4 INTRODUCTION TO ENVIRONMENTAL ANALYSIS

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4 INTRODUCTION TO ENVIRONMENTAL ANALYSIS

This Draft Environmental Impact Report (EIR) analyzes potential impacts on environmental resources due to the construction and operation of the Montezuma II Wind Energy Project.

4.1 ORGANIZATION

Chapters 5 through 19 describe the existing (baseline) environmental conditions within the Montezuma II Wind Energy Project Area, evaluate impacts that could result from project activities, and identify mitigation measures to minimize or avoid potentially significant impacts. Each of these chapters addresses a particular resource and includes the following topics:

- Environmental setting;
- Regulatory setting;
- California Environmental Quality Act (CEQA) significance criteria;
- Analysis of potential direct and indirect impacts; and
- Mitigation measures for impacts found to be potentially significant.

Relevant resource chapters also address issues raised during the scoping process. Chapter 20 evaluates alternatives to the proposed Project. Chapter 21 discusses cumulative impacts.

4.2 ENVIRONMENTAL SETTING

Identifying existing conditions provides a baseline for evaluating changes that would occur due to construction and operations of a proposed development project. Review of existing literature and available public geographic information system (GIS) data, internet resources, and data from government sources, and consultation with relevant agency staff, contributed to the identification of the existing conditions of resources in the proposed Montezuma II Wind Energy Project Area (e.g., existing air quality, water resources, and recreational opportunities) Point Impact Analysis, LLC (Point Impact) conducted a third-party review of all technical information submitted to the County by the Applicant, NextEra Energy Montezuma II Wind, LLC, for this Draft EIR. Point Impact conducted site visits to evaluate biological and visual resources and prepare the visual analysis.

The following is a general list of sources Point Impact used to determine existing conditions and evaluate potential impacts for the Project. Point Impact used numerous additional sources and provides references in each resource chapter (Chapters 5 through 19).

- NextEra Energy Montezuma II Wind, LLC Development Permit Application, June 2010, revised August 2010 and October 2010, with additional changes in January 2011. The Applicant proposes to construct 34 wind turbines and associated support facilities in the wind resource area of the Montezuma Hills.
- Previous EIRs prepared for the Shiloh I, Shiloh II, Shiloh III, High Winds, Montezuma Wind, and Solano Wind, and enXco V (formerly U.S. Windpower Montezuma Hills Wind Park) wind energy facilities. Based on the proximity of the Project to these existing and planned facilities and the similarity of the project activities and existing environmental conditions, Point Impact anticipates impacts resulting from the Montezuma II Wind Energy Project to be similar to those identified in the EIRs for these other projects.

- *Scoping Comments.* After reviewing the application, the County identified potentially significant adverse project impacts and released a Notice of Preparation (NOP) and public Scoping Meeting for a Draft EIR on October 22, 2010. The County held a public scoping meeting on November 10, 2010. The County received one comment at the public meeting. The County received five comments letters on the application and eight responses to the NOP. Appendix A in Volume II presents the comments received, and Section 4.7 of this Chapter summarizes the comments and identifies the analyses that address these comments.
- *Technical Reports.* The Applicant conducted technical surveys and prepared technical reports regarding air quality, avian mortality and impacts on avian behavior, terrestrial biological resources, cultural resources, impacts on microwave and radio frequency facilities, shadow flicker, turbine failure, and noise. These technical reports are included in Volume II of this document.
- *EIR Contractor.* The Solano County Department of Resource Management contractor, Point Impact, conducted site visits and visual analysis.

The Applicant originally proposed to use one of two different wind turbine options, but as the Montezuma II Wind Energy Project evolved, the Applicant opted to use only the Siemens 2.3 megawatt (MW) turbine model. Many of the technical reports were originally prepared based on the use of either the Siemens 2.3 MW or GE 2.5 MW turbines, but were revised to address exclusively the proposed Siemens 2.3 MW model but with two different blade lengths.

In January 2011, the Applicant withdrew three parcels totaling 149 acres from the proposed project area but maintained its application for 34 turbines, replacing the two turbine locations in the removed parcels with two alternative locations in the remaining area. The January 2011 project change renumbered 10 proposed and four alternate turbine locations.

Despite minor revisions to the turbine layout and the size of the project area subsequent to the preparation of several of the original technical reports, the assessment, conclusions, and recommendations in the technical reports remain valid for purposes of determining environmental impacts and establishing appropriate mitigation, unless otherwise noted in this Draft EIR. Many of the reports, essentially, are unaffected by any revised turbine locations, but some of the quantitative estimates of acreage in the Applicant's technical reports are slightly larger than the estimates in the Draft EIR. In addition, micro-siting of wind turbines is typically expected during final project design, which reinforces the fact that the proposed turbine locations as discussed in this Draft EIR are preliminary only. The adequacy of each technical report with respect to the currently proposed turbine layout is discussed within each resource chapter, as applicable. Where a technical report may be deficient, the impacts are identified and supplemental mitigation is provided, as appropriate.

Under section 15125 of the CEQA Guidelines, the EIR must include a description of the physical environmental conditions in the vicinity of a project as they exist at the time the NOP is published. For the proposed Project, these conditions include the presence of 510 Kenetech KCS-56-100 wind turbines and related access roads and other facilities for the enXco V (formerly U.S. Windpower) project, built in two phases (I and II) under two use permits in 1989-1990. The use permits expire in 2014 and 2015, respectively, and require decommissioning (removal and site restoration) of the original project prior to permit expiration. Approximately 200 of the existing Kenetech turbines are currently located within the Montezuma II project area. According to the enXco V owner, enXco,

these turbines will be removed by enXco prior to the construction of the proposed Project, in advance of expiration of the use permit. Although the removal of these turbines and reclamation of project features in compliance with use permit requirements will occur whether or not the County approves the Montezuma II Wind Energy Project, the analysis of the proposed Project will describe the direct effects of the Project and evaluate the significant of these impacts in comparison to the current operation of the enXco project, the existing conditions at the time of the preparation of the NOP.

4.3 REGULATORY SETTING

Regulatory policies and requirements may determine the nature, extent, and legality of activities and can affect numerous factors, such as location, allowable area of impact, work practices, schedule, mitigation, and agency consultation. The regulatory setting may also include permit conditions and benchmarks necessary for authorization of development projects. Existing and reasonably foreseeable federal, state, and local agency regulations and laws were reviewed and summarized to identify those applicable to the Montezuma II Wind Energy Project that would guide planning and implementation.

4.4 CALIFORNIA ENVIRONMENTAL QUALITY ACT SIGNIFICANCE CRITERIA

Significance criteria were developed for each resource area based on several sources, including standards set by applicable regulatory agencies; comments received during scoping; professional judgment; previous EIRs in the Montezuma Hills, and Appendix G to CEQA, which is a list of questions to help identify potentially significant impacts. Chapters 5 through 19 evaluate the potential impacts with respect to these criteria. In cases where a potential impact is determined to be significant, feasible mitigation measures to reduce or avoid the impact are identified.

4.5 IMPACT ANALYSIS

The Chapters evaluating the environmental analyses of the proposed Project consider the types of impact and characterize the intensity, duration, and severity of the impact.

4.5.1 Impact Types

In accordance with CEQA, this Draft EIR considers direct, indirect, and cumulative impacts, which are defined as follows:

- *Direct impacts* are those physical changes in the environment that are caused by the construction or operation of a project. Dispersion of air pollutants from a bulldozer into the atmosphere is an example of a direct impact.
- *Indirect impacts* are those reasonably foreseeable changes in the environment that are not immediately related to a proposed project but are caused indirectly by a proposed project. For example, removal of vegetation in a waterway may increase the potential for sedimentation downstream. In addition, the sedimentation could occur immediately following the removal of vegetation or later in the year after a significant storm event.
- *Cumulative impacts* are those changes in the environment that result from the combination of a proposed project with other past, present, and reasonably foreseeable future projects that cause related impacts. Cumulative impacts can result from individually minor but collectively

significant actions occurring over time. For example, an isolated project may cause only a small amount of erosion into a waterway, but the combination of multiple projects within the same watershed may cumulatively cause significant erosion into the waterway.

Chapters 5 through 19 evaluate the direct and indirect impacts of the Montezuma II Wind Energy Project. Chapter 20 considers the alternatives to the Project, including the no project alternative, which considers the removal of the enXco V project features and as well as its potential extension beyond its current use permit expiration date. Chapter 21 considered the cumulative impacts of the Project in conjunction with the other existing, proposed, and reasonably foreseeable projects in the Montezuma Hills. The cumulative impact analysis includes the impacts of the decommissioning (removal and site reclamation) of the enXco V project features as well as the possible concurrent construction of the Project together with up to two other new wind projects.

4.5.2 Impact Characterization

The impact analysis for this Draft EIR includes an overall evaluation of how the proposed Montezuma II Wind Energy Project and the alternatives would affect or be affected by the existing environment. The analysis defines impacts in terms of context and intensity. Context refers to the geographic area of impact, which varies with the physical setting of particular activities, and intensity refers to the severity of the impact.

The duration of the impact is also important in evaluating the intensity of an impact. Specifically, impacts are typically considered to be of short-term or long-term duration. Short-term duration impacts generally include impacts that are limited to the construction period. Short-term impacts are typically characterized as temporary impacts. Long-term impacts generally include impacts that continue to occur beyond construction, throughout the operation of a project. Long-term impacts are typically characterized as permanent impacts; however, long-term impacts may cease at the end of a project's lifetime (i.e., when a project is decommissioned). Hence, some impacts may only be permanent with respect to the particular project. The evaluation and characterization of impacts in this Draft EIR are based on both quantitative evaluation of scientific data and qualitative review of available information.

4.6 MONTEZUMA II WIND ENERGY PROJECT MITIGATION MEASURES AND MITIGATION-MONITORING AND REPORTING PROGRAM

Mitigation measures are specific methods that prevent, minimize, or compensate for an activity's significant, adverse effects. There are numerous ways to mitigate impacts. In general, types of mitigation measures can be categorized as follows:

- *Avoidance Measures* entirely avoid activities that could result in adverse significant impacts on sensitive resources and areas (e.g., not constructing access roads through wetlands).
- *Prevention Measures* impede the occurrence of adverse impacts (e.g., installing a silt fence at the base of hills above drainages to prevent sediment from entering the waterway).
- *Preservation Measures* typically extend legal protection to selected resources beyond the immediate needs of the project (e.g., preserving more of a specific resource than the amount affected by the project).

- *Minimization Measures* limit or reduce the degree, extent, magnitude, or duration of adverse impacts (e.g., limiting the idling time of equipment and vehicles to reduce air emissions).
- Rehabilitation Measures repair or enhance affected resources (e.g., repairing stream banks at temporary access road crossings to the preconstruction or more stable conditions).
- Restoration Measures restore affected resources to preconstruction conditions (e.g., restoring natural land contours and reseeding temporarily disturbed areas to promote revegetation and stabilization).
- *Compensation Measures* create, enhance, or protect the same type of resource at another location to compensate for resources lost to development (e.g., creating a wetland off-site to compensate for permanent impacts on wetlands in the project area).

A combination of these measures could be necessary to reduce impacts from projects below their significance criteria.

4.6.1 Mitigation Measures for the Montezuma II Wind Energy Project

Mitigation measures were developed for each project impact found to be significant to reduce the impact to a less than significant level or avoid the impact, if feasible. Avoidance and prevention mitigation measures were the first level of mitigation considered by the County to limit significant impacts to the greatest extent feasible. Mitigation measures for the Montezuma II Wind Energy Project include measures based on mitigation established by the County for similar, past projects in the Montezuma Hills wind resources area, comments received in response to the NOP and scoping effort, and consultation with other regulatory agencies. However, some project impacts remain significant even with mitigation; these are discussed where relevant in each chapter. Unless otherwise stated, the Applicant has agreed to all of the mitigation measures in this Draft EIR.

4.6.2 Mitigation Monitoring Program for the Montezuma II Wind Energy Project

It is the responsibility of the Applicant or its representative contractors to ensure that the mitigation measures established in this Draft EIR are implemented during construction and throughout the life of the Montezuma II Wind Energy Project. To facilitate the implementation of the mitigation measures established in this Draft EIR, a Mitigation Monitoring and Reporting Program (MMRP) for the Montezuma II Wind Energy Project has been developed. The MMRP is provided as a table, which includes the following:

- List of all mitigation measures in this Draft EIR;
- Direction on when the measures must be implemented;
- Identification of the party responsible for monitoring; and
- Reporting requirements associated with mitigation measures or as otherwise required by Solano County as part of the Use Permit.

Solano County Department of Resource Management, as the CEQA Lead Agency for this Draft EIR, will monitor the overall implementation of the mitigation monitoring measures identified in this Draft EIR as they relate to the Montezuma II Wind Energy Project. Chapter 22 contains the Mitigation Monitoring and Reporting Program.

4.7 COMMENTS ON THE MONTEZUMA II WIND ENERGY PROJET APPLICATION AND NOP

Solano County received the following written comments on the Montezuma II Wind Energy Project use permit application:

- The City of Rio Vista, regarding potential impacts to the operation of Rio Vista Municipal Airport. The City requested maps of proposed turbine siting, a map showing turbine siting relative to the Rio Vista Airport compatibility zone, and a list of proposed turbines and FAA evaluation designations (i.e., approved, presumed hazard, hazard). In addition, the City expressed concern regarding potential impacts of the proposed Project to instrument procedures, lowest decision altitude, and medium descent altitude at the Rio Vista Airport. Chapters 14, Land Use and Population and 19, Transportation, address potential impacts to Rio Vista Municipal Airport.
- California Department of Transportation, Division of Aeronautics, addressing potential noise, safety, and regional land use uses. The Division of Aeronautics commented that the proposed Project would indeed need to comply with FAA structural lighting, location, and height rules and would require submission of a Notice of Proposed Construction or Alteration to the FAA. Chapters 14, Land Use and Population; 18, Safety; and 19, Transportation, address these comments.
- The Federal Emergency Management Agency (FEMA), regarding flood hazard issues. FEMA summarized National Flood Insurance Program (NFIP) floodplain management building requirements and reminded the Applicant to review Flood Insurance Rate Maps (FIRMs). Chapter 13, Hydrology and Water Quality, addresses these comments.
- Solano County Department of Resource Management, regarding flood hazard issues. This comment from Solano County Department of Resource Management consists of a FIRM Determination that none of the proposed project structures on the property would be located in a Special Flood Hazard Area. Chapter 13, Hydrology and Water Quality discusses the implications of this finding.
- Solano County Public Works Engineering, regarding the impact of the proposed Project on public roads during construction. Public Works Engineering requested that the EIR analyze project traffic circulation and discuss the ability of existing roads to carry heavy loads (including mitigation where applicable). Public Works Engineering furthermore references that the Applicant would be responsible for maintaining and repairing County roads during construction. Chapter 19, Transportation addresses these comments.

On October 22, 2010, Solano County issued an NOP and Public Scoping Meeting Notice for preparation of the Montezuma II Draft EIR. The County received the following written comments in response to the NOP:

• Weinberg, Roger & Rosenfeld on behalf of the Carpenters Union Local 180 requesting the County mail or email all further CEQA notices related to the proposed Project to the address provided in the comment letter. The county has placed the firm on the public hearing notification distribution list for the Project.

- California Department of Transportation, Division of Aeronautics, regarding noise, safety, and regional land use uses. The Division of Aeronautics reminded the County that FAA requires a Notice of Proposed Construction or Alteration for structures, such as the proposed turbines, greater than 200 feet in height. Chapters 14, Land Use and Population, and 19, Transportation, address these comments.
- California Department of Fish and Game (CDFG) regarding potential impacts to habitat, wildlife, and hydrology. CDFG requested that:
 - The Applicant provide a complete assessment of the flora, fauna, and habitats within and adjacent to the project area including foreseeable direct and indirect changes that could result from the Project
 - The EIR include habitat conservation and enhancement measures to address unavoidable temporary, permanent and recurring impacts
 - Any compensatory mitigation for impacts to birds and bats result in permanent conservation outside of the Montezuma Hills area
 - Three years of post-construction monitoring of avian mortality be conducted

CDFG furthermore reminds the County of the recommendations of the CEQA guidelines with regards to special status species, the requirements of the California Endangered Species Act with regards to Incidental Takes, and the applicability of a Lake and Streambed Alteration Agreement. Chapter 8, Biological Resources, addresses the CDFG comments.

- Sacramento Municipal Utility District (SMUD) regarding its 21.6-kV electrical lines within the project area. SMUD asks that the County and the Applicant limit potential impacts from the proposed Project to SMUD facilities and include the three times the turbine height setback from their above-ground electrical lines within the project area. SMUD also requests that the EIR discuss the SMUD electrical lines in the project description, and in the existing setting portion of the public utilities and services, hazards and hazardous materials, and cumulative impact sections. Chapters 3, Project Description; 14, Land Use and Population; 16, Public Utilities and Services; and 18, Safety, address these comments. Chapter 12, Hazards and Hazardous Materials, refers to the analysis of impacts to collector lines in Chapter 16, Safety. SMUD subsequently withdrew these comments in a letter. See below.
- Yolo Solano Air Quality Management District (YSAQMD) regarding air quality and climate change issues. YSAQMD reminded the County of guidelines and regulations potentially applicable to the Project, including thresholds of significance and stationary source rules, and requested that the EIR analyze air quality impacts from construction and discuss the impact of the proposed Project on the state's ability to achieve the goals of AB 32. Chapters 7, Air Quality, and 11, Greenhouse Gases, address these comments.
- Solano County Department of Resource Management Environmental Health Division regarding sewage disposal, water supply, hazardous materials, and noise. The Environmental Health Division requested that the Applicant clarify the average number of employees per day, comply with drinking water permitting requirements, provide chemical toilets for construction workers, comply with applicable permit requirements for storage of hazardous

materials, and design the on-site sewage disposal system in compliance with County standards. Chapters 10, Geologic Resources, 12, Hazards and Hazardous Materials, and 13, Hydrology and Water Quality address these comments.

- City of Rio Vista, stating that the city now understands from the Applicant that the Project is at least six miles away from the city and will not have any implications to the present and future operations of Rio Vista Municipal Airport and requesting that the Applicant provide a statement confirming the distance of the project from the airport for the record. Chapter 19 discusses the impact to Rio Vista Municipal Airport operations.
- SMUD, formally withdrawing any direct or indirect comments on the NOP and requesting to be kept apprised of the planning, development, and completion of the project.

The County heard the following comment at the Public Scoping Meeting:

• A representative of SMUD inquired about County wind turbine setback rules and requested that the proposed Project maintain a three turbine height setback from the 21.6-kV SMUD electrical lines in the project area. Chapters 3, Project Description; 14, Land Use and Population; 16, Public Utilities and Services; and 18, Safety, address these comments. Chapter 12, Hazards and Hazardous Materials, refers to the analysis of impacts to collector lines in Chapter 16, Safety. SMUD subsequently withdrew its requested setback.

Appendix A of this Draft EIR provides copies of all above written communications received concerning the scope of the EIR analysis.