

## Climate Calculator Data Entry How-to

### C. Climate Calculator Information

The inputs below are for the Climate Calculator. The inputs will feed into the tracking system to quantify planned and achieved **Avoided CO<sub>2</sub> emissions**. If there is more than one unit for the project, input the information below based on the total per project, that is the total for all units. Some default values have been entered for your convenience. In the actual column at final, verify these values match the fixtures and/or appliances installed on this specific project. Cells may be left blank, by benefits will not be calculated for cells that are left blank.

	Planned	Actual	Type of Input	Source
<b>1. Project Zipcode:</b>	0	0	Autofill	Above on this sheet
<b>2. Electric Utility Service Area:</b>	PG&E	PG&E	Drop-down list	Builder or developer
Heating Fuel Type (Natural Gas, Propane, Electricity)	Natural Gas	Natural Gas	Drop-down list	Utility bill or field observation
<b>3. Size of Project:</b>				
Units/Acre (for entire development)			Rater input	Plans (number carried to measure O2b).
Number of units in this phase			Rater input	Plans
Average Square Footage per Unit:			Rater input	Plans. This is conditioned floor area. Carried to measure O2c.
Average Number of Bedrooms Per Unit (Round to whole number)			Rater input	Plans (number carried to measure O2c).
<b>4. Waste Generation &amp; Diversion by Material Weight</b>				
Planned waste diversion will be calculated based on defaults and will be included in the calculation of "planned" avoided CO <sub>2</sub> .			None.	Planned column auto calculated.
<b>Waste Diversion by Separated Material Type (Tons)</b>				
Wood			Rater input	Data from hauler tags
Wallboard			Rater input	Data from hauler tags
Concrete			Rater input	Data from hauler tags
Cardboard			Rater input	Data from hauler tags
Mixed Metals			Rater input	Data from hauler tags
Green Waste			Rater input	Data from hauler tags
<b>Waste Diversion for Mixed C&amp;D Materials (Tons)</b>				
Mixed C&D waste sent to recycling/transfer stations			Rater input	Total C&D. For debris to multiple facilities, use weighted average for diversion and input only one number.
Facility Average for All Mixed C&D			Rater input	Facility's rate for C&D diversion as a percentage
Total Garbage Generated			Rater input	Total weight of material that is not recycled
<b>5. Landscape area (Total Area in Sq.Ft.excluding hardscape):</b>			Rater input	Plans
Enter Project yearly average Reference ET Factor (inches per year per sf) for nearest location.			Rater input	Sum of all months: <a href="http://www.owue.water.ca.gov/docs/WaterOrdSecRef.pdf">http://www.owue.water.ca.gov/docs/WaterOrdSecRef.pdf</a>
Reference ET can be looked up here: <a href="http://www.owue.water.ca.gov/docs/WaterOrdSecRef.pdf">http://www.owue.water.ca.gov/docs/WaterOrdSecRef.pdf</a> Monthly totals should be added together to get yearly average.				
<b>6. Water Usage</b>			<b>Type of Input</b>	<b>Source</b>
Rain Water System (gallons collected per year)			Rater input	Estimate based on installer calculation (address size of system and expected rainfall). If no estimate available input size of tank as conservative. Calculation of roof area and average rainfall must reflect the ability to use the water and not just the water available for catchment
Graywater System (gallons processed per year)			Rater input	Estimate based on installer calculation (address size of system, expected volume generated, and expected demand or need). Input should be based on need of receiving system, i.e. irrigation demand and not estimation of generated graywater.
<b>Indoor Water Fixtures</b>				
Total Number of Toilets			Rater input	Plans and field verification
Number of Flushing Toilets (High efficiency)			Rater input	Plans and field verification
Average Flow Rate (gpf) Toilet (High efficiency)	1.3		Rater input	Specifications of model and field verification. If specifications are not available for plan, use the defaults for planned column
Number of Composting/Waterless Toilets			Rater input	Plans and field verification
Total Number of Shower Fixtures			Rater input	Plans and field verification
Number of Shower Fixtures (High efficiency)			Rater input	Plans and field verification
Average Flow Rate Shower (gpm)(High efficiency)	2.0		Rater input or defaults	Specifications of model and field verification. If specifications are not available for plan, use the defaults for planned column
Total Number of Bathroom Faucets			Rater input	Plans and field verification
Number of Bathroom Faucets (High efficiency)			Rater input	Plans and field verification
Average Flow Rate Faucet (gpm) (High efficiency)	1.5		Rater input or defaults	Specifications of model and field verification. If specifications are not available for plan, use the defaults for planned column
Total Number of Kitchen/ Utility Faucets			Rater input	Plans and field verification
Number of Kitchen/Utility Faucets (High efficiency)			Rater input	Plans and field verification
Average Flow Rate Faucet (gpm) (High efficiency)	2.2		Rater input or defaults	Specifications of model and field verification. If specifications are not available for plan, use the defaults for planned column

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7. Energy Usage			Type of Input	Source
<b>The energy usage must be totaled for the project.</b>				
See page 3 for sample				
Estimated Annual Electric (kWh/yr)			Rater input	<b>EnergyPro:</b> ECON-1 form. For support from Energy Pro call: 415.897.6400 ext. 315 or email support@energysoft.com. <b>MICROPAS:</b> Look in the database of run results and look for source heating and cooling energy. These source numbers are then converted to kWh as follows: kWh = (source electric kBtu/ft2 * floor area ft2) / (3 source conversion * 3.413 Btu/Wh). Therms = (source gas kBtu/ft2 * floor area ft2) / (100 kBtu/therms). Note that source gas usually includes adding together the heating and water heating source values. For users with the research version, they can request the Summary table report and get month-by-month and total kWh and therms. For support call: 800-755-5908.
Baseline T24 Compliance Electric (kWh/yr)			Rater input	This is the standard design
Estimated Annual Fuel Use (therms/yr)			Rater input	This is the proposed design
Baseline T24 Compliance Gas Use (therms/yr)			Rater input	This is the standard design
<b>8. Renewable Energy Systems</b>				
Photovoltaic System(s): Total Annual kWh Generated for Whole Project			Rater input	Installer estimate from CF-6R- PV or CF-4R-PV
Solar Hot Water System(s): Total Annual Therms or kWh Offset for Whole Project			Rater input	Estimate from F-chart calculation.
<b>9. Do/Does the Home(s) have air conditioning?</b>				
Type of Refrigerant (e.g. R410-A)	No	No	Drop-down list	Project specs and/or plans
Total Amount of Refrigerant Used (lbs.)	HFC-134A	HFC-134A	Drop-down list	Project specs and/or plans or manufacturer
<b>10. Appliances &amp; Fans</b>				
Water Heater (Gas or Electric)	Gas	Gas	Drop-down list	Field observation or plan review
Total Number of Fireplaces in Project			Drop-down list	Field observation or plan review
Number of Fireplaces with CSA Rating >60%			Drop-down list	Specifications of installed fireplaces and field verification
Total Number of Dishwashers in Project			Rater input	Plans and field verification
Number of ENERGY STAR Dishwashers			Rater input	Plans and field verification
Annual Energy Use (kWh/yr):	187	187	Planned: use default. Actual: Rater input	Use defaults or real data from appliance specifications – ENERGY GUIDE or call manufacturer. This information is required by law to be available. Check EPA website of Energy Star appliances.
Annual Energy Use (therms/yr):	6	6	Planned: use default. Actual: Rater input	Use defaults or real data from appliance specifications – ENERGY GUIDE or call manufacturer. This information is required by law to be available. Check EPA website of Energy Star appliances.
Annual Water Use (gallons/yr):	860	860	Planned: use default. Actual: Rater input	Use defaults or real data from appliance specifications – ENERGY GUIDE or call manufacturer. This information is required by law to be available. Check EPA website of Energy Star appliances.
Total Number of Clothes Washers in Project			Rater input	Field observation
Number of ENERGY STAR Clothes Washers			Rater input	Use defaults or real data from appliance specifications – ENERGY GUIDE or call manufacturer. This information is required by law to be available. Check EPA website of Energy Star appliances.
Annual Energy Use (kWh/yr):	56.2	56.2	Rater input	Use defaults or real data from appliance specifications – ENERGY GUIDE or call manufacturer. This information is required by law to be available. Check EPA website of Energy Star appliances.
Annual Energy Use (therms/yr):	20.7	20.7	Rater input	Use defaults or real data from appliance specifications – ENERGY GUIDE or call manufacturer. This information is required by law to be available. Check EPA website of Energy Star appliances.
Annual Water Use (gallons/yr):	5790	5790	Rater input	Use defaults or real data from appliance specifications – ENERGY GUIDE or call manufacturer. This information is required by law to be available. Check EPA website of Energy Star appliances.
Total Number of Refrigerators in Project			Rater input	Field observation
Number of ENERGY STAR Refrigerators			Rater input	Field observation
Choose Type of Refrigerator	4-Side Mount Freezer without through-the-door ice	1-Manual Defrost Refrigerators	Drop-down list	Field observation or specifications
Annual Energy Use (kWh/yr):	541	407	Planned: use default. Actual: Rater input	Use defaults or real data from appliance specifications – ENERGY GUIDE or call manufacturer. This information is required by law to be available. Check EPA website of Energy Star appliances.

# ENERGY USE AND COST SUMMARY

# ECON-1

PROJECT NAME Your Green House	DATE 1/22/2010
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Rate: **Electric** PG&E T\_Yes

Fuel Type: Electricity

	STANDARD			PROPOSED			MARGIN		
	Energy Use (kWh)	Peak Demand (kW)	Cost (\$)	Energy Use (kWh)	Peak Demand (kW)	Cost (\$)	Energy Use (kWh)	Peak Demand (kW)	Cost (\$)
Jan	30	0	4	30	0	3	0	0	0
Feb	18	0	2	18	0	2	0	0	0
Mar	15	0	2	15	0	2	1	0	0
Apr	18	2	2	22	3	3	-5	0	-1
May	45	3	5	63	4	7	-18	0	-2
Jun	27	4	3	44	4	5	-17	-1	-2
Jul	12	2	1	19	3	2	-7	0	-1
Aug	2	2	0	9	2	1	-7	-1	-1
Sep	39	4	5	62	5	7	-22	-1	-3
Oct	31	3	4	45	4	5	-15	-1	-2
Nov	17	2	2	21	2	2	-4	0	0
Dec	30	0	3	29	0	3	0	0	0
Year	<b>284</b>	4	\$ 33	<b>377</b>	5	\$ 44	-93	-1	\$ -11

Rate: **Gas** PG&E T

Fuel Type: Natural Gas

	STANDARD			PROPOSED			MARGIN		
	Energy Use (therms)	Peak Demand (kBtu/hr)	Cost (\$)	Energy Use (therms)	Peak Demand (kBtu/hr)	Cost (\$)	Energy Use (therms)	Peak Demand (kBtu/hr)	Cost (\$)
Jan	76	63	99	74	59	96	2	4	3
Feb	46	54	58	45	50	56	1	4	2
Mar	38	52	47	36	47	44	2	5	3
Apr	25	48	31	22	44	27	3	4	4
May	18	50	23	17	46	21	1	4	2
Jun	5	46	6	5	42	6	0	4	0
Jul	0	0	0	0	0	0	0	0	0
Aug	0	0	0	0	0	0	0	0	0
Sep	0	0	0	0	0	0	0	0	0
Oct	8	45	9	8	43	10	0	1	0
Nov	37	53	45	35	49	43	2	5	2
Dec	75	58	97	72	54	93	3	4	4
Year	<b>328</b>	63	\$ 416	<b>312</b>	59	\$ 395	15	4	\$ 20

Annual Totals	Energy	Demand	Cost	Cost/sqft	Virtual Rate
Electricity	377 kWh	5 kW	\$ 44	\$ 0.02/sqft	\$ 0.12/kWh
Natural Gas	312 therms	59 kBtu/hr	\$ 395	\$ 0.18/sqft	\$ 1.27/therm
<b>Total</b>			<b>\$ 439</b>	<b>\$ 0.20/sqft</b>	

The values shown here are based upon the results of an EnergyPro Compliance energy analysis that uses Title 24 profiles as specified in the Residential ACM manual.