GREENHOUSE GAS EMISSIONS

Screening Tables
Sutter County, California

April 2011

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CONTENTS

TABLES

Introduction

The California Environmental Quality Act ("CEQA") requires assessment of the environmental impacts of proposed projects including the impacts of greenhouse gas emissions. The purpose of this document is to provide guidance on how to analyze greenhouse gas (GHG) emissions and determine the significance of those emissions during CEQA review of proposed development projects within Sutter County. The analysis, methodology, and significance determination (thresholds) are based upon the Sutter County Climate Action Plan (CAP), the GHG emission inventories within the CAP, and the GHG reduction measures that reduce emissions to the AB-32 compliant reduction target of the CAP. The Screening Tables can be used by the Sutter County Community Services Department for review of development projects in order to insure that the specific reduction strategies in the CAP are implemented as part of the CEQA process for development projects. The Screening tables provide a menu of options that both insures implementation of the reduction strategies and flexibility on how development projects will implement the reduction strategies to achieve an overall reduction of emissions, consistent with the reduction target of the CAP.

California Environmental Quality Act

CEQA MANDATES FOR ANALYSIS OF IMPACTS

CEQA requires that Lead Agencies inform decision makers and the public regarding the following: potential significant environmental effects of proposed projects; feasible ways that environmental damage can be avoided or reduced through the use of feasible mitigation measures and/or project alternatives; and the reasons why the Lead Agency approved a project if significant environmental effects are involved (CEQA Guidelines §15002). CEQA also requires Lead Agencies to evaluate potential environmental effects based to the fullest extent possible on scientific and factual data (CEQA Guidelines §15064[b]). A determination of whether or not a particular environmental impact will be significant must be based on substantial evidence, which includes facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts (CEQA Guidelines §15064f[5]).

The recently amended CEQA Guidelines (CEQA Guidelines §15064.4[a] [b]) explicitly requires Lead Agencies to evaluate GHG emissions during CEQA review of potential environmental impacts generated by a proposed project. To assist in this effort, two questions were added to Appendix G of the CEQA Guidelines: Would the Project

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

- Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

Finally, under the "rule of reason," an EIR is required to evaluate impacts to the extent that is reasonably feasible ([CEQA Guideline § 15151; *San Francisco Ecology Center v. City and County of San Francisco* (1975) 48 Cal.App.3rd 584]). While CEQA does require Lead Agencies to make a good faith effort to disclose what they reasonably can, CEQA does not demand what is not realistically possible ([*Residents at Hawks Stadium Committee v. Board of Trustees* (1979) 89 Cal.App.3rd 274, 286]).

Greenhouse Gas Impact Determination

STATEWIDE OR REGIONAL THRESHOLDS OF SIGNIFICANCE

There are currently no published statewide or regional thresholds of significance for measuring the impact of GHG emissions generated by a proposed project. CEQA Guidelines §15064.7 indicates only that, "each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects."

QUANTITATIVE ANALYSIS RELATIVE TO THE SUTTER COUNTY CLIMATE ACTION PLAN

METHODOLOGY OVERVIEW

An individual project cannot generate enough GHG emissions to influence global climate change. The project participates in this potential impact by its incremental contribution combined with the cumulative increase of all other sources of GHGs, which when taken together may have a significant impact on global climate change. To address the State's requirement to reduce GHG emissions, the County prepared the CAP with the target of reducing GHG emissions within the unincorporated County down to 1990 levels of emissions by 2020. The County's target is consistent with the AB 32 target and ensures that the County is providing GHG reductions locally that will complement the State and international efforts of stabilizing climate change.

Because the County's CAP addresses GHG emissions reduction, the Plan is in concert with AB 32 and international efforts to address global climate change. The Plan includes specific local requirements that will substantially lessen the cumulative contribution attributed to activities under the County's land use control. Compliance with the Plan fulfills the approach found in CEQA Guidelines §15130(a)(3) for determining whether a project's contribution is cumulatively considerable.

Because GHG emissions are only important in the context of cumulative emissions, the focus of the analysis is on answering the question of whether incremental contributions of GHGs are a cumulatively considerable contribution to climate change impacts. The CAP includes a set of mitigation measures designed to substantially lessen cumulative impacts associated with GHG emissions as described in CEQA Guidelines §15130(a)(3), in determining if the Project's effects will result in significant impacts. The CAP has the following components that fulfill mitigation for cumulative GHG emissions:

- The CAP provides a countywide GHG emissions reduction target that will substantially lessen the cumulative problem;
- The CAP provides measures that new development projects must follow to meet the County's reduction target and substantially lessen the cumulative impact; and
- The CAP provides a set of GHG emission inventories that provides quantitative facts and analysis of how the Plan meets the reduction target that substantially lessens the cumulative impact.

The CAP satisfies the first condition because it includes a reduction target of reducing GHG emissions down to 1990 levels of emissions within the unincorporated County by 2020. This reduction target is compliant with AB 32. The AB 32 Climate Change Scoping Plan states: "In recognition of the critical role local governments will play in the successful implementation of AB 32, ARB recommended a greenhouse gas reduction goal for local governments of 15 percent below today's levels by 2020 to ensure that their municipal and community-wide emissions match the State's reduction target (Scoping Plan page ES-5, CARB, December 2008). The County's Plan matches the State's reduction target, which also coincides with the reduction targets of the Kyoto Protocol. In this way, the County is teaming with the State and international efforts to reduce GHG emissions globally and substantially lessen the cumulative problem.

The Plan satisfies the second condition through the implementation of the reduction measures for new development. This document supplies the specific criteria that new development follow to insure that the reduction measures associated with new development are implemented and the reduction target is met.

The Plan satisfies the third criteria by providing a set of countywide GHG emissions inventories for existing conditions, for future 2020 GHG emissions that are anticipated without the reduction measures (Business As Usual; BAU), and reduced levels of 2020 GHG emissions that will result from the reduction measures. Finally, the reduced 2020 GHG emissions inventory quantitatively demonstrates that implementation of the reduction measures achieves the reduction target (1990 GHG emission levels by 2020). These Countywide GHG emission inventories are found in Section 3 of the CAP.

METHODOLOGY FOR THE CALCULATION OF GHG EMISSIONS

Analysis of development projects can either be done through emissions calculations or by using the screening tables beginning on Page 6.

Total GHG emissions are the sum of emissions from both direct and indirect sources. Direct sources include mobile sources such as construction equipment, motor vehicles, landscape equipment; and stationary sources such as cooling and heating equipment. Indirect sources are comprised of electrical, and potable water use, and the generation of solid waste, and waste water.

Direct GHG emissions from mobile and stationary sources are determined as the sum of the annual GHG emissions from construction equipment, motor vehicles, landscape equipment, and heating and cooling equipment.

Indirect sources are determined based on source as follows. Electrical usage is reported as annual emissions from electrical usage. Potable water usage is reported as the annual emissions from electricity used for potable water treatment and transportation. Solid waste is reported as the sum of annual emissions from solid waste disposal treatment, transportation, and fugitive emissions of methane at the solid waste facilities. Wastewater usage is reported as the annual emissions from wastewater transport and treatment.

Analysis of development projects not using the screening tables should use the emission factors found in the latest version of the California Climate Action Registry (CCAR) General Reporting Protocol. Quantification of emissions from electricity used for potable water treatment and transportation as well as wastewater transport and treatment can be found in the California Energy Commission (CEC) document titled "Refining Estimates of Water-Related Energy Use in California (CEC December 2006).
For analysis of development projects using the screening tables, please refer to the process described on page 6.

Screening Tables

The purpose of the Screening Tables is to provide guidance in measuring the reduction of greenhouse gas emissions attributable to certain design and construction measures incorporated into development projects (i.e. parcel and subdivision maps, use permits, rezones, and general plan amendments), requiring discretionary review that are going through the County's CEQA review process, as well as commercial and industrial projects located on existing commercial and industrial properties that require approval of a Design Review application. The analysis, methodology, and significance determination (thresholds) are based upon the Sutter County Climate Action Plan (CAP), which includes GHG emission inventories, a year 2020 emission reduction target, the goals and policies to reach the target, together with the Programmatic EIR prepared for the CAP.

The methodology for the development and application of the Screening Table is set forth in Appendix A, attached hereto.

Instructions for Residential, Commercial, or Industrial Projects

The Screening Table assigns points for each option incorporated into a project as mitigation or a project design feature (collectively referred to as "feature"). In order to obtain the total points listed in the table, all residential units or all commercial/industrial buildings within the project must incorporate the listed option, or design feature. A portion of the total points may be obtained, corresponding to the percentage of the project that contains the design feature. The point values correspond to the minimum emissions reduction expected from each feature. The menu of features allows maximum flexibility and options for how development projects can implement the GHG reduction measures. Projects that achieve at least 100 points will be consistent with the reduction quantities anticipated in the County's CAP. As such, those projects that achieve a total of 100 points or greater would not require quantification of project specific GHG emissions. Consistent with CEQA Guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.

Instructions for Mixed Use Projects

Mixed use projects provide additional opportunities to reduce emissions by combining complimentary land uses in a manner that can reduce vehicle trips. Mixed use projects also have the potential to complement energy efficient infrastructure in a way that reduces emissions. For mixed use projects, fill out both Screening Table 1 and Table 2, but allocate the points proportional to the mix of uses. As an example, a mixed use project that is 50% commercial uses and 50% residential uses will show ½ point for each assigned point value in Table 1 and Table 2. Add the points from both tables. Also note that similar to single land use projects, in order to obtain the full proportioned point values for mixed use projects (i.e. 50% commercial and 50% residential point values), all residential units and/or all commercial/industrial buildings within the project must incorporate the listed option, or design feature. A portion of the points value may be obtained, corresponding to the percentage of the project that contains the design feature. Mixed use projects that achieve at least 100 points will be consistent with the reduction quantities in the County's CAP and are considered less than significant for GHG emissions.

Those projects that do not achieve 100 points using the screening tables will need to provide additional analysis to determine the significance of GHG emissions. Guidelines and methodologies for conducting additional analysis in determining the significance of GHG emissions can be found in Appendix B. Nothing in this guidance shall be construed as limiting the County's authority to adopt a statement of overriding consideration for projects which require the preparation of an EIR due to a project's significant GHG impacts. The following tables provide a menu of performance standards/options related to GHG mitigation measures and design features that can be used to demonstrate consistency with the reduction measures and GHG reduction quantities in the CAP.

Table 1: Screening Table for Implementation of GHG Reduction Measures for Residental Development

Points are based upon the California Green Building Standards Code 2008.

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
Reduction Measure R2-E1: Residential Energy Efficiency Program				
Building Envelope				
Insulation	Title 24 standard (required)	0 points		
	Modestly Enhanced Insulation (5% > Title 24)	3 points		
	Enhanced Insulation (15%> Title 24)	7 points		
	Greatly Enhanced Insulation (20%> Title 24)	9 points		
	Select one value		_____	
Windows	Title 24 standard (required)	0 points		
	Modestly Enhanced Window Insulation (5% > Title 24)	3 points		
	Enhanced Window Insulation (15%> Title 24)	7 points		
	Greatly Enhanced Window Insulation (20%> Title 24)	9 points		
	Select one value		_____	
Doors	Title 24 standard (required)	0 points		
	Modestly Enhanced Insulation (5% > Title 24)	3 points		
	Enhanced Insulation (15%> Title 24)	7 points		
	Greatly Enhanced Insulation (20%> Title 24)	9 points		
	Select one value		_____	
Air Infiltration	Minimizing leaks in the building envelope is as important as the insulation properties of the building. Insulation does not work effectively if there is excess air leakage.			
	Title 24 standard (required)	0 points		
	Modest Building Envelope Leakage (5% > Title 24)	3 points		
	Reduced Building Envelope Leakage (15%> Title 24)	7 points		
	Minimum Building Envelope Leakage (20% > Title 24)	9 points		
	Select one value		_____	
Thermal Storage of Building	Thermal storage is a design characteristic that helps keep a constant temperature in the building. Common thermal storage devices include strategically placed water filled columns, water storage tanks, and thick masonry walls.			

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
	Thermal storage designed to reduce heating/cooling by 5°F within the building	5 points		
	Thermal storage to reduce heating/cooling by 10°F within the building	10 points		
	Note: Engineering details must be provided to substantiate the efficiency of the thermal storage device.			
	Select one value		_____	
Indoor Space Efficiencies				
Heating/ Cooling Distribution System	Title 24 standard (required)	0 points		
	Modest Distribution Losses (5% > Title 24)	3 points		
	Reduced Distribution Losses (15%> Title 24)	7 points		
	Greatly Reduced Distribution Losses (15%> Title 24)	9 points		
	Select one value		_____	
Space Heating/ Cooling Equipment	Title 24 standard (required)	0 points		
	Efficiency HVAC (5% > Title 24)	3 points		
	High Efficiency HVAC (15%> Title 24)	7 points		
	Very High Efficiency HVAC (20%> Title 24)	9 points		
	Select one value		_____	
Water Heaters	Title 24 standard (required)	0 points		
	Efficiency Water Heater (Energy Star conventional that is 5% > Title 24)	3 points		
	High Efficiency Water Heater (Conventional water heater that is 15%> Title 24)	7 points		
	High Efficiency Water Heater (Conventional water heater that is 20%> Title 24)	9 points		
	Solar Water Heating System (this option also implements R2E10)	12 points		
	Select one value		_____	
Daylighting	Daylighting is the ability of each room within the building to provide outside light during the day reducing the need for artificial lighting during daylight hours.			
	All peripheral rooms within the living space have at least one window (required)	0 points		
	All rooms within the living space have daylight (through use of windows, solar tubes, skylights, etc.) such that each room has at least 800 lumens of light during a sunny day	3 points		
	All rooms daylighted to at least 1,000 lumens	5 points		
	Select one value		_____	
Artificial	Title 24 standard (required)	0 points		

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
Lighting	Efficient Lights (5% > Title 24) High Efficiency Lights (LED, etc. 15%> Title 24) Very High Efficiency Lights (LED, etc. 20%> Title 24) Select one value	3 points 7 points 9 points	_____	
Appliances	Title 24 standard (required) Efficient Appliances (5% > Title 24) High Efficiency Energy Star Appliances (15%> Title 24) Very High Efficiency Appliances (20%> Title 24) Select one value	0 points 3 points 7 points 9 points	_____	
Miscellaneous Residential Building Efficiencies				
Building Placement	North/South alignment of building or other building placement such that the orientation of the buildings optimizes natural heating, cooling, and lighting.	3 point	_____	
Independent Energy Efficiency Calculations	Provide point values based upon energy efficiency modeling of the Project. Note that engineering data will be required documenting the energy efficiency and point values based upon the proven efficiency beyond Title 24 Energy Efficiency Standards. Point values can be calculated based on the percentage above Title 24 standards (6 points for each percentage point above Title 24 Standards for the entire building envelope and equipment).	TBD	_____	
Other	This allows innovation by the applicant to provide design features that increases the energy efficiency of the project not provided in the table. Note that engineering data will be required documenting the energy efficiency of innovative designs and point values given based upon the proven efficiency beyond Title 24 Energy Efficiency Standards.	TBD	_____	
Existing Residential Retrofits	The applicant may wish to provide energy efficiency retrofit projects to existing residential dwelling units to further the point value of their project. Retrofitting existing residential dwelling units within the unincorporated County is a key reduction measure that is needed to reach the reduction goal. The potential for an applicant to take advantage of this program will be decided on a case by case basis and must have the approval of the Sutter County Community Services Department. The decision to allow applicants the ability to participate in this program will be evaluated based upon, but not limited to the following; Will the energy efficiency retrofit project benefit low income or disadvantaged residents? Does the energy efficiency retrofit project fit within the overall assumptions in Reduction Measure R2E3? Does the energy efficiency retrofit project provide co-benefits important to the County? Point value will be determined based upon engineering and design criteria of the energy efficiency retrofit project.	TBD	_____	
Residential Unit Size and Density	The size of the residential units in comparison to occupancy influences the energy use. Large single-family residential units use more energy to heat and cool the building than smaller, more compact size residential units. The			

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
	following point values are assigned to compact sized residential projects. Single-family residential units of less than 1,600 sq. ft. of interior living space Single-family residential units of less than 1,400 sq. ft. of interior living space Single-family residential units of less than 1,200 sq. ft. of interior living space Single-family residential units with 1,000 sq. ft. or less of interior living space Multi-family residential units of less than 1,100 sq. ft. of interior living space Multi-family residential units of less than 1,000 sq. ft. of interior living space Multi-family residential units of less than 800 sq. ft of interior living space Multi-family residential units with 600 sq. ft or less of interior living space Select one value	 2 points 4 points 6 points 8 points 2 point 4 points 6 points 8 points	_____	
Reduction Measure R2-E2: Residential Renewable Energy Program				
Photovoltaic	Solar Photovoltaic panels installed on individual homes or in collective neighborhood arrangements such that the total power provided augments: Solar Ready Homes (sturdy roof and electric hookups) 10 percent of the power needs of the project 20 percent of the power needs of the project 30 percent of the power needs of the project 40 percent of the power needs of the project 50 percent of the power needs of the project 60 percent of the power needs of the project 70 percent of the power needs of the project 80 percent of the power needs of the project 90 percent of the power needs of the project 100 percent of the power needs of the project 110 percent of the power needs of the project 120 percent of the power needs of the project Select one value	 5 points 10 points 20 points 26 points 32 points 38 points 44 points 50 points 56 points 62 points 68 points 74 points 80 points	_____	
Off-site renewable energy project	The applicant may buy into a purchased energy offset program that will allow for the purchase of electricity generated from renewable energy resources offsite. Purchased energy offsets (or a combination of incorporated renewable and purchased offsets) must be equal to or greater than 25% of the total projected energy consumption for the development. These offsite renewable energy purchase proposals will be determined on a case by case basis and must be accompanied by a document that details the quantity of renewable energy purchased. Point values will be determined based upon the energy generated by the proposal.	TBD	_____	

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
Other Renewable Energy Generation	The applicant may have innovative designs or unique site circumstances (such as geothermal) that allow the project to generate electricity from renewable energy not provided in the table. The ability to supply other renewable energy and the point values allowed will be decided based upon engineering data documenting the ability to generate electricity.	TBD	_____	
Reduction Measure R2-E9: Water Use Reduction Initiative				
Irrigation and Landscaping				
Water Efficient Landscaping	Eliminate conventional turf from landscaping Eliminate turf and only provide drought tolerant plants Xeroscaping that requires no irrigation Select one value	3 points 4 points 6 points	_____	
Water Efficient irrigation systems	Drip irrigation Smart irrigation control systems combined with drip irrigation (demonstrate 20% reduced water use) Select one value	1 point 5 points	_____	
Recycled Water	Gray water (purple pipe) irrigation system on site	5 points		
Storm water Reuse Systems	Innovative on-site stormwater collection, filtration and reuse systems are being developed that provide supplemental irrigation water and provide vector control. These systems can greatly reduce the irrigation needs of a project. Point values for these types of systems will be determined based upon design and engineering data documenting the water savings.	TBD	_____	
Potable Water				
Showers	Title 24 standard (required) EPA High Efficiency Showerheads (15% > Title 24) Select one value	0 points 1 point	_____	
Toilets	Title 24 standard (required) EPA High Efficiency Toilets (15% > Title 24) Select one value	0 points 1 point	_____	
Faucets	Title 24 standard (required) EPA High Efficiency faucets (15% > Title 24) Select one value	0 points 1 point	_____	

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
Reduction Measure R2-W1: 75 Percent County Diversion Program				
Recycling	Provide greenwaste composing bins at each residential unit	3 points		
	Multi-family residential projects that provide dedicated recycling bins separated by types of recyclables combined with instructions/education program explaining how to use the bins and the importance of recycling.	2 points		
	Select one value		_____	
Reduction Measure R2-W2: Construction Diversion Program				
Construction Waste	Use a minimum of 15% locally sourced construction materials	3 points		
	Use 15% recycled building materials and cement substitutes	5 points		
	Recycle 50% of debris (required)	0 points		
	Recycle 55% of debris	1 point		
	Recycle 60 % of debris	3 points		
	Recycle 65% of debris	5 points		
	Applicant needs to provide recycling monitoring program to County			
	Select one value		_____	
Reduction Measure R2-W3: Sutter Pointe Solid Waste Reduction Measures				
Sutter Pointe Waste Reductions	Provide education/publicity about reducing waste and recycling services	1 point		
	Provide adequate recycling containers in public areas, including parks, school grounds, golf courses, and pedestrian zones of mixed-use development	2 points		
	Provide interior and exterior storage areas for recyclables/green waste	3 points		
	Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard)	3 points		
	Select one value		_____	
Reduction Measure R2-T2: Land Use Based Trip and VMT Reduction Policies				
Mixed Use	Mixes of land uses that complement one another in a way that reduces the need for vehicle trips can greatly reduce GHG emissions. The point value of mixed use projects will be determined based upon a Transportation Impact Analysis (TIA) demonstrating trip reductions and/or reductions in vehicle miles traveled. Suggested ranges:	TBD		
	Diversity of land uses complementing each other (2-28 points)			
	Increased destination accessibility other than transit through pedestrian or bicycle path linkages (1-18 points)			
	Increased transit accessibility (1-25 points)			
	Infill location that reduces vehicle trips or VMT beyond the measures described			

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
	above (points TBD based on traffic data).		_____	
Residential Near Local Retail (Residential only Projects)	Residential developments within ¼ mile walking and 1 mile biking distance of local retail helps to reduce vehicle trips and/or vehicle miles traveled. The point value of residential projects in close proximity to local retail will be determined based upon traffic studies that demonstrate trip reductions and/or reductions in vehicle miles traveled (VMT)	TBD	_____	
Other Trip Reduction Measures	Other trip or VMT reduction measures not listed above with a transportation impact analysis (TIA) and/or other traffic data supporting the trip and/or VMT for the project.	TBD	_____	
Reduction Measure R2-T4: Signal Synchronization and Transportation Flow Management				
Signal improvements	Signal synchronization-1 point per signal Traffic signals connected to Intelligent Traffic System (ITS)	1 point/signal 3 points/ signal	_____	
Reduction Measure R2-T6: Provide a Comprehensive System of Facilities for Non-Motorized Transportation				
Sidewalks	Provide sidewalks on both sides of the street Provide pedestrian linkage between residential and commercial uses located within 1 mile of each other. Select one value	1 point 3 points	_____	
Bicycle paths	Provide bicycle paths within project boundaries Provide bicycle path linkages between residential and other land uses Provide bicycle path linkages between residential and transit Select one value	TBD 2 points 5 points	_____	
Reduction Measure R2-T7: Expand Renewable Fuel/Low-Emission Vehicle Use				
Electric Vehicle Recharging	Provide circuit and capacity in garages/parking areas for installation of electric vehicle charging stations. Install electric vehicle charging stations in garages/parking areas	2 points/area 8 points/ station	_____	

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
Reduction Measure R2-T8: Sutter Pointe Specific Plan Transit Infrastructure Development				
Sutter Point Transit Infrastructure	A Conceptual Transit Plan has been developed for Sutter Pointe that includes plans for phased transit service which will begin as soon as 50 interested riders have been identified. There are four phases of transportation improvement within the Sutter Pointe development: Phase 1 will extend past 2020 based on anticipated residential development. The primary focus of this phase is for the Transportation Management Association (TMA) to facilitate or develop and market rideshare initiatives including car and vanpool programs, commuter bus services, incorporation of transit stops for the Yuba-Sutter Transit system, and Airporter services to and from Sacramento International Airport. Phase 2 of the Sutter Pointe Transit Plan would incorporate an expansion of Sutter Pointe Transit Commuter Express Service. Phase 3 would increase Sacramento commuter service capacity, expand commuter service to Placer County, establish midday service to Sacramento and provide commute services to the Sutter Pointe Business Park from adjacent communities. With warranted demand, dedicated peak hour trips serving the Sutter Pointe business and industrial parks could be added from the Yuba City/Marysville area. Phase 4 would incorporate further expansion of the Sutter Pointe commuter bus services to Sacramento and Placer County, develop local transit services, and expand neighboring regional transit services.	TBD	_____	
Total Points Earned by Residential Project:				

Table 2: Screening Table for Implementation of GHG Reduction Measures for Commercial or Industrial Development

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
Reduction Measure R2-E5: Commercial Energy Efficiency Program				
Building Envelope				
Insulation	Title 24 standard (required) Modestly Enhanced Insulation (5% > Title 24) Enhanced Insulation (15%> Title 24) Greatly Enhanced Insulation (20%> Title 24) Select one value	0 points 4 points 8 points 12 points	_____	
Windows	Title 24 standard (required) Modestly Enhanced Window Insulation (5% > Title 24) Enhanced Window Insulation (15%> Title 24) Greatly Enhanced Window Insulation (20%> Title 24) Select one value	0 points 4 points 8 points 12 points	_____	
Doors	Title 24 standard (required) Modestly Enhanced Insulation (5% > Title 24) Enhanced Insulation (15%> Title 24) Greatly Enhanced Insulation (20%> Title 24) Select one value	0 points 4 points 8 points 12 points	_____	
Air Infiltration	Minimizing leaks in the building envelope is as important as the insulation properties of the building. Insulation does not work effectively if there is excess air leakage. Title 24 standard (required) Modest Building Envelope Leakage (5% > Title 24) Reduced Building Envelope Leakage (15%> Title 24) Minimum Building Envelope Leakage (20% > Title 24) Select one value	0 points 4 points 8 points 12 points	_____	
Thermal Storage of Building	Thermal storage is a design characteristic that helps keep a constant temperature in the building. Common thermal storage devices include strategically placed water filled columns, water storage tanks, and thick masonry walls.			

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
	Thermal storage designed to reduce heating/cooling by 5°F within the building	6 points		
	Thermal storage to reduce heating/cooling by 10°F within the building	12 points		
	Note: Engineering details must be provided to substantiate the efficiency of the thermal storage device.			
	Select one value		_____	
Indoor Space Efficiencies				
Heating/ Cooling Distribution System	Title 24 standard (required)	0 points		
	Modest Distribution Losses (5% > Title 24)	4 points		
	Reduced Distribution Losses (15%> Title 24)	8 points		
	Greatly Reduced Distribution Losses (15%> Title 24)	12 points		
	Select one value		_____	
Space Heating/ Cooling Equipment	Title 24 standard (required)	0 points		
	Efficiency HVAC (5% > Title 24)	4 points		
	High Efficiency HBAC (15%> Title 24)	8 points		
	Very High Efficiency HBAC (20%> Title 24)	12 points		
	Select one value		_____	
Commercial Heat Recovery Systems	Heat recovery strategies employed with commercial laundry, cooking equipment, and other commercial heat sources for reuse in HVAC air intake or other appropriate heat recovery technology. Point values for these types of systems will be determined based upon design and engineering data documenting the energy savings.	TBD	_____	
Water Heaters	Title 24 standard (required)	0 points		
	Efficiency Water Heater (Energy Star conventional that is 5% > Title 24)	4 points		
	High Efficiency Water Heater (Conventional water heater that is 15%> Title 24)	8 points		
	High Efficiency Water Heater (Conventional water heater that is 20%> Title 24)	12 points		
	Solar Water Heating System (commercial only-this reduction feature also implements R2E10	14 points		
	Select one value		_____	
Daylighting	Daylighting is the ability of each room within the building to provide outside light during the day reducing the need for artificial lighting during daylight hours.			

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
	All peripheral rooms within building have at least one window or skylight	1 points		
	All rooms within building have daylight (through use of windows, solar tubes, skylights, etc.) such that each room has at least 800 lumens of light during a sunny day	5 points		
	All rooms daylighted to at least 1,000 lumens	7 points		
	Select one value		_____	
Artificial Lighting	Title 24 standard (required)	0 points		
	Efficient Lights (5% > Title 24)	4 points		
	High Efficiency Lights (LED, etc. 15%> Title 24)	6 points		
	Very High Efficiency Lights (LED, etc. 20%> Title 24)	8 points		
	Select one value		_____	
Appliances	Title 24 standard (required)	0 points		
	Efficient Appliances (5% > Title 24)	4 points		
	High Efficiency Energy Star Appliances (15%> Title 24)	8 points		
	Very High Efficiency Appliances (20%> Title 24)	12 points		
	Select one value		_____	
Miscellaneous Commercial Building Efficiencies				
Building Placement	North/South alignment of building or other building placement such that the orientation of the buildings optimizes conditions for natural heating, cooling, and lighting.	4 points	_____	
Other	This allows innovation by the applicant to provide design features that increases the energy efficiency of the project not provided in the table. Note that engineering data will be required documenting the energy efficiency of innovative designs and point values given based upon the proven efficiency beyond Title 24 Energy Efficiency Standards. Point values can be calculated based on the percentage above Title 24 standards (8 points for each percentage point above Title 24 Standards for the entire building envelope and equipment).	TBD	_____	
Existing Commercial Building Retrofits	The applicant may wish to provide energy efficiency retrofit projects to existing commercial buildings to further the point value of their project. Retrofitting existing commercial buildings within the unincorporated County is a key reduction measure that is needed to reach the reduction goal. The potential for an applicant to take advantage of this program will be decided on a case by case basis and must have the approval of the Sutter County Community Services Department. The decision to allow applicants the ability to participate in this program will be evaluated based upon, but not limited to the following:	TBD		

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
	Will the energy efficiency retrofit project benefit low income or disadvantaged communities? Does the energy efficiency retrofit project fit within the overall assumptions in Reduction Measure R2E4? Does the energy efficiency retrofit project provide co-benefits important to the County? Point value will be determined based upon engineering and design criteria of the energy efficiency retrofit project.		_____	
Reduction Measure R2-E6: Commercial/Industrial Renewable Energy Program				
Photovoltaic	Solar Photovoltaic panels installed on commercial buildings or in collective arrangements within a commercial development such that the total power provided augments:			
	Solar Ready Roofs (sturdy roof and electric hookups)	1 point		
	10 percent of the power needs of the project	3 points		
	20 percent of the power needs of the project	5 points		
	30 percent of the power needs of the project	8 points		
	40 percent of the power needs of the project	10 points		
	50 percent of the power needs of the project	12 points		
	60 percent of the power needs of the project	15 points		
	70 percent of the power needs of the project	18 points		
	80 percent of the power needs of the project	20 points		
	90 percent of the power needs of the project	23 points		
	100 percent of the power needs of the project	25 points		
	110 percent of the power needs of the project	27 points		
	120 percent of the power needs of the project	30 points		
	130 percent of the power needs of the project	33 points		
	140 percent of the power needs of the project	36 points		
	150 percent of the power needs of the project	39 points		
	160 percent of the power needs of the project	42 points		
	170 percent of the power needs of the project	45 points		
	180 percent of the power needs of the project	48 points		
	190 percent of the power needs of the project	41 points		
	200 percent of the power needs of the project	52 points		
	Select one value		_____	

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
Off-site renewable energy project	The applicant may submit a proposal to supply an off-site renewable energy project such as renewable energy retrofits of existing residential that will help implement R2E6, existing commercial/industrial that will help implement R2E9, or the Warehouse Renewable Energy Incentive Program (R2E7). These off-site renewable energy retrofit project proposals will be determined on a case by case basis accompanied by a detailed plan documenting the quantity of renewable energy the proposal will generate. Point values will be based upon the energy generated by the proposal.	TBD	_____	
Other Renewable Energy Generation	The applicant may have innovative designs or unique site circumstances (such as geothermal) that allow the project to generate electricity from renewable energy not provided in the table. The ability to supply other renewable energy and the point values allowed will be decided based upon engineering data documenting the ability to generate electricity.	TBD	_____	
Reduction Measure R2-E9: Water Use Reduction Initiative				
Irrigation and Landscaping				
Water Efficient Landscaping	Eliminate conventional turf from landscaping Eliminate turf and only provide drought tolerant plants Xeriscaping that requires no irrigation Select one value	 3 points 4 points 6 points	_____	
Water Efficient irrigation systems	Drip irrigation Smart irrigation control systems combined with drip irrigation (demonstrate 20 reduced water use) Select one value	 1 point 5 points	_____	
Recycled Water	Graywater (purple pipe) irrigation system on site	5 points	_____	
Storm water Reuse Systems	Innovative on-site stormwater collection, filtration and reuse systems are being developed that provide supplemental irrigation water and provide vector control. These systems can greatly reduce the irrigation needs of a project. Point values for these types of systems will be determined based upon design and engineering data documenting the water savings.	TBD	_____	
Potable Water				
Showers	Title 24 standard (required) EPA High Efficiency Showerheads (15% > Title 24) Select one value	0 points 3 points	_____	

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
Toilets	Title 24 standard (required)	0 points		
	EPA High Efficiency Toilets (15% > Title 24)	3 points		
	Select one value		_____	
Faucets	Title 24 standard (required)	0 points		
	EPA High Efficiency faucets (15% > Title 24)	3 points		
	Select one value		_____	
Reduction Measure R2-W1: 75 Percent County Diversion Program				
Recycling	County initiated recycling program diverting 75% of waste requires coordination in neighborhoods to realize this goal. The following recycling features will help the County fulfill this goal:			
	Adopt a voluntary procurement standard and prioritize those products that have less packaging, are reusable, recyclable, or compostable	5 points		
	Provide greenwaste composing bins in each building	3 points		
	Provide dedicated recycling bins separated by types of recyclables with instructions/education program explaining the importance and use of bins.	5 points		
	Select one value		_____	
Reduction Measure R2-W2: Construction Diversion Program				
Material Sources	Use a minimum of 15% locally sourced construction materials	3 points		
	Use 15% recycled building materials and cement substitutes	5 points		
	Select one value		_____	
Construction Waste Recycling	Recycle 50% of debris (required)	0 points		
	Recycle 55% of debris	2 points		
	Recycle 60% of debris	4 points		
	Recycle 65% of debris	6 points		
	Recycle 70% of debris	8 points		
	Applicant needs to provide recycling monitoring program to County			
	Select one value		_____	
Reduction Measure R2-W3: Sutter Pointe Solid Waste Reduction Measures				
Sutter Pointe Waste Reduction	Provide education and publicity about reducing waste and available recycling services	1 point		
	Provide adequate recycling containers in public areas, including parks, school grounds, golf courses, and pedestrian zones in areas of mixed-use	2 points		

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
	development Provide interior and exterior storage areas for recyclables and green waste at all buildings Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard) Select one value	3 points 3 points	_____	
Reduction Measure R2-T1: Employment Based Trip and VMT Reduction				
Compressed Work Week	Reduce the number of days per week that employees are on site to reduce vehicle trips associated with commercial/industrial development. Compressed work week such that full time employees are on site: 5 days per week 4 days per week on site 3 days per week on site Select one value	 0 points 4 points 8 points	_____	
Car/Vanpools	Car/vanpool program Car/vanpool program with preferred parking Car/vanpool with guaranteed ride home program Subsidized employee incentive car/vanpool program Combination of the above	1 point 2 points 3 points 5 points 6 points	_____	
Employee Bicycle/ Pedestrian Programs	Complete sidewalk to residential within ½ mile Complete bike path to residential within 3 miles Bike lockers and secure racks Showers and changing facilities Subsidized employee walk/bike program Note: combine all applicable points for total value	1 point 1 point 1 point 2 points 3 points	_____	
Shuttle/Transit Programs	Local transit within ¼ mile Light rail transit within ½ mile Shuttle service to light rail transit station Guaranteed ride home program Subsidized Transit passes Note: combine all applicable points for total value	1 point 3 points 5 points 1 points 2 points	_____	
CTR	Employer based Commute Trip Reduction (CTR). CTRs apply to	TBD		

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
	commercial, offices, or industrial projects that include a reduction of vehicle trip or VMT goal using a variety of employee commutes trip reduction methods. The point value will be determined based upon a Transportation Impact Analysis (TIA) that demonstrates the trip/VMT reductions. Suggested point ranges: Incentive based CTR Programs (1-8 points) Mandatory CTR programs (5-20 points)		_____	
Other Trip Reduction Measures	Other trip or VMT reduction measures not listed above with Transportation Impact Analysis (TIA) and/or other traffic data supporting the trip and/or VMT for the project.	TBD	_____	
Reduction Measure R2-T2: Land Use Based Trip and VMT Reduction Policies				
Mixed Use	Mixes of land uses that complement one another in a way that reduces the need for vehicle trips can greatly reduce GHG emissions. The point value of mixed use projects will be determined based upon a Transportation Impact Analysis (TIA) demonstrating trip reductions and/or reductions in vehicle miles traveled. Suggested ranges: Diversity of land uses complementing each other (2-28 points) Increased destination accessibility other than by transit through pedestrian and bicycle paths (1-18 points) Increased transit accessibility (1-25 points) Infill location that reduces vehicle trips or VMT beyond the measures described above (points TBD based on traffic data).	TBD	_____	
Local Retail near Residential	Having local retail developments within walking and biking distance of residential helps to reduce vehicle trips and/or vehicle miles traveled. The point value of residential projects in close proximity to local retail will be determined based upon traffic studies that demonstrate trip reductions and/or reductions in vehicle miles traveled (VMT)	TBD	_____	
Reduction Measure R2-T4: Roadway Improvements including Signal Synchronization and Transportation Flow Management				
Signal improvements along arterials used by Project	Signal synchronization-1 point per signal Traffic signals connected to Intelligent Traffic Systems (ITS)	1 point/signal 3 points/ signal	_____	
Reduction Measure R2-T6: Provide a Comprehensive System of Facilities for Non-Motorized Transportation				
Sidewalks	Provide sidewalks on both sides of the street Provide pedestrian linkage between residential and commercial uses	1 point 3 points		

Feature	Description	Assigned Point Values	Project Points	Shown on Plans Page #
	located within 1 mile of each other. Select one value		_____	
Bicycle paths	Provide bicycle paths within project boundaries Provide bicycle path linkages between commercial or industrial and other land uses Provide bicycle path linkages between commercial or industrial and transit	TBD 2 points 5 points	_____	
Reduction Measure R2-T7: Expand Renewable Fuel/Low-Emission Vehicle Use				
Electric Vehicle Recharging	Provide circuit and capacity in garages/parking areas for installation of electric vehicle charging stations. Install electric vehicle charging stations in garages/parking areas	2 points/area 8 points/ station	_____	
Reduction Measure R2-T8: Transit Infrastructure Development within the Sutter Pointe Specific Plan				
Sutter Pointe Transit Infrastructure Sutter Pointe Transit Infrastructure	A Conceptual Transit Plan has been developed for Sutter Pointe that includes plans for phased transit service which will begin as soon as 50 interested riders have been identified. There are four phases of transportation improvement within the Sutter Pointe development: Phase 1 will extend past 2020 based on anticipated residential development. The primary focus of this phase is for the Transit Management Association (TMA) to facilitate or develop and market rideshare initiatives including car and vanpool programs, commuter bus services, incorporation of transit stops for the Yuba-Sutter Transit system, and Airporter services to and from Sacramento International Airport. Phase 2 of the Sutter Pointe Transit Plan would incorporate an expansion of Sutter Pointe Transit Commuter Express Service. Phase 3 would increase Sacramento commuter service capacity, expand commuter service to Placer County, establish midday service to Sacramento and provide commute services to the Sutter Pointe Business Park from adjacent communities. With warranted demand, dedicated peak hour trips serving the Sutter Pointe business and industrial parks could be added from the Yuba City/Marysville area. Phase 4 would incorporate further expansion of the Sutter Pointe commuter bus services to Sacramento and Placer County, develop local transit services, and expand neighboring regional transit services.	TBD	_____	
Total Points Earned by Commercial or Industrial Project:				

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APPENDIX A: METHDOLOLGY FOR THE DEVELOPMENT AND APPLICATION OF THE SCREENING TABLES

METHODS SUMMARY

The point values in the Screening Tables were derived from the projected emissions reductions that each of the R2 reduction measures within the Sutter County Climate Action Plan (CAP) would achieve. The CAP shows the reduced emissions for each of the reduction measures in aggregate terms, meaning that the total emission reductions afforded by each measure is based on both changes in existing land use activities as well as how new development is designed and built. In order to correctly allocate the emission reductions within the Screening Table, the amount of emission reductions afforded by new development had to be segregated out of the aggregate total in a manner that is described below. Once the process of segregating new development out of the aggregate reduction totals was completed, the points were then allocated by residential unit or square feet of commercial/industrial uses. This was accomplished by taking the predicted growth in households and commercial/industrial uses by the year 2020 and distributing the appropriate R2 reduction quantities for new development to the residential, commercial, and industrial land use sectors within the Screening Table. The result is point values that are allocated by residential unit or commercial/industrial square footage (measured in 1,000 sq.ft.). Because of this, the size of the project is not relevant to the Screening Table. Regardless of size, each project needs to obtain 100 points to demonstrate consistency with the CAP. Efficiency, not size of the project, is critical. The following emission factor can be used in determining the amount of emissions reduced per point in the Screening Table:

The respective calculated emission values are in metric tons of carbon dioxide equivalents (MTCO2e)

For Residential Projects:

- **0.012 MTCO2e per Point per Residential Unit**

For Commercial and Industrial Projects:

- **0.005 MTCO2e per Point per 1,000 Square Feet of gross Commercial/Industrial building area**

In determining point values for the TBD categories in the Screening Table use these conversions:

Energy Efficiency:
Each percentage point (%) that residential projects are above Title 24 Efficiency Standards = 6 points
Each percentage point (%) that commercial/Industrial projects are above Title 24 Standards = 8 point
(Note that the point values for residential and commercial/Industrial project energy efficiency are average percent efficiency above Title 24 for the entire building envelope and appliances/equipment)

Energy:
Each kilowatt per year of electricity reduced/conserved = 0.02 point
Each MMBTU per year of natural gas reduced/conserved = 4.5 points

Water:
Each 1,000 gallons per year of potable water reduced/conserved = 0.07 point

Solid Waste:
Each ton of solid waste per year diverted/reduced = 1 point

Vehicle Trips
Each vehicle trip reduced = 0.43 point (assumes 11.11 miles per vehicle trip)
Each vehicle mile traveled (VMT) reduced = 0.039 point

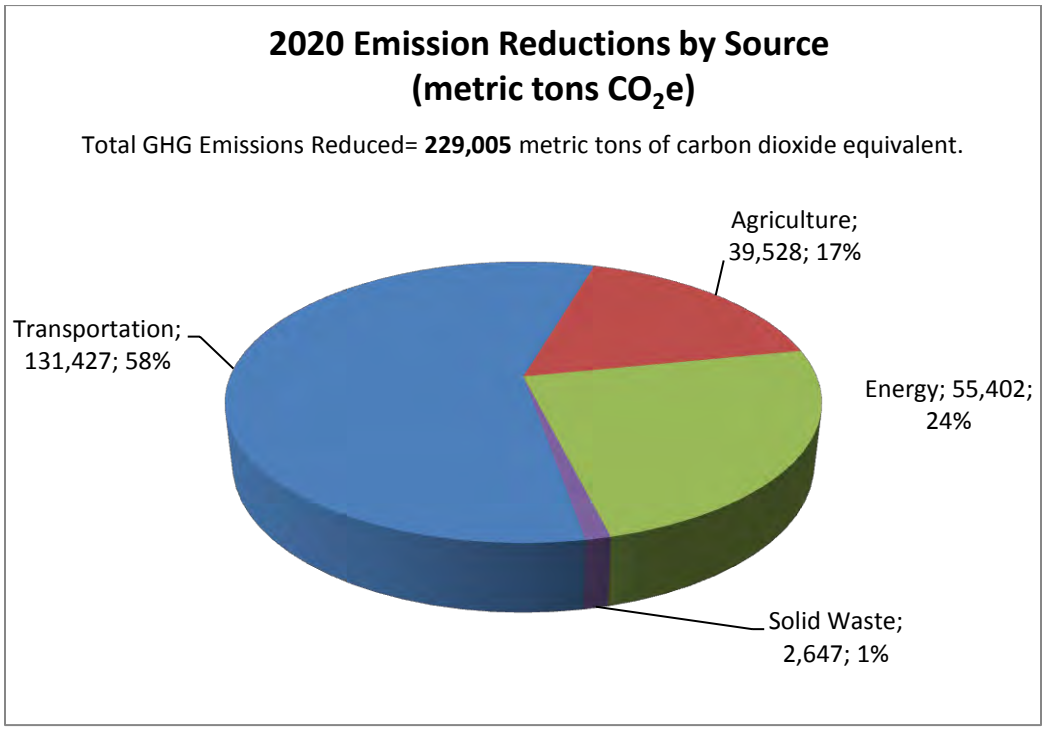
Note that the Screening Table and point values are best used for typical development projects processed by the County. Examples of typical development projects include residential subdivisions, multi-family residential apartments, condominiums and townhouses, retail commercial, big box retail, office buildings, business parks, and typical warehousing. Mixed use projects can use the Screening Tables following the instructions. Transit oriented development (TOD) and infill projects are able to use the Screening Tables, but the Screening Table points are likely to underestimate total emission reductions afforded by these types of projects. Note that the Screening Tables include the opportunity to custom develop points (using the formula above) in order to account for the predicted reductions in vehicle trips and vehicle miles traveled within a project specific traffic study and GHG analysis. TOD and infill projects can be more accurately assessed and allocated points using this method.

However, more unusual types of industrial projects such as cement manufacturing, metal foundries, refrigerant manufacturing, electric generating stations, and oil refineries cannot use the Screening Tables because the emission sources for those types of uses were not contemplated in the table. Unusual projects that cannot use the Screening Table will be required to demonstrate compliance with the County CAP through project-specific GHG calculations and analysis including the use of reduction measures in the CAP appropriate to the particular Project.

DEVELOPMENT OF THE POINT VALUES

The first step in developing the point system was the need to determine the total reductions afforded by the CAP. Figure 1 below shows the total emission reductions achieved by the CAP. In total 229,005 MTCO2e will be reduced as a result of the CAP by 2020.

Figure 1



The next step in developing the point system is to segregate the State efforts in reducing GHG emissions within the County. Table 1 shows the reductions allocated to State measures and County strategies.

Table 1

Sector	2020 Reduction ($MTCO_2e$) State Strategies	County Strategies	Total
Building Energy Efficiency and Renewable Energy	41,468	5,619	47,087
Water Conservation	8	1,524	1,532
Industrial	8,030	0	8,030
Transportation and Land Use	109,939	21,489	131,428
Solid Waste/Landfills	0	2,451	2,451
Agriculture & Resource Conservation	3,942	35,587	39,529
Total	**163,387**	**66,670**	**230,057**

As shown in Table 1, 66,670 MTCO2e are reduced by the County's R2 measures. This amount includes reductions from existing building retrofits, use of energy efficient building materials and construction techniques for new development, decrease in solid waste generation, and the mixing of land uses.

The next step is to segregate the total amount of emissions from the County strategies that will be reduced within new development.

Table 2 on the next page summarizes the reduction in emissions from new development from the R2 measures. Table 2 shows 10,210 MTCO2e being reduced from new development as a result of the County strategies (R2 measures in the CAP). Within the 10,210 MTCO2e of new development reductions from County strategies, a 3,695 MTCO2e emissions reduction is accomplished through new Commercial and Industrial Projects, and a 6,516 MTCO2e emissions reduction is accomplished through new residential projects.

The next step in allocating point values is to determine the number of new homes and commercial buildings that are anticipated by year 2020. The County predicts that **5,413** new residential units will be needed by 2020 to accommodate the population growth by 2020. A total of approximately **7,103,032** square feet of new commercial and industrial buildings within the unincorporated County area is needed to accommodate anticipated job growth. This estimate is based on the relationship between past growth in employment to the average growth in commercial/industrial building area for Sutter County and were taken from the growth in emissions shown in the CAP.

Dividing the 6,516 MTCO2e reductions of emissions afforded the R2 measures for new residential development by the anticipated 5,413 new residential units that will be built yields 1.20 MTCO2e per residential unit that needs to be reduced to fulfill the anticipated reductions of the CAP. That amount equals 100 points, producing the following equation for the point values:
0.012 MTCO2e per Point per Residential Unit

A similar process was used to derive the point value for new Commercial/Industrial development:
Because commercial/industrial land uses are typically described in thousand square feet of building space, the point value was converted as follows: **0.005 MTCO2e per point per 1,000 Sq. Ft. of gross Commercial/Industrial building area.**

The final step was to allocate points to each of the reduction measures in order to provide the menu of point values. The spreadsheet below shows emission reductions afforded each measure. Note that emissions associated with new development are reduced by the State's R1 measures, as well as the County's R2 measures. The Screening Tables focus on those measures the County is implementing associated with new development within the unincorporated County area. For this reason, the menu of options pertains to portions of the R2 measures pertaining to new development.

Table 2

Reduction Number	Reduction Measure Name	Reduced Emissions($MTCO_2e$) Commercial/Industrial	Residential
R2E1	New Homes Energy Efficiency		2,328.6
R2E2	New Homes Renewable Energy		1,517.6
R2E5	New Commercial/Industrial Energy Efficiency	604.4	
R2E6	New Commercial/Industrial Renewable Energy	200.6	
R2E9	Water Use Reduction Initiative	148.9	148.9
R2W1	County Diversion Program	168.6	168.6
R2W2	Construction Diversion Program	146.2	146.2
R2W3	Sutter Pointe Solid Waste Reduction Measures	216.4	216.4
R2T1	Employment based trip and VMT reduction	112.6	
R2T2	Land Use Based trips and VMT Reduction	1,124.0	1,124.0
R2T3	Preferential Parking	54.0	
R2T4	Signal Synchronization and Traffic Flow Mgmt	269.5	269.5
R2T5	Ridesharing	53.4	
R2T6	Non-motorized trans facilities	5.3	5.3
R2T7	Renewable fuel/low emission vehicles	533.0	533.0
R2T8	Transit Infrastructure in Sutter Pointe	57.7	57.7
Total R2 and DRP Reductions for New Development		**3,694.6**	**6,515.8**

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APPENDIX B: GUIDANCE AND METHDOLOLGY FOR CONDUCTING ADDITIONAL ANALYSIS OF GHG EMISSIONS FROM DEVELOPMENT PROJECTS

SUTTER COUNTY
GREENHOUSE GAS DEVELOPMENT REVIEW PROCESS
DETERMINING PROJECT UNMITIGATED AND MITIGATED GREENHOUSE GAS EMISSIONS

Sutter County intends to use a Development Review Process to review individual projects for compliance with the Sutter County Climate Action Plan (CAP). Screening tables have been developed utilizing a 100-point scale that corresponds to approximately 10,210 metric tons of carbon dioxide equivalents per year ($MTCO_2e$) of emissions reductions attributable to new development within the CAP. That level of emissions reductions is approximately 27 percent reduction of new development greenhouse gas (GHG) emissions (in the aggregate) compared to an unmitigated condition. The scale has been derived from calculations of the 2020 unmitigated emissions at the County level and the mitigative effects of different reduction strategies included in the CAP. Where projects utilize the screening table and qualify for 100 points, then the project can be considered less than significant under CEQA and will not be required to quantify their individual project emissions. Where a project cannot garnish 100 points using the screening tables or the Project Applicant chooses to do their own analysis of GHG emissions, then the project is required to quantify its unmitigated emissions and provide a 27 percent reduction of those emissions in order to be considered less than significant.

Parcel and subdivision maps, use permits, rezones, and general plan amendments going through the County's CEQA review process, as well as commercial and industrial projects located on existing commercial and industrial properties that require approval of a Design Review application are required to either use the screening tables or provide additional project analysis of GHG emissions as described below. These types of projects will also require Title 24 Reports and possibly a traffic analysis in order to complete the screening tables or provide additional project analysis of GHG emissions.

The methods described below require technical calculations and should be done by a competent environmental consultant or engineer familiar with air pollutant modeling and the URBEMIS software model. Additional guidance can be provided by the Feather River Air Quality Management District (FRAQMD). The FRAQMD Indirect Source Review Guidelines (2010) are provided on their website: http://www.fraqmd.org/PlanningTools.htm

You can also contact FRAQMD directly:
1007 Live Oak Blvd., Suite B-3, Yuba City, CA 95991
Phone: (513) 634-7659

This guidance describes a methodology to estimate project-level unmitigated and mitigated emissions.

The CAP includes a set of inventories as follows:
2020 Unmitigated Emissions = 1.52 $MTCO_2e$
Reduction Target = 1.34 $MTCO_2e$ (requires new development in the County to achieve a 27% reduction from the 2020 unmitigated emissions scenario to reduce total emissions in the County down to this level)

The CAP includes a forecast of 2020 unmitigated emissions from a benchmark of 2008 emissions. No emission reductions from future regulations or standards were afforded the 2020 unmitigated emission forecast. This means that the unmitigated emissions shown for 2020 are forecast using the predicted growth in each of the sectors but have an average GHG efficiency equivalent to that of buildings, transportation, and other emission sectors as they were in 2008. As such, 2008 constitutes the benchmark for all projects under evaluation through the development review process. Thus, calculation of unmitigated project GHG emissions is a calculation of what the project's GHG emissions would be under average efficiency assumptions for 2008. Project proponents then must calculate their estimate of current GHG emissions including any applicant-proposed reduction measures to determine whether or not the project will or won't provide 27 percent or more reductions as required by County policy.

Methods are described below for the building energy, transportation, waste, water conveyance emissions. Other source categories will require custom calculations. Due to the complexity of some of the calculations for unmitigated and mitigated emissions, the need for accuracy, and the challenge of avoiding double-counting, it is recommended that emissions estimates only be prepared by qualified air quality experts. Project applicants will have the option of either funding an analysis prepared by a consultant selected by the County Planning Division or, if the applicant selects their own consultant, the County shall reserve the right to submit the completed analysis for peer review at the applicant's expense. All estimates should provide full documentation of all assumptions and methods utilized. The County will review all provided estimates for adequacy and will only accept sufficiently detailed and supported estimates prepared by qualified individuals. The County may also consult with the Feather River Air Quality Management District (FRAQMD) in reviewing the results of the analysis.

The minimum qualifications the County Planning Division shall use in evaluating the adequacy of a consultant to prepare the analysis include the following three requirements:

1) A bachelor of science degree in environmental science, environmental engineering, atmospheric chemistry, or other related field.
2) Demonstrates the ability to run emission calculation and atmospheric dispersion models by showing a certificate in air quality management through an accredited university, air quality modeling certification through the software developers, or proof of attendance and successful completion in the air quality modeling training course offered by air districts within California or through private training courses.
3) At least 6-months experience in evaluating air quality and/or GHG emissions analysis of projects and demonstrating knowledge of local air district criteria and methodology of analysis.

PROJECT GHG EMISSION SOURCES

Total GHG emissions are the sum of emissions from both direct and indirect sources. Direct sources include mobile sources such as offroad equipment, motor vehicles, landscape equipment; and stationary sources such as cooling and heating equipment. Indirect sources are comprised of electrical generation,

and energy use in supplying potable water, as well as the disposal of solid waste, and the treatment of waste water.

Direct GHG emissions from mobile and stationary sources are determined as the sum of the annual GHG emissions from offroad equipment, motor vehicles, landscape equipment, and heating and cooling equipment.

Indirect sources are determined based on source as follows. Electrical usage is reported as annual emissions from electrical usage. Potable water usage is reported as the annual emissions from electricity used for potable water treatment and transportation. Solid waste is reported as the sum of annual emissions from solid waste disposal treatment, transportation, and fugitive emissions of methane at the solid waste facilities. Wastewater usage is reported as the annual emissions from wastewater transport and treatment.

BUILDING ENERGY

Building energy emissions associated with electricity and natural gas assumption are estimated by determining the amount of electricity (in kilowatt-hours) and natural gas consumption (in therms) and then multiplying by the GHG factors corresponding to electricity generation (per kwh) and natural gas combustion (per therm).

Project proponents can utilize the Residential Energy Consumption Survey (RECS) prepared by the U.S. Energy Information Administration (EIA) to determine the approximate average kwh per residential unit for residential projects of similar character as the proposed project. At present, the closest set of data to 2008 is the 2005 version of the RECS.

Project proponents can utilize the Commercial Buildings Energy Consumption Survey (CBECS) prepared by EIA to determine the approximate average therms per residential unit for commercial buildings of similar character as the proposed project. A 2008 version of CBECs should be available in 2011.

Where buildings are not comparable to a RECS or CBECS category, then project proponents must derive a separate rationale for 2008 average building energy consumption by obtaining data on at least three comparable “average” buildings in Sutter County by which to derive appropriate factors.

Once the baseline electricity and natural gas consumption have been identified, then they should be multiplied by the GHG intensity factors in Table 1.
RECS is available on the internet here: http://www.eia.doe.gov/emeu/recs/
CBECS is available on the internet here: http://www.eia.doe.gov/emeu/cbecs/

TRANSPORTATION

Project proponents can estimate their unmitigated onroad transportation emissions level by utilizing the URBEMIS model and using the 2008 model year. The URBEMIS model is available free of charge and a user manual describes how to utilize the model.

URBEMIS can also be used to calculate operational carbon dioxide emissions. URBEMIS uses default trip generation factors from the Institute of Transportation Engineers (ITE), but these factors can be adjusted to reflect site-specific details. Also, URBEMIS uses default trip lengths that may or may not be appropriate in order to capture the full length of project-related trips. Important steps for running URBEMIS are as follows:

1. Without a traffic study prepared for the project, the user should consult with the local air district for direction on which default options should be used in the modeling exercise. Some air districts have recommendations in the CEQA guidelines.

2. If a traffic study was prepared specifically for the project, the following information must be provided:

   a. Total number of average daily vehicle trips or trip-generation rates by land use type per number of units; and,

   b. Average VMT per residential and nonresidential trip.

   c. The user overwrites the "Trip Rate (per day)" fields for each land use in URBEMIS such that the resultant "Total Trips" and the "Total VMT" match the number of total trips and total VMT contained in the traffic study.

   d. Overwrite "Trip Length" fields for residential and nonresidential trips in UBEMIS with the project-specific lengths obtained from the traffic study.

3. Calculate results and obtain the CO2 emissions from the URBEMIS output file

Offroad emissions can be estimated by identifying the types of equipment and operational timeframes. CARB's EMFAC model can provide carbon dioxide emission factors for a wide variety of equipment.

Alternatively, if fuel consumption totals can be estimated, then they can be multiplied by the GHG factors in Table 1 below.

URBEMIS is available on the internet here: http://www.urbemis.com/

EMFAC is available on the internet here: http://www.arb.ca.gov/msei/onroad/latest_version.htm

WASTE

Project proponents need to estimate their level of annual waste generation using factors from the *Yuba/Sutter Regional Waste Management Authority* reporting in 2008:

- Per capita disposal rate = 4.5 pounds/day = 0.75 metric tons/year per resident
- Per capita disposal rate = 16.6 pounds/day = 2.75 metric tons/year per employee

CIWMB reports are available on the internet here:
http://www.calrecycle.ca.gov/LGCentral/Tools/MARS/DRMCMain.asp

Once the unmitigated annual level of waste generation has been identified, then it should be multiplied by the GHG intensity factor utilized in the CAP as follows:

- *2008 average GHG emissions per metric ton of waste (2008) = 0.47 metric tons*

WATER

Project proponents need to estimate the annual amount of water consumption on an annual basis for the proposed project on a 2008 average basis:

- Per capita water consumption = 4.75 gallons/day = 1,734 gallons/year per resident
- Per capita water consumption = 0.65 gallons/day = 237.40 gallons/year per employee

Once the unmitigated level of annual water consumption has been identified, then it should be multiplied by the GHG intensity factors utilized in the CAP as follows:

- *2008 average GHG emissions per 1,000 gallons of water = 0.2384 metric tons*

WASTEWATER

Project proponents need to estimate the annual amount of wastewater generation on an annual basis for the proposed project on a 2008 average basis.

- Per capita wastewater generation = 3.09 gallons/day = 1,127 gallons/year per resident
- Per capita wastewater generation = 0.42 gallons/day = 154.31 gallons/year per employee

Once the unmitigated level of annual wastewater generation has been identified, then it should be multiplied by the GHG intensity factors utilized in the CAP as follows:

- *2008 average GHG emissions per 1,000 gallons of wastewater = 0.454 metric tons*

POINT SOURCES AND OTHER SOURCES

If the project includes point sources of GHGs, such as industrial consumption of fuels other than natural gas, cement manufacture, or other sources, then custom calculations will have to be made in order to determine the 2008 unmitigated level.

ESTIMATING PROJECT MITIGATED EMISSIONS

Once the unmitigated 2008 emissions for the project have been calculated, then the mitigated project emissions can be calculated. Mitigated project emissions can and should take into account the following:

The current level of GHG efficiency. Since the benchmark year is 2008, the current level of GHG efficiency may be improved since 2008. Where a source sector is not covered by adopted state and local measures (see discussion below), analysis of development projects should use the emission factors found in the latest version of the California Climate Action Registry (CCAR) General Reporting Protocol. Quantification of emissions from electricity used for potable water treatment and transportation as well

as wastewater transport and treatment can be found in the California Energy Commission (CEC) document titled "Refining Estimates of Water-Related Energy Use in California (CEC December 2006).

The effect of adopted state and local measures by 2020. The state has adopted numerous measures to reduce GHG emissions, including vehicle standards, a low carbon fuel standard, a renewable energy standard, and other measures. The state mandates listed in Table 2 can be included in the County-required 27 percent reduction if they specifically relate to the proposed project. Table 3 provides an example of which measures would apply to a standard residential project. All of the calculations in Table 2 are reduction percentages compared to a 2008 benchmark efficiency. Thus, if a project takes credit for an adopted state or local measure, then it should not take additional credit for the difference between current year GHG efficiency and 2008 because the credit in Table 2 already accounts for potential improvements from 2008 to 2020.

The effect of proponent-proposed measures. The adopted state and local measures will not be sufficient in and of themselves to reduce project level unmitigated emissions by 27%. Thus, project proponents, who do not use the screening tables, will be required to propose and quantify their individual reduction measures. Measures may include energy efficiency, renewable energy, VMT reductions, water conservation strategies that result in emissions more than the unmitigated levels. Proponents should calculate the effectiveness of proposed strategies such that the total of the adopted state and local measures above and the applicant-proposed measures totals a minimum of 27% of the unmitigated emissions. When determining the GHG reduction effectiveness, one may only count reductions that are in excess of the adopted state and local measures noted above. For example, for energy efficiency, all projects will be required to meet Title 24 efficiency standards that are in effect at the time of the project. Thus, additional credit can only be taken if the project's energy efficiency exceeds Title 24 requirements. Similarly, waste diversion strategies can only provide additional credit if the project will result in greater than 75 percent diversion by 2020 of site generated waste. Finally, caution must be exercised in avoiding double-counting of emissions between adopted state and local measures, improvements in average GHG efficiency between the current year and 2008, and proponent-proposed measures. For this reason, it is recommended that GHG emission estimates only be prepared by qualified air quality experts.

Table 1: Emission Factors to Use for Estimating Unmitigated Emissions

Fuel	Emission Factor	Source
Compressed Natural Gas (CNG) (Vehicle)	0.054 Kg CO_2/Standard Ft^3	USEPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006 (2008)
Motor Gasoline (Vehicle)	8.81 Kg CO_2/US gal	Provided in the California Local Government Operations Protocol (CARB et al. 2008)
Propane (Vehicle)	5.74 Kg CO_2/US gal	
Diesel (Vehicle)	10.15 Kg CO_2/US gal	
Natural Gas	0.0546 Kg CO_2/Standard Ft^3	
	0.1 g N_2O/MMBTU	

	5 g CH_4/MMBTU	
Other Fuels	Variable[1]	SQAQMD
Electricity	290.87 kg CO_2/MWh 2.04 kg N_2O /GWh 13.88 kg CH_4/GWh	CCAR (2009a) Public Reports and USEPA eGrid2008 (2005 data)
GHG Intensity Factors:	CO_2 = 1	
	N_2O = 310	
	CH_4 = 21	CCAR (2009a)

Notes:

[1] Associated emissions are based on emission factors from CARB's Regulation for the Mandatory Reporting of GHG Emissions and fuel High Heating Values (HHVs) from USEPA's AP-42 document.

Table 2: Sutter County Greenhouse Gas Development Review Process State and Local Measures that can be included in Project Level reduction Requirement			
Reduction Measure Number	**Sector**	**Description**	**Sectoral percent reduction**
R1E1B	Building Energy	RPS-33% by 2020	7.0%
R1E2	Building Energy	AB 1109 Residential Lighting	1.6%
R1E3	Building Energy	AB 1109 Commercial Lighting	1.0%
R1E4	Building Energy	Electricity Energy Efficiency (Title 24)	7.2%
R1E5	Building Energy	Natural Gas Energy Efficiency (Title 24)	0.6%
Building Energy		***Subtotal***	***17.4%***
R1T1	Transportation	Pavely I Standards	8.4%
R1T2	Transportation	Pavely II Standards	1.2%
R1T3	Transportation	Low Carbon Fuel Standard	6.7%
R1T4	Transportation	Tire Pressure Program	0.2%
R1T5	Transportation	Low Rolling Resistance Tires	0.1%
R1T6	Transportation	Low Friction Engine Oils	0.8%
R1T7	Transportation	Cool Paint/Reflective	0.3%
R1T9	Transportation	Heavy-Duty Vehicle Efficiency	0.5%
R1T10	Transportation	Med-& Heavy Duty Hybrid.	0.3%
R1T11	Transportation	Rule 1192-Clean Buses	0.03%
R1T12	Transportation	Rule 1195-Clean School Buses	0.03%
Transportation		***Subtotal***	***18.6%***
2009 equipment	Waste	Methane recovery to energy at Landfill	66.0%
Waste		***Subtotal***	***66.0%***
R2WC1	Water Conveyance	RPS-33% by 2020	15.2%
Water Conveyance		***Subtotal***	***15.2%***

Table 3: Sutter County Greenhouse Gas Development Review Process Example of which State and Local Measures can be included for a standard residential project *(highlighted in bold italics)*			
Reduction Measure Number	**Sector**	**Description**	**Sectoral percent reduction**
R1E1B	***Building Energy***	***RPS-33% by 2020***	***7.0%***
R1E2	***Building Energy***	***AB 1109 Residential Lighting***	***1.6%***
R1E3	Building Energy	AB 1109 Commercial Lighting	1.0%
R1E4	***Building Energy***	***Electricity Energy Efficiency (Title 24)***	***7.2%***
R1E5	***Building Energy***	***Natural Gas Energy Efficiency (Title 24)***	***0.6%***
R1T1	***Transportation***	***Pavely I Standards***	***8.4%***
R1T2	***Transportation***	***Pavely II Standards***	***1.2%***
R1T3	***Transportation***	***Low Carbon Fuel Standard***	***6.7%***
R1T4	***Transportation***	***Tire Pressure Program***	***0.2%***
R1T5	***Transportation***	***Low Rolling Resistance Tires***	***0.1%***
R1T6	***Transportation***	***Low Friction Engine Oils***	***0.8%***
R1T7	***Transportation***	***Cool Paint/Reflective***	***0.3%***
R1T9	Transportation	Heavy-Duty Vehicle Efficiency	0.5%
R1T10	Transportation	Med-& Heavy Duty Hybrid.	0.3%
R1T11	Transportation	Rule 1192-Clean Buses	0.03%
R1T12	Transportation	Rule 1195-Clean School Buses	0.03%
2009 equipment	***Waste***	***Methane recovery to energy at Landfill***	***66.0%***
R2W6	***Waste***	***County Diversion Programs — 75 Percent Goal***	***1.1%***
R2E9	***Water Conveyance***	***RPS-33% by 2020***	***15.2%***

RESOURCES

California Climate Action Registry. General Reporting Protocol. Public Reports for Reporting Entities http://www.climateregistry.org

California Energy Commission. Refining Estimates of Water-Related Energy use in California. http://www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html

EMFAC. Factor model for onroad mobile emissions sources from the California Air Resources Board. http://www.arb.ca.gov/msei/onroad/latest_version.htm

OFFROAD. Model for factors for offroad equipment from the California Air Resources Board. http://www.arb.ca.gov/msei/offroad/offroad.htm

URBEMIS. Spreadsheet based public domain software for calculation criteria pollutant and carbon dioxide emissions from land use projects.
http://www.urbemis.com