper Woodlands and Savannas.

Approximately 121,026 acres of State Trust Lands administered by the New Mexico State Land Office (SLO) are included within the Corona Wind North Project Study Area (approximately 117,476 acres of the Corona Wind North Generation area and 13,414 acres within the Corona Wind North Gen-Tie System Study Corridor, minus 9,864 acres of overlap between the two). Non-private lands in proximity to the

combined area include other State Trust Lands administered by the New Mexico SLO, portions of Cibola National Forest (3 miles south of the combined area) and Santa Fe National Forest (10 miles north), Villanueva State Park (13 miles north), Santa Rosa Lake State Park (15 miles east), the Gran Quivira and Quarai Units of the Salinas Pueblo Missions National Monument (29 miles southwest and 30 miles west, respectively), Pecos National Historical Park (31 miles north), Las Vegas National Wildlife Refuge (34 miles north), and Sumner Lake State Park (40 miles southeast) (Exhibit 12).

4.11.3 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

Topography within the Corona Wind North Gen-Tie System Study Corridor is variable, including relatively flat grassland, gentle slopes, small ridgelines, canyons, hills, mesas, canyons, and steep slopes. Elevation within the Corona Wind North Gen-Tie System Study Corridor ranges from 6,079 to 7,286 ft (1,853 to 2,221 m) above mean sea level (Exhibit 13). The Corona Wind North Gen-Tie System Study Corridor is located within 5 Public Land Survey System (PLSS) ranges and 9 PLSS townships in Torrance County (Exhibit 14).

Torrance County's population density is approximately 4.5 inhabitants per square mile. Torrance County is southeast of the City of Albuquerque, and over 95 percent of the population resides in the western half of the county. A few inhabitable residences are within the Corona Wind North Gen-Tie System Study Corridor, and other scattered rural residences and small communities are nearby. The village of Encino, New Mexico (2020 population of 51), is the closest incorporated community, located at the junction of U.S. Route 60 and U.S. Route 285 in Torrance County, approximately 4 miles east of the Corona Wind North Gen-Tie System Study Corridor. The village of Corona, New Mexico (2020 population of 129), is located approximately 7 miles south of the Corona Wind North Gen-Tie System Study Corridor on U.S. Route 54 in Lincoln County. The town of Vaughn, New Mexico (2020 population of 286) is located in Guadalupe County approximately 18 miles east of the Corona Wind North Gen-Tie System Study Corridor (U.S. Census, 2020). The closest schools are: Corona Public Schools, approximately 7 miles south of the southern end of the Corona Wind North Gen-Tie System Study Corridor; Moriarty Elementary School, approximately 18 miles west of the northwest corner of the Corona Wind North Gen-Tie System Study Corridor; and Vaughn Municipal Schools, approximately 18 miles east of the approximate mid-point of the Corona Wind North Gen-Tie System Study Corridor (Exhibit 18).

Travelers in proximity to the Corona Wind North Gen-Tie System would include primarily local traffic along U.S. Routes 60 and 285 and New Mexico State Route 3, and some regional and interstate traffic along U.S. Route 54 and Interstate 40 (I-40). One existing transmission line (100-kV or above) occurs

within the Corona Wind North Gen-Tie System Study Corridor. The 115-kV line owned by Central New Mexico Electric Cooperative is present at the southern end of the Corona Wind North Gen-Tie System Study Corridor, parallel to Torrance County Road C013 north of the village of Corona. Additionally, three pipelines cross the Corona Wind North Gen-Tie System Study Corridor south of U.S. Route 60: the Rocky Mountain petroleum pipeline, the Western Refining crude oil pipeline, and the Mid-America hydrocarbon gas liquids pipeline (Exhibit 3). The Moriarty Municipal Airport is located approximately 15 miles west and the Vaughn Municipal Airport is located approximately 15 miles east-southeast of the Corona Wind North Gen-Tie System Study Corridor.

No designated federal or state scenic routes or byways were identified in the Corona Wind North Gen-Tie System Study Corridor, but the nearest federal byway is Historic Route 66 National Scenic Byway which is co-located with I-40 approximately 0.7 mile north of the northernmost point of the proposed route of the Corona Wind North Gen-Tie System (NMDOT, 2012a; FHWA, 2022) (Exhibit 15). No national or state parks, preserves, recreation areas, or monuments are in the Corona Wind North Gen-Tie System Study Corridor (BLM, 2022a; NPS, 2021a). The northern end of the proposed route of the Corona Wind North Gen-Tie System is within 0.7 mile of the Route 66 National Scenic Byway. The closest national park is the Gran Quivira Unit of Salinas Pueblo Missions National Monument, which is approximately 29 miles southwest of the System (NPS, 2021a). There are no BLM-managed sites or National Parks Service (NPS) National Natural Landmarks within 50 miles of the Corona Wind North Gen-Tie System Study Corridor (BLM, 2022a; NPS, 2021b). The nearest state parks are Villanueva State Park, Manzano Mountains State Park, Sumner Lake State Park, and Santa Rosa Lake State Park, all of which are located more than 35 miles from the Corona Wind North Gen-Tie System Study Corridor (NMEMNRD, 2021).

The BLM National Data Mapper indicates the segment of Torrance County where the Corona Wind North Gen-Tie System would occur has a Visual Resource Inventory (VRI) Scenic Quality Rating of C (indicating low scenic quality), based on a quantitative score of 5.00. The VRI index for Maintenance of Visual Quality in this area of Torrance County indicates low value based on a qualitative analysis of the sensitivity of visual resources, except for the 3-mile-wide corridors around I-40 and U.S. Route 60, which are indicated as high value (BLM, 2022c).

Apart from the corridors of I-40 and U.S. Route 60, no known visually sensitive cultural resource sites occur within the Corona Wind North Gen-Tie System Study Corridor. Organized tourism activities in or near the Corona Wind North Gen-Tie System Study Corridor may include Historic Route 66 tours.

4.11.4 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

Existing topography and land use within the Corona Wind North Generation area are generally similar to those described for the Corona Wind North Gen-Tie System Study Corridor in Section 4.11.3. Elevation within the Corona Wind North Generation area ranges from 5,102 to 7,461 ft (1,555 to 2,274 m) above mean sea level (Exhibit 13). The Corona Wind North Generation area is located within 11 Public Land Survey System (PLSS) ranges and 5 PLSS townships in Guadalupe County, San Miguel County, and Torrance County (Exhibit 14).

Like Torrance County, which is discussed in Section 4.11.3, Guadalupe and San Miguel Counties are sparsely populated counties in central New Mexico. Among the three counties affected by the Corona Wind North Project, the population density for Guadalupe County is the lowest, approximately 1.5 inhabitants per square mile as of 2020. San Miguel County has the highest population among the three counties, approximately 5.7 inhabitants per square mile. San Miguel County's population is centered in the county seat of Las Vegas, approximately 34 miles north of the Project footprint. A few inhabitable residences are within the Corona Wind North Generation area, and other scattered rural residences and small communities are nearby. The village of Encino in Torrance County is the closest incorporated community to the Corona Wind North Generation area, located approximately 11 miles south at the junction of U.S. Route 60 and U.S. Route 285. The town of Vaughn in Guadalupe County is located approximately 12 miles south of the Corona Wind North Generation area. The city of Moriarty (2020 population of 1,946) and the town of Estancia (2020 population of 1,242) are both approximately 13 miles west of the Corona Wind North Generation area in Torrance County, on I-40 and New Mexico State Route 41, respectively. The city of Santa Rosa (2020 population of 2,850) is located approximately 15 miles east of the Corona Wind North Generation area on I-40 in Guadalupe County (U.S. Census, 2020). The closest schools are: Rita M. Marquez Elementary School, approximately 8 miles north; Anton Chico Middle School, approximately 9 miles north; Moriarty Elementary School, approximately 12 miles west; Estancia Municipal Schools, approximately 12 miles west; and Vaughn Municipal Schools, approximately 13 miles south (Exhibit 18).

Travelers in proximity to the Corona Wind North Generation includes interstate and regional traffic along I-40, including tourists interested in Historic Route 66 National Scenic Byway which travels concurrently with I-40 and U.S. Route 84 in the area. Interstate and regional traffic also occurs on U.S. Route 285, which is a thoroughfare between Santa Fe in the north and Roswell, Carlsbad, and west Texas in the south. Primarily local or regional traffic occurs along U.S. Route 84 and New Mexico State Route 3. Three pipelines cross the southwestern portion of the Corona Wind North Generation area: the Rocky

Mountain petroleum pipeline, the Western Refining crude oil pipeline, and the Mid-America hydrocarbon gas liquids pipeline (Exhibit 3). Airports near the Corona Wind North Generation area include Moriarty Municipal Airport, approximately 11 miles west, and Vaughn Municipal Airport, approximately 12 miles southeast.

The nearest scenic route is the aforementioned Historic Route 66 National Scenic Byway, which runs through the northern portion of the Corona Wind North Generation area (FHWA, 2022). The Corona Wind North Generation area encompasses a 53-mile stretch of the Route 66 National Scenic Byway between the communities of Santa Rosa and Moriarty. Route 66's Pre-1937 Alignment, located on the U.S. Route 84 corridor north of I-40, is identified by New Mexico as a separate state byway. Additionally, New Mexico identifies the Mesalands Scenic Byway on State Route 219 south of I-40 at the easternmost edge of the Study Area (NMDOT, 2012a) (Exhibit 15). The closest national park is the Pecos National Historical Park, which is approximately 31 miles north of the Corona Wind North Generation area (NPS, 2021a). The nearest BLM-managed site is Sabinoso Wilderness, approximately 45 miles northeast of the Corona Wind North Generation area (BLM, 2022a). There are no NPS National Natural Landmarks within 50 miles of the Corona Wind North Generation area (NPS, 2021b). The nearest state park is Villanueva State Park, which is located 13 miles north of the Corona Wind North Generation area (NMEMNRD, 2021).

The BLM National Data Mapper indicates the segment of the Corona Wind North Generation area located in Guadalupe County has been designated Visual Resource Inventory (VRI) Class IV (indicating least scenic value), except for the 3-mile-wide corridors around I-40, U.S. Route 84, and New Mexico State Route 219, which carry a VRI Class III (indicating moderate scenic value). The VRI index for Maintenance of Visual Quality in the area of Torrance County within the Corona Wind North Generation area indicates low value based on a qualitative analysis of the sensitivity of visual resources, except for the 3-mile-wide corridors around I-40 and U.S. Routes 60 and 285, which are indicated as high value. No other portions of the Corona Wind North Generation area have been issued a VRI Class or Maintenance of Visual Quality value, including all portions in San Miguel County (BLM, 2022c).

4.12 Land Use, Including Farm, Range, and Recreational Resources

4.12.1 Data Sources

The following data sources were reviewed to assess the existing land use, including farm, range, and recreational resources of Guadalupe, San Miguel, and Torrance Counties as crossed by the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- Amtrak. 2022. *Amtrak Routes & Destinations: Southwest Chief*. Accessed January 2022 from: <https://www.amtrak.com/routes/southwest-chief-train.html>.
- East Tarrant Soil and Water Conservation District (SWCD). 2009. *East Tarrant Soil and Water Conservation District Long Range Plan, July 1, 2009 - June 30, 2019*. Accessed December 2021 from: <http://easttarrantswcd.org/PDF/LongRangePlan0919.pdf>.
- Mid-Region Council of Governments of New Mexico. 2003. *Comprehensive Land Use Plan for Tarrant County, New Mexico, August 2003*. Accessed December 2021 from: <https://www.mrcog-nm.gov/DocumentCenter/View/3124/Tarrant-County-Comprehensive-Plan-August-2003-PDF>.
- Military Bases.com. 2021. *New Mexico Military Bases* (map). Accessed December 2021 from: <https://militarybases.com/new-mexico/>.
- MRLC. 2022. *2019 NLCD*. Accessed January 2022 from: <https://www.mrlc.gov/>
- The Board of County Commissioners of Tarrant County. 2020. *Tarrant County Zoning Ordinance*. Accessed December 2021 from: <https://www.tarrantcountynm.org/uploads/Downloads/Planning%20and%20Zoning/Ordinances/2020.07.08%20Tarrant%20County%20Zoning%20Ordinance%20Revised.pdf>.
- The People of San Miguel County, with assistance from Communitas – Tierra y Gente. 2004. *San Miguel County Comprehensive Plan 2004-2014*. Accessed February 2022 from: https://www.co.sanmiguel.nm.us/document_center/index.php#revize_document_center_rz74.
- U.S. Bureau of Indian Affairs (BIA). 2021. *U.S. Domestic Sovereign Nations: Land Areas of Federally-Recognized Tribes Map*. Accessed December 2021 from: <https://biamaps.doi.gov/indianlands/#>.
- U.S. Census. 2020. Accessed January 2022 from: www.census.gov.
- USDA NRCS. 1981. *Soil Survey of San Miguel County Area, New Mexico*. Accessed December 2021 from: https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/new_mexico/.
- USDA NRCS. 2006. *Soil Survey of Guadalupe County, New Mexico*. Accessed December 2021 from: https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/new_mexico/.

4.12.2 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

Topography within the Corona Wind North Gen-Tie System Study Corridor is variable as noted in Section 4.11.3 and Exhibit 13. Herbaceous/grassland cover types dominate the landscape, with shrub/scrub and evergreen forest vegetation communities covering smaller areas. A review of the 2019 National Land Cover Database (NLCD) (MRLC, 2022) identified two major cover types in the Corona

Wind North Gen-Tie System Study Corridor: grassland/herbaceous 79 percent, and shrub/scrub 19 percent. Table 4-14 below summarizes the NLCD cover types in the Corona Wind North Gen-Tie System Study Corridor.

Table 4-14: National Land Cover Data Summary for the Corona Wind North Gen-Tie System Study Corridor

Land Cover	Acres	Percent ^a
Developed, Open Space	91.16	< 1%
Developed, Low Intensity	10.95	< 1 %
Developed, Medium Intensity	3.96	< 1%
Evergreen Forest	2,222.30	5%
Shrub/Scrub	11,520.60	24%
Grasslands/Herbaceous	34,042.70	71%
Total	47,891^b	100%

^a Percentages are rounded to the nearest whole number.

^b Sum of components may not add up to the total due to the overlap of some GIS private-owned and state-owned land data received.

Source: MRLC, 2022

4.12.2.1 Torrance County

The Corona Wind North Gen-Tie System Study Corridor occurs entirely within Torrance County.

Torrance County is a rather sparsely populated county covering approximately 3,345 square miles in central New Mexico, southeast of the City of Albuquerque. Over 95 percent of the population resides in the western half of the county (U.S. Census, 2020). Farming and open-range ranching have been the traditional economic activities of the county but are diminishing as the population grows in the Estancia Valley. Large-scale irrigated agriculture has become a major feature in the central portion of the Estancia Valley. Although these agricultural croplands rely solely on groundwater pumping, there is a reluctance to eliminate such land uses. The expansive but semi-arid rangelands throughout the county have attracted a ranching livelihood for a small but dispersed segment of the population. Much of Torrance County is situated within the “commuter shed” of the Albuquerque metropolitan region and is growing in scattered residential subdivisions and housing developments. As a result, non-agricultural commerce and business sectors are growing as well.

Political jurisdictions and territories within Torrance County include five incorporated municipalities, significant acreage held in state and federal ownership, and a small area in the northwest corner of the county that occurs within the Isleta Reservation (BIA, 2021). The town of Moriarty contains the largest population within Torrance County and is located approximately 17 miles west of the Corona Wind North Gen-Tie System Study Corridor. The county seat is located in the town of Estancia, approximately 20

miles west of the Corona Wind North Gen-Tie System Study Corridor. The village of Encino is the closest populated place within Torrance County, roughly 4 miles east of the Corona Wind North Gen-Tie System Study Corridor. Other incorporated communities scattered throughout the county include the town of Mountainair and the village of Willard. Major state and federal properties in the county include Manzano Mountains State Park, Gallinas National Forest, Cibola National Forest, and scattered BLM parcels (Exhibits 16, 17, 18, and 19). No military bases are located in Torrance County (Military Bases.com, 2021). Also, there are all or portions of four Mexican Land Grants in the county.

The principal transportation infrastructure in Torrance County consists of roads and highways. The county is traversed by an interstate highway (I-40) and several state and federal highways forming the base road network for the county. Relatively good east-west and north-south corridors are in the county, although they are widely spaced. Torrance County has three public airports for general aviation and are all designed for small aircraft only: Moriarty Municipal Airport, Estancia Municipal Airport, and Mountainair Municipal Airport. Of these, only Moriarty Municipal Airport has paved runways. There are two railroads in the county: the Burlington Northern Santa Fe Railroad, situated mostly along the U.S. Route 60 transportation corridor, and the Union Pacific Railroad, situated along the US. Route 54 corridor. Neither of these railroads has scheduled stops within Torrance County (Mid-Region Council of Governments of New Mexico, 2003).

The Torrance County Comprehensive Land Use Plan (CLUP) (July 2003) governs all land use planning in the county and provides the rationale and guidance for specific land use regulations and projects developed by the local government (Mid-Region Council of Governments of New Mexico, 2003). It establishes a basis for regulations and programs necessary to manage current and future land development within the jurisdiction of Torrance County. The Torrance County CLUP promotes consistency and continuity in making decisions to carry out the programs, projects, and operations of Torrance County. The county presently administers the comprehensive land use management program supported by regulatory ordinances and enforcement powers. Actual implementation of the Torrance County CLUP is subject to the policy directives and actions of the Board of County Commissioners as deemed appropriate.

In accordance with the Torrance County CLUP, the Torrance County Zoning Ordinance (revised 2020) establishes comprehensive zoning regulations for the unincorporated areas of Torrance County (The Board of County Commissioners of Torrance County, 2020). It is designed to promote health and the general welfare of the county; secure safety from fire, flood, and other dangers; protect local water resources; facilitate adequate provisions for transportation, solid waste management, water and

wastewater systems, schools, parks, and other community requirements; conserve the value of property; and provide for the compatible development of land and other natural resources in the county.

The East Torrance Soil and Water Conservation District (SWCD) Long Range Plan (2009-2019) promotes stewardship of natural resources by providing conservation leadership, education, technical, and financial assistance to the residents of the District (East Torrance SWCD, 2009).

Within Torrance County, Moriarty Elementary School is the closest school to the Corona Wind North Gen-Tie System Study Corridor, located approximately 18 miles west. The Moriarty-Edgewood School District includes one early childhood center, three elementary schools, two middle schools, and one high school serving approximately 2,879 students from pre-kindergarten through 12th grade.

4.12.3 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

A review of the 2019 NLCD (MRLC, 2022) identified three major cover types in the Corona Wind North Generation area: shrub/scrub 57 percent, grassland/herbaceous 36 percent, and evergreen forest 6 percent. Table 4-15 below summarizes the NLCD cover types in the Corona Wind North Generation area.

Table 4-15: National Land Cover Data Summary for the Corona Wind North Generation Area

Land Cover	Acres	Percent ^a
Water	6.67	< 1%
Developed, Open Space	1,391.95	< 1%
Developed, Low Intensity	296.38	< 1%
Developed, Medium Intensity	39.65	< 1%
Developed, High Intensity	6.38	< 1%
Bare Rock/Sand/Clay	11.12	< 1%
Deciduous Forest	17.56	< 1%
Evergreen Forest	18,955.50	6%
Shrub/Scrub	187,620.00	57%
Grasslands/Herbaceous	119,509.00	36%
Woody Wetlands	2.22	< 1%
Emergent Herbaceous Wetlands	27.51	< 1%
Total	327,895 ^b	100%

^a Percentages are rounded up to the next whole number.

^b Sum of components may not add up to the total due to the overlap of some GIS private-owned and state-owned land data received.

Source: MRLC, 2022

The Corona Wind North Generation area occurs within Guadalupe, San Miguel, and Torrance Counties. The existing land use conditions previously described for the Corona Wind North Gen-Tie System in Torrance County also apply for the Corona Wind North Generation area. Land use conditions for Guadalupe and San Miguel Counties are described in the sections below.

4.12.3.1 Guadalupe County

Guadalupe County covers approximately 3,030 square miles in east-central New Mexico (U.S. Census, 2020), dominated by gently rolling topography at the western end of the Great Plains. Western-facing escarpments occur along the Pecos River, which flows southeastward through the approximate center of the county, as well as along some tributaries of the Canadian River in the northeastern part of the county. Karst topography consisting of caliche-capped limestone is the dominant land feature in the southwestern part of the county. Naturally occurring Artesian springs and sinkholes, as well as active (shifting) sand dunes, are common in the county. Important natural features in Guadalupe County include the Pecos River, the Blue Hole of Santa Rosa, and Santa Rosa Lake (Reservoir) (USDA NRCS, 2006).

Land use is primarily sprawling shrub rangeland used for sheep, goat, and cattle ranching. Less than 3 percent of the county is pinyon-juniper woodland or prime farmland (USDA NRCS, 2006). Farming and ranching are the traditional economic pillars of the county, although this is supported by tourism on the stretch of U.S. Route 66 located within the county. Most of the Corona Wind North Generation area within Guadalupe County is in rangeland and ranching use, except for the I-40/U.S. Route 66 corridor.

Guadalupe County is the fifth-least populated county in New Mexico, and contains only two incorporated communities, the city of Santa Rosa which is also the county seat, and the town of Vaughn. Guadalupe County includes a mix of private and government-owned lands. State and federally owned or managed properties are scattered throughout the western part of Guadalupe County, where the Corona Wind North Generation would occur (Exhibits 16, 17, and 19). There are no U.S. Department of Defense installations in Guadalupe County (Military Bases.com, 2021). There are no federally recognized tribal lands within Guadalupe County (BIA, 2021).

Primary transportation routes into Guadalupe County include highways such as I-40/U.S. Route 66 and U.S. Routes 54, 84, 60, and 285. Interstate traffic through the county travels mainly on I-40/U.S. Route 66 connecting the cities of Tucumcari in the east and Albuquerque in the west. East of Santa Rosa, U.S. Route 54 is merged with I-40/U.S. Route 66. In Santa Rosa, U.S. Route 54 diverges, traveling southwestward to Vaughn and onward to Alamogordo, Las Cruces, and El Paso, Texas. U.S. Route 84 enters the northwest corner of Guadalupe County traveling southward, where it merges with I-40/U.S.

Route 66 and travels eastward to Santa Rosa, where it turns southeastward and exits the county near Lake Sumner. U.S. Routes 60 and 285 enter Guadalupe County co-located as a single highway west of Vaughn. East of Vaughn, they split with U.S. Route 60 heading eastward toward Fort Sumner and Clovis and U.S. 285 veering south toward Roswell and Carlsbad. Guadalupe County includes two small public airports with paved runways: Vaughn Municipal Airport and Santa Rosa Route 66 Airport. Both are designed for small aircraft only and neither has scheduled passenger service. The Union Pacific Railroad passes through Guadalupe County along the U.S. Route 54 corridor, and the Burlington Northern Santa Fe Railroad passes through the county along the same east-west trajectory as U.S. Route 60, although not within the same corridor. The two railroads intersect in Vaughn, but neither has passenger service within the county.

Historically engineered ditches and irrigation channels known as acequias are present in Guadalupe County, extending out from the Pecos River and its tributaries. Acequias are recognized under New Mexico law as political subdivisions of the state. Acequia associations are collectively run local government units that manage the distribution and use of surface water. Acequia water law in New Mexico requires three commissioners and a majordomo to administer irrigation and conservation but gives all citizens holding irrigation rights equal ownership and responsibility in the watershed use plan. Under acequia water law, transference of water for use outside the watershed is prohibited. Acequia systems irrigate approximately 3,380 acres in Guadalupe County (USDA NRCS, 2006). Although the majority of these acequias are in the north and east parts of the county, some connected ditches may extend into the Corona Wind North Generation area.

The Guadalupe Soil and Water Conservation District promotes stewardship of natural resources by providing conservation leadership, education, technical, and financial assistance to the residents of the District, mostly targeted around management of water consumption for drought conditions, which can debilitate range and farm lands and exacerbate invasive weed and brush infestations. Wildlife and fisheries enterprises are very limited within the County.

Anton Chico Elementary School and Rita Marquez Elementary School are the closest schools within Guadalupe County, each approximately 8 miles north of the Corona Wind North Generation area. Both are included in the Santa Rosa Consolidated School System, which is headquartered approximately 16 miles east in Santa Rosa, and which serves approximately 183 students from pre-kindergarten through 12th grade. Also nearby is the Vaughn Municipal School, located approximately 12 miles south of the Corona Wind North Generation area. This school serves approximately 68 students from pre-kindergarten through 12th grade.

4.12.3.2 San Miguel County

San Miguel County covers approximately 4,716 square miles in northeastern New Mexico (U.S. Census, 2020). The eastern part of the county is distinguished by the erosional valleys of the Canadian and Conchas Rivers. The undulating plains of the Las Vegas Plateau rise up in the north central part of the county to meet the Santa Fe National Forest and the foothills of the Sangre de Cristo Mountains in the far western end of the county. Other important natural features in San Miguel County include Conchas Lake, Las Vegas National Wildlife Refuge, Sabinoso Wilderness, and the Pecos River.

The primary economic enterprise is livestock ranching on the grass-and-shrub rangelands, but the forested foothills support a lumber industry in the west, and recreation is important in the eastern river valleys and mountainous western part of the county (USDA NRCS, 1981). The Corona Wind North Generation area within San Miguel County is dominated by agriculture and ranch use in southernmost San Miguel County, far from recreational activity that occurs further north in the foothills.

San Miguel County contains three incorporated communities: the city of Las Vegas, which is the county seat; the village of El Cerrito, and the village of Pecos. Numerous unincorporated communities occur throughout San Miguel County. State owned or managed properties are scattered throughout the southwestern part of San Miguel County, where the Corona Wind North Generation would occur (Exhibits 16, 17, and 19). There are no U.S. Department of Defense installations in San Miguel County (Military Bases.com, 2021). There are no federally recognized tribal lands within San Miguel County (BIA, 2021). Portions of Mexican Land Grants occur within San Miguel County.

Interstate 25 (I-25) enters the county from the west, connecting Albuquerque and Santa Fe with Las Vegas, which thereby forms the Albuquerque-Santa Fe-Las Vegas, New Mexico Combined Statistical Area (U.S. Census, 2020). I-25 travels along the Pecos River Valley, skirting the Sangre de Cristo Mountains until it reaches the Las Vegas Plateau, then travels northeast to Colorado. Areas due north of Las Vegas are serviced by New Mexico Route 518. U.S. Route 84 branches off I-25 south of Las Vegas and travels south to Guadalupe County. The primary east-west transportation corridor in San Miguel County is New Mexico Route 104, but it is used mostly for local traffic. San Miguel County includes two small public airports with paved runways: Las Vegas Municipal Airport and Conchas Lake Airport. The Burlington Northern Santa Fe Railroad passes through San Miguel County along the I-25 corridor. Las Vegas Amtrak Station is a stop along the *Southwest Chief* passenger train route between Los Angeles and Chicago (Amtrak, 2022).

The San Miguel County Comprehensive Plan 2004-2014 (adopted June 2004) analyzes data on existing and anticipated population and economic growth to help set future goals and policies regarding land use, infrastructure, water use, natural resources, and economic development (The People of San Miguel County, 2004). The plan identifies five zoning categories for unincorporated parts of San Miguel County: Single Family Residential (R1), Residential Agricultural (A1 and A2), Traditional Community (TC), and Rural Holding Zone (R-H). The Comprehensive Plan provides direction from the people of San Miguel County to assist county, private, state, and federal decision makers in planning and management. The plan provides an assessment of conditions and trends for the county's natural resources and includes goals, policies, and action plans to promote productive and sustainable use and protection of all natural resources throughout the county. Wind Energy Conversion Systems such as those connected with the Corona Wind North Project are addressed in the plan through citizens' desire for jobs and economic growth within the county, a discussion of locations within the county that are most suitable for wind energy generation, and practical steps toward installing wind energy facilities within the county.

Historically engineered ditches and irrigation channels known as acequias are present in San Miguel County and are recognized under New Mexico law as political subdivisions of the state. Acequia associations are collectively run local government units that manage the distribution and use of surface water. Acequia water law in New Mexico requires three commissioners and a majordomo to administer irrigation and conservation but gives all citizens holding irrigation rights equal ownership and responsibility in the watershed use plan. Under acequia water law, transference of water for use outside the watershed is prohibited. Acequia systems in San Miguel County occur along Tecolote Creek, Pecos River, Gallinas River, and Mora River.

The Tierra Y Montes Soil and Water Conservation District promotes stewardship of natural resources by providing conservation leadership, education, technical, and financial assistance to the residents of the District.

Within San Miguel County, the nearest school to the Corona Wind North Generation area is Valley Elementary and Middle School, which is approximately 17 miles north and serves approximately 109 students in kindergarten through 8th grade. It is part of the West Las Vegas Public School District.

4.13 Socioeconomics

4.13.1 Data Sources

The following data sources were reviewed to assess the existing socioeconomic conditions of Guadalupe, San Miguel, and Torrance Counties as related to the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- City-Data. 2022. Accessed January 2022 from: www.city-data.com.
- Federal Reserve Bank of St. Louis. 2022. *Federal Reserve Economic Data (FRED) Online Database*. Accessed January 2022 from: <https://fred.stlouisfed.org/series/NMURN#0>.
- New Mexico Economic Development Department (NM EDD). 2021. *County Economic Summaries & Data Profiles*. Accessed February 2022 from: <https://edd.newmexico.gov/site-selection/county-profiles/>.
- New Mexico Taxation & Revenue Department (NM TRD). 2022. *Fiscal Year RP-80 Reports: Gross Receipts by Geographic Area and NAICS Code*. Accessed March 2022 from: <https://www.tax.newmexico.gov/all-nm-taxes/gross-receipts-taxes-overview/fiscal-year-rp-80-reports-gross-receipts-by-geographic-area-and-naics-code/>
- U.S. Bureau of Labor Statistics, Southwest Information Office (BLS-SW). 2021. Accessed December 2021 from: <https://www.bls.gov/regions/southwest/>
- U.S. Census. 2020. Accessed January 2022 from: www.census.gov.
- USDA National Agricultural Statistics Service (NASS). 2019. 2017 Agricultural Census, published 2019. Accessed January 2022 from: <https://www.nass.usda.gov/Publications/AgCensus/2017/index.php#highlights>

4.13.2 Overview

The Corona Wind North Project Study Area is a largely rural region of central to northeast New Mexico, dominated by range lands of the western Great Plains and the Pecos River Valley. The area's economic base consists of sparsely populated, traditional ranching communities, but major urban economic and cultural centers in Albuquerque and Santa Fe can be accessed via I-40 and U.S. Route 285. It is expected that these population centers will provide labor and logistical support to Project development activities. The Corona Wind North Project Study Area is also situated fairly evenly from recreation areas in the Sangre de Cristo Mountains and Santa Fe National Forest to the north, Santa Rosa Lake and Lake Sumner to the east, the Sierra Blanca Mountains and Lincoln National Forest to the south, and the Manzano Mountains and Cibola National Forest to the west. All of these economic, cultural, and recreational

resources are within a drive time of approximately three hours or less from the Corona Wind North Project Study Area.

An overview of the area's population demographics is shown in Table 4-16. Of the three counties crossed by the Corona Wind North Project Study Area, San Miguel County has the largest population as well as the largest geographic area.

Table 4-16: Population of Study Area Counties

County	2020 Reported Population	Geographic Area (Square Miles)	Population Density (people/square mile)
Torrance	15,045	3,345	4.5
Guadalupe	4,452	3,030	1.5
San Miguel	27,201	4,716	5.8
Study Area Total	46,698	11,091	4.2 (Avg.)

Source: U.S. Census, 2020.

The three counties crossed by the Corona Wind North Project Study Area had a total labor force of 20,949 reported in 2020, and employment of 11,891 (1.6 percent of statewide employment) during 2020. For comparison, 13,032 persons were employed in Torrance, Guadalupe, and San Miguel Counties in 2019 (BLS-SW, 2021). The annual unemployment rates for 2020, not seasonally adjusted, were 6.7 percent in Guadalupe County, 8.3 percent in San Miguel County, and 9.5 percent in Torrance County, compared to New Mexico's overall 2020 unemployment rate of 8.5 percent (Federal Reserve Bank of St. Louis, 2022).

2020 total wages and salaries for covered employment (non-farm) in the counties affected by the Corona Wind North Project provide an estimated average annual compensation of \$38,495 per employee. The New Mexico statewide average annual compensation was estimated at \$54,704 for 2020, revealing that reported wages and salaries in the area where the Corona Wind North Project would be developed are approximately 70 percent of the state average (BLS-SW, 2021). Additionally, the 2019 estimated per capita income of \$20,087 for the counties crossed by the Corona Wind North Project Study Area is approximately 75 percent of the 2020 estimated per capita income of \$27,230 for the State of New Mexico (U.S. Census, 2020).

Agriculture is an important foundation of the area economy, but non-agricultural sectors provide the dominant employment and income in the regional economy. The Corona Wind North Project Study Area

is sparsely populated, and land use is dominated by agricultural business enterprises (particularly ranching). Table 4-17 presents an agricultural profile for the Corona Wind North Project Study Area.

Table 4-17: 2017 and 2012 Corona Wind North Project Study Area Farm Demographics

2017 and 2012 USDA Agricultural Profile for Torrance, Guadalupe and San Miguel Counties					
Number of Farms	2017	2012	Average Farm Size (acres)	2017	2012
	2,183	1,838		2,416	3,187
2017 Market Value of Agricultural Products Sold (\$ millions)					
Crops		Livestock and Poultry		Total	
\$12.37		\$65.88		\$78.25	
15.8%		84.2%			
2017 Top Commodity Groups and Values of Sales (\$ millions)					
Cattle and Calves	Hay and Other Crops	Vegetables, Melons, Potatoes, and Sweet Potatoes	Sheep, Goats, Wool, Mohair, and Milk	Horses, Ponies, Mules, Burros, and Donkeys	
\$53.07	\$4.21	\$1.07	\$0.59	\$0.51	

Source: USDA NASS, 2019.

Excluding the agricultural production sector, however, statistics from 2008 to 2021 suggest that dominant economic activities (measured by reported employment and output) are related to construction, retail trade, and hospitality & food services. These three sectors alone comprise almost two-thirds of total annual employment by industry for the Corona Wind North Project Study Area (NM EDD, 2021). Private firms employ about 73 percent of the labor force in Torrance County and about 54 percent of the labor force in Guadalupe and San Miguel Counties (City-Data, 2022).

According to the New Mexico Taxation & Revenue Department, counties crossed by the Corona Wind North Project Study Area had an annual average of approximately \$15.6 million in gross receipts tax (GRT) collections over the period of 2015 to 2020, providing 0.36 percent of the total GRT collections in the state of New Mexico (NM TRD, 2022). Within the three counties crossed by the Corona Wind North Project Study Area, the highest levels of GRT were reported by the Construction sector, with revenues from the sales in this sector constituting 51 percent of the GRT collections in 2020. This is followed by the Retail Trade sector, which only accounts for 9 percent of the 2020 total GRT for areas crossed by the Project. The observation that Construction provides 51 percent of the GRT revenue, but only between 9 and 10 percent of the employment in the Corona Wind North Project Study Area, highlights the ready supply of construction firms and workers from the larger population centers surrounding the Corona Wind North Project Study Area (NM TRD, 2022; NM EDD, 2021).

The socioeconomic conditions described in this section generally apply to both the Corona Wind North Gen-Tie System Study Corridor and the Corona Wind North Generation area, therefore the following subsections describe only those conditions which are specific to each part of the Project.

4.13.3 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

The Corona Wind North Gen-Tie System would be developed in Census Tracts 9636.01 and 9637, which reported a combined 2020 population of 7,969, less than 0.4 percent of New Mexico's 2020 Census population of 2,117,522 (U.S. Census, 2020). The nearest incorporated community is the village of Encino (population 51) in Torrance County, approximately 4 miles east of the Corona Wind North Gen-Tie System Study Corridor. The village of Corona (population 129) in Lincoln County is approximately 7 miles south of the southern end of the Study Corridor. Between the 2010 census and the 2020 census, the communities of Corona and Encino exhibited population decreases in the range of 25 to 38 percent (U.S. Census, 2020). This may indicate migration away from the rural area or a natural decline of the aging population of the area.

Primary, intermediate, and secondary schools near the Corona Wind North Gen-Tie System Study Corridor include: Corona Public Schools, approximately 7 miles south of the southern end of the Study Corridor and serving less than 100 students from pre-kindergarten through 12th grade; Vaughn Municipal Schools, approximately 18 miles east of the approximate mid-point of the Study Corridor and serving approximately 68 students from pre-kindergarten through 12th grade; and Moriarty Elementary School, approximately 18 miles west of the northwest corner of the Study Corridor and serving approximately 374 students from kindergarten through 5th grade (Exhibit 18). Higher-learning institutions including vocational schools and community colleges are located in population centers outside the Corona Wind North Project Study Area such as Santa Rosa (in Guadalupe County), Las Vegas (in San Miguel County), Tucumcari, Santa Fe, and Albuquerque.

4.13.4 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

The Corona Wind North Generation area would be developed in Census Tracts 9577, 9616, 9632.02, 9636.01, and 9637, which reported a 2020 combined population of 17,443, which comprised slightly more than 0.8 percent of New Mexico's 2020 Census population of 2,117,522 (U.S. Census, 2020). In addition to the village of Encino which is located approximately 11 miles south, there are numerous incorporated communities near the Corona Wind North Generation area. The town of Vaughn (population 286) is approximately 12 miles south in Guadalupe County. Modest population centers occur along the I-

40 corridor in Moriarty (population 1,946), 13 miles west of the Corona Wind North Generation area in Torrance County, and Santa Rosa (population 2,850), 15 miles east of the Corona Wind North Generation area in Guadalupe County. The town of Estancia (population 1,242) and the village of Willard (population 201) also occur in Torrance County, approximately 13 miles west and 17 miles southwest of the Corona Wind North Generation area respectively. Between the 2010 census and the 2020 census, the communities further from I-40 (Vaughn, Estancia, and Willard) exhibited population decreases between 20 and 36 percent, while Moriarty and Santa Rosa, situated on I-40, have been relatively stable with population increases of 0 to 2 percent (U.S. Census, 2020). This may indicate migration away from the rural area or a natural decline of the aging population of the area.

Primary, intermediate, and secondary schools near the Corona Wind North Generation area include: Rita M. Marquez Elementary School, approximately 8 miles north and serving approximately 69 students from pre-kindergarten through 5th grade; Anton Chico Middle School, approximately 9 miles north and serving approximately 38 students in 6th through 8th grade; Moriarty Elementary School, approximately 12 miles west and serving approximately 374 students from kindergarten through 5th grade; Estancia High School, approximately 13 miles west and serving approximately 183 students from 9th through 12th grade; and Vaughn Municipal Schools, approximately 13 miles south and serving approximately 73 students from pre-kindergarten through 12th grade (Exhibit 18). As noted in Section 4.13.3, higher-learning institutions including vocational schools and community colleges are located in population centers outside the Corona Wind North Project Study Area such as Santa Rosa, Las Vegas, Tucumcari, Santa Fe, and Albuquerque.

4.14 Communication Signals

4.14.1 Data Sources

The following data sources were reviewed to assess the existing communication signal structures in Guadalupe, San Miguel, and Torrance Counties as related to the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- Cavell Mertz & Associates, Inc. 2022. Publicly available Federal Communications Commission (FCC) data. Accessed January 2022 from: <http://www.fccinfo.com/>

4.14.2 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

Torrance County is a rural county in central New Mexico with a population density below the state and national averages. Table 4-18 presents a review of signaling structures within a 35-mile search radius

from the coordinates at the north, south, east, and west endpoints of the Corona Wind North Gen-Tie System Study Corridor (Cavell Mertz & Associates, 2022) (Exhibit 20).

Table 4-18: Signaling Structures Within 35 Miles of the Corona Wind North Gen-Tie System Study Corridor

Tower Type	Final Route
Antenna Structure Registration	48
Cellular	18
FM	2
Microwave	198
TV	1

4.14.3 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

Guadalupe, San Miguel, and Torrance Counties are rural counties in central New Mexico with population densities below state and national averages. Table 4-19 presents a review of signaling structures within a 35-mile search radius from the coordinates at the north, south, east, and west endpoints of the Corona Wind North Generation area (Cavell Mertz & Associates, 2022) (Exhibit 20).

Table 4-19: Signaling Structures Within 35 Miles of the Corona Wind North Generation Area

Tower Type	Final Route
AM	2
Antenna Structure Registration	78
Cellular	29
FM	10
Microwave	269
TV	6

4.15 Radioactive Waste and Radiation Hazards

Electric transmission line and substation infrastructure do not generate or contain radioactive waste or radiation hazards. The Corona Wind North Gen-Tie System and the Corona Wind North Generation would not generate radioactive waste or radiation hazards and, therefore, they are not addressed further in this ER.

4.16 Hazardous Materials

Prior to construction, a Phase I Environmental Site Assessment will be performed to identify any hazardous materials, substances, or facilities in the Corona Wind North Gen-Tie System Study Corridor and the Corona Wind North Generation area. Chapter 5, Section 5.16 describes potential hazardous materials associated with construction, operation, and maintenance of a transmission line, substation, and switchyard as well as protection measures to reduce impacts from hazardous materials.

4.17 Safety

The Corona Wind North Gen-Tie System Study Corridor and the Corona Wind North Generation area do not contain any known external safety concerns. Chapter 5, Section 5.17 describes potential safety concerns associated with construction, operation, and maintenance of a transmission line, substation, and switchyard as well as protection measures to reduce safety impacts.

4.18 Geographic Resources

4.18.1 Data Sources

The following data sources were reviewed to assess the existing geographic resources of Guadalupe, San Miguel, and Tarrant Counties as crossed by the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- MRLC. 2022. *2019 NLCD*. Accessed January 2022 from: <https://www.mrlc.gov/>
- NPS. 2017. *Physiographic Provinces*. Accessed December 2021 from: <https://www.nps.gov/subjects/geology/physiographic-provinces.htm>.
- National Park Service (NPS). 2021a. *Find A Park: New Mexico*. Accessed December 2021 from: <https://www.nps.gov/state/nm/index.htm>

4.18.2 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

The Corona Wind North Project Study Area is located within the Great Plains and the Basin and Range physiographic provinces (NPS, 2017). The Great Plains extend from Texas north to Montana and are bordered to the west by the Rocky Mountains and to the east by the Central Lowlands. The Great Plains slope downward to the east, with maximum heights in the foothills of the Rockies at 5,500 ft, decreasing to 2,000 ft (MRLC, 2022). The bedrock is horizontal beds of sandstones, shales, limestones, conglomerates, and lignite. Coal, petroleum, and natural gas are all mined extensively throughout the Great Plains. National Parks and Monuments of the Great Plains in New Mexico include Carlsbad

Caverns National Park, Fort Union National Monument, and Capulin Volcano National Monument. None of these geographic resources are within or near the Corona Wind North Gen-Tie System Study Corridor.

The Basin and Range province extends from eastern California to central Utah and from southern Arizona to New Mexico and west Texas. Over time, stretching of the Earth's crust created faults from which the mountain ranges were formed. This resulted in the patterns of alternating mountain ranges and valleys characteristic of this province. The southern portion of the Basin and Range province consists of the Sonoran Desert, Salton Trough, Mexican Highland, and Sacramento sections. National Parks and Monuments of the Basin and Range province in New Mexico include the Gila Cliff Dwellings National Monument, Pecos National Historical Park, Petroglyph National Monument, Salinas Pueblo Missions National Monument, and White Sands National Monument. None of these geographic resources are within or near the Corona Wind North Gen-Tie System Study Corridor.

No national or state parks, preserves, recreation areas, or monuments are in the Corona Wind North Gen-Tie System Study Corridor, but the northernmost point of the proposed route of the Corona Wind North Gen-Tie System is approximately 0.7 mile south of the Route 66 National Scenic Byway (NPS, 2021a). Section 4.11.3 identifies other nearby sites managed by the NPS, BLM, or NMEMNRD and their distances from the Corona Wind North Gen-Tie System Study Corridor.

4.18.3 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

Similar to the Corona Wind North Gen-Tie System Study Corridor, the Corona Wind North Generation area is located within the Great Plains and the Basin and Range physiographic provinces (NPS, 2017). None of the National Parks and Monuments mentioned for these provinces in Section 4.18.2 are located within or near the Corona Wind North Generation area.

The Corona Wind North Generation area encompasses a 53-mile stretch of the Route 66 National Scenic Byway between the communities of Santa Rosa and Moriarty. Section 4.11.4 identifies other nearby sites managed by the NPS, BLM, or NMEMNRD and their distances from the Corona Wind North Generation area. No additional currently protected geographic resources are within the Corona Wind North Generation area.

4.19 Military Activities and Aviation

4.19.1 Data Sources

The following data sources were reviewed to assess the existing military and aviation installations in Guadalupe, San Miguel, and Torrance Counties as crossed by the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- Digital Aviation LLC. 2021. *VFR Map*. Accessed December 2021 from: <http://vfrmap.com>.
- Military Bases.com. 2021. *New Mexico Military Bases* (map). Accessed December 2021 from: <https://militarybases.com/new-mexico/>.

4.19.2 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

No military bases occur within the Corona Wind North Gen-Tie System Study Corridor. Three military training routes intersect the Corona Wind North Gen-Tie System Study Corridor (Digital Aviation LLC, 2021; Military Bases.com, 2021) (Exhibit 21). The Joint Applicants would request Determination of No Hazard (DNH) from the FAA for any transmission line structures over 200 ft (transmission line structures of this height are very unlikely for the Corona Wind North Project).

4.19.3 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

No military bases occur within the Corona Wind North Generation area. Three military training routes intersect the Corona Wind North Generation area (Digital Aviation LLC, 2021; Military Bases.com, 2021) (Exhibit 21). The Joint Applicants would request DNH from the FAA for any transmission line structures over 200 ft (transmission line structures of this height are very unlikely for the Corona Wind North Project).

4.20 Roads

4.20.1 Data Sources

The following data sources were reviewed to assess the road conditions in Guadalupe, San Miguel, and Torrance Counties as related to the Corona Wind North Gen-Tie System and Corona Wind North Generation.

- NMDOT. 2012b. *Interactive Transportation Maps*. Accessed January 2022 from: https://www.dot.state.nm.us/content/nmdot/en/Maps.html#m_par_text.

4.20.2 Current Conditions and Trends, Regional Overview – Corona Wind North Gen-Tie System

Torrance County is a primarily rural county in central New Mexico with a sparse network of U.S. highways, state highways, county roads, and private roads within the area where the Corona Wind North Gen-Tie System will be developed. The Joint Applicants will work with NMDOT and the Torrance County Road Maintenance Department to determine current road conditions for construction access prior to the start of any construction. U.S. Route 60 and several east-west and north-south segments of state routes and county roads traverse the Corona Wind North Gen-Tie System Study Corridor (NMDOT, 2012b).

4.20.3 Current Conditions and Trends, Regional Overview – Corona Wind North Generation Area

Guadalupe, San Miguel, and Torrance Counties are rural counties in central New Mexico with a sparse network of U.S. highways, county, and private roads within the area where the Corona Wind North Generation will be developed. The Joint Applicants will work with NMDOT and the County Road Maintenance Departments of each county to determine current road conditions for construction access prior to the start of any construction. I-40, U.S. Routes 60 and 285, and several east-west and north-south segments of state routes and county roads traverse the Corona Wind North Generation area (NMDOT, 2012b).

5.0 ENVIRONMENTAL EFFECTS

5.1 Introduction

This chapter addresses whether the proposed Corona Wind North Gen-Tie System would “unduly impair important environmental values,” as provided in NMSA 1978 §62-9-3F. Potential consequences, or impacts, on the environment that could result from the location of the new proposed transmission line facilities are described, including construction, operation, and maintenance activities. Each of the resource areas provided in NMSA 1978 §62-9-3M, Commission Rule 17.9.592.10 NMAC are addressed, as well as additional resource areas identified by Staff. These resources are: air resources; noise; geology and mineral resources; soil resources; paleontological resources; water resources; flora and fauna resources; archaeological and historic-age cultural resources; religious and cemetery sites; socioeconomics and environmental justice; communication signals; radioactive waste and radiation hazards; hazardous materials; safety; geographic resources; military activities and aviation; and roads. Impact evaluations for each resource are discussed below in the context of the Corona Wind North Gen-Tie System together with BMPs that can help manage impacts.

Implementation of the proposed Corona Wind North Gen-Tie System could affect the existing condition of the environment. Effects can occur directly or indirectly as a result of the Corona Wind North Gen-Tie System development. Direct effects are those that occur through direct or immediate interaction of the new proposed transmission line facilities with environmental components. Indirect effects are those that are somewhat distant from the new proposed transmission line facilities in time, space, or both.

Short-term impacts are considered those impacts that occur during construction and are generally anticipated to return to a preconstruction condition, at or within 3 to 5 years following construction. Environmental effects that would be anticipated to remain for the life of the Corona Wind North Gen-Tie System (approximately 30 years) were considered long-term impacts. Permanent impacts are those that would be anticipated to remain for the life of the Corona Wind North Gen-Tie System and beyond.

For each resource area reviewed below, this report: describes the potential ground disturbance and environmental effects that may occur due to the Corona Wind North Gen-Tie System facilities; identifies the protection measures the Joint Applicants proposes to avoid and minimize impacts; and summarizes the potential for the new proposed transmission line facilities to result in undue impairment of important environmental values.

5.2 Air Resources

5.2.1 Impact Assessment Methods

Assessment of impacts to air resources resulting from construction, operation, and maintenance of new proposed transmission line facilities of the Corona Wind North Gen-Tie System follows the impact assessment methodology described in Section 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally short term and temporary in nature for air resources.

5.2.2 Impacts Specific to the Corona Wind North Gen-Tie System

5.2.2.1 Construction

The large equipment used during construction is powered by internal combustion (IC) engines and would likely use diesel or gasoline as fuel. The products of combustion of these fuels include pollutants such as nitrogen oxides (NO_x), carbon monoxide (CO), carbon dioxide (CO₂), volatile organic compounds (VOC), particulate matter (PM), small amounts of sulfur dioxide (SO₂), and trace amounts of hazardous air pollutants (HAP). Construction contractors and their equipment are required to comply with all applicable emissions standards. If an onsite concrete batch plant is required for transmission line facility construction, the proper state and county air quality permits would be obtained by The Joint Applicants prior to construction.

Fugitive dust emissions will also contribute to temporary air quality impacts during construction of the Corona Wind North Gen-Tie System. Fugitive dust arises from land clearing, grading, excavation, and vehicle traffic on unpaved roads. The amount of fugitive dust depends on the amount of vehicular traffic, construction activities, moisture content of the soil, and wind speed. During dry periods with high winds, fugitive dust would be much more prevalent than during wet periods with low winds. Dust suppression methods such as watering are planned to be used in construction zones during dry periods to minimize fugitive dust impacts.

Since the fugitive dust and combustion engine emissions will be temporary (limited to the construction period), limited to the construction area, and minimized to the extent practicable (e.g., proper maintenance of equipment, watering, etc.), these emissions sources are not expected to significantly impact the air quality in the area of the Corona Wind North Gen-Tie System.

5.2.2.2 Operations and Maintenance

During operation of the Corona Wind North Gen-Tie System, the primary emissions are expected to be fugitive dust from worker and maintenance vehicles traveling intermittently on unpaved roads. In

addition, there would be emissions from the vehicles themselves. Such emissions are not anticipated to be substantial, and, therefore, only minimal impacts to air quality are anticipated during the operation of the Corona Wind North Gen-Tie System facilities.

5.2.3 Protection Measures

Protection measures would be implemented to reduce potential impacts to air quality from construction activities. Emissions are only anticipated to arise from ground disturbing activities, equipment movement, fuel combustion, and a concrete batch plant, if required. These emissions would be temporary and localized. Protection measures to address construction-related impacts to air quality resources would include:

Air-1: Maintaining all fossil fuel-fired construction equipment in accordance with manufacturers' recommendations to minimize construction-related combustion emissions.

Air-2: Controlling combustion emissions through engine manufacturing requirements for both mobile sources and portable equipment such as air compressors.

Air-3: Limiting the idling time of equipment, unless idling must be maintained for proper operation (e.g., drilling, hoisting, and trenching).

Air-4: Limit the speed of vehicles within construction sites and along the utility ROW during construction to reduce the amount of fugitive dust generated.

Air-5: Water trucks will be utilized as necessary to reduce fugitive dust from construction activities.

5.2.4 Conclusion

Considering the limited and transient nature of emissions resulting from construction, operation, and maintenance of the Corona Wind North Gen-Tie System, as well as the protection measures detailed above, it is not expected that the proposed location of the new proposed transmission line facilities would unduly impair air resources.

5.3 Noise

5.3.1 Impact Assessment Methods

Assessment of noise impacts anticipated from the new proposed transmission line facilities during construction, operation and maintenance of the Corona Wind North Gen-Tie System follows the impact

assessment methodology described in Section 5.1 above and is discussed below. Noise impacts during construction, operations, and maintenance are generally low, short term, and temporary in nature.

5.3.2 Impacts Specific to the Corona Wind North Gen-Tie System

Existing noise levels in rural areas surrounding the Corona Wind North Gen-Tie System in Guadalupe and Torrance Counties is low. Primary existing sources of noise in the vicinity of the Corona Wind North Gen-Tie System is generated from traffic along U.S. and State highways, local county roads, existing wind generation turbines, and some agricultural machinery. Localized noise associated with equipment operation during construction and operation would increase local noise levels in areas adjacent to the Corona Wind North Gen-Tie System. Noise impacts from construction of the new proposed transmission line facilities would be localized, short term, and temporary, and in compliance with all applicable state and local noise regulations. After construction, noise generated during operation of the Corona Wind North Gen-Tie System would be greatly reduced and cause negligible impacts.

5.3.3 Protection Measures

Protection measures that would be implemented to reduce any potential negative noise impacts from construction activities include:

Noise-1: Restrict construction activity near residences to normal business hours.

Noise-2: Audible noise due to wind energy facility operations shall not exceed fifty (50) A-weighted decibels (dBA) for any period of time, when measured at any occupied residence, school, hospital, church or public library existing on the date of approval of the wind energy facility.

5.3.4 Conclusion

Based on localized, low-volume, short-duration impacts, compliance with regulated noise limits during operation, negligible impacts during operation, and the protection measures detailed above, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would result in an undue noise burden for the area.

5.4 Geology and Mineral Resources

5.4.1 Impact Assessment Methods

Assessment of impacts to geological and mineral resources anticipated from the new proposed transmission line activities during construction, operation, and maintenance of the Corona Wind North

Gen-Tie System follows the impact assessment methodology described in Section 5.1 above and is discussed below.

5.4.2 Impacts Specific to the Corona Wind North Gen-Tie System

There are no identified operational hydrocarbon facilities or unique geological features (such as unique formations, faults, or landslide areas) in the Corona Wind North Gen-Tie System. Therefore, adverse impacts to geologic resources resulting from construction, operation, and maintenance of the new proposed facilities are not anticipated.

5.4.3 Protection Measures

No protection measures are needed for geology resources. This is due to the lack of unique geological features, faults, or landslide areas in the Corona Wind North Gen-Tie System.

5.4.4 Conclusion

Due to an absence of unique geological features, faults, or landslides; the types of bedrock in the area; and the proposed activities for the Corona Wind North Gen-Tie System, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair geological resources.

5.5 Soil Resources

5.5.1 Impact Assessment Methods

Assessment of impacts to soil resources from construction, operation, and maintenance of the Corona Wind North Gen-Tie System follows the impact assessment methodology described in Section 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally low, short term, and temporary in nature for soil resources. Permanent impacts to soils within the footprint of the Corona Wind North Gen-Tie System are discussed below in Section 5.5.2.3.

5.5.2 Impacts Specific to the Corona Wind North Gen-Tie System

Construction activities affecting soils include permanent and temporary land-disturbance activities such as structure work areas, wire-pulling, tensioning and splicing sites, construction yards, and temporary and permanent roads.

5.5.2.1 Temporary Erosion

Ground disturbance during construction may increase the potential for erosion. For example, removal of protective vegetation may expose soil to potential wind and water erosion. Certain soils within the Corona

Wind North Gen-Tie System Study Corridor would be more sensitive to soil erosion impacts. The primary soil erosion factor is water erosion and wind erosion on bare soils.

Potential erosional effects from operations would consist of soil disturbances necessary to maintain the Corona Wind North Gen-Tie System in working order and conduct necessary repairs. Potential stormwater BMPs, including erosion and sediment control structures, as well as new culverts, might require inspection, maintenance, and/or repair throughout the operational life of the Corona Wind North Gen-Tie System to reduce soil erosion or sedimentation to surface water. Temporary access, not retained for operations, would be seeded with a native grass mix and allowed to revegetate, thereby minimizing the surface exposed to erosive conditions.

The areas used for construction would be reclaimed as soon as possible, which may include regrading to original land contours, topsoil replacement, and revegetation. Implementation of a Stormwater Pollution Prevention Plan (SWPPP)—a stormwater management program from the EPA under National Pollutant Discharge Elimination System that would protect water and soil resources—and use of appropriate soil mitigation measures and BMPs would reduce the effects of erosion.

5.5.2.2 Accidental Spills

During construction, use of trucks, heavy equipment, and stored supplies could result in accidental discharge of fuel, lubricants, and automotive fluids. Although the potential exists, any spills would be accidental, occasional, and of limited extent and would be considered minor to negligible and temporary in duration. BMPs for construction housekeeping, spill prevention, and cleanup would be used to prevent and remediate accidental spills. Therefore, accidental spills would not result in widespread or long-term effects to soils.

5.5.2.3 Permanent Soil Loss

The footprint of the Corona Wind North Gen-Tie System would result in minor long-term loss of acreage to other productive soil uses. The total permanent footprint would range from approximately 50 to 60 acres inside the Corona Wind North Gen-Tie System Study Corridor, equaling less than 0.2 percent of the Corona Wind North Gen-Tie System Study Corridor.

5.5.3 Protection Measures

Protection measures that would be implemented to reduce any potential negative soil impacts from construction activities include:

Soil-1: Construction crews will reduce the amount of soil compaction by using equipment with more tires and wider tires to distribute the weight of the vehicle and tilling the severely compacted areas after construction is completed or using ground mats when the ground is wet.

Soil-2: To the extent possible, topsoil will be placed separately from sub-soils/bedrock during excavation and not comingled. The Joint Applicants will replace soil in reverse order, to help preserve topsoil.

Soil-3: The Joint Applicants will reduce erosion by applying and maintaining standard erosion and sediment control methods. These may include using certified weed-free straw wattles, bale barriers, and silt fencing, which would be placed at construction boundaries and where soil would be disturbed near a wetland or water body. Specific erosion and sediment control measures and locations will be specified in a SWPPP.

5.5.4 Conclusion

Based on BMPs to minimize and stabilize disturbed soils, BMPs to reduce accidental spills, the small amount of permanent soil loss as well as the protection detailed above, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair soil resources.

5.6 Paleontological Resources

5.6.1 Impact Assessment Methods

Assessment of impacts to paleontological resources from construction, operation, and maintenance of the Corona Wind North Gen-Tie System and Corona Wind North Generation follows the impact assessment methodology described in Section 5.1 above and is discussed below.

5.6.2 Impacts Specific to the Corona Wind North Gen-Tie System

Construction activities that may affect paleontological resources include excavation, heavy equipment usage and movement, drilling, and trenching for utilities. Grading for access roads could also directly impact paleontological resources. The geology in the area comprises Middle Proterozoic, Permian, Triassic, Tertiary, and Quaternary deposits. The western portion of the Corona Wind North Project Study Area is dominated by Middle Proterozoic and Permian aged deposits, which have low to no potential for paleontological resources. Triassic, Tertiary, and Quaternary deposits are preserved in patches along the northern edges of the Study Area. These geologic units have differing potential for yielding paleontological resources. The Triassic-age Chinle Formation has the highest potential (moderate) for containing paleontological remains in the Study Area. Given the nature of the geological deposits and the

discovery methods that will be employed prior to construction, the potential for impacts to important paleontological resources is considered low. However, any grading and excavation during site preparation and construction would have potential to impact paleontological resources that may be present within the boundaries of the Corona Wind North Gen-Tie System Study Corridor or Corona Wind North Generation area. As previously mentioned, any discoveries which may occur during construction would be managed through a UDP.

5.6.3 Protection Measures

Protection measures that would be implemented to reduce any potential negative impacts from construction activities include:

Paleo-1: Follow a UDP, providing protection for unknown sites.

5.6.4 Conclusion

Due to the moderate to low probability for the presence of paleontological deposits in the area and the fact that no ground disturbance activities would be completed prior to paleontological survey work being completed, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair paleontological sites.

5.7 Water Resources

5.7.1 Methods and Impact Types

Assessment of impacts to water resources from construction, operation, and maintenance of the Corona Wind North Gen-Tie System follows the impact assessment methodology described in Section 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally low, avoidable, short term, and temporary in nature for water resources.

5.7.2 Impacts Specific to the Corona Wind North Gen-Tie System

5.7.2.1 Surface Water

The potential sources of surface water resource impacts from the Corona Wind North Gen-Tie System include permanent and temporary soil-disturbance activities from structure work areas, wire-pulling, tensioning and splicing sites, construction yards, and temporary and permanent roads as well as potential accidental spills of hydrocarbons (fuels, oils, etc.) from these activities. Short-term impacts from soil disturbances that increase erosion (or water runoff in areas with compacted soils) would potentially result in an increase in suspended sediments within adjacent waterbodies and accidental spills of hydrocarbons

(fuels, oils, etc.) that could wash into and pollute surface water. Based on the short construction duration, the small ground disturbance area, and minimal amount of surface water present within the vicinity, low impacts to surface water are anticipated from the Corona Wind North Gen-Tie System.

In addition to soil-disturbance activities, impacts to surface waters may include stream crossings by transmission lines or access roads. All streams would be spanned by the transmission line, and individual structures would be located outside the stream bank ordinary high-water mark (OHWM) to avoid potential impacts. Where available, existing road-stream crossings would be utilized for access; however, new stream crossings may be required in certain areas. These activities would be permitted through the applicable agencies. Low impacts to streams would occur based on the low number of streams in the Corona Wind North Gen-Tie System Study Corridor and the ability to avoid stream resources through aerial spanning.

Stormwater BMPs would be used during construction to reduce potential impacts from erosion, sedimentation, and turbidity in surface waters during construction. A SWPPP would be developed and implemented for the Corona Wind North Gen-Tie System, which would meet the construction stormwater discharge permit requirements of the New Mexico Environment Department Surface Water Quality Bureau (NMED-SWQB). The SWPPP would include a number of measures to control runoff and to reduce erosion and sedimentation at construction sites. In addition, a Spill Prevention, Containment, and Countermeasures Plan (SPCC) would be implemented to prevent pollution of surface waters from accidental spills.

5.7.2.2 Floodplains

It is reasonable to assume that all watercourses that convey natural flows, whether or not mapped by FEMA as floodplains or flood hazard areas, present some level of flood hazard. Encroachment of a structure into a flood path could result in flooding of or erosion damage to the encroaching structure and diversion of flows. The Corona Wind North Gen-Tie System would be set back from channel banks to avoid impacts (such as channel alteration and flow modification) and, therefore, impacts to floodplains would be low.

5.7.2.3 Groundwater

It is unlikely the Corona Wind North Gen-Tie System would affect groundwater to any extent. Any impacts to groundwater would be for a short duration and consist mainly of temporary construction impacts. Excavations for the Corona Wind North Gen-Tie System may contact shallow groundwater; however, the groundwater contact would be unlikely to adversely impact this resource, unless an

accidental spill of fuel or petroleum from construction equipment (which is very unlikely) occurs near an open excavation or is not cleaned up in a timely manner.

No water wells would be drilled for the Corona Wind North Gen-Tie System. All water used for construction (e.g., dust control or concrete production) would come from existing offsite sources, which would be identified and secured prior to construction.

5.7.2.4 Wetlands

A desktop assessment utilizing existing maps and data to identify potentially jurisdictional waters of the U.S., including wetlands, that could potentially be affected by construction was conducted to address compliance with Sections 404 and 401 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Based on the desktop assessment using NWI data, potential waters of the U.S., including wetlands, could be present. Wetland presence based only on NWI data cannot be assumed to be an accurate assessment of potentially occurring jurisdictional wetlands and waterbodies. Wetland identification criteria differ between the USFWS and the USACE. As a result, wetlands shown on an NWI map may not be under the jurisdiction of the USACE, and all USACE jurisdictional wetlands are not always included in NWI data.

The NWI data was overlaid with other digital data, including NRCS mapped hydric soils or soils with hydric inclusions, topographic contours, USGS NHD data, FEMA mapped floodplains, and NAIP aerial photography as part of the desktop assessment. Overlapping layers representing multiple characteristics of wetlands provide a degree of probability that wetlands may be present. A review of the overlapping layers indicated that the majority of acreage within the Corona Wind North Project Study Area exhibited “No Probability” of wetland occurrence (Burns & McDonnell, 2022).

A wetland delineation would be conducted to identify any wetlands or other water bodies that may be present within the Corona Wind North Gen-Tie System footprint prior to construction. This information would be provided to the design team so direct impact to wetlands can be avoided.

No wetlands or water bodies are anticipated to be impacted by construction within the Corona Wind North Gen-Tie System or access roads, as currently designed. All wetlands would be avoided or spanned by the transmission line to avoid direct impacts. Substations and switchyards would not be located in potentially jurisdictional wetlands or playas. Temporary construction work areas and wire pulling and tensioning sites would be sited to avoid wetlands to the extent practicable. Therefore, a Section 404 permit, Section 10 permit, or Section 401 water quality certification is not expected to be required. However, only the U.S. Army Corps of Engineers can make final official jurisdictional determinations. If

wetlands cannot be avoided, matting and other temporary protective measures would be used, and proper permits would be obtained. No permanent loss of waters of the U.S., including wetlands, would occur from the Corona Wind North Gen-Tie System based on the following protection measures.

5.7.3 Protection Measures

Protection measures that would be implemented to reduce potential impacts to water resources during construction include:

Water-1: Develop and implement a SWPPP. The SWPPP will include measures such as: silt barrier fences to control runoff, sediment traps and basins, and minimizing exposed soils by using temporary and permanent seeding and mulching.

Water-2: Disturbed areas will be restored to their original condition to the extent practicable. Seed mix and seeding rates will be developed through consultation with the local agency and landowner preference.

Water-3: Equipment will be properly maintained to avoid fluid leaks.

Water-4: Fuels and petroleum will be stored away from excavated areas.

Water 5: Spills will be cleaned up immediately.

Water-6: Matting and other temporary protective measures will be used on wetlands that cannot be avoided.

Water-7: Impacts will be evaluated against the requirement of the U.S. Army Corps of Engineers for coverage under the Nationwide Permit (NWP) Program.

Water-8: Establish an appropriate buffer zone around wetlands, as necessary to reduce disturbance.

5.7.4 Conclusion

Based on the limited amount of water resources in the vicinity; avoidance of water resources; and the protection measures detailed above, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair water resources.

5.8 Flora and Fauna

5.8.1 Methods and Impact Types

Assessment of impacts to biological resources from construction, operation, and maintenance of the Corona Wind North Gen-Tie System follows the impact assessment methodology described in Section 5.1 above and is discussed below. Construction and maintenance impacts would be generally short-term and temporary. Operation impacts would be low for biological resources; a small amount of permanent habitat loss would occur due to the permanent footprint of transmission line structures and substation and switchyard components.

5.8.2 Impacts Specific to the Corona Wind North Gen-Tie System

The Corona Wind North Gen-Tie System Study Corridor is dominated by open grasslands. Plant and wildlife species adapted to shortgrass lands are present within the Corona Wind North Gen-Tie System Study Corridor.

Increased noise and equipment movement during construction might temporarily displace wildlife species from the area in which construction is occurring. These impacts are considered low and short-term. Most wildlife movements would be expected to resume to preconstruction levels a short time after construction is completed. Potential long-term impacts include those resulting from habitat modifications and/or fragmentation. The Joint Applicants would work to minimize potential habitat fragmentation by paralleling the project transmission lines with existing linear features (e.g., road and existing transmission lines) and avoid paralleling water features (such as streams or wetlands) when feasible. Construction activities might also impact plants and small, immobile, or fossorial (living underground) animal species through direct impact or from the alteration of local habitats. Direct impact on these species might occur due to equipment or vehicular movement on the ROW or due to the compaction of the soil if the species is fossorial. Potential impacts of this type would likely be low and isolated to individuals. Population-level impacts are not likely. Therefore, low impacts to local wildlife populations may occur due to habitat disturbance and localized potential for direct mortality to individuals during construction.

5.8.2.1 Federally and State Listed Species

Two animal species that are federally listed under the ESA may potentially occur in the Corona Wind North Gen-Tie System Study Corridor (USFWS, 2022b). The Mexican spotted owl is listed as federally threatened and is currently protected under the ESA; the monarch butterfly is listed as a federal candidate species which is not currently protected under the ESA. State-listed endangered or threatened wildlife species identified for Torrance County include peregrine falcon, bald eagle, southwestern willow

flycatcher, and Baird's sparrow (NMDGF, 2022). The peregrine falcon, a state-threatened species, is likely to occur in the Corona Wind North Gen-Tie System Study Corridor as an occasional year-round resident and migrant. Potential bald eagle occurrence within the Corona Wind North Gen-Tie System Study Corridor would be infrequent, due to the lack of large trees for perching and lack of optimal foraging habitat. However, bald eagles may occur occasionally as migrants or transient wintering birds, and grasslands and ponds in the Corona Wind North Gen-Tie System Study Corridor and Corona Wind North Generation area may attract foraging bald eagles. The Corona Wind North Project Study Area is outside the breeding range of Baird's sparrow, but the species may occur in the Study Area during migration. The southwestern willow flycatcher is not likely to occur within the Corona Wind North Gen-Tie System Study Corridor due to lack of breeding habitat, but the species may migrate through the region.

The Corona Wind North Gen-Tie System Study Corridor is currently dominated by shortgrass prairie. Unaltered native habitats are sparse due to land use practices, such as grazing. If any species or suitable habitat for threatened and endangered species is identified during a field survey, The Joint Applicants would further coordinate with USFWS and NMDGF to determine avoidance or minimization strategies, if necessary. Impacts to federal and state protected species would be low based on low potential for species occurrence; the limited amount and quality of species habitat present; and short construction duration for the Corona Wind North Gen-Tie System.

5.8.2.2 Raptors, Eagles, and Birds

Raptor, eagle, and migratory bird species are known to use the Corona Wind North Gen-Tie System Study Corridor for breeding, foraging, and migration (WEST, 2017b). If construction occurs during bird nesting season, potential impacts could occur to migratory bird eggs and/or nestlings. Increases in noise and equipment activity levels during construction could also potentially disturb breeding or other activities of bird species nesting in adjacent areas. The Joint Applicants propose to complete all clearing and construction activities to reduce potential impacts and in compliance with the Migratory Bird Treaty Act (MBTA). Pre-construction MBTA surveys would be completed by The Joint Applicants and/or construction activities would occur outside of breeding seasons for MBTA protected species. Furthermore, in accordance with the BGEPA, The Joint Applicants would avoid placing transmission lines near active eagle nests. Construction activities would also be limited to a safe distance around active nests. Nests identified during preconstruction surveys and are determined active would be flagged for an established protection buffer.

The Corona Wind North Gen-Tie System can present additional hazards to birds due to electrocutions and/or collisions. However, no electrocution risk to perching birds would apply to the 345-kV transmission line, given the phase-to-phase and phase-to-ground clearances (Avian Power Line Interaction Committee [APLIC], 2018). Potential water resources are limited to stock ponds and intermittent drainages that may be inundated during wet seasons. A number of birds may migrate through the area, but few waterbirds or waterfowl potentially at risk of overhead line collisions would occur in the Corona Wind North Gen-Tie System Study Corridor (APLIC, 2018). Collision risks to waterbirds or waterfowl would only apply during wet periods during the spring and fall migration as migrating birds may descend or ascend to access stopover habitats.

The Joint Applicants would follow Avian Power Line Interaction Committee (APLIC) guidance to implement measures to minimize collision risk with proper siting, and electrocution risk with proper transmission line engineering design. The electrocution risk to birds should not be significant since the engineering design distance between conductors, conductor to structure, or conductor to ground wire for the proposed transmission line is greater than the wingspan of any bird potentially within the area (i.e., greater than 8 ft). While the conductors are typically thick enough to be seen and avoided by birds in flight, the shield wire (upper most wire) is thinner and can present a risk for avian collision. In areas of greater risk (e.g., near wetlands) for avian collisions, The Joint Applicants would install bird diverters to minimize collision risk for avian species.

5.8.3 Protection Measures

Protection measures that would be implemented to reduce any potential negative biological resource impacts from construction activities include:

Bio-1: Properly disposing of trash and food debris in secured containers.

Bio-2: Allowing wildlife that has entered the work area to leave the area on their own.

Bio-3: Providing environmental awareness training to all construction personnel working on the Project.

Bio-4: Checking for wildlife under vehicles and equipment that have been stationary for more than 1 hour and each morning prior to moving or operation.

Bio-5: Checking trenches, excavations, and uncapped pipe segments for wildlife.

Bio-6: Complying with posted speed limits.

Bio-7: Conducting tree/vegetation clearing outside the nesting season where feasible, to discourage birds from establishing nests in Project work areas.

Bio-8: Conducting pre-construction nest surveys prior to initiating construction activities, unless vegetation clearing has been completed prior to the nesting season.

Bio-9: Establishing an appropriate buffer zone around occupied raptor nests, as necessary to minimize disturbance.

Bio-10: Design transmission line facilities to APLIC guidance or similar in order to minimize electrocution and collision risk.

Bio-11: Micrositing will be completed during engineering design to avoid sensitive biological resources.

Bio-12: Setbacks from sensitive biological resources will be implemented to protect species habitat and time critical periods (e.g., breeding season).

Bio-13: Install bird diverters near areas with increased risk for avian-collision, to minimize collision risk for avian species.

5.8.4 Conclusion

Based on the amount of disturbed habitat, landscape dominated by grazed grassland, the lack of quality species habitat, and low likelihood for federal and state protected species to occur in the vicinity, as well as the protection measures detailed above, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair biological resources.

5.9 Archaeological and Historic-Age Cultural Resources

This section is intended to support the Application for Location Approval of Transmission Line under NMAC Title 17 Chapter 9 Part 592. The power generation portion of the project, occurring within the Corona Wind North Generation area, would, as a whole, avoid or minimize impacts to environmental resources.

The amount of ground that could be disturbed as a result of the Corona Wind North Gen-Tie System was estimated based on the typical design characteristics of this 345-kV line. Short-term disturbance estimates included structure work areas for the staging and installation of the transmission line structures as well as the conductor pulling and tensioning sites. Long-term disturbance estimates included structure base areas

and associated access roads. Qualitative and quantitative variables of resource sensitivity, resource quantity, and estimated ground disturbance were considered in predicting the extent and magnitude of impacts. What constitutes an impact level on a resource varies by resource as well as the assumptions for analysis for each resource. Protection measures were identified and include action that will reduce potential impacts to a resource from the Corona Wind North Gen-Tie System.

5.9.1 Methods and Impact Types

Assessment of impacts to archaeological and historic-age cultural resources from the Corona Wind North Gen-Tie System construction, operation, and maintenance follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally low, avoidable, short term, and temporary in nature for archaeological and historic-age cultural resources. Cultural resources surveys would be completed for all areas of anticipated ground disturbance for the Corona Wind North Gen-Tie System prior to any ground disturbance on public as well as private property.

5.9.2 Impacts Specific to the Corona Wind North Gen-Tie System

Thirteen archaeological sites and one HCPI resource are reported within the Corona Wind North Gen-Tie System Study Corridor. Impacts to known locations of cultural resources would be low because the Corona Wind North Gen-Tie System is intended to be designed around these areas. Cultural resource field surveys would be completed prior to any construction activity to reduce potential impacts from the Corona Wind North Gen-Tie System to unlocated sites. Any discoveries which may occur during construction would be managed through an UDP.

5.9.3 Protection Measures

Protection measures that would be implemented to the extent practicable to reduce any potential negative cultural, historic, and archaeological impacts from construction activities include:

Cul-1: The Corona Wind North Gen-Tie System will be designed to avoid known sites.

Cul-2: Cultural surveys in known areas of ground disturbance for the Corona Wind North Gen-Tie System will be completed ahead of construction. No ground disturbance activities will be completed prior to cultural survey work being completed.

Cul-3: If sites are found at the location of planned infrastructure, micrositing techniques will be used to move around and/or span sites to the greatest extent practicable.

Cul-4: Follow a UDP, providing protection for unknown sites.

5.9.4 Conclusion

Based on the protection measures listed above, the proposed location of the Corona Wind North Gen-Tie System would not unduly impair cultural, historic, and archaeological resources. Impacts to cultural resources are expected to be *de minimis*, if at all.

5.10 Religious and Cemetery Sites

5.10.1 Methods and Impact Types

Assessment of impacts to religious and cemetery sites from construction, operation, and maintenance of the Corona Wind North Gen-Tie System follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally low, avoidable, short term, and temporary in nature for religious resources.

5.10.2 Impacts Specific to the Corona Wind North Gen-Tie System

One cemetery is reported within the Corona Wind North Gen-Tie System Study Corridor. No impacts to known locations of religious resources are expected to occur. Cultural resource field surveys would be completed prior to any construction activity to identify previously unrecorded religious and cemetery sites and reduce potential impacts from the Corona Wind North Gen-Tie System. Siting of the Corona Wind North Gen-Tie System would follow industry standard siting guidelines.

5.10.3 Protection Measures

Protection measures that would be implemented to reduce any potential negative impacts to religious and cemetery sites from construction activities include:

Rel-1: The Corona Wind North Gen-Tie System will be designed to avoid known religious and cemetery sites.

Rel-2: Cultural surveys in known areas of ground disturbance for the Corona Wind North Gen-Tie System will be completed ahead of construction. No ground disturbance activities will be completed prior to cultural survey work being completed.

Rel-3: If sites are found at the location of planned infrastructure, micrositing techniques will be used to move around and/or span sites to the greatest extent practicable.

Rel-4: Follow a UDP, providing protection for unknown religious and cemetery sites.

5.10.4 Conclusion

Based on the protection measures listed above, the proposed location of the Corona Wind North Gen-Tie System would not unduly impair religious or cemetery sites.

5.11 Visual and Scenic Resources

This section is intended to support the Application for Location Approval of Transmission Line under NMAC Title 17 Chapter 9 Part 592. The power generation portion of the Project, occurring within the Corona Wind North Generation area, would, as a whole, avoid or minimize impacts to environmental resources. Although studies have been conducted on the Corona Wind North Generation area, that portion of the Project previously described in the Existing Conditions section is not required by NMAC 17.9.592.10 to be analyzed within this ER.

Qualitative and quantitative variables of resource sensitivity, resource quantity, and estimated ground disturbance were considered in predicting the extent and magnitude of impacts. What constitutes an impact level on a resource varies by resource as well as the assumptions for analysis for each resource. Protection measures were identified and include action that will reduce potential impacts to a resource from the Corona Wind North Gen-Tie System.

5.11.1 Methods and Impact Types

Assessment of impacts to visual and scenic resources from construction, operation, and maintenance of the Corona Wind North Gen-Tie System follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Construction, operation, maintenance of the Corona Wind North Gen-Tie System would introduce new features into the visual landscape. The Corona Wind North Gen-Tie System was evaluated to determine whether the following types of impacts would occur:

- Proximity of the Corona Wind North Gen-Tie System to residences and residential areas.
- Changes to the visual landscape with respect to scenic resources, such as scenic byways.
- Changes to the visual landscape within or near recreational areas such as state and national parks.

5.11.2 Impacts Specific to the Corona Wind North Gen-Tie System

New transmission structures, conductors, substation components, and cleared ROW areas would change the visual characteristics in the vicinity and the viewshed of the Corona Wind North Gen-Tie System. However, the Corona Wind North Gen-Tie System would not differ from other transmission lines and substations in the vicinity. For residences located near the Corona Wind North Gen-Tie System and residents traveling area roads, a new man-made feature would be present in the landscape. Residents of

homes along the line would be most prone to changes in the visual environment around their homes. Impacts would likely be low based on the low population density. However, the visual sensitivity to the line would be highly dependent on the orientation of the line to the home (in front, behind, alongside), any screening between the home and the line (trees, topography), distance, other visual components (existing lines, radio towers), and the general sensitivity of the occupants in the vicinity of the Corona Wind North Gen-Tie System.

Visual impacts resulting from the construction and operation of the proposed substations are anticipated to have similar impacts to those associated with the construction and operation of the proposed transmission lines. Each new substation would be an added visual element in the existing landscape.

One designated federal byway is in the vicinity of the Corona Wind North Gen-Tie System Study Corridor (NMDOT, 2012a; FHWA, 2022) (Exhibit 15). The nearest federal byway is Historic Route 66 National Scenic Byway which is co-located with I-40 approximately 0.7 mile north of the northernmost point of the proposed route of the Corona Wind North Gen-Tie System. The transmission line is not expected to impact the scenic values of the route.

No national parks or state parks are in the vicinity of the Corona Wind North Gen-Tie System Study Corridor. The closest national park is the Gran Quivira Unit of Salinas Pueblo Missions National Monument, which is approximately 29 miles southwest of the Study Corridor (NPS, 2021a). There are no BLM-managed sites or National Parks Service (NPS) National Natural Landmarks within 50 miles of the Corona Wind North Gen-Tie System Study Corridor (BLM, 2022a; NPS, 2021b). The nearest state parks are Villanueva State Park, Manzano Mountains State Park, Sumner Lake State Park, and Santa Rosa Lake State Park, all of which are located more than 35 miles from the Corona Wind North Gen-Tie System Study Corridor (NMEMNRD, 2021). The only known visually sensitive resources within proximity to the Corona Wind North Project Study Area are the 3-mile-wide corridors around I-40, U.S. Routes 60, 285, and 84, and New Mexico State Route 219, which are indicated as having moderate to high VRI index values for Maintenance of Visual Quality (BLM, 2022c). Organized tourism activities in or near the Corona Wind North Gen-Tie System Study Corridor may include Historic Route 66 tours.

5.11.3 Protection Measures

Protection measures that would be implemented to reduce any potential negative visual impacts from construction activities include:

- Vis-1:** Leave (where possible) plants smaller than 8 ft in height within the 180-foot-wide ROW to help reduce the effect of the ROW of visual and aesthetic resources.

Vis-2: Keep the ROW free of construction debris and other litter during construction to further reduce visual intrusion to the surrounding landscape.

Vis-3: The design of the buildings and related structures shall, to the extent reasonably possible, use materials, colors, textures, screening and landscaping that will blend the facility into the natural setting and existing environment.

Vis-4: No individual tower facility shall be installed at any location that would substantially detract from or block the view of the major portion of a recognized scenic vista, as viewed from any public road ROW or publicly accessible parkland or open space within the County.

Vis-5: As a condition of approval of a special use district for a Wind Energy Facility, within one year of the termination or abandonment of leases, easements or operations of a Wind Energy Facility, the permittee shall cause, at its own expense, the restoration of the land to its pre-facility condition.

5.11.4 Conclusion

Based on low visual impacts due to low population and long distances to sensitive visual areas such as scenic byways and parks, as well as the protection measures detailed above, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair visual resources.

5.12 Land Use, Including Farm, Range, and Recreational Resources

5.12.1 Impact Assessment Methods

Assessment of impacts to land uses from construction, operation, and maintenance of the Corona Wind North Gen-Tie System follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. A land use impact is one that restricts the future use of land or conflicts with an existing use. The Corona Wind North Gen-Tie System tends to restrict certain activities but may or may not change the land use. Construction, operation, and maintenance of the Corona Wind North Gen-Tie System would result in both direct and indirect impacts to land use. For schools and recreational resources, impacts are generally low, short term, and temporary in nature. The Corona Wind North Gen-Tie System was evaluated to determine whether the following types of impacts would occur:

- Temporary and permanent land use changes.
- Restrictions on activities within the ROW.
- Inconsistency with local land use plans and zoning.

- Removal of land from future development.
- Potential use restrictions or conflicts on public lands.

5.12.2 Impacts Specific to the Corona Wind North Gen-Tie System

5.12.2.1 Agricultural Land Use Impacts

The lands crossed by the Corona Wind North Gen-Tie System Study Corridor are used for agricultural purposes. Long-term land use impacts to grassland, cropland, and pasture primarily would be the result of structure placement, ROW maintenance, and access roads. Current agricultural practices would be maintained for most of the ROW. Areas of cropland within the ROW could continue to be farmed, and grazing could continue within the ROW. The only land that would be unavailable for agriculture would be the area occupied by actual transmission structures. Structures would be approximately 3 to 5 ft in diameter at ground level depending on the type of structure. The permanent footprint of transmission line structures would be removed from production, and structures would present obstacles that would need to be avoided. The Joint Applicants would work with landowners to reduce impacts to irrigation facilities. However, overall, the Corona Wind North Gen-Tie System would result in minimal reduction in agricultural production or land available for agricultural activities.

Easements or ROWs have been or would be obtained from landowners along the route of the Corona Wind North Gen-Tie System for constructing and maintaining the line. The landowner would maintain ownership of the property and continue to pay taxes on the property, but The Joint Applicants would acquire rights allowing construction, operation, and maintenance of the Corona Wind North Gen-Tie System in exchange for a monetary payment to the landowner. The agreement between the landowner and The Joint Applicants would outline any use restrictions applying to the agreement. The agreement would include certain restrictions on the continued use of the property, such as prohibiting permanent structures and establishment of certain types of vegetation within the ROW that could affect access to the line or safe and reliable operation.

During construction and maintenance activities, agricultural lands would be subject to temporary impacts. Depending on the time of year, access for construction would result in damage to crops, compaction and rutting of soil, restrictions on access to the ROW, and restrictions on general agricultural practices in and around the ROW (such as prescribed burning of grassland pasture). Landowners would be compensated for crop and forage loss, and damaged soils would be restored to arable condition. Cattle may need to be re-located or confined away from the ROW areas of pasture during construction. Following completion of construction, disturbance and disruption to agricultural activities would largely cease. Periodic

maintenance activities and emergency repairs would result in impacts similar to those for construction. However, these activities would be infrequent over the life of the Project. Landowners would be compensated for any damage, and the ROW would be restored to previous conditions.

In addition to the ROW for the Corona Wind North Gen-Tie System, approximately four temporary laydown areas for construction material and equipment would be necessary for the duration of construction. These laydown areas each would be up to 20 acres in size each. Where feasible, construction laydown areas are typically located at previously disturbed or developed locations such as vacant lots, existing utility yards, or parking lots to reduce impacts to sensitive resources. If existing yard locations are not available, preferred locations for yards would be undeveloped areas, such as grazing or cropland, that are cleared, flat, have all-weather access, and do not contain streams, wetlands, or other environmentally sensitive resources. Laydown yards would typically consist of flat or gently sloping lands where much of the construction material would be placed on pallets or cribbing. No topsoil would be removed, and minimal, if any, re-grading is expected to take place at these facilities. Laydown areas generally would be returned to a pre-construction condition upon completion of the Corona Wind North Gen-Tie System.

Up to six step-up substations and an adjacent switchyard would also be constructed. Construction would take place on up to approximately 20 acres of land per substation/switchyard and would result in the permanent conversion of this area from agricultural land to utility land use.

5.12.2.2 Land Use Plans and Regulations

As part of Torrance County's Goals and Objectives in the Torrance County CLUP, the potential for wind and solar generated power is encouraged in order to improve and expand Torrance County-wide infrastructure to enhance the quality of life and support economic development (Mid-Region Council of Governments of New Mexico, 2003). The Torrance County Zoning Ordinance encourages the development of businesses that harness wind energy (The Board of County Commissioners of Torrance County, 2020). Special Use Districts for Wind Energy Facilities are established to foster the development of the county's wind power resources while preserving traditional land uses.

5.12.2.3 Public Lands

The Corona Wind North Gen-Tie System may cross state trust lands, depending on the final route. An easement to cross these state lands would be needed from the New Mexico SLO for these portions of the Corona Wind North Gen-Tie System. If an easement is needed across state trust lands, The Joint Applicants would coordinate with the SLO to develop an agreement that is consistent with the SLO's

development of state trust lands, per its planning requirements. Applications have or will be submitted to SLO for all of the Corona Wind North Project footprint (including the Corona Wind North Gen-Tie System).

5.12.2.4 Schools

No direct or indirect impacts to schools would occur as a result of the construction, operation, and maintenance of the Corona Wind North Gen-Tie System. Corona Public Schools are located about 7 miles south of the Corona Wind North Gen-Tie System Study Corridor. Siting of the Corona Wind North Gen-Tie System would follow industry standard siting guidelines.

5.12.2.5 Recreation

No direct or indirect impacts on state or county recreation lands, local parks, trails, or hunting access lands would occur as a result of the construction, operation, and maintenance of the Corona Wind North Gen-Tie System. There are no parks and recreational areas in close proximity to the Corona Wind North Gen-Tie System Study Corridor. Existing recreational opportunities would continue as they currently exist with minor, temporary disturbances possible during construction.

5.12.3 Protection Measures

Protection measures that would be implemented to reduce any potential negative land use impacts include:

Land-1: Coordinate with landowners for potential measures, including routing, to reduce Project impacts on uses on specific properties.

Land-2: Coordinate with appropriate state land management agencies to obtain appropriate permits and easements for portions of the transmission line traversing public lands.

Land-3: Plan and conduct construction activities to reduce temporary disturbance, displacement of crops, and interference with agricultural activities.

Land-4: Restore compacted cropland soils as close as possible to pre-construction conditions using tillage.

Land-5: Compensate landowners for any new land rights required for ROW or access road easements.

Rec-1: Plan and conduct construction activities to reduce temporary disturbance, displacement of recreationists, and interference with recreation activities.

5.12.4 Conclusion

Based on the compatibility of the Corona Wind North Gen-Tie System with the current land uses, impacts to land uses would be largely temporary and limited in area during construction. The large majority of the Corona Wind North Gen-Tie System would remain in its pre-existing use. With inclusion of the protection measures detailed above, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair land use resources.

Based on no direct or indirect impacts to schools and no direct or indirect impacts on state or county recreation lands, local parks, trails, or hunting access lands as a result of the construction, operation, and maintenance of the transmission line, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair school or recreation resources.

5.13 Socioeconomics

5.13.1 Impact Assessment Methods

Assessment of impacts to socioeconomic resources from construction, operation, and maintenance of the Corona Wind North Gen-Tie System follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Socioeconomic resources include elements of the human environment, such as population characteristics, employment and other economic factors, public services, and housing. Construction and operation of the Corona Wind North Gen-Tie System would result in both direct and indirect socioeconomic impacts, most of which are positive impacts. Potential socioeconomic impacts include:

- Generation of economic activity from jobs, earnings, and economic output.
- Temporary increase in demand and spending for local goods, services, and construction materials from construction of the Corona Wind North Gen-Tie System.
- Temporary increase in population from the influx of construction workers.
- Temporary increase in demand for temporary lodging facilities from the influx of construction workers.
- Temporary disruptions (such as temporary traffic changes or noise) to nearby residents during construction.

5.13.2 Impacts Specific to the Corona Wind North Gen-Tie System

The economic and fiscal impacts of the Corona Wind North Project would make a significant contribution to the economic base of Guadalupe, San Miguel, and Torrance Counties with both short-term development activities, and long-term contributions to the regional economy.

Direct, indirect, and induced economic benefits to the local community from the Corona Wind North Project are comparable to the recently approved Western Spirit Wind Project. In the 2020 *Report on the Economic and Fiscal Impacts of the Western Spirit Wind Project, New Mexico*, the Western Spirit Wind Project's estimate of direct economic impacts during the development and construction periods is about \$179 million, and an estimated \$302 million after accounting for economic multiplier impacts (Moss Adams LLP, 2020). The Western Spirit Wind Project consists of the development of 1,051 MW of new wind energy facilities and associated high-voltage transmission lines; comparatively, the Joint Applicants are proposing to construct and operate up to 1,500 MW of new wind energy facilities and associated high-voltage transmission lines. The Joint Applicants expect economic impacts from the Corona Wind North Project to be larger than those presented in the Western Spirit Wind report.

The Corona Wind North Project aligns directly with several of the specific goals of the New Mexico State Energy Plan. A significant attribute of the Corona Wind North Project is the development of the SunZia Transmission Project transmission facilities. Moreover, several other objectives of the State Energy Plan are achieved by the Corona Wind North Project and related developments, including:

- Supporting regional energy policy, infrastructure, and development pathways and solutions.
- Ensuring that sound science and economics, as well as the availability of energy resources drive state energy policy decisions.
- Focus on economic growth, diversification, and private sector job creation.
- Consider appropriate incentives that would increase market potential and competitiveness with other states in the West.
- Accelerate reduction of freshwater consumption in the energy sector.
- Establish the energy foundation of new and improved infrastructure in electric power transmission.

Development of electric generation facilities comprising the Corona Wind North Project offers New Mexico highly desirable economic development investments. Investments in these wind generation and transmission facilities stimulate substantial growth in the renewable energy sector and foster an economic development climate that broadens the state's long-standing role as a sustainable participant in the energy

marketplace. Facilities within the Corona Wind North Gen-Tie System and Corona Wind North Generation would not displace or capture existing commercial energy market activities. Instead, these investments would create new economic development in its exportation of environmentally preferred New Mexico energy resources.

Once operational, the economic benefits and revenue streams would be a stable foundation of economic activity anticipated for at least the 30-year life of the Corona Wind North Project and the Corona Wind North Project's financing and would likely continue beyond that time. Additionally, the Corona Wind North Project establishes a new economic infrastructure that would likely foster further developments of a similar nature.

5.13.3 Protection Measures

Protection measures that would be implemented to reduce potential negative socioeconomic impacts from construction activities include:

Socio-1: Work with individual landowners to coordinate the timing of construction to minimize short-term impacts on agriculture.

5.13.4 Conclusion

The Corona Wind North Gen-Tie System and Corona Wind North Generation would develop a relatively new and under-developed economic resource in the state of New Mexico—wind energy—that would be directly exported from the state with the development and operation of the Corona Wind North Project. Aside from the technology, innovation and capital investments developed in conjunction with the Corona Wind North Project, this development creates new economic activity, value, and opportunity within New Mexico, which would be exported from the state. This is a highly valuable attribute of the Corona Wind North Project, as it would not displace or capture existing commercial activities, but, instead, would create the most desirable form of economic development in its exportation of environmentally preferred New Mexico energy resources. In short, the Corona Wind North Project would create new economic value from economic activities that are not currently a part of the New Mexico economy.

5.14 Communication Signals

5.14.1 Impact Assessment Methods

Assessment of impacts to communication signal resources from construction, operation, and maintenance of the Corona Wind North Gen-Tie System follows the impact assessment methodology described in

Chapter 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally avoidable for communication signal resources.

5.14.2 Impacts Specific to the Corona Wind North Gen-Tie System

The Corona Wind North Gen-Tie System is planned to avoid beam paths. Siting of the Corona Wind North Gen-Tie System would be completed outside of existing, known fresnel zones and would avoid inference with communication pathways. A number of signaling structures was identified within 35 miles of the Corona Wind North Gen-Tie System Study Corridor and can be found in Table 4-18. The Corona Wind North Gen-Tie System would avoid AM and FM station towers to the extent practicable if new tower facilities are developed.

5.14.3 Protection Measures

Protection measures that would be implemented to reduce potential negative communication signal impacts from construction activities or operation include:

Comm-1: The Joint Applicants shall minimize or mitigate any interference with electromagnetic communications, such as radio, telephone or television signals caused by any wind energy facility.

Comm-2: No individual tower facility shall be installed in any location where its proximity with fixed broadcast, retransmission or reception antenna for radio, television or wireless phone or other personal communications systems would produce electromagnetic interference with signal transmission or reception.

5.14.4 Conclusion

Microwave path and AM and FM station towers would be avoided to the extent practicable; therefore, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair communication signals.

5.15 Radioactive Waste and Radiation Hazards

Electric transmission line and substation infrastructure do not generate or contain radioactive waste or radiation hazards. The Corona Wind North Gen-Tie System would not generate radioactive waste or radiation hazards, and therefore are not addressed further in this ER.

5.16 Hazardous Materials

5.16.1 Impact Assessment Methods

Assessment of impacts from hazardous materials resulting from construction, operation, and maintenance of the Corona Wind North Gen-Tie System follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Accidental spill of hazardous materials could occur with the construction, operation, and maintenance of the Corona Wind North Gen-Tie System. This hazard is described in more detail below.

5.16.2 Impacts Specific to the Corona Wind North Gen-Tie System

During construction, use of trucks, heavy equipment, or stored supplies could result in accidental discharge of fuel, lubricants, and automotive fluids. Although the potential exists, any spills would be accidental, occasional, and of limited extent, and would be considered minor to negligible and temporary in duration. A SPCC Plan would be prepared by the Joint Applicants and would contain information regarding training, equipment inspections, maintenance and repair, spill prevention kits, and refueling operations for construction vehicles, with an emphasis on preventing spills. Hazardous materials would not be drained onto the ground or into streams or drainage areas. All construction waste including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials would be removed to a disposal facility authorized to accept such materials weekly.

5.16.3 Protection Measures

Protection measures that would be implemented to reduce any potential negative hazardous materials impacts include:

Haz-1: Prepare a SPCC Plan.

Haz-2: Hazardous materials will not be drained onto the ground or into streams or drainage areas.

Haz-3: Construction waste including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials will be removed to a disposal facility authorized to accept such materials weekly.

5.16.4 Conclusion

Impacts from hazardous materials would be avoided through the implementation of proper construction practices, development and implementation of a SPCC Plan, as well as the protection measures detailed

above; therefore, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair important environmental resources from hazardous materials.

5.17 Safety

5.17.1 Impact Assessment Methods

Assessment of impacts to safety from construction, operation, and maintenance of the Corona Wind North Gen-Tie System follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Safety concerns that can arise from construction, operation, and maintenance are described in more detail below.

5.17.2 Impacts Specific to the Corona Wind North Gen-Tie System

The Joint Applicants would develop a safety plan prior to construction to manage and reduce safety risk. Speed limits would be posted and followed to reduce traffic safety concerns on roadways. Proper construction practices would be followed to reduce injury to personnel and damage to property. In the unforeseen event that a safety issue arises, the Joint Applicants' safety plan would have procedures in place to address most safety situations. The Joint Applicants will comply with all manufacturer specifications and relevant Occupation Safety and Health Administration requirements to ensure the safety of residents, employees, contractors, livestock, the public, and other users of the land.

Construction of the Corona Wind North Gen-Tie System could cause wildfire ignition. O&M activities (e.g., welding, vehicle ignition) and the presence of energized transmission line facilities (e.g., arc ignition) could also cause wildfire ignition. The Joint Applicants and/or their contractors would notify federal, state, and local agencies of any fires and comply with all rules and regulations administered by the federal, state, and local land management agencies concerning the use, prevention, and suppression of fires, including any fire prevention orders that may be in effect at the time of the construction, operation, or maintenance activity. Additionally, local emergency responders and fire districts will be contacted to ensure appropriate plans are in place at the Corona Wind North Project to quickly respond to any emergencies. The Joint Applicants will work with the departments to ensure the safety of the firefighters, Corona Wind North Project employees, landowners, neighbors, livestock, and other users of the land. The Corona Wind North Project will have emergency response plans in place to respond to various natural disasters, even though the Corona Wind North Gen-Tie System generally is not considered to be a high-risk site. An annual emergency response drill, in which local responders will be invited to participate, will be completed onsite to test the Corona Wind North Project's emergency preparedness.

Within the Corona Wind North Gen-Tie System and Corona Wind North Generation, safety risks will be reduced as electrical substations and transformers will be located inside locked fences or enclosures and will be clearly marked to show that energized electrical equipment is located inside. In addition, The Joint Applicants will man a 24/7 monitoring center to monitor the substation and turbines. There will be signage on the substation fences with the monitoring center's phone number. Modern wind turbines are inherently unclimbable by the general public since there are no exterior ladders or lattice work and interior ladders are secured behind locked doors located at the bases of the turbine towers.

5.17.3 Protection Measures

Protection measures that would be implemented to reduce any potential safety impacts include:

Safe-1: The Joint Applicants and their contractors, as appropriate, will initiate discussions with local fire districts and regional fire prevention staff prior to construction to discuss emergency procedures and to provide transmission line safety training, including safety procedures for conducting fire suppression activities near a power line.

Safe-2: All vehicles will be equipped with appropriate fire suppression tools and equipment. Fire suppression equipment will include, but not be limited to, shovels, buckets, and fire extinguishers.

Safe-3: Smoking and equipment parking will be restricted to designated areas.

Safe-4: The Joint Applicants and/or their contractors will fuel all highway-authorized vehicles offsite to minimize the risk of fire. Fueling of construction equipment that is transported to the site via truck and is not highway authorized will be done in accordance with regulated construction practices and federal, state, and local laws.

Safe-5: The Joint Applicants will develop a safety plan prior to construction. The plan will include items such as medical emergency facilities and procedures, wildlife agency contacts and procedures, and inclement weather procedures.

Safe-6: Appropriate warning signage shall be placed on wind turbine towers, electrical equipment, and wind energy facility entrances.

Safe-7: To the extent practicable, the facility shall connect to existing substations, or if new substations are needed, minimize the number of new substations.

Safe-8: Electrical controls and control wiring and power lines shall be wireless or underground, except where wind farm collector wiring is brought together for connection to the transmission or distribution network, adjacent to that network.

5.17.4 Conclusion

Impacts from unsafe events would be reduced through the implementation of proper construction practices, as well as the protection measures detailed above; therefore, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair important environmental resources because of safety concerns.

5.18 Geographic Resources

5.18.1 Impact Assessment Methods

Assessment of impacts to geographic resources from construction, operation, and maintenance within the Corona Wind North Gen-Tie System follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. The Corona Wind North Project Study Area is in the Great Plains and the Basin and Range physiographic provinces of New Mexico (NPS, 2017). Geographic resources identified in the region include state and national parks and monuments. The Corona Wind North Gen-Tie System was evaluated to determine whether the following types of impacts would occur:

- Diminishment of scenic resources within and from state or national parks and monuments by the addition of man-made elements to the natural landscape.
- Introduction of noise/air pollution to state or national parks and monuments.

5.18.2 Impacts Specific to the Corona Wind North Gen-Tie System

As discussed in Section 5.11, there are no national parks or state parks in the vicinity of the Corona Wind North Gen-Tie System Study Corridor. The closest national park is the Gran Quivira Unit of the Salinas Pueblo Missions National Monument, which is approximately 29 miles southwest of the Corona Wind North Gen-Tie System Study Corridor. The closest state parks are Villanueva State Park, Santa Rosa Lake State Park, Sumner Lake State Park, and Manzano Mountains State Park, all located more than 35 miles from the Corona Wind North Gen-Tie System Study Corridor. Construction of the Corona Wind North Gen-Tie System would result in minor emissions from construction vehicles and activities but would not impact the overall air quality in the region, including the national and state parks. Noise impacts (such as from construction activities) would be highly localized and would not impact noise level at the national or state parks.

As discussed in Section 5.9, thirteen archaeological sites and one HCPI resource are reported within the Corona Wind North Gen-Tie System Study Corridor. Two of the sites have been determined eligible for inclusion in the National Register of Historic Places (NRHP), seven have been determined not eligible for NRHP inclusion, and four sites have no data or have not been assessed. The HCPI resource (31896) is the Atchison, Topeka and Santa Fe/BNSF Railroad and is eligible for NRHP inclusion. Impacts to known locations of cultural resources would be low because the Corona Wind North Gen-Tie System is intended to be designed around these areas. Cultural resource field surveys would be completed prior to any construction activity to reduce potential impacts to unlocated sites. Any discoveries which may occur during construction would be managed through a UDP.

5.18.3 Protection Measures

Due to no anticipated impacts to geographic resources, no protection measures are proposed.

5.18.4 Conclusion

Impacts to geographic resources would be avoided by the Corona Wind North Gen-Tie System to the extent practicable; therefore, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair geographic resources.

5.19 Military Activities and Aviation

5.19.1 Impact Assessment Methods

Assessment of impacts to military and aviation activities from construction, operation, and maintenance within the Corona Wind North Gen-Tie System follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally avoidable in nature for military activities and aviation.

5.19.2 Impacts Specific to the Corona Wind North Gen-Tie System

Three military training routes cross the Corona Wind North Gen-Tie System Study Corridor. The Joint Applicants would work with FAA to request DNH for the Corona Wind North Gen-Tie System. Based on the height of the transmission infrastructure and the location of military and aviation resources, the construction, operation, and maintenance within the Corona Wind North Gen-Tie System would not impact military activities and aviation.

5.19.3 Protection Measures

Protection measures that would be implemented to reduce any potential negative military or aviation impacts from construction activities include:

Mil-1: Coordinate with military bases and aviation facilities as needed.

Mil-2: Use FAA approved lighting as required.

5.19.4 Conclusion

Impacts to military activities and aviation resources would be avoided by the Corona Wind North Gen-Tie System to the extent practicable; therefore, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair military activities and aviation resources.

5.20 Roads

5.20.1 Impact Assessment Methods

Assessment of impacts to roads from construction, operation, and maintenance within the Corona Wind North Gen-Tie System follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally low, short term, and temporary in nature for roads.

5.20.2 Impacts Specific to the Corona Wind North Gen-Tie System

Potential impacts for roads would be greatest during construction of the Corona Wind North Gen-Tie System. Construction equipment and increased traffic have the potential to degrade existing road conditions. The Joint Applicants would document pre-construction road conditions and return roads used for construction access to pre-construction condition or better once construction is completed. Increased road traffic from construction would be localized and short term based on where construction is occurring that day or week. Low impacts to roads in the Corona Wind North Gen-Tie System Study Corridor are anticipated based on localized, short-term impacts, and the Joint Applicants' commitments to return roads used for construction to pre-construction conditions.

5.20.3 Protection Measures

Protection measures that would be implemented to reduce any potential negative road impacts from construction activities include:

Road-1: Pre-construction conditions will be documented, and the Joint Applicants will develop a road use agreement with NMDOT and the Road Maintenance Departments of Guadalupe, San Miguel, and Torrance Counties, as necessary.

Road-2: Construction speed limits will be established.

5.20.4 Conclusion

Based on localized, low, short-term impacts, and the Joint Applicants' commitments to return roads used for construction to pre-construction conditions, as well as the protection measures detailed above, it is not expected that the proposed location of the Corona Wind North Gen-Tie System would unduly impair roads.

6.0 CONSULTATION AND COORDINATION

The following individuals and materials have contributed to the preparation of the Joint Applicants' ER for the Corona Wind North Project.

6.1 List of Preparers and Reviewers

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- Paul Callahan, Project Principal
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- Allison Quiroga, Environmental Specialist
- Audrey Denton, Air and Noise Specialist
- Larry Karpov, GIS Specialist

6.2 Technical Reports Contributing to the Environmental Report

- Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell). 2022. "Desktop Wetland Evaluation, 2022 Corona Wind Update, Pattern SC Holdings LLC," letter report to Adam Cernea Clark, Pattern SC Holdings LLC, dated March 3, 2022.
- Moss Adams LLP. 2020. *Report on the Economic and Fiscal Impacts of the Western Spirit Wind Project, New Mexico*. Report issued December 2020.
- WEST, Inc. 2017a. *Critical Issues Analysis for the Proposed Ancho Wind Project*. Report issued March 2017.

- WEST, Inc. 2017b. *Critical Issues Analysis for the Proposed Cowboy Mesa Wind Project*. Report issued March 2017.
- WEST, Inc. 2017c. *Raptor Nest Survey, Pattern Wind Energy Project*. Report issued August 2017.

6.3 Recipients of the Environmental Report

- Guadalupe/San Miguel/Torrance County Board of County Commissioners
- Guadalupe/San Miguel/Torrance County Manager
- Guadalupe/San Miguel/Torrance County Road Superintendent
- Vaughn Town Council
- Mayor, Vaughn
- Vaughn Town Manager
- Encino Village Council
- Mayor, Encino
- Encino Village Manager
- Moriarty City Council
- Mayor, Moriarty
- Moriarty City Manager
- Estancia Town Council
- Mayor, Estancia
- Estancia Town Manager
- Santa Rosa City Council
- Mayor, Santa Rosa
- Santa Rosa City Manager
- Corona Public Schools
- Estancia Municipal Schools
- Vaughn Municipal Schools
- Moriarty Elementary/Middle/High School (Moriarty-Edgewood School District)
- Rita M. Marquez Elementary School (Santa Rosa Consolidated Schools)
- Anton Chico Middle School (Santa Rosa Consolidated Schools)
- New Mexico Environment Department
- New Mexico State Engineer
- New Mexico Attorney General

- New Mexico SLO

7.0 LITERATURE CITED

- AirNow. 2022. *U.S. Air Quality Index*. Accessed January 2022 from: <https://www.airnow.gov/>.
- American Cemeteries. 2022a. *Cemeteries of Guadalupe County, NM*. Accessed February 2022 from: <http://www.americancemeteries.org/new-mexico/guadalupe-county>.
- American Cemeteries. 2022b. *Cemeteries of San Miguel County, NM*. Accessed February 2022 from: <http://www.americancemeteries.org/new-mexico/san-miguel-county>.
- American Cemeteries. 2022c. *Cemeteries of Torrance County, NM*. Accessed February 2022 from: <http://www.americancemeteries.org/new-mexico/torrance-county>.
- Amtrak. 2022. *Amtrak Routes & Destinations: Southwest Chief*. Accessed January 2022 from: <https://www.amtrak.com/routes/southwest-chief-train.html>.
- Avian Power Line Interaction Committee (APLIC). 2018. *Eagle Risk Framework: A Practical Approach for Power Lines*. Edison Electric Institute and APLIC. Washington, DC.
<https://www.aplic.org/uploads/files/15798/APLICEagleRISKFramework-APracticalApproachforPowerLines-December132018FinalwAppendixPUBLIC.pdf>
- Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell). 2022. "Desktop Wetland Evaluation, 2022 Corona Wind Update, Pattern SC Holdings LLC," letter report to Adam Cernea Clark, Pattern SC Holdings LLC, dated March 3, 2022.
- Cavell Mertz & Associates, Inc. 2022. Publicly available Federal Communications Commission (FCC) data. Accessed January 2022 from: <http://www.fccinfo.com/>.
- City-Data. 2022. Accessed January 2022 from: www.city-data.com.
- Cornell Lab of Ornithology. 2022. *eBird* (online database). Accessed March 2022 from: <https://ebird.org/>.
- Digital Aviation LLC. 2021. *VFR Map*. Accessed December 2021 from: <http://vfrmap.com>.
- East Torrance Soil and Water Conservation District (SWCD). 2009. *East Torrance Soil and Water Conservation District Long Range Plan, July 1, 2009 - June 30, 2019*. Accessed December 2021 from: <http://easttorranceswcd.org/PDF/LongRangePlan0919.pdf>.
- Esri. 2022. GIS data for religious sites and cemeteries in Guadalupe, San Miguel, and Torrance Counties, New Mexico. Accessed February 2022 from <https://www.esri.com>.
- Federal Emergency Management Agency (FEMA). 2022. *Flood Map Service Center*. Accessed March 2022 from: <https://msc.fema.gov/portal/search>.
- Federal Highway Administration (FHWA). 2022. *America's Byways*. Accessed March 2022 from: <https://www.fhwa.dot.gov/byways/>.
- Federal Reserve Bank of St. Louis. 2022. *Federal Reserve Economic Data (FRED) Online Database*. Accessed January 2022 from: <https://fred.stlouisfed.org/series/NMURN#0>.

- Google Earth. 2022. Publicly available aerial imagery. Accessed March 2022 from: <https://www.google.com/earth/download>.
- Green, G.N., Jones, G.E., and Anderson, O.J. 1997. *The Digital Geologic Map of New Mexico in ARC/INFO Format: U.S. Geological Survey Open-File Report 97-0052*. Accessed January 2022 from <https://mrdata.usgs.gov/geology/state/fips-unit.php?code=f35019>.
- Heckert, A.B., and Lucas, S.G. 2015. *Triassic Vertebrate Paleontology in New Mexico*. New Mexico Museum of Natural History and Science Bulletin, vol. 68, p. 77-96.
- Hunt, A.P., and Santucci, V.L. 2001. *Paleontological Resources of Lake Meredith National Recreation Area and Alibates Flint Quarries National Monument, West Texas*. New Mexico Geological Society. Guidebook 52nd Field Conference, Geology of Llano Estacado, p. 257–264.
- Leonard, A.B., and Frye, J.C. 1978. *Paleontology of Ogallala Formation, Northeastern New Mexico*. New Mexico Bureau of Mines & Mineral Resources, Circular 161.
- Lucas, S.G. 1993. *The Chinle Group: Revised Stratigraphy and Biochronology of Upper Triassic Nonmarine Strata in the Western United States*. (v. 59, p. 27-50). Museum of Northern Arizona Bulletin.
- Lucas, S.G., Heckert, A.B., and Hunt, A.P. 2001. *Triassic stratigraphy, biostratigraphy and correlation in east-central New Mexico*. New Mexico Geological Society. Guidebook 52nd Field Conference, Geology of Llano Estacado, p. 85–102.
- Mid-Region Council of Governments of New Mexico. 2003. *Comprehensive Land Use Plan for Torrance County, New Mexico, August 2003*. Accessed December 2021 from: <https://www.mrcog-nm.gov/DocumentCenter/View/3124/Torrance-County-Comprehensive-Plan-August-2003-PDF>.
- Military Bases.com. 2021. *New Mexico Military Bases* (map). Accessed December 2021 from: <https://militarybases.com/new-mexico/>.
- Moss Adams LLP. 2020. *Report on the Economic and Fiscal Impacts of the Western Spirit Wind Project, New Mexico*. Report issued December 2020.
- Multi-Resolution Land Characteristics Consortium (MRLC). 2022. *2019 National Land Cover Database (NLCD)*. Accessed March 2022 from: <https://www.mrlc.gov/>
- National Audubon Society. 2022. *Important Bird Areas*. Accessed March 2022 from: <http://www.audubon.org/important-bird-areas>.
- National Park Service (NPS). 2017. *Physiographic Provinces*. Accessed December 2021 from: <https://www.nps.gov/subjects/geology/physiographic-provinces.htm>.
- NPS. 2021a. *Find A Park: New Mexico*. Accessed December 2021 from: <https://www.nps.gov/state/nm/index.htm>
- NPS. 2021b. *National Natural Landmarks Directory*. Accessed December 2021 from: <https://www.nps.gov/subjects/nlandmarks/nation.htm>.

- NatureServe. 2022. NatureServe Explorer. Accessed March 2022 from: <https://explorer.natureserve.org/Search>.
- New Mexico Avian Conservation Partners (NMACP). 2017. *Bald Eagle (Haliaeetus leucocephalus)*. Accessed March 2022 from: <http://avianconservationpartners-nm.org/wp-content/uploads/2017/01/Bald-Eagle.pdf>.
- New Mexico Cultural Resource Information System (NMCRIS). 2022. Accessed February 2022 from: <https://nmcris.dca.state.nm.us>.
- New Mexico Department of Game & Fish (NMDGF). 2022. *Biota Information System of New Mexico (BISON-M)*. Accessed March 2022 from: <https://bison-m.org/#>.
- NMDGF and Natural Heritage New Mexico (NHNM). 2013. *New Mexico Crucial Habitat Assessment Tool (NM CHAT)*. Accessed March 2022 from: <http://nmchat.org/data.html>.
- New Mexico Department of Transportation (NMDOT). 2012a. *Explore New Mexico's Scenic Byways*. Accessed December 2021 from: <https://www.dot.state.nm.us/content/nmdot/en/byways.html>.
- NMDOT. 2012b. *Interactive Transportation Maps*. Accessed January 2022 from: https://www.dot.state.nm.us/content/nmdot/en/Maps.html#m_par_text.
- New Mexico Economic Development Department (NM EDD). 2021. *County Economic Summaries & Data Profiles*. Accessed February 2022 from: <https://edd.newmexico.gov/site-selection/county-profiles/>.
- New Mexico Energy, Minerals and Natural Resources Department (NMEMNRD). 2021. *Find A Park*. Accessed December 2021 from: <https://www.emnrd.nm.gov/spd/find-a-park/>.
- New Mexico Environment Department Air Quality Bureau (NMED-AQB). 2013. *Air Resources Manager (map)*. Accessed January 2022 from: <https://aqi.air.env.nm.gov/>
- New Mexico Mining and Minerals Division (NM MMD). 2022. *Mine Registrations and Permits Search*. Accessed February 2022 from: <https://wwwapps.emnrd.state.nm.us/MMD/MMDWebInfo/>.
- New Mexico Oil Conservation Division (NM OCD). 2022. *NM OCD Oil and Gas Map (web application)*. Accessed February 2022 from: <https://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=4d017f2306164de29fd2fb9f8f35ca75>
- New Mexico Taxation & Revenue Department (NM TRD). 2022. *Fiscal Year RP-80 Reports: Gross Receipts by Geographic Area and NAICS Code*. Accessed March 2022 from: <https://www.tax.newmexico.gov/all-nm-taxes/gross-receipts-taxes-overview/fiscal-year-rp-80-reports-gross-receipts-by-geographic-area-and-naics-code/>
- Paleobiology Database. Accessed January 2022 from: <https://paleobiodb.org/#/>.
- Playa Lakes Joint Venture (PLJV). 2021. *Maps of Probable Playas, Roosevelt, New Mexico*. Accessed March 2022 from: <http://pljv.org/for-habitat-partners/maps-and-data/interactive-playa-map/>.
- Southern Great Plains Crucial Habitat Assessment Tool (SGP CHAT). 2022. Accessed March 2022 from: <https://www.sgpchat.org/>

- The Board of County Commissioners of Torrance County. 2020. *Torrance County Zoning Ordinance*. Accessed December 2021 from: <https://www.torrancecountynm.org/uploads/Downloads/Planning%20and%20Zoning/Ordinances/2020.07.08%20Torrance%20County%20Zoning%20Ordinance%20Revised.pdf>.
- The Drillings. 2022. *San Miguel, Guadalupe, and Torrance Counties, New Mexico*. Accessed February 2022 from <https://thedrillings.com/usa/new-mexico>.
- The People of San Miguel County, with assistance from Communitas – Tierra y Gente. 2004. *San Miguel County Comprehensive Plan 2004-2014*. Accessed February 2022 from: https://www.co.sanmiguel.nm.us/document_center/index.php#revize_document_center_rz74.
- U.S. Bureau of Indian Affairs (BIA). 2021. *U.S. Domestic Sovereign Nations: Land Areas of Federally-Recognized Tribes Map*. Accessed December 2021 from: <https://biamaps.doi.gov/indianlands/#>.
- U.S. Bureau of Labor Statistics, Southwest Information Office (BLS-SW). 2021. Accessed December 2021 from: <https://www.bls.gov/regions/southwest/>
- U.S. Bureau of Land Management (BLM). 2022a. *Explore Your Public Lands*. Accessed February 2022 from: <https://www.blm.gov/visit>.
- BLM. 2022b. *General Land Office (GLO) Records*. Accessed February 2022 from: <https://glorerecords.blm.gov/>.
- BLM. 2022c. *National Data Viewer*. Accessed January 2022 from: <https://blm-egis.maps.arcgis.com/apps/webappviewer/index.html?id=6f0da4c7931440a8a80bfe20eddd7550>
- U.S. Census. 2020. Accessed January 2022 from: www.census.gov.
- U.S. Department of Agriculture (USDA) Farm Service Agency (FSA). 2020. *National Agriculture Imagery Program (NAIP)*. Accessed March 2022 from: <https://gis.apfo.usda.gov/arcgis/rest/services>.
- USDA National Agricultural Statistics Service (NASS). 2019. *2017 Agricultural Census, published 2019*. Accessed January 2022 from: <https://www.nass.usda.gov/Publications/AgCensus/2017/index.php#highlights>
- USDA Natural Resources Conservation Service (NRCS). 1981. *Soil Survey of San Miguel County Area, New Mexico*. Accessed December 2021 from: https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/new_mexico/.
- USDA NRCS. 2006. *Soil Survey of Guadalupe County, New Mexico*. Accessed December 2021 from: https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/new_mexico/.
- USDA NRCS. 2022. *Web Soil Survey*. Accessed March 2022 from: <http://websoilsurvey.nrcs.usda.gov>.
- U.S. Environmental Protection Agency (EPA). 2022a. *Criteria Air Pollutants*. Accessed January 2022 from: <https://www.epa.gov/criteria-air-pollutants>.
- EPA. 2022b. *Ecoregions of North America*. Accessed March 2022 from: <https://www.epa.gov/eco-research/ecoregions-north-america>.

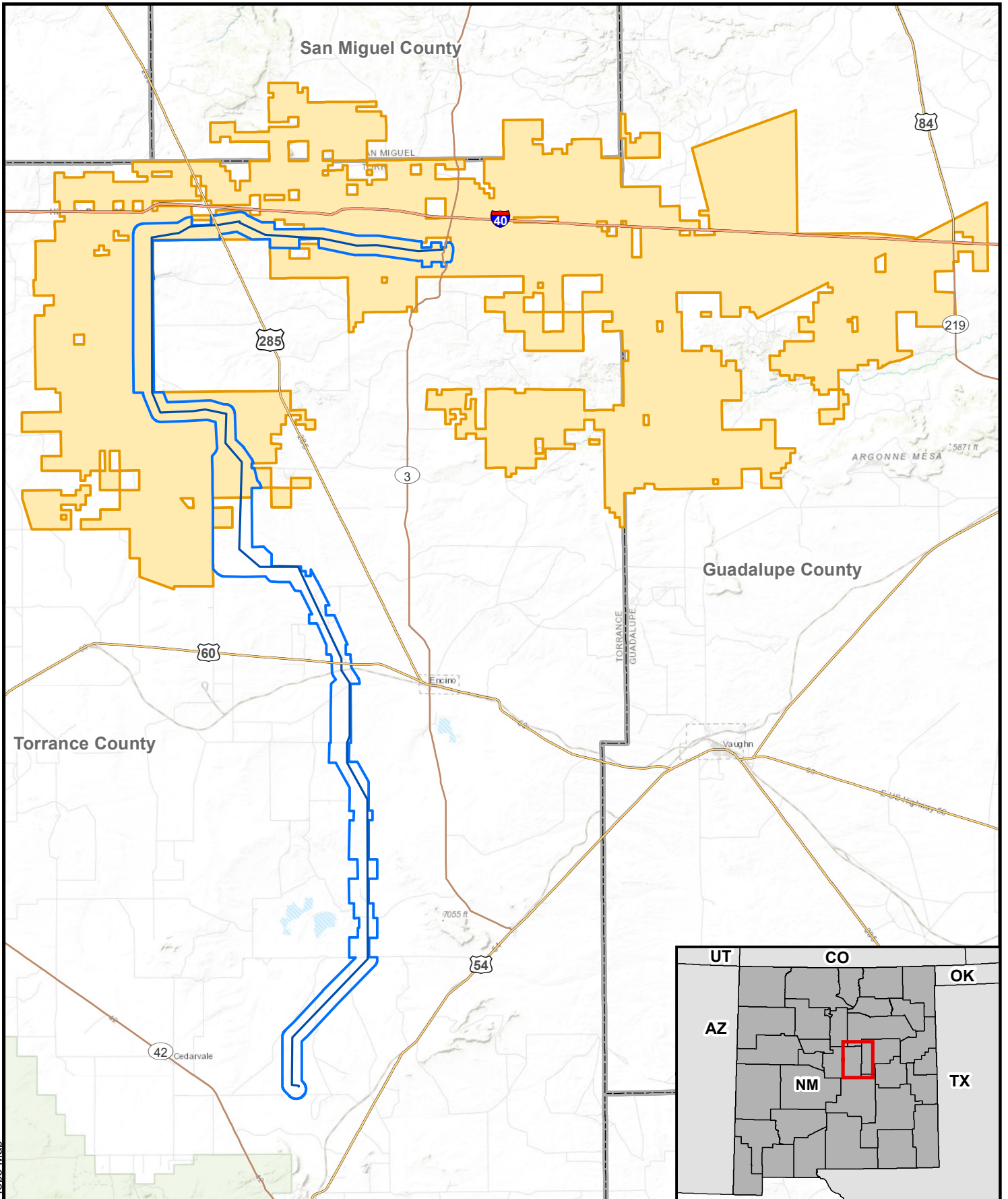
- EPA. 2022c. *Nonattainment Areas for Criteria Pollutants (Green Book)*. Accessed January 2022 from: <https://www.epa.gov/green-book>.
- U.S. Fish and Wildlife Service (USFWS). 2022a. *Environmental Conservation Online System (ECOS) Species Profiles*. Accessed March 2022 from: <https://www.fws.gov/southeast/conservation-tools/environmental-conservation-online-system/>.
- USFWS. 2022b. *Information for Planning and Consultation (IPaC) web application*. Accessed April 2022 from: <https://ecos.fws.gov/ipac/>.
- USFWS. 2022c. *National Wetlands Inventory (NWI) Data Mapper*. Accessed March 2022 from: <https://www.fws.gov/wetlands/data/mapper.html>.
- U.S. Geological Survey (USGS). 2011. *Mineral Resources Data System (MRDS)*. Accessed January 2022 from: <https://mrdata.usgs.gov/mrds/>.
- USGS. 2022a. *Gap Analysis Project (GAP) Protected Areas Database of the U.S. (PAD-US)*. Accessed March 2022 from: <https://gapanalysis.usgs.gov/padus/>.
- USGS. 2022b. *Historical Topographic Map Explorer*. Accessed March 2022 from <https://livingatlas.arcgis.com/topoexplorer/>.
- USGS. 2022c. *National Hydrography Dataset (NHD)*. Accessed March 2022 from: <https://nhd.usgs.gov/tools.html>.
- USGS and USDA NRCS. 2022. *Watershed Boundary Dataset*. Accessed March 2022 from: <https://datagateway.nrcs.usda.gov/Catalog/ProductDescription/WBD.html>.
- Western Regional Climate Center. 2016. *Climate of New Mexico*. Accessed March 2022 from: https://wrcc.dri.edu/Climate/narrative_nm.php.
- WEST, Inc. 2017a. *Critical Issues Analysis for the Proposed Ancho Wind Project*. Report issued March 2017.
- WEST, Inc. 2017b. *Critical Issues Analysis for the Proposed Cowboy Mesa Wind Project*. Report issued March 2017.
- WEST, Inc. 2017c. *Raptor Nest Survey, Pattern Wind Energy Project*. Report issued August 2017.



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APPENDIX 1 - EXHIBITS

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Service Layer Credits: ESRI Topo Map



-  Corona Wind North Gen-Tie System and Study Corridor
-  Corona Wind North Generation Area

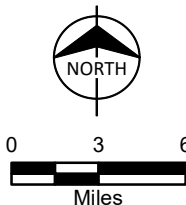
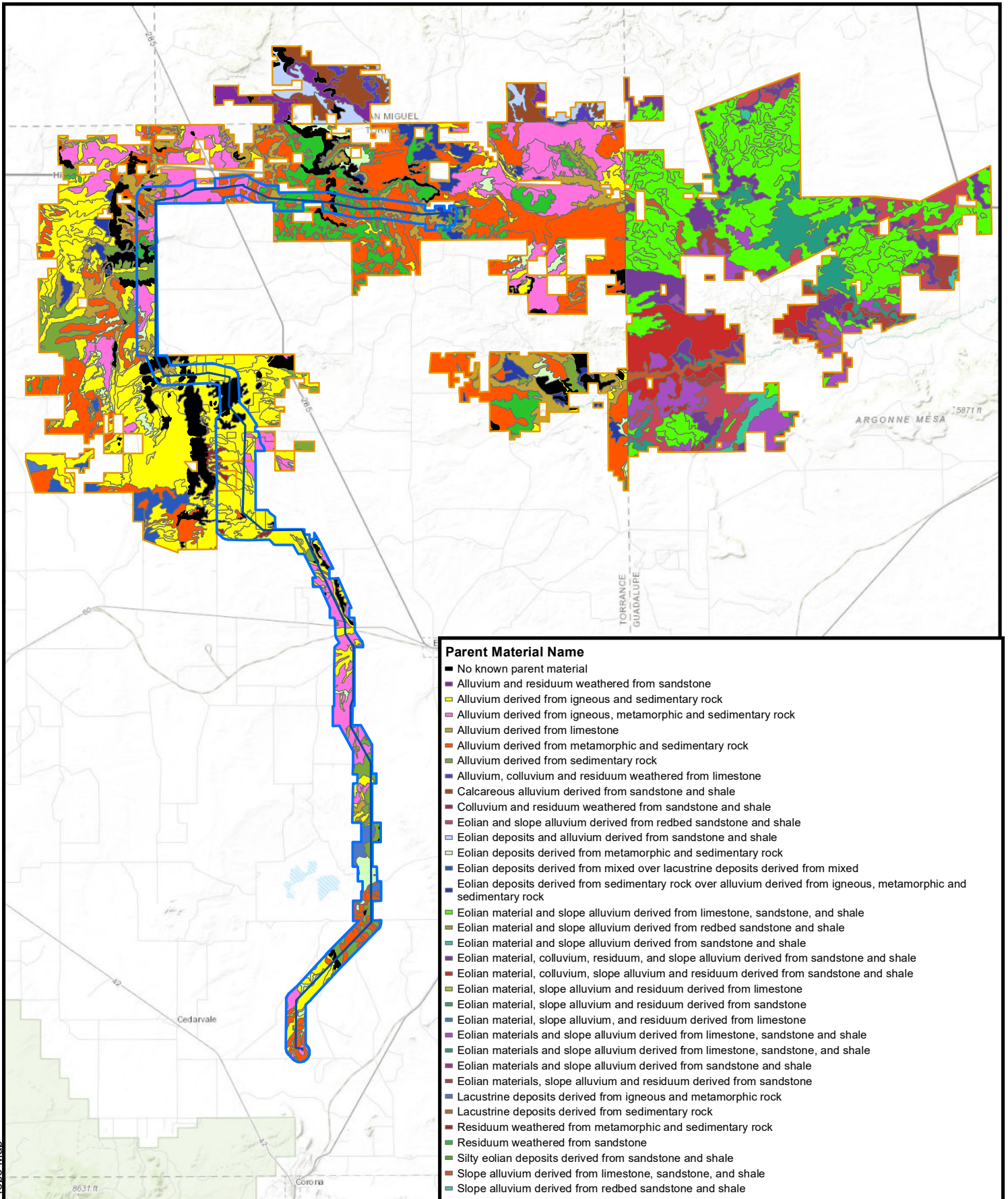




Exhibit 1
Assessment Area
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San Miguel Counties, NM



Parent Material Name	
■	No known parent material
■	Alluvium and residuum weathered from sandstone
■	Alluvium derived from igneous and sedimentary rock
■	Alluvium derived from igneous, metamorphic and sedimentary rock
■	Alluvium derived from limestone
■	Alluvium derived from metamorphic and sedimentary rock
■	Alluvium derived from sedimentary rock
■	Alluvium, colluvium and residuum weathered from limestone
■	Calcareous alluvium derived from sandstone and shale
■	Colluvium and residuum weathered from sandstone and shale
■	Eolian and slope alluvium derived from redbed sandstone and shale
■	Eolian deposits and alluvium derived from sandstone and shale
■	Eolian deposits derived from metamorphic and sedimentary rock
■	Eolian deposits derived from mixed over lacustrine deposits derived from mixed
■	Eolian deposits derived from sedimentary rock over alluvium derived from igneous, metamorphic and sedimentary rock
■	Eolian material and slope alluvium derived from limestone, sandstone, and shale
■	Eolian material and slope alluvium derived from redbed sandstone and shale
■	Eolian material and slope alluvium derived from sandstone and shale
■	Eolian material, colluvium, and slope alluvium derived from sandstone and shale
■	Eolian material, colluvium, slope alluvium and residuum derived from sandstone and shale
■	Eolian material, slope alluvium and residuum derived from limestone
■	Eolian material, slope alluvium and residuum derived from sandstone
■	Eolian material, slope alluvium, and residuum derived from limestone
■	Eolian materials and slope alluvium derived from limestone, sandstone and shale
■	Eolian materials and slope alluvium derived from limestone, sandstone, and shale
■	Eolian materials and slope alluvium derived from sandstone and shale
■	Eolian materials, slope alluvium and residuum derived from sandstone
■	Lacustrine deposits derived from igneous and metamorphic rock
■	Lacustrine deposits derived from sedimentary rock
■	Residuum weathered from metamorphic and sedimentary rock
■	Residuum weathered from sandstone
■	Silty eolian deposits derived from sandstone and shale
■	Slope alluvium derived from limestone, sandstone, and shale
■	Slope alluvium derived from redbed sandstone and shale

 Corona Wind North Gen-Tie System and Study Corridor
 Corona Wind North Generation

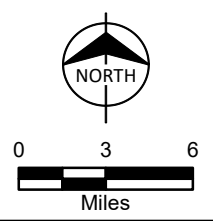
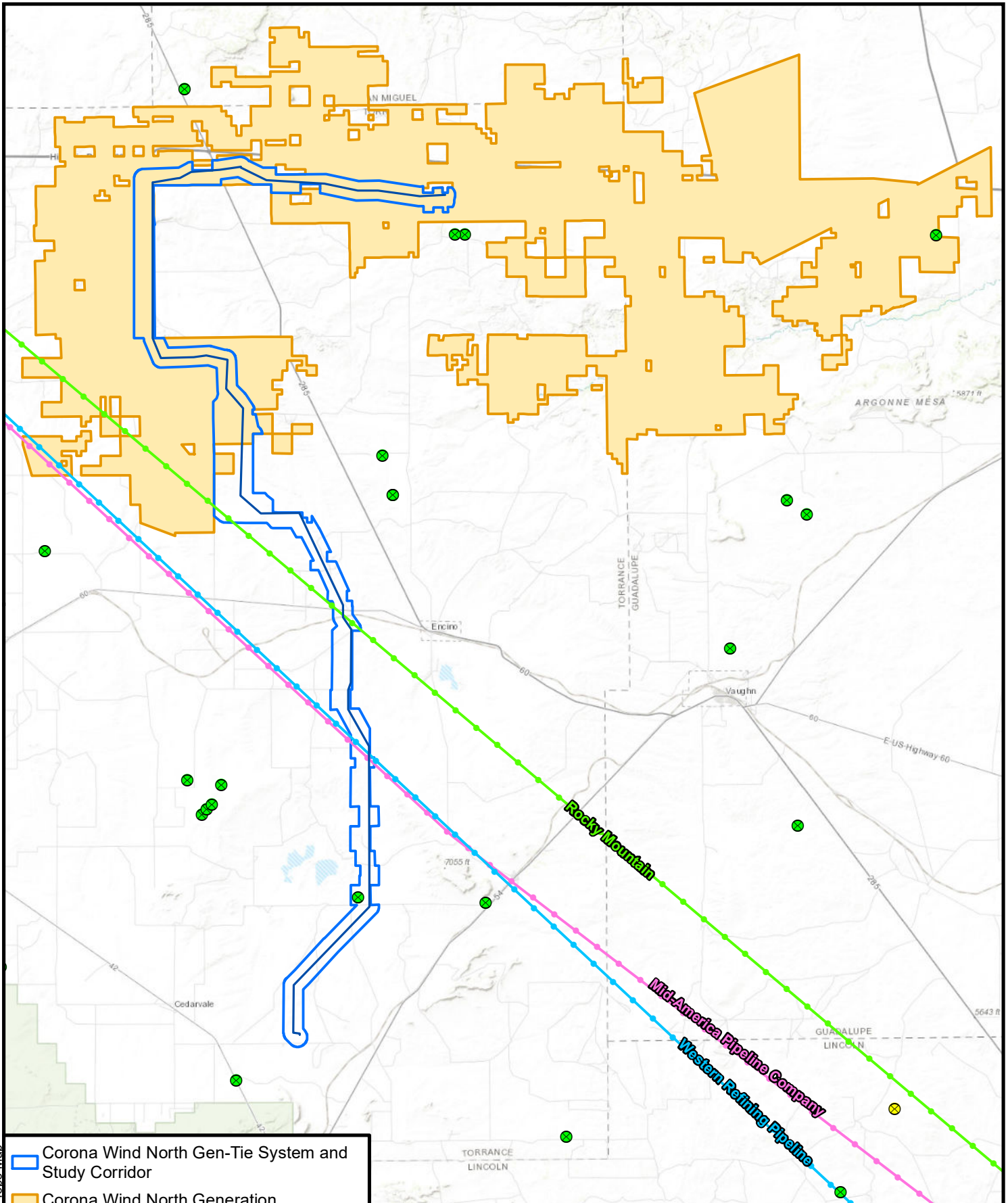


Exhibit 2
Parent Material
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San Miguel Counties, NM



- ▭ Corona Wind North Gen-Tie System and Study Corridor
- ▭ Corona Wind North Generation
- Petroleum Pipeline
- Crude Oil Pipeline
- HGL Pipeline
- ⊗ Cancelled Well
- Plugged Well

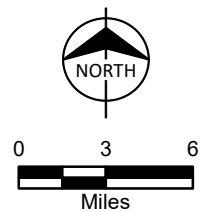
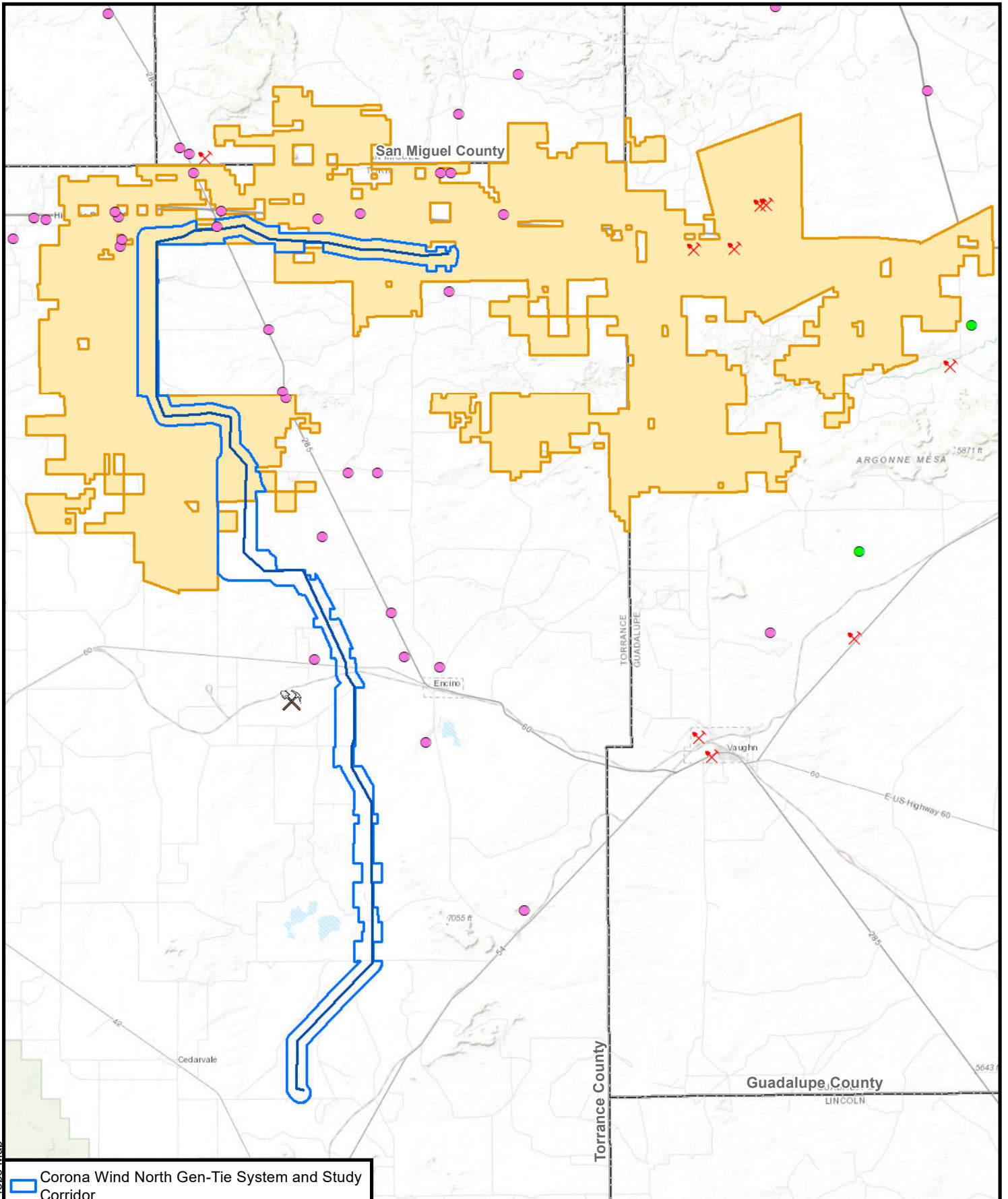








Exhibit 3
 Oil and Gas Well Summary
 Corona Wind North Project
 Corona Wind North Companies
 Torrance, Guadalupe and San Miguel Counties, NM



-  Corona Wind North Gen-Tie System and Study Corridor
-  Corona Wind North Generation Area
-  Active Mineral Plant/Producer
-  Past Mineral Producer
-  Mineral Resource Occurrence
-  Unknown Mineral Resource

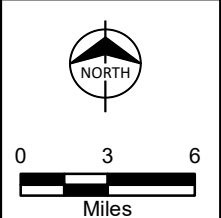
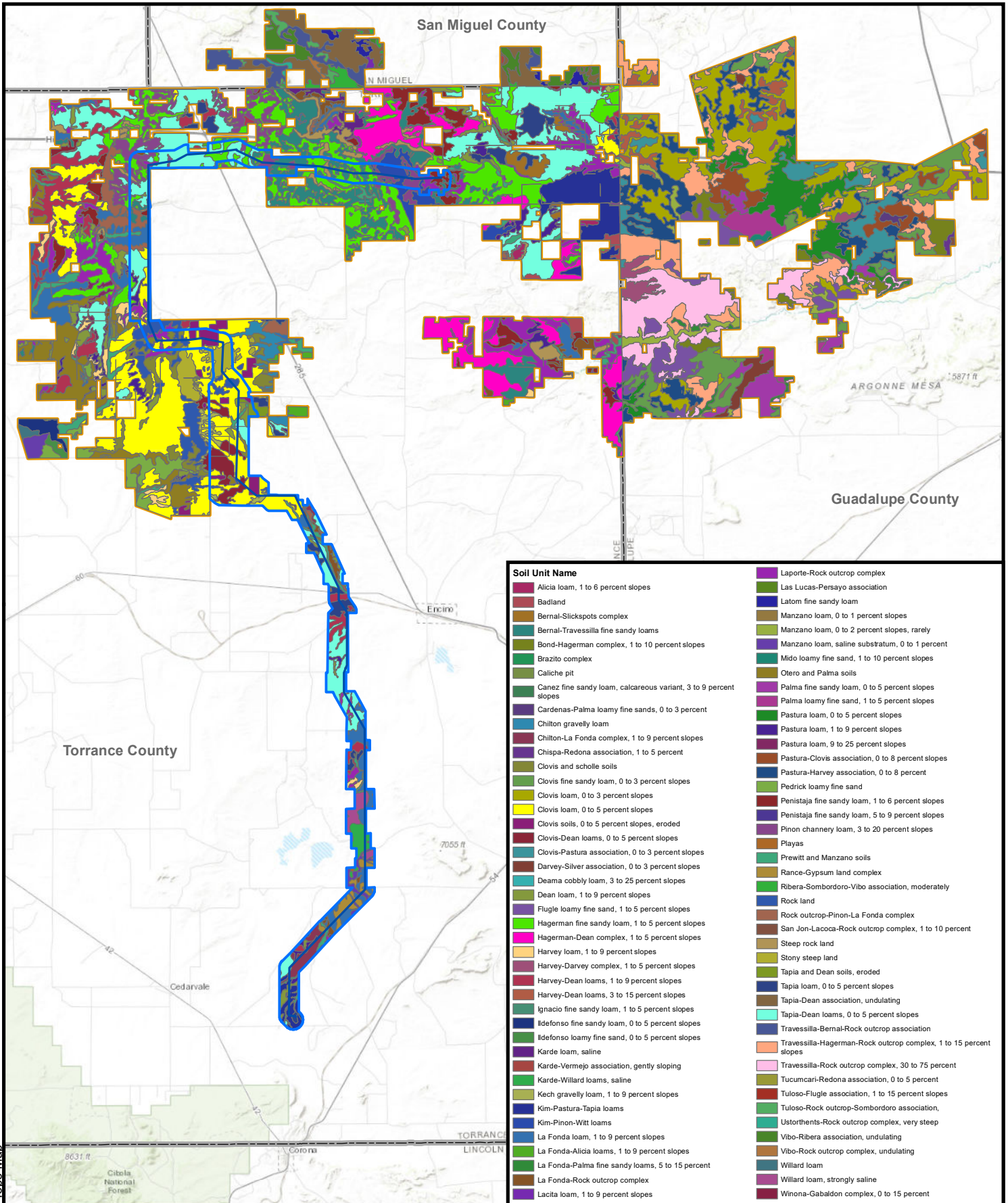


Exhibit 4
Mineral Resources Map
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San
Miguel Counties, NM



▭ Corona Wind North Gen-Tie System and Study Corridor
▭ Corona Wind North Generation Area

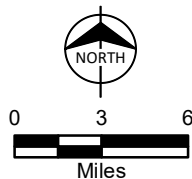
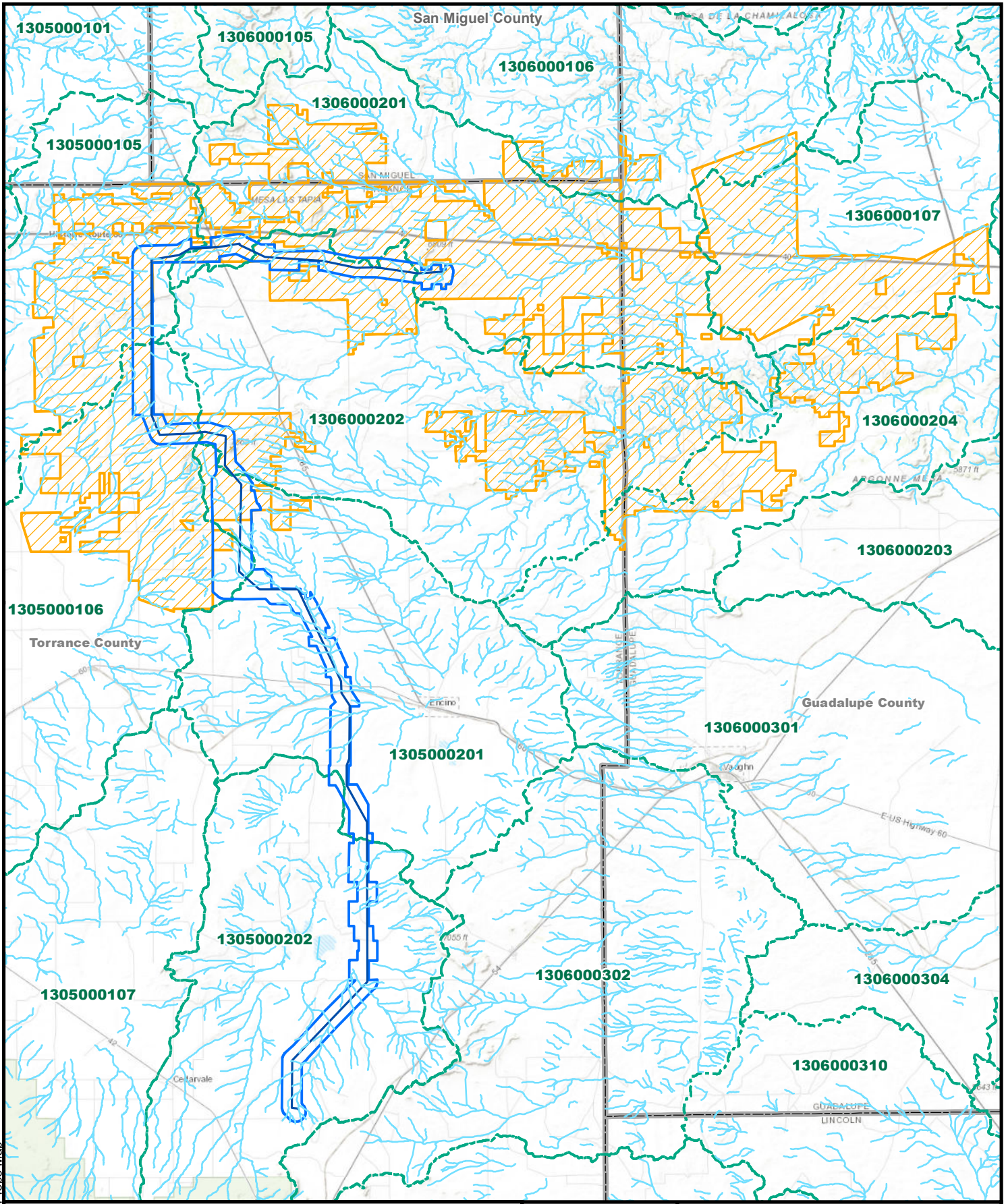





Exhibit 5
Soils Summary Map
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San Miguel Counties, NM


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Service Layer Credits: ESRI Topo Map



 Corona Wind North Gen-Tie System and Study Corridor

 Corona Wind North Generation Area

 HUC Boundary

 NHD



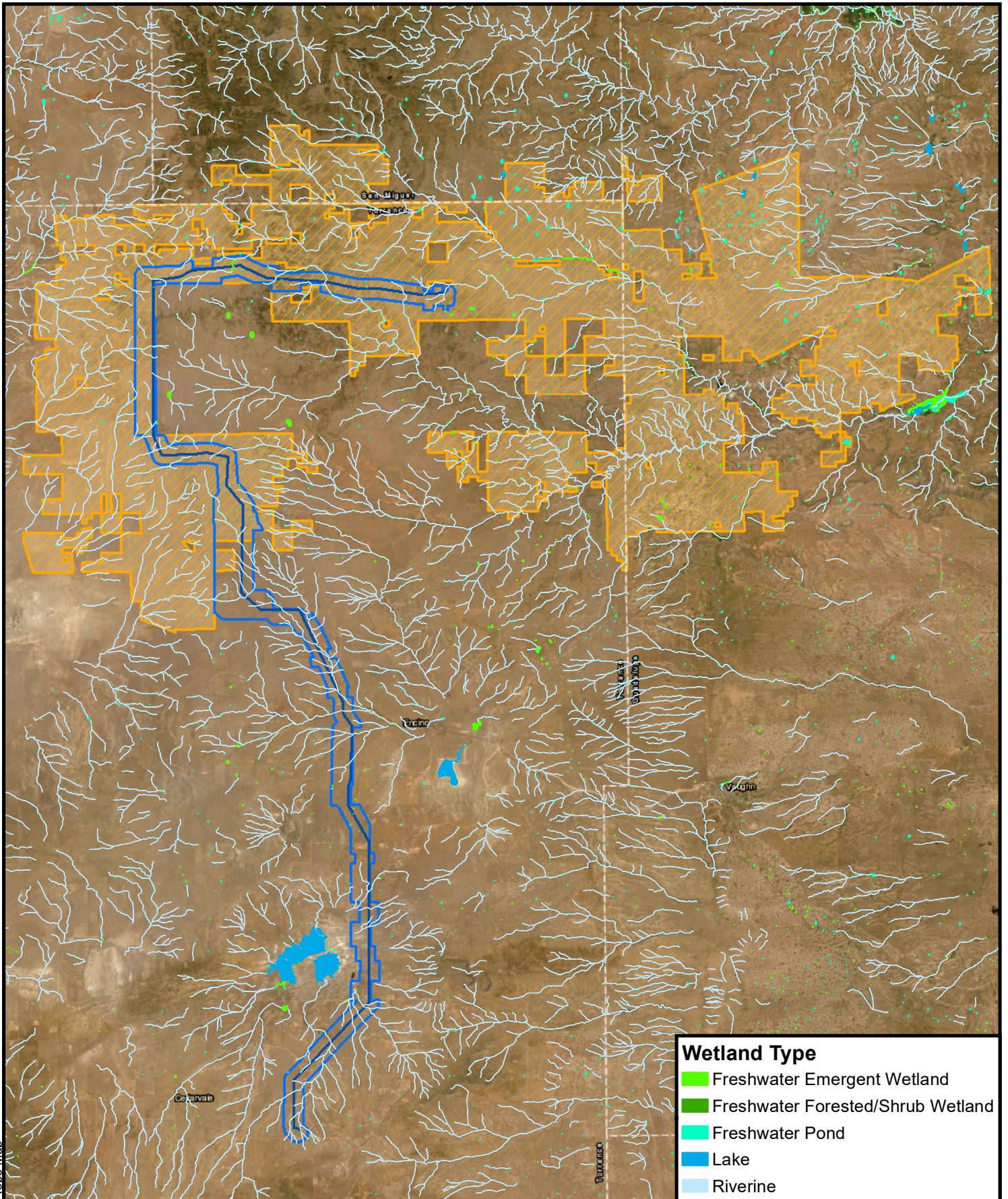
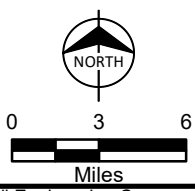

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Exhibit 6
Surface Waters Map
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San Miguel Counties, NM



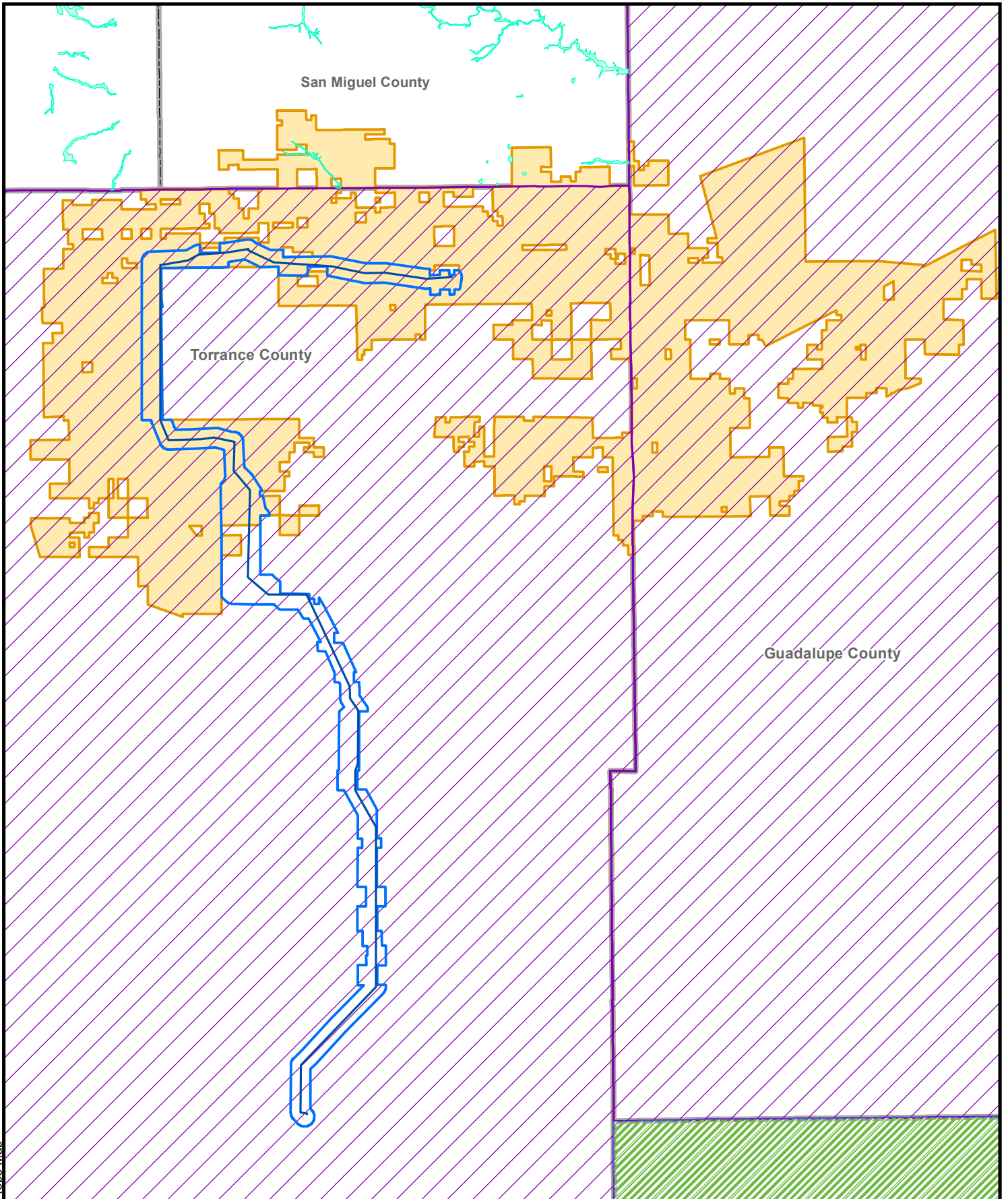
- Corona Wind North Gen-Tie System and Study Corridor
- Corona Wind North Generation Area



Wetland Type	
	Freshwater Emergent Wetland
	Freshwater Forested/Shrub Wetland
	Freshwater Pond
	Lake
	Riverine

Exhibit 7
NWI Map
 Corona Wind North Project
 Corona Wind North Companies
 Torrance, Guadalupe and San Miguel Counties, NM

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Service Layer Credits: ESRI Topo Map



- Corona Wind North Gen-Tie System and Study Corridor
- Corona Wind North Generation Area
- FEMA - Zone A
- FEMA - Zone D
- Unmapped Area

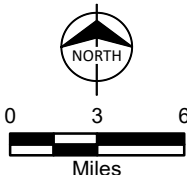
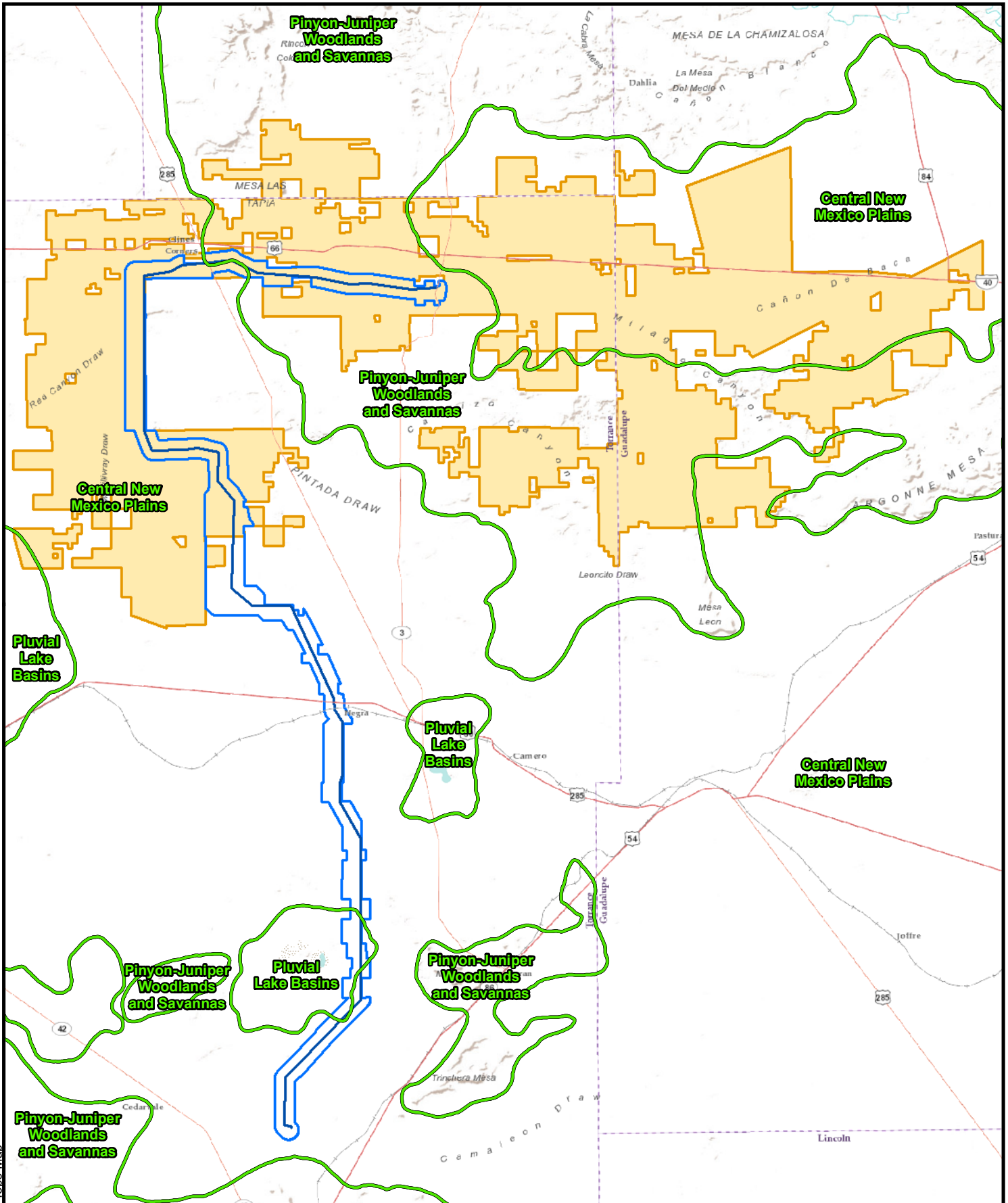


Exhibit 8
Floodplain Summary Map
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San Miguel Counties, NM

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Service Layer Credits: ESRI Topo Map



- Corona Wind North Gen-Tie System and Study Corridor
- Corona Wind North Generation Area
- Level IV Ecoregion Boundary

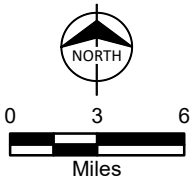
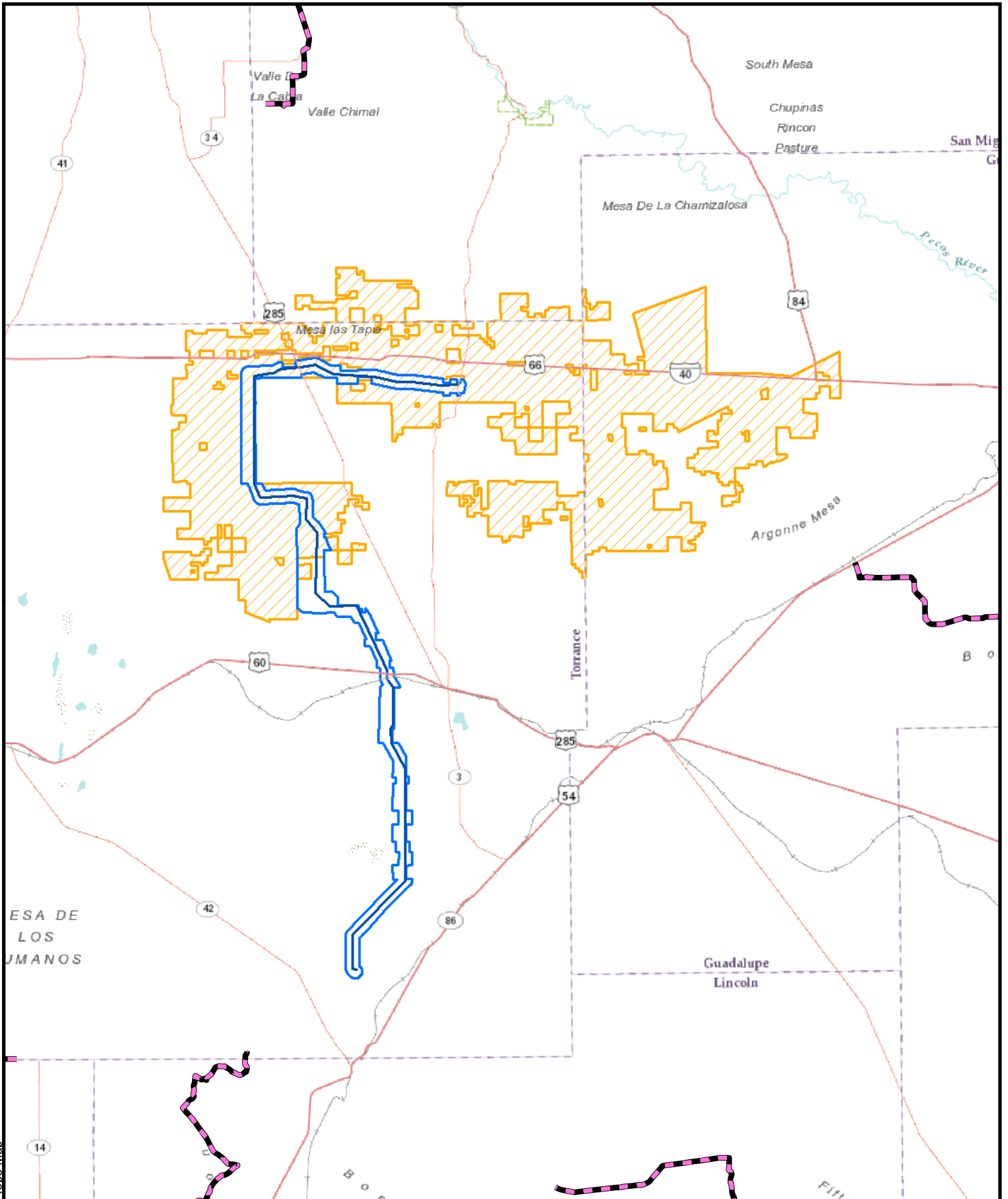


Exhibit 9
EPA Level IV Ecoregions Map
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San Miguel Counties, NM

Path: C:\TEMP\WORK\131336 Pattern Energy NORTH1 WEST ROUTE\MXD\Exhibits\Ex10_SensitiveSpeciesHabitat.mxd vakarpov 4/4/2022
Service Layer Credits: ESRI Topo Map



Legend:

- Corona Wind North Gen-Tie System and Study Corridor
- Corona Wind North Generation Area
- Breeding Bird Survey Route

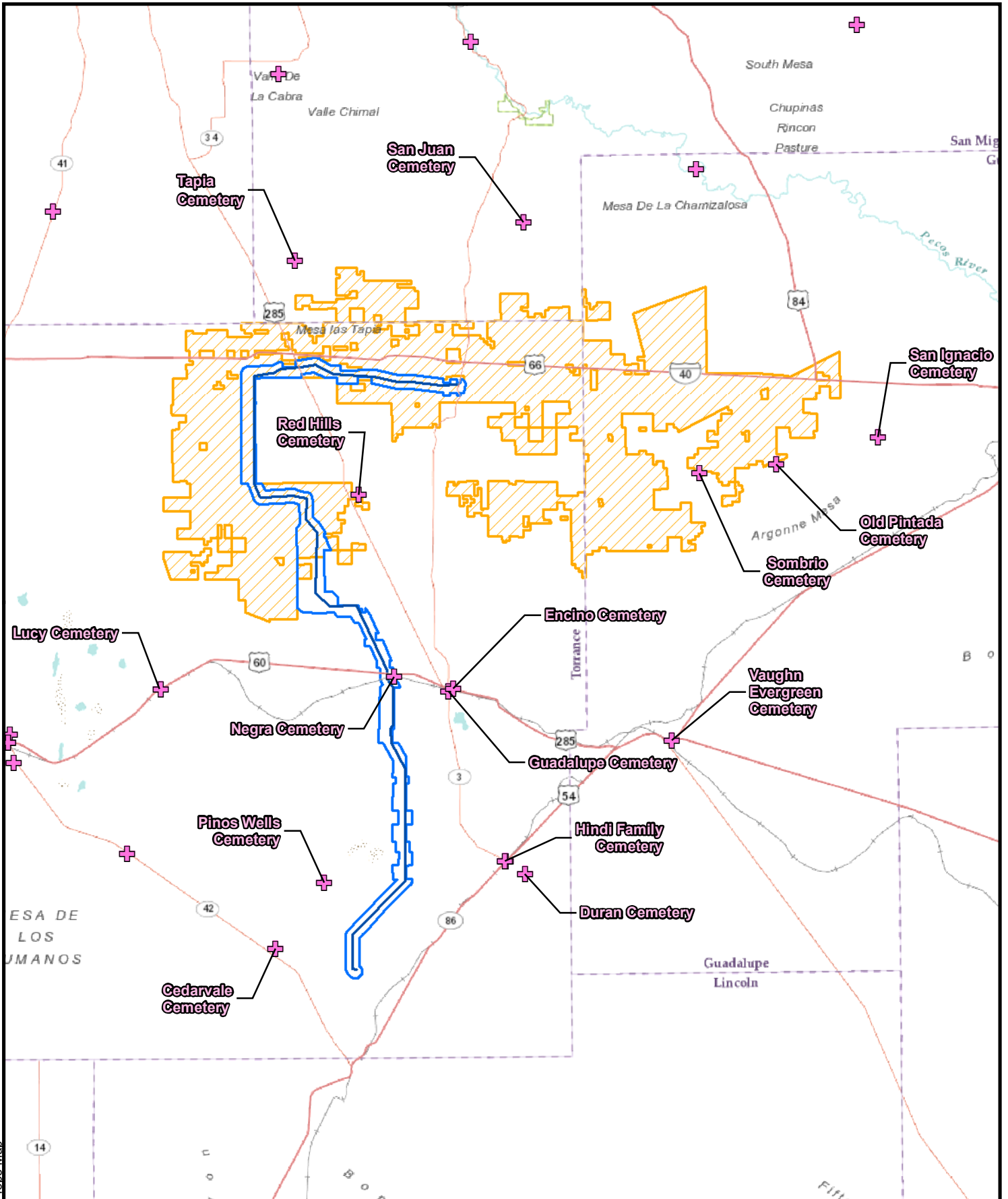
Scale: 0 5 10 Miles




NORTH



Exhibit 10
Sensitive Species Habitat Map
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San Miguel Counties, NM

Path: C:\TEMP\WORK\131336 Pattern Energy North\1 WEST ROUTE\MXD\Exhibits\Ex11_Cemeteries.mxd vakarpov 4/4/2022
 Service Layer Credits: ESRI Topo Map



-  Corona Wind North Gen-Tie System and Study Corridor
-  Corona Wind North Generation Area
-  Cemetery

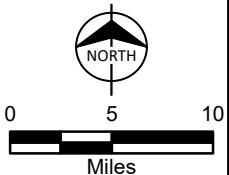
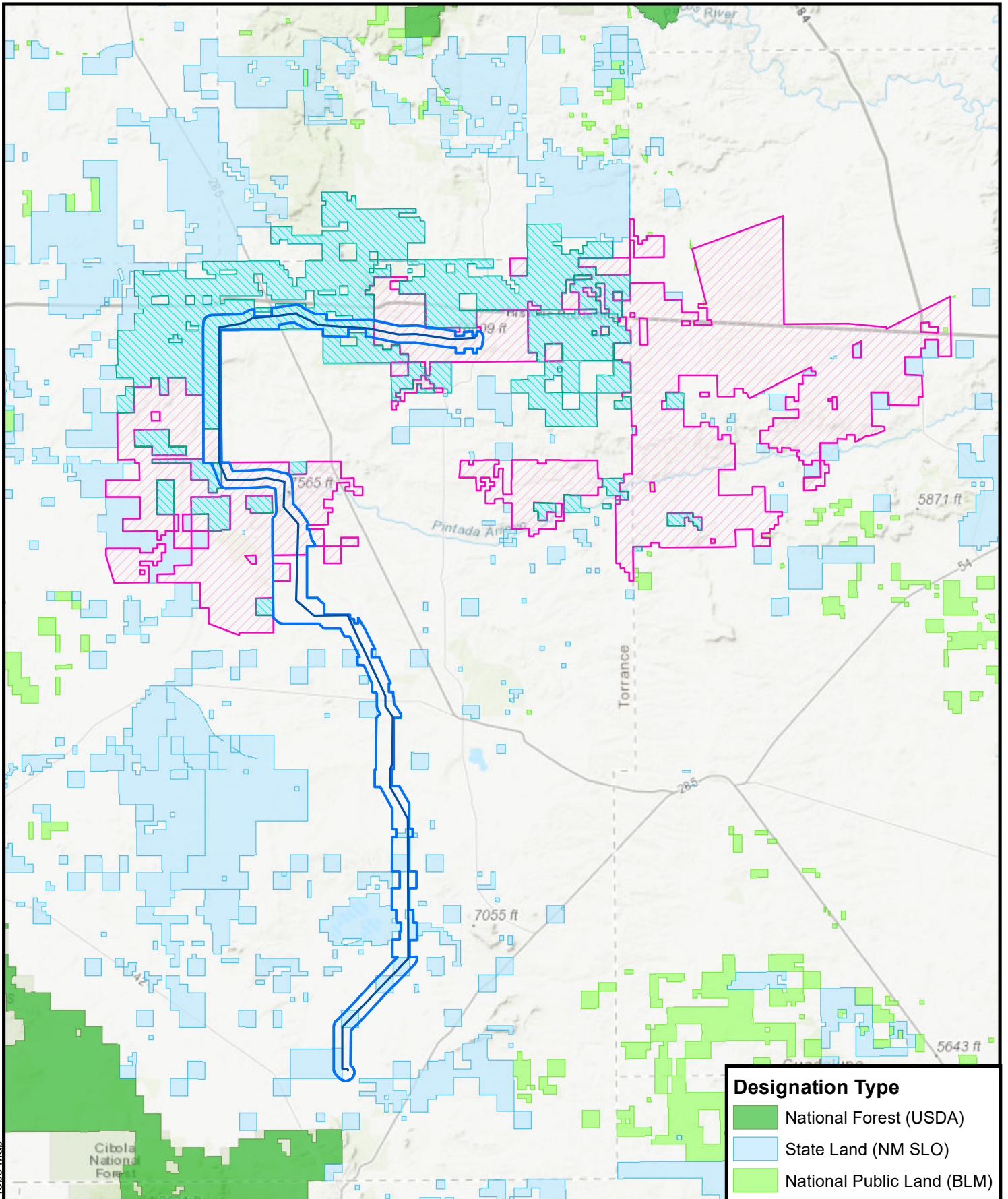


Exhibit 11
 Cemeteries Map
 Corona Wind North Project
 Corona Wind North Companies
 Torrance, Guadalupe and San Miguel Counties, NM

Path: C:\TEMP\WORK\131336 Pattern Energy NORTH1 WEST ROUTE\MXD\Exhibits\Ex12_Easements.mxd vakarpov 4/4/2022
Service Layer Credits: ESRI Topo Map



- Corona Wind North Gen-Tie System and Study Corridor
- State Land Applied Wind Generation Tracts
- Private Signed Wind Generation Tracts



Designation Type	
	National Forest (USDA)
	State Land (NM SLO)
	National Public Land (BLM)



Exhibit 12
Public Lands and Easements Map
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San Miguel Counties, NM

Path: C:\TEMP\WORK\131336 Pattern Energy North\1 WEST ROUTE\MXD\Exhibits\Ex13_Elevation.mxd vakarpov 3/31/2022
Service Layer Credits: ESRI Topo Map

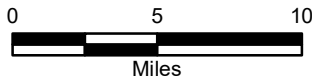
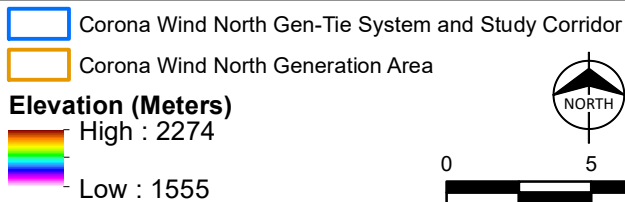
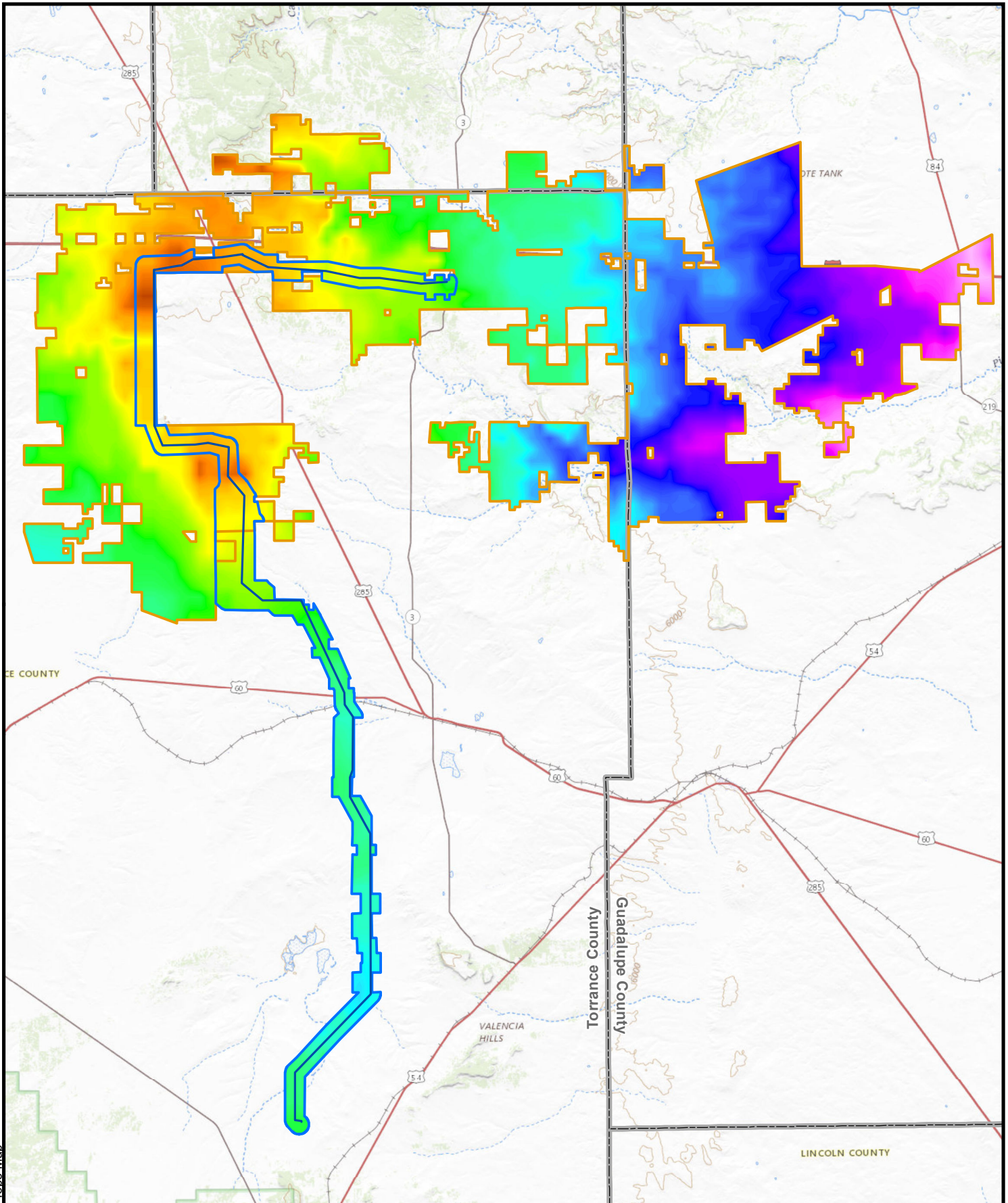
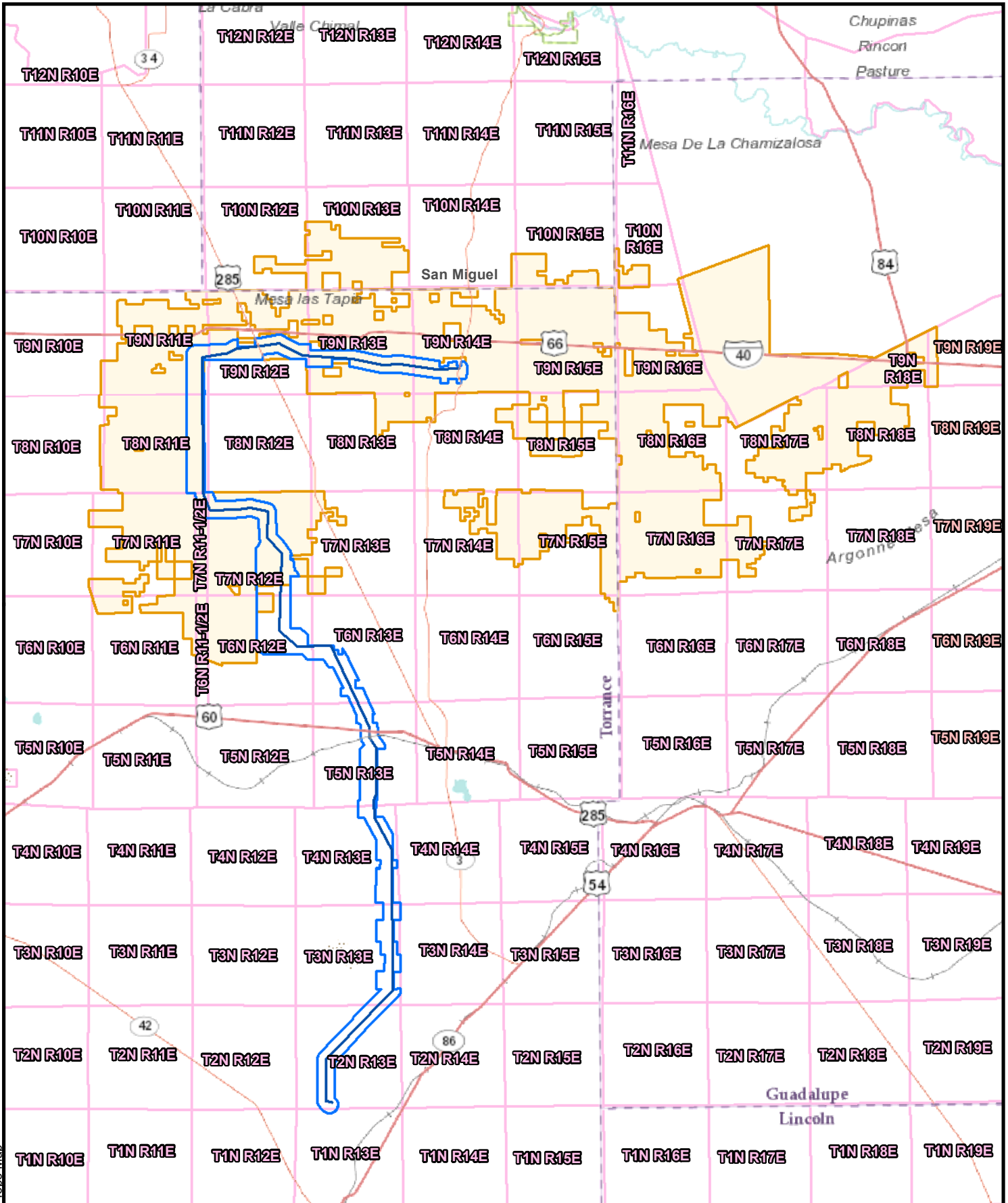


Exhibit 13
Elevation Map
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San
Miguel Counties, NM



Legend:

- Corona Wind North Gen-Tie System and Study Corridor
- Corona Wind North Generation Area
- Township Boundary

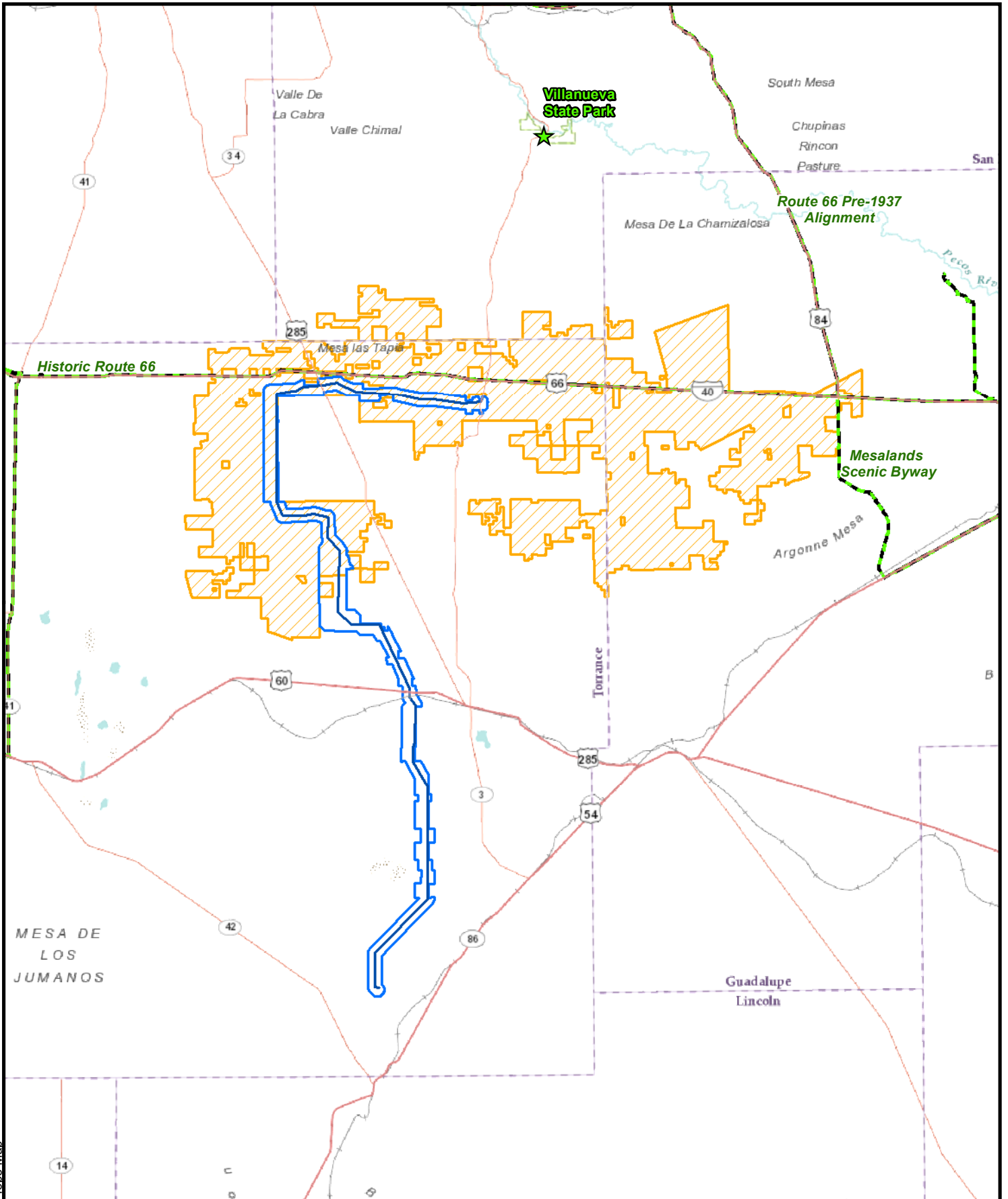
Scale: 0 4 8 Miles

NORTH



Exhibit 14
Boundary Summary Map
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San Miguel Counties, NM

Path: C:\TEMP\WORK\131336 Pattern Energy NORTH1 WEST ROUTE\MXD\Exhibits\Ex15_Byways.mxd vakarpov 4/4/2022
Service Layer Credits: ESRI, Topo Map



- Corona Wind North Gen-Tie System and Study Corridor
- Corona Wind North Generation Area
- Byway Trail
- Byway/Trail Place

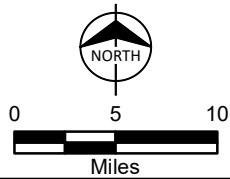
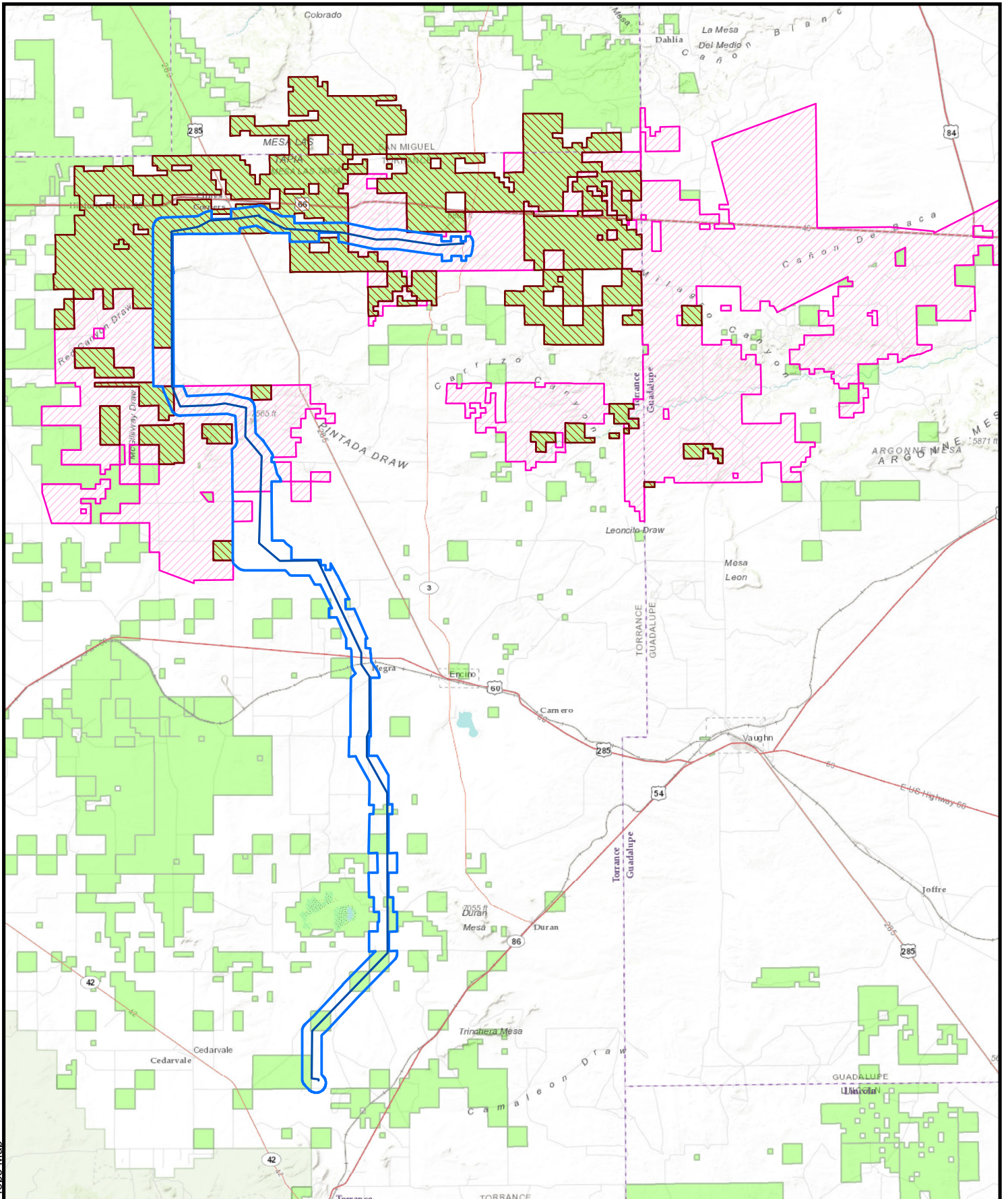


Exhibit 15
Byways & Trails Map
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San Miguel Counties, NM







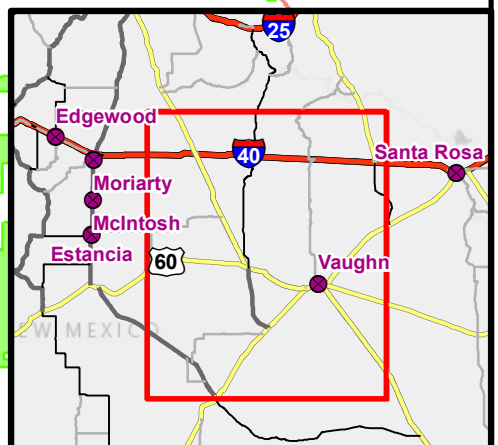
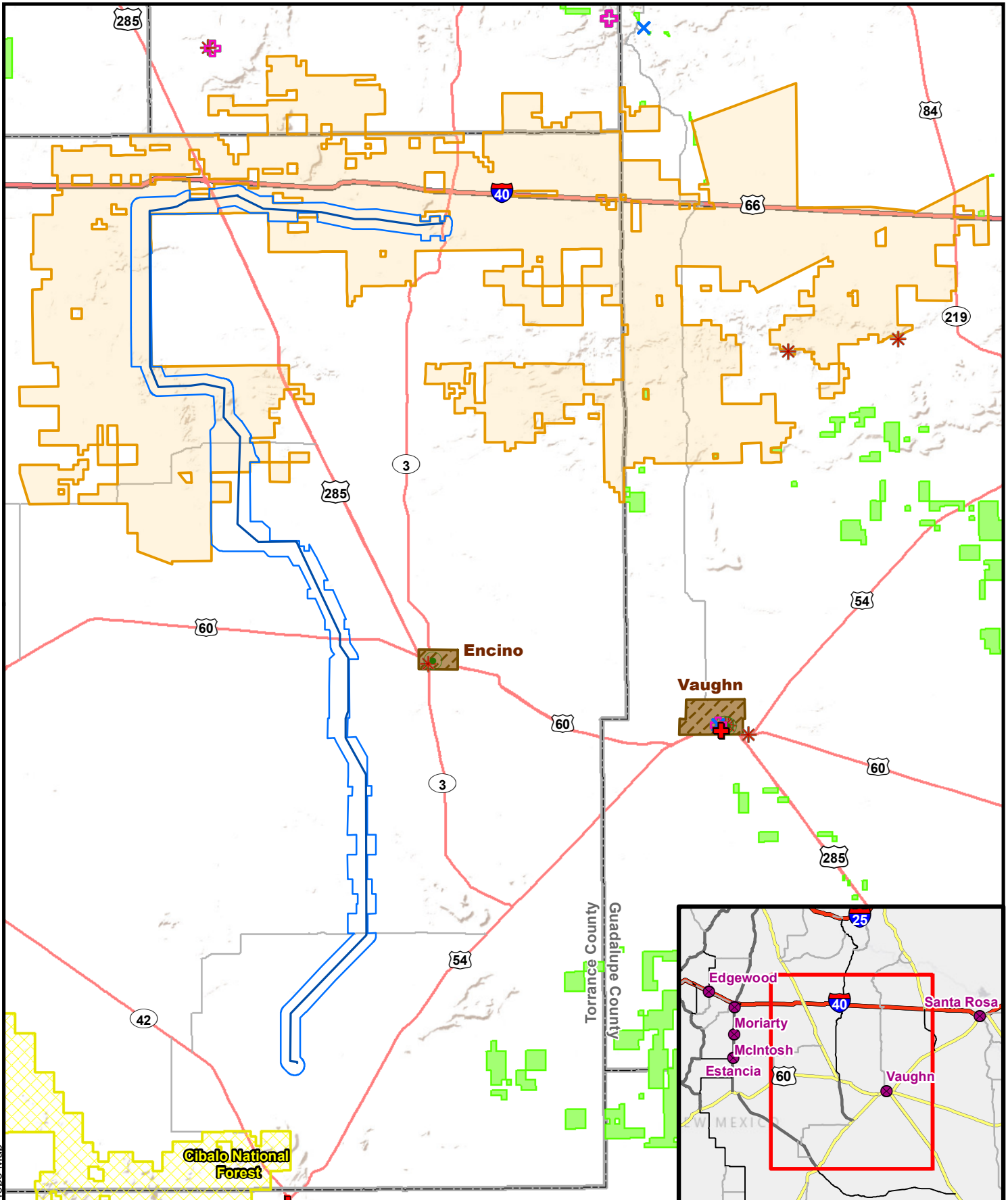
-  Corona Wind North Gen-Tie System and Study Corridor
-  State Land Applied Wind Generation Tracts
-  Private Signed Wind Generation Tracts
-  State Land



Exhibit 16
 State Lands Map
 Corona Wind North Project
 Corona Wind North Companies
 Torrance, Guadalupe and San Miguel Counties, NM



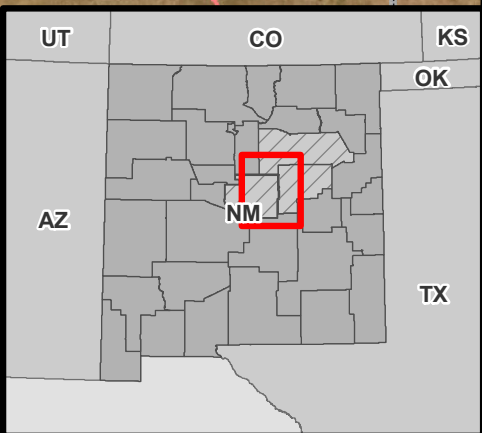
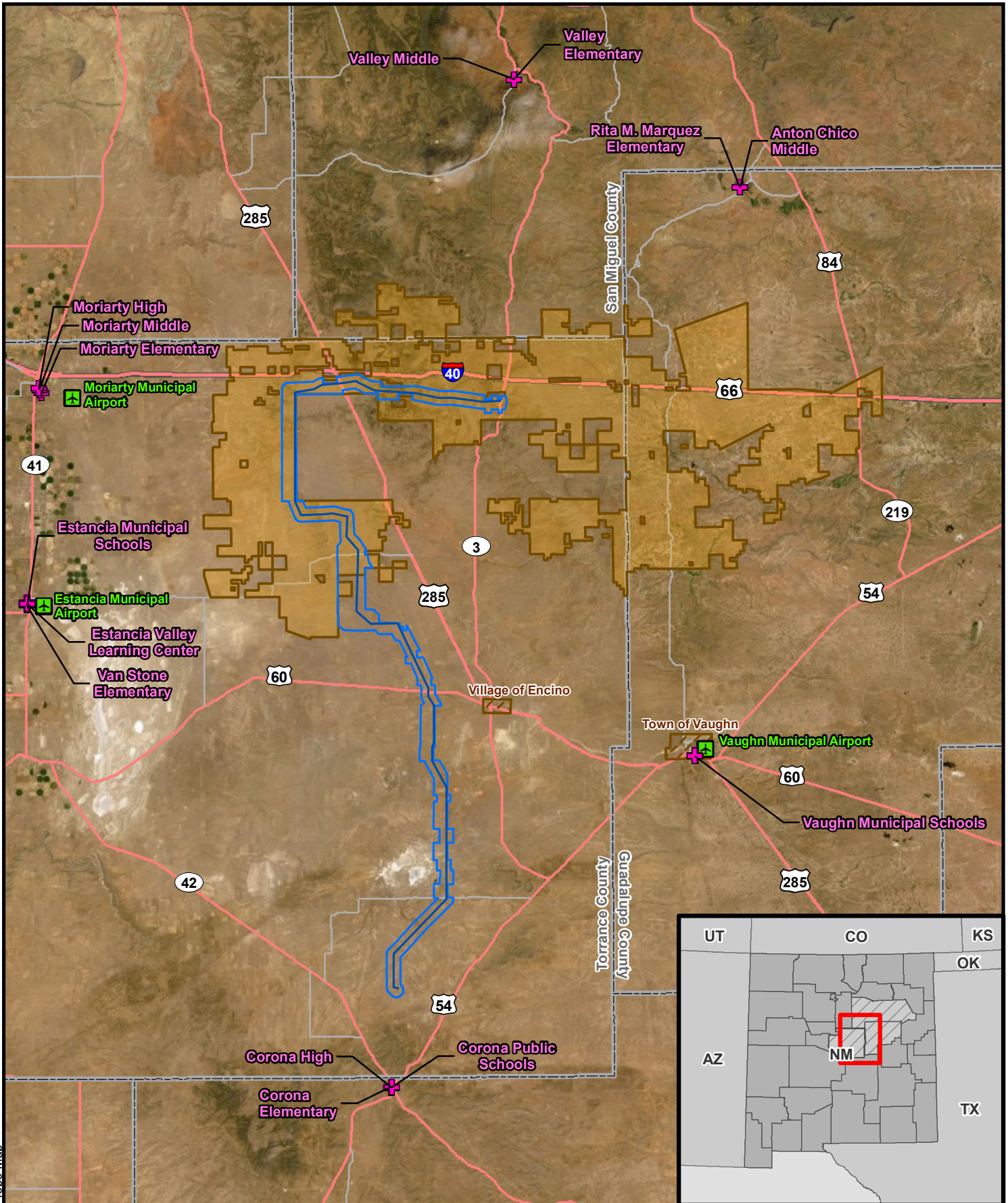
Corona Wind North Gen-Tie System and Study Corridor	Institution
Corona Wind North Generation Area	Bureau of Land Management
Municipality	US Forest Service
School	
Place of Worship	
Public Building	

Miles




Exhibit 17
Project Vicinity Map
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San Miguel Counties, NM

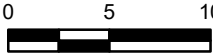
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 Service Layer Credits: ESRI Topo Map



- Corona Wind North Gen-Tie System and Study Corridor
- Corona Wind North Generation Area
- Municipality
- ✈ Airport
- + School



NORTH

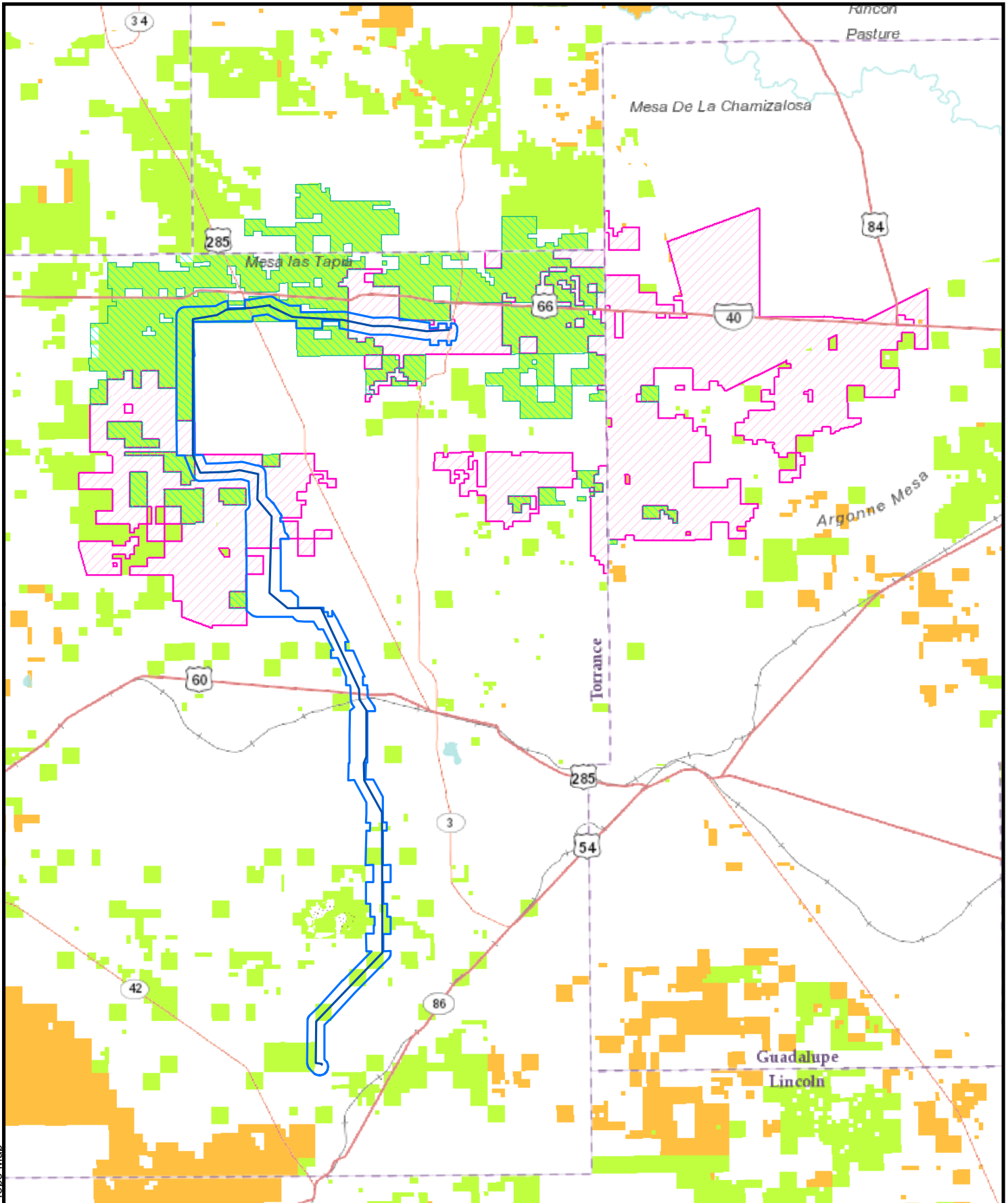


0 5 10
Miles



Exhibit 18
 General Vicinity Map
 Corona Wind North Project
 Corona Wind North Companies
 Torrance, Guadalupe and San Miguel Counties, NM

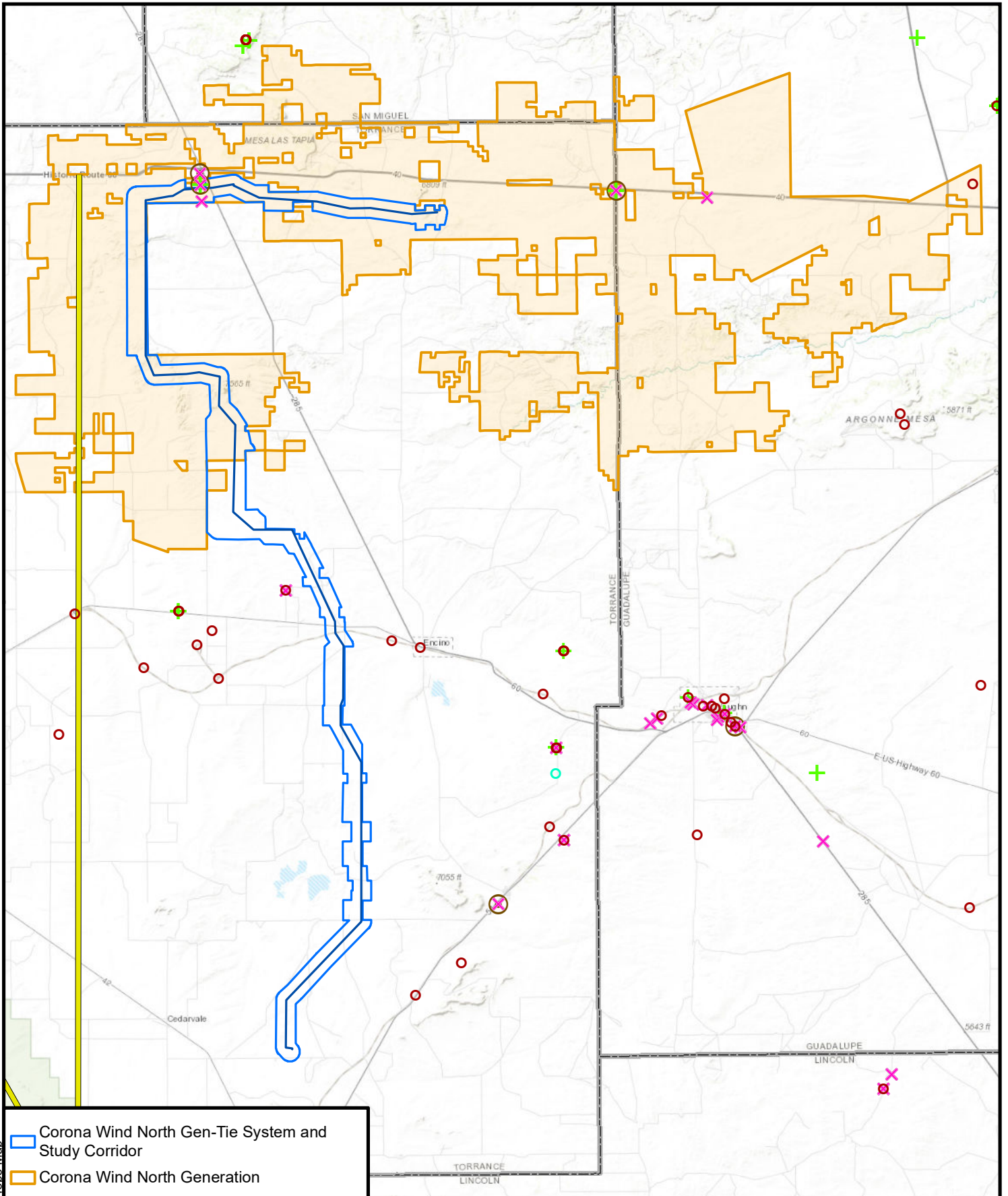
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 Service Layer Credits: ESRI Topo Map



▭ Corona Wind North Gen-Tie System and Study Corridor
▨ State Land Applied Wind Generation Tracts
▨ Private Signed Wind Generation Tracts
Manager Type
▭ Federal
▭ State



Exhibit 19
 GAP Analysis Map
 Corona Wind North Project
 Corona Wind North Companies
 Torrance, Guadalupe and San Miguel Counties, NM



- ▭ Corona Wind North Gen-Tie System and Study Corridor
- ▭ Corona Wind North Generation
- ▭ Approximate Beam Path
- LM Private Tower
- LM Communication Tower
- ✕ ASR Tower
- + Microwave Tower
- Cellular Tower

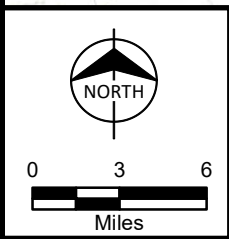
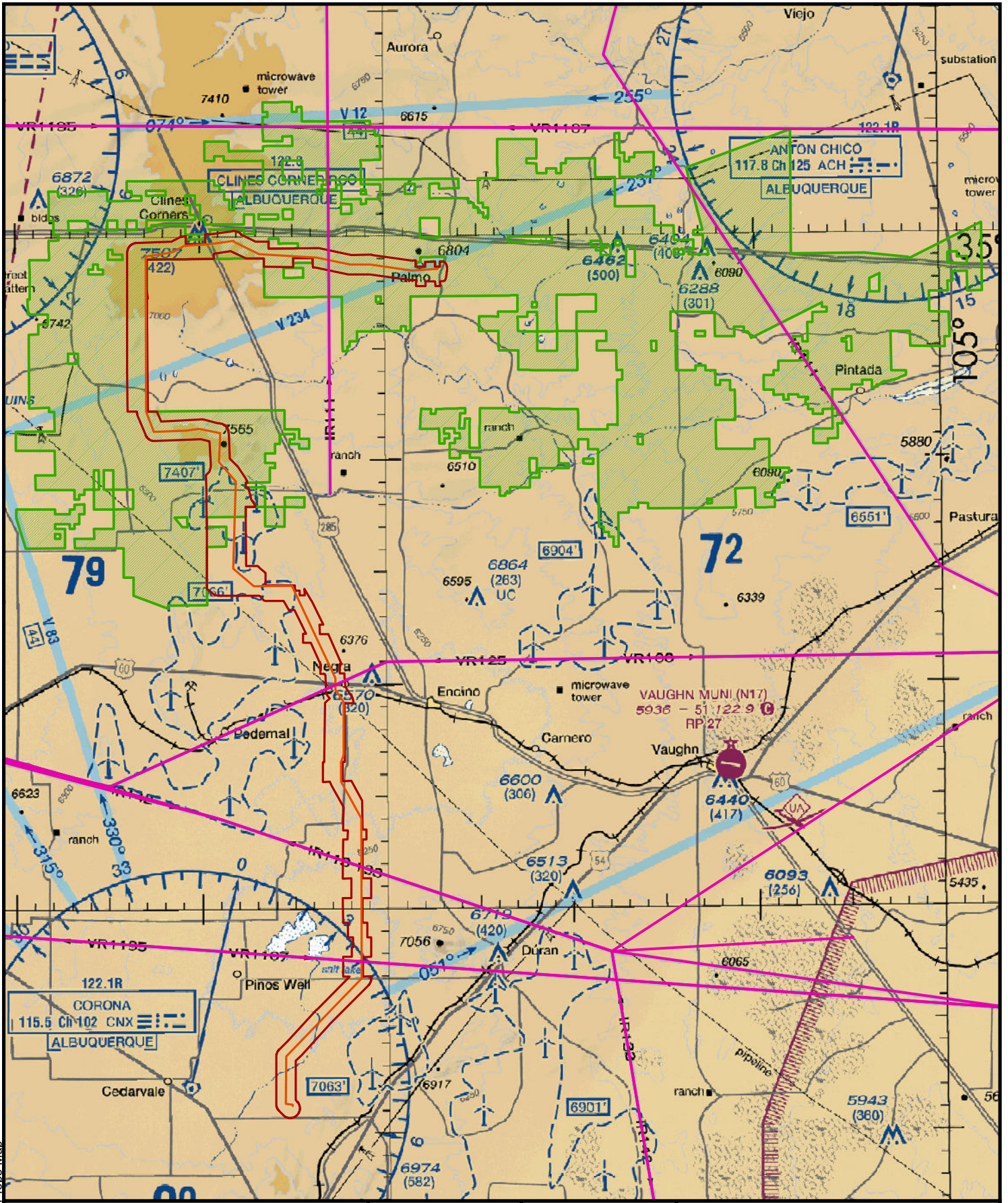


Exhibit 20
Communications Map
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San Miguel Counties, NM

Path: C:\TEMP\WORK\131336 Pattern Energy North\1 WEST ROUTE\MXD\Exhibits\Ex21_VisualFlightRules.mxd vakarpov 4/5/2022
Service Layer Credits: ESRI Topo Map



- Corona Wind North Gen-Tie System and Study Corridor
- Corona Wind North Generation Area
- Military Training Route

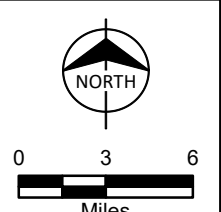


Exhibit 21
Visual Flight Rules Map
Corona Wind North Project
Corona Wind North Companies
Torrance, Guadalupe and San Miguel Counties, NM



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