Rule 1110.2
Working Group Meeting No. 1

Emissions from Gaseous- and Liquid- fueled Engines
June 28, 2018
Agenda

- Background
- Overview of BARCT analysis
- Assessment of SCAQMD Regulatory Requirements
- Initial evaluation of RECLAIM facilities
- Next steps and proposed schedule
Background

- RECLAIM Transition
- Rule Development
Background – RECLAIM Transition

• In March 2017, the SCAQMD adopted the 2016 AQMP
  – Control measure CMB-05 requires the RECLAIM program to transition to a command-and-control structure
  – Requires a 5 ton per day NOx emission reduction to be achieved with Best Available Retrofit Control Technology (BARCT)
• In July 2017, Assembly Bill 617 was signed by the Governor
  – Requires expedited BARCT implementation by December 31, 2023
Overview of RECLAIM Transition
Purpose of PAR 1110.2

- Reduce NOx, VOC, and CO emissions from all stationary and portable internal combustion engines (ICEs) above 50 brake horsepower (bhp)
- For RECLAIM transition, focus will be on NOx while evaluating VOC and CO
Rule Development – Development of Staff Proposal

- Initial concepts are presented in Working Group Meetings
- Developing rule concepts and draft proposed rule language is an iterative process with stakeholder input
- Staff will release the Preliminary Draft Rule and Staff Report no later than 75 days before the Public Hearing
  - Staff will have the first draft of PAR 1110.2 more than 75 days before the Public Hearing
  - This will allow for several drafts of the rule for stakeholder input before the Public Hearing
Rule Development – Stakeholder Input

• Stakeholder input is a key element throughout the rule development process
• Staff encourages early input from all stakeholders – opportunities for input provided throughout the rulemaking process
• Goal is a proposal that all facilities can comply with and that meets the objectives of the proposed amended rule
• Staff encourages facilities to meet with staff to discuss any concerns – unique situations, clarification of provisions, etc.
Rule Development – Stakeholder Input Opportunities

- Meetings with Organizations (Industry, Environmental, Community)
- Individual Facility Meetings/Site Visits
- Working Group Meetings
- Comment Letters
- Public Comment at Public Workshop(s) and Public Hearing

Stakeholder Input
Overview of BARCT Analysis
BARCT Requirements

• California Health and Safety Code Section 40406 defines BARCT as
  – “...an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source.”

• Health and Safety Code Section 40920.6:
  – Requires evaluation of BARCT prior to adopting rules or regulations
BARCT Assessment Guiding Principles

• BARCT analysis includes a technology assessment
  • Equipment-specific
  • Fuel-specific
  • Equipment size-specific: Range of equipment sizes, depending on control strategies
  • Application and usage of unit: capacity, types of uses, etc.

• Cost effectiveness will consider
  • Incremental cost effectiveness
  • Stranded assets
  • Outliers
  • Recent installation to meet prior NOx reduction commitments
Overview of Technology Assessment

- Assessment of SCAQMD Regulatory Requirements
- Assessment of Emission Limits of Existing Units
- Other Regulatory Requirements
- Assessment of Pollution Control Technologies
Assessment of SCAQMD Regulatory Requirements

• Objective: Identify existing regulatory requirements for that particular source category
• Rule 1110.2
  • Current requirements
  • Other rules or guidelines regulating the source category
  • Existing exemptions
• Potential issues identified during previous rulemakings
Assessment of Emission Limits for Existing Units

• Objective: Evaluate existing units to understand what emission levels can be achieved based on permitted and actual levels
• Actual emission rate
  • Source test
  • Continuous Emissions Monitoring System (CEMS)
  • Relative Accuracy Test Audit (RATA)
• Pollution control technology
Information Needed for Evaluating Existing Units

Analysis of Permitted Emission Levels
• Emission limit
• Equipment type
• Fuel type
• Equipment size
• Air pollution control technology
• Age of equipment
• Retrofit or replacement

Analysis of Actual Emissions Data
• Emission limit (source tests or CEMS data)
• Throughput data (Annual Emission Reports)
Other Regulatory Requirements

- Objective: Evaluate other air districts with more stringent limits for same source categories
- Assess other rules and regulations outside of SCAQMD’s jurisdiction that regulate the same sources
- Consider
  - Implementation date
  - Applicability
  - Alternative compliance approach
Assessment of Pollution Control Technologies

• Objective: Identify pollution control technologies, approaches, and potential emission reductions
• Technology assessment should be all encompassing
• Identify known controls
• Consider emerging technology
Assessment of SCAQMD Regulatory Requirements
- Regulatory History of Rule 1110.2
Overview of Technology Assessment

- Assessment of SCAQMD Regulatory Requirements
- Assessment of Emission Limits of Existing Units
- Other Regulatory Requirements
- Assessment of Pollution Control Technologies
Objective: Identify existing SCAQMD regulatory requirements for that particular source category

• If there is an applicable SCAQMD rule?
• What are the current requirements?
• Are there other rules regulating the source category (other pollutants such as toxic air contaminants or other criteria pollutants)?
• Are there existing exemptions?
• Review the staff report to understand potential issues identified during previous rulemakings
Considerations

• Is the new BARCT analysis expanding the applicability – size, application of equipment, fuel types, etc.?
• Are there existing rules that do not affect the emission limit but have other requirements such as monitoring, reporting and recordkeeping requirements?
Regulatory History of Rule 1110.2

- Rule 1110.1 was adopted in October 1984 and required NOx and CO emission reductions from stationary, gaseous-fueled ICEs.
- Rule 1110.2 was adopted in August 1990 and required additional reductions for NOx and also VOC from stationary, non-emergency gaseous- and liquid-fueled ICEs; extended regulation to liquid-fueled and portable ICEs.
- June 2005 Amendment:
  - SB 700 eliminated statewide agricultural operations exemption
  - Required BARCT to be applied for agricultural engines
• February 2008 Amendment:
  – Affected 859 ICEs at 405 facilities
  – Conducted BARCT assessment; lowered emissions limits for stationary, non-emergency engines:
    o 11 ppmvd NOx (@ 15% O2)
    o 30 ppmvd VOC (@ 15% O2)
    o 250 ppmvd CO (@ 15% O2)
  – Due to inadequate compliance found through inspection activities, amendment increased monitoring requirements to include more frequent emissions testing and development of facility Inspection and Monitoring (I&M) plans
Regulatory History of Rule 1110.2 (continued)

- September 2012 Amendment:
  - Affected 55 ICEs at 22 facilities
  - Re-established biogas engine emissions limits to meet those for natural gas engines
  - Included accompanying technology assessment
- December 2015 Amendment:
  - Extended the compliance deadline for biogas engines
  - Addressed USEPA concerns related to SIP approvability issues contained in the rule language regarding excess emissions from startup, shutdown, and malfunction (SSM)
Regulatory History of Rule 1110.2 (continued)

• June 2016 Amendment:
  – Extended the compliance deadline for one facility due to economic concerns related to its power purchase agreement
Assessment of SCAQMD Regulatory Requirements - Approach for Proposed Amendments
Approach for Proposed Amendments

• Previous amendment lowered emissions limits for stationary, non-emergency engines:
  – 11 ppmvd NOx (@ 15% O2)
  – 30 ppmvd VOC (@ 15% O2)
  – 250 ppmvd CO (@ 15% O2)

• BARCT Evaluation Concepts
  – Establish current BARCT limit of 11 ppmvd NOx (@15% O2) for RECLAIM units
  – 2015 RECLAIM BARCT also at 11 ppmvd NOx (@15 % O2)

• Evaluation of specific engine types
  – 2-stroke lean-burn engines (gas compression)
  – Outer-continental shelf (OCS) engines
  – Others
Approach for Proposed Amendments (continued)

• Evaluation of pollution control strategies and equipment
  – Identify known controls
  – Review new technology
  – Consider unique circumstances

• Monitoring, reporting, and recordkeeping (MRR) requirements
  – Evaluate MRR in both R1110.2 and in RECLAIM
  – Evaluate CEMS requirements including overlaps and disparities between R1110.2 and RECLAIM
Approach for Proposed Amendments (continued)

• Rule amendment approach
  – BARCT limits will be established in Rule 1110.2
  – Implementation schedule for RECLAIM facilities will be contained in Rule 1100
  – This rule would also affect engines covered under industry specific rules (e.g., R1109.1 and R1135)
Initial Evaluation of RECLAIM Facilities
RECLAIM Facilities and Equipment Subject to PAR 1110.2

• Data collected from permit files has identified 24 RECLAIM facilities affected by this rule making process
• Data represents 98 engines

<table>
<thead>
<tr>
<th>Rule 1110.2 Potential Universe</th>
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<tbody>
<tr>
<td>Affected facilities</td>
</tr>
<tr>
<td>No. of ICEs</td>
</tr>
<tr>
<td>Type of engines</td>
</tr>
<tr>
<td>Rich – 32</td>
</tr>
<tr>
<td>Lean (2 stroke) – 21</td>
</tr>
<tr>
<td>Lean (4 stroke) – 45</td>
</tr>
<tr>
<td>No. of ICEs at offshore oil production facilities</td>
</tr>
</tbody>
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## Distribution of Engines by Size (bhp)

<table>
<thead>
<tr>
<th>Size Distribution (bhp)</th>
<th>No. of Engines per Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – &lt;50</td>
<td>1</td>
</tr>
<tr>
<td>50 – &lt;250</td>
<td>38</td>
</tr>
<tr>
<td>250 – &lt;1000</td>
<td>34</td>
</tr>
<tr>
<td>1000 – &lt;2000</td>
<td>2</td>
</tr>
<tr>
<td>2000 – &lt;3000</td>
<td>9</td>
</tr>
<tr>
<td>3000 – 5500</td>
<td>14</td>
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</tbody>
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- Engine size data was collected from RECLAIM permits

![Bar chart showing distribution of engines by size (bhp)]
### Distribution of Engines by Fuel Type

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>No. of Engines</th>
</tr>
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<tbody>
<tr>
<td>Diesel</td>
<td>43</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>41</td>
</tr>
<tr>
<td>Field Gas</td>
<td>4</td>
</tr>
<tr>
<td>Propane</td>
<td>3</td>
</tr>
<tr>
<td>LPG</td>
<td>3</td>
</tr>
<tr>
<td>Digester Gas</td>
<td>2</td>
</tr>
<tr>
<td>Produced Gas</td>
<td>1</td>
</tr>
<tr>
<td>Gasoline</td>
<td>1</td>
</tr>
</tbody>
</table>

- Engine fuel type was collected from RECLAIM permits

[Bar chart showing engine distribution by fuel type]
Distribution of Engines per Emission Limit (ppm)

<table>
<thead>
<tr>
<th>No. of Engines per Emission Limit Distribution (ppm)</th>
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</thead>
<tbody>
<tr>
<td>0 - 11</td>
</tr>
<tr>
<td>12 - &lt;50</td>
</tr>
<tr>
<td>50 - &lt;100</td>
</tr>
<tr>
<td>100 - &lt;200</td>
</tr>
<tr>
<td>200 - &lt;500</td>
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<tr>
<td>500+</td>
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</tbody>
</table>

- Emission limit data was collected from RECLAIM permits
- For major sources without a permit limit, RATA test data was used
Next Steps and Proposed Rule Schedule
Next Steps

Staff will continue with rule development process, which will include:

• Further evaluation of equipment universe of engines by fuel type
• BARCT analysis for certain unique engine types
• Site visits of affected facilities
• Meetings with facility representatives
Proposed Rule Schedule

Next working group meeting
3rd Quarter 2018

On-going working group meetings
3rd/4th Quarter 2018

Public Workshop
4th Quarter 2018

Public Hearing
1st Quarter 2019
Staff Contacts

Please contact AQMD staff with any questions or comments

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