Scoping Meeting for District Rule 4702 (Internal Combustion Engines)

December 5, 2019

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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
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)

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2019</th>
<th>2020</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM2.5</td>
<td>0.30</td>
<td>0.29</td>
<td>0.28</td>
<td>0.26</td>
<td>0.25</td>
<td>0.24</td>
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<tr>
<td>NOx</td>
<td>6.89</td>
<td>6.46</td>
<td>6.18</td>
<td>5.72</td>
<td>5.52</td>
<td>5.34</td>
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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**

<table>
<thead>
<tr>
<th>Public Process Begins</th>
<th>Action Date</th>
<th>Implementation Begins</th>
<th>Anticipated Emission Reductions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>2020</td>
<td>2024</td>
<td>To be refined through rulemaking process</td>
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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

- Scoping Meeting
- Public Workshop(s)
- Publication of Proposed Rule
- 2020 Governing Board Public Hearing

Public Participation and Comment Invited throughout Process
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Open Discussion and Input

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