6.0 LONG-TERM IMPLICATIONS OF THE PROPOSED PROJECT

6.1 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES THAT WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

The CEQA Guidelines mandate that the EIR must address any significant irreversible environmental changes which would be involved in the proposed action should it be implemented (CEQA Guidelines Section 15126.2[c]). An impact would fall into this category if:

- The project would involve a large commitment of non-renewable resources;
- The primary and secondary impacts of the project would generally commit future generations to similar uses;
- The project involves uses in which irreversible damage could result from any potential environmental incidents associated with the project; or
- The proposed consumption of resources is not justified (e.g., the project results in wasteful use of energy).

Construction of the proposed Seawater Desalination Project at Huntington Beach would commit the project site and associated off-site components to the uses identified in the project description for the foreseeable future, and thereby limit the range of other uses that could, in the future, be implemented on the subject properties. As the desalination site, surrounding properties, Coastal Junction Pump Station and off-site water transmission pipeline routes are developed within urbanized areas, they are not viable for agricultural uses and do not contain any significant natural features which should be preserved for public recreation or open space purposes. Nor do they contain any important natural resources which should either be conserved or reserved for other productive purposes or contain any features of significant cultural or historical value. The off-site OC-44 underground pump station, however, would be situated within an Orange County Resource Preservation Easement. The site is currently undeveloped and is inhabited by dense native vegetation. However, the pump station would be placed entirely underground and would be subject to development restrictions protecting the integrity of on-site biological resources. Any displaced vegetation would be replaced following the completion of construction.

Determining whether the proposed project may result in significant irreversible environmental changes requires a determination of whether key resources would be degraded or destroyed such that there would be little possibility of restoring them. No such degradation or destruction of resources is anticipated as a result of the proposed project. While the project would represent a long-term commitment of the desalination project site and associated off-site components to the proposed desalination uses, such uses are consistent with applicable goals and policies of the City's General Plan, and would enhance City and regional water resources while facilitating their management. There are no identified important or sensitive natural resources that exist at the site. Further, no important natural resources would be lost as a result of project implementation. The local marine environment surrounding the Huntington Beach Generating Station (HBGS) outfall may experience long-term changes in regards to increased salinity due to the proposed plant's concentrated seawater discharge, but impacts to biological resources as a result of these changes are not anticipated to be significant. Various natural resources, in the form of construction materials and energy resources, would be used in the construction of the project, but their use is not

expected to result in significant long-term shortfalls in the availability of these resources. Energy consumed by the project is not likely to contribute to intermittent statewide energy shortfalls because operations of the facility can be curtailed during incidents of peak electric grid overload. Proposed consumption of energy is not considered wasteful. Based on the foregoing, the project presents no possibility of significant irreversible environmental changes.

6.2 GROWTH-INDUCING IMPACTS OF THE PROPOSED ACTION

This section discusses the ways in which the Seawater Desalination Project at Huntington Beach could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in Orange County.

CEQA REQUIREMENTS FOR GROWTH INDUCEMENT ANALYSIS

The California Environmental Quality Act (CEQA) requires that an environmental impact report shall include a detailed statement setting forth "the growth-inducing impact of the proposed project." [Public Resources Code Section 21100 (b)(5).] The CEQA Guidelines provide the following direction for the required discussion.

> *"Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." [CEQA Guidelines Section 15126.2(d).]*

Identification of the "surrounding environment" in which this project may foster growth is obviously a key factor in the analysis. The "surrounding environment" or "service area" for the proposed project has been identified as Orange County.

Development of raw, natural land for new homes, industry or a commercial center is a clear example of directly converting the natural environment for use by man, and such projects are considered to be directly "growth inducing." Projects that are directly growth inducing convert the natural environment and develop structures and other physical features for the purposes of providing places to live, work, shop, recreate and grow food for an expanding population within an area. Examples of projects that are directly growth inducing include projects that convert agricultural land to rural or urban development, and projects that replace existing rural, suburban, or urban development with uses that significantly increase the level of human activity in a given area.

The CEQA Guidelines and controlling CEQA case law indicate that infrastructure projects (like the proposed project) are different. Infrastructure projects may have characteristics "which would remove obstacles to population growth" or "which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively." [CEQA Guidelines Section 15126.2(d).] In the specific example cited by the CEQA Guidelines, "a major expansion of a waste water treatment plant might ... allow for more construction in service areas." Infrastructure projects (like the proposed project) may be found to be indirectly "growth inducing."

California courts have recognized that there is a different potential for indirect growth-inducement when the "sole reason to construct" an infrastructure improvement project "is to provide a catalyst for further development in the immediate area" (*City of Antioch v. City Council of the City of Pittsburg* [1986]) as compared to the analysis required for a project "designed to accommodate a development whose growth-inducing impact had already been addressed" (*Merz v. Monterey County Board of Supervisors* [1983]). Accordingly, this section examines the extent to which the proposed project would provide a catalyst for further development in Orange County as compared to the extent to which the proposed project has been designed to accommodate existing demand and planned development.

Finally, the CEQA Guidelines admonish that "it must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment." (CEQA Guidelines Section 15126.2[d]). Therefore, the analysis in this section endeavors to present factual information without engaging in such assumptions.

DEFINITION OF GROWTH

"Growth" is measured in terms of increases in the numbers of houses, residents, employees, businesses, and other quantifiable units within a particular area. Resulting growth statistics are readily available from various sources, such as the U.S Census Bureau, State Department of Finance, and regional and local governments.

Population growth has two basic causes: 1) the net difference between birth and death rates in a given area (natural increase); and 2) the net effect of in- and out-migration within an area. Birth and death rates are relatively uniform across the U.S., although there is the potential for aberrations in the local birth and death rate based on the specific environmental and social characteristics of a given area. Migration is directly related to growth catalysts or constraints, which are the result of the natural environmental conditions of a given area (e.g., its beauty and climate), as well as the man-made and social features of the community (e.g., strength of the local employment base, desirability of living conditions, quality of schools, community amenities, and other quality of life issues). In this case, CEQA requires a discussion of the ways in which a proposed project could be a catalyst for migration into the environment surrounding that project.

Growth Catalysts and Constraints

Catalysts and constraints to growth can effect: 1) whether or not growth occurs in a given area: and 2) the rate at which growth occurs. Even if there is latent growth potential in a given area, the area may not experience any growth, other than natural population increase, because of specific constraints. Such constraints could be temporary and easily removed, such as a short-term lack of sewage treatment capacity, or long-term in nature and difficult to address, such as high air pollution levels in an air basin that discourage in-migration.

Generally, naturally occurring growth catalysts/constraints (such as natural topography, location of rivers, lakes, steep slopes, fault zones, sensitive habitats) are fairly straightforward and easy to define. Man-made catalysts and constraints typically are a consequence of a combination of economic forces (job availability, pay scales, housing costs, development incentives) and infrastructure provision (roadways, public utilities, public services) that combine in a way that makes an area appear more, or less, attractive than another area. In some cases, manmade factors may interact with the natural environment to create growth catalysts (e.g., the design of new development within a desirable natural setting) or constraints (e.g., air pollution combined with a poor climate) affecting decisions to migrate to an area.

This relative attractiveness of the combined natural and man-made environment on the local, regional, state, or national level influences population growth. Areas that have healthy environmental factors, strong growth catalysts, and minimal or resolvable constraints would experience growth in the form of net-in-migration.

GOVERNMENT'S ROLE REGARDING GROWTH

Government is the vehicle through which many growth catalysts and constraints are created, increased, decreased, or removed. Local cities and counties primarily play this role, although

service and utility agencies are also involved. The relationship between an area's growth catalysts, constraints, and government policy actions also facilitates or hinders growth.

Cities and Counties

In California, all cities and counties are required to prepare and maintain, "a comprehensive, long-term general plan for the physical development of the county or city, and of any land outside its boundaries which in the planning agency's judgment bears relation to its planning" (California Government Code Section 65300). Under State law, it is the responsibility of cities and counties to define the availability of land for future development in terms of the permitted location and intensity of residential, commercial, industrial, institutional, recreational, and other types of development. State requirements for the preparation and content of General Plans, as well as CEQA requirements for their review, are intended to ensure that a city's or county's land use plans are consistent with their circulation plans; are consistent with the agencies' plans for environmental management, public safety, and provision of housing for all economic segments of the community; and are supported by adequate public services and facilities. Overall, city and county General Plans establish the governmental policies as to how growth catalysts and constraints are managed within each community.

A city or county, therefore, manages growth by affecting, influencing, and controlling growth catalysts and growth constraints. Through implementation of general plan policies and related implementation strategies, growth catalysts are either expanded or contracted. This affect can result in many outcomes, such as high rates of growth resulting from implementation of aggressive development plans, or conversely, low to no growth resulting from implementation of slow-growth development plans. Similarly, growth can be managed by either removing or leaving in place constraints to growth. For example, a completely built-out city that includes mountainous terrain can remove a growth constraint by enacting policies that allow development of hillsides previously prohibited from development, or it can choose to keep the existing hillside development prohibition in place, thereby maintaining the growth constraint.

Service and Utility Agencies

In California, public service and utility agencies function on a "would serve" basis, meaning that they are responsible for providing services and utilities to accommodate growth that is planned to occur in their service area. In providing these services and utilities, these agencies are responding to growth pressures that are ultimately managed, or controlled, by the cities and counties in their service area. Water purveyors in urban areas, for example, are required by law to prepare and adopt Urban Water Management Plans (UWMPs), with 20-year planning horizons, in order to demonstrate how they would accommodate the water service demands in their service area. These UWMPs must be updated every five years and are required to estimate water supply needs for their service area in normal, dry and drought years.

Some see service and utility agencies as playing a dual role, by both accommodating growth as well as removing constraints to growth that results in the creation of a growth catalyst. Using the example of a capacity increase at a wastewater treatment plant, service agencies can create a growth catalyst that meets demand for growth coming from a particular city. Without the wastewater treatment plant capacity increase, a constraint to growth would remain. While the provision of these services and utilities can function as a catalyst to growth or the lack of providing them can function as a constraint to growth, the demand for growth is generally dictated by the planning activities of cities and counties in their service area.

Special Legislative Requirements for New Developments

The California State Legislature recognized the correlation between development and water supply when it passed new water supply laws, SB 610 and SB 221 in the 2001 legislative session. The bills require that cities and counties consult with the water agency serving a new development project of over 500 dwelling units (or similar large projects) to determine whether water supplies are sufficient to serve the project prior to approval.

In addressing water supply availability for new development projects, SB 610 augments the CEQA process to definitively establish water availability. SB 610 requires that the public water supplier must prepare a "water supply assessment" that contains the following:

- Identification of existing and anticipated water supply entitlements, water rights, and water service contracts and a historical description of the quantities of water received by the public water supplier in prior years.
- Identification of the source of supply for the new development project and, if it is a new source, other competing purveyors that may receive water from the new source must also be identified.
- If the identified water supply includes groundwater, additional factors such as groundwater characteristics and sufficiency of the supply must be disclosed to establish proper use of the resource.

The public water supplier's UWMP is the main planning tool used in preparing a water supply assessment for new development projects. If the demands expected from the new development are already accounted for in the UWMP, the UWMP may be used - in whole or in part - to establish supply availability under normal and drought conditions. If the water demands for a new project are not already accounted for in the Plan, SB 221 requires the public water supplier to provide "written verification" of "sufficient water supplies" for the new project as well as proof of the availability of water supply. In most cases, the water supply assessment prepared under SB 610 would meet the additional requirements of SB 221.

Desalination Task Force Recommendations

Assembly Bill 2717 (Hertzberg, Chapter 957, Statutes of 2002) called for the Department of Water Resources (DWR) to establish a Desalination Task Force ("Task Force") to look into, among other things, potential opportunities for desalination of seawater in California. The Task Force completed its mission in October 2003, after six months of deliberations. DWR prepared recommendations with significant input from Task Force members. Direction on the evaluation of growth related impacts were included among those recommendations. DWR recommends that seawater desalination projects be evaluated:

> *"based upon adopted community General Plans, Urban Water Management Plans, Local Coastal Plans, and other approved plans that integrate regional planning, growth and water supply/demand projections. Environmental reviews should ensure that growth related impacts of desalination projects are properly evaluated."*

ORANGE COUNTY GROWTH PROJECTIONS

The Center for Demographic Research (CDR) at the California State University, Fullerton, prepares biennial socioeconomic growth projections for Orange County. The Orange County Projections 2002 (OCP-2002) were adopted by the Orange County Council of Governments (OCCOG) in December 2002 and are the most recent projections.

OCP-2002, as prepared by CDR, provides information on growth in population, employment, and housing between the years 2000 and 2030. According to the OCP-2002, from 2000 to 2030 Orange County is expected to experience a 26 percent increase in population (735,764 additional people) and a 37 percent increase in the number of jobs (564,390 additional jobs), but only a 15 percent increase in the number of dwelling units (145,090 additional dwelling units). Based on the projected increase in population compared to the flatter growth in the number of housing units projected, densities in Orange County are anticipated to intensify. The projections are shown in Table 6-1, *ORANGE COUNTY PROJECTIONS: 2000-2030*.

Table 6-1
ORANGE COUNTY PROJECTIONS: 2000-2030

	2000	2010	2020	2030
Population	2,866,312	3,289,360	3,523,736	3,602,076
Employment	1,514,611	1,820,814	1,984,051	2,079,001
Housing	973,339	1,066,476	1,100,848	1,118,429
Source: http://www.octa.net/programs/directions/2.1%20Growth%20Projections.pdf				

Population

According to the CDR, the population of Orange County was 2,866,312 as of January 1, 2000. The CDR estimates an increase in Orange County's population to 3,289,360,360 in the year 2010, and to 3,523,736 in the year 2020. The projected population in 2030 is 3,602,076.

Employment

The proposed project site is currently occupied with several fuel storage tanks. The existing facility does not require the employment of any personnel. Implementation of the Seawater Desalination Project at Huntington Beach would generate minor short-term and nominal long-term employment within the City of Huntington Beach. The proposed plant would employ a total of 18 people, with five to seven people working on-site Monday through Friday and a minimum of two people on duty during swing shifts, graveyard shifts, and weekends. Project implementation would not appreciably affect the CDR projected employment figure of 1,820,814 jobs in the year 2010 for Orange County.

Housing

The Seawater Desalination Project at Huntington Beach would occur within an industrial area and would not directly involve the construction of any new housing or the relocation of any existing housing in the City. However, as an infrastructure improvement project that would provide a new source of potable water supply (desalinated seawater) for Orange County, the Project's potential to indirectly foster the construction of new housing must be analyzed County-wide.

The "Growth Assessment and General Plan Evaluation for Anticipated Infill and New Residential Development in Orange County, California," prepared by LSA Associates, Inc., in October 2004 (the "Growth Assessment and General Plan Evaluation") has been attached to this EIR as Appendix P, *GROWTH ASSESSMENT AND GENERAL PLAN EVALUATION*. The Growth Assessment and General Plan Evaluation utilizes several complimentary approaches to determine the planned build-out of dwelling units in Orange County, analyzing the housing elements and related elements from the general plans of all jurisdictions in the County as well as analyzing CDR projections for each of the ten regional statistical areas (RSAs) for the County. The Growth Assessment and General Plan Evaluation also specifically reviews twelve proposed new residential development projects of over 500 dwelling units in the County.

The Growth Assessment and General Plan Evaluation analyzed the housing elements and related elements from the general plans of all jurisdictions in the County. After compiling information from 34 cities and the unincorporated territory in the County, the Growth Assessment and General Plan Evaluation identified that a total of 970,296 dwelling units are projected for final build-out of Orange County (refer to Table 6-2, *GENERAL PLAN HOUSING ELEMENT SUMMARY*). Without relying on additional updated information, the general plan review would provide an out-of-date projection of the total dwelling units to be built in Orange County. In fact, when the total number of dwelling units estimated for build-out in the general plan for each jurisdiction is added together (970,296), the resulting number is less than the total number of existing dwelling units in the County in 2000 (973,339 - refer to Table 6-1). One reason for the lower overall build-out estimates is that the general plans were written as independent governing documents for each jurisdiction. In addition, as shown on Table 6-2, the general plans were written in different years.

Table 6-2
GENERAL PLAN HOUSING ELEMENT SUMMARY

Jurisdiction	General Plan Element	Year of General Plan Element	Total Housing Estimates at Build-out per General Plan	2004 California Department of Finance Existing Housing Estimates	Total Remaining Housing Units to Be Built prior to Build-out of Jurisdiction per General Plan Estimates and California Department of Finance Estimates
Aliso Viejo	Community Profile	2004	20,112	17,968	2,144
Anaheim	Land Use Element	2004	129,159 (per City Planner)	101,527	27,632
Brea	Housing Element	2002	15,802	14,292	1,510
Buena Park	Housing Element	2001	24,285	23,848	437
Costa Mesa	Housing Element	2000	43,122	40,947	2,175
Cypress	Housing Element	2001	17,022	16,381	641
Dana Point	Housing Element	2000	16,564	15,880	684
Fountain Valley	Housing Element	2000	19,290	18,482	808
Fullerton	Housing Element	2001	55,831	46,296	9,535
Garden Grove	Housing Element	2000	48,299	47,069	1,230
Huntington Beach	Housing Element	2000	79,514	77,221	2,293
Irvine	Housing Element	2003	61,255	63,014	(-1,759)
Laguna Beach	Housing Element	2001	13,083	13,174	(-91)

Jurisdiction	General Plan Element	Year of General Plan Element	Total Housing Estimates at Build-out per General Plan	2004 California Department of Finance Existing Housing Estimates	Total Remaining Housing Units to Be Built prior to Build-out of Jurisdiction per General Plan Estimates and California Department of Finance Estimates
Laguna Hills	General Plan Appendix A	2001	11,425	11,108	317
Laguna Niguel	Housing Element	2000	24,947	24,664	283
Laguna Woods	Housing Element	2003	13,395	13,629	(-234)
Lake Forest	Housing Element	2000	21,428	26,385	(-4,957)
La Habra	Housing Element	2003	19,271	19,719	(-448)
La Palma	Housing Element	2002	5,037	5,131	(-94)
Los Alamitos	Housing Element	2001	4,578	4,362	216
Mission Viejo	Housing Element	2000	34,465	33,714	751
Newport Beach	Housing Element	2003	39,249	41,851	(-2,602)
Orange	Housing Element	2001	45,846	43,372	2,474
Placentia	Housing Element	2002	16,162	16,010	152
Rancho Santa Margarita	Housing Element	2002	17,170	16,684	486
San Clemente	Housing Element	2000	25,481	25,414	67
San Juan Capistrano	Housing Element	1997	Unknown	11,676	Unknown
Santa Ana	Housing Element	2000	76,891	75,006	1,885
Seal Beach	Housing Element	1990	14,334	14,347	13
Stanton	Housing Element	2001	11,726	11,065	661
Tustin	Housing Element	2001	24,121	25,850	(-1,729)
Villa Park	Housing Element	2001	4,081	2,020	4,068
Westminster	Housing Element	2001	28,202	27,185	1,017
Yorba Linda	Housing Element	2002	23,526	20,681	2,845
Unincorporated Orange County	Housing Element	2001	94,782	37,957	Unknown
Subtotal			**970,296**	**1,003,929**	**64,324**

Jurisdiction	General Plan Element	Year of General Plan Element	Total Housing Estimates at Build-out per General Plan	2004 California Department of Finance Existing Housing Estimates	Total Remaining Housing Units to Be Built prior to Build-out of Jurisdiction per General Plan Estimates and California Department of Finance Estimates
Note: All housing estimates include proposed infill development. All negative totals (noted in parentheses) are counted as zero and not subtracted from the total.					
Source: *Growth Assessment and General Plan Evaluation for Anticipated Infill and Planned Development in Orange County, California*, August 2004.					

To provide updated information, the Growth Assessment and General Plan Evaluation compared the 2004 California Department of Finance (DOF) existing housing estimates to the general plan estimates on a jurisdiction-by-jurisdiction basis. As shown in Table 6-2, the build-out estimate for most jurisdictions continues to be up to date. However, in the Cities of Irvine, Laguna Beach, Laguna Woods, Lake Forest, La Habra, La Palma, Newport Beach, and Tustin, the general plan build-out estimates are out of date and have already been surpassed, when compared with the 2004 DOF existing housing estimates.

When the 2004 DOF existing housing estimates are subtracted from the build-out estimates in the general plans on a jurisdiction-by-jurisdiction basis (ignoring the jurisdictions where the estimates have already been surpassed), the result is that an estimated 64,324 dwelling units remain to be built in Orange County. This number still seems low because, as indicated in Table 6-1, CDR projects that the total dwelling unit growth from 2000–2030 for Orange County is anticipated to be 145,090 dwelling units. In addition, the general plan total does not include any potential units that may be built in Irvine, Laguna Beach, Laguna Woods, Lake Forest, La Habra, La Palma, Newport Beach, Tustin, or unincorporated County.

The CDR projection is likely a more accurate estimate of the future number of dwelling units to be built in Orange County. Under direction from the County Board of Supervisors, ten regional statistical areas (RSAs) for the County were established in 1977. CDR currently manages growth forecasting and projections for the ten RSAs. In its most recent analysis, OCP-2002, CDR found that 65,438 dwelling units (approximately 45 percent) are anticipated to be built in infill areas of the County and that seven of the ten RSAs are projected to have more infill development than new development. The percentage of infill development by RSA is shown in Exhibit 6-1, *INFILL PERCENTAGES BY REGIONAL STATISTICAL AREAS*.

In contrast, almost all of the anticipated new development in Orange County would occur in three RSAs: B-41 (11,219 DU), C 43 (33,398 DU) and E-44 (24,836 DU). Of the 79,652 projected new units to be built from 2000 to 2030, 69,453 – 87 % of the total – would be built in those three RSAs. RSA B-41 includes the Anaheim Hills and East Orange areas, while RSAs C-43 and E-44 include most of the inland (non-coastal) portions of Irvine and South Orange County. Several large tracts of vacant land remain in those areas. It is not surprising, therefore, that those are the areas where the majority of the County's proposed new residential development projects with over 500 dwelling units are located (refer to Table 6-3, *PROPOSED NEW RESIDENTIAL DEVELOPMENT PROJECTS IN ORANGE COUNTY (OVER 500 DWELLING UNITS)*.

ORANGE COUNTY WATER CONSUMPTION PROJECTIONS

To determine whether the Seawater Desalination Project at Huntington Beach may be growth-inducing, projections regarding water consumption habits in Orange County must be understood in addition to the projections for growth in population, employment and housing. The Desalination

Task Force recommends a review of applicable Urban Water Management Plans and "other approved plans that integrate regional planning, growth and water supply/demand projections." Three plans provide relevant information: the California Water Plan prepared by the Department of Water Resources (DWR), the 2003 Integrated Resource Plan (IRP) Update prepared by the Metropolitan Water District (MWD) and the 2000 Urban Water Management Plan prepared by the Municipal Water District of Orange County (MWDOC). Each plan includes seawater desalination as a projected future supply.

Table 6-3
PROPOSED NEW RESIDENTIAL DEVELOPMENT PROJECTS
IN ORANGE COUNTY (OVER 500 DWELLING UNITS)

Project #	Proposed New Residential Development Projects	DUs	RSA	Land Use Jurisdiction	Water Supplier	Water Supply Identified
1	Tonner Hills	810	B-41	Unincorporated County	Southern California Water Company	Yes
2	West Coyote Hills	760	A-36	Fullerton	City of Fullerton	Yes
3	Del Rio	716	B-41, G-42	Orange	Irvine Ranch Water District (IRWD)	Unknown
4	Mountain Park	2,500	B-41	Anaheim	City of Anaheim	Unknown
5	East Orange-Santiago Hills II	4,096	E-44	Orange	IRWD	Yes
6	Planning Areas 1 and 2	4,310	E-44	Irvine	IRWD	Unknown
7	North Irvine Sphere	12,350	E-44	Irvine	IRWD	Yes
8	Great Park	8,550	E-44	Irvine	IRWD	Yes
9	Tustin Base	4,601	E-44	Tustin	City of Tustin / IRWD	Unknown
10	UCI	850	F-39	UC Regents	IRWD	Unknown
11	Northeast Future Planned Community Area	618	C-43	Rancho Santa Margarita	Trabuco Canyon Water District	Yes
12	Rancho Mission Viejo Ranch Plan	14,000	C-43	Unincorporated County	Santa Margarita Water District	Yes
-	None	-	D-40	-	-	-
-	None	-	H-37	-	-	-
-	None	-	I-38	-	-	-
-	None	-	J-35	-	-	-
Total DUs		54,161				

Note: The recently approved Pacific City project that include over 500 dwelling units in the City of Huntington Beach is considered an infill project in the LSA Study and therefore, is not included in the above table.
Source: *Growth Assessment and General Plan Evaluation for Anticipated Infill and Planned Development in Orange County, California*, August 2004.

The latest draft of the California Water Plan (the Draft 2004 Plan), projects that a combination of six new seawater desalination facilities would provide up to 187,100 acre feet of California's urban

water supply by 2030. The same number (rounded to 200,000 acre feet) is listed as the target amount to be produced by seawater desalination, one of the 25 "Resource Management Strategies" featured in the 2004 Water Plan Update's "Strategy Investment Options Table" to address state and local water supply concerns.[1]

In Southern California, the 2003 IRP Update includes a revised local resources target that can accommodate a seawater desalination goal of 150,000 acre-feet. To that end, MWD's current Seawater Desalination Program includes five proposed projects that collectively could produce about 132,000 acre-feet per year. The 56,000 acre-foot per year Seawater Desalination Project at

[1] Draft 2004 California Water Plan, Volume 1, *Findings and Recommended Actions*.

Insert Exhibit 6-1, *Infill Percentages by Regional Statistical Areas*

Huntington Beach is independent from MWD's Seawater Desalination Program, but would still be considered an Orange County local project for purposes of the 2003 IRP Update.

The information in the 2000 UWMP is in the process of being updated by MWDOC to reflect MWD's 2003 IRP Update assumptions (a revised UWMP must be adopted by MWDOC in 2005.) In completing the IRP Update, MWD included two specific assumptions for Orange County: 1) an increase in conservation from 84,000 acre-feet in 2005 to 148,000 acre-feet in 2025; and 2) an increase in local project supplies from 350,000 acre-feet in 2005 to 512,000 acre-feet in 2025.[2]

The conservation assumptions in the 2003 IRP Update are more aggressive than those projected in MWDOC's 2000 UWMP. The 2000 UWMP indicates total conservation of 32,000 acre-feet in 2000 and projects only 57,000 acre-feet for 2005. The 2020 projection of 99,000 acre-feet in the 2000 UWMP is 49,000 acre-feet short of the 2003 IRP Update assumption. In addition, the assumption that Orange County can increase local supplies to 512,000 acre-feet is dependent on continued significant groundwater production. According to MWDOC, a "lower groundwater production" scenario could leave Orange County up to 52,000 acre-feet short of the 512,000 acre-foot local project goal in 2025 even assuming that all existing and planned recycling projects (including Phase I of the Orange County Water District's Groundwater Replenishment System) were fully operational (April 22, 2004 presentation by MWDOC: "Orange County's Part in the IRP"). Seawater desalination is identified in the MWDOC's 2000 UWMP as a planned for future water supply, and it continues to be one of several methods recommended by MWDOC to close the potential gap between future supply and demand.

All planned new development projects of 500 dwelling units or more that are approved or anticipated for Orange County are required by law to identify (and verify) the water sources available to serve those projects. None of the twelve planned new residential development projects of 500 dwelling units or more that were identified in the Growth Assessment and General Plan Evaluation have identified the Seawater Desalination Project at Huntington Beach as a source of water supply. Seven of the listed projects have identified water sources that are independent of the Seawater Desalination Project at Huntington Beach and the other five projects are not far enough along in the planning process to have identified a source of water supply (refer to Table 6-3). Three specific south Orange County projects (which are below the 500 dwelling unit threshold requiring a water supply assessment) are of note due to comments and references made during public review of the previously circulated EIR. These three projects are the Saddleback Meadows, Saddle Creek and Saddle Crest developments, with 299, 127 and 35 single-family residential lots proposed, respectively. All of these projects are within the water service area of the Trabuco Canyon Water District (TCWD). The EIR prepared for the Saddleback Meadows development stated that TCWD would be able to accommodate the required water supply demand of the proposed project with existing District water resources. TCWD also indicated that existing district water resources are adequate to serve projected water demands of the Saddle Creek and Saddle Crest developments. Because irrigation demands represent over one-half of these developments' total water demand, the developers, with assistance from TCWD, are investigating the availability and feasibility of developing a groundwater source for separate irrigation systems.

POTENTIAL PROJECT-RELATED GROWTH-INDUCING IMPACTS

The Seawater Desalination Project at Huntington Beach would provide a new source of potable water supply (desalinated seawater) producing 50 million gallons per day ("mgd") or 56,000 acre-feet per year of potable water for ultimate use within Orange County. However, as described in Section 3.0, *PROJECT DESCRIPTION*, the desalinated seawater would not be made directly available to end users. Instead, the project requires that the desalinated seawater produced by the

[2] Source: April 22, 2004 presentation by MWDOC: "Orange County's Part in the IRP."

Seawater Desalination Project at Huntington Beach be delivered only to existing regional or local water purveyors in Orange County. Consequently, the growth-inducing impact of the project would depend entirely upon how those regional or local water purveyors allocate the desalinated seawater produced by the project.

Neither CEQA, nor the CEQA Guidelines provide a specific methodology for determining whether or not a project like the proposed project would have growth-inducing impacts. One methodology would be to assume a scenario in which all water produced by the Seawater Desalination Project at Huntington Beach was directed by regional and local water purveyors entirely toward fostering unplanned growth in Orange County. If a 200-gallon per day per capita water use is assumed, the project could supply water to 250,000 additional people, or approximately eight percent more than Orange County's 3,000,000 current residents. When the County's population reaches approximately 3,500,000 residents in 2020 (refer to Table 6-1), the project would be able to serve approximately seven percent of that projected population.

Allocating the project's water supply entirely toward fostering unplanned growth in Orange County is not realistic because existing water supply plans identify desalinated seawater as one of the additional water sources already counted upon to meet the future supply needs for projected population increases. The Growth Assessment and General Plan Evaluation documents that the potential water supply from the Seawater Desalination Project at Huntington Beach is not currently being relied upon to serve seven of the planned new development projects of 500 dwelling units or more that are proposed in Orange County, although it cannot be ruled out that the proposed project might not be a supply for one or more of the five residential projects that have not yet identified water sources. It is more likely that all or most of the water supply produced by the project would be allocated by Orange County water purveyors to meet the increased demand of infill development planned to occur throughout the County.

Under CEQA, growth inducement is not considered necessarily detrimental, beneficial, or of little significance to the environment. Typically, the growth-inducing potential of a project would be considered significant if it fosters growth or a concentration of population in excess of what is assumed in pertinent general plans, or in projections made by regional planning agencies. Even if the project were relied upon to serve a new development of 500 dwelling units or more, it would not foster growth in excess of that already assumed and projected in pertinent planning documents.

As stated above, the proposed project may be identified in the future as a water supplier for a project listed in Table 6-3 whose water supplier is not currently known. In addition, as no water supply agreements have been executed with water agencies within Orange County, the precise locations/uses where desalinated water would be allocated are not known. As such, there is a potential for the project to induce growth in unidentified areas. All proposed projects and water sources would be subject to environmental analysis prior to approval. However, in consideration of population/housing projections within the County and the recognized need for seawater desalination as a supply source (within the California Water Plan, MWD 2000 IRP, and MWDOC 2000 UWMP), any impacts in regards to growth inducement would be less than significant.

6.3 CUMULATIVE IMPACTS

This section has been included in the EIR to address the cumulative impacts associated with the proposed desalination project. In accordance with CEQA Guidelines §15130, an EIR shall address cumulative impacts of a project when the project's incremental cumulative effect is considerable, as defined in Section 15065(c). The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as much detail as is provided for the effects attributable to the project alone. The EIR need not address cumulative impacts for which the project does not contribute. The discussion should be guided by the

standards of practicality and reasonableness. The following elements are necessary for an adequate discussion of cumulative impacts.

1. Either:

   - ❖ A list of relevant past, present and probable future projects producing related or cumulative impacts including, if necessary, those projects outside the control of the agency, or
   - ❖ A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact.

2. A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available, and

3. A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

Additionally, the Coastal Act includes several policies requiring the evaluation of a proposed development's cumulative effects, including Section 30250(a), which states in part:

> *"New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located…where it would not have significant adverse effects, either individually or cumulatively, on coastal resources."*

The Coastal Act defines "cumulative effects" in Section 30105.5 as:

> *"Cumulatively" or "cumulative effects" means the incremental effects of an individual project shall be reviewed in conjunction with the effects of past projects, the effects of other current projects, and the effects of probable future projects."*

GEOGRAPHIC SCOPE OF CUMULATIVE IMPACT ASSESSMENT

The geographic area for each impact varies, depending on the nature of the impact, whether it is regional, such as growth-inducement, or local such as noise. Thus, this EIR evaluates cumulative impacts on both a local and regional level. First, the "local" analysis focuses primarily on cumulative impacts that may result with implementation of the proposed desalination facility along with other proposed projects within the City of Huntington Beach. Second, the "regional" analysis focuses on cumulative impacts as a result of implementation of the proposed desalination facility along with other proposed desalination facilities, as well as other existing and proposed developments, along the Southern California coast. The "regional" cumulative impact analysis includes an evaluation of impacts to marine biology/water quality within the Southern California Bight, growth-inducement potential and power production.

CUMULATIVE IMPACT METHODOLOGY

Local Cumulative Impact Analysis

The local cumulative impact discussion is based primarily on build-out of the City's General Plan, Zoning and Subdivision Ordinance, and General Plan EIR. These documents are contained in

Section 2.7, *INCORPORATION BY REFERENCE*. The cumulative projects identified represent the currently known probable projects at the time of Draft EIR publication.
Cumulative impacts may be discussed in terms of project impacts, in combination with impacts anticipated for future development (including approved and planned development within the project area and surrounding affected area).

Quantification is difficult for cumulative impacts, as it would require speculative estimates of impacts including, but not limited to, the following: the geographic diversity of impacts (impacts of future development may affect different areas); variations in time of impacts (many project impacts would occur at different times, and would be reduced or removed before other impacts occurred); complete data are not available for all future development; and data for future development may change following subsequent approvals. However, every attempt has been made here to make a qualitative judgment of the combined effect of, and relationship between, cumulative projects.

CEQA notes that the discussion of cumulative impacts should be guided by standards of practicality and reasonableness (Guidelines, Section 15130 (b)). Only those impacts that might compound or interrelate with those of the project at hand require evaluation. Potential cumulative impacts of the proposed project, in combination with cumulative development projects, are discussed below. Precise impacts of future development have been or would be discussed in appropriate environmental documentation (depending on what state of approval the project is in).

Local Cumulative Projects

In addition to incorporating by reference the cumulative impact discussion from the City of Huntington Beach General Plan EIR, this EIR has provided the following list of specific cumulative projects to ensure an adequate assessment:

The following proposed projects are located within one mile of the subject site:

- Southeast Water Reservoir (five-acre site north of the AES plant for a water reservoir to serve the southeast portion of the City, and would include a 10 million gallon tank, approximately 30 to 35 feet high and 225 feet in diameter, along with associated booster pump station).
- Waterfront Residential Development (184-unit residential development located at Beach Boulevard and Pacific Coast Highway, adjacent to the Ocean Grand Resort project). Project currently under construction as of February 2005.
- Magnolia Pacific Specific Plan, a.k.a. Ascon/Nesi Landfill (specific plan allowing 502 dwelling units on 40 acres located on southwest corner of Hamilton Avenue and Magnolia Street).
- Orange Coast River Park (passive park in the planning stages which extends east from the HBGS through Costa Mesa and Newport Beach)
- CENCO Residential (approximately 204 unit residential development on 25 acres located at 21471 Newland Street).
- Huntington Beach Wetlands Conservancy Restoration Plan (restoration of degraded wetlands situated southeast of the project site along the inland side of Pacific Coast Highway, from the HBGS east to Brookhurst Street).
- South Beach Phase II (renovation of existing beach parking facilities, restrooms, and lifeguard quarters). Project currently under construction as of February 2005.

The following proposed projects are located more than one mile from the project area:

- Pacific City (31 acre mixed use project located along PCH between Huntington and 1st Street).
- The Strand (149 room hotel plus 135,000 s.f. of retail, restaurant, and entertainment located at Main Street and Pacific Coast Highway).
- Target Reconstruction (Demolition of existing 131,900 s.f. Target and garden center and construction of a 129,356 s.f. Target and garden center at southwest corner of Brookhurst Street and Adams Avenue).
- Home Depot (demolition of former 126,000 s.f. K-Mart and miscellaneous retail and construction of 139,000 s.f. Home Depot located at 19101 Magnolia Street).

Land Use/Relevant Planning

The proposed project is not considered to represent a significant cumulative land use or relevant planning impact, as the project is consistent with the City of Huntington Beach General Plan. Mitigation of cumulative land use impacts is best accomplished by area-wide mitigation programs, conforming to the adopted zoning, General Plan designations and zoning, and implementing project-specific mitigation measures where appropriate.

Geology and Soils

Cumulative effects related to earth resources resulting from the proposed project and development in the vicinity of the proposed project include short-term increases in erosion due to excavation, backfilling and grading activities. These impacts are anticipated to be mitigated by enforcing proper erosion protection measures during remediation and construction of the proposed project, and would be mitigated on a project-by-project basis. In addition, sites with unsuitable development conditions such as liquefaction and seismic hazards are best mitigated on an individual basis. The proposed project would comply with the Uniform Building Code (UBC) and all erosion control measures established by the City. The proposed project is not anticipated to negatively add to the cumulative impacts of the area with regards to geology and soils.

Hydrology and Water Quality

Cumulative impacts with regards to hydrology and water quality would primarily result from off-site runoff containing urban pollutants, as the majority of the project site would be composed of impervious surfaces. However, as previously stated, the proposed project would incorporate protection measures to avoid hydrology and water quality impacts during operation of the desalination facility. All site runoff would be directed to appropriate storm drains via an on-site local drainage system, ultimately being discharged into the Pacific Ocean via the HBGS outfall. In addition, impacts would be further minimized as the existing berm along the eastern perimeter of the project site (adjacent to the Huntington Beach Channel) would prevent runoff impacts to the adjacent wetlands to the southeast. The desalination facility's discharge into the Pacific Ocean is not considered a significant cumulative impact, as discussed in Section 5.3, *HYDROLOGY AND WATER QUALITY*.

Air Quality

As stated in Section 5.4, *AIR QUALITY*, the proposed project may result in increased off-site energy emissions due to the facility's proposed electrical consumption rate of between 720 to 840 megawatt hours per day. These emissions have been previously accounted for within environmental documentation prepared for the SCAQMD's New Source Review and Regional

Clean Air Incentives Market (RECLAIM) programs. In addition, the proposed project would, in combination with other developments in the area, have cumulative indirect air quality impacts due to electricity and natural gas consumption. Cumulative air quality impacts are best mitigated by compliance with the City's General Plan to ensure jobs/housing balance consistency to reduce total vehicle miles traveled, and through compliance with applicable local, state, and federal emissions reduction measures for mobile and stationary sources.

Noise

Potential long-term noise associated with the proposed project would be generated by both mobile and stationary sources. Although long-term operational traffic noise generated by the proposed project is anticipated to be nominal, cumulative development of the project vicinity is anticipated to result in increases in noise levels within the City. The project's contribution to this increase, however, is considered negligible (see Section 5.5, *NOISE*), and has been previously analyzed within the City's General Plan and General Plan EIR. In addition, on-site stationary noise sources would be properly attenuated and are not expected to generate significant amounts of noise and would be consistent with City standards. Cumulative impacts in this regard are anticipated to be less than significant.

Public Services and Utilities

The proposed desalination facility may have impacts on wastewater facilities due to the potential discharge of byproduct wastes associated with plant operation utilizing Orange County Sanitation District facilities. However, the OCSD would require a commercial/industrial connection fee, of which five percent would go to the City of Huntington Beach. Impacts in this regard have been adequately analyzed in previous documentation, as the proposed project would be in compliance with all General Plan and Zoning designations. Cumulative impacts are not anticipated to be significant in this regard. Cumulative impacts are best addressed through implementation of citywide programs such as service connection and impact fees, energy conservation, and recycling programs.

Aesthetics/Light and Glare

Temporary construction impacts and facility operation would change the aesthetic character of the project site vicinity. The project site exists as a portion of former fuel storage facility, with storage tanks 40 feet in height. The proposed project is expected to improve the overall aesthetic character of the site vicinity by replacing the storage tanks with multiple tilt-up buildings/structures. These structures would incorporate aesthetic enhancements (landscaping, screening, and aesthetically sensitive architecture) and are expected to enhance the overall aesthetic character of the site vicinity. In addition, the proposed desalination project may introduce new sources of lighting to the area. However, appropriate mitigation measures to prevent the occurrence of significant amounts of light spillover would be incorporated into site design. All structures associated with the proposed project would comply with City standards with regards to building height, densities, and landscaping. Therefore, the proposed project is not anticipated to be cumulatively significant with other projects within the City in this regard.

Hazards and Hazardous Materials

The proposed project has positive public health and safety effects due to remediation of the former fuel storage tank facility. On a cumulative basis, other project sites that are constrained due to site contamination would require remediation on a case-by-case basis, in accordance with applicable health and safety regulations. The proposed project may have local impacts in regards to hazards and hazardous materials through various chemicals associated with plant operation. However, all

hazardous materials would be used, stored, and transported according to all Occupational Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) regulations. Impacts in this regard are not anticipated to be significant.

Construction Related Impacts

Potential construction-related impacts resulting from cumulative development in the project vicinity include those related to air, noise, geology and soils, hydrology and water quality, aesthetics/light & glare, hazards and hazardous materials, traffic and terrestrial biological resources (discussed in detail below) as a result of the cumulative projects listed above. A substantial amount of development is anticipated to occur within the vicinity of the subject site. It would be speculative to estimate or quantify anticipated impacts in this regard for cumulative development in the vicinity of the project site because approvals have not been granted for many of the projects and timing is unknown. However, it is expected that compliance with the City's standard construction requirements (such as air/noise control measures, aesthetic construction-screening requirements, hazardous materials safety measures/contingency plans, and traffic control plans) would minimize cumulative impacts to less than significant levels. In addition, all cumulative projects would undergo separate environmental review.

Biological Resources (Terrestrial Only)

Implementation of the proposed off-site OC-44 underground booster pump station may have impacts on biological resources, as the 0.5-acre site is overgrown with dense native vegetation known to support numerous species of wildlife. Pump station implementation may impact two special status habitats (riparian and coastal sage scrub) on-site and may adversely affect several federal- or state-listed species (coastal California gnatcatcher, least Bell's vireo, and western pond turtle) expected to occur within the immediate vicinity of the subject site. As the proposed underground pump station would include all necessary biological surveys and comply with standard regulations as required by the United States Fish and Wildlife Service (USFWS), United States Army Corps of Engineers (ACOE), and California Department of Fish and Game (CDFG), impacts to biological resources are not anticipated to be significant. It should also be noted that any displaced vegetation would be replaced following completion of construction. Regulatory compliance during project construction would ensure that project-related construction activities would minimize cumulative impacts to less than significant levels. In addition, all cumulative projects would undergo separate environmental review.

Product Water Quality

The product water from the seawater desalination facility would be suitable for delivery through the existing water distribution system and would be comparable and compatible to the other water sources currently delivering water to the same system (refer to Section 5.11, *PRODUCT WATER QUALITY*). Thus, cumulative impacts in this regard are anticipated to be less than significant. In addition, all cumulative projects would undergo separate environmental review.

Regional Cumulative Impact Analysis

As stated above, the "regional" analysis focuses on cumulative impacts as a result of implementation of the proposed desalination facility along with other proposed desalination facilities, as well as other existing and proposed developments, along the Southern California coast. Other developments along the coast include ports, industrial uses, wastewater treatment plants, etc, all of which could result in regional cumulative impacts (i.e., marine biology, growth-inducement and air quality from power production), including impacts to the Southern California Bight. For purposes of this analysis, a qualitative discussion of regional cumulative impacts is provided for

existing and proposed developments along the coastline. Accordingly, it is not practical or reasonable to analyze all existing and proposed development along the coastline. Although a comprehensive list of regional projects that could result in cumulative impacts, especially to the Southern California Bight, is not provided, this analysis assumes that planned desalination facilities along the coastline comprise a portion of the cumulative projects that would contribute to regional cumulative impacts. Thus, a listing of the planned desalination facilities is provided below. The "regional" cumulative impact analysis includes an evaluation of impacts regarding marine biology/water quality within the Southern California Bight, growth-inducement potential and power production.

Regional Cumulative Projects

Projects that may result in regional cumulative impacts include existing and/or planned developments along the California coast that could exceed planned growth estimates, contribute to impacts to the Southern California Bight, and/or result in substantial demands on local power sources, resulting in additional water or air pollution. The analysis of cumulative projects refers to the inclusion of all existing and planned developments along the coast, including ports, wastewater treatment plants, industrial uses, etc., as well as planned desalination facilities. Table 6-4, *PROPOSED DESALINATION FACILITIES ALONG THE SOUTHERN CALIFORNIA COAST*, provides a list of planned desalination facilities along the Southern California coast.

Table 6-4
PROPOSED DESALINATION FACILITIES ALONG THE SOUTHERN CALIFORNIA COAST

Operator/Location:	Purpose, and Public or Private:	Maximum Capacity:	Status:
City of San Buenaventura	- Municipal/domestic - Public	Not known	Not known
Long Beach	- Research - Public	300,000 gpd/ 335 AF/yr.	Design phase
Long Beach	- Municipal/domestic - Public	10 million gpd/ 11,000 AF/yr.	Planning
Los Angeles Department of Water and Power	- Municipal/domestic - Public	10 million gpd/ 11,000 AF/yr	Planning
Municipal Water District of Orange County/Dana Point	- Municipal/domestic - Public	27 million gpd/ 30,000 AF/yr.	Planning
Poseidon Resources/Huntington Beach	- Various - Private	50 million gpd/ 55,000 AF/yr.	Draft EIR under review
San Diego County Water Authority/San Onofre Nuclear Generating Station	- Municipal/domestic - Public	TBD	Planning
San Diego County Water Authority/South County	- Municipal/domestic - Public	50 million gpd/ 55,000 AF/yr.	Planning
San Diego County Water Authority & Poseidon Resources/Carlsbad	- Municipal/domestic - Public/private	50 million gpd/ 55,000 AF/yr.	Planning
U.S. Navy/San Diego	- Municipal/domestic - Public	20 million gpd/ 22,000 AF/yr.	Planning
West Basin Municipal Water District	- Municipal/domestic - Public	20 million gpd/ 22,000 AF/yr.	Planning
Total Proposed Production:	**~ 240 million gallons per day/260,000 AF/yr.**		

Growth-Inducing Impacts

As discussed in Section 6.2, *GROWTH INDUCING IMPACTS*, the proposed project would not foster growth in excess of that already assumed and projected in pertinent planning documents. Moreover, existing water supply plans already project that seawater desalination would play a necessary role in meeting projected future demands. Accordingly, the growth-inducing impacts of the project are not significant. Each incremental development would be required to comply with the goals and policies of the applicable General Plan or other planning documents for the proposed project area. Thus, potential growth-inducing cumulative impacts are considered less than significant. Refer to Section 6.2 for further detail regarding growth-inducing impacts as a result of project implementation.

Ocean Water Quality and Marine Biological Resources

The Southern California Bight is a region that includes coastal southern California, the Channel Islands and the local portion of the Pacific Ocean. The small portion of the Pacific Ocean that occupies this region, from point Conception in the north to just past San Diego in the south, and extending offshore of San Nicolas Island, is the temporary or permanent home to a wide variety of marine organisms.

Impacting this coastal marine ecosystem are the millions of people who reside in the Los Angeles and San Diego metropolitan areas, as well as the Mexican residents who inhabit the Tijuana/San Diego border region of the Bight. The tremendous population of southern California, coupled with the activities necessary to sustain and/or enhance their existence, results in a significant quantity and variety of pollutants that enter coastal waters. The Pacific Ocean within the Southern California Bight area receives pollutants from a wide variety of sources. Most pollution within the Bight is derived from land, either from water runoff after a rainfall event, from the outfall pipes of wastewater treatment plants or from the water discharges of electrical power plants. Such runoff can introduce a mix of industrial and organic pollutants to coastal waters. Additionally, substantial amounts of refuse also make its way into rivers or bays via roadway gutters. Harbor/port activities also contribute pollution to the Southern California Bight. Combined, the ports of Long Beach and Los Angeles compose one of the busiest port systems in the nation. Though stringent guidelines are in place to protect the coastal environment, pollution from ships, from the ports' terminals and from the Los Angeles River is an ongoing problem. Discharge from the ballast tanks of ships, though illegal, does occur. Such vessels, arriving from distant ports of call, can introduce exotic species of plants and animals, causing disruption of the local food web. Discharges rich in nitrogen can generate the rapid growth of plankton, eventually leading to a condition known as red tide that is lethal to some coastal organisms.[3]

Implementation of the proposed project may contribute to long-term impacts to water quality and marine biological sources. However, as stated in Section 5.10, *OCEAN WATER QUALITY AND MARINE BIOLOGICAL RESOURCES*, all potentially significant impacts to long-term water quality and marine biological sources would be reduced to less than significant levels through regulatory compliance, and project design features and implementation of the recommended mitigation measures pertaining to hydrology and water quality. The following discussion describes the potential for cumulative impacts to the Southern California Bight.

As discussed in Section 5.10, oceanographers from the Scripps Institution of Oceanography conducted modeling simulating ocean conditions near the HBGS intake and outfall. The model calculates the degree of mixing of various potential contaminant sources with the Pacific Ocean. The Santa Ana River, Talbert Marsh, OCSD wastewater discharge outfall, and proposed desalination facility discharge were all investigated. Seawater contamination resulting from any of

[3] *Oceanography of the Southern California Bight,* http://seis.natsci.csulb.edu/bperry/scbweb/homepage.htm

the above sources could potentially impact the quality of product water and, to some degree, the quality of byproduct concentrated seawater to be discharged from the HBGS outfall. The model results show the amount of dilution of each of these sources of pollutants under different oceanographic conditions. The results of the model concluded that long-term water quality impacts to the Pacific Ocean would be less than significant. Additionally, the analysis concluded that the mixture of the proposed facility's concentrated seawater discharge with the HBGS cooling water discharge would not result in salinity increases that would significantly impact marine biological resources. The analysis to marine biological resources also concludes that plankton entrained in the discharge stream are likely to be killed, as much by the turbulence and temperature of the discharge (which would occur even without proposed project implementation) as by the salinity increase. Thus, no significant increase in plankton loss is expected from the addition of the by-product water to the discharge stream.

Since implementation of the proposed project would result in less than significant impacts to ocean water quality and marine life, the analysis of cumulative impacts must include an analysis of the expected environmental effects to be produced by other cumulative projects. As shown in Table 6-4, 11 desalination facilities are currently being proposed along the Southern California coast, which would contribute to cumulative impacts associated with the proposed project. Seawater desalination projects outside of Southern California (approximately 11 are proposed) have no potential to interact with the proposed project. Additionally, existing and proposed ports, wastewater treatment facilities, industrial uses, etc. along the coast would contribute to cumulative impacts. The proposed desalination facilities and other anthropogenic uses would be required to ensure that the objectives and goals defined in the California Ocean Plan and the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California are met on a project-by project basis. These plans identify water quality goals and objectives that pertain to:

- Thermal characteristics (control of temperature in the coastal and interstate waters and enclosed bays and estuaries of California [Thermal Plan]);
- Bacterial characteristics, physical characteristics (i.e., visible floating particulates, grease, oil, and discoloration);
- Chemical characteristics (i.e., dissolved oxygen concentration, pH, amounts of dissolved sulfide, nutrient materials, and other harmful substances);
- Biological characteristics (i.e., effects to marine communities, including vertebrate, invertebrate, and plant species); and
- Radioactivity (radioactive waste discharge).

In regards to the proposed desalination facilities, because each proposed desalination facility would have unique design and siting characteristics, each is likely to be subject to a different set of Coastal Act policies and would likely conform to those policies in different ways. Some desalination proposals may be environmentally benign or may even provide environmental benefits, while others may cause significant impacts (e.g., entrainment and impingement impacts). Determining whether a proposed desalination project would conform to the Coastal Act would therefore be done on a case-by-case basis. Furthermore, based upon the siting of a desalination facility, it would be necessary to conduct an evaluation of the Best Available Control Technology (BACT) (i.e., immersion filters, bafflers, screens to minimize larvae intake, etc.) to minimize impacts to water quality and marine biological resources.

The physical effect of desalting seawater by reverse osmosis is in principle no different than the effects of evaporation. Ocean surveys of the Southern California Bight have measured evaporative losses at 93.4 centimeters per year. The surface area of the coastal waters inside the continental

margin of the Southern California Bight is approximately 160,000 square kilometers. Factoring in evaporation over the surface area, it is concluded that the coastal area of the Southern California Bight loses 1.49 by 10^{11} cubic meters of pure water constituent from the coastal ocean each year. In contrast, a desalination facility producing product water at a rate of 50 mgd will extract 6.9 x 10^{7} cubic meters of pure water constituent of water from the coastal ocean in one year's time. Consequently, it would take 2,163 50 mgd desalination facilities to match the natural evaporative losses from the ocean in the Southern California Bight.[4]

When viewed in conjunction with other proposed desalination facilities and anthropogenic uses planned for the Southern California coast, the potential degradation of marine biological resources and long-term water quality could be considered a negative cumulative impact. However, given the dispersion and physical distance from the proposed desalination facility to other Southern California desalination facilities, there would not be any overlapping. Furthermore, the proposed project includes mitigation measures relevant to the preparation of a Water Quality Management Plan (WQMP), specifically identifying Best Management Practices (BMPs), a site-specific hydrology and hydraulic analysis, and installation of an on-site storm drainage system to ensure that long-term water quality impacts are less than significant. Additionally, potential impacts of cumulative projects would be-site specific and an evaluation of potential impacts would be conducted on a project-by-project basis. This would be especially true of those developments located in areas that contain sensitive species and habitat. Each incremental development would be required to comply with all applicable local, State, and Federal regulations concerning the protection of biological resources and degradation of water quality. In consideration of these regulations, potential cumulative impacts upon ocean water quality and marine biological resources are considered less than significant.

Power Production

Information regarding power production is based upon the *Huntington Beach Desalination Project Report on Local and Regional Power Requirements and Generation Resources*, prepared by Navigant Consulting, Inc. (NCI) (July 2004) (refer to Appendix Q, *REPORT ON LOCAL AND REGIONAL POWER REQUIREMENTS AND GENERATION RESOURCES*). According to this report, the estimated load for the proposed Project is 30–35 MW, and it is anticipated that it would be operating at this level unless the HBGS is conducting its heat treatment process.

Southern California Edison (SCE) and other utilities routinely develop forecasts of electrical loads on their systems. Most times the publicly available information resulting from these forecasts is aggregated such that the only data available are that for the load served from the major substations or on a system wide basis. The assessment of impacts to power production as a result of project implementation have been based upon the following:

- Extracted information on the estimated amounts of power delivered through each of SCE's major 230-kV and 115-kV substations from *SCE's CAISO Controlled SCE Transmission – 2004-2008 and 2013 Expansion Plan* (March 2004).
- Information regarding the total peak loads on the systems of the Los Angeles Department of Water and Power (LADWP), the other municipal utilities in the Los Angeles Basin, and the Imperial Irrigation District from a load forecast prepared by NCI in 2002.
- Information regarding the total peak load on the San Diego Gas & Electric (SDG&E) system from information in the 2003 and 2004 RMR studies for the SDG&E area.[5]

[4] Hydrodynamic Modeling of Source Water Make-Up and Concentrated Seawater Dilution for the Ocean Desalination Project at the AES Huntington Beach Generating Station. Dr. Scott A. Jenkins Consulting, December 1, 2004 (Revised August 14, 2004) (Appendix C of the EIR).

[5] RMR units are those that have been identified by the ISO as required to be on-line to maintain local area reliability in

The SCE system in the Los Angeles Basin consists of:

- A 230-kV transmission network which delivers power to a number of 230/66-kV substations, and
- 66-kV lines which interconnect the 230-kV substations with numerous 66-kV substations from which the power is delivered to lower voltage facilities that ultimately serve the load.

Table 6-5, *SCE 230-KV SUBSTATIONS SERVING LOAD IN ORANGE COUNTY*, contains information relative to the location of the 230-kV substations, as well as estimates of the amount of the total SCE load in Orange County, that is served from each substation. In addition to SCE substations listed in Table 6-5, the Lewis 230/66-kV Substation, located in Anaheim, serves the electrical load in the City of Anaheim.

Table 6-5
SCE 230KV SUBSTATIONS SERVING LOAD IN ORANGE COUNTY

Substation	Location (City)	% of County Load Served
Alamitos	Long Beach	<1
Barre	Stanton	20
Del Amo	Cerritos	1
Ellis	Huntington Beach	18
Johanna	Santa Ana	12
Olinda	La Habra	7
Santiago	East Irvine	23
Villa Park	Orange	19

The information discussed above was also used to develop the information in Table 6-6, *SUMMARY OF ESTIMATED LOADS (MW)*, relative to estimated loads for the years 2008 - 2013 in the Huntington Beach area, Orange County, the Los Angeles Basin, and southern California.

Table 6-6
SUMMARY OF ESTIMATED LOADS (MW)

	Year					
	2008	**2009**	**2010**	**2011**	**2012**	**2013**
Huntington Beach Area Load	390	393	397	402	408	413
Orange County Load						
SCE	3,870	3,920	3,980	4,030	4,100	4,140
City of Anaheim	575	585	600	610	620	635
Total Orange County	4,445	4,505	4,580	4,640	4,720	4,775
Los Angeles Basin Load						
SCE	14,470	14,640	14,720	14,820	15,060	15,230
LADWP	6,240	6,310	6,370	6,420	6,470	6,520
Other Municipal Utilities[6]	2,170	2,200	2,240	2,290	2,330	2,380
Total Los Angeles Basin	22,880	23,150	23,330	23,530	23,860	24,130
Southern California Load						
SCE System Load	21,150	21,460	21,800	22,130	22,520	22,840

the event a forced outage should occur on a transmission element or a generator in the local area.

[6] Anaheim, Azuza, Banning, Burbank, Colton, Glendale, Pasadena, and Riverside.

SDG&E Load	4,460	4,570	4,680	4,800	4,920	5,040
LADWP Load	6,240	6,310	6,370	6,420	6,470	6,520
Other Municipal Utilities	2,170	2,200	2,240	2,290	2,330	2,380
Imperial irrigation District	850	870	890	900	920	940
Total Southern California	34,870	35,410	35,980	36,540	37,160	37,720

As noted above, the project load is anticipated to be as much as 35 MW starting in the first quarter of 2008. Table 6-7, *CHANGE IN ESTIMATED LOADS DUE TO ADDITION OF THE PROJECT (%)*, presents information on the amounts by which the estimated loads summarized in Table 6-6 would increase when a 35 MW project load is added to them. Table 6-7 shows that the addition of the 35 MW Project load would increase the demand for electric energy in the Huntington Beach area by approximately nine percent. However, the impact of the addition of this load on the demand for electric energy in Orange County or Southern California is insignificant (less than one percent). Thus, it is concluded that cumulative impacts to power production are less than significant.

Table 6-7
CHANGE IN ESTIMATED LOADS DUE TO ADDITION OF THE PROJECT (%)

	Year					
	2008	**2009**	**2010**	**2011**	**2012**	**2013**
Huntington Beach Area Load	9.0	8.9	8.8	8.7	8.6	8.5
Orange County Load	0.8	0.8	0.8	0.8	0.7	0.7
Los Angeles Basin Load	0.2	0.2	0.2	0.2	0.2	0.2
Southern California Load	0.1	0.1	0.1	0.1	0.1	0.1

In addition, a recent report published by the National Resources Defense Council (NRDC) and Pacific Institute states that the California State Water Project is the single largest user of energy in California, utilizing two to three percent of all electricity consumed in the state.[7] This electricity consumption is necessary to lift water 2,000 feet over the Tehachapi Mountains (the highest lift of any water system in the world). Operation of the Colorado River Aqueduct adds to the electricity consumed in pumping water to Southern California.

As stated in Section 5.4, *AIR QUALITY,* the proposed desalinated water has the potential to replace a portion or all of a given water provider's water curtailed from the State Water Project along the West Branch, then the power requirements to move imported water through the Central Valley, over the Tehachapi Mountains, and into the Los Angeles Basin could result in substantial power reductions, thus resulting in air quality offsets. Whereas the proposed facility has an "all in" power rate of 4,887 kilowatt hours per acre-foot for producing water and conveyance into the Orange County system, according to the Department of Water Resources Bulletin 132 (1998), the State Water Project has a power rate of 3,200 kilowatt hours per acre-foot (net of hydroelectric power production in the LA Basin). As such, there is only a 1,687 kilowatt-hour per acre foot difference (or an additional 258 megawatts per day) increase in energy consumption over current supplies into the Metropolitan Water District's (MWD) Diemer water treatment facility.

[7] "Energy Down the Drain – The Hidden Costs of California's Water Supply", NRDC/Pacific Institute, August 2004.