

## 3.9 Hydrology and Water Quality

This section describes the regulatory and environmental setting for hydrology and water quality in the project area. It also describes impacts on hydrology and water quality that would result from implementation of the Initial and Full Repower phases.

### 3.9.1 Existing Conditions

#### Regulatory Setting

##### Federal

##### Clean Water Act

The State Water Resources Control Board (State Water Board) is the state agency with primary responsibility for implementing the federal CWA, which establishes regulations relating to water resource issues. Typically, all regulatory requirements are implemented by the State Water Board through nine Regional Water Boards established throughout the state. The Central Valley Water Board is responsible for regulating discharges from the Initial and Full Repower phases, because drainage from the project parcels flows to the Central Valley. The San Francisco Bay Regional Water Board jurisdictional boundary is just west of the project area, at the easternmost extent of the Livermore Valley watershed, where drainage flows to the San Francisco Bay.

The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit. Permit review is the CWA's primary regulatory tool. The following sections provide additional details on specific sections of the CWA.

##### ***Section 404: Permits for Fill Placement in Waters and Wetlands***

CWA Section 404 regulates the discharge of dredged and fill materials into "waters of the United States," which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project proponents must obtain a permit from USACE for all discharges of dredged or fill material into waters of the United States before proceeding with a proposed activity. Before any actions that may affect surface waters are implemented, a delineation of jurisdictional waters of the United States must be completed, following USACE protocols, to determine whether the study area contains wetlands or other waters of the United States that qualify for CWA protection. These areas include:

- Sections within the ordinary high water mark (OHWM) of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned.
- Seasonal and perennial wetlands, including coastal wetlands.

Section 404 permits may be issued for only the least environmentally damaging practical alternative (i.e., authorization of a proposed discharge is prohibited if there is a practical alternative that would have fewer significant effects and lacks other significant consequences). Section 404 might apply if construction would occur within waters of the United States.

### ***Section 402: Permits for Discharge to Surface Waters***

CWA Section 402 regulates discharges to surface waters through the NPDES program, administered by the EPA. In California, the State Water Board is authorized by the EPA to oversee the NPDES program through the Regional Water Boards (see related discussion in this section under Porter-Cologne Water Quality Control Act). The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits.

#### ***Construction General Permit***

Dischargers whose projects disturb 1 or more acres of soil or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres are required to file a notice of intent (NOI) to obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ) (Construction General Permit). Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation, but do not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The Construction General Permit requires the preparation and implementation of a SWPPP, which must be completed before construction begins. The SWPPP should contain a site map that shows the construction site perimeter; existing and proposed buildings, lots, roadways, and stormwater collection and discharge points; general topography both before and after construction; and drainage patterns across the project parcels. The SWPPP must list BMPs the discharger will use to protect stormwater runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for non-visible pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the Construction General Permit describes the elements that must be contained in a SWPPP.

### ***Section 401: Water Quality Certification***

Under CWA Section 401, applicants for a Federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect the quality of the state's waters (including projects that require federal agency approval, such as the issuance of a Section 404 permit) also must comply with Section 401.

### ***Section 303: Impaired Waters***

California adopts water quality standards to protect beneficial uses of state waters as required by CWA Section 303 and the Porter-Cologne Water Quality Control Act of 1969. Section 303(d) of the CWA requires the identification of water bodies that do not meet, or are not expected to meet, water quality standards (i.e., impaired water bodies). In California, the State Water Board develops the list of water quality-limited segments and the EPA approves the state's list. The affected water body, and associated pollutant or stressor, is then prioritized in the 303(d) List. Section 303(d) also requires the development of a Total Maximum Daily Load (TMDL) for each listing. The current list, approved by the EPA, is the 2006 303(d) List.

In addition to the impaired water body list required by CWA Section 303(d), CWA section 305(b) requires states to develop a report assessing statewide surface water quality. Both CWA requirements are being addressed through the development of a 303(d)/305(b) Integrated Report, which will address both an update to the 303(d) list and a 305(b) assessment of statewide water quality. The State Water Board developed a statewide 2010 California Integrated Report based upon the Integrated Reports from each of the nine Regional Water Boards. The 2010 California Integrated Report was approved by the State Water Board at a public hearing on August 4, 2010, and the report was submitted to the EPA for final approval. Although updates to the 303(d) list must be finalized by the EPA before becoming effective, this updated 303(d) list will be used for this analysis in order to have the most up-to-date information available.

## **State**

### **Porter-Cologne Water Quality Control Act**

The Porter-Cologne Water Quality Control Act, passed in 1969, complements the CWA. It established the State Water Board and divided the state into nine regions, each overseen by a Regional Water Board. The State Water Board is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies, although much of its daily implementation authority is delegated to the Regional Water Boards, which are responsible for implementing CWA Sections 402 and 303(d). In general, the State Water Board manages both water rights and statewide regulation of water quality, while the Regional Water Boards focus exclusively on water quality within their regions.

### **Central Valley Regional Water Quality Control Board**

The Porter-Cologne Water Quality Control Act provides for the development and periodic review of Water Quality Control Plans (basin plans) for each region. The Central Valley Water Board is responsible for implementing its Basin Plan (Central Valley Regional Water Quality Control Board 2009) for the Sacramento River and its tributaries. The basin plan identifies beneficial uses of the river and its tributaries and water quality objectives to protect those uses. Numerical and narrative criteria are contained in the basin plan for several key water quality constituents, including dissolved oxygen (DO), water temperature, trace metals, turbidity, suspended material, pesticides, salinity, radioactivity, and other related constituents.

Basin plans are implemented primarily by using the NPDES permitting to regulate waste discharges so that water quality objectives are met (see discussion of NPDES under CWA above). Basin plans are updated every 3 years and provide the technical basis for determining waste discharge requirements (WDRs) and taking enforcement actions. The Central Valley Water Board Basin Plan was last updated in 2011. Another method the Central Valley Water Board uses to implement the basin plan criteria is by issuing WDRs. WDRs are issued to any entity that discharges to a surface water body and does not meet certain water quality criteria such as those related to sediment. The WDR/NPDES permit also serves as a federally required NPDES permit (under the CWA) and incorporates the requirements of other applicable regulations.

### **Water Quality Objectives**

Water quality objectives represent the standards necessary to protect and support designated beneficial uses. The Regional Water Boards have set water quality objectives for all surface waters in their respective regions (including the Sacramento River basin) for the following substances and

parameters: ammonia, bacteria, biostimulatory substances, chemical constituents, color, DO, floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity.

### **State Implementation Plan**

In 1994, the State Water Board and EPA agreed to a coordinated approach for addressing priority toxic pollutants in inland surface waters, enclosed bays, and estuaries of California. In March 2000, the State Water Board adopted a SIP for priority toxic pollutant water quality criteria contained in the California Toxics Rule (CTR). EPA promulgated the CTR in May 2000. The SIP also implements National Toxics Rule (NTR) criteria and applicable priority pollutant objectives in the basin plans. In combination, the CTR and NTR and applicable basin plan objectives, existing Regional Water Board beneficial use designations, and SIP compose water quality standards and implementation procedures for priority toxic pollutants in non-ocean surface waters in California.

### **Senate Bills 610 and 267**

Senate Bill (SB) 610, passed in 2001, requires a city or county that determines its project subject to CEQA to identify any public water system that may supply water for the project. It is intended to promote more collaborative planning and ensure adequate water supplies for current and future needs. In addition, the city or county must request those public water systems to prepare a specified water supply assessment. If no public water system is identified, the city or county is required to prepare the water supply assessment.

Passed in 2011, SB 267 revised SB 610's definition of "project" to exclude wind energy generation facilities that would demand no more than 75 acre-feet of water annually, thereby exempting those projects from the requirements of SB 610.

Construction-related water demand for both the Initial Repower and Full Repower would total approximately 340 acre-feet; water necessary for O&M activities would not exceed 400 gallons (0.001 acre-foot) per year for the Initial Repower or approximately 3,300 gallons (0.01 acre-foot) per year for the Full Repower. The expected life of the project is 30 years. Thus, the average amount of water required would not exceed 11.3 acre-feet per year (3,682,121 gallons). Because the project's water demand is well below 75 acre-feet annually, the project qualifies as exempt from SB 610 under SB 267.

## **Local**

### **Alameda County Stormwater Management Plan**

The County Department of Environmental Health developed a formal agreement with the County Public Works Agency to implement the industrial and commercial component of the Alameda Countywide Clean Water Program's (ACCWP) Stormwater Management Plan for unincorporated Alameda County. The program includes inspection of facilities for compliance with the clean water regulations, provide outreach and education of best management practices to business owners, follow up inspection for enforcement action, and creation and maintenance of a database of businesses in Alameda County unincorporated area for the Clean Water Program.

## East County Area Plan

Relevant components of the East County Area Plan to meet Water Quality goals for surface and groundwater are listed below. These policies and implementation programs address similar components as in the Alameda County General Plan.

### Policies

**P 306:** The County shall protect surface and groundwater resources by:

- preserving areas with prime percolation capabilities and minimizing placement of potential sources of pollution in such areas;
- minimizing sedimentation and erosion through control of grading, quarrying, cutting of trees, removal of vegetation, placement of roads and bridges, use of off-road vehicles, and animal-related disturbance of the soil;
- not allowing the development of septic systems, automobile dismantlers, waste disposal facilities, industries utilizing toxic chemicals, and other potentially polluting substances in creekside, reservoir, or high groundwater table areas when polluting substances could come in contact with flood waters, permanently or seasonally high groundwaters, flowing stream or creek waters, or reservoir waters; and,
- avoiding establishment of excessive concentrations of septic systems over large land areas.

### Implementation Programs:

**Program 108:** The County shall implement all federal, state and locally imposed statutes, regulations, and orders that apply to storm water quality. Examples of these include, but are not limited to:

- National Pollutant Discharge Elimination System (NPDES) stormwater permit issued by the California Regional Water Quality Control Board (RWQCB) to the Alameda County Urban Runoff Clean Water Program and amendments thereto;
- State of California NPDES General Permit for Storm Water Discharges (General Industrial Permit, General Construction Permit) and amendments thereto;
- Coastal Zone Management Act;
- Coastal Zone Act Reauthorization Amendments;
- Water Quality Control Plan, San Francisco Bay Basin Region (Basin Plan) and amendments thereto; and
- Letters issued by the RWQCB under the California Porter-Cologne Water Quality Act.

**Program 109:** The County shall endeavor to minimize herbicide use by public agencies by reviewing existing use and applying integrated pest management principles, such as mowing and mulching, in addition to eliminating or scaling back the need for vegetation control in the design phase of a project.

**Program 110:** The County shall conform with Alameda County Flood Control and Water Conservation District's (Zone 7) Wastewater Management Plan and the Regional Water Quality Control Board's San Francisco Bay Basin Plan.

## Environmental Setting

### Surface Water and Drainage

The project area is located southwest of the San Joaquin–Sacramento River Delta (Delta) in unincorporated northern Alameda County. Surface drainage in the project area ultimately flows north toward the Delta by natural drainage channels, irrigation canals, and creeks. The west and northeast project parcels drain to upper branches of Mountain House Creek, and the southeast parcels drain to Patterson Run. The California Aqueduct extends south from Bethany Reservoir north of the project area to the west side of the northeast project parcels, and to the east side of the southeast parcels. The Delta-Mendota Canal (DMC) roughly parallels the California Aqueduct to its east, and is on the opposite (east side) of the northeast parcels. These two aqueducts do not serve any local drainage or water supply function, but are part of the state-wide water transportation system. Local area drainage is channeled and in some cases pumped to avoid flowing into these state facilities.

According to the most recent CWA Section 303(d) List (2010), Mountain House Creek is impaired for chloride and salinity, and Old River (in the southern part of the Delta) is impaired for chlorpyrifos, electrical conductivity, total dissolved solids (TDS) and low dissolved oxygen (State Water Resources Control Board 2010).

### Groundwater Resources

The project area is located in the Tracy Subbasin (Basin Number 5-22.15) of the larger San Joaquin Valley Groundwater Basin, according to the California Department of Water Resources (DWR) Groundwater Bulletin 118. There are no published groundwater storage data for the entire basin; however, estimated groundwater storage capacity is approximately 4,040,000 acre-feet (California Department of Water Resources 2006). Review of hydrographs for the Tracy subbasin indicates that, except for some seasonal variation resulting from recharge and pumping, the majority of water levels in wells have remained relatively stable over at least the last 10 years (California Department of Water Resources 2006).

Groundwater quality in the Tracy subbasin is characterized by a sodium water type and the southern part of the subbasin is characterized by calcium-sodium type water. The northern part of the subbasin is also characterized by a wide range of anionic water types including: bicarbonate; chloride; and mixed bicarbonate-chloride types. TDS concentrations in well water samples range from 50 to 3,520 mg/L, with an average of 463 mg/L. Areas of poor water quality exist throughout the subbasin. Elevated levels of chloride occur in several areas along the western side of the subbasin along with areas of elevated boron concentrations (California Department of Water Resources 2006). Areas of elevated nitrate occur in the northwestern part of the subbasin and in the vicinity of the city of Tracy.

### Flooding

The project area is not within a 100-year flood hazard area, as identified on a Flood Insurance Rate Map (FIRM) delineated by FEMA. According to Figure 48 of the ECAP, one portion of the project area (AC Project) is within the Bethany Reservoir Dam Inundation Zone (Alameda County 1994).

## 3.9.2 Environmental Impacts

This section describes the environmental impacts relating to hydrology, water quality and groundwater resources for the Initial and Full Repower. It describes the methods used to determine the effects on hydrology and water quality and lists the criteria and conditions used to conclude whether an impact would be significant. The impacts that would result from implementation of the Initial Repower, findings with or without mitigation, and applicable mitigation measures are presented.

### Methods for Analysis

This evaluation of hydrology, water quality, and groundwater resources is based on professional standards and information cited throughout the section.

The key impacts were identified and evaluated based on the environmental characteristics of the project area and the magnitude, intensity, and duration of activities related to the construction and operation of the Initial Repower.

### Determination of Significance

- Based on Appendix G of the State CEQA Guidelines, a proposed project would normally be required to determine if it would have any of the following potential significant effects. Violate any water quality standards or waste discharge requirements.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted).
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite.
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Otherwise substantially degrade water quality.
- Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- Place within a 100-year flood hazard area structures that would impede or redirect floodflows.
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.
- Contribute to inundation by seiche, tsunami, or mudflow.

## Impacts and Mitigation Measures

This section addresses potential impacts of the Initial Repower and Full Repower on hydrological and water quality within the project vicinity. Please refer to following sections for additional information on water-related impacts:

- Chapter 3.12, Utilities and Service Systems, for information on water supply impacts;
- Chapter 3.6, Geology, Soils and Paleontological Resources, for more information on the potential for soil erosion;
- Chapter 3.4, Biological Resources, for more information on potential wetland impacts; and
- Chapter 3.8, Hazardous and Hazardous Materials, for more information on the potential for accidental spills containing hazardous chemicals during project construction and operation.

### Initial Repower

#### **Impact WQ-1: Violate any water quality standards or waste discharge requirements (less than significant with mitigation)**

Construction-related earth disturbing activities would occur during the development of the Initial Repower. These construction activities would introduce the potential for increased erosion and sedimentation, with subsequent effects on drainage and water quality. During construction, trenching and other construction activities could create areas of bare soil that can be exposed to erosive forces for long periods of time. Bare soils are much more likely to erode than vegetated areas because of the lack of dispersion, infiltration, and retention properties created by covering vegetation. Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, and grading could result in increased erosion and sedimentation to surface waters, if proper BMPs are not used.

While existing activities in the project area may already result in the release of sediment, the extent of earth disturbance resulting from construction of the Initial Repower is anticipated to result in a new potential for the release of sediments based on the potential area of disturbance for Initial Repower activities and components, as shown in Table 2-2 in Chapter 2, *Project Description*. If precautions are not taken to contain or capture sedimentation, earth-disturbing construction activities could result in substantial sedimentation in stormwater runoff and result in a significant impact on the existing surface water quality. The implementation of Mitigation Measure WQ-1 would minimize the potential water quality impacts and would reduce this impact to a less-than-significant level.

Implementation of Mitigation Measure WQ-1 would reduce this impact to a less-than-significant level.

#### **Mitigation Measure WQ-1: Comply with NPDES requirements**

Project contractors will obtain coverage under the Construction General Permit before the onset of any construction activities where the disturbed area is 1 acre or greater in size. A SWPPP will be developed by a qualified engineer or erosion control specialist in accordance with the Central Valley Water Board requirements for NPDES compliance and implemented prior to the issuance of any grading permit before construction. The SWPPP will be kept onsite during construction activity and will be made available upon request to representatives of the Regional Water Board.



Compliance and coverage with the *Storm Water Management Program* and Construction General Permit will require controls of pollutant discharges that utilize BMPs and technology to reduce erosion and sediments to meet water quality standards. BMPs may consist of a wide variety of measures taken to reduce pollutants in stormwater and other nonpoint-source runoff. Measures range from source control, such as reduced surface disturbance, to the treatment of polluted runoff, such as detention basins.

BMPs to be implemented as part of the *Storm Water Management Program* and Construction General Permit (and SWPPP) may include the following practices.

- Temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed to control erosion from disturbed areas.
- Use a dry detention basin (which is typically dry except after a major rainstorm, when it will temporarily fill with stormwater), designed to decrease runoff during storm events, prevent flooding, and allow for off-peak discharge. Basin features will include maintenance schedules for the periodic removal of sediments, excessive vegetation, and debris that may clog basin inlets and outlets.
- Cover, or apply nontoxic soil stabilizers to, inactive construction areas (previously graded areas inactive for 10 days or more) that could contribute sediment to waterways.
- Enclose and cover exposed stockpiles of dirt or other loose, granular construction materials that could contribute sediment to waterways.
- Ensure that no earth or organic material will be deposited or placed where it may be directly carried into a stream, marsh, slough, lagoon, or body of standing water.
- Prohibit the following types of materials from being rinsed or washed into the streets, shoulder areas, or gutters: concrete, solvents and adhesives, thinners, paints, fuels, sawdust, dirt, gasoline, asphalt and concrete saw slurry, and heavily chlorinated water.
- Ensure that grass or other vegetative cover will be established on the construction site as soon as possible after disturbance.

The contractor will select a combination of BMPs that can be expected to minimize runoff and remove contaminants from stormwater discharges. The final selection of BMPs will be subject to approval by the Regional Water Board. The contractor will verify that a Notice of Intent has been filed with the State Water Board and that a SWPPP has been developed before allowing construction to begin. The contractor will perform inspections of the construction area, to verify that the BMPs specified in the SWPPP are properly implemented and maintained. The contractor will notify the Regional Water Board immediately if there is a noncompliance issue and will require compliance. If necessary, Alameda County will require that additional BMPs be designed and implemented if those originally implemented do not achieve the identified performance standard.

**Impact WQ-2: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted) (less than significant)**

Construction of the Initial Repower involves relatively small footprints that would not result in blocking groundwater infiltration to a point that would deplete groundwater supplies or interfere substantially with any agricultural wells nearby. In addition, construction would not involve a substantial use of water with the exception of normal BMPs such as road and site dust control. For the Initial Repower, no groundwater supplies would be needed for construction or operational purposes because water supplies would be trucked in from Zone 7 Water Agency in Livermore for water for dust control and revegetation activities during construction activities. No water would be required for concrete mixing as it would arrive onsite premixed. The routine washing of shrouded turbine blades is anticipated to occur no more than once a year, and is not expected to require more than a total of 400 gallons per year for the 40 Initial Study turbines. Therefore, this impact would be less than significant and no mitigation is required.

**Impact WQ-3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite (less than significant with mitigation)**

The Initial Repower would be constructed in an area with existing 1980s–'90s era turbines, and would result in minor alteration of topography and existing drainage patterns. Although the Initial Repower involves the removal of 70–80 existing turbines and the construction of 40 new pads, new connections to the existing power collection system, and temporary laydown areas, it would be located among existing turbines, and no new internal project area access roads, substation facilities, interconnection lines, or O&M facilities would be necessary. Some existing internal private access roads may need to be widened, but the additional associated disturbance area would be minimal. Additional structures that may affect existing drainage patterns include new common assembly pads where up to eight turbines would be constructed per assembly pad. This process would minimize overall disturbance by concentrating the assembly areas and allowing for easier and more effective maintenance of construction BMPs. Proper BMPs to catch any sediment during storm events would be implemented as required by the SWPPP. Mitigation Measure WQ-1 would reduce construction impacts to less than significant. Therefore, construction related impacts from erosion and siltation, or related to the course of any drainage channel or creek, would be less than significant with mitigation.

**Mitigation Measure WQ-1: Comply with NPDES requirements**

Please refer to Impact WQ-1 for a description of Mitigation Measure WQ-1.

**Impact WQ-4: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite (less than significant with mitigation)**

New buildings and other infrastructure can alter existing topography and impede existing drainage flows. In addition to the reasoning stated in Impact WQ-3, the Initial Repower involves minor additional infrastructure that could impede drainage flows through the project area compared to

existing conditions. In addition, the Initial Repower would not result in a large increase in impervious area because the majority of surfaces would be finished with a pervious gravel surface rather than a paved impervious surface. The total impervious area for the Initial Repower shrouded turbine pads would be 0.12%<sup>1</sup> of the total Initial Repower area compared to the existing 0.06%<sup>2</sup> impervious area for the existing turbine foundations.

The potential for drainage from the project parcels to result in flooding would not be changed as a result of construction or from operation of the Initial Repower. Implementation of Mitigation Measures WQ-1 and WQ-4 would ensure construction impacts would be reduced to a level that is less than significant. Accordingly, this impact would be less than significant with mitigation.

#### **Mitigation Measure WQ-1: Comply with NPDES requirements**

Please refer to Impact WQ-1 for a description of Mitigation Measure WQ-1.

#### **Mitigation Measure WQ-4: Comply with local hydrological and drainage requirements**

The Applicant will perform a hydrological and drainage study for the Initial Repower according to the requirements of the Alameda County Hydrology and Hydraulic requirements, if necessary, and will design the Initial Repower so that the postconstruction volume and rate of drainage flows do not exceed preconstruction flows.

#### **Impact WQ-5: Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff (less than significant with mitigation)**

Increased impervious area can increase the volume of surface runoff into surface waters and stormwater systems. As previously mentioned, the Initial Repower would not result in a large increase in impervious area because it has minor additional infrastructure, and the majority of surfaces would be finished with a pervious gravel surface rather than a paved impervious surface. Therefore, with implementation of Mitigation Measures WQ-1 and WQ-4, the Initial Repower would not result in substantial additional runoff that would result in onsite or downstream flooding and contribute to additional sources of polluted runoff. This impact would be less than significant with mitigation.

#### **Mitigation Measure WQ-1: Comply with NPDES requirements**

Please refer to Impact WQ-1 for a description of Mitigation Measure WQ-1.

#### **Mitigation Measure WQ-4: Comply with local hydrological and drainage requirements**

Please refer to Impact WQ-4 for a description of Mitigation Measure WQ-4.

---

<sup>1</sup> The Initial Repower % impervious area was calculated based on the following data: (0.03 acres impervious area/shrouded turbine pad)\* (40 new shrouded turbines) = 1.2 acres impervious area. Approximate total Initial Repower area = 1,000 acres (Table 2-1. Parcels included in Repower Project). 1.2 acres/1,000 acres = 0.12%

<sup>2</sup> The existing % impervious area within the Initial Repower area (1,000 acres) was calculated based on the following data = (0.009 acres impervious area/existing turbine foundation)\* (68 existing turbines removed) = 0.62 acre impervious area (Table 2-2, Existing Project Facilities and Components and Table 2-1. Parcels included in Repower Project). 0.62 acre/1,000 acres = 0.06%.

**Impact WQ-6: Otherwise substantially degrade water quality (less than significant with mitigation)**

Construction-related water quality impacts would be minimized with implementation of Mitigation Measure WQ-1. Operational water quality impacts would not change from existing conditions as proper maintenance of the turbines would occur and the turbines would not contribute any additional water quality contaminants to the drainages that lead to Mountain House Creek or the Patterson Run. Therefore this impact would be less than significant with mitigation.

**Mitigation Measure WQ-1: Comply with NPDES requirements**

Please refer to Impact WQ-1 for a description of Mitigation Measure WQ-1.

**Impact WQ-7: Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map (no impact)**

The project area is not within a 100-year flood hazard area mapped by a FIRM and the Initial Repower would not involve the construction of housing. Due to the topography onsite, flooding does not occur, and the site drains to either the Mountain House Creek or Patterson Run via small drainages or swales. There would be no impact and no mitigation is required.

**Impact WQ-8: Place within a 100-year flood hazard area structures that would impede or redirect flood flows (no impact)**

As stated in the discussion of the environmental setting (*Flooding*), the project parcels are not located in the 100-year floodplain. Therefore, construction of the turbines would not impede or redirect flood flows. There would be no impact and no mitigation is required.

**Impact WQ-9: Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam (no impact)**

The Initial Repower would not expose people or structures to a significant risk of loss or death from failure of a levee as the California Aqueduct and DMC are down gradient from the project. In addition, Bethany Reservoir is only a flow-through reservoir for the California Aqueduct and if any facilities failed, water would just continue to flow into the aqueduct resulting in no flooding. There would be no impact and no mitigation is required.

**Impact WQ-10: Contribute to inundation by seiche, tsunami, or mudflow (no impact)**

Due to the project area being far inland from the ocean, there would be no impact from inundation by a seiche or tsunami. Mudflow impacts are not anticipated as topography is not steep and construction BMPs would help ensure soil stability. There would be no impact and no mitigation is required.

**Full Repower**

Activities associated with the Full Repower phase are expected to be the same as those for the Initial Repower phase, but on a substantially larger scale. In addition, the Full Repower would include the erection of additional met towers and may involve the construction of a new O&M building, additional parking and storage space, and associated infrastructure, as noted in Chapter 2, *Project*

*Description.* Therefore impacts on project area hydrology and water resources would be similar to those for the project-level analysis, but impacts would be greater due to the increased area of land disturbance. The Full Repower would involve repowering activities on an additional 68 acres.

**Impact WQ-1[F]: Violate any water quality standards or waste discharge requirements (less than significant with mitigation)**

As discussed for the Initial Repower, under the Full Repower there would be potential for land disturbance, excavation work, and other activities to cause the discharge of sediments and other pollutants into surface drainages leading to Mountain House Creek, Patterson Run, or groundwater aquifers within the Tracy Subbasin. The implementation of Mitigation Measure WQ-1 and compliance with local stormwater requirements would minimize the potential water quality impacts and would reduce this impact to a less-than-significant level. This impact would be less than significant with mitigation.

**Mitigation Measure WQ-1: Comply with NPDES requirements**

Please refer to the discussion of Mitigation Measure WQ-1 under *Initial Repower*, Impact WQ-1.

**Impact WQ-2[F]: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted) (less than significant)**

Construction of the Full Repower phase would require a considerably greater extent of excavation area for new tower installation due to the increase in the number of towers as well as the O&M facility and related infrastructure. The shrouded turbine tower foundation options (large spread footing [inverted "T"]), a single pier foundation, or four individual steel reinforced concrete caissons) involve an excavation depth of 7–30 feet. If groundwater resources are found within this depth range, dewatering may be required. However, the volume of dewatered water would be minimal compared to the total groundwater aquifer volume and the Full Repower would not require use of groundwater supplies for construction (i.e., dust control and revegetation activities) and operation activities (i.e. cleaning of tower blades and other equipment) because supplies will be obtained and trucked in from Zone 7 Water Agency. Therefore, this impact would be less than significant and no mitigation is required.

**Impact WQ-3[F]: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite (less than significant with mitigation)**

The decommissioning of 320–330 existing old technology wind turbines, installation of 300 new shrouded turbines, and construction of a new O&M facility may temporarily or permanently alter drainage patterns within the project area. However, similar to the Initial Repower, the alteration would be minor because new towers and associated infrastructure would be constructed within an area of existing turbine infrastructure. The additional disturbance would minimize overall disturbance by concentrating the assembly areas allowing for easier and more effective maintenance of construction BMPs. Proper BMPs to catch any sediment during storm events would be installed as required by the SWPPP. Implementation of Mitigation Measure WQ-1 would reduce

this impact to less than significant. Therefore, construction related impacts from erosion and siltation, or related to the course of any drainage channel or creek, would be less than significant with mitigation.

#### **Mitigation Measure WQ-1: Comply with NPDES requirements**

Please refer to the discussion of Mitigation Measure WQ-1 under *Initial Repower*, Impact WQ-1.

#### **Impact WQ-4[F]: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite (less than significant with mitigation)**

The Full Repower would result in increased impervious area due to the installation of approximately 300 new towers as well as a 5-acre O&M facility and related infrastructure. However, the extent of impervious area would be minimal because the majority of surfaces (i.e., roads, O&M facility parking lot) will be finished with a pervious gravel surface rather than a paved impervious surface. With the Full Repower, the total impervious area would be approximately 1.24%<sup>3</sup>, within the Full Repower project parcels compared to the existing 0.28%<sup>4</sup> impervious area of the existing turbine foundations within the Full Repower area. However, this is still a relatively small increase relative to existing impervious area.

The potential for drainage from the project parcels to result in flooding would not be changed significantly as a result of construction or from operation of the Full Repower and implementation of Mitigation Measures WQ-1 and WQ-4 would ensure construction impacts would be reduced to a level that is less than significant. This impact would therefore be considered less than significant with mitigation.

#### **Mitigation Measure WQ-1: Comply with NPDES requirements**

Please refer to the discussion of Mitigation Measure WQ-1 under *Initial Repower*, Impact WQ-1.

#### **Mitigation Measure WQ-4: Comply with local hydrological and drainage requirements**

Please refer to the discussion of Mitigation Measure WQ-4 under *Initial Repower*, Impact WQ-4.

#### **Impact WQ-5[F]: Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff (less than significant with mitigation)**

Increased impervious area can increase the volume of surface runoff into surface waters and stormwater systems. As previously mentioned, the Full Repower would not result in a large increase in impervious area because it has minor additional infrastructure, and the majority of surfaces

---

<sup>3</sup> The Full Repower % impervious area was calculated based on the following data: (0.03 acre impervious area/shrouded turbine pad)\* (300 new shrouded turbines) + 5 acres impervious area for the O&M Facility = 14 acres impervious area. Approximate total Full Repower area = 1,100 acres (Table 2-1. Parcels included in Repower Project). 14 acres/1,100 acres = 1.24%

<sup>4</sup> The existing % impervious area within the Full Repower area (1,126 acres) was calculated based on the following data = (0.009 acres impervious area/existing turbine foundation)\* (339 existing turbines removed) = 3.11 acres impervious area (Table 2-2, Existing Project Facilities and Components and Table 2-1. Parcels included in Repower Project). 3.11 acre/1,100 acres = 0.28%.

would be finished with a pervious gravel surface rather than a paved impervious surface. Therefore, the Full Repower would not result in substantial additional runoff that would result in onsite or downstream flooding and contribute to additional sources of polluted runoff with implementation of Mitigation Measures WQ-1 and WQ-4. Therefore this impact would be less than significant with mitigation.

**Mitigation Measure WQ-1: Comply with NPDES requirements**

Please refer to the discussion of Mitigation Measure WQ-1 under *Initial Repower*, Impact WQ-1.

**Mitigation Measure WQ-4: Comply with local hydrological and drainage requirements**

Please refer to the discussion of Mitigation Measure WQ-4 under *Initial Repower*, Impact WQ-4.

**Impact WQ-6[F]: Otherwise substantially degrade water quality (less than significant with mitigation)**

Impacts for the Full Repower would be similar to the Initial Repower but on a larger scale. Operational water quality impacts would not change from existing conditions as proper maintenance of the turbines would occur and the turbines would not contribute any additional water quality contaminants to the drainages that lead to Mountain House Creek or the Patterson Run. Construction-related water quality impacts would be minimized with implementation of Mitigation Measure WQ-1. Therefore this impact is considered to be less than significant with mitigation.

**Mitigation Measure WQ-1: Comply with NPDES requirements**

Please refer to the discussion of Mitigation Measure WQ-1 under *Initial Repower*, Impact WQ-1.

**Impact WQ-7[F]: Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map (no impact)**

As stated in the discussion of the environmental setting (*Flooding*), the project area is not within a 100-year flood hazard area mapped by a FIRM and the Full Repower would not involve the construction of housing. Due to the topography onsite, flooding does not occur, and the site drains to either the Mountain House Creek or Patterson Run via small drainages or swales. There would be no impact and no mitigation is required.

**Impact WQ-8[F]: Place within a 100-year flood hazard area structures that would impede or redirect flood flows (no impact)**

The project parcels are not located in the 100-year floodplain. Therefore, construction of the turbines would not impede or redirect flood flows. There would be no impact and no mitigation is required.

**Impact WQ-9[F]: Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam (no impact)**

The Full Repower would have no impact on flooding because the project area is not located within a 100-year flood hazard area and would not increase the risk for inundation by seiche or tsunami because the project area is not located near the ocean. Therefore there would be no impact and no mitigation would be required.

**Impact WQ-10[F]: Contribute to inundation by seiche, tsunami, or mudflow (no impact)**

As described with the Full Repower, due to the project area being far inland from the ocean, there would be no impact from inundation by a seiche or tsunami. Mudflow impacts are not anticipated as topography is not steep and construction BMPs would help ensure soil stability. There would be no impact and no mitigation is required.

### 3.9.3 References Cited

#### Printed References

Alameda County. 1994. *East County Area Plan*. Amended in 2000.

California Department of Water Resources. 2006. *San Joaquin Valley Groundwater Basin, Tracy Subbasin*. Available: [http://www.water.ca.gov/pubs/groundwater/bulletin\\_118/basindescriptions/5-22.15.pdf](http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/5-22.15.pdf). Accessed: April 11, 2012.

Central Valley Regional Water Quality Control Board. 2011. *Water Quality Control Plan (Basin Plan)*. Available: [http://www.waterboards.ca.gov/centralvalley/water\\_issues/basin\\_plans/sacsjr.pdf](http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf). Accessed: April 11, 2012.

State Water Resources Control Board. 2010. *2010 Integrated Report, CWA Section 303(d) List of Impaired Waters*. Available: [http://www.swrcb.ca.gov/water\\_issues/programs/tmdl/integrated2010.shtml](http://www.swrcb.ca.gov/water_issues/programs/tmdl/integrated2010.shtml). Accessed: April 11, 2012.