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5.8 SOCIOECONOMICS/ENVIRONMENTAL JUSTICE

Hydrogen Energy International LLC (HEI or Applicant) is jointly owned by BP Alternative Energy North America Inc. and Rio Tinto Hydrogen Energy LLC. HEI is proposing to build an Integrated Gasification Combined Cycle (IGCC) power generating facility called Hydrogen Energy California (HECA or Project) in Kern County, California. The Project will produce low-carbon baseload electricity by capturing carbon dioxide (CO₂) and transporting it for CO₂ enhanced oil recovery (EOR) and sequestration (storage)¹.

The 473-acre Project Site is located approximately 7 miles west of the outermost edge of the city of Bakersfield and 1.5 miles northwest of the unincorporated community of Tupman in western Kern County, California, as shown in Figure 2-1, Project Vicinity. The Project Site is near a hydrocarbon-producing area known as the Elk Hills Field. The Project Site is currently used primarily for agricultural purposes. Existing surface elevations vary from about 282 feet to 291 feet above mean sea level.

The Project will gasify petroleum coke (petcoke) (or blends of petcoke and coal, as needed) to produce hydrogen to fuel a combustion turbine operating in combined cycle mode. The Gasification Block feeds a 390-gross-megawatt (MW) combined cycle plant. The net electrical generation output from the Project will provide California with approximately 250 MW of low-carbon baseload power to the grid. The Gasification Block will also capture approximately 90 percent of the carbon from the raw syngas at steady-state operation, which will be transported to the Elk Hills Field for CO₂ EOR and Sequestration. In addition, approximately 100 MW of natural gas generated peaking power will be available from the Project.

The Project Site and linear facilities comprise the affected study area and are entirely located in Kern County, California. These Project components are described below.

Major on-site Project components will include, as shown on Figure 2-5, Preliminary Plot Plan:

- Solids Handling, Gasification, and Gas Treatment
 - Feedstock delivery, handling and storage
 - Gasification
 - Sour shift/gas cooling
 - Mercury removal
 - Acid gas removal

- Power Generation
 - Combined-cycle power generation
 - Auxiliary combustion turbine generator
 - Electrical switching facilities

¹ This carbon dioxide will be compressed and transported via pipeline to the custody transfer point at the adjacent Elk Hills Field, where it will be injected. The CO₂ EOR process involves the injection and reinjection of carbon dioxide to reduce the viscosity and enhance other properties of the trapped oil, thus allowing it to flow through the reservoir and improve extraction. During the process, the injected carbon dioxide becomes sequestered in a secure geologic formation. This process is referred to herein as CO₂ EOR and Sequestration.

- Supporting Process Systems
 - Natural gas fuel systems
 - Air separation unit (ASU)
 - Sulfur recovery unit/Tail Gas Treating Unit
 - Zero liquid discharge (ZLD) units for process and plant waste water streams
 - Carbon dioxide compression
 - Raw water treatment plant
 - Other plant systems

The Project also includes the following off-site facilities, as shown on Figure 2-7, Project Location Map.

- **Electrical Transmission Line** – An electrical transmission line will interconnect the Project to Pacific Gas & Electric's (PG&E) Midway Substation. Two alternative transmission routes are proposed; each alternative is approximately 8 miles in length.
- **Natural Gas Supply** – A natural gas interconnection will be made with PG&E or So Cal Gas natural gas pipelines, each of which are located southeast of the Project Site. The natural gas pipeline will be approximately 8 miles in length.
- **Water Supply Pipelines** – The Project will use brackish groundwater supplied from the Buena Vista Water Storage District (BVWSD) located to the northwest. The raw water supply pipeline will be approximately 15 miles in length. Potable water for drinking and sanitary use will be supplied by West Kern Water District to the southeast. The potable water supply pipeline will be approximately 7 miles in length.
- **Carbon Dioxide Pipeline** – The carbon dioxide pipeline will transfer the carbon dioxide captured during gasification from the Project Site southwest to the custody transfer point. Two alternative carbon dioxide pipeline routes are proposed; each alternative will be approximately 4 miles in length.

The Project components described above are shown on Figure 2-8, Project Location Details, which depicts the region, the vicinity, the Project Site and its immediate surroundings.

This section describes potential impacts to the social and economic environment in the vicinity and region resulting from construction and operation of the Project. The section presents estimated impacts to population, housing, employment, public services (fire protection and emergency services, hospitals, law enforcement, and schools), utilities, tax revenue, and economic activity attributable to the Project. The section also includes a discussion of compliance with permits and laws, ordinances, regulations, and standards (LORS) relevant to socioeconomics.

5.8.1 Affected Environment

This subsection describes existing economic and demographic conditions at varying geographic levels. First, the section presents information for Kern County and the City of Bakersfield, and for Los Angeles County, which borders Kern County to the south. Next, the section presents information for the Project Site and the nearby unincorporated communities of Tupman and Buttonwillow. Figure 5.8-1, Socioeconomic Study Area, shows the socioeconomic study area.

5.8.1.1 Economy: Labor Force, Employment, and Income

Kern County

Primary components of the Kern County economy are farm products, petroleum, logistics/warehousing, and national defense and space activities, such as Edwards Air Force Base, China Lake Naval Weapons Center, the National Aeronautics and Space Administration (NASA)-Dryden Flight Research Center, and the East Kern (Mojave) Airport District. Edwards Air Force Base and China Lake Naval Weapons Center are two of Kern County's major employers, joined in that category by Kern County public schools and the Kern County government. Kern County is the largest oil-producing county in California, containing approximately 71 percent of California's oil reserves. Kern County is also the third leading producer of agricultural products in the United States (Kern County Final Budget 2007-2008).

In September 2008, the Kern County civilian labor force of 369,500 represented 2.0 percent of the California civilian labor force. The Kern County civilian labor force increased by 2.8 percent, annually, between 2000 and 2007, and 1.3 percent, annually, between 1990 and 2000. From 2000 to 2007, the Kern County civilian labor force grew faster than the civilian labor force in California by 1.7 percentage points (Table 5.8-1, Kern County Labor Force, Employment, and Industry).

**Table 5.8-1
Kern County Labor Force, Employment, and Industry**

Industry	1990	2000	2007
Civilian Labor Force	257,000	293,500	351,900
Employment	228,900	269,300	322,800
Civilian Unemployment Rate (%)	10.90	8.20	8.30
Percent of Employment, by Industry			
Farm	15	20	16
Natural Resources and Mining	6	3	3
Construction	6	5	7
Manufacturing	5	4	5
Trade, Transportation, and Utilities	17	15	16
Information	2	1	1
Financial Activities	3	3	3
Professional and Business Services	8	9	11
Education and Health Services	6	8	9
Leisure and Hospitality	7	7	8
Other Services	3	3	2
Government	22	21	21

Source: CEDD, 2008a.

The industries with the highest employment in Kern County in 2007 were government; trade, transportation, and utilities; and farming. Construction employment in Kern County in 2007 was approximately 19,000, representing approximately 7 percent of total industry employment (Table 5.8-1, Kern County Labor Force, Employment, and Industry) (CEDD 2008a).

From 2000 to 2006, the fastest-growing industries were construction; professional and business services; leisure and hospitality; and trade, transportation, and utilities. Notably, farming employment declined 1.0 percent annually during the period from 2000 to 2007 (CEDD 2008a, CEDD 2008b).

Kern County’s unemployment rate decreased from 10.9 to 8.2 percent during the period from 1990 to 2000, and increased slightly from 8.2 to 8.3 percent during the period from 2000 to 2007. Compared to California, the Kern County unemployment rate was 8.30, 2.9 percentage points higher than the California rate of 5.4 percent in 2007 (Table 5.8-1, Kern County Labor Force, Employment, and Industry) (CEDD 2008a). U.S. unemployment rates are expected to continue to rise in the near future due to the current state of the economy. The projected unemployment rates for Kern County and California are expected to grow to 8.5 percent and 5.7 percent, respectively, in 2010 as illustrated in Table 5.8-2, Projected Unemployment Rates (Caltrans 2009).

**Table 5.8-2
Projected Unemployment Rates**

Year	Kern County (%)	California (%)
2010	8.5	5.7
2020	8.4	5.3
2030	8.6	5.2

Source: Caltrans, 2009.

Note:
% = percent.

Between 2004 and 2014, employment in Kern County is expected to grow approximately 1.4 percent annually and for the same time period the state of California is expected to grow at approximately 1.5 percent annually. Kern County industries that are anticipated to grow the most during the period 2004 to 2014 are construction; professional, and business services; and trade, transportation, and utilities. Construction employment is anticipated to grow by 44 percent, with an average annual rate of 3.7 percent (CEDD 2008c).

The value of agricultural production in 2007 in Kern County was \$4.1 billion, 75 percent of this was in crop sales. Kern County ranked third among California counties, as well as among U.S. counties, in terms of the value of agricultural production in 2007 (USDA 2008).

In 2007, wage and salary disbursements in Kern County were \$7.9 billion. The average wage per job that year was \$35,100, compared to \$49,920 in California on average. Total personal

income in 2006 in Kern County was approximately \$20.0 billion. Per capita income in 2006 was \$25,938 in Kern County and \$39,626 in the state of California (BEA 2008). Taxable sales in Kern County in 2006 were \$12.0 billion, increasing 12.4 percent from 2005 (CBOE 2008).

Kern County residents commuted approximately 22 minutes to work, on average, in 2005 (CDOL 2008). Approximately 94 percent of Kern County residents work in Kern County and approximately 3 percent work in Los Angeles County (U.S. Census Bureau 2008a).

In 2007, 16,556 business establishments existed in Kern County. Approximately 59 percent of the establishments were services firms. Over half of the businesses had between one and four employees, and 95 percent of the businesses had less than 50 employees (CDOF 2008a).

Kern County adopted the *County of Kern Economic Development Strategy* on 5 April 2005 (and as revised 2 October 2007). In this document, Kern County states five strategic initiatives: (1) cluster network development strategies, (2) human resources and skills development, (3) land use and infrastructure planning, (4) tourism marketing and branding Kern County, and (5) financing entrepreneurship and innovation. Kern County plans to strengthen its industry clusters, which include value-added agriculture; transportation, logistics, and warehousing; energy and chemicals; aerospace and defense; business and professional services; tourism, recreation, and entertainment (KC 2008a).

Kern County attracts new residents and businesses due to land availability, lower costs of living, shorter commute times, and lower costs of doing business when compared to areas west of Kern County near the coast. *The Path to Sustainable Prosperity: Kern County's Economic Development Strategy* (KC 2008b), which summarizes the Kern County economic development plan, states that Kern County faces the following challenges related to economic development:

- Balancing demand for residential development with commercial and industrial uses
- Cyclical and uncertain nature of the oil and aerospace industry
- Seasonal nature of the agricultural industry
- Modest growth in new business
- Limited educational and skills attainment by the Kern County labor force
- Out-migration of young people
- Air quality issues in Kern County
- High incidence of low-to-moderate income residents

City of Bakersfield

The City of Bakersfield is located in central Kern County, equidistant from Fresno, 110 miles to the north, and Los Angeles, 110 miles to the south. Bakersfield is the county seat, and the central commercial and business location for Kern County, covering 135 square miles, beginning approximately 7 miles east of the Project Site. Top employers in Bakersfield include government entities such as Edwards Air Force Base, Kern County, and China Lake Naval Weapons Center; and private entities such as Gyumarra Farms, Grimmway Farms, and Wm. Bolthouse Farms, Inc. Meadows Field Airport is operated by Kern County, and is located 7 miles north of downtown Bakersfield. Meadows Field Airport serves approximately 700,000 people in the San Joaquin Valley (Meadows Field 2008).

In 2005, 63 percent of the labor force in Bakersfield was over the age of 16, compared to 63 percent in Kern County and 65 percent in California. The unemployment rate in Bakersfield in 2005 was 8.2 percent, which was lower than the rate for Kern County (9.7 percent), and higher than the statewide rate 6.9 percent) (U.S. Census Bureau 2009).

Occupations in Bakersfield with the most employees in 2005 were management, professional, and related occupations (30 percent); sales and office occupations (25 percent); and service occupations (19 percent). Industries with the highest employment levels were education, health, and social services (23 percent); retail trade (14 percent); professional, scientific, management, administrative, and waste management services (9 percent); and agriculture, forestry, fishing, hunting, and mining (9 percent) (U.S. Census Bureau 2008b).

Median household income in 2005 in Bakersfield was \$45,174, compared to \$40,224 in Kern County, and \$53,629 in California (U.S. Census Bureau 2008b). The percentage of individuals living below the poverty level in Bakersfield in 2000 was 15 percent, compared to 18 percent in Kern County, and 10 percent in California (U.S. Census Bureau 2008c).

Approximately 75 percent of Bakersfield residents' work commute is less than 30 minutes, while another 6 percent have a work commute of 60 minutes or more (U.S. Census Bureau 2008d). The mean travel time to work for Bakersfield residents in 2005 was 21.5 minutes, compared to 27 minutes for California residents (U.S. Census Bureau 2008e).

Taxable sales in Bakersfield in 2006 were \$5.8 billion, \$4.6 billion of which occurred at retail sales establishments (CBOE 2008).

The housing market in Bakersfield is experiencing a downturn, similar to many other markets across the United States. From 2002 to 2005, when prices in areas such as Los Angeles, San Francisco, and San Diego increased substantially, buyers recognized the affordability of inland cities such as Fresno, Bakersfield, and Modesto. Sales in the inland cities, including Bakersfield, increased. Beginning in 2006, the incidence of foreclosure increased in Bakersfield, similar to the rest of California and the United States. In September 2006, housing supply and home sale time-frames had increased substantially (Market Watch 2008).

The relatively high unemployment rate in Bakersfield, compared to some other areas in California, is in part due to the cyclical (oil production and aerospace) and seasonal (agricultural) nature of employment, and is a challenge for the area's economy. The economy is tied to the region's employers such as Edwards Air Force Base, energy companies, and farms. A Moody's Economy.com report named Bakersfield one of 20 metropolitan areas in the United States with "extreme exposure" to housing-related industries (Real Estate Journal 2007).

The 2007 Comprehensive Annual Financial Report for the city of Bakersfield reports that between 2005 and 2007, Bakersfield experienced increases in sales tax, property tax, and building permit revenue, in part due to the active residential market. As housing activity slows, revenues rates for Bakersfield are expected to return to historic, more modest levels (City of Bakersfield 2008).

Los Angeles County

Primary components of the Los Angeles County economy are trade, transportation, and utilities; professional and business services; government; education and health services; and leisure and hospitality. Major employers in Los Angeles County include the following companies (CEDD 2009).

- American Honda Motor Company
- BP Carson Refinery
- BP West Coast Products
- California Institute of Technology
- Century Plaza Towers
- Children's Hospital
- Cintas the Uniform People
- Hawaiian Gardens Casino
- J Cameron Supply Company
- Jet Propulsion Laboratory
- Kaiser Foundation Hospital
- Kaiser Permanente
- Los Angeles County Fire Department
- Long Beach Memorial Medical Center
- Los Angeles Police Department
- Pomona Valley Hospital Medical Center
- Pro Parts
- Ready Pac Produce Inc.
- Six Flags Magic Mountain Inc.
- Sony Pictures Entertainment
- University of California Los Angeles (UCLA)
- University of Southern California (USC)
- VA Greater Los Angeles Health
- Walt Disney Company
- Women's & Children's Hospital

In 2007, the Los Angeles County labor force of 4.9 million represented over one quarter of the California labor force. The Los Angeles County labor force increased by 0.3 percent (annually) between 1990 and 2000 and 0.7 percent (annually) between 2000 and 2007 (Table 5.8-3, Los Angeles County Labor Force, Employment, and Industry; CEDD 2008a). Construction employment in Los Angeles County in 2007 was approximately 157,200, representing approximately 4 percent of total industry employment in Los Angeles County (Table 5.8-3).

From 2000 to 2007, the fastest-growing industries in Los Angeles County were construction; education and health services; and leisure and hospitality. Notably, manufacturing employment declined 4.4 percent annually from 2000 to 2007 (CEDD 2008a; CEDD 2008b).

**Table 5.8-3
Los Angeles County Labor Force, Employment, and Industry**

Industry	1990	2000	2007
Civilian Labor Force	4,523,700	4,677,300	4,921,200
Employment	4,259,700	4,424,900	4,675,300
Civilian Unemployment Rate (%)	5.8	5.4	5.0
Percent of Employment, by Industry (%)			
Farm	0	0	0
Natural Resources and Mining	0	0	0
Construction	3	3	4
Manufacturing	20	15	11
Trade, Transportation, and Utilities	19	19	20
Information	4	6	5
Financial Activities	7	6	6
Professional and Business Services	13	14	15
Education and Health Services	9	10	12
Leisure and Hospitality	7	8	10
Other Services	3	3	4
Government	13	14	14

Source: CEDD, 2008a.

Note:

% = percent

The unemployment rate in Los Angeles County decreased from 5.8 percent to 5.4 percent from 1990 to 2000, and from 5.4 percent to 5.0 percent during the period 2000 to 2007. Compared to the state of California, the Los Angeles County unemployment rate was 0.4 percentage points lower than the California rate of 5.4 percent in 2007, indicating fewer unemployed residents in Los Angeles County (Table 5.8-3, Los Angeles County Labor Force, Employment, and Industry; CEDD 2008a). Unemployment rates in Los Angeles County are projected to be 5.4 percent in 2010, 5.8 percent in 2020, and 5.9 percent in 2030 (Caltrans 2009).

Between 2004 and 2014, employment in Los Angeles County is expected to grow 1.0 percent annually. The same measure for the state of California is higher, at 1.5 percent. Los Angeles County industries that are anticipated to grow the most between 2004 and 2014 are education and health services; professional and business services; and leisure and hospitality. Construction employment is anticipated to grow by 0.8 percent annually (CEDD 2008c).

Los Angeles County residents commuted approximately 29 minutes to work, on average, in 2005 (CDOL 2008). Approximately 93 percent of Los Angeles County residents work in Los Angeles County. An additional 4 percent (approximately) of Los Angeles County residents work in Orange County. San Bernardino County and Ventura County employers each employ 1 percent

of the Los Angeles County labor force. Less than 1 percent of Los Angeles County labor force participants work in Kern County (U.S. Census Bureau 2008a).

In 2007, 395,181 business establishments existed in Los Angeles County. Approximately 70 percent of the establishments were services firms. Over half of the businesses had between one and four employees (CDOF 2008a).

Community of Tupman

The unincorporated community of Tupman covers approximately 0.5 square mile, and the center of the community is located approximately 2 miles southeast of the Project Site.

In 2005, eight business establishments existed in Tupman's zip code area (93276), including three health care and social assistance firms, two mining companies, one retail firm, one construction company, and one professional and business services firm. One of the two mining companies employed the most people, followed in rank by the retail establishment (U.S. Census Bureau 2008f).

The residents of Tupman in 2000 were most commonly employed by the U.S. Postal Service or in the education and food services industries. The estimated median house and condominium value in 2005 was \$90,300, compared to \$477,700 for California. Median household income was \$31,200 in 2005, representing 58 percent of the California median household income that year (\$53,629) (City Data 2008).

Community of Buttonwillow

The unincorporated community of Buttonwillow covers approximately 7 square miles, and its center is located approximately 7 miles northwest of the Project Site.

In 2005, 49 business establishments existed in Buttonwillow's zip code area (93206), the majority of which were in accommodation and food services (22 percent of firms) and retail trade (20 percent). One of the retail companies employed the most people (50 to 99 employees) (U.S. Census Bureau 2008f).

Agriculture and related activities are also important in Buttonwillow. For example, BW Implement manufactures agricultural supplies and equipment in the community.

The estimated median house and condominium value in 2005 in Buttonwillow was \$165,500, compared to \$477,700 for California. Median household income was \$32,200 in 2005, representing 60 percent of the California median household income (\$53,629) that year (City Data 2008).

Immediate Project Vicinity

The Project Site consists of approximately 473 acres near a hydrocarbon-producing area in Kern County, California, as shown in Figure 2-1, Project Vicinity. The Project Site is in a predominantly agricultural area of the County, approximately 52 miles northwest of the unincorporated community of Tupman. The 473-acre Project Site is within Section 10 of Township 30 South, Range 24 East in Kern County. The Project Site is on part of Assessor's Parcel Numbers (APN) 159-040-16 and 159-040-18.

Most of the Project Site is predominantly used for agricultural purposes, including cultivation of cotton, alfalfa, and onions.

Adjacent land uses consist of Adohr Road and agricultural uses to the north; Tupman Road and agricultural uses to the east, agricultural uses and an irrigation canal to the south; and a residence, structures (used for grain storage and organic fertilizer production), agricultural uses, and the Dairy Road right-of-way to the west. The tailings pile of the organic fertilizer production facility is located within the Project Site. The Tule Elk State Natural Reserve is located approximately 1,700 feet east of the Project Site.

5.8.1.2 Population, Housing, and Demographics

Kern County

The population of Kern County was 801,648 in 2007, representing 2.1 percent of the state population (Table 5.8-4, Population Trends and Projections). Table 5.8-4 shows that average annual growth rates in Kern County population were 0.6 to 1.3 percentage points higher than the same rates for California, during the period from 1970 to 2007. The gap between the state growth rate and Kern County growth rate is expected to widen in future years (2007 to 2020) as the Kern County population growth rate increases. During the period from 2007 to 2020, the Kern County population is expected to grow 2.4 percent per year, on average, which is double the expected rate for California for the same period (CDOF 2009).

**Table 5.8-4
Population Trends and Projections**

Year	Bakersfield	Buttonwillow	Tupman	Kern County	Los Angeles County	State
1970	69,515	1,193	N/A	331,100	7,055,800	20,039,000
1990	174,978	1,301	N/A	548,000	8,860,300	29,828,496
AARG, 1970-1990	4.7%	0.4%	N/A	2.6%	1.1%	2.0%
2000	246,899	1,266	227	661,653	9,519,338	33,873,086
AARG, 1990-2000	3.5%	-0.3%	N/A	1.9%	0.7%	1.3%
2007	323,213	N/A	N/A	801,648	10,331,939	37,662,518
AARG, 2000-2007	3.9%	N/A	N/A	2.8%	1.2%	1.5%
2020	N/A	N/A	N/A	1,086,113	11,214,237	44,135,923
AARG, 2007-2020	N/A	N/A	N/A	2.4%	0.6%	1.2%

Source: CDOF, 2009.

Notes:

- = negative
- % = percent
- AARG = Average Annual Rate of Growth
- N/A = not available

Approximately 62 percent of the population in Kern County (489,000 people) resided in the incorporated cities in 2006. Of the 11 cities in Kern County, Bakersfield had the most residents (approximately 312,000 people), followed by Delano (49,000 people), Ridgecrest (27,000 people), and Wasco (24,000 people) in 2006. Arvin, Shafter, Tehachapi, McFarland, and California City were home to between 12,000 and 15,000 people. Taft had 9,000 residents and Maricopa had 1,000 residents in 2006 (CDOF 2008a).

Kern County had approximately 271,000 housing units in 2007, including 73 percent single-family homes, 17 percent multi-family homes, and 9 percent mobile homes. The vacancy rate in 2007 was 10.0 percent, 4.1 percentage points higher than the California vacancy rate. Kern County had approximately 2 percent of the total housing units in the state, as well as higher percentages of single-family homes and mobile homes when compared to the state (Table 5.8-5, Housing, January 2007).

**Table 5.8-5
Housing, January 2007**

Location	Total Units	Single-Family	Multi-Family	Mobile Homes	Vacancy Rate (%)
City of Bakersfield	112,106	82,661	26,748	2,697	5.6
Kern County	270,616	198,176	46,798	25,642	10.0
Los Angeles County	3,382,356	1,882,499	1,443,156	56,701	4.2
California	13,312,456	8,603,213	4,117,587	591,656	5.9

Source: CDOF, 2009

Note:

% = percent

Kern County residents were 51 percent minority in 2000. Also in 2000, more than one-fifth of Kern County residents lived below the poverty level (Table 5.8-6, Race and Poverty Data in 2000).

City of Bakersfield

The population of Bakersfield was estimated at 323,213 in 2007, representing approximately 40 percent of the Kern County population (Table 5.8-4, Population Trends and Projections). During the period from 2000 to 2007, Bakersfield grew 3.9 percent per year on average, faster than Kern County and California as a whole.

In 2007, the City of Bakersfield contained approximately 112,106 housing units, including 74 percent single-family homes, 24 percent multi-family homes, and 2 percent mobile homes. Bakersfield has more single-family and multi-family homes, and fewer mobile home units as a percentage of total housing units when compared to Kern County. The Bakersfield housing unit vacancy rate in 2007 was 5.6 percent, which was lower than the same measure for Kern County, and slightly lower than the same measure for California as a whole (Table 5.8-5, Housing, January 2007).

**Table 5.8-6
Race and Poverty Data in 2000**

Area	Population	Minority Population ¹	Percentage Minority ²	Population Living Below Poverty Level ²	Percentage Living Below Poverty Level ²
Larger Areas					
Tupman CDP	227	20	9	45	20
Buttonwillow CDP	1,266	950	75	364	29
City of Bakersfield	247,057	120,874	49	43,781	18
Kern County	661,645	334,455	51	130,949	21
Los Angeles County	9,519,338	6,559,724	69	1,674,599	18
State of California	33,871,648	18,054,858	53	4,706,130	14
Individual Census Tracts Within a 6-Mile Radius of the Project Site					
CT 33.04	5,521	1,669	30	356	13
CT 37.00	3,038	1,772	58	817	27

Sources: U.S. Census Bureau, 2008c; and U.S. Census Bureau, 2008g.

Notes:

¹ The minority percentage represents the number of residents that, in 2000, were included in the following race or ethnicity categories (defined by the U.S. Census): White Hispanic/Latino, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, Some Other Race, and Two or More Races.

² Low-income percentage represents the number of residents living below the poverty level, based on their 1999 income, taken as a percentage of the population for whom poverty status is determined (which includes all persons except institutionalized persons, persons in military group quarters and in college dormitories, and unrelated individuals under 15 years old).

CDP = Census Designated Place

CT = census tract

The outermost limit of the City of Bakersfield is approximately 7 miles east of the Project Site, and has 67 hotels with approximately 5,200 rooms. The most recent annual occupancy estimate is 63.5 percent occupancy for Bakersfield hotels for calendar year 2007, representing a 6 percent decrease from the previous year. This trend is not expected to change substantially in the near future, due to several new hotels that were built in 2007 and two new hotels planned for mid-2008. Hotel occupancy rates can range from low to very high depending on events and conventions in Bakersfield (Lyman 2008).

Almost half of Bakersfield residents were minorities in 2000. The percentage of residents living below the poverty levels was 18 percent of the Bakersfield population in 2000 (Table 5.8-6, Race and Poverty Data). These percentages are 3 percentage points less than the same measures for Kern County as a whole.

Los Angeles County

The population of Los Angeles County was 10.3 million in 2007, representing 27 percent of the state population (Table 5.8-4, Population Trends and Projections). Table 5.8-4 shows that average annual growth rates in Los Angeles County population were 0.3 to 0.9 percentage points

lower than the same rates for California, during the period from 1970 to 2007. The growth rate for Los Angeles County for the period from 2007 to 2020 is expected to be 0.6 percent annually, compared to 1.2 percent for California (CDOF 2008b).

Approximately 89 percent of the population in Los Angeles County (9.3 million people) resided in the incorporated cities in 2008. Of the 88 cities in Los Angeles County, the city of Los Angeles had the most residents (approximately 4 million people), followed by Long Beach (493,000 people), Glendale (207,000 people), and Santa Clarita (177,000 people) in 2008. Twelve additional cities had populations over 100,000, and an additional 23 cities had populations over 50,000 (CDOF 2008a).

Los Angeles County had approximately 3.4 million housing units in 2007, including 56 percent single-family homes, 43 percent multi-family homes, and 2 percent mobile homes. The vacancy rate that year was 4.2 percent, 1.7 percentage points lower than the California vacancy rate. Los Angeles County has approximately one-quarter of the total housing units in the state, as well as higher percentages of multi-family homes when compared to the state (Table 5.8-5, Housing, January 2007).

Los Angeles County residents were 69 percent minority in 2000, and approximately 18 percent of Los Angeles County residents lived below the poverty level (Table 5.8-6, Race and Poverty Data in 2000).

Community of Tupman

Tupman is a small, unincorporated community of approximately 227 people. The Tupman Census Designated Place (CDP) was 9 percent minority and 20 percent low-income in 2000. The percentage minority for Tupman was substantially lower than the same measure for Kern County and California. The low-income percentage of population in Tupman in 2000 was 1 percentage point lower than the same measure for Kern County, and higher than the same measure for California (see Table 5.8-6, Race and Poverty Data in 2000).

Community of Buttonwillow

Buttonwillow is a low-income, predominantly Spanish-speaking, farmworker community of approximately 1,266 residents (in 2000). The Buttonwillow CDP was 75 percent minority and 29 percent low-income in 2000. Both of these percentages are substantially higher than the same measures for Kern County and California as a whole (Table 5.8-6, Race and Poverty Data in 2000).

Immediate Project Vicinity

As shown in Figure 5.8-2, Census Tracts Within a 6-Mile Radius of the Project Site, census tracts 33.04 and 37.00 lie within 6 miles of the project site.

Census tract 33.04 covers over 600 square miles and includes the communities of Valley Acres, Dustin Acres, McKittrick, Derby Acres, and a portion of the city of Taft. The population within census tract 33.04 was 30 percent minority and 13 percent low-income in 2000. Census tract number 37.00 encompasses approximately 180 square miles and includes the community of

Buttonwillow. The population living in census tract 37.00 was 58 percent minority and 27 percent low-income in 2000 (Table 5.8-6, Race and Poverty Data in 2000).

More than 1,000 hotel rooms are located within a 30-minute drive from the Project Site. In Buttonwillow, the three hotels are located east of the center of town near the Interstate 5 interchange, and have approximately 283 rooms (Roadside America 2008). Excluding Bakersfield, the next closest cluster of hotels is in Lost Hills, located 20 miles northwest of Buttonwillow, along Interstate 5 (Lyman 2008).

5.8.1.3 Public Services and Utilities

Fire Protection and Emergency Response

The Kern County Fire Department (KCFD) provides the Project Site with fire prevention and protection and emergency medical services. KCFD provides these services to unincorporated Kern County and the cities of Arvin, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. The KCFD staffs 46 full-time fire stations, divided into seven battalions, with 546 firefighters (KCFD 2009).

The fire station closest to the Project Site is Fire Station Number 25, located at 100 Mirasol Avenue in Buttonwillow. Fire Station Number 25 is approximately 6 miles northwest of the Project Site. The second closest fire station is Fire Station Number 21, located at 303 10th Street in Taft, approximately 7 miles (by road) south of the Project Site (Stroub 2008). No fire stations are located within 1 mile of the Project Site.

The KCFD works in the same location and in conjunction with the Kern County branch of the California Office of Emergency Services (OES). The joint Kern County/Bakersfield City Dispatching facility provides dispatch and emergency communications for the unincorporated area of Kern County (which includes the Project Site) and all cities in Kern County. The KCFD has a mutual aid agreement with the only other fire department in Kern County, the Bakersfield Fire Department, as well as 13 other neighboring fire suppression organizations (Stroub 2008).

The first alarm response to the Project Site will be one engine company staffed with three personnel from the Buttonwillow Fire Station Number 25. For a more serious emergency such as a structure fire, additional response units will include an engine company and ladder company, each staffed with three personnel, from the Taft Fire Station Number 21, along with a battalion chief. A hazardous materials unit based in Bakersfield is also available to respond to emergencies near the Project Site (Stroub 2008).

Hall Ambulance Service provides emergency ambulance services to the majority of Kern County at a level of advanced life support. Hall Ambulance Service is based in Bakersfield and includes helicopter response service. Hall Ambulance Service will respond to a situation at the Project Site that requires ambulance service (Hall Ambulance 2008).

Medical Facilities

Eight hospitals are within 48 miles of the project site, as shown on Table 5.8-7, Hospitals. The hospitals closest to the Project Site are Mercy Southwest and HealthSouth Bakersfield, located approximately 21 miles northeast and 25 miles east of the site, respectively. Table 5.8-7 shows each hospital's distance from the Project Site, as well as the number of beds at each facility (KEDC 2008).

**Table 5.8-7
Hospitals**

Name	Distance from Project Site and Address	Number of Beds and Type of Care
Mercy Southwest Hospital	21 miles 400 Old River Road	84-bed general acute care
Good Samaritan Hospital	28 miles 901 Olive Drive	64-bed general acute care
Bakersfield Heart Hospital	27 miles 3001 Sillect Avenue	47-bed acute cardiac care
San Joaquin Community Hospital	28 miles 2615 Eye Street	178-bed acute care
Bakersfield Memorial Hospital	32 miles 420 34th Street	307-bed tertiary acute care
Mercy Hospital	26 miles 2215 Truxtun Avenue	194-bed acute care
Kern Medical Center	32 miles 1830 Flower Street	222-bed acute care
Delano Regional Medical Center	48 miles 1401 Garces Highway	156-bed general acute care
HealthSouth Bakersfield Rehabilitation Hospital	25 miles 5001 Commerce Drive	60-bed physical rehabilitation

Source: KEDC, 2008.

Law Enforcement

The Kern County Sheriff's Department provides law enforcement services to the unincorporated portion of Kern County, which includes the Project Site. The department has approximately 1,050 sworn, non-sworn, and civilian employees. The 452 authorized sworn positions include deputies in the Bakersfield Metropolitan Patrol Division, officers at the 14 substations, detention officers, detectives, and other support positions. The location of the administrative office is 1350 Norris Road, approximately 30 miles northeast of the Project Site.

The Taft substation of the Kern County Sheriff's Department will provide law enforcement services to the Project Site. The Taft substation is located at 315 Lincoln Street in Taft,

approximately 16 miles southwest of the Project Site. Staff at this substation includes one sergeant, one senior deputy, six deputies, one clerk, and one sheriff’s aide (KCS 2008).

Schools

The Project Site is located within the boundaries of the Elk Hills Elementary School District and the Taft Union High School District (Elk Hills Boundaries 2009 and Taft Union Boundaries 2009).

The Elk Hills Elementary School District operates one school (Elk Hills Elementary), at which 73 students were enrolled during the 2006-2007 school year. The four full-time equivalent teachers at Elk Hills teach Kindergarten through Grade 8. Elk Hills Elementary School is located at 501 Kern Street in Tupman, approximately 2 miles southeast of the Project Site. Students from Elk Hills Elementary feed into Taft High School, which is part of Taft Union High School District, approximately 2 miles southeast of the Project Site. Taft Union High School District operates one other high school and one continuation school, in addition to Taft High School, with a total enrollment of 1,100 students during the 2006-2007 school year. Seventy-three teachers teach at Taft Union High School District schools. These two school districts combined had an annual average rate of growth of less than 1 percent for the period from the 1993-1994 school year through the 2006-2007 school year, as shown on Table 5.8-8, School Enrollment Trends. During this period, enrollment at the high school increased slightly, while enrollment in the elementary school declined slightly. The enrollment capacity of Elk Hills Elementary School District is 250 students. Elk Hills Elementary School District does not publish enrollment projections; however, the District does not anticipate exceeding capacity within the next 10 years (Roberts 2009). Taft Union High School District does not publish enrollment projections and is currently unable to provide an enrollment capacity; however, the school district does not believe that student enrollment within the next 10 years will overburden the district (Gregory 2009).

**Table 5.8-8
School Enrollment Trends**

	1993-1994 School Year	1998-1999 School Year	2002-2003 School Year	2006-2007 School Year
Elk Hills Elementary School District	79	70	65	73
Taft Union High School District	991	974	983	1,100

Source: CDOED, 2008.

Colleges and universities with more than 200 students that are located within 50 miles of the Project Site include Bakersfield College and California State University – Bakersfield. Bakersfield College had approximately 23,949 students enrolled in the 2006-2007 school year and is located approximately 26 miles east of the Project Site (BC 2009). California State University – Bakersfield had enrollment of approximately 7,639 day students in the fall of 2007 and is located approximately 31 miles east of the Project Site (CSUB 2009). Several trade schools are also located in Bakersfield.

Utilities

West Kern Water District provides drinking water to the Project Site area. No municipal sanitary system is available on site or near the Project Site. Qwest provides local and long distance telephone service to businesses and homes near the Project Site, and several cellular telephone companies, such as Verizon, provide service to the area. PG&E supplies natural gas and electricity to homes and businesses near the Project Site. Southern California Gas Company also provides natural gas to homes and businesses in this area.

The Kern County Waste Management Division serves the area surrounding the Project Site, and operates seven landfills, five transfer stations, and four bin sites around the county. The landfills closest to the Project Site are the Taft Landfill and the Shafter-Wasco Landfill. The estimated closure year for the Taft Landfill is 2052; however, an expansion is currently proposed that would extend the closure year to 2074. The estimated closure year for the Shafter-Wasco Landfill is 2022; however, an expansion is currently proposed that would expand the closure year to 2074 (Ferguson 2009). The two closest transfer stations are in Buttonwillow and the McFarland/Delano area. The Kern County Special Waste Facility accepts hazardous waste at its facility at 4951 Standard Street in Bakersfield.

5.8.1.4 Public Finance and Fiscal Issues

The Project Site is located within the taxing jurisdiction of Kern County. Total revenues for Kern County for the fiscal year 2007-2008 were \$1.395 billion (Kern County Final Budget 2007-2008, 2008-2009). The total projected revenue for Kern County for the fiscal year 2008-2009 is \$1.683 billion, a 20 percent increase from the previous fiscal year's revenues (Kern County Final Budget 2008-2009, 2008-2009).

Top revenue categories are state aid (32 percent), federal aid (16 percent), property taxes (16 percent), and charges for services (12 percent). Top appropriations categories are public protection (34 percent), public assistance (27 percent), and health and sanitation (14 percent) (KCB 2008).

In 2006, total taxable sales in Kern County were approximately \$12.0 billion, representing 2 percent of the state taxable sales (\$560 billion), and have increased 12.4 percent since 2005. Total taxable retail sales the same year were \$7.6 billion for the county. The sales and use tax rate for Kern County sales tax rate (including state, local, and district) is 7.25 percent (CBOE 2008).

Kern County's assessed value of property was \$84.1 billion for the fiscal year 2008-2009 (Kern County Final Budget 2007-2008). Taxes were collected on assessed value of nonexempt properties; that is, on the net assessed value of \$68.7 billion. Property tax revenue that fiscal year was \$214 million and represented 18 percent of the budget (Kern County Final Budget 2007-2008).

Under Proposition 13, the county-wide property tax rate is limited to 1 percent of assessed value. Additional levies are permitted for voter-approved general obligation debt. For the fiscal year 2005-2006, the average county-wide tax rate was 1.098 percent. Property tax revenues in Kern County for fiscal year 2006-2007 were allocated to schools (60 percent), county government (20 percent), fire protection (9 percent), cities (6 percent), and special districts (5 percent)

(Table 5.8-9, Base Factor Property Tax Disbursement, Fiscal Year 2006-2007 (CLAO 2008, KCA 2008)). The total property tax revenue for Kern County for fiscal year 2006-2007 was approximately \$213.5 million.

**Table 5.8-9
Base Factor Property Tax Disbursement, Fiscal Year 2006-2007**

Beneficiary Agency	Property Tax Allocation Percentage of Base Factor (%)
County Government	0.2001
County Fire	0.0894
Cities	0.0605
Special Districts	0.0536
Schools	0.5963
Total	1.0000

Source: CLAO, 2008, KCA, 2008.

Note:

% = percent

The Project Site is located on parts of Assessor Tax Numbers (ATN) 159-040-18-00-2 and 159-040-16-00-6.

The net assessed value of ATN 159-040-18-00-2 is \$334,906. This parcel is located within Tax Rate Area 067-007. Property taxes for fiscal year 2008-2009 were \$3,562.97 (KCTTC 2009c), and were broken down among funds as shown in Table 5.8-10, Assessor Tax Numbers 159-040-18-00-2 and 159-040-16-00-6, Property Tax Allocation, Fiscal Year 2008-2009 (KCTTC 2009d). The net assessed value of ATN 159-040-16-00-6 is \$1,066,087. This parcel is located within Tax Rate Area 067-007. Property taxes for fiscal year 2008-2009 were \$11,341.81 (KCTTC 2009e), and were broken down among funds as shown in Table 5.8-10 (KCTTC 2009f).

5.8.2 Environmental Consequences

Significance Criteria

The criteria used in determining whether Project-related socioeconomic impacts will be significant are presented in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Impacts attributable to the Project are considered significant if they will:

- Induce substantial growth or concentration of population
- Induce substantial increases in demand for public services and utilities
- Displace a large number of people
- Disrupt or divide the physical arrangement of an established community
- Result in substantial long-term disruptions to businesses

Table 5.8-10
Assessors Tax Numbers 159-040-18-00-2 and 159-040-16-00-6
Property Tax Allocation, Fiscal Year 2008-2009

Taxing Agency	Rate (%)
General Local Government	1.000000
Kern County WA ZN 17 Debt	0.008404
Kern County WA ZN 19 Debt	0.012211
Elk Hills GOB 04A	0.009209
Elk Hills GOB 04B	0.007572
Elk Hills GOB 04C	0.007234
West Kern Com Col 04B	0.007930
West Kern Com Col 04C	0.007234
West Kern Col 05 Ref	0.008494
West Kern Com Col 04A	0.004753
Total	1.073041

Source: KCTTC, 2009b; KCTTC 2009d; KCTTC, 2009f.

Note:

% = percent

Direct Economic Impacts

Construction

The on-site construction workforce will consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. The peak construction workforce will occur during Month 24 of construction (December 2013) and include 1,232 craft workers (on site) and 250 contractor staff. Table 5.8-11, Site Preparation and Construction Employment by Trade, shows construction labor by month for the Project. The average size of the workforce over the 44-month site preparation and construction period will be 740 workers (including construction workers and contractor staff). Construction is forecasted to begin in December 2011 and end in December 2014. Commissioning and startup is forecasted to begin in October 2014 with full-scale operation to initiate in September 2015.

Peak construction employment will represent approximately 7 percent of construction jobs in Kern County in 2007, and less than 1 percent of construction jobs in Kern County and Los Angeles County combined. The majority of the workforce (approximately 60 percent) is expected to be hired from within Kern County.

Given the available construction labor force in Kern County and Los Angeles County, it is expected that an adequate available labor force within daily or weekly commute distance will be found to supply the workforce associated with construction of the Project. Cities over 100,000 population in Kern County include Bakersfield, with 328,692 residents in 2008. Sixteen

Table 5.8-11
Site Preparation and Construction Employment by Trade
 Hydrogen Energy California, Kern County Power Project
 Estimated Monthly Construction Workforce



Revision E, April 8, 2009

Job Category	Months after Mobilization																																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44									
CRAFT																																																					
Boilermakers	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	9	15	15	15	29	32	32	29	29	23	15	15	6	6	6	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Carpenters	0	3	3	3	8	8	8	35	48	58	85	85	87	87	87	87	150	136	141	141	141	128	128	128	128	123	123	119	119	119	108	108	81	81	82	82	82	81	77	77	0	0	0	0	0	0	0	0	0				
Cement Finishers	0	0	0	0	0	0	0	5	8	11	16	16	16	16	16	16	16	16	16	16	16	16	13	13	13	13	13	11	11	8	8	8	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Electricians	0	5	5	5	16	16	16	16	16	7	7	7	12	13	13	13	15	16	16	16	74	76	76	154	157	157	156	184	185	214	242	249	276	275	224	176	138	110	52	37	37	0	0	0	0	0	0	0	0	0			
Insulation Workers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	5	8	10	12	13	16	16	16	18	16	15	8	5	5	0	0	0	0	0	0	0				
Iron Workers	0	1	1	1	4	4	4	13	17	19	28	28	29	51	62	84	87	84	90	102	119	150	150	149	116	91	84	84	77	44	44	29	16	7	7	6	6	5	5	3	3	0	0	0	0	0	0	0	0	0	0	0	
Laborers	10	15	15	15	29	29	33	45	51	42	53	53	60	60	59	54	81	79	83	84	88	85	85	84	86	85	77	78	79	78	79	81	81	69	67	68	67	65	61	47	47	0	0	0	0	0	0	0	0	0			
Millwrights	0	1	1	1	4	4	4	4	4	2	2	2	3	9	8	8	21	32	33	33	62	68	68	62	50	32	32	14	14	14	15	10	4	4	4	4	4	4	4	2	2	0	0	0	0	0	0	0	0	0	0	0	
Operators	16	16	16	14	15	15	21	31	40	35	38	38	41	39	33	26	30	41	49	58	85	98	98	94	96	89	80	82	79	75	76	76	67	56	53	37	35	26	22	17	17	0	0	0	0	0	0	0	0	0	0		
Painters	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pipefitters	0	1	1	1	4	4	4	67	131	129	129	129	130	83	19	19	53	85	150	213	422	502	502	496	506	484	508	518	479	490	500	511	442	362	362	235	193	119	99	76	76	0	0	0	0	0	0	0	0	0	0		
Sheet Metal Workers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	3	3	3	3	3	3	3	3	2	2	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	
Teamsters	0	2	2	2	5	5	6	6	6	4	4	4	5	5	5	3	4	6	6	6	6	6	6	5	6	6	4	4	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	4	4	0	0	0	0	0	0		
Off plot construction craft	6	6	6	6	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	11	11	11	11	11	11	11				
Craft Subtotal	32	51	51	49	98	98	109	236	335	323	377	377	397	380	320	327	483	523	616	702	1060	1176	1176	1232	1216	1147	1115	1166	1089	1094	1139	1136	1068	912	859	673	589	471	358	285	285	11	11	11	11	11	11						
STAFF																																																					
Management	4	4	7	7	7	7	11	15	15	19	34	41	49	52	60	60	60	75	82	90	97	105	105	105	106	106	106	106	106	106	106	106	105	105	105	97	97	75	25	22	15	15	8	0	0	0	0	0	0	0	0		
Engineering	2	2	2	2	2	4	4	6	10	10	10	10	10	12	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	10	10	10	10	10	5	5	5	5	5	5	5		
Document Control	2	2	2	2	2	2	4	4	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	4	3	2	2	2	2	2	2		
Subcontractors Staff	3	5	5	5	10	10	11	24	34	32	38	38	40	38	32	33	48	52	62	70	106	118	118	123	122	115	112	117	109	109	114	114	107	91	86	67	59	47	36	29	29	1	1	1	1	1	1	1	1	1	1		
Off plot construction staff	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			
Commissioning																																																					
Admin / Operating Staff																																																					
Staff Subtotal	12	13	17	17	23	25	32	50	65	67	88	95	106	110	113	115	130	149	166	182	226	245	245	250	250	243	241	256	288	288	303	311	314	299	286	292	257	194	191	177	172	126	117	116	116	116	116	116					
Project Total	44	64	68	65	120	122	141	286	400	390	464	472	502	490	433	442	613	672	782	884	1286	1421	1421	1482	1466	1390	1356	1422	1377	1382	1442	1447	1382	1211	1145	966	845	665	550	462	457	137	128	128	128	128	128	128					
Schedule																																																					
Site Mobilization																																																					
Site Prep/Piling																																																					
Construction																																																					
Commissioning & Start-up																																																					

Notes:
 (1) These are approximate values
 (2) Off plot include preliminary estimates for work performed outside of the plot (pipe and transmission lines)

cities in Los Angeles County have populations over 100,000. Construction workers typically tend to have higher commute times because the jobs are temporary. Given that there is a wide availability of construction workers within a daily or weekly commute of the Project Site, the Project will not result in an influx of a significant number of construction workers. Impacts of construction would provide benefits to the local labor force because of the projected rising unemployment rates.

Construction of the Project is estimated to cost approximately \$1.6 billion. The total payroll for construction is projected to be approximately \$350 million. The remaining cost of construction, \$1.25 billion, is the cost of equipment, materials, supplies, engineering, fees, insurance, taxes, administrative cost, and other direct costs. An estimated \$750 million (60 percent of non-labor construction cost) will be spent within Kern County on materials and supplies. The remaining materials (comprising approximately 40 percent of non-labor cost), including the turbines, will be purchased outside Kern County.

Businesses in the local area surrounding the Project Site could experience impacts due to construction nuisances (noise, dust, traffic). See Section 5.5, Noise, for information on noise impacts from construction. Due to the temporary nature of construction, substantial and long-term disruptions to businesses will not occur. As a result, impacts to businesses from construction will be less than significant.

Operation

The Applicant estimates that operation and maintenance (O&M) of the Project will require 100 skilled full-time employees, including 50 to 60 shift workers. The operating staff will consist of management and engineers, shift supervision, and shift operating personnel. One shift supervisor and an O&M crew of approximately 10 people will staff each of five rotating operating shifts. The Project will also require qualified staffing in the following areas: production planning; equipment maintenance; instrument, electrical, and control support; material coordinating, inventory, and procurement; health, safety, and security; environmental protection; administrative support; benefits and human resource; training; and laboratory functions. To the extent practicable, the Applicant has committed to give local preference in hiring and procurements. Most of the labor income earned by permanent employees at the Project will be spent in their place of residence.

In addition to the permanent staff, maintenance workers will be hired on contract for scheduled and unscheduled outages, maintenance activities, and the routine startup and shutdown of the gasifiers. Also, contract workers will be hired for the gas turbine scheduled inspection maintenance cycle, which typically occurs annually. The contract maintenance will typically include inspections and overhauls for the large compressors and rotating machinery, the combustion turbine, generators, electrical transmission equipment, the steam turbine and other steam-generating boilers and heat exchangers, gasifier refractory repair and replacement, catalyst and sorbent change out, tower and vessel inspection and repair/replacement of internals, and other non-routine maintenance.

The Applicant estimates that operations payroll for the Project will be approximately \$15 million in the first year of operation. On average, the annual operations and maintenance cost for the

Project will be \$80 million, including payroll. Approximately 30 percent (\$19.5 million) of material and supply purchases will occur within Kern County. These estimates are in 2008 dollars. The labor income and materials spending related to the Project will represent a permanent economic benefit to Kern County.

Project operation is not expected to result in substantial and long-term disruptions to area businesses. Most businesses near the Project Site are located over 52 miles southeast of the Project Site, in the unincorporated community of Tupman. Due to the distance from the businesses to the Project Site, disruptions to area businesses will be less than significant. Other impacts to the Kern County economy due to Project operations (increased number of jobs, labor income, and spending) will benefit the Kern County economy.

Indirect and Induced Economic Impacts

Construction

Construction activity will result in secondary economic benefits (indirect and induced) within Kern County. Secondary employment effects will include indirect employment due to the purchase of goods and services by firms involved with construction, and induced employment due to construction workers spending their income in their local area. Secondary impacts were estimated using IMPLAN[®] economic modeling software, an input/output model specific for Kern County.

Estimated secondary effects of construction that will occur within Kern County will be more than 4,000 jobs, approximately \$209 million in labor income, and approximately \$638 million in economic output², based on 2008 dollars. These beneficial effects of the Project will be temporary, occurring over the 44-month site preparation, construction, and commissioning/start-up period, and will lag behind the direct effects of construction by approximately 6 to 12 months. These economic benefits will result in less-than-significant impacts.

Operation

Similar to construction, operation of the Project will result in indirect and induced economic impacts that will occur within Kern County. Indirect and induced impacts were estimated using IMPLAN for Kern County. Unlike indirect and induced impacts from construction, indirect and induced impacts from operation will represent permanent increases in area economic variables, but will still lag behind direct effects by approximately 6 to 12 months.

Estimated indirect and induced effects of annual operation in Kern County will be approximately 55 additional jobs, \$2 million in annual labor income, and \$7 million in annual output, based on 2008 dollars. These economic effects will represent a long-term economic benefit to Kern County. No adverse significant impacts will result from indirect or induced economic effects related to Project operations.

² Output includes spending for materials and supplies (non-labor costs), plus value added, which is comprised of employee compensation, proprietary income, other property income, and indirect business taxes.

Population

Construction

The Applicant estimated that approximately 60 percent of the construction workforce will originate from the Kern County labor force. Although non-local workers do not typically permanently relocate to a project area due to the temporary nature of construction, it is possible that a few workers could relocate to communities near the Project Site due to the length of the site preparation and construction period (44 months). It is assumed for the purposes of this analysis, as a worst-case scenario, that one-quarter of the non-local workers (81 workers) will relocate to Kern County. The remaining 75 percent (242 workers, on average) of non-local workers will commute on a daily or weekly basis.

Under the assumption that 81 workers (one quarter of the non-local workers) will relocate to Kern County, population in communities near the Project Site will increase by approximately 253 people.³ A gravity model was used to approximate to where the 253 people will relocate, within Kern County. A gravity model is based on the concept that where people locate is directly related to the population of the chosen community and indirectly related to the distance from the Project Site. The gravity model included incorporated cities in Kern County.

The results of the gravity model indicate that the majority of the 253 people will locate in Bakersfield (188 people), Taft (15 people), Shafter (13 people), Wasco (12 people), and Delano (11 people). This population impact will represent a less-than-significant impact upon the Kern County population because the worst-case scenario of 253 new Kern County residents will result in population changes of less than 0.2 percent in individual Kern County communities. The temporary nature of construction means that even the estimate of 253 people relocating is a worst-case scenario and will not represent a significant increase in local population. Impacts will be less than significant.

Operation

The Project will require 100 full-time employees during operation. The Applicant anticipates that approximately 60 percent of operations employees will originate from the Kern County labor force. The remaining employees will originate outside of Kern County. Of the 40 percent non-local workers (40 workers), it is assumed for the purposes of this analysis that half (20 employees) will relocate to Kern County. The other half (20 employees) will commute on a daily or weekly basis.

Under the assumption that 20 employees (one-half of the non-local workers) will relocate to Kern County, population in communities near the Project Site will increase by approximately 63 people⁴ A gravity model was used to estimate the locations to which the 63 people will relocate. The results of the gravity model indicate that the majority of the new population of 63 will locate in Bakersfield (47 people), Taft (4 people), Wasco (3 people), Shafter (3 people), and

³ This estimate is based on a 2006 household size of 3.13 for Kern County (U.S. Census Bureau 2006).

⁴ This estimate is based on a 2006 household size of 3.13 for Kern County (U.S. Census Bureau 2006).

Delano (3 people). These population changes will represent a less-than-significant impact upon the Kern County population because the worst-case scenario of 63 new Kern County residents will result in population changes of less than 0.05 percent in individual Kern County communities. Even if the population changes due to construction were to occur at the same time as the population changes due to operation, the greatest population change to an individual community will be an increase in population of 0.2 percent in the unincorporated community of Taft, which will not represent a significant increase in population. Impacts will be less than significant.

Housing

Construction of the Project (due to its temporary nature) will not displace a large number of people, disrupt or divide an established community, or cause any substantial permanent population increase or changes in concentration of population. As a worst-case scenario, 81 workers and their families could require permanent housing in Kern County communities. Based on a vacancy rate of 10.0 percent and a housing unit supply of 270,616 in Kern County in 2007, an estimated 27,000 housing units are available. Using the same methodology, 6,280 housing units are available in Bakersfield. The increased demand for housing (under the worst-case assumption that 81 new units will be needed) will be spread out among communities and will represent a less-than-significant impact because a more-than-adequate nearby housing supply exists.

The Project will employ 100 full-time employees during operations. The 20 employees and their families who could relocate will require housing. Based on the housing supply and vacancy rates in Kern County and Bakersfield, less-than-significant impacts to available housing are expected to occur from operations.

Approximately 5,200 hotel or motel rooms exist in metropolitan Bakersfield, as discussed in Section 5.8.1.2, Population, Housing, and Demographics, to serve the non-local or local construction workers and operations employees who choose to commute on a weekly basis (stay in local lodging Monday through Friday). Approximately 1,000 rooms are within 30 minutes of the Project Site, with 283 rooms in the Buttonwillow area. The most recent annual occupancy estimate is 63.5 percent occupancy for Bakersfield hotels for calendar year 2007 (Lyman 2008). Construction and operation of the Project is not expected to substantially increase the demand for temporary lodging in the Project Site area. Given the expected low demand for temporary lodging and the relatively large availability of nearby hotel and motel rooms, impacts related to the availability of hotels or motels will be less than significant.

Public Services and Utilities

Fire Protection and Emergency Response

The KCFD will provide fire protection services to the Project. KCFD is adequately staffed and equipped to serve the additional population associated with Project construction and operation (Marshall 2008). The response time from the closest fire station, Fire Station Number 25, located at 100 Mirasol Avenue in Buttonwillow, is approximately 10 to 12 minutes (Massey

2009). The potential for increased fire protection calls is not expected to induce substantial additional demand on the local fire department that could not be met by current staff.

The fire protection program for the Project will include fire prevention and protection measures, as described in more detail in Section 2.4.11, Fire Protection, of the Project Description. Emergency services will be coordinated with the local fire department and hospital. An urgent care facility will be contacted to set up non-emergency physician referrals. First-aid kits will be provided around the Project Site and regularly maintained. At least one person trained in first aid will be part of construction staff upon mobilization. Fire extinguishers will be located at strategic locations throughout the Project Site, at all times during construction.

The fire protection and suppression systems will comply with applicable city, state, and national codes, insurer requirements, and industry standards, and will also comply with the Fire Protection Program. Section 2.4.11, Fire Protection, includes detailed information on the Fire Protection Program, including applicable LORS. The potential for increased fire protection calls is not expected to induce substantial additional demand on local fire departments that could not be met by current staff.

Hall Ambulance Service provides emergency ambulance services to the majority of Kern County and will respond to a situation at the Project Site that requires ambulance service (Hall Ambulance 2008). The ambulance response time to the Project Site would be approximately 20 to 25 minutes (Hall Ambulance 2009).

Thus, impacts to fire protection services and emergency response are expected to be less than significant.

Law Enforcement

The Kern County Sheriff's Department (KCSO) will provide law enforcement services to the Project. KCSO could not estimate an expected response time to the Project Site, but KCSO has staff and equipment to adequately serve the additional population associated with Project construction and operation (KCSO 2009 and Downs 2008). In addition, it is not expected that the potential for increased police service calls will induce substantial additional demand on law enforcement agencies that could not be met by current staff. The Applicant will put in place a security system at the Project Site. Thus, impacts are expected to be less than significant.

Schools

Individual schools are not expected to experience a substantial impact due to the low number of expected new residents resulting from Project construction and operation, and because the new families who could potentially relocate will likely spread out among school districts. An estimated maximum of 46 worker-families during construction and 40 employee-families during operation will relocate. Approximately 29 (construction) and 25 (operation) additional school children could require educational services.⁵ Taft Union High School and Elk Hills Elementary

⁵ The estimates of school children are based on 0.631 children between the ages of 5 and 17 per household in Kern County in 2006 (U.S. Census Bureau 2006).

school districts will be able to accommodate the additional school children in these families (Gregory 2009, Clark 2009). The Elk Hills Elementary School District is the district with the lowest enrollment, and could experience a less-than-significant impact if some of the families choose to relocate in Tupman. The number of families that will relocate to Tupman will likely be small, based on the findings of the gravity model. The impacts to local school districts are expected to be less than significant due to the low number of new students in any one school district that will be associated with the Project. The Elk Hills Elementary School District and Taft Union High School District do not have developer school impact fees (TUHSD 2008, KCSPi 2008).

Medical Facilities

Emergency services will be coordinated with the local fire department and hospital. An urgent care facility will be contacted to set up non-emergency physician referrals. First-aid kits will be provided around the Project Site and regularly maintained. At least one person trained in first aid will be part of construction staff upon mobilization. Fire extinguishers will be located at strategic locations throughout the Project Site, at all times during construction.

The medical facilities listed in Section 5.8.1.3, Public Services and Utilities, and Table 5.8-7, Hospitals, could accommodate the increase in demand for services associated with the construction workforce and operations workforce. In addition, see Section 5.7, Worker Safety and Health, for a discussion of worker health and safety. Project construction and operation could result in an additional 144 residents (construction) and 125 residents (operation) in Kern County. The majority of these new residents are estimated to locate in Bakersfield, with small numbers of new residents in the cities of Taft, Wasco, Shafter, and Delano. The impact upon area hospitals will be less than significant.

Utilities

Construction

During construction, temporary utilities will be provided for the construction offices, laydown area, and Project Site. Temporary construction power will be initially generator-powered and will transition to utility-furnished power.

Storm water and natural runoff from off site will be directed through channels or culverts around the Project Site boundary.

For construction activities such as hydrotesting of the heat recovery system generators (HRSGs) and associated piping, a maximum daily water usage is estimated at 85,000 gallons. The hydrotesting of the HRSG and other piping is normally done toward the end of Project construction after the mechanical construction is complete. The hydrotest water will be sampled and tested. Water with suitable chemistry will be routed to the storm water retention basin. Water that is not suitable for routing to the retention basin will be transported by truck to an appropriately licensed off-site treatment or disposal facility. Consequently, impacts to utilities during construction of the Project will be less than significant.

Operation

The BVWSD will supply brackish groundwater to the Project. The Project will treat this impaired water supply on site to increase quality to Project standards, and will use the water for non-sanitary water consumption needs. The West Kern Water District will supply potable water to the Project Site from its location near the SR 119/Tupman Road intersection, southeast of the site.

No municipal sanitary wastewater system is available in the immediate area to serve the Project. Sanitary wastewater from plant restrooms and other facilities will be disposed of in an on-site leach field, as discussed in Section 5.14, Water Resources. Because the septic tank and leach field will be constructed in ground that has been determined to be acceptable by a percolation test, the impact will be less than significant.

Fiscal Impacts

Property Taxes

The current property tax rate for the Project Site, ATNs 159-040-18-00-2 and 159-040-16-00-6, is 1.073041 percent. The current assessed value of the Project Site ATNs is \$1,501,176. Therefore, the Project is estimated to annually yield approximately \$15,970 in local property tax revenues to the county. This amount represents less than 0.01 percent of the county's total property tax revenue for the 2006-2007 fiscal year.

The value for the property will be reassessed as new construction occurs on the property. According to the allocation of taxes for the Project Site ATNs, the General Local Government (1.000000 percent) and Kern County WA ZN 19 Debt (0.012211 percent) will be the largest beneficiaries of the property tax revenue, as shown in Table 5.8-10, Assessors Tax Numbers 159-040-18-00-2 and 159-040-16-00-6 Property Tax Allocation, Fiscal Year 2008-2009.

Sales Taxes

Sales tax revenues for Kern County will increase as a result of (1) local equipment and supply purchases for Project construction and operation, and (2) construction and operation worker purchases (i.e., gas, food, and lodging).

The Project is expected to generate approximately \$5.4 million in taxable sales (7.25 percent sales tax multiplied by \$75 million worth of locally purchased materials) during Project construction. Most of this revenue, \$4.7 million, will go to the state of California. An estimated \$750,000 will be retained within Kern County.

The Project is expected to generate approximately \$942,500 in sales tax revenue (7.25 percent sales tax on \$13 million worth of locally purchased materials) during its first year of operation. Most of this revenue, \$812,500, will go to the state of California. An estimated \$130,000 will be retained within Kern County.

Environmental Justice

In recent environmental justice analyses, the CEC has used consistent methodology under U.S. Environmental Protection Agency (USEPA) guidelines. Under current USEPA methodology and CEC practice, for potential environmental justice impacts to exist, an environmental justice population must be present within 6 miles of the Project Site and the Project must result in “high and adverse” environmental impacts that affect the environmental justice populations disproportionately. As the discussion below demonstrates, the Project will not have “high and adverse” environmental impacts that affect the environmental justice populations disproportionately.

Potential environmental justice populations are defined as areas where the minority or low-income population percentage is meaningfully greater than the minority or low-income population percentage in the general population, according to CEC guidance. For the purposes of this analysis, “meaningfully greater” is defined as approximately 10 percentage points greater than the county-wide average. This threshold figure with respect to the Project Site would be any minority population greater than 61 percent, which would be 10 percentage points greater than the Kern County minority population of 51 percent, and a low-income population of 31 percent, which would be 10 percent greater than the Kern County low-income population of 21 percent. In determining whether a population qualifies as an environmental justice community, census tract demographic data are typically reviewed.

There are two census tracts partially within a 6-mile radius of the Project Site. These census tracts and their distance to the Project Site are depicted in Figure 5.8-2, Census Tracts within a 6-Mile Radius of the Project Site. Neither of these census tracts has a total minority population greater than 61 percent. Census tract 33.04 has a minority population of 30 percent and census tract 37.00 has a minority population of 58 percent. Similarly, neither of these census tracts was identified as having a low-income population greater than 31 percent. Census tract 33.04 has a low-income population of 13 percent and census tract 37.00 has a low-income population of 27 percent. Therefore, these census tracts as a whole do not qualify as having environmental justice populations in comparison to the general (countywide) population.

While the two census tracts located within 6 miles of the Project Site do not qualify as having environmental justice populations (according to the CEC methodology described above), it is acknowledged that there could be concentrations of minority or low income persons within the study area census tracts. For example, a portion of the community of Buttonwillow is located within a 6-mile radius of the Project Site. The community of Buttonwillow could be considered an environmental justice community because of its percentage of minority population. In 2000, the community of Buttonwillow had a population that was approximately 75 percent minority. Because of the high proportion of minority residents in this community, the Project performed an evaluation to determine whether or not Buttonwillow might be disproportionately affected by the project and concluded, as discussed below, that this population would not be disproportionately affected by any significant and adverse impacts associated with the Project.

This Revised AFC contains a detailed analysis of the Project’s potential to result in adverse impacts on the surrounding community, including the community of Buttonwillow. It concludes that with proper design and implementation of proposed mitigation measures, the Project will not

result in any significant impacts. The following is a summary of the analysis completed in certain areas that are typically the focus of an environmental justice evaluation.

As discussed in Sections 5.1, Air Quality, and 5.6, Public Health, HEI has analyzed the potential for the Project's air emissions to have an adverse impact on the surrounding community. This included an analysis of "criteria air pollutants," which are ubiquitous pollutants produced by combustion processes, including nitrogen oxides, sulfur oxides, and particulate matter, amongst others. At certain concentrations, criteria air pollutants can result in adverse health impacts, such as exacerbation of respiratory conditions, including asthma. HEI also analyzed "toxic air contaminants," which are pollutants emitted in much smaller quantities. At certain concentrations, toxic air contaminants can pose a risk of cancer and certain non-cancer health effects.

The Project includes a number of design features to reduce the emissions of both criteria air pollutants and toxic air contaminants. For example, the emissions from the Project will be controlled by the use of Best Available Control Technology and further mitigated through the purchase of emissions offsets. The analysis demonstrates that the Project's emissions of criteria air pollutants would not result in a new exceedance, or contribute to an existing exceedance, of either the state or federal ambient air quality standards. These standards are set at a level necessary to protect public health from the potentially adverse impacts associated with criteria pollutants. The Project also would not result in emissions of toxic air contaminants that would increase the ambient cancer risk, or result in increases in non-cancer health effects, above established significance thresholds. Therefore, no further mitigation of emissions from the Project is required to protect public health.

As discussed in Section 5.5, Noise, acoustical calculations were performed to evaluate noise impacts associated with the Project. Extensive noise control features incorporated into the Project design ensure that Project operations will result in less than significant noise impacts.

As discussed in Section 5.10, Traffic and Transportation, with proposed mitigation, the Project is not expected to have a significant impact on traffic or transportation. Furthermore, the majority of construction and operation related trips will not be routed through the community of Buttonwillow. As a result, no significant traffic impacts are anticipated during Project construction or operation, and no disproportionate impacts would be experienced in Buttonwillow.

In summary, the Project is designed to employ state-of-the art environmental controls and the Project will employ mitigation measures that will reduce any potential impacts to a less-than-significant level. Consequently, no significant and adverse impacts would occur that could disproportionately impact any minority or low-income populations within the 6-mile radius of the Project, including the community of Buttonwillow. In addition, as discussed further in this section, the Project is expected to have a positive economic impact on the surrounding area.

5.8.3 Cumulative Impacts Analyses

Cumulative impacts were assessed by reviewing other construction projects proposed within the Project Site vicinity, where overlapping construction schedules will create a demand for workers

that may not be met by the labor force in Kern County. Seven proposed developments within 6 miles of the Project Site may affect construction workforce availability. These proposed developments are listed in Table 5.8-12.

These developments could temporarily deplete certain types of trade labor. However, these impacts are not considered significant because of the specialized nature of power plant construction and because there is a large supply of construction workers and laborers within Kern County, which could be supplemented by the Los Angeles County labor force. Therefore, cumulative impacts during construction will be less than significant.

Similarly, 100 new permanent operations personnel originating from Kern County is not expected to result in cumulatively significant impacts.

**Table 5.8-12
Proposed Developments Within a 6-Mile Radius of the Project Site**

Project Location	Project Description
At the intersection of Dairy Road and Adohr Road in the unincorporated area of Kern County.	A conditional use permit to establish a 121 acre dairy and 935 acre crop area.
At the intersection of 7th Standard Road and Brandt Road in the unincorporated area of Kern County.	A conditional use permit to establish a 589 acre dairy and 1,973 acre crop area.
On Tracy Avenue in the community of Buttonwillow.	A development for a “La Quinta” hotel.
345 Driver Road in the unincorporated area of Kern County.	A development for a concrete batch plant.
At the intersection of 7th Standard Road and Enos Lane in the unincorporated area of Kern County.	A development for retail/restaurants.
At Taft Landfill located on Elk Hills Road.	A modified conditional use permit to vertically expand an existing landfill.
At the intersection of Highway 43 and County Triangle Road.	A development for a lumber truss manufacturing/warehouse.

5.8.4 Mitigation Measures

No potentially significant adverse impacts were identified. Therefore, no mitigation measures are necessary.

5.8.5 Laws, Ordinances, Regulations, and Standards

Federal, state, and local LORS applicable to the Project are listed in Table 5.8-13, Summary of LORS – Socioeconomics/Environmental Justice, and discussed below.

**Table 5.8-13
Summary of LORS – Socioeconomics/Environmental Justice**

LORS	Applicability	Administering Agency	AFC Section
Federal Jurisdiction			
Executive Order 12898	Agencies are required to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.	USEPA	Section 5.8.5
State Jurisdiction			
Government Code §65996-65997	Includes provisions for levies against development projects in school districts.	CEC	Section 5.8.5
Government Code §65302	Kern County has a general plan to guide the development of the area over which it has jurisdiction.	CEC	Section 5.8.5
Local Jurisdiction			
Kern County	The Project is consistent with a goal of the Kern County General Plan Land Use Element.	Kern County	Section 5.8.5

Notes:

- AFC = Application for Certification
- CEC = California Energy Commission
- LORS = laws, ordinances, regulations, and standards
- USEPA = U.S. Environmental Protection Agency

Federal

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations” requires USEPA to develop environmental justice strategies. As a result of the Executive Order, the USEPA issued guidelines requiring federal agencies and state agencies receiving federal funds to develop strategies to address environmental justice issues (USEPA 1998). The agencies are required to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

State

California Government Code §65302 requires each city and county to adopt a general plan that contains seven mandatory elements to guide the area’s physical development. Kern County manages the county’s development through the Kern County General Plan.

California Government Code §65996-65997 (amended by Senate Bill 50) states that public agencies may not impose fees, charges, or other financial requirements to offset the cost for school facilities. However, the code does include provisions for levies against development projects near schools. School fees are paid directly to the school district and a receipt shown to the permit center technician.

Local

The Project Site is located in an unincorporated area of Kern County. The Kern County General Plan does not contain an economic development element. The Kern County General Plan establishes goals and policies to address the county’s land use and development in the Land Use, Open Space, and Conservation Element. A goal of the Land Use, Open Space, and Conservation Element is to “provide for mixed land uses that offer a variety of employment opportunities and enhance the County’s economic assets to allow the capture of regional growth,” (Kern County General Plan 2004). The Project is consistent with this land use goal because the Project will make a positive contribution to Kern County’s economy, through purchasing Project materials locally and hiring locally.

5.8.6 Involved Agencies and Agency Contacts

Various public service agencies were contacted in the course of the socioeconomic investigation to check on levels of activity and expected impacts of the Project. Table 5.8-14, Involved Agencies and Contacts, lists those agencies.

**Table 5.8-14
Involved Agencies and Contacts**

Subject	Agency	Contact/Title	Telephone
Education	Kern Union High School District	Dennis Scott, Assistant Superintendent	661-827-3127
Public Finance and Fiscal Issues (School Impact Fees)	Kern County Office of the Superintendent of Public Instruction	Chris Davis, Representative	661-636-4493
Fire Protection Services	Kern County Fire Department	Chris Stroub, Public Information Officer	661-330-0133
Emergency Services	Hall Ambulance	Mark Corum, Public & Media Relations Representative	661-716-4219
Law Enforcement	Kern County Sheriff’s Department	Sergeant Marty Downs	661-868-6391
Lodging	Bakersfield Visitors and Convention Bureau	David Lyman, Representative	661-852-7520

Sources: Scott 2008, Lyman 2008, Stroub 2008, Downs 2008, Hall Ambulance 2008, KCT 2008, KCSPI 2008.

5.8.7 Permits Required and Permit Schedule

No applicable permits related to socioeconomic are required.

5.8.8 References

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5.8 Socioeconomics/Environmental Justice

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5.8 Socioeconomics/Environmental Justice

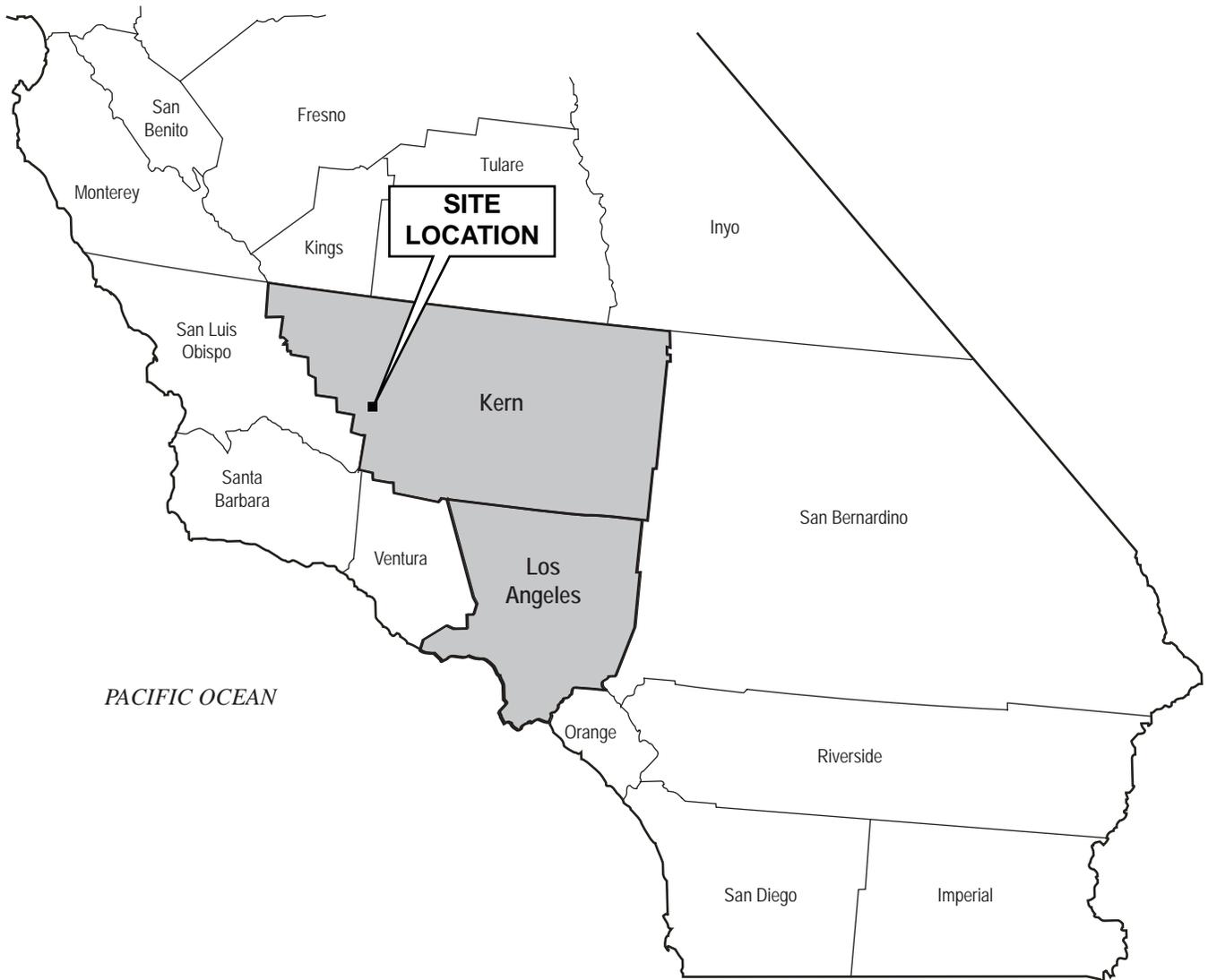
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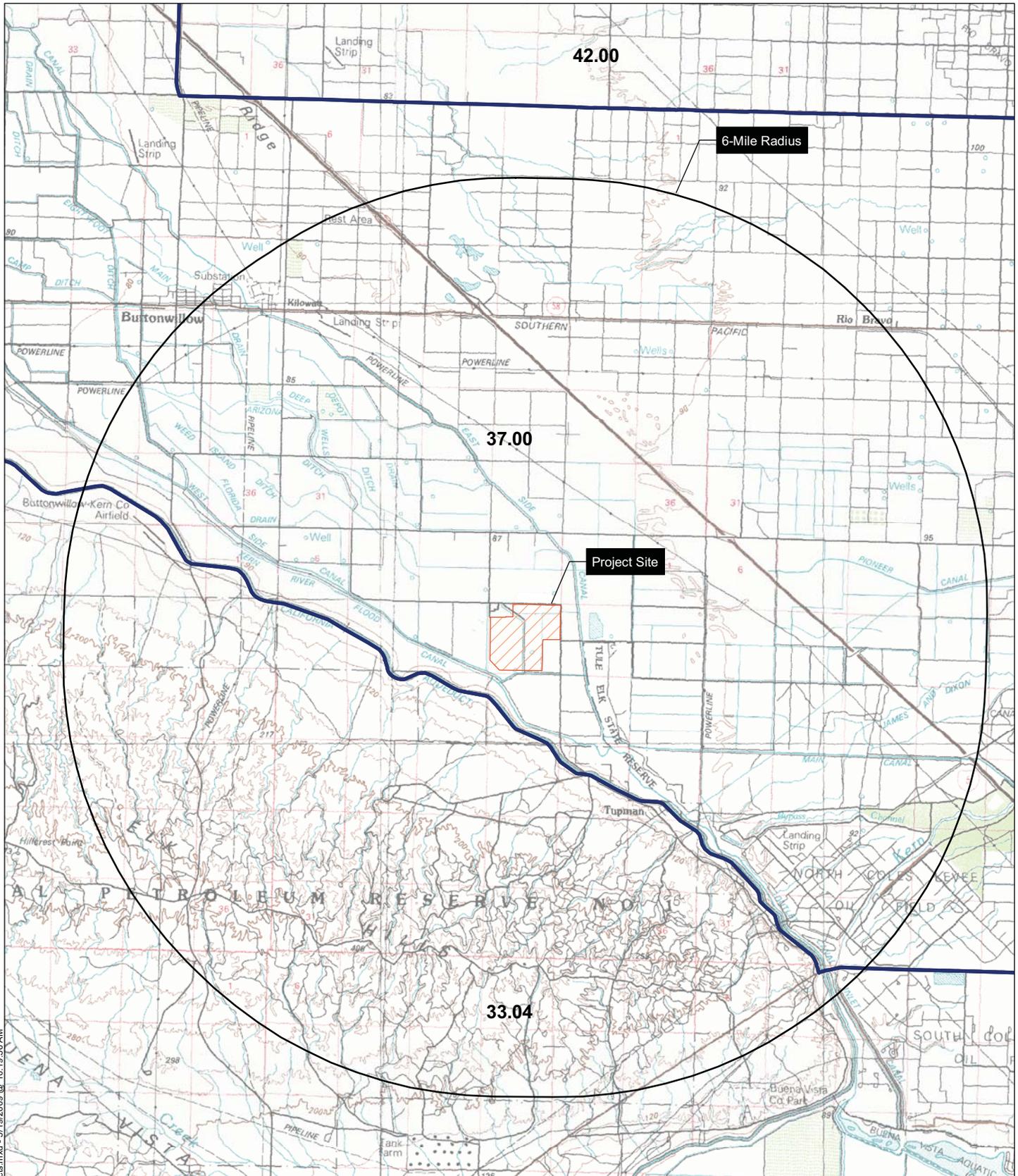


SOCIOECONOMIC STUDY AREA

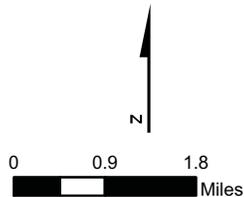
May 2009 Hydrogen Energy California (HECA)
 28067571 Kern County, California



FIGURE 5.8-1



-  Site Boundary
-  Census Tract Boundaries
- 3040 Census Tract



CENSUS TRACTS WITHIN A 6-MILE RADIUS OF THE PROJECT SITE

May 2009
28067571

Hydrogen Energy California Project
Hydrogen Energy International LLC
Kern County, California



FIGURE 5.8-2

5.8 Socioeconomics/Environmental Justice

Adequacy Issue: Adequate _____ Inadequate _____ DATA ADEQUACY WORKSHEET Revision No. 0 Date _____
 Technical Area: **Socioeconomics** Project: _____ Technical Staff: _____
 Project Manager: _____ Docket: _____ Technical Senior: _____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.	Section 5.8.1, p. 5.8-2 Section 5.8.2, p. 5.8-18 Section 5.8.3, p. 5.8-29 Section 5.8.4, p. 5.8-29		
Appendix B (g) (7) (A)	A description of the socioeconomic circumstances of the vicinity and region affected by construction and operation of the project. Include:	Section 5.8.1, p. 5.8-2		
Appendix B (g) (7) (A) (i)	The economic characteristics, including the economic base, fiscal resources, and a list of the applicable local agencies with taxing powers and their most recent and projected revenues;	Section 5.8.1.1, p. 5.8-3 Section 5.8.1.4, p. 5.8-16		
Appendix B (g) (7) (A) (ii)	The social characteristics, including population and demographic and community trends;	Section 5.8.1.2, p. 5.8-10		
Appendix B (g) (7) (A) (iii)	Existing and projected unemployment rates;	Section 5.8.1.1, p. 5.8-3		
Appendix B (g) (7) (A) (iv)	Availability of skilled workers by craft required for construction and operation of the project;	Section 5.8.2, p. 5.8-18		
Appendix B (g) (7) (A) (v)	Availability of temporary and permanent housing and current vacancy rate;	Section 5.8.1.2, p. 5.8-10		

SECTION FIVE

Environmental Information

Adequacy Issue: Adequate Inadequate DATA ADEQUACY WORKSHEET Revision No. 0 Date _____
 Technical Area: Socioeconomics Project: _____ Technical Staff: _____
 Project Manager: _____ Docket: _____ Technical Senior: _____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (7) (A) (vi)	Capacities, existing and expected use levels, and planned expansion of utilities (gas, water and waste) and public services, including fire protection, law enforcement, emergency response, medical facilities, other assessment districts, and school districts. For projects outside metropolitan areas with a population of 500,000 or more, information for each school district shall include current enrollment and yearly expected enrollment by grade level groupings, excluding project-related changes for the duration of the project schedule.	Section 5.8.1.3, p. 5.8-13		
Appendix B (g) (7) (B)	A discussion of the socioeconomic impacts caused by the construction and operation of the project (note year of estimate, model, if used, and appropriate sources), including:	Section 5.8.2, p. 5.8-18		
Appendix B (g) (7) (B) (i)	An estimate of the number of workers to be employed each month by craft during construction, and for operations, an estimate of the number of permanent operations workers during a year;	Section 5.8.2, p. 5.8-18		
Appendix B (g) (7) (B) (ii)	An estimate of the percentage of non-local workers who will relocate to the project area to work on the project;	Section 5.8.2, p. 5.8-18		
Appendix B (g) (7) (B) (iii)	An estimate of the potential population increase caused directly and indirectly by the project;	Section 5.8.2, p. 5.8-18		
Appendix B (g) (7) (B) (iv)	The potential impact of population increase on housing during the construction and operations phases;	Section 5.8.2, p. 5.8-18		

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SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (7) (B) (v)	The potential impacts, including additional costs, on utilities (gas, water, and waste) and public services, including fire, law enforcement, emergency response, medical facilities, other assessment districts, and school districts. Include response times to hospitals and for police, and emergency services. For projects outside metropolitan areas with a population of 500,000 or more, information on schools shall include project-related enrollment changes by grade level groupings and associated facility and staffing impacts by school district during the construction and operating phases;	Section 5.8.2, p. 5.8-18		
Appendix B (g) (7) (B) (vi)	An estimate of applicable school impact fees;	Section 5.8.2, p. 5.8-18		
Appendix B (g) (7) (B) (vii)	An estimate of the total construction payroll and separate estimates of the total operation payroll for permanent and short-term (contract) operations employees;	Section 5.8.2, p. 5.8-18		
Appendix B (g) (7) (B) (viii)	An estimate of the expenditures for locally purchased materials for the construction and operation phases of the project;	Section 5.8.2, p. 5.8-18		
Appendix B (g) (7) (B) (ix)	An estimate of the capital cost (plant and equipment) of the project;	Section 5.8.2, p. 5.8-18		
Appendix B (g) (7) (B) (x)	An estimate of sales taxes generated during construction and separately during an operational year of the project;	Section 5.8.2, p. 5.8-18		
Appendix B (g) (7) (B) (xi)	An estimate of property taxes generated during an operational year of the project; and	Section 5.8.2, p. 5.8-18		

SECTION FIVE

Environmental Information

Adequacy Issue: Adequate _____ Inadequate _____ DATA ADEQUACY WORKSHEET Revision No. 0 Date _____
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 Project Manager: _____ Docket: _____ Technical Senior: _____

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (7) (B) (xii)	The expected direct, indirect, and induced income and employment effects due to construction, operation, and maintenance of the project.	Section 5.8.2, p. 5.8-18		
Appendix B (i) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and	Section 5.8.5, p. 5.8-29		
Appendix B (i) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	Section 5.8.7, p. 5.8-31		
Appendix B (i) (2)	The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.	Section 5.8.6, p. 5.8-31		

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Adequacy Issue: Adequate _____ Inadequate _____ DATA ADEQUACY WORKSHEET Revision No. 0 Date _____
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SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (i) (3)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	Section 5.8.7, p. 5.8-31		