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Docket Number:	16-AFC-01
Project Title:	Stanton Energy Reliability Center
TN #:	214207-18
Document Title:	Appendix 5.1G - Regional Emissions Inventory Data
Description:	Application for Certification Vol. 2
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Submitter Role:	Applicant
Submission Date:	10/27/2016 10:23:29 AM
Docketed Date:	10/26/2016

Appendix 5.1G
Regional Emissions Inventory Data

APPENDIX 5.1G

Cumulative Impacts Analysis Protocol

Potential cumulative air quality impacts that might be expected to occur resulting from SERC and other reasonably foreseeable projects are both regional and localized in nature. These cumulative impacts will be evaluated as follows with a cumulative modeling assessment submittal during the CEC discovery phase.

Regional Impacts

Regional air quality impacts are possible for pollutants such as ozone through the form of ozone precursors, which involve photochemical processes that can take hours to occur. SERC is proposing to supply emissions mitigation per Appendix 5.1H. Additional mitigation for other pollutants may be required by the CEC.

Although the relative importance of VOC and NO_x emissions in ozone formation differs from region to region, and from day to day, most air pollution control plans in California require roughly equivalent controls (on a ton per year basis) for these two pollutants. The change in emissions of the sum of these pollutants, equally weighted, will be used to provide a reasonable estimate of the impact of SERC on ozone levels. The net change in emissions of ozone precursors from SERC will be compared with emissions from all sources within the SCAQMD (Table 5.1G-1).

Table 5.1G-1. Estimated SCAQMD Emissions Inventory for 2012 (tons/day)

Source Category	VOC	CO	NO_x	SO_x	PM10	PM2.5
Total Stationary Sources	104.3	55.2	48.5	10.1	20.8	13.6
Total Area Sources	122.4	102.2	21.8	1.0	96.1	32.4
Total Mobile Sources	239.8	2114.4	441.8	6.6	36.7	22.4
Total Natural Sources	96.7	301.1	4.4	2.3	30.1	25.5
SCAQMD Totals, tons/day	*563.2*	*2572.9*	*516.5*	*20.0*	*183.7*	*93.9*
SCAQMD Totals, tons/year	*205,568*	*939,109*	*188,523*	*7,300*	*67,051*	*34,274*

Source: CARB, 7/2016

Air quality impacts of fine particulate, PM10 and/or PM2.5, have the potential to be either regional or localized in nature. On a regional basis, an analysis similar to that proposed above for ozone will be performed, looking at the three pollutants that can form PM10 in the atmosphere (i.e., VOC, SO_x, and NO_x) as well as at directly emitted particulate matter. SCAQMD regulations require offsets to be provided for PM10, NO_x, SO_x, and VOC emissions from the project, i.e., the net increase in emissions must be mitigated.

As in the case of ozone precursors, emissions of PM10/2.5 precursors are expected to have approximately equivalent ambient impacts in forming PM10/2.5, per ton of emissions on a regional basis. Table 5.1G-2 provides the comparison of emissions of the criteria pollutants from SERC with emissions from all sources within the SCAQMD as a whole.

Table 5.1G-2. Comparison of SERC Project Emissions to Estimated Inventory for 2012

Category	ROG*	CO	NO_x	SO_x	PM10	PM2.5
SERC Emissions (tons/yr)	1.3	7.9	3.9	0.4	2.1	2.1
SCAQMD Total (tons/year)	*205,568*	*939,109*	*188,523*	*7,300*	*67,051*	*34,274*
SERC % of SCAQMD Total Tons/Year Basis	**0.00063**	**0.00084**	**0.0.0021**	**0.0055**	**0.0031**	**0.0061**

* SERC VOC emissions compared to inventory ROG emissions.

Localized Impacts

Localized impacts from SERC could result from emissions of carbon monoxide, oxides of nitrogen, sulfur oxides, and directly emitted PM10. A dispersion modeling analysis of potential cumulative air quality impacts will be performed for all four of these pollutants.

In evaluating the potential cumulative localized impacts of SERC in conjunction with the impacts of existing facilities and facilities not yet in operation but that are reasonably foreseeable, a potential impact area in which cumulative localized impacts could occur was identified as an area with a radius of 8 miles around the plant site. Based on the results of the proposed air quality modeling analyses described above, "significant" air quality impacts, as that term is defined in federal air quality modeling guidelines, will be determined. If the project's impacts do not exceed the significance levels, no cumulative impacts will be expected to occur, and no further analysis will be required. Otherwise, in order to ensure that other projects that might have significant cumulative impacts in conjunction with SERC are identified, a search area with a radius of 8 miles beyond the project's impact area will be used for the cumulative impacts analysis. Within this search area, three categories of projects with emissions sources will be used as criteria for identification:

- Projects that have been in operation for a sufficient time period, and whose emissions are included in the overall background air quality data.
- Projects which recently began operations whose emissions may not be reflected in the ambient monitoring background data.
- Projects for which air pollution permits to construct have not been issued, but that are reasonably foreseeable.

This approach is considered conservative because most agencies do not typically require sources that have been in operation for a period of time to be included (modeled) in the cumulative analysis. The applicable inclusion dates for each of the above source categories will be discussed and approved by the APCD staff. The requested source listings will incorporate these dates. Projects that are existing, and that have been in operation such that their emissions are reflected in the ambient air quality data that has been used to represent background concentrations require no further analysis. The cumulative impacts analysis adds the modeled impacts of selected facilities to the maximum measured background air quality levels, thus ensuring that these existing projects are taken into account.

Projects for which air pollution permits to construct have been issued but that were not operational will be identified through a request of permit records from the SCAQMD. The search will be requested to be performed at two levels. For permits that are considered "major modifications" (i.e., emissions increases greater than 40 tons/year of NO_x or SO_2, 25 tons/year of total suspended particulate, 15 tons/year of PM10), a region within 8 miles of the proposed project site will be evaluated. For projects that had smaller emissions changes, but still greater than 15 tons/year, a region within 8 miles of the proposed project site will also be evaluated. Projects that satisfy either of these criteria and that had a permit to construct issued after the applicable inclusion date, will be included in the cumulative air quality impacts

analysis. The inclusion date, as noted above, will be selected based on the typical length of time a permit to construct is valid and typical project construction times, to ensure that projects that are not reflected in the current ambient air quality data are included in the analysis. Projects for which the emissions change was smaller than 15 tons/year will be assumed to be *de minimus*, and will not be included in the dispersion modeling analysis.

A list of projects within the project region meeting the above noted criteria will be requested from the SCAQMD staff.

Given the potentially wide geographic area over which the dispersion modeling analysis is to be performed, the AERMOD model will be used to evaluate cumulative localized air quality impacts. The detailed modeling procedures, AERMOD options, and meteorological data used in the cumulative impacts dispersion analysis were the same as those described in Section 5.1. The receptor grid will be spaced at 100 meters and cover the area in which the detailed modeling analysis (described above) indicates that the project will have impacts that may exceed any significance levels.

Cumulative Impacts Dispersion Modeling

The dispersion modeling analysis of cumulative localized air quality impacts for the proposed project will be evaluated in combination with other reasonably foreseeable projects and air quality levels attributable to existing emission sources, and the impacts were compared to state or federal air quality standards for significant impact. As discussed above, the highest second-highest modeled concentrations will be used to demonstrate compliance with standards based on short-term averaging periods (24 hours or less).

Supporting information to be used in the analysis includes the following:

- 2012 estimated emissions inventory for the SCAQMD (Table 5.1G-1)
- List of projects resulting from the screening analysis of permit files by the SCAQMD
- Table delineating location data of sources included in the cumulative air quality impacts dispersion modeling analysis
- Stack parameters for sources included in the cumulative air quality impacts dispersion modeling analysis
- Output files for the dispersion modeling analysis