U.S. Environmental Protection Agency, Region 9 (Pacific Southwest)
Public Information Meeting
August 5, 2017
Clean Air Act Permit Application - Palmdale Energy Center

Purpose:
Today, we are holding a public information meeting to discuss the application for a Clean Air Act permit for the Palmdale Energy Project (Project) submitted by Palmdale Energy, LLC to the EPA.

- The Project would burn natural gas to generate up to 645 megawatts of electricity.
- Prior to issuing a Clean Air Act permit for the Project, known as a Prevention of Significant Deterioration (PSD) permit, the EPA must determine that the Project will use the best available control technology and that it will not cause adverse impacts on air quality as compared to health-based standards.
- The air pollutants that would be covered by our permit and which we are reviewing in making our permitting decision include: particulate matter (including fine particulate matter), nitrogen oxides, carbon monoxide and greenhouse gases.

Today's Agenda:
10:00 – 10:10 Introductions
10:10 – 10:30 Overview of the Project
10:30 – 11:25 Discussion
11:25 – 11:30 Closing & Next Steps

Summary of the EPA Region 9's PSD Permitting Process for the Project:

- Issue a proposed permit decision for public comment in the near future
- Consider and respond to comments received during the public comment period and issue a final PSD decision for the Project
- Commenters will have 30 days to petition the EPA's Environmental Appeals Board to review the Region's final PSD decision
- After the petition process is complete, including any remand proceedings, the Region's decision becomes final and effective

EPA Region 9 PSD Permit Application Contact:
Lisa Beckham, Environmental Engineer
beckham.lisa@epa.gov, (415) 972-3811

Other Actions Related to the Palmdale Energy Project:
Below is contact information to learn more about other regulatory actions related to the Project. These actions are separate from the EPA's PSD action:

Antelope Valley Air Quality Management District
https://avaqmd.ca.gov/
Contact: Bret Banks, Air Pollution Control Officer
Phone: (661) 723-8070
Email: bbanks@avaqmd.ca.gov

California Energy Commission
http://www.energy.ca.gov/sitingcases/palmdale/index.html
Contact: Eric Veerkamp, Palmdale Compliance Project Manager
Phone: (916) 654-4295
Email: Eric.Veerkamp@energy.ca.gov

Public Information Meeting:
Palmdale Energy Project
Clean Air Act Permit Application

Welcome!

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10:30 – 11:25 Discussion

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Introductions
EPA Region 9, Air Division

Gerardo Rios

Chief, Air Permits Office

Lisa Beckham

Environmental Engineer, Air Permits Office

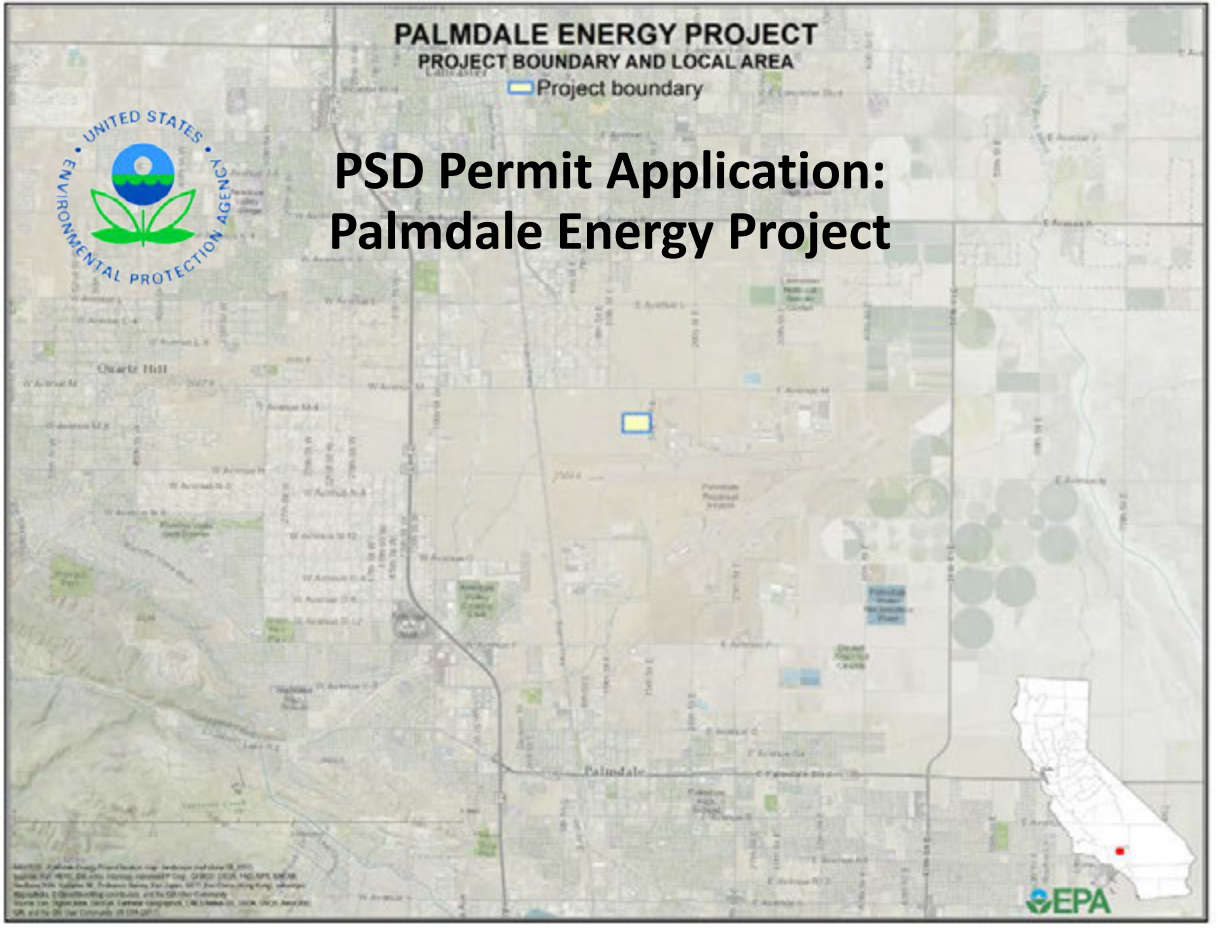
Cleve Holladay

Environmental Scientist, Air Quality Analysis Office

Palmdale Energy Project

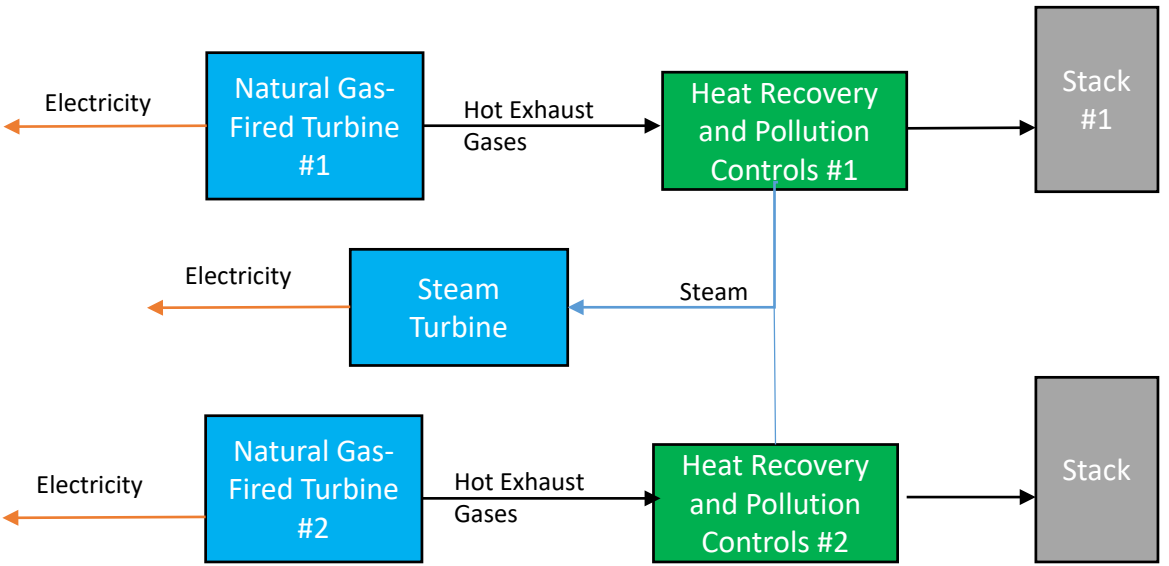
- 645 megawatt natural gas-fired power plant
  - Two combustion turbines – combined cycle design
  - Ancillary equipment includes auxiliary boiler, emergency engines, circuit breakers
- Project site is 50 acres located near U.S. Air Force Plant 42
- Designed to provide fast response to changes in electricity demand, mostly resulting from changes in available renewable energy

Note: The PSD permit application for the Palmdale Energy Project has not been determined by the EPA to be complete. Information included in this presentation is considered preliminary and may change.



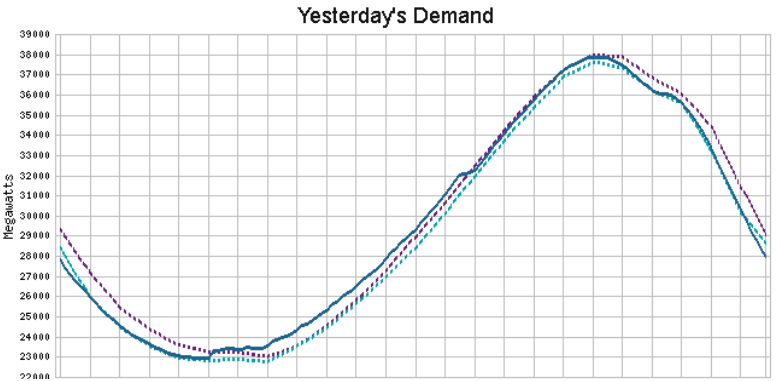
PSD Permit Application: Palmdale Energy Project

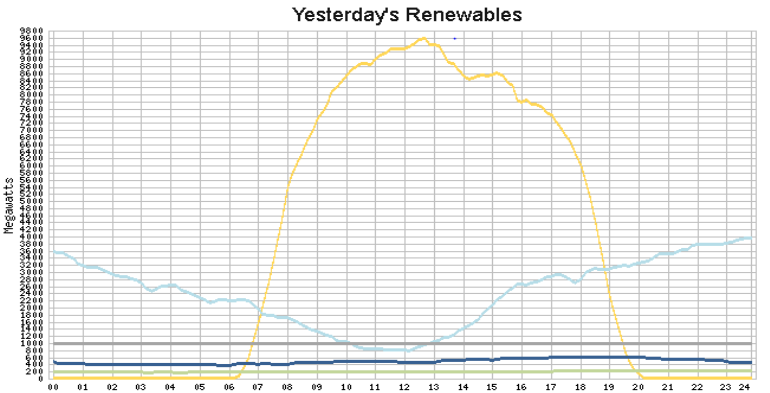
Combined-Cycle Power Plant Design



California Energy Demand vs. Available Renewable Energy

Source: CAISO – Showing Sunday, July 30, 2017





Clean Air Act Permitting

- The Clean Air Act includes several preconstruction permitting programs; the type of permit required depends on the size of the pollution source and the local air quality conditions
  - Major vs. minor
  - Prevention of Significant Deterioration (PSD) permitting program applies in areas meeting the health-based air quality standard
- Typically, air permits are issued by state and local agencies
  - Antelope Valley Air Quality Management District (District) – most federal, state, local requirements
  - District does not currently have an EPA-approved PSD program

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Ozone Nonattainment Area

- The PSD program and the permit application that the EPA is considering for the Palmdale Energy Project do not regulate nonattainment pollutants.
- The Antelope Valley is designated by the EPA as a severe ozone nonattainment area.
- A different Clean Air Act preconstruction permitting program addresses new and modified major sources in nonattainment areas and requires:
  - Lowest Achievable Emission Rate
  - Offset the emission increases from the project with decrease from other sources

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Ozone Nonattainment Area

- The EPA, the State of California, and the local air districts are working diligently through the air quality planning process under the Clean Air Act to ensure that there is a comprehensive plan with adequate controls for attaining the 75 parts per billion (ppb) NAAQS for ozone in the Antelope Valley area.

Western Mojave Desert Base Year and Attainment Year Emissions
tons per day (tpd), summer planning inventory

Source Category	2012 NOx	2025 NOx	2012 ROG	2026 ROG
Stationary Sources	28.3	42.1	13.2	17.4
Areawide Sources	1	0.9	11.3	12.2
Mobile Sources (On/Off road)	69.6	25.5	22.3	11
TOTAL	98.9	68.8	46.8	40.5

Source: CARB Emissions Inventory External Adjustments
v1.05, http://outapp.arb.ca.gov/cefs/2016ozsip/fcmasterdetail_sip216.php
Numbers may not add up due to rounding

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Applicability of PSD to Palmdale Energy Project

Pollutant	Potential to Emit (TPY)	Major Source Threshold (TPY)	Significant Emission Rate (TPY)	PSD Applies?
CO	**351**	**100**	**100**	**Yes**
NO_X	**139**	**100**	**40**	**Yes**
PM	**81**	**100**	**25**	**Yes**
PM_{10}	**81**	**100**	**15**	**Yes**
$PM_{2.5}$	**81**	**100**	**10**	**Yes**
SO_2	11	100	40	No
Lead	0	100	0.6	No
Sulfuric acid mist (H_2SO_4)	4.8	100	7	No
GHG (as CO_2e)	**2,117,888**	**--**	**75,000**	**Yes**

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Application Review Components

- Best Available Control Technology – PSD permit must include emission limitation based on the maximum degree of emission reduction

- Ambient Air Quality Impacts – PSD permit applicant must show compliance with:
  - National Ambient Air Quality Standards (NAAQS) – health-based standards
  - Increments - limits on air pollution increase over baseline concentrations

- Other requirements considered– additional impacts, environmental justice, endangered species, historic properties

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Best Available Control Technology

1. Identify all available control options;
2. Eliminate technically infeasible technology options;
3. Rank remaining control technologies by control effectiveness;
4. Evaluate the most effective control alternative and document results, considering energy, environmental, and economic impacts as appropriate; and
5. Select BACT, which will be the most stringent technology not eliminated due to infeasibility or impacts, and establish the emissions limit that can be consistently achieved with that technology.

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BACT– Proposed by Applicant

Equipment	NO_X	CO	$PM/PM_{10}/PM_{2.5}$	GHGs
Each Combustion Turbine	2.0 ppm Separate limits during startup and shutdown	2.0 ppm Separate limits during startup and shutdown	11.8 lb/hr	928 lb CO_2/MWh
Auxiliary Boiler	9.0 ppm	50 ppm	0.007 lb/MMBtu	Optimize excess air, non-condensing economizer
Two Emergency Diesel Engines	EPA–certified engines; limits on non-emergency use			
Circuit Breakers	N/A	N/A	N/A	Equipment to limit leaks

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Air Quality Impact Analysis

- Determine that emissions from a proposed new major stationary source or major modification will not cause or contribute to a violation of **any applicable NAAQS or PSD increment.**
- Generally, the analysis will involve:
  - (1) predictions, using dispersion modeling, of ambient concentrations that will result from the applicant's proposed project and, as necessary,
  - (2) a more detailed assessment of the impact of the project's emissions on existing air quality, typically involving the analysis of ambient monitoring data and air quality dispersion modeling results.

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Current Air Quality in Antelope Valley – PSD Pollutants

NAAQS pollutant & averaging time	Background Concentration, µg/m³	Primary NAAQS, µg/m³
CO, 1 hr	2,176	40,000
CO, 8 hr	1,603	10,000
NO_2, 1 hr	81	188
NO_2, annual	15.1	100
PM_{10}, 24 hr	80	150
$PM_{2.5}$, 24 hr	18	35
$PM_{2.5}$, annual	6.1	12

The $PM_{2.5}$ 24-hour value is 98th percentile averaged over three years rather than maximum.
The NO_2 1-hr value is 98th percentile averaged over three years rather than maximum.

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Tier 1: Project Impacts

NAAQS Pollutant & Averaging Time	Maximum Project Modeled Impact, µg/m³	SIL*, µg/m³	Project Impact at or above SIL?
CO, 1 hr	575	2000	No
CO, 8 hr	89	500	No
NO_2, 1 hr	57	7.5	Yes
NO_2, annual	0.98	1.0	No
PM_{10}, 24 hr	7	5	Yes
$PM_{2.5}$, 24 hr	7	1.2	Yes
$PM_{2.5}$, annual	0.7	0.2	Yes

*When modeled impacts from the project are below the SIL value, further air quality analysis may not be necessary. This determination is made by the permitting authority on a case-by-case basis, based on the record.

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Tier 2: Cumulative Analysis

NAAQS pollutant & averaging time	All Sources Modeled Impact (µg/m³)	PSD Increment, Class II (µg/m³)	Increment Exceeded?	Cumulative Impact w/Background (µg/m³)	NAAQS (µg/m³)	NAAQS Exceeded?
NO2, 1 hr (startup)	N/A	N/A	N/A	126	188	No
PM_{10}, 24 hr	7	30	No	87	150	No
$PM_{2.5}$, 24 hr	5	9	No	23	35	No
$PM_{2.5}$, annual	0.77	4	No	6.9	12	**No**

NO_2 impacts were evaluated using the Tier 3 Ozone Limiting Method (OLM), with hourly seasonal background values added consistent with EPA modeling guidelines , and as a result, separate modeled and background values not available. There are no PSD increments for 1-hour NO_2.

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NO_2 – 1-hour

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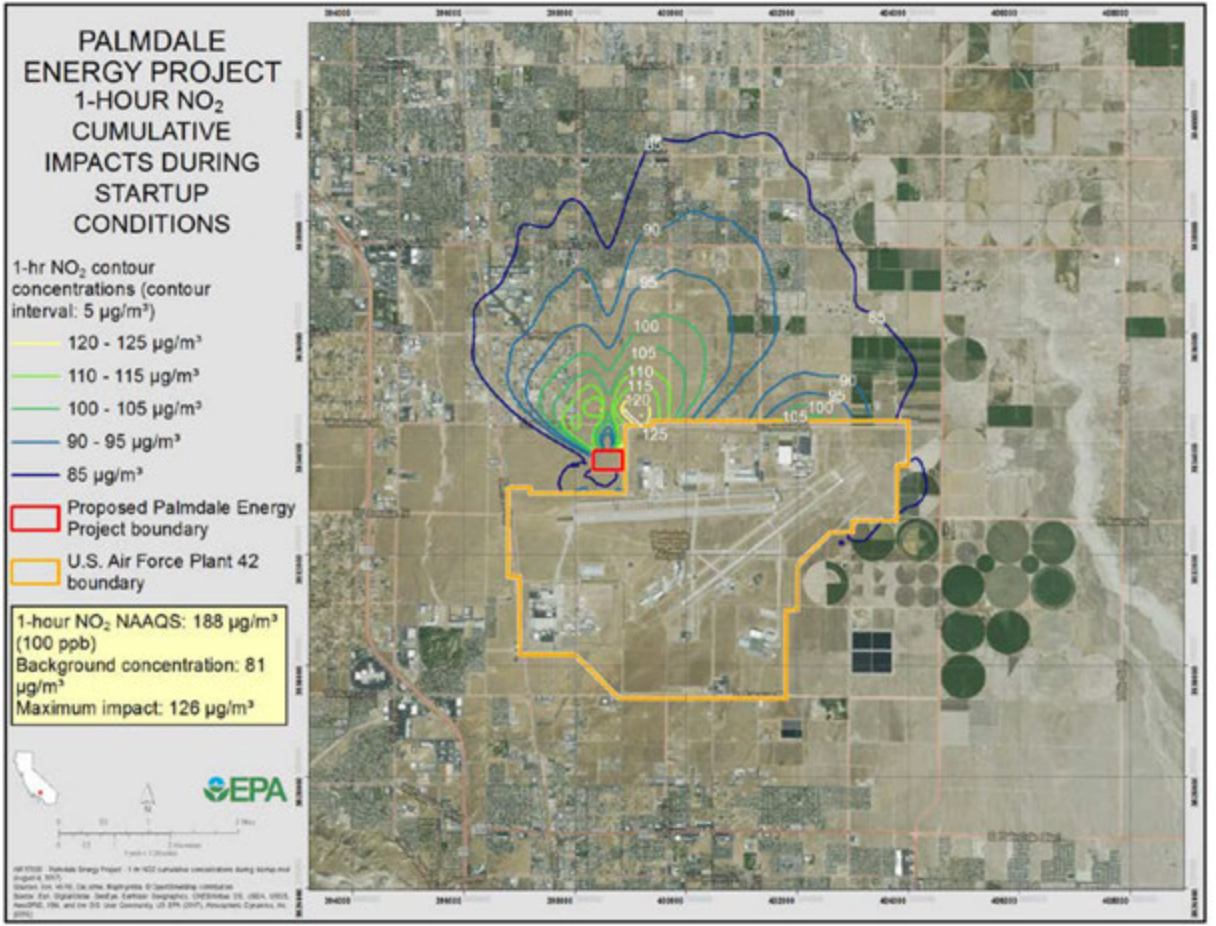
PALMDALE ENERGY PROJECT 1-HOUR NO_2 CUMULATIVE IMPACTS DURING STARTUP CONDITIONS



PM_{10} – 24-hour

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PALMDALE ENERGY PROJECT 24-HOUR PM_{10} CUMULATIVE IMPACTS

24-hr PM_{10} contour concentrations (contour interval: 1 µg/m³)

- 86 µg/m³
- 85 µg/m³
- 84 µg/m³
- 83 µg/m³
- 82 µg/m³
- 81 µg/m³
- Proposed Palmdale Energy Project boundary
- U.S. Air Force Plant 42 boundary

24-hour PM_{10} NAAQS: 150 µg/m³
Background concentration: 80 µg/m³
Maximum impact: 87 µg/m³ (along proposed project fenceline)

EPA

$PM_{2.5}$ – 24-hour

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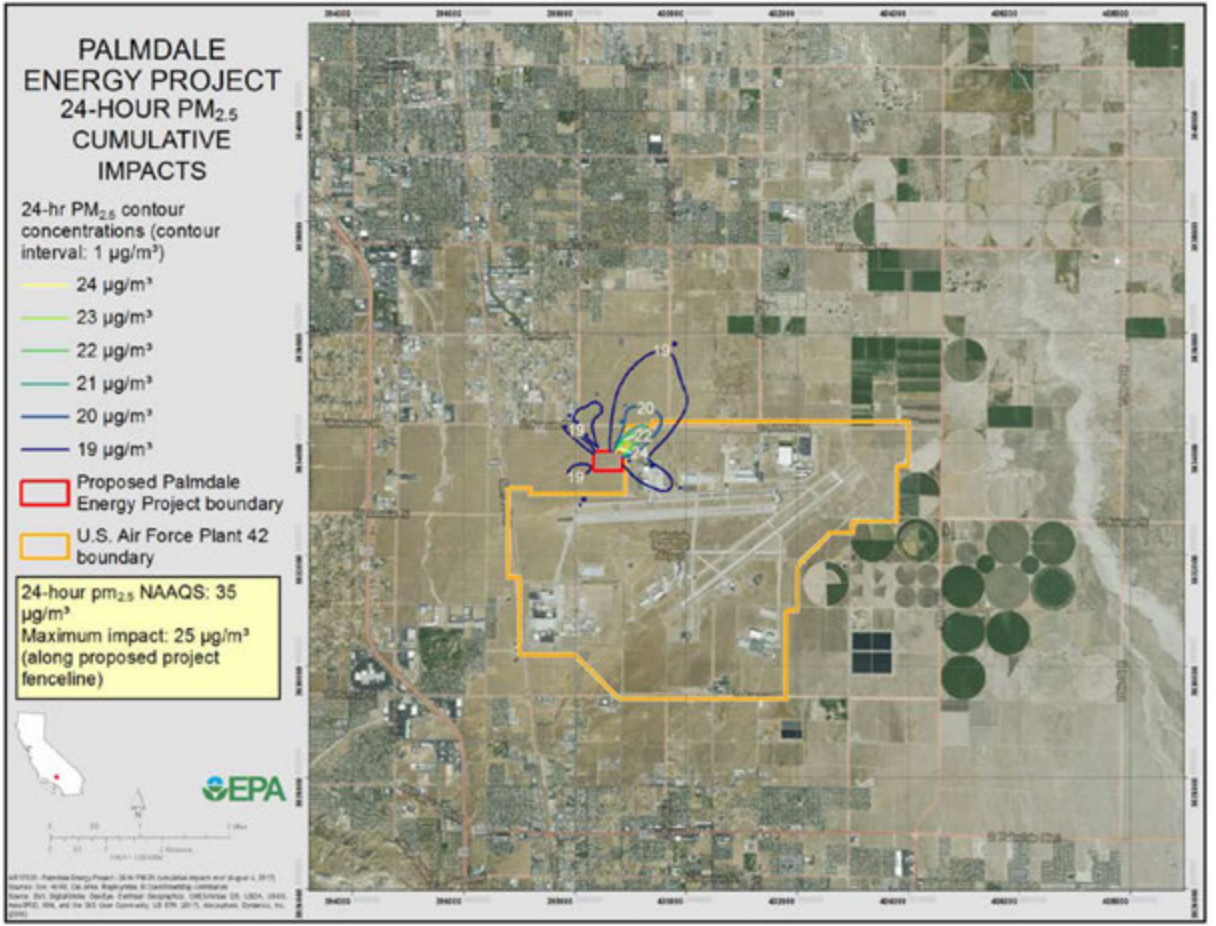
PALMDALE ENERGY PROJECT 24-HOUR $PM_{2.5}$ CUMULATIVE IMPACTS



$PM_{2.5}$ – Annual

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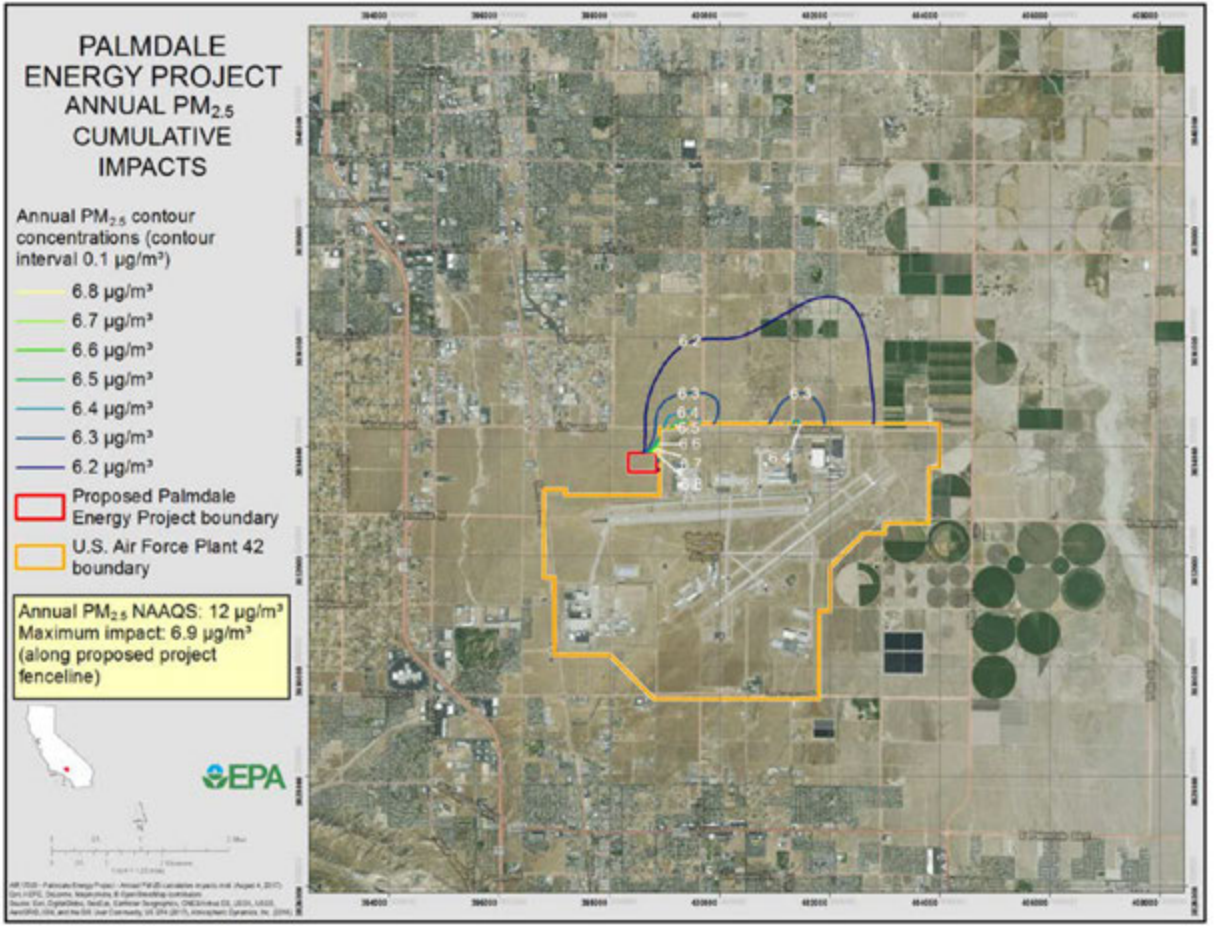
PALMDALE ENERGY PROJECT
ANNUAL $PM_{2.5}$ CUMULATIVE IMPACTS



Discussion

Next Steps: EPA Region 9 Permitting Process

1. Issue a proposed PSD permit decision for public comment in the near future
    - Open for at least 30 days, host a webinar, hold a public hearing
2. Respond to comments and issue a permit decision
3. Commenters will have 30 days to petition the EPA's Environmental Appeals Board to review our permit decision
4. After the petition process is complete, including any remand proceedings, our decision becomes final and effective

*We have 1 year to make a final decision after the application is complete

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