

Chapter 6 Cumulative Impacts

6.1 Introduction

This chapter evaluates the cumulative impacts and the potential contribution of the Intertie to those impacts. The impact assessment discusses each resource topic evaluated in this EIS.

6.2 Approach to Impact Analysis

6.2.1 Legal Requirements

NEPA regulations require that the cumulative impacts of a proposed project be addressed in an EIS when the cumulative impacts are expected to be significant. Cumulative impacts are impacts on the environment that result from the incremental impacts of a proposed action when added to other closely related past, present, and reasonably foreseeable future actions (40 CFR 1508.7). Such impacts can result from individually minor but collectively significant actions taking place over time.

6.2.2 Methods

A list of past, current and probable future projects was compiled for the cumulative setting. These projects (cumulative projects) include other water supply projects affecting the Delta area which could result in similar impacts and benefits as those of the Intertie. Other cumulative projects which were considered include:

- Projects identified in the 2000 CALFED Record of Decision (ROD);
- Projects included in the 2008 CVP/SWP Longterm Operations Plan;
- Other projects in which Reclamation is involved; and
- Regional and local agency infrastructure projects (e.g., water and wastewater facilities construction and/or improvements).

In addition, regional plans were reviewed to characterize development trends and growth projections in Alameda and San Joaquin County. These projects are considered with the Intertie to determine if the combined effects of all of the projects would result in significant cumulative impacts.

6.2.3 Quantitative Analysis

The quantitative analysis uses the analysis presented in the 2008 CVP/SWP Longterm Operations Plan (U.S. Department of the Interior, Bureau of Reclamation 2008) and the 2008 USFWS Operations BO for Delta smelt (U.S. Fish and Wildlife Service 2008). The

CVP/SWP Longterm Operations Plan represents a hard look at existing operations and proposed near-future projects that are likely to affect similar resources. In addition to existing CVP and SWP operations, six near-future projects are included in the CVP/SWP Longterm Operations Plan, including the Intertie. The CVP/SWP Longterm Operations Plan, however, does not include all reasonably foreseeable projects, so a qualitative assessment is also included in this chapter. The following summarizes projects proposed by Reclamation in the CVP/SWP Longterm Operations Plan and the Reasonable and Prudent Alternative included in the USFWS Operations BO for delta smelt to reduce the effects of existing CVP and SWP operations and the proposed near-future projects on delta smelt.

South Delta Improvements Program Stage 1

The SDIP is divided into Stages 1 and 2. Stage 1 includes the construction and operation of permanent operable gates (to replace the temporary barriers), dredging in portions of the south Delta, and extension of some agricultural diversion structures by 2012. The operation of the gates is included in the OCAP analysis. The head of Old River gate would be operated between April 15 and May 15 and in the fall. The remaining 3 agricultural gates would be operated April 15 through the agricultural season. The gates would maintain south Delta water levels above 0.0 msl for channels upstream of the operable gates. Stage 2 (increase Banks pumping to 8,500 cfs) and the remainder of Stage 1 (construction and dredging) effects are evaluated qualitatively.

Freeport Regional Water Project

The Freeport Regional Water Project (FRWP) is a regional water supply project being developed on the Sacramento River near the town of Freeport by the Sacramento County Water Agency (SCWA) and the East Bay Municipal Utility District (EBMUD), in close coordination with the City of Sacramento and Reclamation. The project is designed to help meet future drinking water needs in the central Sacramento County area and supplement water conservation and recycling programs in the East Bay to provide adequate water supply during future drought periods.

FRWP will provide up to 100 mgd of water for EBMUD to use during drought years and 85 mgd for SCWA for use in all years. The project would divert water from the Sacramento River and deliver it to a Sacramento County Treatment facility and the Folsom South Canal. From the Folsom South Canal, water will be delivered to the Mokelumne Aqueducts. This project includes construction of fish screens and a pumping plant at the intake on the Sacramento River, a water treatment facility in Sacramento County, and pipeline facilities to transport the water from Freeport to the Mokelumne Aqueduct. The FRWP is currently under construction and is expected to begin operations in 2010.

Alternative Intake Project

CCWD's Alternative Intake Project (AIP) consists of a new 250 cfs screened intake in Victoria Canal and a pump station; levee improvements; and a conveyance pipeline to CCWD's existing conveyance facilities. CCWD will operate the intake and pipeline

together with its existing facilities to better meet its delivered water quality goals and to better protect listed species. Operations with the AIP will be similar to existing operations: CCWD will deliver Delta water to its customers by direct diversion when salinity at its intakes is low enough, and will blend Delta water with releases from Los Vaqueros Reservoir when salinity at its intakes exceeds the delivered water quality goal. Los Vaqueros Reservoir will be filled from the existing Old River intake or the new Victoria Canal intake during periods of high flow in the Delta, when Delta salinity is low. The choice of which intake to use at any given time will be based in large part upon salinity, consistent with fish protection requirements in the biological opinions; salinity at the Victoria Canal intake site is at times lower than salinity at the existing intakes. The no-fill and no-diversion periods will continue as part of CCWD operations, as will monitoring and shifting of diversions among the four intakes to minimize impacts to listed species.

The AIP is a water quality project, and will not increase CCWD's average annual diversions from the Delta. However, it will alter the timing and pattern of CCWD's diversions in two ways: winter and spring diversions will decrease while late summer and fall diversions will increase because Victoria Canal salinity tends to be lower in the late summer and fall than salinity at CCWD's existing intakes; and diversions at the unscreened Rock Slough Intake will decrease while diversions at screened intakes will increase. It is estimated that with the AIP, Rock Slough intake diversions will fall to about 10% of CCWD's total diversions, with the remaining diversions taking place at the other screened intakes.

Red Bluff Diversion Dam Pumping Plant

Reclamation signed the ROD July 16, 2008 for Red Bluff Diversion Dam (RBDD) pumping plant and will change the operation of the RBDD to improve upstream fish passage. The new pumping plant will allow the RBDD gates to remain out (open) for approximately 10 months of the year. The pumping plant upstream from the dam will augment existing capabilities for diverting water into the Tehama-Colusa Canal during times when gravity diversion is not possible due to the RBDD gates being out.

The new pumping plant would be capable of operating throughout the year, providing both additional flexibility in dam gate operation and water diversions for the Tehama-Colusa Canal Authority (TCCA) customers. In order to improve adult green sturgeon passage during their spawning migrations (generally March through July) the gates could remain open during the early part of the irrigation season and the new pumping plant could be used alone or in concert with other means to divert water to the Tehama-Colusa and Corning canals.

Green sturgeon spawn upstream of the diversion dam and the majority of adult upstream and downstream migrations occur prior to July and after August. After the new pumping plant has been constructed and is operational, Reclamation proposes to operate the RBDD with the gates in during the period from four days prior to the Memorial Day weekend to three days after the holiday weekend (to facilitate the Memorial Day boat races in Lake Red Bluff), and between July 1 and the end of the Labor Day weekend. This operation would provide for improved sturgeon and salmon passage.

State Water Project Oroville Facilities

The SWP Oroville Facilities operations are regulated by FERC and the State Water Board. A new license from FERC is currently being sought by DWR. Until FERC issues the new license for the Oroville Project, DWR will not significantly change the operations of the facilities and when the FERC license is issued, it is assumed that downstream of Thermalito Afterbay Outlet, the future flows will remain the same. There is a great deal of uncertainty as to when the license will be issued and what conditions will be imposed by FERC and the State Water Board.

The process that DWR has to go through to get the new license is as follows:

DWR finalized the Final Environment Impact Report in July 2008, the State Water Board will prepare the Clean Water Act Section 401 Certification for the project which may take up to a year and the 401 Certification may have additional requirements for DWR operations of Oroville. Once the 401 Certification is issued, FERC can issue the new license; however, in the interim, the documents or process may be challenged in court. When the new FERC license is issued, additional flow or temperature requirements may be required. At this time, DWR can only assume that the flow and temperature conditions required will be those in the FERC Settlement Agreement (SA); therefore, those are what DWR proposes for the near-term and future Oroville operations.

The proposed future operations in the SA include 100–200 cfs increase in flows in the low-flow channel (LFC) of the Lower Feather River and reduced water temperatures at the Feather River Hatchery and in the Low Flow channel. It is unlikely that either the proposed minor flow changes in the LFC or the reduced water temperatures will affect conditions in the Sacramento River downstream of the confluence but if they were detectable, they would be beneficial to anadromous fish in the Sacramento River.

The SA includes habitat restoration actions such as side-channel construction, structural habitat improvement such as boulders and large woody debris, spawning gravel augmentation, a fish counting weir, riparian vegetation and floodplain restoration, and facility modifications to improve coldwater temperatures in the low and high flow channels. These actions are designed to improve conditions for Chinook and steelhead in the Feather River.

USFWS Operations BO-Reasonable and Prudent Alternative

The USFWS determined (December 2008) that an RPA is necessary for the protection of delta smelt. The RPA includes measures to: 1) prevent/reduce entrainment of delta smelt at Jones and Banks Pumping Plants; 2) provide adequate habitat conditions that will allow the adult delta smelt to successfully migrate and spawn in the Bay-Delta; 3) provide adequate habitat conditions that will allow larvae and juvenile delta smelt to rear in the Bay-Delta; 4) provide suitable habitat conditions that will allow successful recruitment of juvenile delta smelt to adulthood; and 5) monitor delta smelt abundance and distribution through continued sampling programs through the IEP. The RPA is comprised of the following actions:

Action 1: To protect pre-spawning adults, exports would be limited starting as early as December 1 (depending on monitoring triggers) so that the average daily Old and Middle River (OMR) flow is no more negative than -2,000 cfs for a total duration of 14 days.

Action 2: To further protect pre-spawning adults, the range of net daily OMR flows will be no more negative than -1,250 to -5,000 cfs (as recommended by smelt working group) beginning immediately after Action 1 as needed.

Action 3: To protect larvae and small juveniles, the net daily OMR flow will be no more negative than -1,250 to -5,000 cfs (as recommended by smelt working group) for a period that depends on monitoring triggers (generally March through June 30).

Action 4: To protect fall habitat conditions, sufficient Delta outflow will be provided to maintain average X2 for September and October no greater (more eastward) than 74 km (Chippis Island) in the fall following wet years and 81 km (Collinsville) in the fall following above normal years.

Action 5: The head of Old River barrier will not be installed if delta smelt entrainment is a concern. If installation of the head of Old River barrier is not allowed, the agricultural barriers would be installed as described in the Project Description.

Action 6: A program to create or restore a minimum of 8,000 acres of intertidal and associated subtidal habitat in the Delta and Suisun Marsh will be implemented within 10 years. A monitoring program will be developed to focus on the effectiveness of the restoration program.

NMFS Operations BO-Reasonable and Prudent Alternative

The NMFS determined (June 2009) that an RPA is necessary for the protection of salmon, steelhead, and green sturgeon. The RPA includes measures to improve habitat, reduce entrainment, and improve salvage, through both operational and physical changes in the system. Additionally, the RPA includes development of new monitoring and reporting groups to assist in water operations throughout the CVP and SWP systems and a requirement to study passage and other migratory conditions. The more substantial actions of the RPA include:

- Providing fish passage at Shasta, Nimbus, and Folsom Dams.
- Providing adequate rearing habitat on the lower Sacramento River and Yolo Bypass through alteration of operations, weirs, and restoration projects.
- Engineering projects to further reduce hydrologic effects and indirect loss of juveniles in the interior Delta.
- Technological modifications to improve temperature management in Folsom Reservoir.

Overall the RPA is intended to avoid jeopardizing listed species or adversely modifying their critical habitat, but not necessarily to achieve recovery. Nonetheless, the RPA would result in benefits to salmon, steelhead, green sturgeon and other fish and species that use the same habitats.

6.2.4 Qualitative Analysis

The qualitative analysis relies on project descriptions and other information on projects not included in the quantitative modeling efforts. These projects have been identified in CALFED and other planning documents and will not necessarily be implemented. However, they are or have been considered and are therefore included in the qualitative analysis below.

Shasta Reservoir Enlargement

The CALFED ROD includes enlargement of Shasta Reservoir as an option to increase storage north of the Delta. Alternatives to expand Shasta Reservoir by raising the height of the dam by 6.5 to 18.5 feet, which would inundate a segment of McCloud River, protected under the California Wild and Scenic Rivers Act, as well as portions of the Pit River and Upper Sacramento River. The alternatives include modifications to the dam and reservoir re-operations. This is currently in the planning stages, with an “Initial Alternatives Information Report” issued in 2004. At the time of this writing, an environmental document has not been issued for the project and a Plan Formulation Report was issued in 2008.

Shasta Enlargement could contribute to cumulative effects on water supplies and associated resources and could increase water supplies available for export in those years when Shasta Reservoir otherwise would have spilled. It could also modify the timing and magnitude of upstream reservoir releases in wet years.

North-of-Delta Off-Stream Storage (Sites Reservoir)

Reclamation and DWR are currently studying several off-stream storage locations including Sites Reservoir, located 70 miles northwest of Sacramento, as possible options for additional storage north of the Delta. With a potential maximum capacity of 1.8 maf, Sites Reservoir could increase the reliability of water supplies for a large portion of the Sacramento Valley and could improve fish migration by reducing water diversions on the Sacramento River.

A new Sites Reservoir could contribute to cumulative effects on water supplies and associated resources. It could increase water supplies available for export in those years when water otherwise would have been unavailable for storage and export, and modify the timing and magnitude of upstream reservoir releases in wet years.

A Notice of Preparation/Notice of Intent (NOP/NOI) for this project was issued in November 2001 and public scoping for the environmental document occurred in January 2002. The Initial Alternatives Information Report (IAIR) was issued in May 2006 and a ‘Plan Formulation Report’ was issued in May 2009. The environmental document and feasibility study are in progress and are scheduled for completion in 2010.

In-Delta Storage

In-Delta Storage would increase the reliability, operational flexibility, and water availability for south-of-Delta water users. An in-Delta storage location can capture peak flows through the Delta in the winter when the CVP and SWP systems do not have the capacity or ability to capture those flows. Water can then be released from the in-Delta reservoirs during periods of export demands, typically summer months. Storing water in the Delta provides the opportunity to change the timing of Delta exports and the ability to capture flows during periods of low impacts on fish. In May 2006, DWR completed the “2006 Supplemental Report to 2004 Draft State Feasibility Study In-Delta Storage Project,” and recommended that further detailed study of the In-Delta Storage Project be suspended until a proposal is submitted by potential participants detailing their specific interests, needs, and objectives that support re-initiation.

However, the Delta Wetlands Project, a private water development project that would divert and store up to 210,000 acre-feet on two islands in the Delta and dedicate two other islands for wetland and wildlife habitat improvements is currently being pursued. The Delta Wetlands Project was analyzed in environmental documents and permits were issued for the private project in 2001, and an update to those analyses is currently being prepared. As part of the Delta Wetlands Project, Webb Tract and Bacon Island would be converted to reservoirs, and Bouldin Island and Holland Tract would be used as wetland and wildlife habitat per DFG habitat management plans.

Los Vaqueros Reservoir Expansion

Reclamation, DWR, and CCWD are conducting a feasibility study examining alternatives to improve water quality, and water supply reliability for Bay Area water users while enhancing the Delta environment through providing water for environmental uses, by expanding the existing Los Vaqueros Reservoir from 100,000 acre-feet up to 275,000 acre-feet. An expanded reservoir may require a new or expanded Delta intake. Under certain alternatives, a new Delta intake could be built in Old River near CCWD’s existing intake. Water from an expanded reservoir could be delivered to Bay Area water users through existing interties or a new connection to the South Bay Aqueduct.

A Draft EIS/EIR was prepared by Reclamation and CCWD and released in February 2009. The analysis shows that there would be no significant effect on water levels for current Delta water users, or on river velocities. Depending on the project alternative selected, the Los Vaqueros Reservoir Expansion Project could contribute to cumulative effects on water supplies and associated resources. The project could cause changes in the timing of diversions from the Delta, generally shifting more diversions into wetter years and resulting in fewer diversions in dryer years. These changes in diversion timing would be coordinated to benefit the Delta ecosystem while minimizing any effect on other water supply projects. Changes in Delta outflow associated with the reservoir expansion project would generally include increased outflow in dryer years, and relative decreases in outflow in wetter years. Changes in upstream reservoir operation associated with this reservoir expansion project would be minimal. Some alternatives of the reservoir expansion project could provide additional water supply reliability to San Francisco Bay Area water agencies.

South Bay Aqueduct Enlargement

The purpose of the South Bay Aqueduct (SBA) Enlargement Project is to increase the capacity of the SBA from 270 cfs to 430 cfs to meet Zone 7 Water Agency's future needs and provide operational flexibility to reduce State Water Project peak power consumption. The Project includes the addition of four 45 cfs pumps to the South Bay Pumping Plant, including expansion of the existing plant structure, a new service bay, and a new switchyard; construction of a third (Stage 3) Brushy Creek Pipeline and surge tank parallel to the existing two barrels; construction of a 500 acre-foot reservoir (425 acre-feet of active storage) to be served by the Stage 3 Brushy Creek Pipeline; raising the height of the canal embankments, canal lining, and canal over crossing structures and bridges along the Dyer, Livermore, and Alameda canals and at the Patterson Reservoir; modification of check structures and siphons along the Dyer, Livermore, and Alameda canals; and construction of new drainage over crossing structures to eliminate drainage into the canals. Currently, construction is proceeding to enlarge the South Bay Pumping Plant to make room for the four new pump units being fabricated.

Upper San Joaquin River Basin Storage Investigation

The Upper San Joaquin River Basin Storage Investigation is a feasibility study by Reclamation and DWR. The purpose of the Investigation is to determine the type and extent of Federal, State and regional interests in a potential project in the upper San Joaquin River watershed to expand water storage capacity; improve water supply reliability and flexibility of the water management system for agricultural, urban, and environmental uses; and enhance San Joaquin River water temperature and flow conditions to support anadromous fish restoration efforts.

Progress and results of the Investigation are being documented in a series of interim reports that will culminate in a Feasibility Report and an EIS/EIR. The first of a series of reports analyzing alternatives was completed in 2003, with a second report, an "Initial Alternatives Information Report," completed in spring 2005, and a Plan Formulation Report completed in October 2008. A final feasibility report and environmental review are expected to be complete in 2011.

South Delta Improvements Program

As described above, the SDIP is divided into Stages 1 and 2. The permanent gates are included in the quantitative analysis. The qualitative analysis includes dredging portions of south Delta channels and extending agricultural diversions (Stage 1), and increasing the permitting diversion amount at CCF to 8,500 cfs (Stage 2). All of SDIP was evaluated in an EIS/EIR, finalized in 2006. DWR and Reclamation are currently preparing a supplemental document for Stage 1. Neither agency intends to pursue Stage 2 in the near future, but it is included in the cumulative analysis because it could be foreseeable if Delta conditions improve and DWR and/or Reclamation decide to pursue it.

Hypothetical Assessment of 10,300 cfs at Banks Pumping Plant

The CALFED ROD envisioned two steps for conveyance improvements in the south Delta:

- Banks Pumping Plant at 8,500 cfs and other improvements for fish and local impacts, and
- Banks Pumping Plant at 10,300 cfs with construction of operable barriers and a new intake and fish screening facility at CCF to support the maximum pumping rate.

Banks Pumping Plant has a physical export pumping capacity of 10,300 cfs; however, current permit terms limit the diversion of water to CCF to 6,680 cfs. Implementation of the SDIP, as described above, would increase allowable diversions at CCF from 6,680 cfs to 8,500 cfs. To take advantage of the full pump capacity of 10,300 cfs, DWR would need to construct fish screens and increase the capability of the Clifton Court Fish Facility to handle fish entering CCF. Also, the existing intake to CCF may physically limit flows needed to support 10,300 cfs and would need substantial modifications to accommodate the new fish screens. Therefore, a new CCF intake could be constructed as part of a 10,300 cfs project. No specific improvements or project has been defined; however, because it was identified in the CALFED ROD as a potential scenario, it is evaluated in this cumulative analysis.

Tracy Fish Test Facility

The Tracy Fish Test Facility, to be constructed near Byron, California, will develop and implement new fish collection, holding, transport, and release technology to significantly improve fish protection at the major water diversions in the south Delta. DWR and Reclamation will use results of the Tracy Fish Test Facility to design the CCF Fish Facility, an element of the 10,300 cfs project described above, and improve fish protection at the Jones Pumping Plant facility as required by the CVPIA. The test facility, unlike conventional fish screening facilities, will require fish screening, fish holding, and fish transport and stocking capabilities. The facility would be designed to screen about 500 cfs of water at an approach velocity of 0.2 feet per second and meet other appropriate fish agency criteria. The facility would have the structural and operational flexibility to optimize screening operations for multiple species in the south Delta. However, construction of the facility has been delayed by shortfalls in funding. The South Delta Fish Facilities Forum, a CALFED workgroup, is evaluating the cost effectiveness and cost sustainability of the fish facilities strategy. If eventually constructed, the Tracy Fish Test Facility would not affect current CVP and SWP operations.

Lower San Joaquin Flood Improvements

The primary objective of this potential project is to “design and construct floodway improvements on the lower San Joaquin River and provide conveyance, flood control, and ecosystem benefits” (CALFED ROD). This potential project would construct setback levees in the South Delta Ecological Unit along the San Joaquin River between Mossdale and Stockton, and convert adjacent lands to overflow basins and nontidal wetlands or land designated for agricultural use. The levees are necessary for future urbanization and

will be compatible with the Sacramento and San Joaquin River Basins comprehensive study. Progress has been indefinitely delayed with no scheduled date for completion. Nevertheless, if implemented, the potential project may also include the restoration of riparian and riverine aquatic habitat, increased riparian habitat, restrictions of/on dredging and sediment disposal, reduction of invasive plants, and protection and mitigation of effects on threatened or endangered species. This potential project could contribute to ecosystem improvements in the lower San Joaquin River.

Delta Cross Channel Re-operation and Through-Delta Facility

As part of the CALFED ROD, changes in the operation of the DCC and the potential for a Through-Delta Facility (TDF) are being evaluated. Studies are being conducted to determine how changing the operations of the DCC could benefit fish and water quality. This evaluation will help determine whether a screened through-Delta facility is needed to improve fisheries and avoid water quality disruptions. In conjunction with the DCC operations studies, feasibility studies are being conducted to determine the effectiveness of a TDF. The TDF would include a screened diversion on the Sacramento River of up to 4,000 cfs and conveyance of that water into the Delta.

Both a DCC re-operation and a TDF would change the flow patterns and water quality in the Delta, affecting fisheries, ecosystems, and water supply reliability. Further consideration of related actions will take place only after completion of several assessments.

North Delta Flood Control and Ecosystem Restoration Project

The purpose of the North Delta Flood Control and Ecosystem Restoration Project is to implement flood control improvements in the northeast Delta in a manner that benefits aquatic and terrestrial habitats, species, and ecological processes. The North Delta project area includes the North and South Fork Mokelumne Rivers and adjacent channels downstream of I-5 and upstream of the San Joaquin River. Solution components being considered for flood control include bridge replacement, setback levees, dredging, island bypass systems, and island detention systems. The project will include ecosystem restoration and science actions in this area, and improving and enhancing recreation opportunities. In support of the environmental review process, an NOP/NOI was prepared and public scoping was held in 2003. An EIR was prepared in 2008, but the project is not currently funded for implementation.

Clifton Court Forebay–Jones Pumping Plant Intertie

This project would construct an intertie between the CVP and the CCF. It would require an increase in the capacity of the proposed CCF screened intake (see description of 10,300-cfs at Banks, above). This project would provide increased operational flexibility by modifying intake operations to improve the water quality of exports, improving water supply reliability, and minimizing impacts on fish entrainment. This project was included in the CALFED ROD and is therefore analyzed in this cumulative impact assessment.

Old River and Rock Slough Water Quality Improvement Project

CCWD recently completed the Old River and Rock Slough Water Quality Improvement Project (in 2006). This project was designed to minimize salinity and other constituents of concern in drinking water by relocating or reducing agricultural drainage in the south Delta. CCWD intake facilities are located on Rock Slough and Old River, which also receive agricultural drainage water discharged from adjacent agricultural lands. Agricultural drainage water can adversely affect water quality entering the CCWD system.

Bay Area Water Quality and Reliability Program

The Bay Area Water Quality and Reliability Program would encourage participating Bay Area partners, including Alameda County Water District, Alameda County Flood Control & Water Conservation District, Bay Area Water Users Association, Contra Costa Water District, EBMUD, San Francisco, and the Santa Clara Valley Water District (SCVWD), to develop and coordinate regional exchange projects to improve water quality and supply reliability. This project would include the cooperation of these agencies in operating their water supplies for the benefit of the entire Bay Area region as well as the potential construction of interconnects between existing water supplies. This program is in the preliminary planning stages. No specific projects have been proposed and evaluated in detail.

North Bay Aqueduct Intake Project

The North Bay Aqueduct Intake Project would construct a new intake for the North Bay Aqueduct to increase the flow in the aqueduct. It will involve the construction of pipeline corridors and connection points to the existing North Bay Aqueduct. Possible intake points are the Deep Water Ship Channel, Sutter/Elk Slough, Steamboat Slough, Miner Slough, and Main Stem Sacramento River. Environmental analysis is expected to begin in 2009.

San Luis Reservoir Low Point Improvement Project

The San Luis Low Point Improvement Project would use one or a combination of alternatives, including treatment options, bypasses, and other storage options, to reduce the risk of “low point” water levels. High temperatures and factors in San Luis Reservoir create conditions that foster algae growth. The water quality within the algal blooms is not suitable for agricultural water users with drip irrigation systems in San Benito County or for municipal and industrial water users relying on existing water treatment facilities in Santa Clara County. Typically, low point conditions occur when water levels in San Luis Reservoir reach an elevation of 369 feet above mean sea level or approximately 300 taf when the water is approximately 35 feet above the top of the Lower Pacheco Intake. If water levels fall below 369 feet, the San Felipe Division’s use of CVP supplies could be limited by algae-related water quality effects. San Luis Reservoir is the only delivery route for the San Felipe Division’s CVP supplies authorized under their current CVP Water Service Contracts. Reclamation, working with Santa Clara Valley Water District (SCVWD), is exploring options to address the low point problem.

The alternatives being considered to avoid water quality problems for the SCVWD and to increase the effective storage capacity of the reservoir include, but are not limited to:

- conjunctive use with administrative actions,
- lowering the San Felipe Division intake facilities, and
- expansion of Pacheco Reservoir.

A NOP/NOI to prepare an EIS/EIR was published in August 2008, and the EIS/EIR is expected to be released in 2010. Implementation of this project would provide operational flexibility of the San Luis Reservoir and improve reliability of water deliveries to CVP contractors.

Franks Tract

DWR and Reclamation propose to implement the Franks Tract Project to improve water quality and fisheries conditions in the Delta. DWR and Reclamation are evaluating installing operable gates to control the flow of water at key locations (Threemile Slough and/or West False River) to reduce sea water intrusion, and to positively influence movement of fish species of concern to areas that provide favorable habitat conditions. By protecting fish resources, this project also would improve operational reliability of the SWP and CVP because curtailments in water exports (pumping restrictions) are likely to be less frequent. The overall purpose of the Franks Tract Project is to modify hydrodynamic conditions to protect and improve water quality in the central and south Delta, protect and enhance conditions for fish species of concern in the western and central Delta, and achieve greater operational flexibility for pump operations in the south Delta.

Two-Gates Fish Demonstration Project

The Two-Gates Fish Demonstration Project (Demonstration Project) is an experimental project intended to evaluate the ability to provide temporary protection to delta smelt from entrainment at the CVP and SWP export facilities by controlling water movement in the central Delta channels. It includes constructing, operating, and maintaining “butterfly gates” in Old River and Connection Slough for up to a 5-year period to affect water movement when turbidity and salinity conditions are expected to support migration of delta smelt. Currently, entrainment of delta smelt is managed by controlling negative net flows in Old and Middle Rivers (OMR) within parameters set forth in the CVP/SWP Operations BOs (U.S. Fish and Wildlife Service 2008b; National Marine Fisheries Service 2009a).

The Proposed Action is designed to have the operational flexibility to test hypotheses related to the protection of delta smelt within the current operational constraints. It includes a monitoring component that is intended to evaluate whether operable gates can control water quality factors, such as turbidity and salinity. Monitoring data would be used to guide real-time operation of the gates, verify the model predictions, evaluate effects of the Demonstration Project on delta smelt and other affected aquatic species, and modify operational procedures as needed. Real-time operation of CVP and SWP in

conjunction with the Proposed Action is expected to reduce delta smelt entrainment, without adversely impacting other listed species.

Consolidated Place of Use

DWR and Reclamation have obtained approval from State Water Board to consolidate portions of the SWP and CVP places of use in various counties in California for 2 years. These SWP and CVP places of use include the following 35 counties: Trinity, Shasta, Tehama, Glenn, Butte, Colusa, Sutter, Yuba, Yolo, Placer, Sacramento, El Dorado, Solano, Fresno, Tulare, Madera, Kern, Kings, Stanislaus, San Joaquin, Merced, Napa, Contra Costa, Alameda, Santa Clara, San Benito, Madera, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, San Diego, San Bernardino, and Riverside.

Consolidation of the SWP and CVP places of use allows DWR and Reclamation to more effectively and efficiently utilize the operational flexibility of the combined SWP and CVP facilities to facilitate water transfers and exchanges and provide water to the combined SWP and CVP service areas to minimize the potential impacts of the current critical water shortage within California.

All transfers or exchanges are conducted in accordance with the following parameters:

- For any transfer of SWP or CVP water through the Delta, DWR and Reclamation will continue to operate the Projects in accordance with the USFWS Operations BO for Delta smelt (U.S. Fish and Wildlife Service 2008);
- Carriage loss will be deducted from any water transferred through the Delta;
- The total quantity of water delivered to SWP or CVP contractors will not exceed historic average deliveries;
- Transfers or exchanges shall not result in the net decrease of San Joaquin River or Sacramento River flow over the 2-year period; and
- Transfers or exchanges shall not result in the net decrease of any Eastside CVP water from the San Joaquin Valley over the 2-year period.

As noted above, this program would not result in an increase of deliveries above average historic deliveries and like all export-related activities would require compliance with applicable regulations including the Operation BOs. Because the Operation BOs include measures which USFWS and NMFS concluded avoid jeopardy to delta smelt and salmon (including export restrictions under some conditions), and because pumping at the Intertie can be reduced or eliminated as a result of export restrictions, the Consolidated Place of Use would not contribute to cumulative impacts.

Drought Water Bank

In response to 3 consecutive dry years, State and Federal contractors participated in the 2009 Drought Water Bank (DWB). To implement the DWB, DWR purchases water from willing sellers upstream of the Delta and the water is conveyed, using SWP or CVP facilities, to water users that are at risk of experiencing water shortages due to

drought conditions and that require supplemental water supplies to meet anticipated demands.

Reclamation participates in the DWB pursuant to Section 101 of the Reclamation States Emergency Drought Relief Act of 1991 to ensure that operations of the two projects can be coordinated effectively to maximize the ability of the DWB to move water from willing sellers to buyers to address critical water needs. Reclamation reviews and approves, as appropriate, proposed transfers by CVP contractors in accordance with the Interim Guidelines for the Implementation of Water Transfers under the CVPIA.

Operations of the DWB will continue through February 2010; however, the majority of the transfers have already occurred for 2009 (July–September). A similar program will be implemented in 2010 and is anticipated to begin in March. It is likely that this program would be implemented in subsequent dry years. All of these transfers would be implemented in compliance with applicable regulations, including those required under the Operations BOs. Because the Operations BOs include measures which USFWS and NMFS concluded avoid jeopardy to delta smelt and salmon (including export restrictions under some conditions), and because pumping at the Intertie can be reduced or eliminated as a result of export restrictions, DWB would not contribute to cumulative impacts.

San Luis Unit Long-Term Water Service Contract and other Long-Term CVP Contracts

Reclamation is responsible for operational control of the CVP including operations and maintenance of federal facilities and securing payment for the cost of water delivered pursuant to water service contracts with the federal government. In addition, as a duly authorized representative of the Secretary of the Interior, Reclamation administers all actions pertaining to the establishment of water service contracts. The San Luis Unit Water Service Contract is currently being renegotiated.

The purpose of the renegotiation is to renew long-term water service contracts, delivering CVP water for agricultural irrigation or for M&I uses to the nine service contractors within the San Luis Unit, consistent with Reclamation authority and all applicable state and federal laws, including the CVPIA (H.R. 429, Public Law 102-575). The project alternatives will include the terms and conditions of the long-term contracts and tiered water pricing. The long-term contract renewals are needed to:

- Continue the beneficial use of water in the San Luis Unit.
- Incorporate certain administrative conditions into the renewed contracts to ensure CVP continued compliance with current federal Reclamation law and other applicable statutes; and
- Allow the continued reimbursement to the federal government for costs related to CVP construction and operation.
- Satisfy the statutory requirements for renewal of the existing San Luis Unit water services contracts.

The renewal of this contract, continuance of other existing contracts, and future renewals of contracts do not result in cumulative operational impacts beyond what is described for the OCAP when combined with the impacts of the Intertie. The Intertie impacts are a result of changes in export operations, which like water contract deliveries, are governed by the Operations BOs and other biological and water quality restrictions.

CALFED Ecosystem Restoration Program

The goals of the CALFED Ecosystem Restoration Program (ERP) are to:

- recover 19 at-risk native species and contribute to the recovery of 25 additional species;
- rehabilitate natural processes related to hydrology, stream channels, sediment, floodplains and ecosystem water quality;
- maintain and enhance fish populations critical to commercial, sport and recreational fisheries;
- protect and restore functional habitats, including aquatic, upland and riparian, to allow species to thrive;
- reduce the negative impacts of invasive species and prevent additional introductions that compete with and destroy native species; and
- improve and maintain water and sediment quality to better support ecosystem health and allow species to flourish.

The ERP plan, which is divided into the Sacramento, San Joaquin, and Delta and Eastside Tributary regions, includes the following kinds of actions:

- develop and implement habitat management and restoration actions, including restoration of river corridors and floodplains, reconstruction of channel-floodplain interactions, and restoration of Delta aquatic habitats;
- restore habitat that would specifically benefit one or more at-risk species;
- implement fish passage programs and conduct passage studies;
- continue major fish screen projects and conduct studies to improve knowledge of their effects;
- restore geomorphic processes in stream and riparian corridors;
- implement actions to improve understanding of at-risk species;
- develop understanding and technologies to reduce the impacts of irrigation drainage on the San Joaquin River and reduce transport of contaminant (selenium) loads carried by the San Joaquin to the Delta and the Bay; and
- implement actions to prevent, control, and reduce impacts from nonnative invasive species.

ERP actions contribute to cumulative benefits on fish and wildlife species, habitats, and ecological processes.

Suisun Management Plan

Reclamation, USFWS, and DFG are currently NEPA and CEQA lead agencies in the development of a management plan to restore 5,000 to 7,000 acres of tidal wetlands and enhance existing seasonal wetlands in Suisun Marsh. The plan would be implemented over 30 years and is expected to contribute to the recovery of many terrestrial and aquatic species. The EIS/EIR for the plan is expected to be complete in 2009.

CALFED Levees Program

The goal of the CALFED Levees Program is to uniformly improve Delta levees by modifying cross sections, raising levee height, widening levee crown, flattening levee slopes, or constructing stability berms. Estimates predict that there are 520 miles of levees in need of improvement and maintenance to meet the PL 84-99 standard for Delta levees. The levees program continues to implement levee improvements throughout the Delta, including the south Delta area.

Sacramento Valley Water Management Agreement (Phase 8)

The State Water Board has held proceedings regarding the responsibility for meeting the flow-related water quality standards in the Delta established by the Delta WQCP (D-1641). The State Water Board hearings have focused on which users should provide this water, and Phase 8 focuses on the Sacramento Valley users. The Sacramento Valley Water Management Agreement (SVWMA) is an alternative to the State Water Board's Phase 8 proceedings. The SVWMA, entered into by DWR, Reclamation, Sacramento water users, and export water users, provides for a variety of local water management projects that will increase water supplies cumulatively. An environmental document is being prepared for the program.

Bay Delta Conservation Strategy

The Bay Delta Conservation Plan (BDCP) is a plan to provide for the recovery of endangered and sensitive species and their habitats in the Delta in a way that also will provide for the protection and restoration of water supplies. The BDCP will identify and implement conservation strategies to improve the overall ecological health of the Delta; identify and implement ecologically friendly ways to move fresh water through and/or around the Delta; address toxic pollutants, invasive species, and impairments to water quality; and provide a framework and funding to implement the plan over time.

Alternatives being evaluated include conveyance options using through-Delta, peripheral aqueduct, or a combination of both strategies. The restoration options include various degrees of restoration in the Delta and Suisun Marsh. The final plan and the EIS/EIR are expected to be complete in 2010.

State Route 4 Bypass Project

Caltrans is modifying SR 4 in an effort to ease traffic through the cities of Brentwood and Oakley and to provide access to the growing areas of southeast Antioch and western Brentwood. The project is being developed cooperatively by Caltrans, Contra Costa County, and the Cities of Antioch, Brentwood, and Oakley. The highway will be relocated east of Oakley and on the eastern edge of Brentwood. The project is currently under construction.

Mountain House Community

Trimark Communities has started development of a new community in the western portion of San Joaquin County along the Alameda–San Joaquin County line and north of Interstate 205. At full buildout a total of 16,105 residential units on 4,784 acres would be developed. Mountain House is located directly south of Old River and west of Patterson Pass Road, and will include residential, commercial, and some industrial development. It has been designed to accommodate all the needs of the expected 43,522 residents, including housing, jobs, retail, commercial, open space, and public services, such as schools, emergency services, and roads. The EIR was completed in 1994. Construction began in 2003.

River Islands Development

The Cambay Group, Inc. is proposing to develop approximately 4,990 acres of agricultural land and open space known as the River Islands at Lathrop Project. The project applicant intends to build a mixed-use residential/commercial development on Stewart Tract and Paradise Cut. Stewart Tract is an inbound island bounded by Paradise Cut, the San Joaquin River, and Old River. Paradise Cut consists of a flood control bypass connecting the San Joaquin River and Old River in the Delta. This mixed-use development is expected to include a town center, employment center, dock facilities, residences, and golf courses. It is expected to generate 31,680 residents and 16,751 jobs at full buildout. The Draft Subsequent EIR was completed in October of 2002 and buildout of the development is planned for 2025.

East Altamont Energy Center

Calpine Corporation plans to construct an energy center with the intent to market power from hydroelectric plants, such as Shasta and Folsom dams, to other entities, such as merchant power plants. The center would be located on a 174-acre parcel of land approximately 1 mile west of the San Joaquin County line and 1 mile southeast of the Contra Costa County line. The actual footprint of the plant would be approximately 55 acres, with the remainder of the parcel available for agricultural leases. Water for cooling and other power plant processes would be provided by Byron Bethany Irrigation District. The plant is expected to have a 30 to 50 year operating life. Environmental documentation equivalent to an EIS/EIR (Revised Presiding Member's Proposed Decision) was completed in January 2003 and approval from the Energy Commission was granted in August 2003.

San Joaquin River Restoration Program

The SJRRP is a direct result of a Stipulation of Settlement (Settlement) reached in September 2006 after more than 18 years of litigation of the lawsuit challenging the renewal of long-term water service contract between the United States and CVP Friant Division contractors. The Settling Parties include U.S. Departments of the Interior and Commerce, the Natural Resources Defense Council (NRDC), and the Friant Water Users Authority (FWUA). The Settlement received Federal court approval in October 2006. The San Joaquin River Restoration Settlement Act (Act), included in the Omnibus Public Land Management Act of 2009, was signed by the President on March 30, 2009 and became Public Law 111-11. The Act authorizes and directs the Secretary of the Interior to fully implement the Settlement. The Settlement is based on two goals: To restore and maintain fish populations in “good condition” in the main stem of the San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish; and to reduce or avoid adverse water supply impacts to all of the Friant Division long-term contractors that may result from the Interim Flows and Restoration Flows provided for in the Settlement. The program is scheduled to have a draft Programmatic EIS/EIR by late 2009.

Water Facilities Expansion Project

The City of Sacramento is in the process of expanding and replacing facilities at the E. A. Fairbairn Water Treatment Plant (WTP) and the Sacramento River WTP. The purpose of this project is to allow the City to reliably meet increasing water demands and to allow diversions to be shifted from the American River to the Sacramento River. The Fairbairn WTP is being expanded from approximately 90 mgd to 200 mgd. The Sacramento River WTP is being expanded from approximately 110 mgd to 160 mgd. Construction at both plants includes some new facilities as well as improvements to some of the existing facilities. It is expected that the Fairbairn WTP construction will be completed within approximately 32 months, while construction at the Sacramento River WTP is expected to be completed within approximately 34 months. Construction at both facilities may ultimately require up to 164,000 linear feet of transmission pipeline improvements. A final EIR was completed for this project in November of 2000, and construction of the project began in October of 2001.

Other Development Projects

The Cities of Tracy, Byron, and Brentwood, as well as the Town of Discovery Bay, each propose multiple development projects ranging in size and impacts. Developments include new residential and commercial areas and associated infrastructure; updating, expanding, or creating water treatment and delivery systems; and waste management facilities such as landfills and recycling centers. Additionally, it is likely that future conditions will also include additional development beyond what is currently identified.

6.3 Summary of Cumulative Effects by Resource

As described above, the cumulative analysis relies on both quantitative and qualitative methods. The quantitative analysis is based on the 2008 CVP/SWP Longterm Operations Plan and USFWS Operations BO for smelt. In general, this analysis provides the cumulative operational effects for current and near-future projects combined with the Intertie. These operational effects are linked to water supply, hydrodynamics, water quality, and fish. These resources are also evaluated qualitatively because not all future projects were included in the OCAP modeling or have enough detail to model cumulatively.

The discussion of the cumulative water supply changes that could be expected under future with-project conditions is intended to show the potential for improving future water supply reliability and to provide quantified hydrological information that is used to judge cumulative impacts on specific resources, including Delta water quality and fisheries conditions. Therefore, significance conclusions are not disclosed for cumulative water supply changes, but are disclosed for resource impacts that are influenced by water supply changes.

6.3.1 Water Supply

Cumulative water supply impacts are the changes in the environment that result from the incremental impact of the Intertie when added to other closely related past, present, and reasonably foreseeable future projects. The physical impacts in the environment resulting from changes in water supply would be the combination of effects in the reservoirs that store the water supply, in the rivers that convey the water supply, in the Bay-Delta where the water supply is diverted, and in the areas where the water supply is delivered and used.

Combining the cumulative projects that were modeled in the CALSIM simulations for OCAP with other possible storage and conveyance projects, including Shasta Reservoir Enlargement, North-of-Delta Off-Stream Storage, Los Vaqueros Reservoir Expansion, In-Delta Storage, Upper San Joaquin River Basin Storage Investigation, a peripheral canal (under BDCP), Long-Term CVP Contracts, and increases at Banks Pumping Plant permitted capacity (to 10,300 cfs) could result in increased water supplies available for export in those years when water otherwise would have been unavailable for storage and export. Operating one or more of these projects could also result in modification of the timing and magnitude of upstream reservoir releases in wet years. It is assumed that these types of projects could have positive effects on Delta water supply and resources by improving the amount and timing of flow to the Delta, providing flexibility in timing of storage and release of water for exports, and increasing the amount and timing of water used to protect sensitive aquatic species in upstream tributaries and Delta channels.

The Proposed Intertie Action has little potential to contribute to any adverse cumulative impacts (i.e., limits) related to water supply. Implementation of the proposed action would not contribute to any cumulative impacts on water supply restrictions, but is instead intended to improve reliability by increasing operational flexibility at Jones Pumping Plant. Combined with the other projects listed above, it is expected that the overall water supply reliability would improve. The Intertie would result in a small

increase in overall water deliveries from the Delta, but it is expected that this water would be supplemental for existing CVP contractors and therefore the area of use for this water would not change. Many of the other projects are intended to create a more reliable supply and/or delivery system through storage or conveyance facilities.

In addition to the various projects listed above, the USFWS Operations BO for delta smelt RPA includes several additional CVP and SWP pumping restrictions (implemented as Old and Middle River reverse flow limits) to protect delta smelt and other fish from entrainment. These new restrictions in the months of January-June are likely to reduce the allowable total pumping by CVP and SWP and increase the need for full capacity pumping in the months of July-December. This will make the Intertie project more valuable for maintaining the maximum possible CVP water supply reliability with the existing south Delta intakes. The cumulative effects of those projects and restrictions may be significant for water supply, but the Intertie's contribution to offset this cumulative loss of water supply is small.

6.3.2 Delta Tidal Hydraulics

Proposed Action pumping will not have any greater effects on south Delta tidal hydraulics than were simulated for the Future No Action. As stated in Section 3.1, the DSM2 simulations compare tidal hydraulic conditions for the No Action and with implementation of the Intertie Proposed Action. As the general simulations of the full range of possible future CVP and SWP pumping has demonstrated, the effects on high and low tide elevations is limited to what has been observed for many years under full summer pumping of about 11,280 cfs maximum pumping (i.e., CVP 4,600 cfs and SWP 6,680 cfs). Although future additional pumping at the Banks Pumping Plant is possible, the tidal hydraulic effects of this additional export pumping on tidal conditions in the south Delta are not increased by the Proposed Action (increased winter CVP pumping from 4,200 cfs to 4,600 cfs). Other projects that change exports, diversions, and outflows may contribute to cumulative effects on tidal hydraulics, but the Intertie does not contribute to these effects. Additionally, the Intertie would be regulated under the new USFWS Operations BO for delta smelt RPA outflow and reverse flow restrictions, further reducing the potential for effects on tidal hydraulics. Therefore, there are no cumulative effects of the Proposed Action on south Delta tidal hydraulics.

6.3.3 Water Quality

Cumulative future water quality impacts in the Delta can result from future changes in river inflow water quality, as well as future conditions of reduced Delta outflow. As described in Section 3.3, Water Quality, there are no substantial changes in water quality as a result of the Proposed Intertie Action. Other projects that may be implemented in the future have the potential to adversely affect water quality, while several others may provide water quality benefits. Other potential future changes in inflow water quality, or increased discharges of treated wastewater, in the Delta are expected, but are independent of the Intertie. In addition, several of the reasonably foreseeable projects could result in improved water quality throughout the system and particularly within the Delta. These projects would generally result in increased flows into the Delta, increased exports from

the Delta for water supply purposes, and increased Delta outflows for environmental and water quality (i.e., salinity control) purposes.

There is a limit to the magnitude of the future salinity changes expected in the Delta channels. The D-1641 objectives for maximum EC are routinely satisfied by CVP and SWP operations in the Delta. Delta outflow is therefore already highly regulated, and these minimum required Delta outflows will continue to be maintained in the future. Water quality objectives for salinity at Vernalis are also expected to maintain the future San Joaquin River EC at about the No Action conditions. Some future projects (e.g., recirculation and San Joaquin River restoration) may improve the Vernalis salinity. The Intertie does not make any substantial contribution to these potential cumulative water quality effects in the Bay-Delta.

6.3.4 Fish

The potential cumulative fisheries resource impacts of past, present, and reasonably foreseeable projects (including the Intertie) have been evaluated quantitatively and qualitatively during ESA consultation with USFWS and NMFS for the coordinated operations of the CVP and SWP (OCAP). Not all projects and not all fish species were included in the CVP/SWP Longterm Operations Plan or in the subsequent analyses by USFWS and NMFS. A qualitative evaluation of potential cumulative effects of the Intertie on Delta fish is described below.

Chinook Salmon and Central Valley Steelhead

In the Delta, anticipated effects of CVP and SWP operations (OCAP) include modification of migration and rearing habitat conditions, and increased entrainment of salmonid juveniles and adults. The expected increase in entrainment rates is assumed to be related to potential increases in salmonid diversions into the central Delta through the DCC and Georgiana Slough, altered Delta hydrology, and direct loss of juvenile salmon and steelhead at the CVP and SWP pumping facilities. The Delta effects are reduced by the real-time adjustments in operations of the DCC gates, HORB, and by the use of b(2) water and the EWA to reduce exports during periods of high fish density. Overall cumulative impacts on Chinook salmon and central valley steelhead from operations under OCAP are considered significant. To reduce these impacts to a no-jeopardy level, NMFS has required implementation of mitigation measures (RPA) to reduce impacts of water supply operations.

Other cumulative projects, both upstream and in the Bay-Delta may have similar effects on Chinook and steelhead. However, any future projects will be required to implement guidance for minimum flows, temperature controls, and habitat protection and restoration given by NMFS and DFG to protect Chinook and steelhead in these upstream habitat areas below dams and diversions. The Intertie will not contribute substantially to any future cumulative effects on Chinook or steelhead.

Delta Smelt

Incidental take of delta smelt will occur from operation of the SWP and CVP pumps, SDIP gates, Intertie, and other Delta components of OCAP. This cumulative impact on delta smelt abundance is considered significant. To minimize this effect, Reclamation and DWR will implement the required RPA actions described in the USFWS Operations BO for delta smelt (summarized above).

Implementation of these actions is expected to minimize the cumulative effects of the CVP and SWP Delta operations (including the Intertie) on delta smelt. Other future projects have the potential to contribute to adverse (or beneficial) effects on delta smelt. However, the RPA reductions in CVP and SWP pumping during the period of spawning and juvenile rearing in the Delta (December–June) are assumed to have a beneficial effect on the delta smelt population abundance, and to be adequate to offset the cumulative effects from future upstream storage or diversion projects. The Intertie would have a slightly beneficial effect on adult delta smelt, and the Intertie does not contribute to any substantial cumulative impact on other life stages of delta smelt, because all potential cumulative impacts are assumed to be adequately mitigated by the USFWS Operations BO RPA.

Splittail and Striped Bass

Both of these fish spawn upstream of the Delta and the juveniles migrate through the Delta in the spring and early summer. The Intertie would have only small effects on entrainment of these juvenile fish, which are very abundant during their migrations periods. There may be many other factors contributing to the abundance of these fish besides Delta habitat and migration conditions. Cumulative effects on both of these fish may be significant. However, the Intertie will not contribute substantially to these cumulative effects.

Longfin Smelt and Green Sturgeon

Longfin smelt generally spawns in the freshwater Delta and low salinity zone in Suisun Bay, and rears in Suisun Bay and San Pablo and central San Francisco Bay. Although juvenile longfin smelt are salvaged in April and May of low outflow years, the Intertie effects on entrainment were found to be small (less than 1%). Other potential cumulative effects are assumed to be avoided by the USFWS RPA for the Operations BO for delta smelt. The Intertie will not contribute substantially to the cumulative effects on longfin smelt.

Green sturgeon spawn upstream in the Sacramento River, and their juveniles rear for several months in the riverine habitat. Their migration through the Delta apparently does not expose many juveniles to entrainment, as judged by the low salvage numbers (less than 200 a year). Many other factors potentially influence green sturgeon in the estuary or in the Ocean. The Intertie has been shown to have no substantial effect on green sturgeon entrainment. Because the Delta conditions influence green sturgeon only briefly, during adult and juvenile migration, the Intertie will not contribute substantially to cumulative effects on green sturgeon.

6.3.5 Geology, Seismicity, and Soils

The Intertie, in combination with other local and regional projects, could contribute to regional impacts and hazards associated with geology, seismicity, and soils. The effects of Intertie alternatives are primarily related to localized project impacts or seismic hazards in the vicinity of proposed project features. These impacts include the potential for structural damage as a result of liquefaction, ground shaking, development on expansive soils; and slope instability, erosion, and sedimentation during construction. All of the impacts are mitigated by incorporating standard construction and structural measures into project design and construction. No impacts related to operation of the Intertie were identified for this resource area.

Cumulative impacts would result from construction activities and development in the same regional area as the Intertie that may be subject to geologic, seismic, or soil erosion damage and could be reduced by implementing measures similar to those described for Intertie, such as a SWPPP and compliance with the Alameda County General Ordinance Code. Although these combined impacts could be cumulatively significant, implementing the measures identified for the Intertie in Section 3.4 would reduce the Intertie's contribution to these cumulative impacts.

6.3.6 Transportation, Air Quality, Climate Change, and Noise

Implementation of Intertie alternatives, with other projects occurring at the same time in the same vicinity, have the potential to create short-term cumulative impacts on transportation, air quality, and noise caused by increased movement and use of construction vehicles and equipment, especially in the area south of I-580. No major developments or projects are known to be planned in this area, but Mountain House and River Islands developments, as well as the East Altamont Power Facility, may be under construction during the time Intertie is implemented, resulting in significant cumulative impacts associated with temporary and permanent reductions in levels of service on existing roads and exceedance of air and noise thresholds from these major developments. Additionally, Alternative 4 has the potential to make a considerable contribution of GHG emissions to the global climate change effects if power for Banks Pumping does not use CVP hydroelectric power or the temporary pipeline uses non-electric pumps. However, Alternatives 2 and 3 would rely solely on hydroelectric CVP power for operation and construction-related emissions would be minimal. Other projects in the area would also make considerable contributions to climate change effects.

Alternatives 2 and 3 would result in very minor changes in air emissions and noise due to operation of the pumps, and mitigation would further reduce effects. When Alternative 4 is constructed, there would be an increase of air, noise, and traffic impacts associated with construction activities. Noise from operation of the temporary pumps under Alternative 4 has the potential to contribute to a substantial adverse cumulative effect because noise from the pumps is predicted to exceed applicable Alameda County noise ordinance standards. However, implementation of Mitigation Measure NZ-MM-2 would eliminate the noise contribution from operation of pumps under Alternative 4 to any substantial cumulative adverse noise effect. Air quality effects from these pumps would be governed by the permit regulations in the county so that they could not exceed the threshold for emissions. None of the Intertie alternatives would have a substantial

contribution to transportation effects during operations. Other projects in the area would add approximately 70,000 people to the area, requiring the use of existing and planned roads.

Although these combined impacts could be significant, the Intertie's contribution is minimal and implementing the measures identified for the Intertie in Sections 3.5 through 3.7 would ensure that the Intertie's contribution to these cumulative impacts is minimal.

6.3.7 Vegetation and Wildlife

Many of the projects listed above would result in impacts on vegetation and wildlife resources. However, most of the projects are not located near the Intertie alternatives and habitats are not contiguous. Local development projects and other projects that could affect ruderal grasslands and agricultural lands or habitats for red-legged frog, California tiger salamander, Swainson's hawk, San Joaquin kit fox, American badger, or Western burrowing owl, combined with the Intertie, would result in significant cumulative effects. However, the Intertie will result in only a minor loss of these habitat types, especially compared to other projects in the region. Additionally, implementing the measures identified for the Intertie in Sections 4.2 and 4.3 would ensure that Intertie's contribution to these cumulative impacts is minimal, and there would be no significant cumulative effect.

6.3.8 Utilities, Public Services, and Energy

Implementation of Intertie alternatives in combination with other projects in the same area as the Intertie have the potential to result in cumulative effects related to utilities, public services, and energy. Alternatives 2 and 3 would require new aboveground utility lines and a permanent increase of energy, although this energy would be just 1% of the total energy generated by CVP power facilities. Alternative 4 would require a similar increase in CVP power use and an infrequent minor increase in power related to construction and operation of the temporary Intertie. Thus, Intertie impacts on power production and energy are considered minimal and are not discussed further as cumulative impacts even though other development projects would increase the demand for power production and energy. Cumulative impacts associated with conflicts with utilities lines are considered minor because standard construction practices would be required to identify and relocate utility lines for all local projects. Construction and operation of Intertie alternatives would also not contribute to significant cumulative impacts on local public services because of the localized nature of project construction, the rural area in which the project would be constructed, and the short construction timeframe.

6.3.9 Socioeconomics

The Intertie would result in minor and temporary increases in employment and personal income and demand for housing. The Intertie would only contribute a small and unsubstantial amount to these changes, which would occur only over a 15-month period. As such, the Intertie does not have contribute to a significant cumulative effect.

6.3.10 Visual Resources

Clearing, excavating, and grading activities associated with construction of approved and planned development in the surrounding area could result in adverse short-term changes to views. Planned development also could alter the visual character of the area in the long term and affect the area's visual amenities, including open space and views of the nearby foothills and surrounding agricultural lands. Future development, roadway construction and improvements, and other associated projects also could incrementally add to ambient atmospheric lighting. Implementation of Mitigation Measures VIS-MM-1 (apply minimum lighting standards), VIS-MM-2 (construct facilities and infrastructure with low-sheen and non-reflective surface materials), and VIS-MM-3 (limit construction to daylight hours near residents) would reduce the project's incremental impact on visual resources.

6.3.11 Cultural Resources

With implementation of the identified measures, the Proposed Action would avoid adverse effects on historic properties and would not directly or indirectly destroy a unique paleontological resource or unique geologic feature or cause unauthorized disturbance of any human remains. No impacts on cultural resources (including historic properties and human remains) would result from implementation of the Proposed Action that would contribute to a significant cumulative impact on cultural resources.

6.3.12 Public Health and Environmental Hazards

Implementation of the Intertie in combination with other water supply projects (as presented above) and other local and regional projects could contribute to potential public health impacts and environmental hazards. As described in Section 5.5, the effect of the Intertie alternatives is related to a temporary increase in risk to people from use of hazardous materials during construction and operation, and the potential risk of disturbance to the overhead powerlines during construction. The potential cumulative impacts associated with potential changes in public health and environmental hazards is considered minor because construction-related hazards would be temporary, the implementation of the Safety Plan reduces the likelihood of an effect, and public health effects from exposure to hazardous materials would be reduced by standard construction and public health measures during the construction period. There would be no significant cumulative effect.

6.3.13 Land Use

The Proposed Action includes only a minor conversion of grassland and the operation of the Intertie is consistent and compatible with existing surrounding land uses. As such, the project does not contribute to any significant cumulative impacts.

Chapter 7 Growth-Inducing Impacts

7.1 Introduction

NEPA requires that an EIS discuss how a project, if implemented, could induce growth. This chapter analyzes the potential growth-inducing impacts of Alternatives 2, 3, and 4 and includes:

- a summary of the conclusions of the analysis,
- background information related to water supply and growth-inducement,
- the methodology used to analyze growth-inducing impacts,
- the results of the analysis, and
- the impact conclusions.

7.2 Summary of Analysis Conclusions

Each Intertie alternative could remove an obstacle to growth and could encourage or facilitate other activities that could result in environmental effects. The direct effects of the project, through the stimulation of the local economy by project construction, are not expected to accommodate or induce growth. However, the indirect effects of the project, resulting from increases in water supplies for those receiving water exported from the Delta, could accommodate additional growth. This growth could result in impacts on special-status species, changes in stormwater runoff quantity and quality, the modification of slopes, and impacts on air and water quality, traffic, noise, various public services, and other sensitive resources. Mitigation of these impacts, should they occur, would be the responsibility of the local jurisdictions in which the growth would occur. The impacts of this growth, if any, would be analyzed either in General Plan EIRs for the local jurisdictions or in project-level CEQA compliance documents. Mitigation measures could include locating the growth in areas where sensitive resources are not located, minimizing the loss of these resources, or replacing any loss.

Each of the alternatives have a similar potential for growth-related impacts because they would all result in similar increases in south-of-Delta water deliveries. The following supporting material provides a more detailed evaluation on which these general conclusions are based.

7.3 Context and Background

The information contained in this section is needed to provide context to the analysis and to help the reader understand the structure of the analysis. This background information includes:

- the legal requirements for analyzing growth-inducing impacts in NEPA documents;
- the guidance provided by the CALFED ROD regarding growth-inducing impacts;
- a brief description of Senate Bill (SB) 610 and SB 221 of 2001, which address the relationship between water supply and land use planning; and
- a summary of growth projections for south of Delta counties receiving CVP water.

7.3.1 NEPA Requirements

Under authority of NEPA, CEQ Regulations require EISs to consider the potential indirect impacts of a proposed action. The indirect effects of an action are those that occur later in time or farther away in distance, but are still reasonably foreseeable, and “may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate” (40 CFR Section 1508.8[b]).

Evaluation of the growth-inducing effects of the Intertie is based on a qualitative analysis of the direct effects of constructing and operating the Intertie, and the indirect effects that could result from use of the additional increment of water supply provided by the Intertie in the CVP contractor service areas. The evaluation of growth effects is based on water supply analyses that conclude that the water supply reliability for CVP contractors would incrementally improve with implementation of the Intertie. Specifically, this evaluation of potential growth-inducing impacts addresses whether the project would directly or indirectly: foster economic, population, or housing growth; remove obstacles to growth; increase population growth that would tax community service facilities; or encourage or facilitate other activities that cause significant environmental effects.

7.3.2 Guidance in the CALFED Programmatic Record of Decision

The Intertie is considered a CALFED project because it is specifically included in the CALFED ROD. For background, therefore, it is useful to understand what conclusions were included in the CALFED ROD regarding the relationship between increased water supply and growth. The following text is excerpted from CALFED ROD, Attachment 1—CEQA Requirements, CEQA Findings of Fact (August 28, 2000); the full text is incorporated by reference. It is important to note, however, that the Intertie EIS stands on its own and does not rely on the analysis contained in the CALFED Programmatic EIS/EIR. It includes an independently developed analysis of the impacts of the Intertie, including the analysis of growth-inducing impacts.

The Preferred Program Alternative is expected to result in an improvement in water supply reliability for beneficial use in the Bay Region, Sacramento River

Region, and San Joaquin River Region, and South-of-Delta SWP and CVP Service Areas.... Modifications in Delta conveyance will result in improved water supply reliability, protection and improvement of Delta water quality, improvements in ecosystem health, and reduced risk of supply disruption due to catastrophic breaching of Delta levees.

Consistent with the stated purposes of the CALFED Program since its outset in 1995, it is not the intent of this Program to address or solve all of the water supply problems in California. The CALFED Program is directly or indirectly tied to a number of specific project proposals that would help toward meeting California's water needs for a wide variety of beneficial uses. CALFED is an important piece of a much larger picture that is the continuing responsibility of local, regional, State and Federal jurisdictions.

There are differences of opinion as to whether improvements in water supply reliability would stimulate growth. The causal link between the CALFED Program and any increase in population or economic growth, or the construction of additional housing is speculative at this time. However, because this issue cannot be determined with certainty at this programmatic level of analysis, the assumption was made for this document that the improvement in water supply reliability that is associated with the Program could stimulate growth. This assumption assures that the EIS/EIR discloses the environmental consequences, at a programmatic level, associated with growth in the event that Program actions ultimately lead to this type of change.

At this programmatic level, it is unknown what level of growth or the likely location of any increases in population or construction of additional housing would take place. Increases in the population in the solution area are projected over the next 30 years, regardless of CALFED actions. When population growth occurs, it could lead to additional adverse impacts in certain locations, which local, regional, State, and Federal agencies will need to address when more information on those impacts and how to mitigate them is known. These impacts could include impacts on water quality and air quality, transportation, loss of open space, and other resource areas addressed in the EIS/EIR.

When additional growth occurs, these changes will be subject to local land use and regulatory decisions by individual cities and counties in the areas where they occur. Future development at the local level is guided by many considerations, only one of which is the reliability of water supply. These other factors include the policies in local general plans and zoning ordinance restrictions; the availability of a wide range of community services and infrastructure, such as sewage treatment facilities and transportation infrastructure; the availability of developable land; the types and availability of employment opportunities; and the analysis and conclusions based on an environmental review of proposed projects pursuant to CEQA. When additional population growth or new development occurs, and additional information is available, local, regional, State, and Federal governments will need to consider and address these potential adverse environmental impacts and methods to avoid or mitigate them.

7.3.3 Relationship to Senate Bill 610 and Senate Bill 221, 2001

Land use planning agencies in California plan growth based on a number of different factors, many unrelated to available water supplies, including economic factors and population dynamics. Also, according to California law, water suppliers are required to serve the needs of users within their service areas (see, e.g., *Swanson v. Marin Municipal Water Dist.* (1976) 56 Cal.App.3d 512, 524 [water district has a “continuing obligation to exert every reasonable effort to augment its available water supply in order to meet increasing demands”]).

The coordination between water supply and land use planning was strengthened in 2001 by the passage of SB 610 and SB 221, which require cities and counties to obtain assessments of the availability of water to supply new developments over a certain size and to obtain assurance from water suppliers that sufficient water is available before approving these new developments. The combined effect of SB 610 and SB 221 is to impose upon cities and counties the ultimate responsibility for determining the sufficiency and availability of water as part of their environmental review and approval processes. In addition, a recent court case (*Save Our Peninsula Committee v. Monterey County Board of Supervisors* [2001] 87 Cal.App.4th 99) discussed how water supply sufficiency and the impacts of the proposed project on limited local supply sources were the key factors in deciding the adequacy of an EIR. Water supply availability in this instance was also clearly a determining factor in whether development was allowable.

SB 610 and 221 require only that water supply agencies inform land use jurisdictions regarding the availability of water supplies, type of infrastructure necessary to deliver the water, and impact of new development on supply reliability. SB 610 allows local land use agencies to approve development despite a water agency’s conclusion that the supplier’s reliability levels would be compromised. Specifically, a water supplier could report to the local land use agency that water supplies are insufficient and development could still proceed, should the land use authority decide to procure alternate supplies or, in the case of SB 610, adopt a statement of overriding considerations with respect to significant water supply impacts. Further, while SB 610 and SB 221 do attempt to increase the consideration of water supply factors in development decision-making, many proposed projects are not of a large enough scale to trigger the requirement to prepare a water supply assessment pursuant to SB 610 (500 or more residences, nonresidential uses that would supply more than 1,000 persons, or mixed-use projects that would have a water demand equivalent to the demand of 500 residential units).

7.3.4 Growth Projections

There is no doubt that California is expected to experience substantial growth over the next several decades. Numerous state, regional, and local agencies prepare estimates of growth to assist in planning for the effects of that growth, including the need for water supply, additional housing, roads and bridges, sewerage infrastructure, schools, hospitals, and police and fire services and to mitigate the projected negative impacts. Table 7-1 shows the population growth between 2000 and 2050 (in 10-year increments) projected by the California Department of Finance for all counties south of the Delta that could receive additional water as a result of the Intertie (i.e., counties that currently receive water from south-of-Delta CVP facilities).

Table 7-1. South-of-the-Delta Population Forecast for Counties Receiving CVP Water

County	2000	2010	2020	2030	2040	2050
Alameda	1,453,078	1,550,133	1,663,481	1,791,721	1,923,505	2,047,658
Contra Costa	956,497	1,075,931	1,237,544	1,422,840	1,609,257	1,812,242
Fresno	804,508	983,478	1,201,792	1,429,228	1,670,542	1,928,411
Kern	665,519	871,728	1,086,113	1,352,627	1,707,239	2,106,024
Kings	130,202	164,535	205,707	250,516	299,770	352,750
Madera	124,696	162,114	212,874	273,456	344,455	413,569
Merced	211,481	273,935	348,690	439,905	541,161	652,355
San Benito	53,927	64,230	83,792	103,340	123,406	145,570
San Joaquin	569,083	741,417	965,094	1,205,198	1,477,473	1,783,973
Santa Clara	1,693,128	1,837,361	1,992,805	2,192,501	2,412,411	2,624,670
Stanislaus	451,190	559,708	699,144	857,893	1,014,365	1,191,344

Source: California Department of Finance 2007.

7.4 Methods Used

The growth-inducing impact of each Intertie alternative was evaluated by comparing the total amount of current deliveries to CVP contractors to the estimated changes in deliveries for each alternative.

Implementing the Intertie could result in growth through three mechanisms. Growth could occur in the vicinity of the project site in Alameda or San Joaquin counties as a result of the economic activity generated by construction of the Intertie facilities. Two types of operations-related impacts could occur: effects resulting from changes in agricultural land and water use patterns because of increased CVP water deliveries; and growth in urban areas resulting from increases in CVP water deliveries. Each of these three mechanisms is described below.

7.4.1 Construction-Related Effects

Assessing the growth-inducing impacts of the construction-related effects is relatively straightforward. As the construction-related effects of the Intertie are within the control of Reclamation, the level of analysis can be fairly detailed. The assessment of construction-related effects involves analyzing whether the relative magnitude of temporary and permanent jobs that would be created by the project would be large enough to require additional housing, or otherwise spur economic growth in the area surrounding the project, and determining whether that growth would have environmental impacts.

The construction of the Intertie would cause a temporary increase in employment in the project area. Construction would last up to 15 months, and it is assumed that approximately 60% of the workers would originate from the local study area. The increase in population created by construction workers and their dependents may need to be accommodated from available local housing. It is assumed that there would be

approximately three persons per family. The total number of jobs created and the number of housing units needed to accommodate the workers were compared to the total population in the project area.

7.4.2 Effects Resulting from Changes in Agricultural Land and Water Use because of Increased Central Valley Project and State Water Project Deliveries

The assessment of agricultural effects involves determining whether any fallowed lands could be brought into production as a result of implementing the Intertie, and whether farming those lands would have environmental impacts. Such impacts would occur if this additional water would result in land and water use changes that had environmental effects. For instance, impacts could occur if agricultural lands that had previously lain fallow for several years and had become habitat for sensitive species were put back into production as a result of the water made available by Intertie alternatives.

Hydrologic modeling results were used to estimate increases in allocations to CVP agricultural water contractors resulting from the increased pumping rates associated with each alternative. Table 7-2 shows the increases in CVP allocations, for each water year type and averaged over the 82-year study period. Table 7-3 shows projected changes in deliveries to various groups of CVP contractors, derived from CALSIM II results. Tables 3.1-12 to 3.1-14 in Section 3.1, Water Supply and Delta Water Management, give the actual CVP deliveries for calendar years 2005, 2006, and 2007. Although there are some variations from year to year, the general allocation of CVP deliveries is identified. The exchange contractors received an average of 750 taf for these three years. The wildlife refuges' water supply allocations are determined from general water supply conditions each year and are unlikely to receive more deliveries from the Intertie. The refuge deliveries were about 330 taf for 2005 and 2006, and declined to 290 taf in 2007, which had a reduced CVP allocation because of limited supply. The municipal contractors have a higher allocation priority, and so are unlikely to receive additional water supply from the Intertie. Most of the Intertie increase in water supply is assumed to go to the agricultural contractors, according to their total contract amounts. Because Westlands Water District has the largest contract at 1,150 taf, they likely will receive the bulk of the Intertie increases (60%). Westlands water is used predominantly for agriculture, but there may be job-related opportunities for growth associated with a slightly increased supply. If all the Intertie water went to Westlands, this would increase their average delivery (i.e., reliability) by only about 3% of their total contract amount.

CALSIM modeling aggregates deliveries to each type of water use, so it was possible to compare where the additional water supply provided by the Intertie was delivered. CALSIM assumes that canal and reservoir evaporation losses were about 185 taf/yr for the No Action and the Intertie. The maximum assumed refuge deliveries were 280 taf, with an average of 273 taf/yr delivered for the No Action and the Intertie. The exchange contractors deliveries were a maximum of 875 taf/yr, with an average of 853 taf/yr delivered for the No Action and the Intertie. The maximum M&I deliveries were 148 taf/yr, the average No Action M&I deliveries were 125 taf/yr, and the average Intertie M&I deliveries were 127 taf/yr. The maximum agricultural deliveries were 1,835 taf/yr, the average No action agricultural deliveries were 1,060 taf/yr, and the average Intertie agricultural deliveries were 1,089 taf/yr. About 60% of this Intertie-

generated increased water supply would go to Westlands Water District, according to their contract amount.

Table 7-2. Comparison of Average Changes to CVP Deliveries Resulting from Implementing the Intertie Alternatives by Water Year Type (taf)

Water Year Type (1922–1994)	Future No Action	Alt 2	Alt 3	Alt 4	Change under Alt 2	Change under Alt 3	Change under Alt 4
Wet	2,968	2,999	2,999	2,992	31	31	24
Above normal	2,760	2,810	2,810	2,798	50	50	38
Below normal	2,601	2,658	2,658	2,645	57	57	44
Dry	2,313	2,334	2,334	2,329	21	21	16
Critically dry	1,636	1,657	1,657	1,652	21	21	16
82-year average	2,536	2,571	2,571	2,563	35	35	27

Table 7-3. Estimated Changes in Average CVP Deliveries Occurring under Alternatives 2, 3, and 4 (taf)

Beneficiary	Contractor Type	Alt 2	Alt 3	Alt 4
Westlands Water District	Agricultural Service	20	20	17
San Luis Water District	Agricultural Service	3	3	2
Panoche Water District	Agricultural Service	3	3	2
Other	Agricultural Service	7	7	4
Santa Clara Valley Water District	Municipal and Industrial	2	2	2
City of Tracy	Municipal and Industrial	0	0	0
San Benito County Water District	Municipal and Industrial	0	0	0
Kern-Tulare Irrigation District	Cross Valley Canal	0	0	0
Lower Tule River Irrigation District	Cross Valley Canal	0	0	0
Pixley Irrigation District	Cross Valley Canal	0	0	0
Other	Cross Valley Canal	0	0	0
Grasslands Water District	Refuge	0	0	0
San Luis National Wildlife Refuge	Refuge	0	0	0
Mendota Wildlife Management Area	Refuge	0	0	0
Exchange Contractors	Mendota Pool Exchange	0	0	0
Total		35	35	27

7.4.3 Effects Resulting from Changes in Urban Land Use because of Increased Central Valley Project and State Water Project Deliveries

Making a connection between changes in the availability of water for urban uses resulting from implementing the Intertie and changes in growth patterns in particular jurisdictions (and the environmental impacts of that growth) is rather speculative.

While the allocations of any additional water made available by the Intertie to CVP contractors can be known, several of the CVP urban water contractors are water wholesalers who make independent decisions about which local jurisdictions or next-level wholesalers in their service area would receive additional water. Furthermore, these wholesalers may make allocations that vary over time depending on available supplies and shifting demands among retailers. Thus it is not possible to know where additional supplies from the export pumps ultimately would be delivered.

Further uncertainty is created by these factors:

- Some contractors such as the Santa Clara Valley Water District have multiple sources of water that provide varying amounts of water over time or with varying reliability, making it difficult to determine whether an increment of additional CVP water would remove a barrier to growth or rather be put to use offsetting existing groundwater pumping or other surface water supplies.
- Most of the CVP contractors provide water primarily for agricultural uses, but it is possible that under certain conditions, water could be transferred to M&I users.
- Some local jurisdictions have sufficient supplies to serve all projected growth in their general plans, so additional supplies would not induce or accommodate additional growth.
- Growth in some jurisdictions may be limited by water supplies but also may be constrained by other factors, such as the availability of land, utilities (such as sewer service and electrical service), transportation facilities, schools, wastewater treatment facilities, or local growth management ordinances. These other factors may continue to limit growth, even if water supply reliability increases.
- Jurisdictions where growth is limited by water supply can attempt to obtain water from new sources if additional water is not provided through this project.
- Some retailers and jurisdictions have the ability to store water during years when supplies are plentiful and hold it over to be used in years when supplies are scarce. This makes it more difficult to assess the growth-related effects of additional supplies for local jurisdictions.
- Local jurisdictions, not water suppliers, have control over land use decisions, both how much and where growth will occur. It would be extremely difficult to determine specific lands that would be developed as a result of the additional increment of water provided by the Intertie, and what resources would be affected by that additional growth.

In areas that rely on the CVP and in which growth is limited by water supplies, providing additional water could lead to additional growth.

In summary, it would be remote and speculative to identify specific pieces of land that would be developed and specific resource impacts that would occur as a result of implementing the Intertie alternatives, and NEPA does not require such an analysis if it is too remotely connected to the proposed project alternatives or too speculative. However, it is possible to describe, in general terms, the amount of additional water that could be provided to each CVP contractor as a result of operational changes stemming from implementing the Intertie (as shown in Table 7-3) and to roughly calculate the maximum

amount of new development that could be supported from the water provided to urban suppliers.

Therefore, the analysis of these effects is focused on assessing the additional CVP supplies for M&I users that may result from implementing Intertie alternatives and a general discussion of the total amount of growth that could occur and the types of effects that could result from that amount of additional growth.

7.4.4 Determining How Much Additional Water May Result from the Intertie and the Associated Urban Growth

Hydrologic modeling results were used to estimate increases in deliveries to CVP contractors for each alternative. The CALSIM II results compared deliveries under No Action for all water year types for all Intertie alternatives. The maximum increase in deliveries was used to estimate the maximum land use changes, although it is assumed that not all of the increase in deliveries attributable to the Intertie would be applied to growth-related land use changes. This represents the most conservative estimate of growth effects, and Reclamation acknowledges that these effects are remote given that not all of the additional water would be applied to growth. Only a portion, if any, of this growth likely would occur as a result of Intertie alternatives.

7.5 Results

7.5.1 Construction-Related Effects

Over the duration of Intertie construction, up to approximately 74 jobs would be created directly under Alternatives 2 and 3, and 27 jobs would be created under Alternative 4. This increase in employment is not expected to cause the population in the project area to increase. Currently there are approximately 782,196 housing units in the two-county area; therefore, the increase in demand for housing attributable to the proposed project alternatives would be minimal and would be met by existing supplies.

Because the population in the project area is approximately 2.3 million, the increase in population under each alternative would not be expected to cause housing or other economic development and, therefore, would not result in the project being considered growth-inducing as a result of construction.

7.5.2 Effects Resulting from Changes in Agricultural Land and Water Use because of Increased Central Valley Project Deliveries

Currently the CVP delivers approximately 7.0 maf per year to 253 contractors. Table 7-2 indicates that CVP deliveries under Alternatives 2, 3, and 4 would increase on average approximately 35 taf, 35 taf, and 27 taf, respectively. The greatest increase in deliveries would be to Westlands Water District (Table 7-3) because it has the largest south-of-Delta CVP contract.

As the Intertie would result in an increase in water supply and water supply reliability, it is assumed that it has the potential to remove an obstacle to growth, and therefore is growth-inducing. The incremental increase in water supply is likely to be used primarily for agricultural land, but because this water could be transferred to M&I users and some CVP contractors supply water for M&I uses, the Intertie could be growth-inducing. The maximum amount of growth that could be attributed to the Intertie is based on the full amount of additional water expected to be derived from the Intertie. However, it is expected that any land uses changes resulting from the Intertie would be much less than this because:

- water would be delivered to the same service areas and places of use as it has been historically;
- water would be used to compensate for recent reductions of historical deliveries/supplies to CVP contractors;
- water would be delivered in the same manner, physically identical, to past CVP deliveries;
- there would be no change in the contract amounts of CVP contractors;
- there are other sources of water available to some water districts; and
- the largest amount of water being made available is less than a 1% increase over the approximate 7-maf CVP deliveries on average.

7.5.3 Effects Resulting from Changes in Urban Land Use because of Increased Central Valley Project Deliveries

Alternative 2

Table 7-3 shows that only a minor increase (35 taf) in CVP M&I deliveries is expected to result from Intertie alternatives.

Based on an average per capita consumption of 0.2 acre-feet per person per year, the additional 35 taf of water as a result of constructing and operating the Intertie could support approximately 175,000 additional people and their employment. This estimate assumes that all of the additional water would be used by M&I and for new development. It is not known, however, how much, if any, of this additional water would be allocated to new development. Therefore, this represents the maximum possible increase resulting from Alternative 2.

Alternative 3

Alternative 3 would result in the same increase in water supply as Alternative 2. Therefore, it could result in growth associated with 175,000 additional people and their employment. This estimate assumes that all of the additional water would be used by M&I and for new development. It is not known, however, how much, if any, of this additional water would be allocated to new development. Therefore, this represents the maximum possible increase resulting from Alternative 3.

Alternative 4

Alternative 4 would result in an average increase in water supply of 27 taf. As such, it could result in growth associated with 135,000 additional people and their employment, although this is the maximum amount of growth and it is not certain that any of this water would be allocated to new development.

7.6 Impact Conclusions

Each alternative could remove an obstacle to growth. Although the effects of the project through the cultivation of once-fallowed agricultural lands or through the stimulation of the local economy by project construction are not expected to accommodate or induce growth, the increase in water supplies for those receiving water exported from the Delta could accommodate additional growth. This growth could result in the conversion of agricultural and other open land to urban uses that may adversely affect agricultural and biological resources (including special-status species and other sensitive resources) at those locations subject to such conversion. In addition, this conversion could lead to changes in stormwater runoff quantity and quality, and impacts on cultural resources. Increases in population could lead to impacts on air and water quality, traffic and noise conditions, and increases in the demand for such public services as schools, fire, police, sewer, solid waste disposal, and electrical and gas utilities. In addition, the expansion of such services could result in additional adverse impacts. Local jurisdictions could impose feasible mitigation measures on development that would reduce or eliminate these impacts, but as the location of any new growth cannot reasonably be predicted, estimating the potential for this would also be remote and speculative.

It would be extremely speculative to identify specific areas where growth could occur or the indirect effects on specific community service facilities in a particular service area. Overall, a small potential exists that implementation of the Intertie could have some effect on growth and community facilities in service areas identified in Table 7-3, but these effects, if they occur, likely would be extremely small, especially compared to other social and economic variables that can influence growth and services.

Mitigation of these impacts, should they occur, would be the responsibility of the local jurisdictions in which the growth would occur, not Reclamation. The impacts of this growth, if any, would be (and in some cases have been) analyzed either in general plan EIRs for the local jurisdictions or in project-level CEQA compliance documents. Mitigation measures could include locating the growth in areas where sensitive resources are absent, minimizing the loss of these resources, or replacing any loss.

7.7 Comparison of Alternatives

The analysis above addressed the growth-inducing impacts of each alternative. Table 7-2 provides a comparison of the changes in average CVP water deliveries by water year type for Alternatives 2, 3, and 4.

Because each of the alternatives achieves the same general increase in water supply, they all have a similar potential for growth, with Alternatives 2 and 3 being slightly higher

than Alternative 4. The location and extent of the impacts of any growth induced by each alternative cannot be known at this time. Growth-related effects would be the responsibility of local jurisdictions to identify and mitigate. However, little or no actual growth is expected to occur as a result of Intertie alternatives.

Chapter 8 List of Preparers

8.1 Introduction

Following is a list of persons who contributed to preparation of this EIS. This list is consistent with the requirements set forth in NEPA (Section 15129 of the State CEQA Guidelines).

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