CHAPTER 4 GHG Emissions Reduction Programs and Regulations

The State of California has set specific targets for reducing GHG emissions from the burning of fossil fuels in both power plants and vehicles by adopting various regulations. In addition, State energy efficiency and renewable requirements provide another level of reductions. In order to provide credit to the County for regulatory actions already taken or planned by the State of California, this CAP first evaluates the greenhouse gas reductions that will occur within the County as a result of these actions. These will be identified in the CAP as R1 reduction measures. The R1 measures are included here to show all of the anticipated reduction strategies identified in the AB 32 Scoping Plan for implementation at the State Level that will ultimately result in a reduction of GHG emissions at the County level. The R1 measures are not administered or enforced by the County, but the County - by describing them herein- substantiates the reductions applied in association with these State-wide Measures.

R2 and R3 reduction measures will be incorporated at the County level to provide additional reductions in GHG emissions. R2 measures are those measures that can be quantified to show the value of the reduction from the incorporation of those measures; the R2 measures correspond to the Implementation Measures (IM) included in Appendix N of the General Plan. R3 measures are measures that, although they provide a vehicle through which reductions in emissions will occur, cannot be quantified at this time. The R3 measures are supportive measures or methods of implementation for the R2 measures. A complete list of assumptions and reductions for each of the R1 and R2 measures is included in Appendix E of this CAP.

The following reduction measures are organized herein by source category (energy, solid waste, area source emissions, agriculture, transportation, and industrial) then by R1, R2, and R3 measure. The method to be used for numbering the mitigation measures will be to list the R designation (R1, R2, or R3) then an abbreviation of the source category, followed by the order number. So, R1-E1 is the first R1 measure within the energy category, R1-E2 is the second measure within the energy category, and so on. The source category abbreviations are as follows: T – transportation; E – energy; S – solid waste; L – area source (landscaping) emissions; W – purchased water; A – agriculture; and I – industrial.

4.1 Existing Riverside County General Plan Policies Related to GHG

Policies to reduce GHG emissions often overlap with policies addressing energy conservation, reduced automobile use, water conservation, and many other issues. Riverside County has many General Plan policies that help to reduce GHG emissions while targeting another policy applicable to the County. Table 4-1 below summarizes these General Plan policies.

Table 4-1 General Plan Policies Related to Reducing GHG Emissions

Sector	Element	Section	Policies
Energy Efficiency in Buildings	Land Use	Project Design	LU-4.1
	Multipurpose Open Space	Energy Conservation	OS-16.1 through OS-16.10
	Air Quality	Stationary Emissions	AQ-4.1, AQ-4.1, AQ-4.4
		Energy Efficiency and Conservation	AQ-5.1, AQ-5.2, AQ-5.4
Regional Agency Coordination	Land Use	Administration	LU-1.5
	Air Quality	Multi-Jurisdictional Cooperation	AQ-1.1 through AQ-1.4, AQ-1.7
Smart Growth	Land Use	Efficient Use of Land	LU-2.1
		Economic Development	LU-7.12
		Air Quality	LU-10.1
	Air Quality	Business Development	AQ-7.1, AQ-7.3
		Job-to-Housing Ratio	AQ-8.4 through AQ-8.9
Water Conservation	Land Use	Project Design	LU-4.1
	Circulation	Transportation System Landscaping	C-5.2
	Multipurpose Open Space	Water Conservation	OS-2.1 through OS-2.5
Reduce Automobile Use	Land Use	Efficient Use of Land	LU-2.1
		Project Design	LU-4.1
		Air Quality	LU-10.3, LU-10.4
		Circulation	LU-12.1, LU-12.3, LU-12.4
	Circulation	Planned Circulation Systems	C-1.2, C-1.7
		Pedestrian Facilities	C-4.1, C-4.9
		Transportation System Landscaping	C-5.2
		Public Transportation System	C-9.2
		Fixed Route Transit Service	C-11.2, C-11.4 through C-11.7
		Transit Oasis and Transit Centers	C-12.1 through C-12.3
		Passenger Rail	C-13.1 through C-13.3
		Bikeways	C-17.3, C-17.4
		Environmental Considerations	C-20.12
		Transportation Systems Management	C-21.1, C-21.9
	Multipurpose Open Space	Energy Conservation	OS-16.3, OS-16.8
	Air Quality	Mobile Pollution Sources	AQ-3.2, AQ-3.4
		Trip Reduction	AQ-10.1 through AQ-10.4

Sector	Element	Section	Policies
Renewable Energy/Alternative Fuel	Multipurpose Open Space	Renewable Energy	OS-10.1, OS-11.1 through OS-11.3, OS-12.1
	Air Quality	Transportation System Management Improvements	AQ-13.1
Reduce Waste	Air Quality	Energy Efficiency and Conservation	AQ-5.1

4.2 Transportation

R1 Transportation Measures

The following list of R1 transportation related measures are those measures that California has identified in the AB 32 Scoping Plan that will result in emission reductions within the County.

R1-T1: ASSEMBLY BILL 1493: PAVLEY I

Assembly Bill (AB) 1493 (Pavley) required the California Air Resources Board (CARB) to adopt regulations that will reduce GHG from automobiles and light-duty trucks by 30 percent below 2002 levels by the year 2016, effective with 2009 models. By 2020, this requirement will reduce emissions in California by approximately 16.4 MMT of carbon dioxide equivalents ($MMTCO_2e$), representing 17.3 percent of emissions from passenger/light-duty vehicles in the State.

R1-T2: ASSEMBLY BILL 1493: PAVLEY II

California committed to further strengthening the AB1493 standards beginning in 2017 to obtain a 45 percent GHG reduction from 2020 model year vehicles. This requirement will reduce emissions in California by approximately 4.0 $MMTCO_2e$, representing 2.5 percent of emissions from passenger/light-duty vehicles in the State.

R1-T3: EXECUTIVE ORDER S-1-07 (LOW CARBON FUEL STANDARD)

The Low Carbon Fuel Standard (LCFS) will require a reduction of at least ten (10) percent in the carbon intensity of California's transportation fuels by 2020. By 2020, this requirement will reduce emissions in California by approximately 15 $MMTCO_2e$, representing 6.9 percent of emissions from passenger/light-duty vehicles in the State.

R1-T4: TIRE PRESSURE PROGRAM

The AB32 early action measure involves actions to ensure that vehicle tire pressure is maintained to manufacturer specifications. By 2020, this requirement will reduce emissions in California by

approximately 0.55 $MMTCO_2e$, representing 0.3 percent of emissions from passenger/light-duty vehicles in the State.

R1-T5: LOW ROLLING RESISTANCE TIRES

This AB32 early action measure would increase vehicle efficiency by creating an energy efficiency standard for automobile tires to reduce rolling resistance. By 2020, this requirement will reduce emissions in California by approximately 0.3 $MMTCO_2e$, representing 0.2 percent of emissions from passenger/light-duty vehicles in the State.

R1-T6: LOW FRICTION ENGINE OILS

This AB32 early action measure would increase vehicle efficiency by mandating the use of engine oils that meet certain low friction specifications. By 2020, this requirement will reduce emissions in California by approximately 2.8 $MMTCO_2e$, representing 1.7 percent of emissions from passenger light-duty vehicles in the State.

R1-T7: GOODS MOVEMENT EFFICIENCY MEASURES

This AB32 early action measure targets system wide efficiency improvements in goods movement to achieve GHG reductions from reduced diesel combustion. By 2020, this requirement will reduce emissions in California by approximately 3.5 $MMTCO_2e$, representing 1.6 percent of emissions from all mobile sources (on-road and off-road) in the State.

R1-T8: HEAVY-DUTY VEHICLE GHG EMISSION REDUCTION (AERODYNAMIC EFFICIENCY)

This AB32 early action measure would increase heavy-duty vehicle (long-haul trucks) efficiency by requiring installation of best available technology and/or CARB approved technology to reduce aerodynamic drag and rolling resistance. By 2020, this requirement will reduce emissions in California by approximately 0.93 $MMTCO_2e$, representing 1.9 percent of emissions from heavy-duty vehicles in the State.

R1-T9: MEDIUM AND HEAVY-DUTY VEHICLE HYBRIDIZATION

The implementation approach for this AB 32 measure is to adopt a regulation and/or incentive program that reduce the GHG emissions of new trucks (parcel delivery trucks and vans, utility trucks, garbage trucks, transit buses, and other vocational work trucks) sold in California by replacing them with hybrids. By 2020, this requirement will reduce emissions in California by approximately 0.5 $MMTCO_2e$, representing 0.2 percent of emissions from all on-road mobile sources in the State. This reduction is also equivalent to a 1.0 percent reduction of emissions from all heavy-duty trucks in the State.

R1-T10: REGIONAL SB 375 TARGETS

Regional transportation emission reduction targets have been established pursuant to SB 375. Statewide, this requirement is expected to reduce emissions by 5 MMTCO2e, which is equivalent to 2 percent of emissions from all mobile emission sources. These emissions will be reduced through the implementation of Sustainable Community Strategies developed by the Metropolitan Planning

Organizations (MPOs) throughout the State, SCAG for Riverside County. CARB, in conjunction with SCAG, has adopted a target of an 8% decrease in transportation emissions by 2020 for the region. The reductions from SB 375 overlap with many of the State transportation reduction measures described above. Therefore, this R1 measure is expected to reduce Riverside's transportation emissions by 6% (rather than the 8% target) beyond what the other State-level transportation measures will reduce.

R2 Transportation Measures

The following list of R2 measures are measures the County can incorporate into the new development projects for the reduction of transportation related emissions to achieve an AB 32 compliant reduction target.

R2-T1: EMPLOYMENT BASED TRIP AND VMT REDUCTION

This R2 measure would implement General Plan Policies AQ 3.3, AQ 10.1, AQ 10.3, and AQ 10.4 through the adoption of a voluntary trip reduction program for new commercial and industrial development that promotes commuter-choices, employer transportation management, guaranteed ride home programs and commuter assistance and outreach type programs intended to reduce commuter vehicle miles traveled. A guaranteed ride home program is a program that ensures employees that take advantage of carpooling opportunities are guaranteed a safe ride home should the employee miss the carpool pick-up time due to work-related activities. This could be as simple as the employer paying for taxi service for the employee. Surveys within California have shown that ridesharing increases by 5% when a guaranteed ride home program is available (FTA 2006). To gain points within the Screening Table, employers with more than 100 employees within the unincorporated County would need to establish a trip reduction plan that would incorporate annual employee commute surveys, marketing of commute alternatives, ride matching assistance, and transit information at a minimum.

R2-T2: INCREASED RESIDENTIAL DENSITY

Designing proposed projects with increased densities, where allowed by the General Plan and/or County zoning, could reduce GHG emissions associated with traffic in several ways. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. The reductions in GHG emissions are quantified based on reductions to VMT; the relationship between density and VMT is described by its elasticity. If a new development project demonstrates an increase is density (and hence a corresponding decrease VMT) beyond the average value for that particular land use type, then the project can garner points in the screening tables for new development. This strategy also provides a foundation for implementation of many other strategies which would benefit from increased densities. New development projects earn points for residential projects that increase housing density.

R2-T3: MIXED USE DEVELOPMENT

Having different types of land uses near one another can decrease VMT since trips between land use types are shorter and may be accommodated by non-motorized methods of transportation. For example when residential areas are in the same neighborhood as retail and office buildings, a resident does not

need to travel outside of the neighborhood to meet his/her trips needs. A new development project will earn points in the screening tables by including diversity of land uses within a ¼ mile. Due to the variations available in implementing a mixed use project, the reductions, and applicable points associated, will be determined on a case-by-case basis.

R2-T4: PREFERENTIAL PARKING

This R2 measure would implement General Plan Policies AQ 3.3 and AQ 10.3 by encouraging proposed development projects to incorporate a comprehensive parking program for public and private parking lots to facilitate carpooling and alternate transportation. Incentives to encourage carpooling and the use of alternate transportation methods could include:

- Providing reserved preferential parking spaces for car-share, carpool, and ultra-low or zero emission vehicles;
- Provide larger parking spaces that can accommodate vans used for ride-sharing programs and reserve them for vanpools; and include adequate passenger waiting/loading areas;
- Restricting the number of parking spaces within the development by sharing parking among different land uses where feasible. For example in areas where there are multiple land uses provide resident restricted parking during nighttime hours (7pm to 7am) and open the parking lot for use by patrons of the surrounding commercial buildings during daytime hours; and
- Provide convenient pedestrian pathways through parking areas.

R2-T5: ROADWAY IMPROVEMENTS INCLUDING SIGNAL SYNCHRONIZATION AND TRANSPORTATION FLOW MANAGEMENT

This R2 measure would implement General Plan Policies AQ 12.1 and AQ 12.3. Proposed development projects that pay fare-share fees toward signal synchronization improvements or construct signalized intersections within a traffic signal synchronization system, would gain points within the Screening Table through this R2 Measure. These modifications include, but are not limited to, synchronization of signals, improvement of traffic flow, the development of parallel roadways, and support for the extension of freight rail into Riverside County's industrial areas. Even when required for other reasons, such as warranted by project traffic study results, such circulation improvements may still qualify for Screening Table points under this measure.

R2-T6: PROVIDE A COMPREHENSIVE SYSTEM OF FACILITIES FOR NON-MOTORIZED TRANSPORTATION

This measure emphasizes alternative non-motorized transportation hubs and encourages the creation of bike lanes and walking paths connecting to schools and other public facilities, provision of adequate bicycle parking; and encouragement of bicycle stations, attended parking, and other attended bicycle support facilities at intermodal hubs. Bicycle stations are full-service bicycle facilities that, in addition to providing secure, guarded bicycle parking could include other amenities such as "valet" bicycle service, showers, bicycle rentals, or repair services. These types of facilities are intended for large residential and non-residential development as well as large employers (e.g., of 500 or more employees). In addition, the establishment of multi-use trails that promote off-street bicycle and pedestrian travel, as well as provision of secure bicycle racks, along these pathways would also promote their use.

R2-T7: EXPAND RENEWABLE FUEL/LOW-EMISSION VEHICLE USE

Implementation of the following R2 measure would promote the expanded use of renewable fuel and low-emission vehicles within proposed projects. The project will earn points in the screening table by making low-emissions or electric vehicle use more accessible by including one or both of the following project components:

- Providing preferential parking for ultra-low emission, zero-emission, and alternative- fuel vehicles;
- Provide electric vehicle charging stations within the development.

R2-T8: ANTI-IDLING ENFORCEMENT

This R2 measure involves the adoption and enforcement of an Anti-Idling Policy for heavy-duty diesel trucks, including local delivery trucks and long-haul truck transport within the unincorporated County. This policy would prohibit idling of on and off-road heavy duty diesel vehicles for more than five minutes. This policy would be implemented by new commercial and industrial projects with loading docks or delivery trucks. Such projects would be required to post signage at all loading docks and/or delivery areas directing drivers to shut down their trucks after five minutes of idle time. Also, employers who own and operate truck fleets would be required to inform their drivers of the anti-idling policy.

R2-T9: INCREASE PUBLIC TRANSIT

New development projects will expand the local transit network by coordinating with regional transit authorities to include bus turnouts and other transit accommodations in design plans. This will encourage the use of transit and therefore reduce VMT. Unincorporated Riverside County hosts one Metrolink transit station; expanding connections to this station as well as other Metrolink stations in the neighboring cities will increase ridership and decrease VMT.

R2-T10: EMPLOYEE COMMUTE ALTERNATIVE SCHEDULE

Encouraging telecommuting and alternative work schedules reduces the number of commute trips and therefore VMT traveled by employees. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed work weeks. Employers are encouraged to offer enough flexibility for employees to adopt these alternative schedules.

R3 Transportation Measures

The following R3 measure enhances and ensures the reductions accounted for within the R2 measures through education programs or are measures that will reduce emissions but cannot be quantified.

R3-T1: REGIONAL LAND USE & TRANSPORTATION COORDINATION

This R2 measures promotes the development and use of transit between the incorporated and unincorporated portions of the County as well as within the Unincorporated County. This reduction measure will also be enhanced by the implementation of SCAG's RTP and SCS.

R3-T2: GOVERNMENT FLEET ALTERNATIVE VEHICLES

Riverside County municipal fleet consists of vehicles ranging from small passenger cars to large trucks and fire engines. As older vehicles retire, the new replacement vehicles will continue to increase the fuel efficiency of the County's fleet. The County's use of fuel efficient and alternative fuel vehicles helps to promote their use by local residents.

4.3 Energy

R1 Energy Measures

The following list of R1 building energy efficiency related measures are those measures that California has identified in the AB 32 Scoping Plan that will result in emission reductions within the County.

R1-E1: RENEWABLE PORTFOLIO STANDARD FOR BUILDING ENERGY USE

Senate Bills (SBs) 1075 (2002) and 107 (2006) created the State's Renewable Portfolio Standard (RPS), with an initial goal of 20 percent renewable energy production by 2010. Executive Order (EO) S-14-08 establishes a RPS target of 33 percent by the year 2020 and requires State agencies to take all appropriate actions to ensure the target is met. The 33 percent RPS by 2020 goal is supported by the California Air Resources Board (CARB), though its feasibility is not certain due to current limitations in production and transmission of renewable energy.

R1-E2 AND R1-E3: AB1109 ENERGY EFFICIENCY STANDARDS FOR LIGHTING (RESIDENTIAL AND COMMERCIAL INDOOR AND OUTDOOR LIGHTING)

Assembly Bill (AB1109) mandated that the California Energy Commission (CEC) on or before December 31, 2008, adopt energy efficiency standards for general purpose lighting. These regulations, combined with other State efforts, shall be structured to reduce State-wide electricity consumption in the following ways:

- R1-E2: At least 50 percent reduction from 2007 levels for indoor residential lighting by 2018; and
- R1-E3: At least 25 percent reduction from 2007 levels for indoor commercial and outdoor lighting by 2018.

R1-E4: ELECTRICITY ENERGY EFFICIENCY (AB32)

This measure captures the emission reductions associated with electricity energy efficiency activities included in CARB's AB32 Scoping Plan that are not attributed to other R1 or R2 reductions as described

in this report. This measure includes energy efficiency measures that CARB views as crucial to meeting the State-wide 2020 target, and will result in additional emissions reductions beyond those already accounted for in California's Energy Efficiency Standards for Residential and Non-Residential Buildings (Title 24, Part 6 of the California Code of Regulations; hereinafter referred to as, "Title 24 Energy Efficiency Standards"), the County's adopted Green Building ordinance (effective January 1, 2011), etc. By 2020, this requirement will reduce emissions in California by approximately 21.3 $MMTCO_2e$, representing 17.5 percent of emissions from all electricity in the State. This measure includes the following strategies:

- "Zero Net Energy" buildings (buildings that combine energy efficiency and renewable generation so that they, based on an annual average, extract no energy from the grid);
- Broader standards for new types of appliances and for water efficiency;
- Improved compliance and enforcement of existing standards;
- Voluntary efficiency and green building targets beyond mandatory codes;
- Voluntary and mandatory whole-building retrofits for existing buildings;
- Innovative financing to overcome first-cost and split incentives for energy efficiency, on-site renewables, and high efficiency distributed generation;
- More aggressive utility programs to achieve long-term savings;
- Water system and water use efficiency and conservation measures;
- Additional industrial and agricultural efficiency initiatives; and
- Providing real time energy information technologies to help consumers conserve and optimize energy performance.

R1-E5: NATURAL GAS ENERGY EFFICIENCY (AB32)

This measure captures the emission reductions associated with natural gas energy efficiency activities included in CARB's AB32 Scoping Plan that are not attributed to other R1 or R2 reductions, as described in this report. This measure includes energy efficiency measures that CARB views as crucial to meeting the State-wide 2020 target, and will result in additional emissions reductions beyond those already accounted for in California's Energy Efficiency Standards for Residential and Non-Residential Buildings (Title 24, Part 6 of the California Code of Regulations; hereinafter referred to as, "Title 24 Energy Efficiency Standards"), the County's adopted Green Building ordinance (effective January 1, 2011), etc. By 2020, this requirement will reduce emissions in California by approximately 4.3 $MMTCO_2e$, representing 6.2 percent of emissions from all natural gas combustion in the State. This measure includes the following strategies:

- "Zero Net Energy" buildings (buildings that combine energy efficiency and renewable generation so that they, based on an annual average, extract no energy from the grid);

- Broader standards for new types of appliances and for water efficiency;
- Improved compliance and enforcement of existing standards;
- Voluntary efficiency and green building targets beyond mandatory codes;
- Voluntary and mandatory whole-building retrofits for existing buildings;
- Innovative financing to overcome first-cost and split incentives for energy efficiency, on-site renewables, and high efficiency distributed generation;
- More aggressive utility programs to achieve long-term savings;
- Water system and water use efficiency and conservation measures;
- Additional industrial and agricultural efficiency initiatives; and
- Providing real time energy information technologies to help consumers conserve and optimize energy performance.

R1-E6: INCREASED COMBINED HEAT AND POWER (AB32)

This measure captures the reduction in building electricity emissions associated with the increase of combined heat and power activities, as outlined in CARB's AB32 Scoping Plan. The Scoping Plan suggests that increased combined heat and power systems, which capture "waste heat" produced during power generation for local use, will offset 30,000 GWh State-wide in 2020. Approaches to lowering market barriers include utility-provided incentive payments, a possible combined heat and power portfolio standard, transmission and distribution support systems, or the use of feed-in tariffs. By 2020, this requirement will reduce emissions in California by approximately 6.7 $MMTCO_2e$, representing 7.6 percent of emissions from all electricity in the State.

R1-E7: INDUSTRIAL EFFICIENCY MEASURES (AB32)

This measure captures the reduction in industrial building energy emissions associated with the energy efficiency measures for industrial sources included in CARB's AB32 Scoping Plan. By 2020, this requirement will reduce emissions in California by approximately 1.0 $MMTCO_2e$, representing 3.9 percent of emissions from all industrial natural gas combustion in the State. CARB proposes the following possible State-wide measures:

- Oil and gas extraction;
- GHG leak reduction from oil and gas transmission;
- Refinery flare recovery process improvements; and
- Removal of methane exemption from existing refinery regulations.

R1-E8: RENEWABLE PORTFOLIO STANDARD (33 PERCENT BY 2020) RELATED TO WATER SUPPLY AND CONVEYANCE

This measure would increase electricity production from eligible renewable power sources to 33 percent by 2020. A reduction in GHG emissions results from replacing natural gas-fired electricity production with zero GHG-emitting renewable sources of power. By 2020, this requirement will reduce emissions from electricity used for water supply and conveyance in California by approximately 21.3 $MMTCO_2e$, representing 15.2 percent of emissions from electricity generation (in-State and imports).

R2 Energy Measures

The following list of R2 measures are measures related to building energy efficiency the County can incorporate into the new development projects are to achieve an AB 32 compliant reduction target of 15% below existing emissions levels by the year 2020.

R2-E1: RESIDENTIAL ENERGY EFFICIENCY PROGRAM

This R2 measure would implement General Plan Policies AQ 5.2, AQ 5.4, LU 4.1e, OS 16.1 and OS 16.9, and involves the adoption of a program that facilitates energy efficient design for new residential buildings such that the residential units are 5% to 20% more efficient than the current Title 24 Standards. The high end of this energy efficiency program is equal to that of the LEED for Homes and ENERGY STAR programs; aspects of these programs are included as options for new development in the screening table, but attaining LEED or ENERGY STAR certification is not an explicit requirement. The County energy efficiency program is a voluntary program with a flexible menu of options for compliance included in the screening table.

The 2008 Title 24 Energy Standards were adopted by the Energy Commission in April 2008 and compliance with the 2008 standards went into effect January 1, 2010. In an effort to meet the overall goal of the California Energy Efficiency Strategic Plan of reaching zero net energy for residential buildings by 2020, the stringency of the Title 24 Energy Standards as regulated and required by the State will continue to increase every three years. As energy efficiency standards increase the County may want to periodically re-evaluate their percentage beyond Title 24 goal to ensure it is still a feasibly achievable goal. Residential developments within the unincorporated portions of Riverside County are encouraged to participate in the volunteer Residential Energy Efficiency Program. This voluntary program would set a minimum goal of achieving energy efficiency of 5% greater than current Title 24 Standards. Incentives to participate in this volunteer program include prioritization and streamlining of the application process for residential projects that achieve the minimum goal. Towards this end, the County's screening tables for new development include a menu of options with points assigned to each option. As long as the proposed project meets the required point allotment (100 points total) the project will be deemed consistent with the County plan for reducing GHG emissions. This system will assure flexibility in the implementation of this reduction measure. This reduction goal can be achieved through the incorporation of the strategies outlined in the bullet points below, although the list is not exclusive and other actions are also feasible:

- Install energy efficient appliances, including air conditioning and heating units, dishwashers, water heaters, etc.;
- Install solar water heaters;
- Install energy conserving windows and insulation;
- Install energy efficient lighting;
- Optimize conditions for natural heating, cooling and lighting by building siting and orientation;
- Use features that incorporate natural ventilation;
- Install light-colored "cool" pavements, and strategically located shade trees along all bicycle and pedestrian routes; and
- Incorporate skylights; reflective surfaces, and natural shading in building design and layouts.

R2-E2: RESIDENTIAL RENEWABLE ENERGY PROGRAM

This R2 measure would implement General Plan Policies OS 10.1, OS 11.2, and OS 11.3, and facilitate the voluntary incorporation of renewable energy (such as photovoltaic panels) into new residential developments. For participating developments, the use of onsite renewable energy should be sufficient to reduce the new home's projected use of grid energy by 50%.

The California Energy Commissions' New Solar Homes Partnership is a component of the California Solar Initiative and provides rebates to developers of 6 or more units where 50% of the units include solar power. In addition this measure would encourage that all residents be equipped with "solar ready" features where feasible, to encourage future installation of solar energy systems. Such features would include the proper solar orientation (south facing roof sloped at 20^{O} to 55^{O} from the horizontal), clear access on south-sloped roofs, electrical conduit installed for solar electric system wiring, plumbing installed for solar hot water systems, and space provided for a solar hot water tank. The incentive program should provide enough incentives to result in approximately 50% of new residential development participation in this program, thereby resulting in a 25% reduction in electrical consumption from new residential developments.

As an alternative to, or in support of, providing onsite renewable energy, the project proponent could also buy into a purchased energy offset program through the South Coast Air Quality Management District (SCAQMD), Southern California Edison (SCE), Mission Energy or others that will allow for the purchase of electricity generated from renewable energy resources offsite. Purchased energy offsets (or a combination of incorporated renewables and purchased offsets) must be equal to 25% of the total projected energy consumption for the development.

R2-E3: RESIDENTIAL RETROFIT IMPLEMENTATION PROGRAM

This R2 measure would implement General Plan Policies OS 16.5, OS 16.7, and OS 16.9 and initiate a County program that facilitates the incorporation of energy reduction measures for residential buildings undergoing major renovations. AB 811 is a potential funding source to the County for implementing incentive programs to encourage residences within the County to undertake energy efficiency retrofitting and reducing energy consumption in retrofitted homes by a minimum of 15%. As with the new development, residential retrofits will comply with a menu of options of points assigned to them. As long as a developer meets the required total point allotment (100 points) the developer will meet the

requirements to have the project deemed consistent with this plan. This system will be provided to assure flexibility in the implementation of all reduction measures. Although not limited to these actions, this reduction goal can be achieved through the incorporation of the following:

- Replace inefficient air conditioning and heating units with new energy efficient models
- Replace older, inefficient appliances with new energy efficient models
- Replace old windows and insulation with top quality windows and insulation
- Install solar water heaters
- Replace inefficient and incandescent lighting with energy efficient lighting
- Weatherize the existing building to increase energy efficiency.

R2-E4: RESIDENTIAL RENEWABLE RETROFIT PROGRAM

This R2 measure would implement General Plan Policies OS 10.1, OS 11.2, and OS 11.3 and initiate an incentive program that encourages residents to retrofit their homes with photovoltaic panels such that 50% of all of the home's electrical usage is offset. The CEC's Solar Initiative has incentives available to homeowners.

R2-E5: COMMERCIAL ENERGY EFFICIENCY PROGRAM

This R2 measure would implement General Plan Policies AQ 5.2, AQ 5.4, LU 4.1e, OS 16.1 and OS 16.9, and involves the adoption of a County Program that facilitates the energy efficient design for new commercial buildings so that new commercial buildings are 5% to 20% more efficient than the current Title 24 Standards. The high end of this voluntary energy efficiency program is 10% greater than the minimum requirements of the LEED and ENERGY STAR programs. As energy efficiency standards increase the County may want to periodically re-evaluate their percentage beyond Title 24 goal to ensure it is still a feasibly achievable goal.

Commercial developments within the unincorporated portions of Riverside County are encouraged to participate in the voluntary Commercial Energy Efficiency Program. This voluntary program would set a minimum goal of achieving energy efficiency of 5% greater than current Title 24 Standards. Incentives to participate in this volunteer program would include prioritization and streamlining of the application process for commercial projects that achieve the minimum goal. As described in R2-E1 above, the County screening tables provide all developers with a list of potentially feasible GHG reduction measures that reflect the current state of the regulatory environment. The menu of options have points assigned to them and as long as the proposed project meets the required point allotment (100 points) it will be deemed to be consistent with the County's GHG reduction plan. This system will provide flexibility in the implementation of all reduction measure. Although not limited to these actions, this reduction goal can be achieved through the incorporation of the following:

- Install energy efficient appliances, including air conditioning and heating units, dishwashers, water heaters, etc.;
- Install and solar water heaters;
- Install top quality windows and insulation;
- Install energy efficient lighting;
- Optimize conditions for natural heating, cooling and lighting by building siting and orientation;

- Use features that incorporate natural ventilation;
- Install light-colored "cool" pavements, and strategically located shade trees along all bicycle and pedestrian routes; and
- Incorporate skylights, reflective surfaces, and natural shading in building design and layouts.

R2-E6: COMMERCIAL/INDUSTRIAL RENEWABLE ENERGY PROGRAM

This R2 measure would implement General Plan Policies OS 10.1, OS 11.2, and OS 11.3, and facilitate the voluntary incorporation of onsite renewable (solar or other renewable) energy generation into the design and construction of new commercial, office, and industrial development. A project can earn points in the screening table for renewable energy generation if it is incorporated such that a minimum of 20% of the proposed project's total energy needs are offset. In addition this measure would encourage all facilities be equipped with "solar ready" features where feasible, to facilitate future installation of solar energy systems. These features should include the proper solar orientation (south-facing roof sloped at 20^{O} to 55^{O} from the horizontal), clear access on south sloped roofs, electrical conduit installed for solar electric system wiring, plumbing installed for solar hot water systems, and space provided for a solar hot water tank.

As an alternative to, or in support of, providing onsite renewable energy, the project proponent could buy into a purchased energy offset program through the South Coast Air Quality Management District (SCAQMD), Southern California Edison (SCE) or others that will allow for the purchase of electricity generated from renewable energy resources offsite. Purchased energy offsets (or a combination of incorporated renewables and purchased offsets) should equal 20% of the total projected energy consumption for the development.

R2-E7: COMMERCIAL/INDUSTRIAL RETROFIT PROGRAM

This R2 measure would implement General Plan Policies AQ 5.2, AQ 5.4, OS 16.1, OS 16.7, and OS 16.9 and encourage all commercial or industrial buildings undergoing major renovations to reduce their energy consumption by a minimum of 20%. As with the new development, a menu of options will be provided to assure flexibility in the implementation of this reduction measure. Although not limited to these actions, this reduction goal can be achieved through the incorporation of the following energy efficiency and renewable energy technologies:

- Replace inefficient air conditioning and heating units with new energy efficient models
- Replace older, inefficient appliances with new energy efficient models
- Replace old windows and insulation with top-quality windows and insulation
- Install solar water heaters
- Replace inefficient and incandescent lighting with energy efficient lighting
- Weatherize the existing building to increase energy efficiency
- Install solar panels

R2-E8: INDUCTION STREETLIGHT RETROFITS

New induction street lamps are estimated to last five times longer and consume 50% less energy than the traditional high pressure sodium (HPS) lamps. Changing out old lamps for new ones reduces electricity use and saves money in the long-run. Retrofitting streetlights shall be done in accordance with the County's Mt. Palomar Lighting Ordinance, which requires use of low pressure sodium vapor (LPSV) street lighting within 15 miles of Mt. Palomar Observatory and County Ordinance No. 915 regulating light pollution Countywide.

R2-E9: WATER USE REDUCTION INITIATIVE

This R2 measure would implement General Plan Policies LU 4.1d and f, C 5.2, and OS 2.1 through OS 2.4 and provide incentives for all new proposed development projects to comply with the California Green Building Standards Code. Under the California Green Building Code, new developments are required to reduce indoor potable water use by 20% beyond the Energy Policy Act of 1992 fixture performance requirements, and to reduce outdoor potable water use by 50% from a mid-summer baseline average consumption through irrigation efficiency, native plant selection, the use of recycled water and/or captured rainwater, for example. The State is dependent upon local water purveyors and jurisdictions to implement these new requirements. This R2 measure is provided here to enable its implementation and ensure points are allocated from the Screening Tables in accordance with the resultant benefits.

R3 Energy Measures

The following R3 measures enhance and/or insure the reductions accounted for within the R2 measures through education programs or are measures that will reduce emissions but cannot be quantified.

R3-E1: ENERGY EFFICIENT DEVELOPMENT, AND RENEWABLE ENERGY DEPLOYMENT FACILITATION AND STREAMLINING

This measure would encourage the County to identify and remove regulatory and procedural barriers to the implementation of green building practices and the incorporation of renewable energy systems. This includes the General Plan Energy Element Policies. Implementation of the Energy Element Policies includes updating of codes and zoning requirements and guidelines among others to facilitate renewable energy deployment and streamlining. This measure could be further enhanced by providing incentives for energy efficient projects such as priority in the reviewing, permitting, and inspection process. Additional incentives could include permit streamlining and CEQA streamlining in exchange for incorporating green building practices or renewable energy systems.

R3-E2: ENERGY EFFICIENCY TRAINING & PUBLIC EDUCATION

This measure would provide public education and publicity about energy efficiency measures and reduction programs available within the County, including rebates and incentives available for residences and businesses. In addition, this measure would provide training in green building materials, techniques, and practices for all plan review and building inspection staff.

R3-E3: ENERGY EFFICIENCY AND SOLAR ENERGY FINANCING

This measure would facilitate the incorporation of innovative, grant funded or low-interest financing programs for energy efficiency and renewable energy projects for both existing and new developments. This would include financing for heating, ventilation, air conditioning, lighting, water heating equipment, insulation, weatherization, and residential and commercial renewable energy. A few potential options for funding this measure include:

- Use the money from offset purchases to provide grants to allow for the offset of some of the cost to existing residents in making energy efficiency upgrades;
- Target local funds to assist affordable housing developers to incorporate renewable energy sources and energy efficiency design features into low-income housing during development or through retrofit programs.
- Establish a Finance District, approve a bond purchase, and administer agreements to allow property owners to implement energy efficiency retrofits or designs and/or install renewable systems. Under this provision repayment could be incorporated as a special tax on the property owner's property tax bill.
- Funding of other incentives to encourage the use of renewable energy sources and energy efficient equipment and lighting.

R3-E4: CROSS-JURISDICTIONAL COORDINATION

Under this reduction measure the County would coordinate with other local governments, special districts, nonprofit, and other organizations in order to optimize energy efficiency and renewable resource development and usage throughout the County. This would allow for economies of scale and shared resources to more effectively implement these environmental enhancements.

4.4 Area Source Emissions

Area source emissions make up a small portion of the County's total emissions, however, the following reduction measures can contribute toward reducing emissions in order to meet the AB 32 2020 reduction target. No statewide measures are related to area source emissions, however, the R2 measures are from the SCAQMD.

R2 Area Source Measures

R2-L1: ELECTRIC LANDSCAPING EQUIPMENT

This measure reduces GHG emissions by substituting electric landscaping equipment for the traditional gas-powered equipment. Electric lawn equipment including lawn mowers, leaf blowers and vacuums,

shredders, trimmers, and chain saws are available. When electric landscaping equipment in used in place of conventional equipment, direct GHG emissions from natural gas combustion are replaced with indirect GHG emissions associated with the electricity used to power the equipment. In the Screening Tables for New Development, projects would be able to earn points for including accessible outdoor outlets in the project design.

R2-L2 & R2-L3: SCAQMD HEALTHY HEARTHS

AQMD's Rule 445-Wood Burning Devices, adopted on March 7, 2008, apply to residents in the South Coast Air Basin and include the following key components:

- R2-L2: No permanently installed indoor or outdoor wood burning devices in new developments;
- R2-L3: Establishes a mandatory wood burning curtailment program on high pollution days during November through February, beginning November 1, 2011. Based on current air quality conditions, there may be 10 to 25 mandatory curtailment days in specific areas (AQMD 2008).

R3 Area Source Measures

The following R3 measures are related to landscape strategies that will help reduce GHG emissions and can be incorporated into development projects without additional cost. These measures strategically place trees and other landscape mechanisms that create shade to reduce the heat island effect within parking lots and adjacent to buildings, which in turn, reduces the temperature of buildings and cars during the summer.

R3-L1: EXPAND COUNTY TREE PLANTING

This program evaluates the feasibility of expanding tree planting within the County. This includes the evaluation of potential carbon sequestration from different tree species, potential reductions of building energy use from shading, and GHG emissions associated with pumping water used for irrigation. Commercial and retail development should be encouraged to exceed shading requirements by a minimum of 10% and to plant low emission trees. All future development would be encouraged to preserve native trees and vegetation to the furthest extent possible.

R3-L2: HEAT ISLAND PLAN

The implementation of this measure would include promoting the use of cool roofs, cool pavements, and parking lot shading to the entire County by increasing the number of strategically placed shade trees. Further, County Design Guidelines should be amended to include that all new developments and major renovations (additions of 25,000 square feet or more) would be encouraged to incorporate the following strategies such that heat gain would be reduced for 50% of the non-roof impervious site landscape (including parking, roads, sidewalks, courtyards, and driveways). The strategies include:

- Strategically placed shade trees;
- Paving materials with a Solar Reflective Index (SRI) of at least 29;

- Open grid pavement system; or
- Covered parking (with shade or cover having an SRI of at least 29).

4.5 Purchased Water

The purchased water imported from the State Water Project or from the Colorado River uses a large amount of energy for transportation. The following measures help to reduce the need for imported water and, therefore, reduce GHG emissions from the energy associated with water.

R1 Water Measures

R1-W1: RENEWABLE PORTFOLIO STANDARD RELATED TO WATER SUPPLY AND CONVEYANCE

This measure would increase electricity production from eligible renewable power sources to 33 percent by 2020. A reduction in GHG emissions results from replacing natural gas-fired electricity production with zero GHG-emitting renewable sources of power. By 2020, this requirement will reduce emissions from electricity used for water supply and conveyance in California by approximately 21.3 MMTCO2e, representing 15.2 percent of emissions from electricity generation (in-State and imports).

R2 Water Measures

R2-W1: WATER USE REDUCTION INITIATIVE

This initiative would reduce emissions associated with electricity consumption for water treatment and transportation. This measure encourages the County to adopt a per capita water use reduction goal in support of the Governors Executive Order S-14-08 which mandates the reduction of water use of 20 percent per capita. The County's adoption of a water use reduction goal would introduce requirements for new development and would provide cooperative support for water purveyors that are required to implement these reductions for existing developments. The County would also provide internal reduction measures such that County facilities will support this reduction requirement. New development projects will be able to earn points in the Screening Tables for New Development by incorporating design features that reduce water use.

R2-W2: INCREASE RECLAIMED WATER USE

California water supplies come from a variety of sources including ground water, surface water, and reservoirs. For Southern California in particular, much of the water is transported over long distances, which can require a substantial amount of electricity. Recycled, or reclaimed, water is water reused after wastewater treatment for non-potable uses instead of returning the water to the environment. Since less energy is required to provide reclaimed water, fewer GHG emissions are associated with reclaimed

water use compared to the average California water supply use. The Screening Table would allow new development to achieve points by including the use of recycled water.

4.6 Solid Waste

R1 Solid Waste Measure

The following R1 solid waste related measure is a measure that California has identified in the AB 32 Scoping Plan that will result in emission reductions within the County.

R1-S1: SOLID WASTE MEASURES

The CARB Scoping Plan recommends three measures for reducing emissions from Municipal Solid Waste at the State level, including: 1) landfill methane control; 2) increase the efficiency of landfill methane capture; and 3) high recycling/zero waste. CARB is in the process of developing a discrete early action program for methane recovery (1), which was adopted in early 2010. This measure is expected to result in a 1.0 $MMTCO_2e$ reduction by 2020. Other measures proposed by CARB include increasing efficiency of landfill methane capture (2) and instituting high recycling/zero waste policies (3). Potential reductions associated with these measures are still to be determined. CARB estimates a preliminary one-time cost for adoption of these measures to be approximately $70 per ton of CO_2 reduced.

R2 Solid Waste Measures

The following list of R2 measures are candidate measures the County can incorporate into the development review process related to solid waste to achieve an AB 32 compliant reduction target.

R2-S1: COUNTY DIVERSION PROGRAM

This R2 measure would implement General Plan Policy AQ 4.1 and AQ 5.1 through a County-wide waste diversion plan to further exceed the state requirements by diverting 75% of all waste from landfills by 2020. The following is a potential list of waste reduction measures that can be incorporated into development projects that will further strengthen existing waste reduction/diversion programs:

- Encourage commercial, office, and industrial development to adopt a voluntary procurement standard and prioritize those products that have less packaging, are reusable, recyclable, or compostable;
- Include recycling and green waste collection infrastructure (assigned areas with separate designated bens for each type of recycled material) within residential, commercial, and industrial development;
- Require a minimum of 15% of materials used in construction be sourced locally, as feasible; and
- Encourage the use of recycled building materials and cement substitutes for new developments.

R2-S2: CONSTRUCTION DIVERSION PROGRAM

This R2 measure also implements General Plan Policies AQ 4.1 and AQ 5.1 by giving incentives through points within the Screening Table to new development projects that provide diversion of 60% of construction waste. This provides a 10% increase in diversion beyond the AB 2176, Section 42911, requirement that dictates that development projects provide adequate areas for collecting and loading recyclable materials and requires a 50% diversion rate prior to being issued a building permit.

R3 Solid Waste Measures

The following R3 measures enhance and/or insure the reductions accounted for within the R2 measures through education programs that help participation and compliance of the R2 measures identified above.

R3-S1: ENCOURAGE INCREASED EFFICIENCY OF THE GAS TO ENERGY SYSTEM AT LANDFILLS.

This R3 measure would encourage the landfills operated by Riverside County Waste Management to keep current with upgrades in efficiencies to landfill gas capture and gas to energy systems and to upgrade as feasible when significant increases in conversion efficiencies are available.

R3-S2: WASTE EDUCATION PROGRAM

This R3 measure would provide County-wide public education and increased publicity about commercial and residential recycling. This measure would educate the public about waste reduction options available at both residential and commercial levels, including composting, grass recycling, waste prevention, and available recycling services.

4.7 Agriculture

R1 Agriculture Measure

The following R1 agriculture related measure is a measure that California has identified in the AB 32 Scoping Plan that will result in emission reductions within the County.

R1-A1: METHANE CAPTURE AT LARGE DAIRIES

This is an AB 32 voluntary measure to encourage the installation of methane digesters to capture methane emissions at large dairies. By 2020, this requirement will reduce emissions in California by approximately one (1) $MMTCO_2e$, representing 7.8 percent of CH_4 and N_2O emissions from manure management and enteric fermentation at dairies in the State.

R2 Agriculture Measures

Agriculture is an important, but separate, economic sector from new development projects within the County. Because of the difference between agricultural activities and new residential, commercial and industrial development within the County, IMs for agricultural source emissions are not recommended at this time.

R3 Agriculture Measure

The following R3 measure enhances and/or insures the reductions accounted for within the R2 measures through education programs that help participation and compliance of the R2 measures identified above.

R3-A1: PROMOTE SOIL MANAGEMENT PRACTICES

Under this reduction measure the County would promote soil management practices that reduce nitrogen dioxide emissions through strategies such as fertilizer management, nitrification inhibitors, water management, and efficient use of fossil fuels.

4.8 Industrial

The following list of R1 industrial related measures are those measures that CARB has identified in the AB 32 Scoping Plan that will result in emission reductions within the County. This section describes GHG emission reductions for the existing and proposed national, state, or regional industrial fuel combustion measures that will result in future GHG reductions for the industrial sector and do not require significant County action.

R1 Industrial Measures

R1-I1: OIL AND GAS EXTRACTION COMBUSTION RELATED GHG EMISSION REDUCTION

This AB 32 measure would reduce combustion emissions from oil and gas extraction. By 2020, this requirement will reduce emissions in California by approximately 1.8 MMT CO_2e, representing 13 percent of combustion emissions from oil and gas extraction in the State.

R1-I2: STATIONARY INTERNAL COMBUSTION ENGINE ELECTRIFICATION

This AB 32 measure would affect owners and operators of industrial and commercial engines over 50 horsepower used as primary power sources by replacing internal combustion engines with electric motors. By 2020, this requirement will reduce emissions in California by approximately 0.3 $MMTCO_2e$, representing 0.5 percent of combustion emissions from industrial sources (non-coal) in the State.

R2 Industrial Measures

Industrial point source emitters of GHGs are required to comply with Title V Permits under the federal Clean Air Act. As such, these types of emissions are not under the jurisdiction of the County and, hence, no IMs were developed or are proposed for point source emitters. Other types of industrial emissions (mobile source, energy, etc.) are reduced through R1 measures and the measures described throughout this document.

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