22 REQUIRED CEQA ANALYSES

22.1 CUMULATIVE IMPACTS

The California Environmental Quality Act (CEQA) Guidelines require that all Environmental Impact Reports (EIR) contain an analysis of cumulative impacts to which the project might contribute. An EIR must discuss the "cumulative impact" of a project when its incremental effect would be cumulatively considerable. State CEQA Guidelines Section 15355 defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact "consists of an impact which is created as a result of the combination of the project evaluated in the EIR, together with other projects causing related impacts" [CEQA Guidelines Section 15130(a)(1)]. The discussion of cumulative impacts "shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone." [CEQA Guidelines Section 15130(b)] By requiring an evaluation of cumulative impacts, CEQA attempts to minimize the possibility that an EIR will overlook large-scale environmental impacts by only focusing on the effects of a single project.

Further, the CEQA Guidelines state "[l]ead agencies should define the geographic scope of the area affected by the cumulative effect and provide a reasonable explanation for the geographic limitation used" [Section 15130(b)(3)]. The cumulative impacts analysis "shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects" [CEQA Guidelines Section 15130(b)(5)].

CEQA requires that one of two methods of establishing a future baseline be used:

1. A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or
2. A summary of projections contained in an adopted General Plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency (CEQA Guidelines, Section 15130 (b)(1)).

The CEQA Guidelines definition of probable future projects includes "projects included in an adopted capital improvements program, General Plan, Regional Transportation Plan, or other similar plan or included in a summary of projections of projects (or development areas designated) in General Plans or similar plans, and those projects anticipated as a later phase of a previously approved project (e.g., a subdivision)" [Section 15130(b)(1)(B)(2)]. Considering the proposed 2030 Merced County General Plan (2030 General Plan) is a countywide planning document, this cumulative analysis combines impacts from implementation of the project in addition to development in adjacent counties and cities using a projections-based approach.

State CEQA Guidelines Section 15065(c) states that a mandatory finding of significance is required if the project would make a cumulatively considerable contribution to a cumulative impact. The importance of a project's contribution must be viewed in the context of the cumulative effect. Case law has held that even a small contribution may be cumulatively considerable if the cumulative effect

is particularly acute (Communities for a Better Environment v. California Resources Agency (2002) 103 Cal.App.4th 98).

In summary, to be consistent with the requirements of CEQA, an assessment of cumulative effects must contain the following elements:

- The geographic scope of the expected cumulative effects;
- A list of past, present, and probable future projects, or an adopted projection of projects, that contribute to cumulative effects;
- A summary of expected cumulative effects; and
- A reasonable analysis of the cumulative effects of the cited projects.

Following is a discussion of these required elements.

22.1.1 DEFINITION OF GEOGRAPHIC SCOPE OF CUMULATIVE IMPACTS ANALYSIS

In general, the geographic scope for this cumulative impacts analysis includes Merced County, the incorporated cities within Merced County, and the adjacent counties (including their incorporated cities). Listed below and set forth in Table 22-1 are the cities and counties used in this analysis, along with the year of their adopted General Plan. Some cumulative issue areas have a larger geographic scope, including air quality and watershed-level hydrologic effects. For each cumulative environmental issue area discussed, the issue-specific cumulative geographic scope is identified.

CITY GENERAL PLANS – WITHIN MERCED COUNTY

- The City of Los Banos adopted their updated 2030 General Plan in June 2009. The Los Banos 2030 General Plan focuses the majority of new growth to the northwest, west and south of the existing city. It considered a buildout population of 90,400 by 2030.
- The City of Livingston approved its 2025 General Plan in 2008, but the plan was repealed as a result of litigation. The 1999 General Plan is in force, and it predicted a buildout population of 23,000 by 2020.
- The City of Merced adopted the Merced Vision 2030 General Plan on January 3, 2012. The updated 2030 General Plan anticipates a population of over 155,000 people.
- The City of Dos Palos, located in southwestern Merced County, adopted the 2010 General Plan in 1991; it anticipated 19,667 residents by 2010.
- The City of Gustine last updated its 2020 General Plan in 2002, which anticipated a buildout population of 8,000 residents.
- The City of Atwater updated its general plan in 2000. The current 2000 General Plan anticipates a 20-year planning horizon and identifies the city's holding capacity as approximately 44,000 acres with 64,000 residents.

Table 22-1 Analysis Area for Cumulative Effects

Jurisdiction	General Plan Timeframe	General Plan Buildout Population	Jurisdiction General Plan EIR-Identified Significant Environmental Effects
Merced County			
Atwater	2000-2020	64,000	Not available.
Dos Palos	1991-2010	19,667	Not available.
Gustine	2002-2020	8,000	Conversion of agricultural land to non-agricultural uses. Mobile source and area source criteria air pollutants.
Livingston*	1999-2020	23,000	Criteria air pollutant emissions; agricultural land conversion.
Los Banos	2009-2030	90,400	Ag land conversion; loss of habitat and displacement of special status species; interference w/ wildlife movement; increased criteria air pollutant emissions.
Merced	2012-2030	155,000	Cumulative aesthetic impacts; conversion of farmland; conflict with agricultural zoning or Williamson Act; cumulative agricultural impacts; cumulative air quality impacts; groundwater supply; traffic noise; traffic LOS; cumulative greenhouse gas emissions.
Stanislaus County	1994-2015	709,100 = total 2015 population projection, (104,800) = unincorporated area	Not available.
Newman	2007-2030	45,703	Agricultural land conversion; conflict w/ agricultural zoning; conflict w/ Williamson Act contracts; cumulative agricultural impacts; increased air emissions and inconsistency w/ air quality attainment plans; cumulative air impacts; cumulative loss of habitat and displacement of special status species; increases in noise levels from traffic; adverse traffic levels of service on roadways within the city; cumulatively adverse levels of service on regional roadways; adverse traffic levels of service at intersections within the city; cumulative availability of groundwater.
Turlock	1992-2012	87,600	Traffic levels of service on roadways within the city; cumulatively adverse levels of service on SR 99; increased air emissions and inconsistency w/ air quality attainment plans; cumulative air impacts; cumulative loss of habitat and displacement of special status species; agricultural land conversion; adverse effects to groundwater quantity and quality; school overcrowding; increases in noise levels from traffic.
Tuolumne County	1995-2020	97,100	Not available.
Mariposa County	2006-2026	28,000	Conflicts with mineral resource production; traffic levels of service on local and state roadways; traffic levels of service at roadway intersections; school overcrowding; criteria pollutant air emissions.

Table 22-1 Analysis Area for Cumulative Effects

Jurisdiction	General Plan Timeframe	General Plan Buildout Population	Jurisdiction General Plan EIR-Identified Significant Environmental Effects
Madera County	1995-2010	177,071	Alterations in planned land use; adverse effects to SR 41, 99 and 145, and Road 426; cumulative groundwater quantity in valley and mountain areas; school overcrowding; agricultural land conversion; cumulative impacts to groundwater quality in mountain areas; loss of habitat and displacement of special status species; increases in noise levels from traffic.
Chowchilla	2010 - 2040	Existing = 18,698 residents, without prison = 11,138, and 2040 buildout = 56,256	Impacts from light and glare; loss and conversion of agricultural land; agricultural/urban interface conflicts; nuisance effects, restrictions on agricultural operations; conflict w/ agricultural zoning; conflict w/ Williamson Act contracts; obstruction of air quality plan; increase in criteria pollutants; inconsistency with MCTC and SJVUAPCD 2007 Ozone Plan; increase in groundwater use/overdraft conditions; loss of habitat and impacts to federally listed species; increased solid waste collection and disposal demands; climate change effects, including GHG emissions.
Fresno County	2000-2020	1,113,790	Farmland conversion; reduction in agricultural production; cancellation of Williamson Act Contracts; traffic; transit; bicycle facilities; wastewater treatment facilities; storm drainage facilities; flooding; police protection; fire protection; emergency response services; park and recreation facilities; library services; public services; unidentified cultural resources; water supply; groundwater; water quality; biological resources; mineral resources; air quality; hazardous materials; noise; and visual quality.
San Benito County	1992 - 2002	159,361	Not available.
Santa Clara County	1995-2010	1,800,000	Cumulative traffic congestion; substantial damage and loss of life from earthquakes; cumulative school capacity; cumulative loss or disruption of cultural resources.

Note: * The Livingston GPU was approved in 2008, but is being litigated. The 1999 General Plan is therefore in force.
Sources: General Plan EIRs for all cities and counties listed; various dates as set forth in table.

CITIES AND COUNTIES OUTSIDE OF MERCED COUNTY

- **Fresno County General Plan (2000).** Fresno County is located to the southwest of Merced County in a largely agricultural area with rangeland extending into the Coast Range. Fresno County experienced a large increase in population and development prior to 2008, especially in its 15 incorporated cities. The Fresno County General Plan was last updated in October 2000. The 2020 General Plan was designed to accommodate an additional 1,113,790 residents by the year 2020.
- **Mariposa County General Plan (2006).** Mariposa County is located to the east of Merced County. Mariposa County consists of relatively isolated rural communities, with no incorporated cities. The western edge of the county consists of foothills on the edge of the San Joaquin Valley. The eastern edge of the county extends into the Sierra Nevada and Yosemite National Park.
- **Madera County General Plan (1995).** Madera County borders Merced County to the southeast. Madera County stretches from the center of the San Joaquin Valley floor to the western slopes of the Sierra Nevada, with predominately agricultural lands in between. Madera County is less populous and more rural than Merced County, with just under 150,865 residents. The policies of the Madera County General Plan are designed to preserve the rural, agricultural character of the county while improving the county's economy. Madera County adopted a comprehensive update of its General Plan in October 1995.
- **San Benito County General Plan (1995).** San Benito County borders Merced County on the southwest along the Coast Ranges, which form the western boundary of the San Joaquin Valley. The area near the county line consists of rangeland and has little potential for other types of development, with the exception of areas near the City of Hollister within the northern portion of the county. There are no cities or unincorporated communities in the area adjacent to Merced County. The San Benito County General Plan was last updated in 1995. The County is currently updating its 2035 General Plan; completion is expected in summer 2012.
- **Santa Clara County General Plan (1994).** Santa Clara County is located to the northwest of Merced County along the Coast Range. The county is located at the southern end of the San Francisco Bay, and consists of a valley flanked by the Diablo Range on the east and the Santa Cruz Mountains on the west. The Santa Clara County General Plan was last updated in 1994. It includes policies for three major focus areas: countywide; rural unincorporated areas outside of cities; and the remaining unincorporated areas (called pockets and islands) within city Urban Service Areas. Santa Clara County has been a fast-growing county due to its location near the San Francisco Bay Area.
- **Stanislaus County General Plan (1994)** Stanislaus County is located to the north of Merced County. It has traditionally been an agricultural county, however in recent decades it has experienced increasing urban growth pressures. The Stanislaus County General Plan was last updated in 1994. It includes policies for designating growth patterns that are responsive to the physical characteristics of the land as well as to environmental, economic, and social concerns of county residents.

- **Tuolumne County General Plan (1996).** While Tuolomne County shares a common corner with Merced County to the northeast, there are no direct road connections between the two counties, nor is it within the watershed of the Merced River. It is therefore not considered further in this analysis.
- **City of Chowchilla General Plan (2011).** The City of Chowchilla is located 18 miles south of the City of Merced, along SR 99 in Madera County. The City of Chowchilla adopted the 2040 General Plan in May 2011. It considered the full buildout of the Rancho Calera Specific Plan, which includes approximately 576 acres that would result in approximately 2,042 dwelling units in addition to public parks and open space, commercial uses, and public facilities.
- **City of Newman General Plan (2007).** The City of Newman lies north of Merced County in Stanislaus County on SR 33. Newman abuts Merced County, and is three miles north of the City of Gustine. The City of Newman last updated its General Plan in 2007. The plan anticipates a population increase of up to 30,000 new residents, and up to 8,775 residential units.
- **City of Turlock General Plan (1993).** The City of Turlock is located in Stanislaus County along SR 99, approximately 26 miles north of the City of Merced. The City of Turlock updated its General Plan in 1993, and policies focused annexations and growth to four quadrants surrounding the city. The City of Turlock recently initiated a comprehensive update for its 2030 General Plan. Like the previous update, the 2030 General Plan will outline a broad range of policies related to growth, development, and conservation in the city. The City released a Draft General Plan in October 2011. A Draft EIR evaluating the October 2011 Draft General Plan was released on June 5, 2012 for a 45-day public review period. The City anticipates that the General Plan will be adopted in late 2012.

Future land use and growth projections are based on information provided in the General Plans for the counties and cities in the region. While buildout years for the counties and cities included vary, the growth identified in the planning documents represents maximum planned growth that can be accommodated in the area.

22.1.2 Analysis of Cumulative Effects

The following presents an assessment of the cumulative effects of implementing the proposed 2030 General Plan.

Aesthetics/Visual Resources

The environmental impact analysis presented in Chapter 5 of this Draft PEIR identified no potentially significant impacts that cannot be reduced to a less-than-significant level for visual resources.

Future growth in Merced County and development in cities within the county, and in surrounding cities and counties, would result in the intensification of existing urban uses as well as conversion of open space to urban land uses. These activities could degrade the existing visual character and quality of scenic resources. Visual changes would be most apparent in where development occurs in jurisdictions and areas that lack comprehensive design guidelines. Particularly in agricultural areas

with scattered development, there will be an incremental change in the visual character of that area. In addition, light pollution has the potential to become an issue of increasing concern in the cumulative region as new development contributes additional outdoor lighting installed for safety and other reasons. While future development in all jurisdictions would be subject to the California Building Code standards that would prevent potential impacts associated with light and glare, glow effects could occur in previously dark areas. This would be a significant cumulative effect.

Proposed development within unincorporated new urban communities and elsewhere within Merced County outside of city boundaries would be subject to standard design review, thereby lessening visual impacts. For potential visual effects within scenic highway corridors, the 2030 General Plan contains goals, policies, and implementation programs that would preserve the viewsheds within state scenic highway corridors, and approved and existing urban communities adjacent to scenic highways contain design guidelines, setback standards, and open space buffers that would minimize visual changes. For development within rural areas of Merced County, the 2030 General Plan establishes a framework of goals and policies that aims to balance agricultural and open space preservation with new development, and ensure that new development preserves and protects the aesthetic rural character of Merced County. Additionally, the 2030 General Plan proposes that less than two percent of the existing rural and agricultural land be developed through the life of the Plan. Finally, even though new development in Merced County, particularly within rural areas could increase the amount of light and glare that spills onto nearby sensitive land uses, mitigation measures identified in this Draft PEIR would reduce this potential effect to a less-than-significant level.

The goals and policies of the 2030 General Plan would act to minimize the amount of new urban development in unincorporated Merced County, especially in rural areas. The policies would additionally act to maintain visual quality in designated scenic highway corridors, would continue design review and requirements within designated urban areas, and would impose requirements to protect scenic quality within rural areas. Mitigation identified in this Draft PEIR would prevent light intrusion on sensitive resources. Thus, the 2030 General Plan goals and policies described in Chapter 5, and mitigation measures identified in this Draft PEIR would reduce and offset Merced County's contribution to cumulative impacts to aesthetic and visual resources from implementation of the 2030 General Plan to the significant cumulative loss of aesthetic quality. Therefore, Merced County's contribution to this significant cumulative loss of aesthetic quality is expected to be less than cumulatively considerable.

AGRICULTURAL RESOURCES

The environmental impact analysis presented in Chapter 6 of this Draft PEIR identified the following significant and unavoidable impacts for agricultural resources:

- Convert Important Farmland as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use – Development of Urban and Other Non-Agricultural Uses.
- Involve other land use changes that would result in conversion of farmland to non-agricultural uses from urban development.
- Involve other land use changes that would result in conversion of farmland to non-agricultural uses due to the Minor Subdivision of Rural Parcels.

Development under the 2030 General Plan in Merced County, in cities within the county, and in surrounding cities and counties would contribute to cumulative agricultural impacts. While the 2030 General Plan would limit new development in unincorporated rural areas outside of urban area boundaries, scattered farmland conversion may result over time from urban development within smaller designated urban areas. Agricultural parcels located near existing urban uses, specifically suburban areas, may have limited long-term viability for active agricultural activities due to urban edge conflicts. While the 2030 General Plan policies would promote the preservation of agricultural lands, the agricultural land use designations and the policies would not prevent the overall net loss of important farmlands within the county associated with future urban development within agricultural areas.

Although the 2030 General Plan goals and policies described in Chapter 6 would reduce and partially offset Merced County's contribution to these impacts, the contribution from implementation of the 2030 General Plan to the significant cumulative loss of agricultural resources is expected to be cumulatively considerable. No measures in addition to proposed 2030 General Plan policies and mitigation identified in this Draft PEIR are available and within the jurisdiction of Merced County to reduce the magnitude of this impact. Because the decisions of surrounding municipalities regarding conversion of agricultural land are outside the control of Merced County, this cumulative impact would be considered significant and unavoidable.

AIR QUALITY

The geographic scope for cumulative effects to air quality is the San Joaquin Valley Air Basin, which encompasses the larger San Joaquin Valley. The environmental impact analysis presented in Chapter 7 of this Draft PEIR identified the following significant and unavoidable impact to air quality:

- Increase in operational emissions of PM_{10} and $PM_{2.5}$ associated with General Plan buildout.

Since air quality protection and improvement is a major focus of the 2030 General Plan, the Air Quality Element includes goals and policies that would reduce air emissions from on-road vehicles, agricultural sources, and area sources. Buildout of the Merced County General Plan would generate operational emissions of ROG, NO_x, CO, and SO_x from on-road vehicles, agricultural sources, and area sources. Due to existing and expected improvements in emission control technology, these emissions would be less than significant. Because the increase in emissions of PM_{10} would exceed San Joaquin Valley Air Pollution Control District (SJVAPCD) significance criteria even after implementation of 2030 General Plan policies and mitigation, this would be a significant impact.

The SJVAPCD's Air Quality Plans establish the projections of air quality that would result from development within the air basin, and sets forth measures and strategies for attainment of federal air quality standards in the Air Basin. The Air Basin is in attainment for federal PM_{10} standards, and a $PM_{2.5}$ Plan is under development. The 2007 Ozone Plan anticipates attainment after 2020 but no later than 2023. The 2030 General Plan is generally consistent with the assumptions contained in the 2007 Ozone Plan. As discussed above, implementation of the 2030 General Plan is predicted to have net decreases in ROG, NO_x, and CO emissions despite increate vehicle miles traveled (VMT) due to existing and expected improvements in emission control technology. While additional development within incorporated municipalities and counties in the Air Basin would result in air pollutant emissions, such development would be subject to the requirements of the SJVAPCD.

Because $PM_{2.5}$ emissions would exceed SJVAPCD significance criteria, the 2030 General Plan would result in a cumulatively considerable contribution to cumulative operational air quality impacts. No measures in addition to proposed 2030 General Plan policies and mitigation identified in this Draft PEIR are available and within the jurisdiction of Merced County to reduce the magnitude of this impact. Therefore this cumulative impact would be significant and unavoidable.

BIOLOGICAL RESOURCES

The geographic scope for cumulative effects to biological resources is the San Joaquin Valley and the cities and counties adjacent to Merced County for those portions of adjacent counties on the valley floor and lower foothills. The environmental impact analysis presented in Chapter 8 of this Draft PEIR identified the following significant and unavoidable impacts to biological resources:

- Adverse effects to special status species and sensitive habitats.
- Adverse effect on wetlands, riparian habitat and other sensitive natural communities.

Cumulative impacts due to the development under the 2030 General Plan and in the cumulative impact area are expected to be similar in type to those listed above and discussed in Chapter 8 of the Draft PEIR. Because of the potentially greater land area that may be converted and unavailable to native species and their habitats, the magnitude of the cumulative impact is expected to be greater than for Merced County alone. Species and habitats potentially affected are also expected to be similar. There would be potentially significant cumulative impacts to all of the biological resource categories identified above.

Although 2030 General Plan goals and policies described in Chapter 8 would reduce and partially offset Merced County's contribution to this impact, the potential impacts to habitat and protected species throughout the San Joaquin Valley are expected to be cumulatively considerable. Therefore, the 2030 General Plan would make a cumulatively considerable contribution to this significant cumulative impact.

CULTURAL RESOURCES

Because impacts to cultural resources are isolated incidents that are project-specific, and generally do not contribute to a cumulative condition, the geographic scope for cumulative effects to cultural resources is unincorporated Merced County. Although the environmental impact analysis presented in Chapter 9 of this Draft PEIR identified potentially significant impacts to cultural resources, feasible mitigation measures identified in this Draft PEIR are available to reduce these significant impacts to less than significant.

As described in Chapter 9, implementation of the proposed 2030 General Plan would lead to development and the construction of infrastructure that could lead to substantial adverse changes in the significance of historical resources within the unincorporated county, and could cause a substantial adverse change in archaeological and paleontological resources, unique geological features, or disturbance of human remains. However, the 2030 General Plan contains goals and policies to protect known and unknown historic and cultural resources. This Draft PEIR additionally identifies feasible mitigation measures to reduce identified impacts to less than significant. Because of the goals and policies contained within the 2030 General Plan, coupled with

mitigation measures identified in this Draft PEIR, implementation of the 2030 General Plan would result in a less-than-significant cumulative effect.

GEOLOGICAL RESOURCES

The geographic scope for cumulative effects from geologic hazards is Merced County. Potential geologic hazards effects from implementation of the 2030 General Plan are described in Chapter 10 of this Draft PEIR. No potentially significant adverse effects were identified following implementation of 2030 General Plan goals and policies. Geologic conditions are highly localized. Because the geological hazard effects of the 2030 General Plan would be less than significant, implementation of the plan would not make a cumulatively considerable contribution to this less-than-significant cumulative effect.

GLOBAL CLIMATE CHANGE

Climate change is considered a global cumulative issue due to the nature of associated environmental changes. Chapter 11 of this Draft PEIR describes the 2030 General Plan contribution to global climate change, and is accordingly an analysis of the project's contribution to this cumulative impact. The State of California has adopted plans to reduce statewide greenhouse gas emissions in an effort to reduce the state's proportional share of such emissions and the adverse effects of global warming. While implementation of the goals and policies included in the 2030 General Plan would reduce Merced County's contribution to regional and global greenhouse gas emissions, the County's emissions reductions would be inconsistent with adopted state greenhouse gas emissions reduction targets, and regional increases in greenhouse gases and the County's contribution to them, would be considered significant and unavoidable. No measures in addition to those proposed in the 2030 General Plan policies and mitigation identified in this Draft PEIR are available and within the jurisdiction of Merced County to reduce the magnitude of this impact.

HAZARDS

The geographic scope for cumulative effects from hazards is Merced County. The environmental impact analyses for hazards and public safety are presented in Chapter 12 of this Draft PEIR. No potentially significant adverse effects were identified following implementation of 2030 General Plan goals and policies as amended by mitigation set forth in this Draft PEIR.

With the implementation of policies designed to reduce impact on emergency response services, development resulting from implementation of the 2030 General Plan would not result in traffic and congestion on roadways that would substantially increase the response times for emergency vehicles within the county, and in adjacent areas on roadways that serve Merced County traffic. New growth and development would not substantially delay emergency response or impair the implementation of an adopted emergency response plan. All impacts due to hazards are considered less than significant. Hazardous materials and other public health and safety issues are generally site-specific, and would not be significantly affected by other development in the region. Therefore, the 2030 General Plan's contribution to regionally significant cumulative impacts related to hazards and hazardous materials would be less than cumulatively considerable.

HYDROLOGY AND WATER USE

The geographic scope for cumulative effects to hydrology is the San Joaquin River Watershed. The environmental impact analysis presented in Chapter 13 of this Draft PEIR identified the following significant and unavoidable impact to water quality and hydrology:

- Substantially deplete groundwater supplies or interfere with groundwater recharge to the degree there would be continued aggravation of groundwater overdraft or a net reduction in aquifer volume that would negatively impact existing users or habitat needs.

Although the 2030 General Plan identifies a number of actions to be taken by the County and different entities within the county to preserve aquifer recharge areas and support groundwater recharge projects, many of the actions necessary to successfully manage water resources and use in the county are beyond the control of Merced County government. Due to the uncertainty of future water management efforts to be conducted by these many different entities, insufficient future groundwater supplies may be experienced in portions of the county. Future growth in the region, including cities and surrounding counties, could cumulatively lead to depletion of existing groundwater supplies. No measures in addition to proposed General Plan policies and mitigation identified in this Draft PEIR are available and within the jurisdiction of Merced County to reduce the magnitude of impacts related to groundwater overdraft. Therefore, the 2030 General Plan would make a cumulatively considerable contribution to this significant cumulative groundwater recharge impact.

Implementation of the 2030 General Plan and development in the region may alter local drainage and runoff; however, these impacts are generally localized and would not affect the larger watershed. Increased urbanization and associated traffic could result in additional impacts to water quality due to contaminated runoff, which could have a regional impact. Notwithstanding, compliance with Regional Water Quality Control Board regulations, such as applicable National Pollutant Discharge Elimination System permits and associated Best Management Practices, would minimize discharge of contaminated surface water as a result of development in cities and counties. Therefore, the 2030 General Plan would not make a cumulatively considerable contribution to this significant cumulative water quality impact.

Implementation of 2030 General Plan policies and actions would also reduce potential impacts related to flooding as a result of dam failure. . Although implementation of the 2030 General Plan and development in the region would result in development in floodplains, and levee and dam inundation areas, policies contained in the 2030 General Plan and mitigation identified in this Draft PEIR would result in a less-than-significant impact. Thus, implementation of the 2030 General Plan would not make a cumulatively considerable contribution to this significant cumulative flood impact.

LAND USE

The geographic scope for cumulative effects to land use is Merced County. Potential land use compatibility effects from implementation of the 2030 General Plan are described in Chapter 14 of this Draft PEIR. No potentially significant adverse effects were identified following implementation of 2030 General Plan goals and policies as amended by mitigation set forth in this Draft PEIR. Buildout of the 2030 General Plan and the development projected for the county's incorporated cities and the surrounding counties would result in substantial land use changes on the regional level,

including the physical division of communities within Merced County and adjacent counties with construction and operation of High Speed Rail. However, the proposed 2030 General Plan was designed specifically to achieve and promote consistency with the planning documents of other neighboring cities and counties. Therefore, the 2030 General Plan would make a less than cumulatively considerable contribution to this potentially cumulative land use compatibility impact.

NOISE

The geographic scope for cumulative effects to the noise environment is the Merced County region, including incorporated and unincorporated areas of Merced County and surrounding counties. The environmental impact analysis presented in Chapter 15 of this Draft PEIR identified the following significant and unavoidable impact due to noise:

- A substantial permanent increase in ambient noise levels in the project vicinity above levels without the project - Traffic noise level increases at existing sensitive uses caused by development consistent with the 2030 General Plan.

The proposed 2030 General Plan noise policies are considerably more comprehensive than the County's current Noise Policies, and provide a considerably greater degree of noise protection to citizens and business/industry within, and adjacent to, the county. Despite the implementation of noise abatement measures included in the 2030 General Plan and in this Draft PEIR, it is infeasible to ensure that existing sensitive uses would not be exposed to future noise levels exceeding the County's noise standards or those of adjacent affected jurisdictions. While noise impacts are generally experienced locally, increased traffic from implementation of the 2030 General Plan would contribute to a significant increase in traffic noise levels on roadway segments throughout the region. No measures in addition to proposed 2030 General Plan policies and mitigation identified in this Draft PEIR are available and within the jurisdiction of Merced County to reduce the magnitude of this impact. The 2030 General Plan would make a cumulatively considerable contribution to this significant cumulative effect.

POPULATION AND HOUSING

The geographic scope for cumulative effects to population and housing is the Merced County region, including incorporated and unincorporated areas of Merced County and surrounding counties. The environmental impact analysis presented in Chapter 16 of this Draft PEIR identified no potentially significant impacts following implementation of the 2030 General Plan goals and policies.

The purpose of the 2030 General Plan is to provide a framework to guide land use development and conservation within the unincorporated portion of Merced County to provide for the employment and housing needs of the county based on forecasts set forth by the Merced County Association of Governments (MCAG). After the implementation of 2030 General Plan policies and mitigation identified in this Draft PEIR, because the 2030 General Plan at buildout would not accommodate greater population and employment beyond that projected by MCAG forecasts, the 2030 General Plan would not be considered growth-inducing. When viewed with the more substantial growth projected to occur in the cities and the surrounding counties, the 2030 General Plan's incremental effects on growth and population would not make a cumulatively considerable contribution to this cumulative effect.

PUBLIC SERVICES

The geographic scope for cumulative effects to public services is Merced County. Potential public service effects from implementation of the 2030 General Plan are described in Chapter 17 of this Draft PEIR. No potentially significant adverse effects were identified following implementation of 2030 General Plan goals and policies. While growth under buildout conditions of the 2030 General Plan would result in increases in demand for public services, implementation of the 2030 General Plan goals and policies would ensure that the provision of appropriately timed and sized services to serve new urban development would not result in adverse environmental effects beyond those described in Chapters 5-20 of this Draft PEIR. Because the public services effects of the 2030 General Plan would be less than significant, implementation of the plan would not make a cumulatively considerable contribution to this less-than-significant cumulative effect.

RECREATION

The geographic scope for cumulative effects to recreation resources is Merced County. Potential effects to recreation resources from implementation of the 2030 General Plan are described in Chapter 18 of this Draft PEIR. No potentially significant adverse effects were identified following implementation of 2030 General Plan goals and policies. The proposed 2030 General Plan contains goals and policies to adequately maintain existing facilities, and fund the development of new park facilities, to serve new residents and visitors, in addition to goals and policies intended to reduce impacts associated with the construction and expansion of recreational facilities. Because the effects to recreation resources with implementation of the 2030 General Plan would be less than significant, implementation of the plan would not make a cumulatively considerable contribution to this less-than-significant cumulative effect.

TRANSPORTATION

The geographic scope for cumulative effects to transportation and circulation is the Merced County region, including incorporated and unincorporated areas of Merced County and surrounding counties. The environmental impact analysis presented in Chapter 19 of this Draft PEIR identified the following significant and unavoidable impact due to transportation issues:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness of Merced County roads.
- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness of State Highways.
- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness of streets within incorporated cities

Implementation of the proposed 2030 General Plan would lead to additional traffic on roads and state highways in Merced County and the region, and resulting traffic operations would exceed Level of Service (LOS) standards and may result in traffic hazards. The cost of both the construction of improvements needed by the year 2030 and the preservation of rights of way needed to accommodate buildout improvements is beyond the control of Merced County alone, and would take the combined efforts of all agencies, including the County, MCAG, Caltrans, and adjacent counties and cities. There is no guarantee that other jurisdictions will elect to participate in the cost

of identified improvements. Because improvements may not be installed, this impact would remain significant and unavoidable. No measures in addition to proposed 2030 General Plan policies and mitigation identified in this Draft PEIR are available and within the jurisdiction of Merced County to reduce the magnitude of this cumulative impact. Therefore, the County's contribution to regional cumulative impacts related to traffic would be cumulatively significant.

UTILITIES AND SERVICE SYSTEMS

The geographic scope for cumulative effects to utilities and service systems is the Merced County region, including incorporated and unincorporated areas of Merced County and surrounding counties. The environmental impact analysis presented in Chapter 20 of this Draft PEIR identified the following significant and unavoidable impact to water supply:

- Have sufficient water supply resources and entitlements available to accommodate continued development through buildout under the 2030 General Plan.

Although the 2030 General Plan identifies a number of actions to be taken by the County and different entities within the county, many of the actions necessary to successfully manage water resources and use in the county are beyond the control of County government, especially water use within the agricultural sector, and the potential shortfall in water supplies extends to the entirety of the cumulative geographic scope. Due to the uncertainty of future water management efforts to be conducted by these many different agencies, insufficient future surface water and groundwater supplies may be experienced in portions of the county and the region. No measures in addition to proposed 2030 General Plan policies and mitigation identified in this Draft PEIR are available and within the jurisdiction of Merced County to reduce the magnitude of this impact. Thus, the 2030 General Plan would make a cumulatively considerable contribution to this significant cumulative effect.

22.2 GROWTH INDUCEMENT AND SECONDARY EFFECTS

CEQA Guidelines Section 15126.2(d) requires that an EIR identify any growth-inducing impacts that may result from a project. The CEQA Guidelines define a growth-inducing impact as:

> …the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth… It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Induced growth as defined in this section of CEQA includes the direct employment, population, or housing growth of a project as well as the secondary or indirect growth accompanying direct growth. New employees from commercial development and new population from residential development represent direct growth, and induce additional economic activity in a given area from the increase in aggregate spending generated as purchases of goods and services. New employment also adds to the demand for local housing, although since all persons employed in a given community will not necessarily live in that community, this housing demand increase will tend to be less than the increase in employment. A project can induce growth by lowering or removing infrastructure barriers to growth, improving transportation access to an area, introducing a new use into an area, or by creating an amenity such as tourist-oriented facilities that attract new population or economic activity.

For an evaluation of the potential of the 2030 General Plan to result in growth inducement, see Impact POP-1 in Chapter 16, *Population and Housing*, of this Draft PEIR. The potential impact of growth inducement was determined to be less-than-significant with implementation of policies identified in the 2030 General Plan and mitigation measures identified in this Draft PEIR.

Since this Draft PEIR programmatically evaluates the potential environmental effects of induced growth from implementation of the 2030 General Plan countywide in Chapters 5 – 20 of this Draft PEIR, no additional evaluation would be necessary.

22.3 ENERGY

CEQA Guidelines Appendix F describes the types of information and analyses related to energy conservation to be included in an EIR. Energy conservation is described in terms of decreased per capita energy consumption, decreased reliance on natural gas and oil, and increased reliance on renewable energy sources. To assure that energy implications are considered in project decisions, EIRs must include a discussion of the potentially significant energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

22.3.1 ENVIRONMENTAL SETTING

The environmental and regulatory setting of Merced County with respect to energy use is described in detail in the Energy/Mineral and Utilities sections of the General Plan Background Report (Merced County 2007; updated 2012). That document is incorporated into this Draft PEIR by reference as though fully set forth herein. The updated Background Report is available for download from the Merced County General Plan website at:

http://www.co.merced.ca.us/index.aspx?NID=1170

Copies of the Background Report may be viewed during standard business hours, Monday through Friday, at the Merced County Planning and Community Development Department, 2222 M Street, Merced, California 95340.

The Background Report's discussion of the energy/electricity setting describes the level of electric services provided in Merced County, in addition to energy reports from the California Energy Commission (CEC). The energy/electricity setting discussion in the Background Report includes:

ENERGY SOURCES

Electric services are provided by Pacific Gas and Electric (PG&E), Merced Irrigation District (MID), and Turlock Irrigation District (TID). PG&E provides all the natural gas services within Merced County. Electrical energy supplies generated within Merced County are provided through hydroelectric, wind turbines, and biomass plants. The CEC 2009 Database of California Power Plants lists a total of ten power plants in Merced County. Oil/gas and wind provide fuel to one power plant each, and hydroelectric powers the remaining eight facilities. Natural gas and oil extraction within the county is exported outside Merced County for processing.

- **Hydropower**. Hydroelectric power, a renewable resource, is generated when hydraulic turbines are turned by the force of moving water as it flows through the turbine. The water typically flows from a higher to a lower elevation. These turbines are connected to electrical generators, which produce the power. The efficiency of such systems can be close to 90 percent. Merced County is ranked 24th out of the 58 counties for potential hydropower use in California (June 2006 Statewide Hydropower Resource Assessment). The potential is based on the fact that the five irrigation districts have over 1,000 miles of canals and over 2.5 million acre feet of water entitlements which can be used to assist in the generation of power.
- **Wind Power**. Humanity has been harnessing wind energy for many years to pump water from wells, to turn large grinding stones to mill or grind wheat or corn, and to turn a turbine to make electricity. The only problem with wind is that it is not windy all year long, nor is the speed constant. It is usually windier during the summer months in Merced County when wind rushes inland from cooler areas, such as near the ocean, to replace hot rising air in California's warm central valleys and deserts. There are three wind turbine plants within Merced County, located in Pacheco Pass. Power generated from wind turbines in California has been a significant source of energy in the recent past with over 112 operational turbines. Because of the unpredictability of wind resources in the Merced County area, the potential for wind power has been rated from poor to good depending upon location within Merced County.
- **Solar Power**. The sun's energy can be used directly. Selenium photovoltaic (PV) cells have been converting light to electricity since the mid-1850s. There are two primary PV markets: off-grid and grid-connected PV systems. In California, incentives from the Emerging Renewables Rebate Program can reduce the cost of a grid-connected system by up to 50 percent. Solar energy use within Merced County is on the increase with individual, residential, and agricultural application, and pending utility scale projects undergoing environmental review.
- **Biomass**. Biomass is the use of "leftover" or "refuse" organic material to generate power. Biomass can generate electricity through two approaches: either through burning wood by-products to generate steam, or through collecting methane during the decomposition process (typically used in landfills and processing animal wastes). Both steam and methane can power a turbine that creates electricity. There is one biomass plant in Merced County, located near El Nido. Merced County has undefined, but potentially large, biomass potential.
- **Anaerobic Digestion**. Anaerobic digestion is a biological process that produces a gas principally composed of methane (CH_4) and carbon dioxide (CO_2) otherwise known as biogas. These gases are produced from organic wastes. Organic waste such as livestock manure and various types of bacteria are put in an airtight container called a digester so the process could occur. The process of anaerobic digestion consists of three steps. The first step is the decomposition (hydrolysis) of plant or animal matter. This step breaks down the organic material to usable-sized molecules such as sugar. The second step is the conversion of decomposed matter to organic acids. Finally, the acids are converted to methane gas.
- **Biomass Case Studies**. Successful demonstration biomass projects within California include covered lagoons for collecting and digesting methane. At Royal Farms No. 1 in Tulare, California, hog manure is slurried and sent to a covered lagoon for biogas

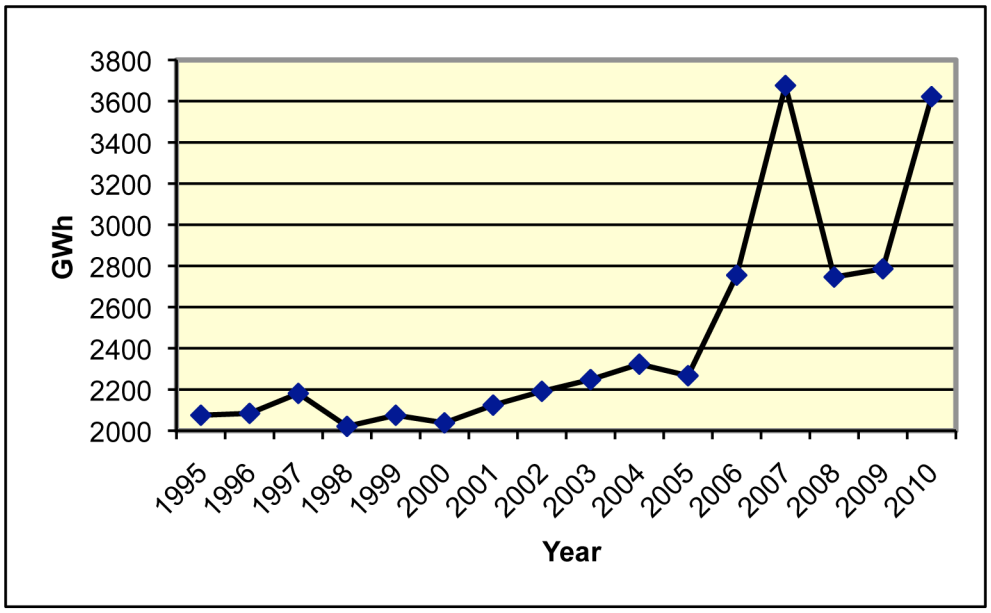
generation. The collected biogas fuels a 70-kilowatt (kW) engine-generator and a 100 kW engine-generator. The electricity generated on the farm is able to meet monthly electric and heat energy demand. Given the success of this project, three other swine farms (Sharp Ranch, Fresno, and Prison Farm) have also installed floating covers on lagoons. The Knudsen and Sons project in Chico, California treated wastewater which contained organic matter from fruit crushing and wash-down in a covered and lined lagoon. The biogas produce is burned in a boiler. At Langerwerf Dairy in Durham, California, cow manure is scraped and fed into a plug-flow digester. The biogas produced is used to fire an 85-kW gas engine. The engine operates at 35-kW capacity level and drives a generator to produce electricity. Electricity and heat generated is able to offset all dairy energy demand. That system has operated since 1982.

- **Conservation Programs**. California leads the nation in energy conservation programs through the use of building codes that require energy conservation building designs and materials and other alternative fuels programs and incentives.

Implementation of new development within Merced County will involve decisions as to which electrical supplier and alternative energy sources to use; the extent of dependency upon electrical and natural gas; and the degree that energy demand can be reduced through efficient building designs, site planning, and other conservation measures.

ENERGY USE

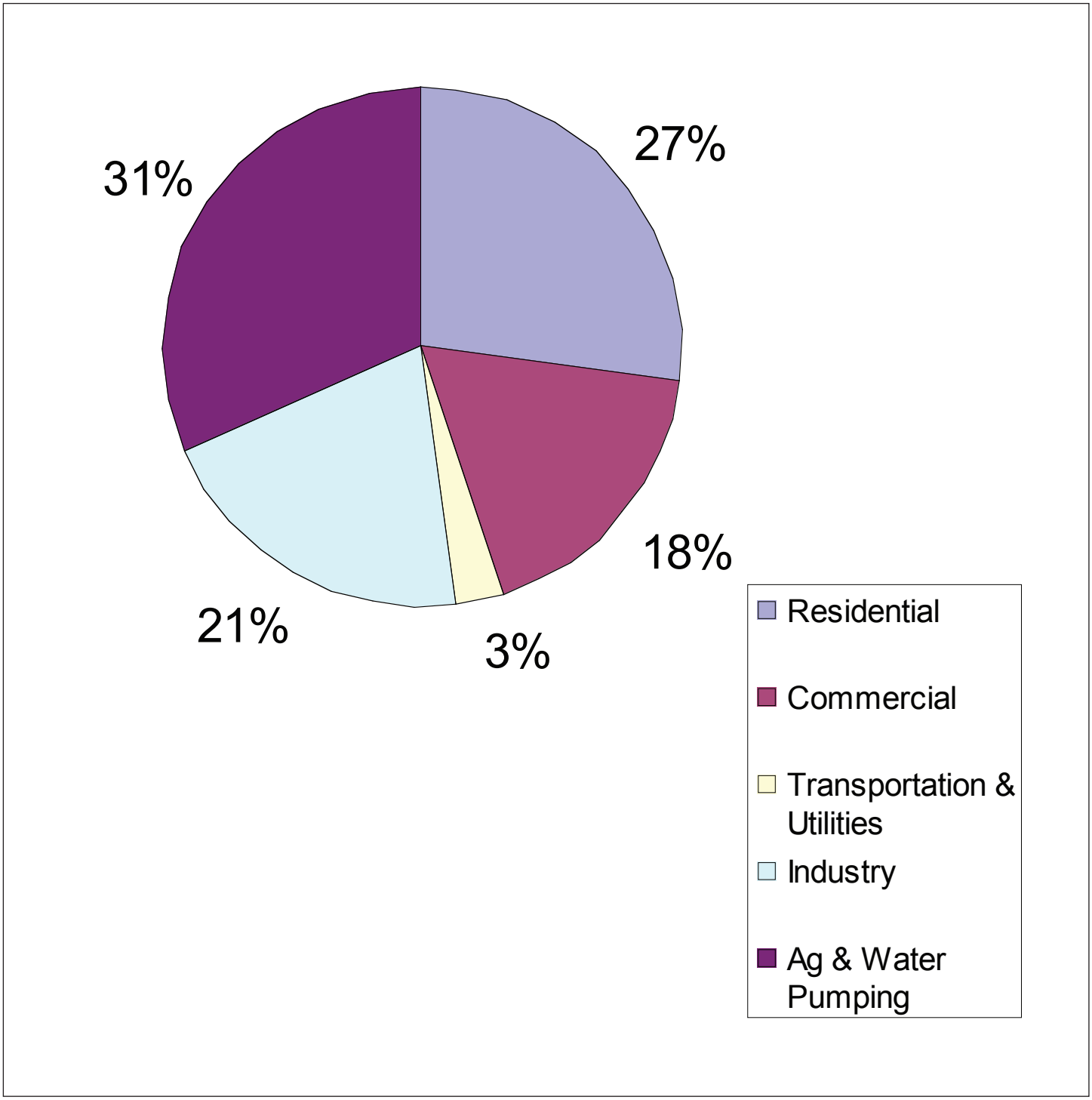
- Within Merced County in 2010, total electricity usage was 3,622.486 million kWh, electricity usage by residential customers was 660.385 million kWh (18 percent), and nonresidential uses totaled 2,962.101 million kWh (82 percent) (CEC ECDMS 2012).
- Merced County consumes more energy than it produces (269 gigawatt hours (GWh) produced vs. 2,267 GWh consumed in 2005). There were approximately 264,429 GWh of electricity delivered by utility companies to the entire state of California in 2000. Only 0.8 percent of total electricity delivered was used in Merced County, with 2,038 GWh delivered in 2000. According to the CEC, no more recent information of this type is available.
- Merced County's energy consumption has been generally increasing, from 2,075 GWh of electricity in 1995 to 2,267 GWh in 2005 (see Figure 22-1). Agriculture and water pumping account for 31 percent of electricity consumption, followed by residential (27 percent), industrial (21 percent), and commercial customers (18 percent) (see Figure 22-2).
- Because of their energy consumption and their large numbers within Merced County, the energy use of dairies offers opportunities for conservation, and through biomass conversion, generation. Recent studies of electricity use on dairies in the San Joaquin Valley show average electrical energy use was 1,603 kWh per dairy per day, or about 42 kWh per month per cow. In 2000, the total dairy herd for Merced County was 429,696 animals. Assuming 42 kWh per month per cow, approximately 216 GWh were used by dairies in Merced County in 2000. This shows dairies consuming approximately 11 percent of total energy consumed in Merced County in 2000; together all agriculture and water pumping consumed approximately 40 percent of total energy used in Merced County in that year (Collar, et. al., undated; Gough, pers. comm. 2006).



SOURCE: California Energy Commission, 2011

Figure 22-1

Merced County Electricity Consumption Trends



Merced County General Plan Update

SOURCE: California Energy Commission, 2006

Figure 22-2

2005 Electricity Consumption in Merced County by Sector

22.3.2 REGULATORY SETTING

The Background Report's discussion of energy/electricity regulatory setting includes the following federal, state, and regional regulations:

Federal Energy Regulatory Commission. The Federal Energy Regulatory Commission (FERC) is an independent agency that regulates the interstate transmission of electricity, natural gas, and oil. FERC also reviews proposals to build liquefied natural gas (LNG) terminals and interstate natural gas pipelines; it also licenses hydropower projects. Licensing of hydroelectric under the authority of FERC includes input from state and federal energy, environmental protection, fish and wildlife, and water quality agencies. The Systems Assessment and Facilities Siting Division of the CEC provides coordination to ensure that needed energy facilities are authorized in an expeditious, safe, and environmentally acceptable manner. The Energy Policy Act of 2005 gave FERC additional responsibilities, including: promoting the development of a strong energy infrastructure; open access transmission tariff reform; and preventing market manipulation.

California Public Utilities Commission. The California Public Utilities Commission (CPUC) is a state agency created by constitutional amendment to regulate privately owned telecommunications, electric, natural gas, water, railroad, rail transit, passenger transportation, and in-state moving companies. The CPUC is responsible for assuring California utility customers have safe, reliable utility services at reasonable rates while protecting utility customers from fraud. The CPUC regulates the planning and approval for the physical construction of electric generation, transmission, or distribution facilities; and local distribution pipelines of natural gas (CPUC Decision 95-08-038).

The CPUC regulatory program is grounded in the philosophy that cost-effective energy efficiency is the state's first line of defense against power shortages. This strategy is supported through $2 billion in energy efficiency funding for 2006-2008. The CPUC's Renewables Portfolio Standard program requires an annual increase in renewable generation by the utilities equivalent to at least one percent of sales, with an aggregate goal of 20 percent by 2010.

Independent System Operator. Power is delivered from generating facilities over the utilities' transmission lines and distribution wires. The Independent System Operator (ISO), whose governing board is appointed by the Governor, manages most of California's transmission system. The ISO's primary function is to balance electricity supply with demand and maintain adequate reserves to meet the needs of California homes and businesses. FERC regulates the ISO. The California Electricity Oversight Board monitors and reports on the activities of the ISO.

Title 24. Title 24, California Building Standards, contains the energy efficiency standards related to residential and nonresidential buildings. Title 24 standards are based, in part, on a state mandate to reduce California's energy demand. Title 20, Public Utilities and Energy, contains the regulations related to power plant siting certification.

22.3.3 ENVIRONMENTAL EFFECTS

The impact analysis evaluates whether buildout under the 2030 General Plan project could result in significant energy efficiency impacts.

SIGNIFICANCE CRITERIA

In accordance with CEQA, this analysis considers impacts to be significant if implementation of a proposed action would directly or indirectly result in inefficient, wasteful, and unnecessary consumption of energy.

ENVIRONMENTAL IMPACTS

The following discussion examines the potential impacts of implementing the proposed 2030 General Plan based on the impact threshold criteria described above.

Impact ENER-1: Inefficient, wasteful, or unnecessary consumption of energy with General Plan buildout.

Buildout of the 2030 General Plan would increase energy consumption in Merced County. However, policies contained within the 2030 General Plan would promote smart energy use and efficiency and would reduce adverse environmental impacts associated with increased energy consumption to less-than-significant levels.

Energy use is increasing in Merced County, and while buildout of the 2030 General Plan would generate additional demand for energy supplies and energy supply services, 2030 General Plan goals and policies would encourage energy efficiency and reduce energy use (see Table 22-2).

Table 22-2 Merced County Policies Relating to Energy Use

Objectives	Policies	How the Policy Avoids or Reduces Impact
Air Quality Element		
Goal AQ-1 Reduce air pollutants and GHG emissions	Reduce air pollutants and GHG emissions and anticipate adaptation to future consequences of global and local climate change	States the County's goal to reduce GHG emissions, including associated energy use, and to adapt to climate change.
Policy AQ-1.1: Energy Consumption Reduction	Encourage new residential, commercial, and industrial development to reduce air quality impacts from energy consumption	Encourages reduced energy use in land use development.
Policy AQ-1.2: Business Energy Reduction Strategies	Encourage all businesses to: replace high mileage vehicles with more efficient and/or alternative fuel vehicles; increase the energy efficiency of facilities; transition toward the use of renewable energy instead of non-renewable energy sources; adopt purchasing practices that promote emission reductions and reusable materials; and increase recycling.	Encourages energy efficiency and use of alternate energy sources.
Policy AQ-1.3: Agricultural Operations Emission Reduction Strategies	Promote GHG emission reductions by encouraging agricultural operators to use carbon efficient farming methods (e.g., no-till farming, crop rotation, cover cropping); install renewable energy technologies; protect grasslands; open space, oak woodlands, riparian forest and farmlands from conversion to other uses; and develop energy-efficient structures.	Encourages agricultural operations to install renewable energy technologies and develop energy-efficient structures.

Table 22-2 Merced County Policies Relating to Energy Use

Objectives	Policies	How the Policy Avoids or Reduces Impact
Policy AQ-1.4: Methane Digestors	Encourage large dairies to capture methane through the use of manure digester systems to generate an alternative source of energy, reduce GHG emissions, and serve as a source of profit for agricultural operations. (Also Policy AG-4.7. Methane Sequestration. Support efforts of local dairies and the SJVAPCD to develop standards and programs for the sequestration of methane gas to reduce GHG emissions, and odors, and to provide a source of clean, efficient, and cheap electricity and natural gas.)	Would increase energy efficiency by encouraging methane digesters for agricultural operations.
Policy AQ-1.5: Climate Action Plan	Prepare a Climate Action Plan that includes an inventory of 1990 and 2010 GHG emissions, determines project air quality impacts using analysis methods and significance thresholds recommended by the SJVAPCD, and identify strategies to achieve State emission reduction targets.	Encourages GHG reductions, and associated energy use reductions, through preparation of a comprehensive Climate Action Plan.
Policy AQ-1.6: Air Quality Improvements	Support and implement programs to improve air quality throughout the County by reducing emissions related to vehicular travel and agricultural practices.	Encourages and supports programs that would reduce energy use associated with vehicle travel and agriculture.
Land Use Element		
Goal LU-5.A	Preserve and enhance the character of Merced County by focusing future unincorporated development towards Urban Communities.	Smart growth and jobs/housing balance policies work to reduce vehicle miles traveled and thereby reduce energy use.
Policy LU-5.1.5: Smart Growth	Promote the principles of smart growth in Community Plans for each Urban Community, including: a) creating walkable neighborhoods, b) providing a mix of residential densities, c) creating a strong sense of place, d) mixing land uses, e) directing growth toward existing communities, f) building compactly, g) discouraging sprawl, h) encouraging infill, and i) creating a range of housing opportunities and choices.	Encourages smart growth principles that will reduce vehicle trips and associated energy use.
Policy LU-5.A.6: Jobs/Housing Balance	Promote a jobs/housing balance by encouraging residential development near employment centers when preparing new or updating existing Community Plans and providing adequate land for employment generating land use.	Encourages jobs/housing balance that reduces trips and associated energy use.
Goal LU-9	Support and promote energy efficiency through innovative building design and land use patterns.	Several energy efficiency policies will help reduce the consumption of natural gas and electricity from new and existing structures.
Policy LU-9.1: Solar Access	Require new residential subdivision lots and new commercial, office, industrial, and public buildings to be oriented and landscaped to enhance natural lighting and solar access in order to maximize solar efficiency.	Requires solar orientation of buildings, which will reduce energy use.

Table 22-2 Merced County Policies Relating to Energy Use

Objectives	Policies	How the Policy Avoids or Reduces Impact
Policy LU-9.2: Sustainable Building Practices	Promote sustainable building practices, including the requirements of Title 24 of the California Administrative Code.	Encourages sustainable building practices and Title 24 compliance.
Policy LU-9.3: Energy Retrofits	Promote the retrofitting of existing buildings with new and innovative energy and water efficiency technologies.	Encourages building retrofits that will reduce energy use.
Policy LU-9.4: Green Building Standard	Require all new County buildings be constructed to green building standards and all existing County buildings to be retrofitted with energy efficiency technologies.	Requires that new County buildings meet Green building standards, which will reduce energy use.
Policy LU-9.5: Energy Conservation Standards for New Construction	Cooperate with the local building industry, utilities, and air district to promote enhanced energy conservation standards for new construction.	Requires cooperation to encourage building energy conservation, which will reduce energy use.
Natural Resources Element		
Goal NR-2	Provide adequate and efficient energy supplies by increasing renewable energy production and energy conservation.	Several policies will encourage energy efficiency.
Policy NR-2.1: Renewable Energy Use	Promote the development and use of renewable energy resources to reduce dependency on petroleum-based energy sources.	Encourages use of renewable energy.
Policy NR-2.2: Clean Alternative Energy Requirement	Encourage new electricity providers to use only clean alternative energy sources (e.g., solar, thermal, wind).	Encourages electricity providers to use alternative energy.
Policy NR-2.3: Biomass-to-Energy Production	Encourage the use of biomass facilities to capture untapped local energy sources from dairies, farmland, and other industrial sources.	Encourages use of biomass facilities, which will increase energy efficiency.
Policy NR-2.4: Solar Power	Encourage on-site solar power use in residential, commercial, and industrial buildings, and solar power facilities in rural locations that do not harm long-term agricultural productivity and habitat values.	Encourages on-site solar power, which will increase energy efficiency.
Policy NR-2.5: Legislative Advocacy	Actively monitor, review, comment, and advocate for the purposes of furthering alternative energy sources on pending major State and federal legislation, executive orders, and SJVAPCD rulemaking that may have an impact on the development of alternative energy sources in Merced County.	Encourages alternative energy advocacy to promote alternative energy, which will increase energy efficiency.
Policy NR-2.7: Residential Rehabilitation and Improvement.	Encourage the rehabilitation and improvement of existing single-family and multi-family units to achieve greater energy efficiency.	Encourages residential rehab to increase energy efficiency.
Policy NR-2.8: Energy Efficient County Facilities.	Replace existing traffic lights, street lights, and other electrical uses with energy efficient bulbs and appliances in the course of ongoing maintenance/replacement as funding permits.	Encourages energy efficient lighting.

Table 22-2 Merced County Policies Relating to Energy Use

Objectives	Policies	How the Policy Avoids or Reduces Impact
Policy NR-2.9: Energy Conservation.	Encourage and maximize energy conservation and identification of alternative energy sources (e.g., wind and solar).	Encourages energy conservation and use of alternative energy sources.
Policy NR-2.10: Efficiency Education.	Work with energy providers to educate the public about energy efficiency, water conservation, and other GHG reduction measures.	Encourages energy efficiency education.
Policy NR-2.11: Energy-Efficiency Education.	Encourage the use of energy-efficiency design features such as site orientation, light colored building materials, and tree canopies.	Encourages energy efficient design, which will reduce energy use.
Policy NR-2.12: Green Practices Education.	Encourage recycling, composting, source reduction, and education efforts throughout the County for residents, businesses, industries, institutions, and construction.	Encourages a number of green building principles, which will reduce energy use.
Circulation Element		
Goal CIR-1	Maintain an efficient roadway system for the movement of people and goods that enhances the physical, economic, and social environment while being safe, efficient, and cost-effective.	These policies encourage a more efficiency circulation system that will reduce energy use from vehicles
Policy CIR-1.2: Efficient Transportation Network.	Encourage land use patterns that promote shorter travel distances between residences and employments centers within Merced County, allow for non-auto travel, prove traffic-calming on local roadways, and promote the efficient expansion and maintenance of transportation-related infrastructure.	Encourages land use development that reduces the number of trips and trip lengths, which will reduce energy use.
Policy CIR-1.3: Transportation Efficiency	Encourage transportation programs that result in more efficient energy use, reduce GHG emissions and noise levels, and improve air quality.	Encourages transportation programs that result in more efficient energy use.

Source: Merced County, 2011; Planning Partners, 2012.

Implementation of the above 2030 General Plan policies would require the efficient use of fuel and energy by: reducing vehicle use and vehicle miles traveled (VMT); encouraging energy conservation, efficiency, and green design in new construction and existing buildings; reducing the consumption of fossil fuels by encouraging alternative transportation; and through the promotion of the utilization of alternative energy sources. Further discussion of measures for reducing the county's VMT (and associated fuel consumption) and for reducing the county's overall GHG emissions can be found in Chapter 19, *Transportation* and Chapter 11, *Global Climate Change*.

Appendix E of this Draft PEIR includes estimated activity and consumption data for GHG emission sources, including: transportation; area sources; electricity, water and wastewater; natural gas; solid waste management; and agricultural emissions. This data also shows increased energy efficiency as a result of 2030 General Plan policies. Table 2 of Appendix E indicates a reduction of 21,248 VMT per day in unincorporated areas of the county with implementation of policies at 2030 buildout conditions, which would result in an associated decrease in annual gasoline and diesel fuel

consumption. Based on reductions from the Low Carbon Fuels Standard (LCFS), the Pavley Rule, the Sustainable Communities goals, and the VMT reduction, transportation emissions of GHGs were reduced by 30.7 percent in 2030 as compared to 2030 Business as Usual (BAU) conditions (see Table 8, Appendix E). Appendix E also includes energy use estimates under buildout conditions, and with acquisition of renewable resources for power supply, the associated decrease in GHG emissions from electricity use (Table 13, Appendix E). By 2030, mitigated electricity consumption is assumed to be reduced by 14.1 percent. This percentage assumes that all new construction (after 2020) would achieve an emission reduction of 25 percent below existing energy use rates, and that 75 percent of existing buildings built before 2020 would be retrofitted to achieve an energy efficiency of 25 percent below existing energy use rates (URS 2012, Appendix E). Similarly, Appendix E also shows: reduced GHG emissions from energy consumption associated with water use as a result using renewable resources for electricity; reduced natural gas consumption as a result of increased energy efficiency in buildings; a reduction in VMT for hauling solid waste as a result of 2030 General Plan waste management practices (e.g. recycling, composting); and reduced emissions from agricultural activities as a result of improvements in the energy efficiency of agricultural equipment, along with improvements in emission control technology.

In conclusion, the implementation of the 2030 General Plan would result in measurable anticipated energy and fuel savings, and the County's policies would reduce inefficient, wasteful, and unnecessary use of energy. Therefore, buildout of the 2030 General Plan would have a less-than-significant impact associated with the inefficient use of fuel or energy.

Significance of Impact: Less than significant.

Mitigation Measure: None required.

22.4 EFFECTS FOUND NOT TO BE SIGNIFICANT

The following potentially significant effects were found not to be significant or less than significant after mitigation as evaluated in this Draft PEIR:

- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
- Substantially degrade the existing visual character or quality of scenic resources or vistas
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the county
- Conflict with existing zoning for agricultural use, or the provisions of Williamson Act contracts
- Conflict with zoning for forest land or timberland, result in the loss of forest land or cause other changes that could convert forest land to non-forest uses
- Involve other land use changes that would result in conversion of farmland to non-agricultural uses due to increased water use due to the minor subdivision of rural parcels
- Involve other land use changes that would result in conversion of farmland to non-agricultural uses due to inadequate parcel sizes
- Increase in construction emissions associated with General Plan buildout

- Increase in operational emissions of ROG, NO_x, CO, and SO_x associated with General Plan buildout
- Increase in carbon monoxide concentrations at congested intersections
- Increase in health risks associated with locating sensitive receptors near high volume roads
- Increase in health risks associated with locating sensitive receptors near sources of odors and/or toxic air contaminants emitted by industrial, commercial, and agricultural land uses
- Substantial loss and/or modification of federally protected wetlands
- Potential interference with animal movement/migration patterns
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan
- Cause a substantial adverse change in the significance of a historical resource
- Cause a substantial adverse change in the significance of an archaeological resources, paleontological resources, unique geological features, or disturbances to human remains
- Result in the degradation or loss of traditional cultural properties
- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving: (1) rupture of a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, (2) strong seismic ground shaking or seismic-related ground failure including liquefaction, (3) landslides or dam failure
- Result in substantial soil erosion or topsoil loss from heightened exposure to wind or water erosion, or result in a substantial loss of valuable mineral resources within the County
- Locate development or structures on unstable soils or expansive soils (as defined in Table 18-1-B of the 1994 Uniform Building Code) that may result in excessive damage to building structure or foundation or significant hazard to persons or property due to on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse
- Allow the use of septic tanks or alternative wastewater disposal systems in unfit soils that may result in increased nutrients or other pollutants reaching and damaging groundwater resources
- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through accident conditions involving the release of hazardous materials into the environment
- Emit hazardous emissions or handle hazardous materials, substances or waste within one-quarter mile of an existing or proposed school
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment

- Be located within an airport land use plan or, where such a plan has not been adopted, within the vicinity of a public or private airport, and thereby result in a safety hazard for people residing or working in the project area
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires
- Inundation by seiche, tsunami, or mudflow
- Violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality
- Substantially alter existing drainage patterns within the County, including alteration of a stream course or river, in a manner which would result in detrimental flooding to property or infrastructure or substantial erosion or siltation that may be carried to a receiving water body
- Significantly increase the rate or amount of storm water runoff which would exceed the capacity of existing or planned storm water drainage systems or facilities resulting in increased sources of polluted runoff or detrimental flooding to property or infrastructure
- Allow new development to proceed within a 100-year flood hazard area as mapped on the FEMA Flood Insurance Rate Map without adequate protection measures or which might impede or redirect flood flows resulting in hazards elsewhere
- Diverge from current state flood legislation or allow new development to proceed within a 200-year flood hazard as identified by DWR Best Available Maps without adequate planning or protection measures in place
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam
- Physically divide an established community
- Conflict with any applicable plan, policy, or regulation of a government agency with jurisdiction over land in unincorporated Merced County that has been adopted for the purpose of avoiding or mitigating an environmental effect
- Implementation of 2030 General Plan Health and Safety Element policies related to noise
- Development of new noise-sensitive land uses within areas subject to noise impacts
- Development of noise-producing uses near existing sensitive land uses
- Expose people to, or generate excessive groundborne vibration or groundborne noise levels
- Induce substantial population growth or growth for which inadequate planning has occurred
- Displace substantial amounts of population and housing units, necessitating the construction of replacement housing elsewhere
- Demand for additional fire protection and emergency response facilities
- Demand for additional police protection and law enforcement facilities
- Demand for additional school facilities and libraries
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated

- Inclusion of recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment
- Conflict with standards established by a county congestion management agency
- Change in air traffic patterns, including an increase in traffic levels or a change in location that results in substantial safety risks
- Substantially increase traffic hazards
- Adverse effects on emergency access and evacuation
- Conflicts with policies supporting alternative transportation modes
- Require new construction or expansion of existing water or wastewater treatment facilities that could cause significant environmental effects
- Adequate wastewater treatment capacity to serve the projected demand without disrupting existing commitments as determined by the wastewater treatment provider, and new construction or facility expansion necessary to serve future demand
- Require new or substantial alteration of existing solid waste disposal facilities, and comply with federal, State, and local statutes and regulations related to solid waste
- Growth Inducement
- Inefficient, wasteful or unnecessary consumption of energy
- Irreversible Commitment of Resources
- Potential Environmental Damage from Accidents

The project's contribution to the following significant cumulative effects was found to be not cumulatively considerable with implementation of mitigation as evaluated in this Draft PEIR:

- Cumulative Aesthetics/Visual Resources impacts
- Cumulative Cultural Resources impacts
- Cumulative impacts to Soils and Geological Resources
- Cumulative Hazards and Hazardous Materials impacts
- Cumulative impacts to Land Use
- Cumulative Population and Housing impacts
- Cumulative impacts to Public Services
- Cumulative impacts to Recreation

22.5 SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL EFFECTS

The significant unavoidable environmental effects of the proposed project are as follows:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use
- Involve other land use changes that would result in conversion of farmland to non-agricultural uses
- Conversion of farmland to non-agricultural uses due to minor subdivision of rural parcels

- Increase in operational emissions of PM_{10} and $PM_{2.5}$ associated with General Plan buildout
- Adverse effects to special status species and sensitive habitats
- Adverse effect on wetlands, riparian habitat and other sensitive natural communities
- Increase in GHG emissions associated with 2030 General Plan buildout
- Increase in GHG emissions that would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions
- Substantially deplete groundwater supplies or interfere with groundwater recharge to the degree there would be continued aggravation of groundwater overdraft or a net reduction in aquifer volume that would negatively impact existing users or habitat needs
- Traffic noise level increases caused by development consistent with the 2030 Draft General Plan
- Deterioration in traffic operating conditions on Merced County roads
- Deterioration in traffic operating conditions on state highways in Merced County
- Deterioration in traffic operating conditions on streets within incorporated cities in Merced County
- Have sufficient water supply resources and entitlements available to accommodate continued development through buildout under the 2030 General Plan
- Cumulative Agricultural Resources impacts
- Cumulative Air Quality impacts
- Cumulative Biological Resources impacts
- Cumulative Global Climate Change impacts
- Cumulative Hydrology and Water Quality impacts
- Cumulative Noise impacts
- Cumulative Transportation impacts
- Cumulative Utilities and Service System impacts
- Irreversible Environmental Changes

Merced County is unable to mitigate any of these potentially significant adverse environmental impacts to a less-than-significant level; all of the adverse impacts of the proposed project identified above would remain significant and unavoidable.

22.6 SIGNIFICANT IRREVERSIBLE CHANGES

CEQA Guidelines Section 15126.2 requires the evaluation of significant irreversible environmental changes, stating that "uses of nonrenewable resources during the initial and continued phases of a proposed project may be irreversible since a large commitment of these resources makes removal or nonuse thereafter unlikely." This section of the Draft PEIR evaluates whether the project would result in the irretrievable commitment of resources, or would cause irreversible changes in the environment. Also, this section identifies any irreversible damage that could result from environmental accidents associated with the proposed project.

22.6.1 IRREVERSIBLE COMMITMENT OF RESOURCES

Implementation of the proposed 2030 General Plan project would result in the construction and operation of urban development, and increase the number or amount of scattered rural residential uses, confined animal facilities, agricultural industrial uses, and surface mining activities. Implementation of the proposed 2030 General Plan would require both direct and indirect expenditures of energy. Indirect energy would be consumed by the use of construction materials for the project (e.g., energy resource exploration, power generation, mining and refining of raw materials into construction materials used, including placement). Direct energy impacts would result from the total fuel consumed in vehicle propulsion (e.g., construction vehicles, heavy equipment, and other vehicles using the facility). Additional energy resource demands would be used for heating and cooling of buildings, transportation of people and goods, as well as lighting and other associated energy needs.

Implementation of the proposed 2030 General Plan would contribute to the incremental depletion of resources, including renewable and non-renewable resources. Resources such as lumber and other forest products are generally considered renewable resources, and would be replenished over the lifetime of the project. For example, lumber supplies are increased as seedlings mature into trees. Therefore, the development of the project would not result in the irreversible commitment of renewable resources. Nevertheless, there would be an incremental increase in the demand for these resources over the life of the project.

Non-renewable resources such as natural gas, petroleum products, asphalt, petrochemical construction materials, steel, copper and other metals, and sand and gravel are considered to be commodities that are available in a finite supply. The processes that created these resources occur over a long period of time. Therefore, the replacement of these resources would not occur over the life of the project. To varying degrees, these materials are all readily available, and some materials, such as asphalt or sand and gravel, are abundant. Other commodities, such as metals, natural gas, and petroleum products, are also readily available, but they are finite in supply given the length of time required by the natural process to create them.

The demand for all such resources is expected to increase regardless of whether or not the project is developed. As discussed in the cumulative evaluation and set forth in Table 22-1, urban development and other organized activities in the San Joaquin Valley are expected to increase. Therefore, if not consumed by this project, these resources would likely be committed to other projects in the region intended to meet this anticipated growth. The investment of additional resources in the project would be typical of the level of investment normally required for urbanization and development at the scale of Merced County. Mitigation measures have been included in this Draft PEIR to reduce and minimize the impact to renewable and non-renewable resources.

22.6.2 IRREVERSIBLE ENVIRONMENTAL CHANGES

Irreversible long-term environmental changes associated with the proposed project are evaluated in Chapters 5 to 20 of this Draft PEIR. These irreversible environmental changes would include the loss of agricultural resources, interference with agricultural activities, an increase in fugitive dust emissions and greenhouse gases, loss or degradation of biological resources, adverse effects to groundwater levels and lack of sufficient water supplies, and increases in traffic and noise levels among other impacts. Policies in the 2030 General Plan and mitigation measures included in this Draft PEIR have been identified to minimize the effects of the environmental changes associated with the implementation of the 2030 General Plan. However, even with implementation of cited policies and adoption of all mitigation measures, the 2030 General Plan would result in significant and unavoidable impacts to as listed above in Section 22.4, *Significant Unavoidable Environmental Effects*.

22.6.3 POTENTIAL ENVIRONMENTAL DAMAGE FROM ACCIDENTS

Potential impacts and irreversible damage that could result from environmental accidents associated with the project have been previously evaluated in Chapter 12, *Hazards and Hazardous Materials*, of this Draft PEIR. The 2030 General Plan proposes no uniquely hazardous uses, and its implementation would not be expected to cause environmental accidents that would affect other areas.

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