Proposed Rule 1118.1 -

Control of Emissions from Non-Refinery Flares

Working Group Meeting #3

January 10, 2018

SCAQMD Headquarters – Conference Rm CC2

Diamond Bar, California

Background

- Seeking NOx reductions from non-refinery flares by 2023 and 2031
- 2016 Air Quality Management Plan (AQMP) control measures estimate 1.4 tons per day (TPD) reduction

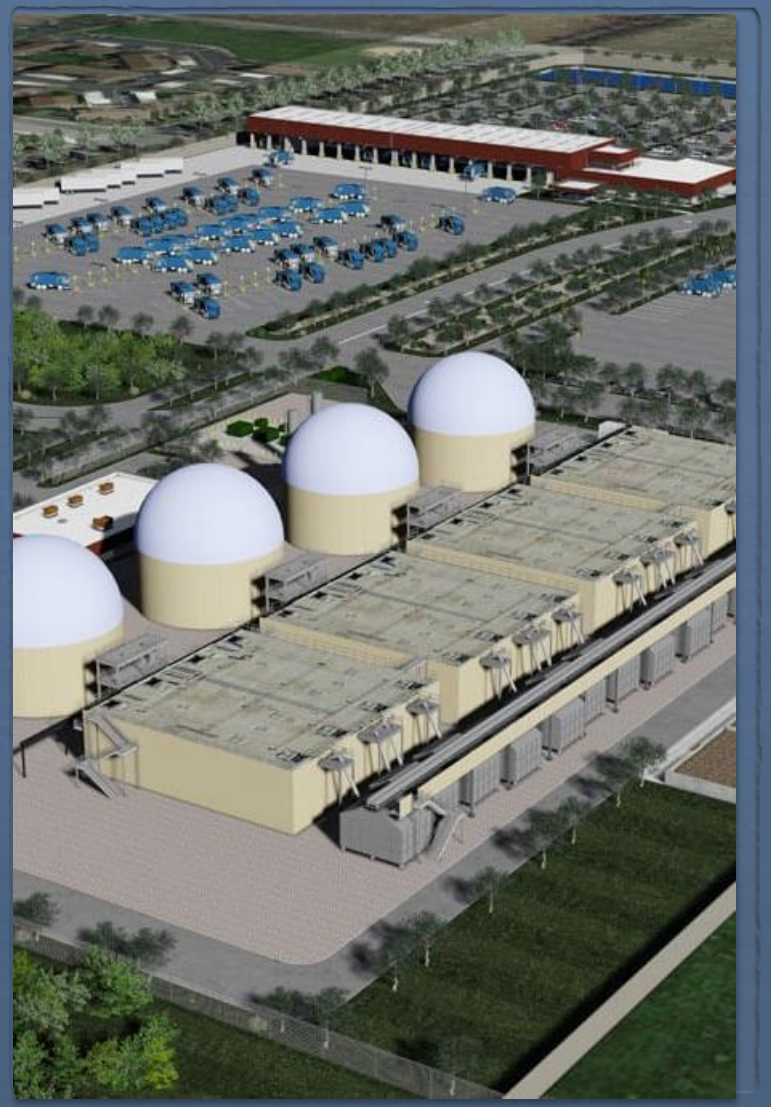
Goals

- Emission reductions from gas handling
- Encourage and/or require beneficial-use (e.g. energy, transport fuel)
- Minimize flaring

Site Visit

Organic Digestion Gas Site

- Food wastes mixed with green wastes
- Digester gas used to fuel trucks
- Re-injection into Southern California Gas Company pipeline
- Maximizes transportation and Low-Carbon Fuel Standard (LCFS) incentives



*** Source of picture -** http://www.jrma.com/projectsdetails/cr-r-environmental-center-ad-facility

Site Visit

Wastewater Treatment

Challenges:

- Fuel Cell failed in 2016 (catalyst poisoned)
- Facility now flaring 24/7 (open flare)

Opportunities:

- Evaluating Beneficial Uses of Digester Gases
- Reliable Flow of Gas (could be more cost effective)
- New Treatment System Removes Sulfides

Site Visit

Oil & Gas Field

- 400 oil wells on-site
- Large flare installed as backup
- Gas is treated to remove CO_2, moisture and sulfides
- Pipeline takes gas to a refinery
- Separate pipeline takes gas to Southern California Gas Company
- Propane trucked off-site
- In 2017, >99% of the gas used beneficially (sold), 0.2% flared

Findings of Proposed Rule 1118.1

- Thermal Oxidizer and afterburners currently not regulated, terms sometimes used interchangeably with flares
- Backup Flares required for certain facilities even when gas is used beneficially
- New flares at major sources must meet BACT standards but many old flares still in use
- Emission inventory lower than estimated in AQMP
- Many facilities using gas beneficially, some indicate it is not cost effective

Industry	Emissions (tpd)	# of Flares
Oil &Gas	0.14	50
Wastewater	0.11	57
Landfills	0.60	141
Total	**0.85**	**248**

Industries Producing Renewable Energy/Fuels

Oil & Gas

- Produce near pipeline quality natural gas, with the removal of CO2, Water, and Hydrogen Sulfide.
- Other facilities may accept stranded gas at less than PUC quality standards.
- Gas is not considered Renewable Natural Gas (RNG).

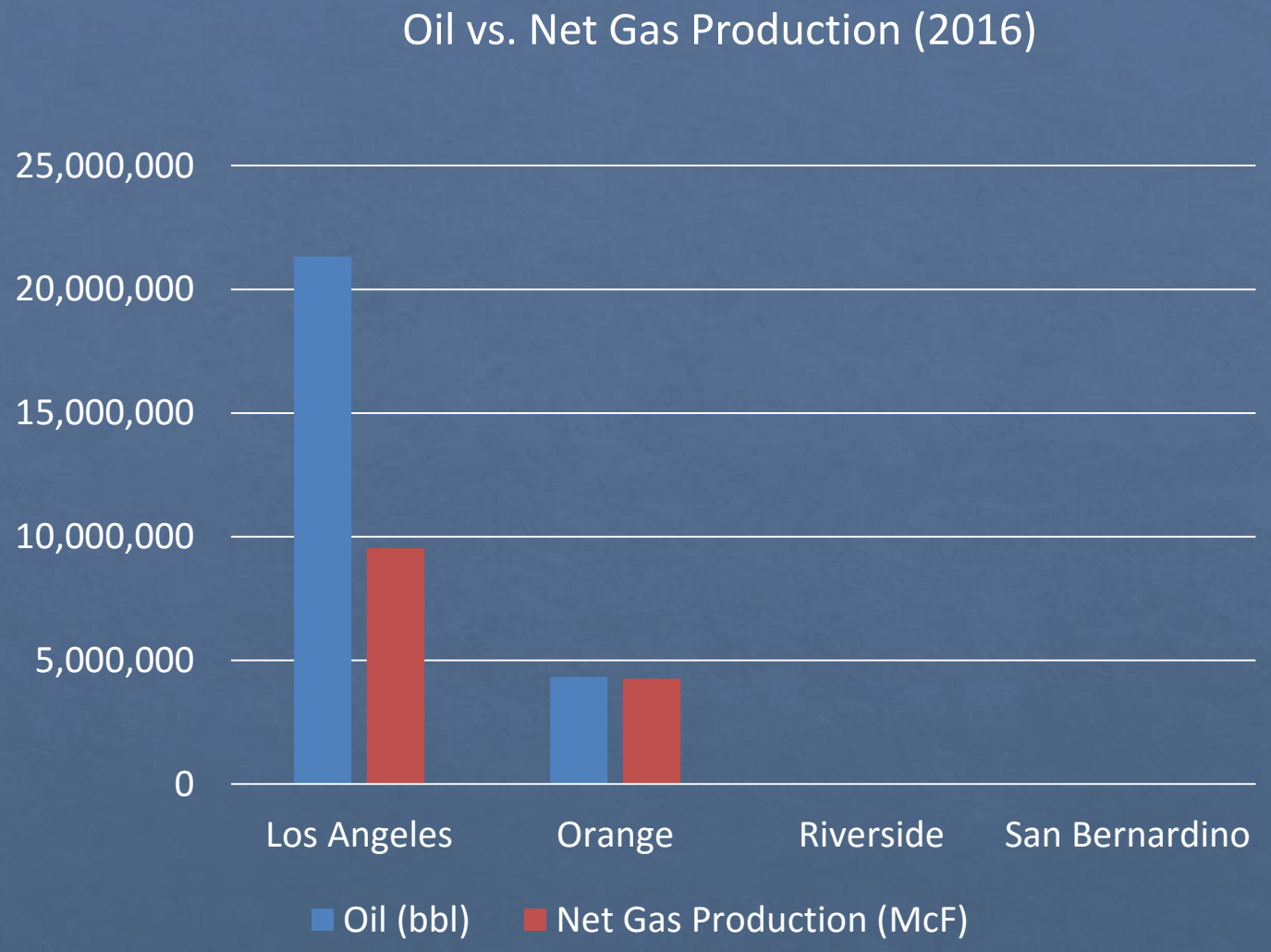
Landfills

- Pipeline injection requires clean-up to remove air, moisture, and contaminants.
- Many landfills produce electricity by using some landfill gas.
- Use of landfill gas to produce CNG or LNG is not common.
- Renewable Natural Gas credits are available (LCFS, RINs)

Wastewater Treatment

- Pipeline injection requires clean up to remove various contaminants, such as siloxanes, Dimethyl Sulfide, and Hydrogen Sulfide.
- Recent legislation, such as SB 1383, may promote single-source anaerobic digestion to eliminate extensive treatment.
- Renewable Natural Gas credits are available (LCFS, RINs)

Gas Production From Oil Exploration



Source: State of California Department of Conservation, Division of Oil, Gas and Geothermal Resources (Well Count & Production of Oil, Gas and Water By County - 2016

Rule Concepts

- Include thermal oxidizers, afterburners, and flares
- New flares must meet BACT standards but should consider beneficial use first
- Phase out old flares
  - Pre-1988 flares or higher emitters change sooner
  - Newly installed flares not meeting BACT allowed 10 years from installation prior to phase-out
- Exempt low use (<200 hr/y)/low emitting flares (<1 lb/day)
  - Require continuous emission monitoring/biannual testing
  - *Allow "open" flares if qualify for exemption?*
  - *Phase out flares older than 35 years?*

Rule Concepts – Beneficial Use

- Require percent gas capture of total gas produced
  - 85% capture one year after adoption
  - 90% capture by 2022
  - 95% capture by 2025
  - 98% capture by 2028
- Require alternative compliance plans
- Allow different schedule and/or requirements for different industries (e.g. landfills and wastewater treatment)

2018 Goals

- Draft preliminary rule language to address NOx emissions
- Identify the most cost effective NOx reductions
- Promote beneficial uses in conjunction with incentives

Request for Proposals (RFPs)
Air Pollution Control Projects

- Clean and route biogas to pipelines for use as transportation fuel
- Diversion of waste streams to be cleaned or processed
- Directing waste gas to micro-turbines or boilers
- Diverting oil field gas from flaring to fuel cells or micro-turbines
- Bio-Fuel technology development and deployment for fleets and residential
- Fueling landfill gas handling projects
- Installation of additional control equipment otherwise not mandated

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