BACKGROUND

AB32 requires the Air Resources Board (ARB) to develop regulations and market mechanisms to reduce California's greenhouse gas (GHG) emissions to their 1990 levels by 2020. In response, ARB has developed a scoping plan addressing AB 32 requirements. The scoping plan contains the main strategies California will use to reduce greenhouse gases (GHG) from Business-as-Usual emissions, projected from 2020 levels back down to 1990 levels. Business-as-Usual (BAU) is the projected emissions in 2020, including increases in emissions caused by growth, without any greenhouse gas reduction measures.

Baseline

The California Air Resources Board (CARB) used its emission inventory to establish the Baseline upon which changes in GHG emissions would be evaluated. The Baseline consists of a three-year average for GHG emissions occurring by sector during the baseline period of 2002-2004. The Baseline Period GHG emissions include emissions from all sources in ARB's emissions inventory, including both, old and new, large and small GHG emission sources.

Business-as-Usual

Business-as-Usual (BAU), as established by CARB, is a projected emissions inventory and does not represent actual business or operational practices generating GHG emissions. To establish BAU, ARB projected the Baseline Period emissions to the year 2020, using assumptions about potential growth, assuming no change in the existing business practices, and without considering implementation of any GHG emission reduction measures.

The San Joaquin Valley Air Pollution Control District (District) has recently adopted guidance, *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA,* to assist Lead Agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project specific greenhouse gas (GHG) emissions on global climate change. The guidance relies on the use of performance based standards, otherwise known as Best Performance Standards (BPS) to assess significance of project specific greenhouse gas emissions on global climate change during the environmental review process, as required by CEQA. Use of BPS is a method of streamlining the CEQA process of determining significance and is not a required emission reduction measure. Projects implementing BPS would be determined to have a less than cumulatively significant impact.

For residential and commercial development, projects reducing GHG emissions by 29% compared to Business-as-Usual would be considered to have a less than significant cumulative impact on global climate change. To assist in assessing significance of development projects, the District is proposing to establish baseline GHG emissions for residential developments in the San Joaquin Valley on a per dwelling unit basis.

METHODOLOGY

In determining the baseline, the District considered the GHG emission inventory developed by ARB. ARB allocated GHG emissions into several sectors. The GHG emissions from the sectors labeled as "Residential" and "Commercial" are solely based on fuel consumption. ARB included several different fuel types in the inventory such as distillate, kerosene and wet wood. The District limited its evaluation of fuel usage to natural gas and propane gas, which compose approximately 98.5% of the average 2002-2004 GHG emission inventory for the residential sector and 88.9% for the commercial sector. The District also included indirect GHG emissions resulting from electricity consumption.

SOURCES OF DATA

The District collected data from various agencies to develop the baseline for residential and commercial units in the San Joaquin Valley Air Basin. The California Energy Commission (CEC) provided the District with electricity and natural gas consumption data for residential and commercial units from 2002-2004 for each of the eight counties located within the boundaries of the San Joaquin Valley. In addition to electricity and natural gas consumption data, the CEC also provided the total number of user accounts. Population and total residential units data for the years 2002-2004 were obtained from the California Department of Finance (DOF). Data for number of businesses was collected from the Employment Development Department. The propane data was provided by the Western Propane Gas Association. In addition, the District has also solicited data from interested parties through the District's *Land-Use GHG Emission Reductions List Serve*.

The District used the emission factors from the General Reporting Protocol version 3.1 developed by the California Climate Action Registry (CCAR) to calculate the GHG emissions in carbon dioxide equivalence (CO2eq) for electricity. The GHG emissions from natural gas consumption were derived using the emission factors ARB used in their GHG emissions inventory.

DRAFT RESULTS

As presented in Table 1 below, for the 2002 thru 2004 baseline period, the average CO2eq GHG emissions per dwelling unit in the San Joaquin Valley is 5.86 tons per year. See Attachment A for details.

Table 1- Residential CO2eq Baseline Emissions in the San Joaquin Valley

Year	Electricity – Tons of CO2eq per Dwelling Unit	Natural Gas and Propane Gas -Tons of CO2eq per Dwelling Unit	Total Tons of CO2eq per Dwelling Unit
2002	2.88	2.84	5.72
2003	3.04	2.91	5.95
2004	3.03	2.91	5.94
Average	2.98	2.88	5.86

Attachment A

Table 1: Year 2002 GHG emissions

Year	County[a]	Dwelling Units [b]	Electricity Consumption (MWh)[c]	Electricity Emissions (Tons CO2eq)[d]	Natural Gas Consumption (Therms-Millions)[e]	Natural Gas Emissions (Tons CO2eq) [f]	Propane Consumption (gal/yr)[g]	Propane Gas Emissions (Tons CO2eq) [h]
2002	Fresno	276,414	2,156,261	780,737	108	633,769	9,928,127.55	92,213.93
2002	Kern	118,825	838,841	303,727	96	564,436	3,821,775.39	35,497.22
2002	Kings	37,218	291,988	105,723	14	83,482	1,265,961.34	11,758.44
2002	Madera	41,586	335,993	121,656	4	25,862	6,262,348.73	58,165.63
2002	Merced	70,672	558,064	202,063	25	145,338	2,918,119.59	27,103.93
2002	San Joaquin	197,316	1,523,306	551,557	83	484,624	4,187,453.83	38,893.70
2002	Stanislaus	156,824	1,476,843	534,734	60	352,916	2,560,030.17	23,777.94
2002	Tulare	122,440	943,297	341,548	50	295,309	2,560,031.17	23,777.95

Table 2: Year 2003 GHG emissions

Year	County[a]	Dwelling Units [b]	Electricity Consumption (MWh)[c]	Electricity Emissions (Tons CO2eq)[d]	Natural Gas Consumption (Therms-Millions)[e]	Natural Gas Emissions (Tons CO2eq) [f]	Propane Consumption (gal/yr)[g]	Propane Gas Emissions (Tons CO2eq) [h]
2003	Fresno	279,848	2,297,802	831,986	111	648,437	10,234,211.95	95,056.89
2003	Kern	121,116	913,717	330,838	96	559,599	3,939,600.81	36,591.60
2003	Kings	38,018	312,320	113,085	16	92,350	1,304,990.96	12,120.95
2003	Madera	42,483	361,417	130,862	9	51,253	6,455,417.08	59,958.88
2003	Merced	71,888	587,993	212,900	26	151,289	3,008,085.29	27,939.55
2003	SanJoaquin	201,375	1,622,874	587,609	87	510,932	4,316,553.13	40,092.79
2003	Stanislaus	159,724	1,580,757	572,359	67	390,034	2,638,955.96	24,511.02
2003	Tulare	124,177	1,029,339	372,702	51	297,594	2,638,955.96	24,511.02

Table 3: Year 2003 GHG emissions

Year	County[a]	Dwelling Units [b]	Electricity Consumption (MWh)[c]	Electricity Emissions (Tons CO2eq)[d]	Natural Gas Consumption (Therms-Millions)[e]	Natural Gas Emissions (Tons CO2eq) [f]	Propane Consumption (gal/yr)[g]	Propane Gas Emissions (Tons CO2eq) [h]
2004	Fresno	284,307	2,361,344	854,993	113	663,458	10,098,280.26	93,794.34
2004	Kern	123,959	935,912	338,874	100	584,956	3,887,274.69	36,105.59
2004	Kings	38,884	326,926	118,373	16	91,685	1,287,657.96	11,959.96
2004	Madera	43,588	374,713	135,676	8	46,534	6,369,675.67	59,162.50
2004	Merced	74,075	611,640	221,462	26	150,817	2,968,131.64	27,568.45
2004	San Joaquin	207,449	1,626,322	588,857	90	526,857	4,259,220.30	39,560.27
2004	Stanislaus	162,927	1,613,180	584,099	67	390,317	2,603,905.12	24,185.46
2004	Tulare	126,241	1,046,515	378,921	54	316,054	2,603,905.12	24,185.46

Table 4: Average GHG emissions per Dwelling Unit (DU)

Year	Dwelling Units [b]	Electricity Consumption (MWh)[c]	Electricity Emissions (Tons CO2eq)[d]	Natural Gas Consumption (Therms-Millions)[e]	Natural Gas Emissions (Tons CO2eq) [f]	Propane Gas Consumption (gal/yr)[g]	Propane Gas Emissions (Tons CO2eq) [h]	Electricity Tons of CO2eq per DU	Natural and Propane Gas Tons of CO2eq per DU
2002	1,021,295	8,124,593	2,941,746	441	2,585,736	33,503,848	311,189	2.88	2.84
2003	1,038,629	8,706,219	3,152,340	461	2,701,487	34,536,771	320,783	3.04	2.91
2004	1,061,430	8,896,550	3,221,255	473	2,770,678	34,078,051	316,522	3.03	2.91
Average								2.98	2.88

Assumptions:

(a) It is assumed that 50% of the population in the County of Kern is within the boundary of the San Joaquin Valley Air District.

(b) Data for total dwelling units (single and multiple) is from the Department of Finance's Table 1: E-5 County/State Population and Housing Estimates, Revised 1/1/2002 . http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2009/

(c) and (e) Data for electricity and natural gas consumption is from the California Energy Commission available at www.ecdms.energy.ca.gov. Data for selected years were further provided by CEC.

(d) Emission factors are 724.12 lbs of CO2 per MWh, 0.0302 lbs of CH4 per MWh, and 0.0081 lbs of N20 per MWh. These emission factors are from the General Reporting Protocol version 3.1 dated January 2009 developed by the California Climate Action Registry and available at http://www.climateregistry.org/tools/protocols/general-reporting-protocol.html. {Table C.2 Carbon Dioxide, Methane and Nitrous Oxide Electricity Emission Factors by eGRID Subregion}.

(f) and (h) Emission factors are from ARB's GHG emission inventories located at http://www.arb.ca.gov/cc/inventory/data/data.htm. The total tons of CO2 equivalents were calculated with the following formula: County's Natural gas consumption (Mtherms) x CO2 emission factor x Global Warming Potential x unit conversion factor
Emission factors: 0.053 for CO2, 0.000005 for CH4, and 0.0000001 for N2O.
Global warming potential:1 for CO2, 21 for CH4, 310 for N2O

(g) Data for County's propane consumption is provided by Western Propane Gas Association. Data for Tulare County was not available at time of analysis. Consumption data for Stanislaus was used instead.