4.13.1 Introduction

This section discusses potential impacts on utilities, service systems, and energy from the implementation of the proposed project. Information presented in the discussion and analysis presented below was drawn from the 2006 Long-Range Development Plan (LRDP) EIR and environmental documents associated with specific LBNL projects.

In response to the Notice of Preparation for this EIR, East Bay Municipal Utility District (EBMUD) noted that in the event that additional water service from EBMUD is needed to serve the proposed project, LBNL should request a water service estimate. EBMUD also requested that the WaterSmart technology and design standards be incorporated into the project. In addition, EBMUD noted that the construction period of a new EBMUD water storage tank may overlap with the construction of the CRT project and other projects; therefore, the EBMUD water storage tank project should be considered in the evaluation of cumulative impacts. EBMUD expressed concern regarding the adequacy of the wastewater collection system to handle project wastewater flows.

Water service is addressed in this section. Lawrence Berkeley National Laboratory (LBNL) has included water conservation measures in the proposed project design (see Section 3.0, Project Description). The EBMUD water storage tank is included in the evaluation of cumulative impacts in other subsections of this EIR (see Section 4.0, Environmental Setting, Impacts and Mitigation Measures), specifically in the evaluation of cumulative impacts from construction traffic and construction noise, and cumulative impacts on biological resources. The project's impact on the wastewater collection system is addressed in this section.

4.13.2 Environmental Setting

The Initial Study prepared to define the scope of this EIR concluded that the proposed project would result in a less than significant impact on solid waste capacity and regulations and telecommunication facilities. Impacts to these utilities and service systems are not discussed further in this EIR and the discussion of environmental setting below focuses on wastewater collection system and treatment plant capacity, storm water, chilled water, electricity, and natural gas.

Wastewater

EBMUD provides wastewater treatment services to parts of Alameda and Contra Costa counties along the east shore of the San Francisco Bay, including the project site. Wastewater from LBNL is collected and conveyed via the City of Berkeley's public sewer system and EBMUD-operated interceptor sewers to the regional wastewater treatment facility located southwest of the Interstate 80 (I-80) and Interstate 580 (I-580) interchange in Oakland.

Currently, EBMUD's wastewater treatment facility has an average annual daily flow of 80 million gallons per day (mgd) (EBMUD 2007). During wet weather, the treatment plant accepts more flow. The plant has a primary treatment capacity of 320 mgd and a maximum secondary treatment capacity of 168 mgd. After treatment, wastewater is discharged into the San Francisco Bay via a 1-mile-long deep-water outfall line.

LBNL On-Site Wastewater Collection System

Wastewater at the Berkeley Lab is carried via a gravity flow system, owned and operated by LBNL. This system eventually discharges to the City of Berkeley's public sewer system through two monitoring stations, one located at Hearst Avenue (Hearst Monitoring Station) and the other at Centennial Drive in Strawberry Canyon (Strawberry Monitoring Station). The monitoring stations measure the volume of the effluent on a continuous basis. In addition, samples of the effluent are taken at regular intervals and evaluated for radioactivity and other constituents mandated by EBMUD.

Effluent from the western portion of the Lab, including effluent from the project vicinity, flows to the Hearst Monitoring Station, from where it ties into the City of Berkeley's sewer system at City sanitary sewer sub-basin 17-013.

Wastewater Generation

Annual wastewater generation at LBNL is approximately 38 million gallons, with personal wastewater accounting for approximately half and process water from research areas accounting for the other half. While sewer flows vary widely according to the time of day and time of year, the Lab's approximate peak daily flow is about 274,000 gallons per day (gpd) during dry weather conditions and 821,000 gpd during peak wet weather conditions (LBNL 2007). At the Hearst Monitoring Station, the average wastewater flow is about 50,000 gpd and can range from 30,000 to 100,000 gpd. At the Strawberry Monitoring Station, LBNL's approximate average daily flow is 100,000 gpd and can range from 50,000 to 170,000 gpd (Pauer 2007). These ranges represent averages throughout the year. The effluent flow at the Strawberry Monitoring Station also includes wastewater from the UC Berkeley Hill Campus area buildings, which contribute about half of the amount measured.

Sewer System Conditions and Upgrades

The main concern with wastewater flow near the project site and region wide in the EBMUD system is the infiltration and inflow (infiltration/inflow or I/I) of storm water into the sanitary sewer lines attributed to the poor condition of aging sewer pipes. Increased wastewater flow during wet weather conditions is attributed to the infiltration/inflow of storm water into the sanitary sewer system, and results in the EBMUD treatment facility receiving about seven to 10 times as much wastewater on wet days as on a peak dry weather day. However, LBNL sewers are maintained in very good condition. LBNL has acted to address I/I problems in its system through a concerted sewer infrastructure upgrade program. A plumbing maintenance and upgrade effort has been undertaken during the past 15 years by LBNL, along with installation of water-saving devices and systems, to substantially lower average sewer flows. These ongoing efforts have reduced both peak wet weather as well as average sewer flows by well over half. Moreover, LBNL's peak wet weather I/I rate is less than half that of the City of Berkeley, and it is only approximately 10 percent of that found in the EBMUD service district on average (LBNL 2007). LBNL continues to seek ways to reduce both water consumption and sewage generation.

LBNL currently pays EBMUD for assessed sewer services. The University has also contributed to the City of Berkeley's sewer upgrade program, which is intended to increase wet weather flow capacity and decrease I/I conditions. The City of Berkeley's I/I correction program was initiated in 1987 and includes rehabilitation or replacement of 50 percent of the City's existing system over 30 years, as well as installation of 12 miles of new sewer lines to accommodate overflow conditions by the year 2007. By 1999, over 25 percent of the planned replacement and rehabilitation had been completed and 10 miles of the proposed 12 miles of new sewer lines had been installed. An interceptor line along Adeline Street, completed in 1992, now conveys wet weather flow to EBMUD's storage and treatment facilities. The City's I/I correction program allows for a 20 percent increase in the base wastewater flow due to changes in land use or population (City of Berkeley 2001).

Wastewater from LBNL's western portion, including the CRT project site, generally flows into sub-basin 17-013 by way of the Hearst Monitoring Station. The sanitary sewer lines on Hearst Avenue are relatively new and in good condition, and they flow directly into the interceptor on Shattuck Avenue. Sub-basin 17-013 is not currently constrained during peak wet weather flows, and it is expected to have future wet weather capacity to meet LBNL's growth needs during the term of the 2006 LRDP (LBNL 2007).

Effluent from LBNL's eastern portion (and upstream UC Berkeley Hill Campus buildings) generally is routed into pipes exiting the Berkeley Lab at Centennial Drive. No effluent from the CRT project site will flow into this section of the Lab's sewer system.

Storm Water Drainage

The LBNL storm drain system is a gravity-fed network of open and culverted drainage conveyances, running generally east to west. Drain pipes range from 4 to 36 inches in diameter and consist of metal, polyvinyl chloride (PVC), concrete, and tile pipe. Run-on (i.e., water draining onto the site from off-site locations) enters the LBNL site via open drainage channels and combines with runoff from the LBNL site. The combined drainage is conveyed across developed portions of the Berkeley Lab via underground piping, and is then discharged at established open drainage channels of the Strawberry Creek watershed, into both the north fork of Strawberry Creek to the north and to Strawberry Creek itself to the south. The existing storm water drainage system is designed to handle flows expected in a 100-year storm. An expanded discussion of the existing and proposed on-site storm water drainage system is included in Section 4.7, Hydrology and Water Quality.

Water

EBMUD provides water service to the cities of Berkeley and Oakland, including the Berkeley Lab site. EBMUD provides the high pressure water supply for LBNL at two separate connections. The primary connection is to EBMUD's Shasta Pressure Zone, which provides water service to customers within an elevation range of 900 to 1,050 feet and has a 2 million-gallon capacity. The second connection is to the Berkeley View Pressure Zone, which provides water service to customers within an elevation range of 1,050 to 1,250 feet and has a 1 million-gallon capacity. The Lab receives its water through a 12-inch meter on Campus Drive in the Shasta Pressure Zone and a 6-inch meter on Summit Road from the Berkeley View Pressure Zone. High pressure water is distributed throughout LBNL by an extensive piping layout providing domestic and fire protection water to the site. The Lab's system also supplies make-up water for cooling towers, irrigation water, and water for other on-site miscellaneous uses. The system includes fire hydrants, fire department connections, and sprinkler services to almost all LBNL buildings. All utility systems within the Laboratory's boundary are owned and operated by the Laboratory. The on-site water delivery system at LBNL and connection to off-site pipes are sized for firefighting, which requires roughly 20 times larger capacity than the infrastructure necessary for water delivery for daily use (LBNL 2007).

To supplement the water supply provided by EBMUD, LBNL operates and maintains three 200,000-gallon water storage tanks on site for emergency water supply in the event of service interruption from EBMUD. One tank is located near Building 82 in the Central Research Area, one is located at Building 68 in the Grizzly Operations Support Area, and the third tank is located above Building 85 in the East Canyon Area. The tanks at Buildings 82 and 68 are each equipped with a diesel-powered pump and automatic controls to pressurize LBNL's water distribution system if EBMUD service is interrupted. The tank located near Building 85 will continue to maintain water flow for the fire protection system during emergencies by gravity. In normal operation, water is slowly circulated from the LBNL system through the 200,000-gallon tanks so they are always filled with potable water and the full 600,000 gallons are always available if required (LBNL 2007).

During 2003, total annual water consumption at LBNL was approximately 41.6 million gallons. Of the total water demand, personal water use, or water used directly by the Lab population for consumption and sanitary purposes, accounted for slightly less than 50 percent of the total demand, or 20.5 million gallons. Process water, used for research, cooling, heating, industrial, cleaning, construction, and landscaping purposes, accounted for the balance of total water use (LBNL 2007).

Over time, the demand for water at LBNL has been decreasing due to improved efficiency on site. Between 1990 and 2003, total annual water use, including both personal water and process water, decreased from approximately 78.6 million gallons to 41.6 million gallons. This represents about a 47-percent reduction in water use. During this time, the building gross square footage at LBNL increased by about 9 percent (from approximately 1.62 million gross square feet [gsf] to 1.76 million gsf). This improved efficiency has been achieved in several ways, including cooling tower efficiency upgrades and installation of low-flow commodes, showers, and wash basin faucets (LBNL 2007).

Chilled Water

LBNL does not maintain a site-wide chilled water distribution system. Berkeley Lab buildings that require chilled water are supplied by on-site chillers and cooling towers.

Electricity

Electrical power at the Berkeley Lab is purchased from the Western Area Power Administration and delivered by the Pacific Gas and Electric (PG&E) transmission system to the Berkeley Lab's Grizzly Substation located adjacent to Building 77. PG&E delivers power to LBNL on two overhead 115-kilovolt (kV), 3-phase, 60-Hertz (Hz) transmission lines with a joint capacity of approximately 100 megawatts (MW). Both of these transmission lines feed power from PG&E's El Sobrante switching station to the Grizzly Substation. The Grizzly Substation consists of two DOE-owned 120/12 kV power transformers with a combined capacity of 100 MW. This substation is for the exclusive use of LBNL. In addition, LBNL's power can be supplied from UC Berkeley's Hill Area Substation, located adjacent to the Grizzly Substation.

The main power distribution system at the Berkeley Lab consists of a 12.47-kV underground system with smaller substations and transformers that reduce voltage to 480/277 volts (V) or 208/120 V. The 12.47-kV distribution system has dual primary feeders to provide reliable power. Certain buildings are equipped with special voltage regulation in order to ensure that critical experiments will not be disrupted by transient voltage within the system. Total electrical power consumption at LBNL in 2006 was 71,100 megawatt hours (MWh) (Energy Management System 2007).

LBNL also has a number of stationary and portable emergency power generators. These generators start automatically in the event of a power failure and are used to provide an emergency power supply for certain critical services (e.g., for laboratory exhaust fans, exit lights, the fire station, Radio Communications Facility, and the Health Services Building) and other important activities at LBNL. The generators are powered either by diesel, gasoline, or natural gas. The total generating capacity of these emergency generators is approximately 6,250 kilowatts.

Natural Gas

Natural gas is used at the Berkeley Lab for heating all buildings, equipment, operations, and some experimental uses. The natural gas supply is provided by the Defense Fuel Supply Center in Oregon and delivered by the PG&E system. The LBNL natural gas system receives its supply from a 6-inch PG&E line operating at 50 pounds per square inch gauge (psig). The point of delivery is a meter vault in the hillside area above Cyclotron Road and below Building 88. A 6-inch gas line operating at 13.5 psig distributes high-pressure natural gas from PG&E's metering vault to the buildings throughout the Lab. Current (2006) natural gas usage is approximately 1.5 million Therms, or about 20,000 British thermal units (BTU) per gross square foot (Energy Management System 2007).

4.13.3 Regulatory Considerations

State Regulations

Planning for energy is regulated at the state level. Specific regulations that would be relevant to implementation of the proposed project are described below.

Title 24

Buildings constructed after June 30, 1977 must comply with standards identified in Title 24 of the California Code of Regulations. Title 24 requires the inclusion of state-of-the-art energy conservation features in building design and construction, including the incorporation of specific energy-conserving design features, use of non-depletable energy resources, or a demonstration that buildings would comply with a designated energy budget.

2006 LRDP Principles and Strategies[1]

The 2006 LRDP proposes four fundamental principles that form the basis for the development strategies provided for each element of the LRDP. The two principles most applicable to utilities-related aspects of new development are to "Preserve and enhance the environmental qualities of the site as a model of resource conservation and environmental stewardship" and to "Build a safe, efficient, cost-effective scientific infrastructure capable of long-term support of evolving scientific missions." Development strategies set forth in the 2006 LRDP that are applicable to utilities include the following:

- Protect and enhance the site's natural and visual resources, including native habitats, riparian areas, and mature tree stands by focusing future development primarily within the already developed areas of the site;
- Provide flexibility in the identification of land uses and in the siting of future facilities to accommodate the continually evolving scientific endeavor;
- Increase development densities within areas corresponding to existing clusters of development to preserve open space and enhance operational efficiencies and access;
- To the extent possible, site new projects to replace existing outdated facilities and ensure the best use of limited land resources;
- To the extent possible, site new projects adjacent to existing development where existing utility and access infrastructure may be utilized;
- Site and design new facilities in accordance with University of California Presidential Policy for Green Building Design to reduce energy, water, and material consumption and provide improved occupant health, comfort, and productivity;
- Exhibit the best practices of modern sustainable development in new projects as a way to foster a greater appreciation of sustainable practices at the Lab;
- Utilize native, drought-tolerant plant materials to reduce water consumption; focus shade trees and ornamental plantings at special outdoor use areas;
- Minimize impervious surfaces to reduce storm water runoff and provide landscape elements and planting to stabilize slopes, and reduce erosion and sedimentation;
- Maintain a safe and reliable utility infrastructure capable of sustaining the Lab's scientific endeavors;
- Consolidate utility distribution into centralized utility corridors that generally coincide with major roadways;

1 While this Environmental Impact Report is a "stand alone" analysis that does not rely upon tiering from any programmatic CEQA document, Berkeley Lab does actively follow the 2006 Long Range Development Plan (LRDP) as a planning guide for Lab development. Accordingly, relevant 2006 LRDP principles, strategies, and design guidelines are identified in this section.

- Ensure that utility infrastructure improvements accommodate future facility expansion and alterations in the most cost-effective means possible; and
- Design infrastructure improvements to embody sustainable practices.

LBNL Design Guidelines

The LBNL Design Guidelines were developed in parallel with the 2006 LRDP and provide specific guidelines for site planning, landscape and building design as a means to implement the 2006 LRDP's development principles as each new project is developed. The LBNL Design Guidelines provide the following specific planning and design guidance relevant to the utilities-related aspects of new development:

- Provide appropriate site lighting for safety and security;
- Segregate public entries and paths from service entries and paths where feasible; and
- Reduce the amount of impermeable surfaces at the Lab.

UC Policy on Sustainable Practices

As discussed in Section 3.0, the proposed project would be consistent with the UC Policy on Sustainable Practices. This policy implements guidelines for new building construction related to energy efficiency and sustainable materials. The goal for new construction is to outperform the requirements of Title 24 energy-efficiency standards by at least 20 percent.

4.13.4 Impacts and Mitigation Measures

Significance Criteria

The impact of the proposed project on utilities, service systems, and energy would be considered significant if it would exceed the following Standards of Significance, in accordance with Appendix G of the California Environmental Quality Act (CEQA) Guidelines and the UC CEQA Handbook:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Have insufficient water supplies available to serve the project from existing entitlements and resources, or new and expanded entitlements needed;

- Result in the need for increased chilled water or steam generation capacity or major distribution improvements;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs;
- Not comply with federal, state, and local statutes and regulations related to solid waste;
- Require or result in the construction or expansion of electrical or natural gas facilities which would cause significant environmental impacts; or
- Require or result in the construction or expansion of telecommunication facilities which would cause significant environmental impacts.

Issues Not Discussed Further

The Initial Study found less than significant impacts to solid waste capacity, solid waste regulations, and telecommunication facilities. Implementation of the project would not cause any landfill to exceed its permitted capacity and would result in a less than significant impact related to solid waste. The proposed project would not affect telecommunication facilities and no impact would occur. These issues are not discussed further in this section.

Mitigation Measures included in the Proposed Project

The following mitigation measures, adopted as part of the 2006 LRDP, are required by the LRDP for the proposed project and are thus included as part of the proposed project. The analysis presented below evaluates environmental impacts that would result from project implementation following the application of these mitigation measures. These mitigation measures that are included in the project would be monitored pursuant to the Mitigation Monitoring and Reporting Plan that will be adopted for the proposed project.

LRDP MM UTILS-2: LBNL shall implement programs to ensure that additional wastewater flows from the Berkeley Lab are directed into unconstrained sub-basins, as necessary and appropriate. LBNL shall continue to direct the Lab's existing western effluent flows into sub-basin 17-013. In addition, new flows at the Berkeley Lab shall be directed into either sub-basin 17-013, sub-basin 17-304, unconstrained portions of sub-basin 17-503, or another subbasin that has adequate capacity. Final design and implementation of these improvements shall be negotiated between the appropriate parties and shall undergo appropriate environmental review and approval. LBNL shall closely coordinate the planning, approval, and implementation of this mitigation measure with the City of Berkeley and UC Berkeley, as appropriate.

LRDP MM UTILS-4: LBNL shall develop a plan for maximizing diversion of construction and demolition materials associated with the construction of the proposed project from landfill disposal.

Project Impacts and Mitigation Measures

CRT Impact UTILS-1: Implementation of the CRT project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board and would not require an expansion of the EBMUD wastewater treatment plant or an expansion of the City's sewer conveyance facilities. (Less than Significant)

The proposed project would generate wastewater in the form of wastewater from restrooms and cooling tower blowdown. No hazardous chemicals would be used in the cooling towers, and these sources would contain typical wastewater constituents. The combined wastewater sources would generate on average approximately 5,600 gpd, with up to 9,000 gpd during peak periods, during initial project operations. The combined sources would generate on average approximately 6,000 gpd, with up to 21,000 gpd during peak periods, at buildout. EBMUD has previously indicated the wastewater treatment plant has sufficient capacity to serve all of the development envisioned under the 2006 LRDP. Therefore, there is sufficient capacity at the wastewater treatment plant to serve the proposed project. An increase above the limits on the amount of sewage treated at EBMUD's wastewater treatment plant could result in the plant being unable to meet pollutant standards outlined in the National Pollutant Discharge Elimination System permit issued by the Regional Water Quality Control Board (RWQCB). Since there is sufficient treatment capacity to accommodate the wastewater discharged by the proposed project, the limit on the amount of sewage treated would not be exceeded. Therefore, the plant would be able to adequately treat project-generated sewage in addition to existing sewage and the treatment requirements of the RWQCB would not be exceeded.

The project proposes to extend sewer lines from the lower west side of the CRT project to the existing sewer system in Cyclotron Road. Wastewater from the CRT project would be conveyed to existing sewer pipes that direct wastewater to Hearst Monitoring Station and then into sub-basin 17-013, located west of the project site. Sub-basin 17-013 is not currently constrained during peak wet weather flows, and it is expected to have future wet weather capacity to meet LBNL's growth needs during the term of the 2006 LRDP (LBNL 2007).

As noted above, the proposed project would direct sewer flows to sub-basin 17-013, and would not contribute to capacity exceedances in sub-basin 17-503. This impact is considered less than significant.

Mitigation Measure: No project-level mitigation required.

CRT Impact UTILS-2: The proposed project would result in an increase in storm water flows but would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

Implementation of the CRT project would increase impervious surfaces on the LBNL site by approximately 1.36 acres, which would result in an increase in storm water flows. According to the 2006 LRDP EIR, the existing LBNL storm water drainage facilities have adequate capacity to serve existing and future development in the area. The project includes design features consisting of vegetated swales and a network of inlets, hydromodification vaults, and drainage pipes to capture and hold peak storm flows and release them at a rate no greater than predevelopment conditions. As a result, the project would maintain storm water runoff at existing levels, and would not increase the flow rate of storm water into the LBNL storm drain system or into the City storm drain system or natural drainages in the project area. Therefore a significant environmental impact from the construction of new storm drainage facilities would not occur. The impact would be less than significant.

Mitigation Measure: No project-level mitigation required.

CRT Impact UTILS-3: Implementation of the proposed CRT project would increase the demand for water but could be served by existing resources. The project-related demand for water supply would not result in the need for new or upgraded water facilities. (Less than Significant)

As discussed in Section 3.0, Project Description, the CRT project would require approximately 29.3 million gallons per year (mgy) at buildout for potable and cooling water. The project would be served by EBMUD from the existing supply and distribution system. As shown in Table 4.13-1, Estimated Lab-Wide Water Demand, the total projected water demand for the CRT project combined with other planned Berkeley Lab growth would be approximately 80 mgy. Because water use has been declining annually, actual existing use at the Berkeley Lab is likely to be lower than 41.6 mgy, and these figures therefore represent a conservative estimate of projected water use.

Table 4.13-1
Projected Lab-Wide Water Demand

Water Use Component	Estimated Water Demand (mgy)
Existing Use (2003)	41.6
CRT Project	29.3
Helios Project	4.8
Other	4.3
TOTAL	80

Source: LBNL 2007; Dong 2007.

LBNL submitted a request to EBMUD to prepare a water supply assessment (WSA) for growth proposed under the LRDP. EBMUD submitted the WSA to LBNL in a letter dated November 23, 2004 and confirmed by EBMUD on February 23, 2006. EBMUD confirmed that the LRDP project's estimated water demand is accounted for in EBMUD's water demand projections, as published in the 2000 Urban Water Management Plan. After the adoption of the 2006 LRDP, and in conjunction with the development of the design of the CRT project, the Berkeley Lab determined that additional water would be needed to serve the growth of LBNL under the 2006 LRDP. In order to address the project-specific water demand for the CRT project, the Berkeley Lab presented its revised estimate of 80 million gallons of water needed per year through 2025 (compared to about 61 mgy, which was the previous estimate under the 2020 LRDP) to EBMUD. EBMUD has indicated that it can provide this volume of water to LBNL from its existing supply sources (O'Hearn 2007). Therefore, the proposed project, in conjunction with other growth at LBNL, would not result in a demand for water that would require EBMUD to develop new water supply sources. Furthermore, no improvements to water supply mains are necessary to serve the CRT project or the projected growth at LBNL. Therefore, the proposed project would not result in environmental impacts from the construction of water infrastructure improvements. The impact would be less than significant.

CRT Impact UTILS-4: The proposed project would result in the need for additional chilled water facilities, the construction and operation of which would not result in a significant environmental impact. (Less than Significant)

LBNL does not maintain a site-wide chilled water distribution system. LBNL buildings that require chilled water are supplied by on-site chillers and cooling towers. Therefore, implementation of the proposed project would not impact any centralized chilled water distribution system. The CRT project proposes up to nine cooling towers that would meet the demand of the proposed project and would be located adjacent to the eastern end of the building. Construction and operation of the cooling towers is not expected to cause any specific significant environmental impacts beyond what is analyzed for the proposed project in other sections of this EIR, notably Section 4.2, Air Quality, and Section 4.9, Noise. As the analyses in those sections show, the environmental impacts from the construction and operation of the cooling towers would be less than significant.

Mitigation Measure: No project-level mitigation measure required.

CRT Impact UTILS-5: Implementation of the proposed CRT project would increase the demand for electricity and natural gas but would not result in the expansion of existing or construction of new electrical and natural gas facilities. (Less than Significant)

The CRT project would use 7 MW of electricity during initial project operations and up to 17 MW at project buildout. This represents approximately one percent of the total demand projected under the 2006 LRDP. The CRT project includes numerous energy-saving measures, including energy-efficient lighting and building systems and design features to reduce heat gain. Two options are being considered for provision of the required power to the CRT project: an increase in power obtained from the existing grid, or natural-gas-powered cogeneration equipment that would provide up to 3 MW of power, combined with increased power from the grid (see Section 3.0). If the cogeneration option is implemented, the CRT project would increase the demand for natural gas by about 2.3 million Therms per year. This projected demand for natural gas is minimal (less than 0.02 percent) when compared to total natural gas consumption of about 12,769 million Therms in California in 2000 (LBNL 2007).

Power supply lines for the project would connect to the existing power lines near the Buildings 50/70 complex. If the project does not include cogeneration, all power would be supplied from the existing grid. Upgrades to the Grizzly Peak substation and transmission facilities within LBNL would be needed in order to accommodate the project's power needs with either option. These upgrades would be accomplished entirely within the footprint of existing utilities or the CRT project site as detailed in Section 3.0. With on-site cogeneration equipment, the CRT Facility would generate approximately 18 percent of CRT's electricity demand. Cogeneration would be provided by two 1.5 MW engine-generator units powered by natural gas; they would be located northeast of the building in the same area as the cooling towers and would be enclosed by masonry or concrete walls to provide security and noise shielding. Under this option, an existing sub-grade 6-inch high-pressure natural gas main would serve the project. Environmental impacts associated with the cogeneration equipment (primarily related to air quality) are evaluated in Section 4.2.

The project's demand for electricity by itself would not require the construction of new power generation facilities, and the project's impact related to off-site generation facilities would also be less than significant. The project's demand would, however, combine with the demand for electricity associated with other proposed projects in the region and could contribute to the need for an expansion of an existing power plant or the construction of a new power plant. Sources of electricity are diverse and widespread, and supply is usually made from a number of sources. Both electricity and gas needed by the project may in fact be generated out of state. It is therefore not reasonable to predict where the supply sources would be located or to evaluate the environmental consequences from the construction and operation of such facilities. Furthermore, if the new power generation facilities were to be located in California, they would be subject to environmental review and would be required to avoid or minimize their environmental impacts. Accordingly, the project's contribution to the impact related to new generation facilities would be less than significant.

Mitigation Measure: No project-level mitigation measure required.

4.13.5 References

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