Attachment B:

Updated Air Quality Memorandum (January 2017)

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Technical Memorandum

To: Andrew Flajole, NextEra Energy Transmission West, LLC

From: Carlos Ituarte-Villarreal, SWCA Environmental Consultants

Date: January 9, 2017

Re: **NEET West Two-Pole Interconnection Configuration – Air Quality Impact Assessment**

This technical memorandum details an air quality impact assessment and the estimated emissions from the construction and operation of the revisions to the Suncrest Dynamic Reactive Power Support Project (project) – Two-Pole Interconnection Configuration Alternative (proposed alternative).

The proposed alternative consists of the installation of an additional 116-foot-tall tubular steel pole downslope of the riser pole on the north side of San Diego Gas & Electric's (SDG&E) service road approximately 35 feet outside the Suncrest substation fenceline. Model inputs were revised to include the use of an approximately 30-foot-wide by 150-foot-long graveled service road used to access the intermediate pole location. Based on the addition of the pole, the temporary and permanent disturbance area would increase slightly from the impact acreages identified in the Proponent's Environmental Assessment (PEA). The project would then result in the disturbance of approximately 12.59 acres, an increase of 0.59 acre with respect to the disturbance evaluated in the PEA.

Air quality impacts were analyzed with the aid of the California Emissions Estimator Model (CalEEMod), Version 2013.2.2. CalEEMod was designed in collaboration with the South Coast Air Quality Management District (SCAQMD) and other California air districts to calculate air and greenhouse gas (GHG) emissions associated with land use projects (CalEEMod 2013). Emissions from the proposed alternative were estimated and compared against the impacts reported in the PEA (before results).

The before and revised model inputs and assumptions are discussed below:

- **Project Characteristics**
  - Windspeed: 2.6 meters/second (m/s)
  - Precipitation: 40 days
  - Climate zone: 13
  - Land use: Rural
  - Operational Year: 2018
  - Utility company: SDG&E

- **Land Use**
  - Land Use type: Industrial
  - Land use Subtype: General Light Industry
  - Metric: 1,000 square feet (sq. ft.)
  - Lot Acreage: Before: 12.00
    Revised: 12.59
  - Population: 0
- **Construction**
  - **Construction Phases –** Used 17 construction phases. Changes in construction schedule initiation date and work task durations are noted in bold in Table 1.

Table 1. Construction Phases

Phase name	Phase Type	Before (PEA)			Revised (Alternative)		
		Phase Start Date	Phase End Date	Number of days	Phase Start Date	Phase End Date	Number of days
Field Survey	Site Preparation	2016/08/01	2016/08/15	15	2016/08/01	2016/08/15	15
SDG&E Site preparation	Site Preparation	2016/09/01	2016/10/31	61	2016/09/01	2016/10/31	61
SVC Site Grading	Grading	2016/09/01	2016/09/30	30	2016/09/01	2016/09/30	30
Trenching	Trenching	2016/09/01	2016/12/10	101	2016/09/01	2016/12/10	101
Set SVC Substation Foundations	Building Construction	2016/10/01	2016/11/20	51	2016/10/01	2016/11/20	51
Material delivery	Building Construction	2016/10/07	2017/01/15	101	2016/10/07	2017/01/15	101
Substation construction	Building Construction	2016/10/31	2017/03/10	131	2016/10/31	2017/03/10	131
Structure Erection	Building Construction	2016/11/01	2016/12/31	61	**2016/11/01**	**2017/01/14**	**75**
Install Vaults	Building Construction	2016/12/11	2017/01/09	30	2016/12/11	2017/01/09	30
Install Transmission line foundations	Building Construction	2016/12/31	2017/01/15	16	**2016/12/31**	**2017/01/31**	**32**
Install duct package	Building Construction	2017/01/10	2017/02/28	50	2017/01/10	2017/02/28	50
Wire Stringing	Building Construction	2017/01/15	2017/01/27	10	**2017/01/15**	**2017/02/01**	**15**
Transformer & SVC Delivery	Building Construction	2017/01/16	2017/01/30	15	2017/01/16	2017/01/30	15
Pull cable	Building Construction	2017/03/01	2017/03/21	21	2017/03/01	2017/03/21	21

Table 1. Construction Phases

Phase name	Phase Type	Before (PEA)			Revised (Alternative)		
		Phase Start Date	Phase End Date	Number of days	Phase Start Date	Phase End Date	Number of days
Install cable splices	Building Construction	2017/03/22	2017/04/22	32	2017/03/22	2017/04/22	32
Right of way restoration and cleanup	Site Preparation	2017/04/15	2017/06/15	62	2017/04/15	2017/06/15	62
Test cable splices	Building Construction	2017/04/23	2017/04/24	2	2017/04/23	2017/04/24	2

- **Off-Road Equipment –** The following equipment was assumed for the construction phases. No changes to the types and daily duration of use for off-road equipment for the work tasks are expected as the intermediate pole will be installed in parallel with the Suncrest riser structure using the same equipment, therefore no changes to the equipment roster was expected. Table 2 presents the off-road equipment roster for the project. CalEEMod program defaults were used for all construction equipment horsepower, and load factors by construction phase.

Table 2. Equipment Roster

Phase Name	Off-Road Equipment Type	Amount	Usage Hours
SDG&E Site preparation	Bore/Drill Rigs	1	5
	Cranes	1	2.5
	Excavators	1	7
	Off-Highway Trucks	2	10
	Off-Highway Trucks	2	3
SVC Site Grading	Dumpers/Tenders	1	9
	Dumpers/Tenders	10	5
	Graders	1	9
	Off-Highway Trucks	1	10
	Rollers	2	5
	Rubber Tired Dozers	1	9
	Rubber Tired Loaders	1	9
	Tractors/Loaders/Backhoes	1	9

Table 2. Equipment Roster

Phase Name	Off-Road Equipment Type	Amount	Usage Hours
Trenching	Dumpers/Tenders	1	10
	Off-Highway Trucks	1	10
	Tractors/Loaders/Backhoes	1	10
	Trenchers	1	10
Set SVC Substation Foundations	Bore/Drill Rigs	1	5
	Cranes	1	3
	Excavators	1	9
	Generator Sets	1	8
	Off-Highway Trucks	1	10
Material delivery	Cranes	2	5
	Forklifts	1	5
	Tractors/Loaders/Backhoes	1	5
Substation construction	Cranes	1	7.5
	Generator Sets	1	8
	Off-Highway Trucks	2	10
	Off-Highway Trucks	2	5
	Tractors/Loaders/Backhoes	1	2.5
Structure Erection	Cranes	2	5
	Generator Sets	1	8
	Off-Highway Trucks	5	10
	Tractors/Loaders/Backhoes	1	2
Install Vaults	Generator Sets	1	8
	Off-Highway Trucks	3	10
	Tractors/Loaders/Backhoes	1	10
Install Transmission line foundations	Bore/Drill Rigs	1	5
	Cranes	1	2.5
	Excavators	1	7
	Generator Sets	1	8
	Off-Highway Trucks	2	10

Table 2. Equipment Roster

Phase Name	Off-Road Equipment Type	Amount	Usage Hours
	Off-Highway Trucks	2	3
Install duct package	Generator Sets	1	8
	Off-Highway Trucks	2	7.5
Wire Stringing	Cranes	1	1
	Off-Highway Trucks	3	10
	Tractors/Loaders/Backhoes	1	10
Transformer & SVC Delivery	Cranes	1	2.5
	Tractors/Loaders/Backhoes	1	2.5
Pull cable	Off-Highway Trucks	1	10
	Other General Industrial Equipment	3	10
Install cable splices	Other Material Handling Equipment	1	16
Right-of-way restoration and cleanup	Excavators	1	5
	Graders	1	5
	Off-Highway Trucks	1	10
	Off-Highway Trucks	1	10
Test cable splices	Other General Industrial Equipment	1	10

- **Dust from Material Movement –** An assumed 3,600 cubic yards (based on project assumptions) of material are exported from the site in total. This represents an increase of approximately 100 cubic yards from the previous modeling analysis.
- **Trips and Vehicle Miles Traveled –** One-way haul trip distance of 65 miles was used based on the distance to nearest landfill. An estimated average distance of 65 miles round-trip per day was assumed for all worker trips and vendor trips. An approximate total of 450 haul trips were assumed. The number of worker trips was adjusted from the PEA values assuming the same proportion as for the duration of the construction phases. Table 3 shows the number of worker, vendor, and hauling trips assumed for the project. Updates to the daily worker trips and additional haul trips are noted in **bold**.

Table 3. Worker, Vendor, and Hauling Trips

Phase Name	Worker Trips		Vendor Trips		Hauling Trips	
	PEA	Two-pole Alternative	PEA	Two-pole Alternative	PEA	Two-pole Alternative
Field Survey	3	3	1	1	0	0
SDG&E Site preparation	9	9	5	5	0	0
SVC Site Grading	18	18	12	12	438	**450**
Trenching	5	5	0	0	0	0
Set SVC Substation Foundations	6	6	2	2	0	0
Material delivery	3	3	1	1	0	0
Substation construction	8	8	6	6	0	0
Structure Erection	8	**12***	9	9	0	0
Install Vaults	5	5	0	0	0	0
Install Transmission line foundations	5	**12***	5	5	0	0
Install duct package	5	5	0	0	0	0
Wire Stringing	15	**25***	6	6	0	0
Transformer & SVC Delivery	5	5	1	1	0	0
Pull cable	10	10	0	0	0	0
Install cable splices	5	5	0	0	0	0
Right of way restoration and cleanup	6	6	3	3	0	0
Test cable splices	3	3	0	0	0	0

* Two additional daily worker trips were assumed to account for lunchtime trips for two pieces of equipment.

  - **On-road Fugitive Dust –** All defaults were used with exception of the road percent paved roads for the structure erection, install transmission line foundations, and wire-stringing construction phases. Percent paved road value was updated to 99.95% to account for a graveled 150-foot-long road segment used to access the intermediate pole.
  - **Demolition –** No data was entered. Emissions from demolition of currently existing structures are accounted for in the material hauling.
  - **Architectural Coatings –** No data was entered. No architectural coating was assumed for the project.

- **Operational Phase**
  - **Mobile –** Percent paved road value was assumed to be 99% to account for the use of a graveled 150-foot-long road segment used to access the intermediate pole area.

- No other changes to the operational phases are assumed as a result of the proposed alternative.

Using the CalEEMod model, values for the unmitigated and mitigated maximum construction daily emissions are presented and compared to the San Diego Air Pollution Control District (SDAPCD) daily emission thresholds in Table 4.

Table 4. Construction-Related Daily Maximum Emissions Resulting from the Proposed Project

Emissions Source	Pollutant (Pounds/Day)*					
	VOCs	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Two-pole Alternative: Uncontrolled Emissions	24.21	271.91	140.11	0.37	17.28	11.52
Two-pole Alternative: Controlled Emissions	8.21	223.42	158.14	0.33	11.80	7.29
SDAPCD Thresholds	75	250	550	250	100	55
Is Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
PEA: Controlled Emissions	8.13	223.2	137.7	0.32	8.9	6.33
Controlled emissions increase	0.08	0.22	20.44	0.01	1.72	0.23

Note: Emissions were calculated using CalEEMod, Version 2013.2.2, and are presented for maximum emitting day per pollutant. The reductions for controlled construction emissions are based on assumptions included in the CalEEMod computer model. An additional 10% was subtracted from controlled emissions to account for the vehicle idling program (APM AIR-3). For PM_{10} and $PM_{2.5}$, no additional reductions were assumed.

* VOCs = volatile organic compounds, NOx = nitrogen oxides, CO = carbon monoxide, SO_2 = sulfur dioxide, PM_{10} = particles less than 10 microns in diameter, $PM_{2.5}$ = particles are less than 10 microns in diameter.

Maximum Operational daily emissions impacts compared to the SDAPCD daily thresholds are presented in Table 5.

Table 5. Operation- and Maintenance-Related Daily Maximum Emissions Resulting from the Proposed Project

Emissions Source	Pollutant (Pounds/Day)					
	VOCs	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Uncontrolled Emissions	2.85	1.01	3.55	0.01	5.96	0.71
SDAPCD Thresholds	75	250	550	250	100	55
Is Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Note: Emissions were calculated using CalEEMod Version 2013.2.2. No difference in the operation and maintenance emissions was observed for the proposed alternative.

Annual construction- and operation-related emissions are shown in Tables 6 and 7 respectively.

Table 6. Construction-Related Annual Emissions Resulting from the Proposed Project

Emissions Source	Pollutant (Tons/Year)					
	VOCs	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Two-pole Alternative: Uncontrolled Emissions	1.49	16.58	8.89	0.02	1.12	0.77
Two-pole Alternative: Controlled Emissions	0.52	13.71	9.88	0.02	0.70	0.44
SDAPCD Thresholds	13.7	40	100	40	15	10
Is Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
PEA: Controlled Emissions	0.48	12.7	8.27	0.02	0.58	0.4
Controlled emissions increase	0.04	1.01	1.61	0.00	0.12	0.04

Note: Emissions were calculated using CalEEMod, Version 2013.2.2, and are presented for maximum emitting year per pollutant. The reductions for controlled construction emissions are based on assumptions included in the CalEEMod computer model. An additional 10% was subtracted from controlled emissions to account for the vehicle idling program (APM AIR-3). For PM_{10} and $PM_{2.5}$, the 10% was only subtracted from exhaust-related emissions.

Table 7. Operation- and Maintenance-Related Annual Emissions Resulting from the Proposed Project

Emissions Source	Pollutant (Tons/Year)					
	VOCs	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Uncontrolled Emissions	0.52	0.18	0.63	0.001	1.08	0.13
SDAPCD Thresholds	13.7	40	100	40	15	10
Is Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Note: Emissions were calculated using CalEEMod, Version 2013.2.2.

As demonstrated above, the estimated annual and daily emissions related to the operation and construction of the two-pole alternative does not exceed any of the corresponding SDAPCD thresholds.

The County of San Diego Land Use and Environment Group has established a threshold of 10,000 metric tons per year for carbon dioxide equivalent (CO_2e) for use in establishing whether a project has a significant impact on GHG emissions. GHG emissions from the proposed project are presented in Tables 8 and 9.

Table 8. Total Estimated Greenhouse Gas Construction Emissions

Emissions Source	Total ($MTCO_2e$*/Year)
Uncontrolled Emissions	2,105
Controlled Emissions	1,895
Greenhouse Gas Significance Threshold [1]	10,000
Is Threshold Exceeded?	No
Controlled Emissions, amortized over 30 years	**63.15**

Note: Emissions were calculated using CalEEMod, Version 2013.2.2, and are presented for maximum emitting year. An additional 10% was subtracted from controlled emissions to account for the vehicle idling program (APM AIR-3).

* $MTCO_2e$ = metric tons of CO_2 equivalent

[1] GHG emissions threshold is based on the County of San Diego Land Use and Environment Group (November 2013).

Table 9. Total Estimated Greenhouse Gas Operation & Maintenance Emissions

Emissions Source	Total ($MTCO_2e$/Year)
Mobile Source	107
Circuit Breaker	8
On-Site Energy Usage	323
Total	**438**
Greenhouse Gas Threshold ($MTCO_2e$/Yr)[1]	10,000
Is Threshold Exceeded?	No

Note: Emissions were calculated using CalEEMod, Version 2013.2.2. See Appendix A for detailed report.

[1] GHG emissions threshold is based on the County of San Diego Land Use and Environment Group (November 2013).

As demonstrated above, the impact of GHG emissions due to operation, maintenance, and construction will be less than significant.

APPENDIX A

Calculations and CalEEMod Files