# Scoping Meeting for District Rule 4702 (Internal Combustion Engines)

December 5, 2019

webcast@valleyair.org

# Rule 4702 Overview

- District Rule 4702 applies to internal combustion (IC) engines rated at 25 bhp or greater
  - Spark-ignited (SI) engines: two-stroke, four-stroke, rich-burn and lean-burn, may use many fuels (i.e. natural gas, propane, ethanol, gasoline)
  - Compression-ignited (generally diesel) engines: two-stroke or four-stroke
- Most IC engines in the Valley are used to power pumps, compressors, or electrical generators at public and private facilities
  - Many permitted compression-ignited engines in District used as emergency engines to provide backup power

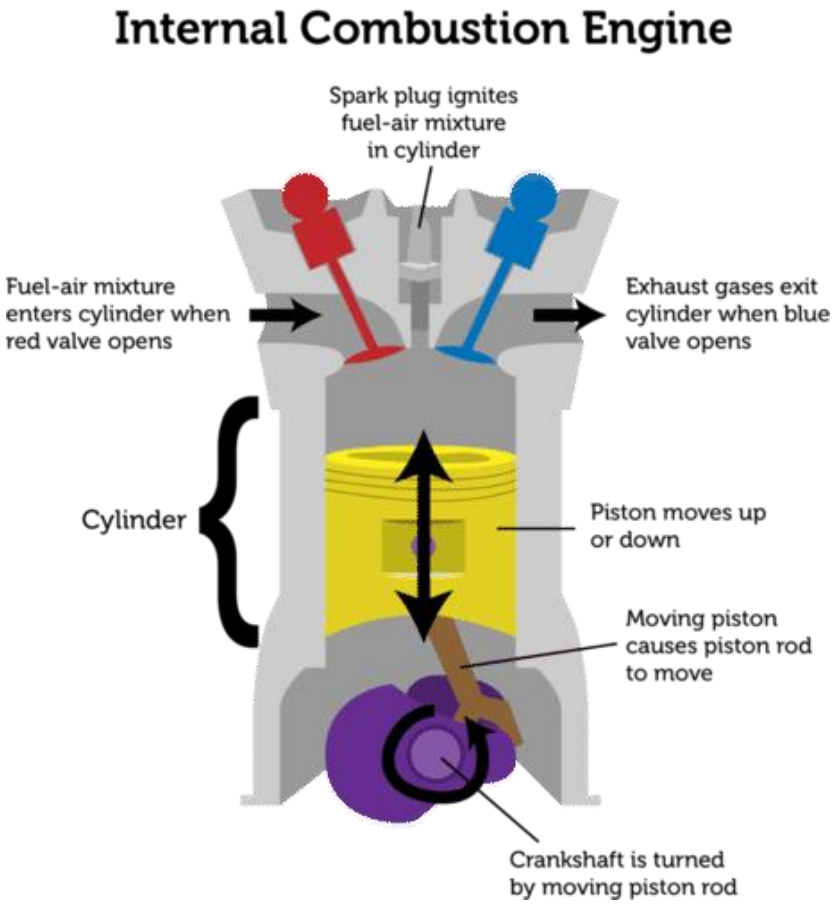



*Image credit: C.Auyeung, 2019*

# Where do IC Engines Operate?

- IC engines are used at the following facility types in the Valley:
  - Oil and gas production facilities
  - Agricultural operations
  - Petroleum refineries
  - Landfills and waste wastewater treatment plants
  - Water districts
  - Schools, universities
  - Electrical power generation facilities
  - Food processing operations

*Image credit: EPA, 2013*

# Current Rule 4702 Requirements

- District Rule 4702 adopted August 2003, sixth generation rule
  - Rule limits emissions of NOx, CO, VOCs, and SOx
  - Past amendments established lower NOx limits for non-agricultural engines between 25-50 ppmv (rich-burn) and 65-75 ppmv (lean-burn)
  - Achieved significant reductions in NOx and PM emissions from agricultural engines, with substantial investments made by affected sources
  - 2011 amendment further strengthened rule by requiring NOx limits as low as 11 ppmv for non-agricultural spark-ignited engines
- Through Rule 4702, NOx emissions from IC engines already reduced significantly
  - Achieved 90-96% NOx emissions control for non-agricultural rich burn engines, 85-90% emissions control for non-agricultural lean burn engines
  - NOx emissions from agricultural engines reduced by 84%

# IC Engines Emissions Inventory (tons per day)

| Annual Average | | | | | | |
|---|---|---|---|---|---|---|
| Year | 2017 | 2019 | 2020 | 2022 | 2023 | 2024 |
| PM2.5 | 0.30 | 0.29 | 0.28 | 0.26 | 0.25 | 0.24 |
| NOx | 6.89 | 6.46 | 6.18 | 5.72 | 5.52 | 5.34 |

# Emission Reductions Needed from IC Engines

- Valley's challenges in meeting federal air quality standards unmatched due to unique geography, meteorology, and topography
- Substantial reductions needed to achieve PM2.5 standards – need to go beyond already strict limits
- Commitment in *2018 PM2.5 Plan* to further evaluate emissions reduction opportunities from IC engines

# Potential Further Emissions Reduction Opportunities

## Non-Agricultural IC Engines

- Further reduce NOx emissions to extent that such controls are technologically achievable and economically feasible (from 11 ppmv to as low as 5 ppmv)

## Agricultural IC Engines

- Replacement of spark-ignited agricultural engines with electric motors where access to electricity is available, or Tier 4-equivalent engine technologies through incentive-based approach, coupled with regulatory backstop to encourage participation
- Replacement of Tier 3 compression-ignited agricultural engines with electric motors where access to electricity is available, or Tier 4-equivalent engine technologies through incentive-based approach to achieve additional emissions reductions where cost-effective

# Timeline for Rule 4702 Development Process

| Public Process Begins | Action Date | Implementation Begins | Anticipated Emission Reductions |
|---|---|---|---|
| **2019** | **2020** | **2024** | **To be refined through rulemaking process** |
| Ongoing availability of incentives to replace IC engines used at agricultural operations | | | |

# District Agricultural Pump Replacement Incentive Program

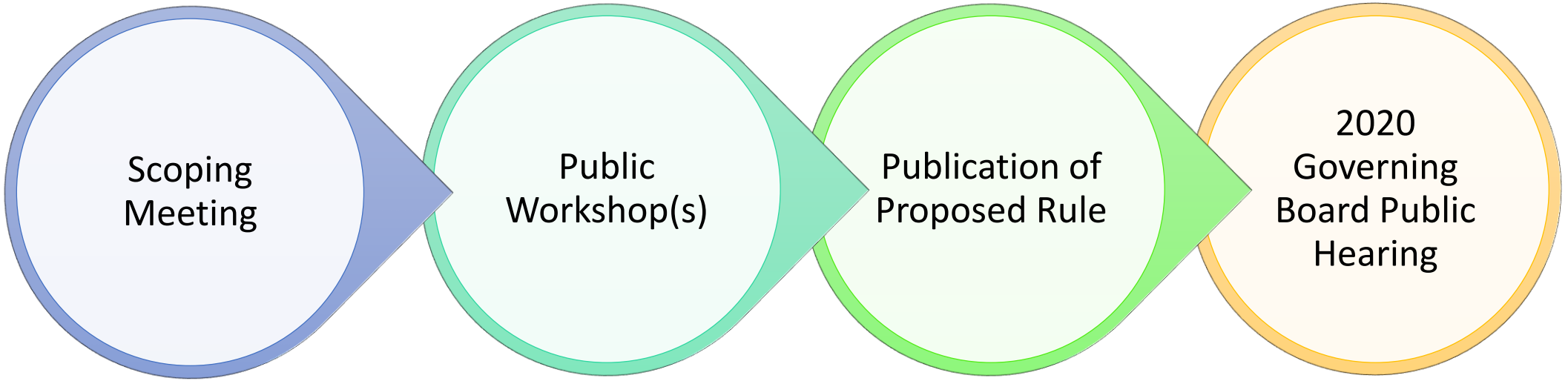
- Provides funding for replacement of older, dirtier diesel engines with low-emission Tier 4 engines or zero-emission electric motors
- Funding available to replace natural gas or propane to electric power (including line extension option)

- Funding amounts based on dollar per horsepower from $90/hp - $150/hp
- Incentives have replaced over 7,100 engines, with over 3,000 replaced with electric motors
- More info: www.valleyair.org/grants/agpump

# Socioeconomic Impact Analysis for Rule 4702

- Socioeconomic Impact Analysis will be conducted by independent consultant to analyze impacts of proposed regulation on Valley economy
- Recent Request for Proposals (RFP) to select consultant
  - RFP closed November 27, 2019
  - District staff expect to select a consultant by end of 2019
  - Analysis to begin Quarter 1, 2020
- Results of analysis to be publicly available and included with proposed rule amendment package

# Next Steps: Public Engagement Process for Rule 4702 Amendment




Public Participation and Comment Invited throughout Process

# Contact


Contact: Avi Anderson
Mail: San Joaquin Valley APCD
1990 E. Gettysburg Ave
Fresno, CA 93726
Phone: (559) 230-5800
Fax: (559) 230-6064
Email: avi.anderson@valleyair.org
Listserv: http://lists.valleyair.org/mailman/listinfo/stationary_engines

# Open Discussion and Input

webcast@valleyair.org