How to Calculate Winery Emissions for CEQA

This guide is designed to be used with the Winery Excel for CEQA (*SBCAPCDWineryExcelforCEQA.xlsx* available online here https://www.ourair.org/land-use/#WineryResources) and CalEEMod.

The Winery Excel for CEQA will estimate emissions from the winery fermentation process and equipment such as boilers and emergency generators. Additionally, the Winery Excel for CEQA will calculate the project specific trip rate needed for the CalEEMod emissions estimate.

Please be sure that all project information listed in Section A (page 2) is available before beginning to estimate emissions. All project information will be inputted into the "*Project Data Input*" sheet.

Using the project specific trip rate generated on the "*Project Data Input*" sheet, CalEEMod will estimate the emissions associated with the project's building and mobile trips. CalEEMod will calculate the criteria pollutant emissions in lbs/day for NOx, ROCs, and PM10 for area, mobile, and energy sources, and GHG emissions in MT CO2e/yr for area, mobile, and energy sources as well as waste and water.

The CalEEMod emissions estimate can then be inputted into the "*Emissions Summary*" sheet to generate emissions totals for the project that include those emissions from fermentation and equipment that are not accounted for in CalEEMod.

All sheets following the "*Emissions Summary*" sheet show the details of the calculations. Project data entry only needs to be done on the "*Project Data Input*" sheet and the "*Emissions Summary.*"

Use the below key for the Winery Excel for CEQA.

Key	
	Please fill in these boxes with project specific information.
	This data is automatically calculated based on project information and defaults.
	This data is project specific and copied from the "Project Data Input" sheet.
	This is a final calculation to be used in CalEEMod and/or the CEQA document.
	*If no project specific information is available please use the given defaults.

A. Make sure you have all the necessary information to complete the analysis.

I. Proposed Winery Size
   a. _____SF

II. Trip Rates

Trip Generation Info	ADT	Events/Year
Winery Special Events		
Gatherings		
Weekend		**104**
Weekday		**261**

   a. Will the winery have regular business and gatherings on the same day? *Yes or No*
   b. Will the winery have regular business and special events on the same day? *Yes or No*
   c. Will the winery have regular business, gatherings, and special events all on the same day? *Yes or No*

III. Production Capacity
   a. Proposed capacity: _____ cases
      2.378 gallons/case
   b. Percent red wine (of total wine produced) _____%
   c. Percent white wine (of total wine produced) _____%

IV. Aging and Fermentation
   a. Percent red wine aged in oak (of total red wine produced): _____%
   b. Percent white wine aged in oak (of total white wine produced): _____%
   c. *Length of fermentation cycle of red wine _____ days *(7 days)*
   d. *Length of fermentation cycle of white wine _____ days *(15 days)*
   e. *Percent red wine fermenting daily: _____% *(30%)*
   f. *Percent white wine fermenting daily: _____% *(30%)*
   g. *Percent red wine aging in oak daily: _____% *(40%)*
   h. *Percent white wine aging in oak daily: _____% *(25%)*

V. Equipment (Boiler and Diesel Engine)
   a. Boilers
      i. Will the boiler be natural gas-fired or propane-fired? *natural gas or propane*
      ii. Max heat input: _____ (MMBtu/hr)
   b. Diesel Engine
      i. Engine rating: _____ (bhp)
      ii. Engine tier: _____
      iii. *Daily Maintenance & Testing (M&T): _____ (hrs/day) *(4 hrs/day)*

(**Project-specific information is preferred. If unavailable, APCD defaults will be applied as shown in parentheticals*.)

B. Use Winery Project Information to complete <u>WineryExcelforCEQA.xlsx</u>.

I. Fill in <u>all</u> the green highlighted boxes of "*Project Data Input*" sheet

II. Go to next step **C. Run CalEEMod** to get project land use emissions needed to fill in green highlighted boxes on the "*Emissions Summary*" sheet

C. Run CalEEMod.

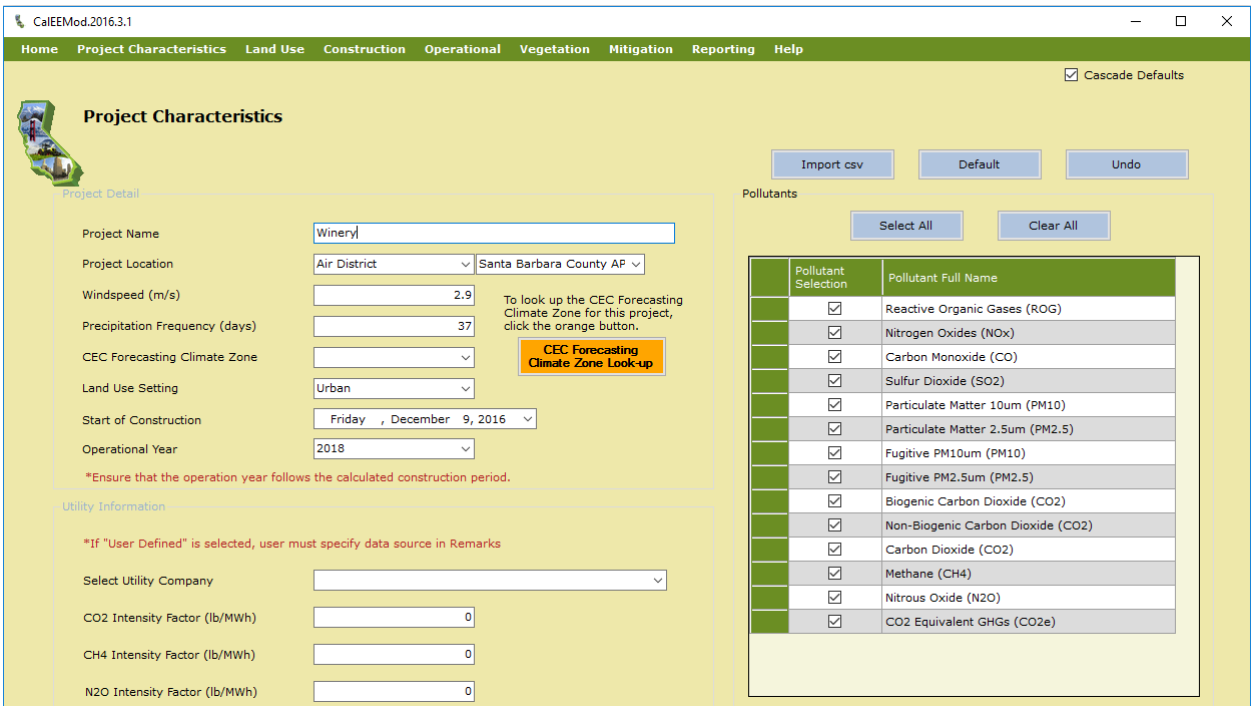
I. <u>Project Characteristics</u>

a. Project Location: Select *Air District* and *Santa Barbara County APCD*

b. CEC Forecasting Climate Zone: Select *4* or *8* depending on Project Location

c. Land Use Setting: Select *Urban* (no areas of SBC are considered Rural)

d. Select Utility Company: Select either *Pacific Gas & Electric* or *Southern California Edison*



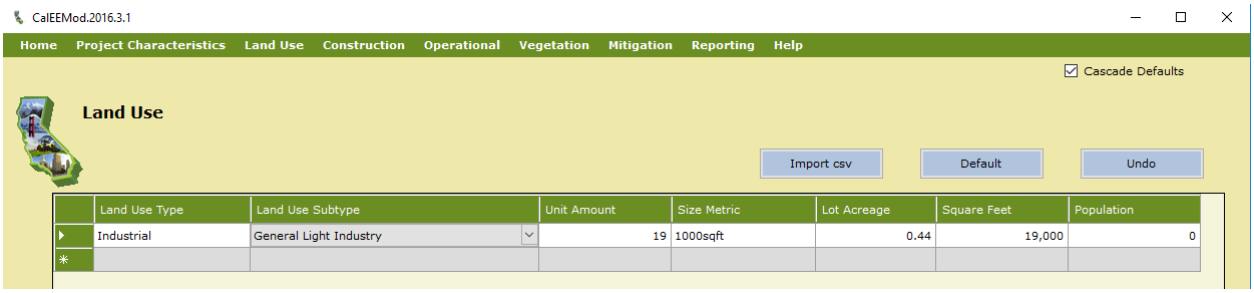
II. <u>Land Use</u>

a. Select *Industrial* and then *General Light Industry*

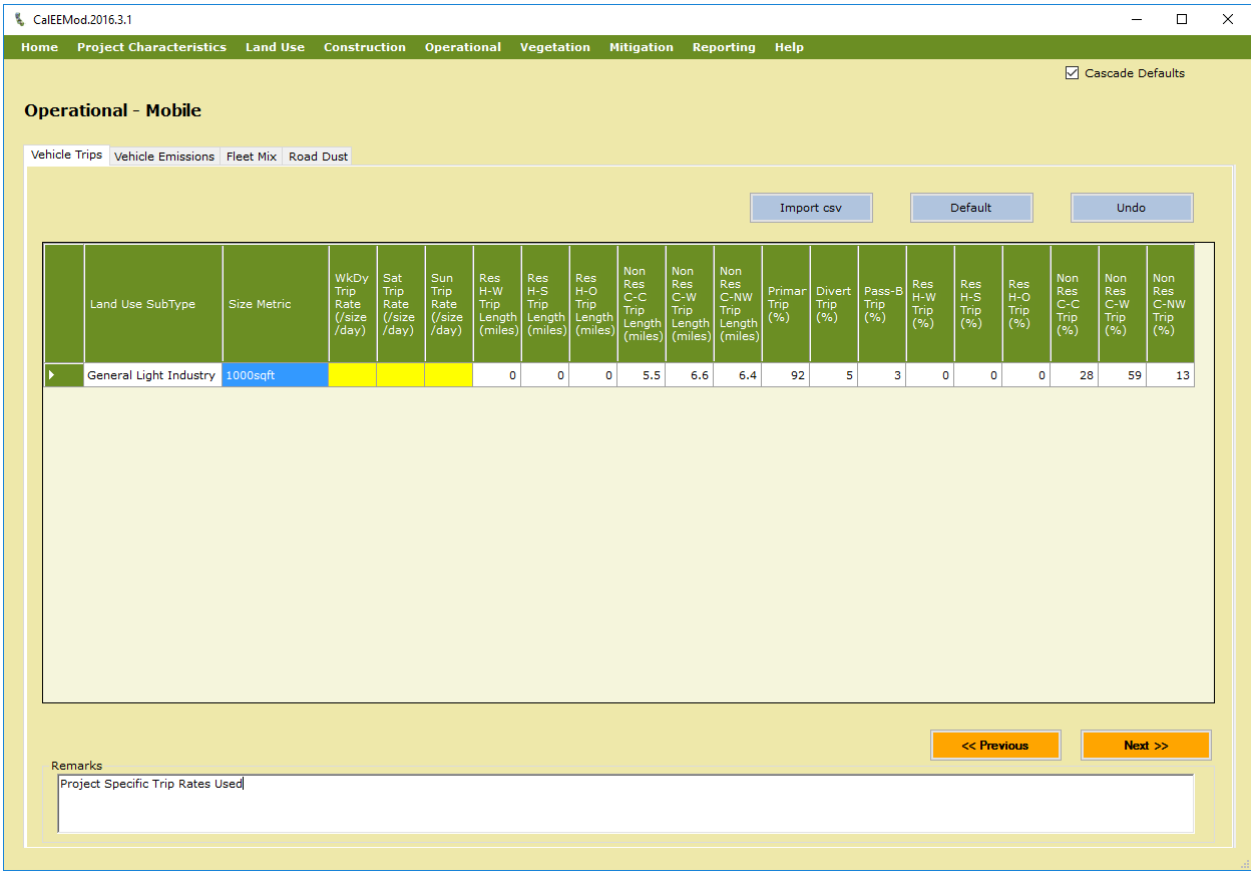
i. Since there is no Winery land use we will use *General Light Industry* as a proxy land use to estimate area and energy emissions

ii. Note that the units are 1000 SF

iii. Be sure that the project size entered here is the same as on the "*Project Data Input*" sheet



III. Operational – Mobile → Vehicle Trips



a. To reflect project specific trip rates change *WkDy, Sat,* and *Sun Trip Rate* (note units are */size/day,* where *size = 1,000* SF) to be project specific

   i. To Estimate Criteria Pollutants (lbs/day):
      1. Use Worst Case Day ADT/1,000 SF (from "*Project Data Input*" sheet, cell C30) for *WkDy, Sat,* and *Sun*
      2. Fill out the *Remarks* text box
      3. Run *Summer* Report (Go to Section IV. Run Reports and Get Emissions Estimates for guidance on this)

   ii. To Estimate Annual GHG (MT CO2e/yr):
      1. Use Annual Average Day ADT/1,000 SF (from "*Project Data Input*" sheet, cell C31) for *WkDy, Sat,* and *Sun*
      2. Fill out the *Remarks* text box
      3. Run *Annual* Report (Go to below Section IV. Run Reports and Get Emissions Estimates for guidance on this)

IV. Run Reports and Get Emissions Estimates

a. Run **both** the *Summer* and *Annual* Reports
   i. *Summer* will use Worst Case Day Trip Rates
   ii. *Annual* will use Annual Average Day Trip Rates

b. Use emissions data from CalEEMod to complete the green highlighted boxes (shown below) on the "*Emissions Summary*" sheet

Long Term Operational Impacts

Source		ROG/ROC (lbs/day)	NOx (lbs/day)	PM (lbs/day)
CalEEMod	Mobile			N/A
	Total			
Fermentation		0.00	0	0
Equipment	Boiler	#N/A	#N/A	#N/A
	Diesel Engine	#N/A	#N/A	#N/A
Daily Criteria Pollutant Emissions		#N/A	#N/A	#N/A

Annual Greenhouse Gas Emissions

Source		MT CO2e/yr
CalEEMod		
Fermentation		0.00
Equipment	Boiler	0
	Diesel Engine	0.00
Annual GHG Emissions		0

   i. Use Summer Report for Daily Criteria Pollutant Emissions
      1. See Section 2.2 Overall Operational
      2. *Use Mobile ROC and NOx (lbs/day) emission estimates
      3. *Use Total ROC, NOx, and PM10 (lbs/day) emission estimates
   ii. Use Annual Report for Annual Greenhouse Gas Emissions
      1. See Section 2.2 Overall Operational
      2. *Use Total CO2e (MT CO2e/yr)

**See next page for screenshots of emissions data from CalEEMod report*

Summer Report (lbs/day)

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.5274	2.0000e-005	1.9700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.1600e-003	4.1600e-003	1.0000e-005		4.4400e-003
Energy	0.0149	0.1351	0.1135	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.1660	162.1660	3.1100e-003	2.9700e-003	163.1297
Mobile	0.4724	1.6122	4.9254	0.0104	0.8629	0.0158	0.8786	0.2316	0.0149	0.2465		1,046.8862	1,046.8862	0.0587		1,048.3538
Total	**1.0147**	**1.7474**	**5.0409**	**0.0112**	**0.8629**	**0.0260**	**0.8889**	**0.2316**	**0.0252**	**0.2568**		**1,209.0564**	**1,209.0564**	**0.0618**	**2.9700e-003**	**1,211.4880**

Annual Report (MT CO2e/yr)

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0962	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.4000e-004	3.4000e-004	0.0000	0.0000	3.6000e-004
Energy	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003	0.0000	73.3884	73.3884	2.6200e-003	9.3000e-004	73.7303
Mobile	0.0422	0.1537	0.4647	9.3000e-004	0.0768	1.4400e-003	0.0783	0.0207	1.3600e-003	0.0220	0.0000	84.7893	84.7893	4.9100e-003	0.0000	84.9120
Waste						0.0000	0.0000		0.0000	0.0000	4.8926	0.0000	4.8926	0.2426	0.0000	10.9577
Water						0.0000	0.0000		0.0000	0.0000	1.5545	6.9183	8.4708	5.6600e-003	3.4500e-003	9.6391
Total	**0.1411**	**0.1783**	**0.4856**	**1.0800e-003**	**0.0768**	**3.3100e-003**	**0.0801**	**0.0207**	**3.2300e-003**	**0.0239**	**6.4471**	**165.0944**	**171.5414**	**0.2558**	**4.3800e-003**	**179.2395**

D. Now step **B. II** has been completed by filling in the remaining green highlighted boxes with the emissions data from CalEEMod on the "*Emissions Summary"* sheet

E. Please use the "*Emissions Summary*" sheet in the Air Quality and Greenhouse Gas Analysis, if there is additional equipment/emissions that need to be accounted for please add it in at this time