



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

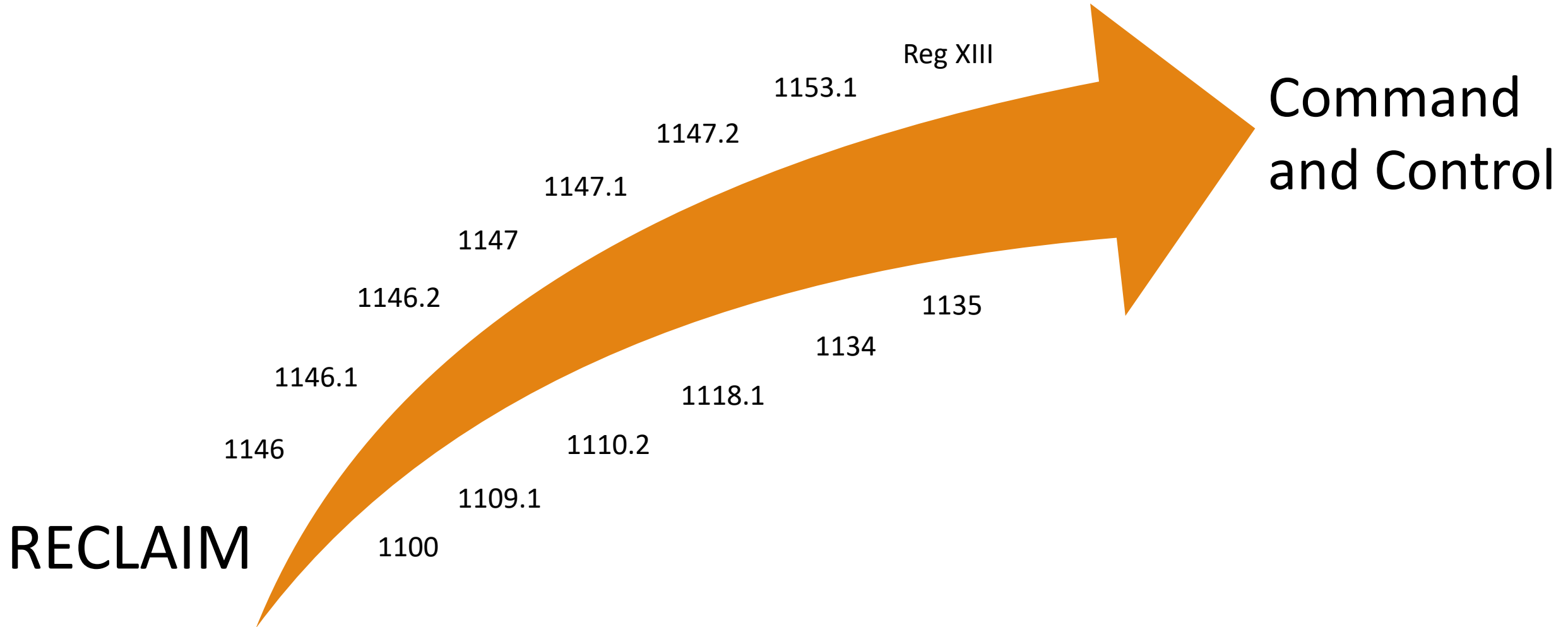
Background

- 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



Background – RECLAIM Transition

- Purpose of PAR 1110.2
 - Reduce NO_x, 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 NO_x while evaluating VOC and CO

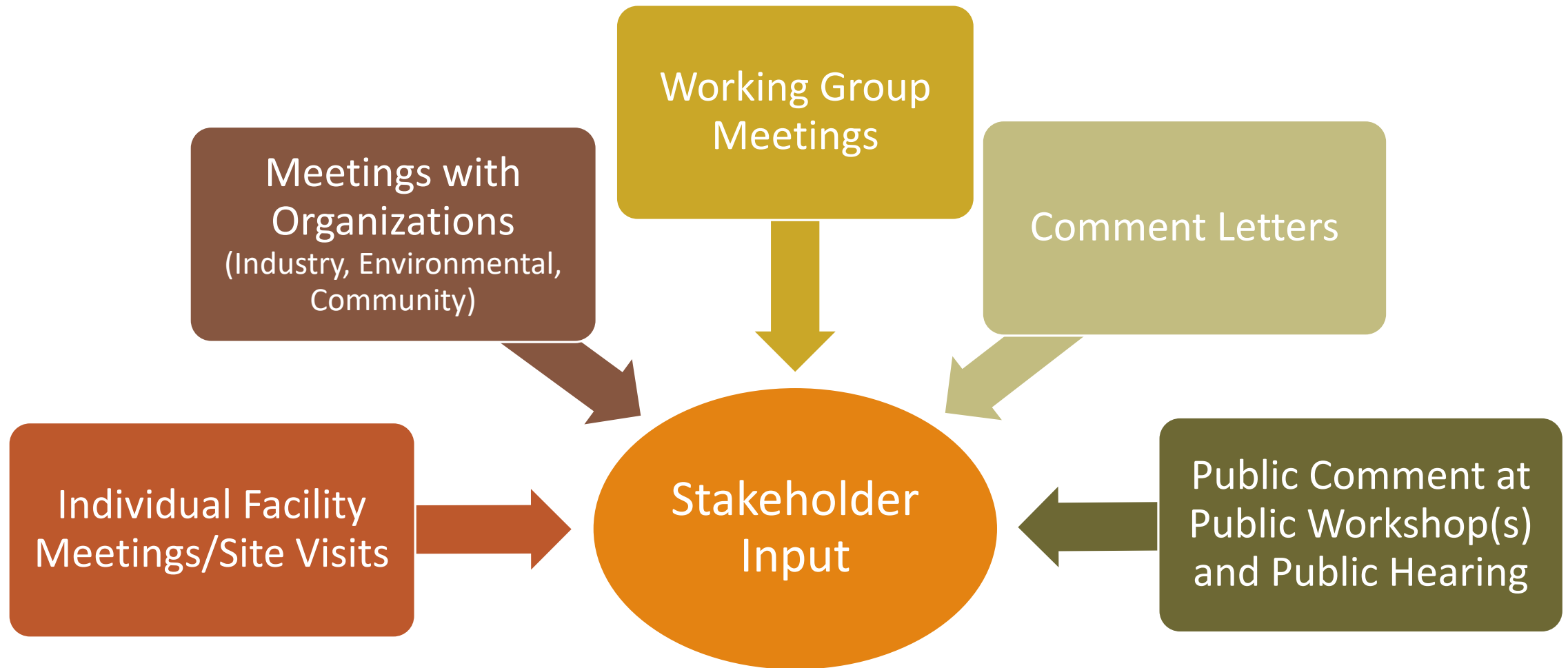
Rule Development – Development of Staff Proposal

- 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



Overview of BARCT Analysis

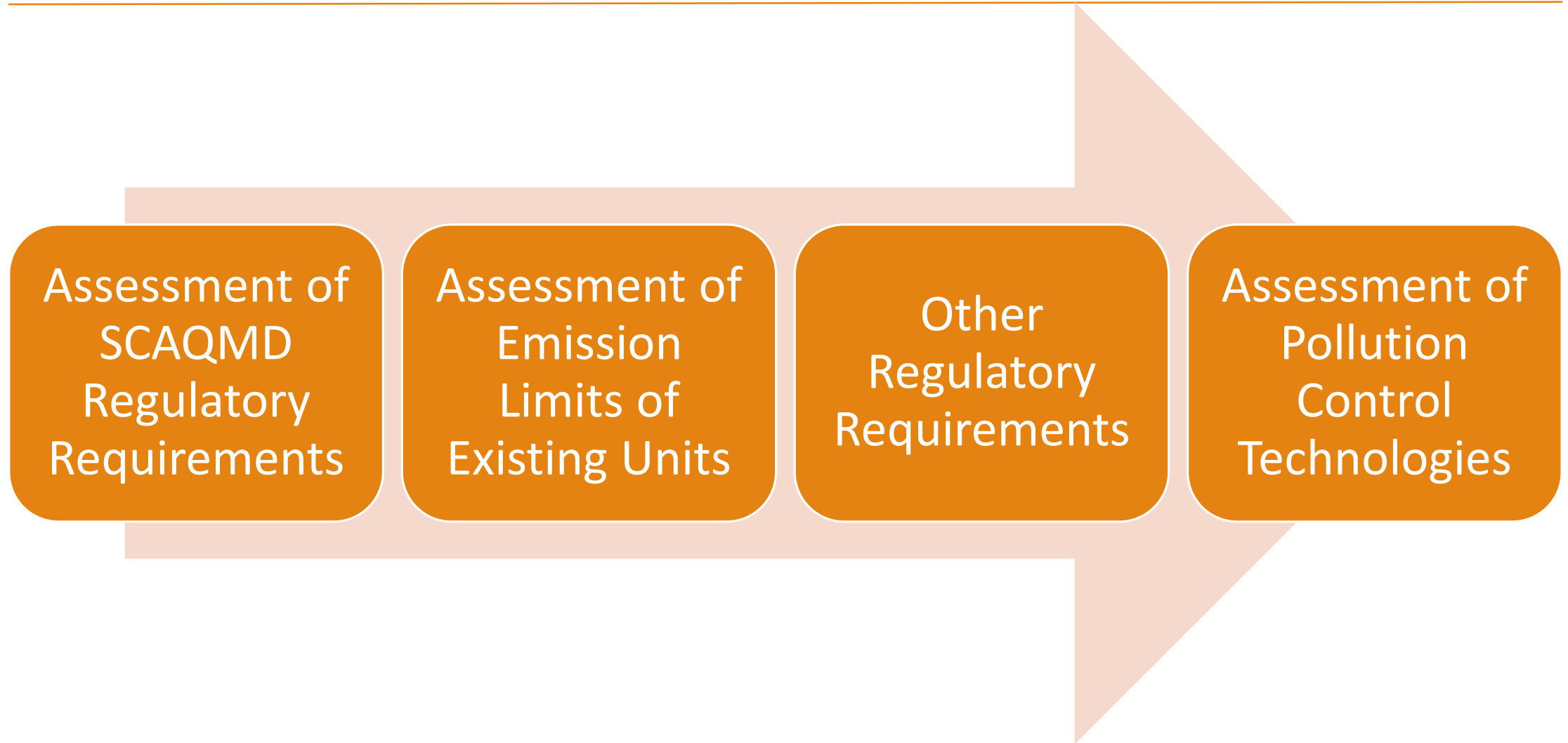
BARCT Requirements

- 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 NO_x reduction commitments

Overview of Technology Assessment



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

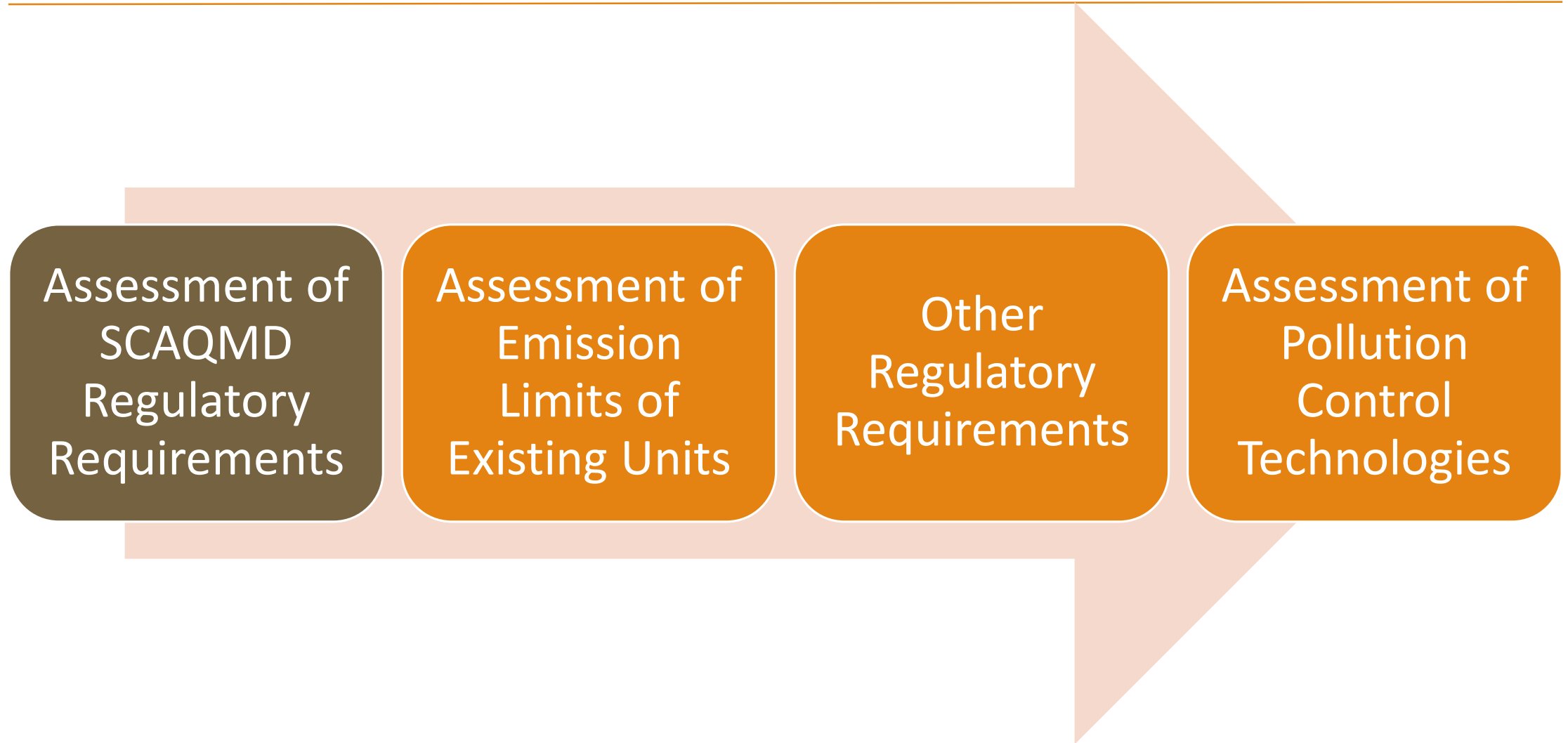
Assessment of Pollution Control Technologies

- 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 SCAQMD Regulatory Requirements

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

Regulatory History of Rule 1110.2 (continued)

- February 2008 Amendment:
 - Affected 859 ICEs at 405 facilities
 - Conducted BARCT assessment; lowered emissions limits for stationary, non-emergency engines:
 - 11 ppmvd NO_x (@ 15% O₂)
 - 30 ppmvd VOC (@ 15% O₂)
 - 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 NO_x (@ 15% O₂)
 - 30 ppmvd VOC (@ 15% O₂)
 - 250 ppmvd CO (@ 15% O₂)
- BARCT Evaluation Concepts
 - Establish current BARCT limit of 11 ppmvd NO_x (@15% O₂) for RECLAIM units
 - 2015 RECLAIM BARCT also at 11 ppmvd NO_x (@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

Rule 1110.2 Potential Universe	
Affected facilities	24
No. of ICEs	98
Type of engines	Rich – 32 Lean (2 stroke) – 21 Lean (4 stroke) – 45
No. of ICEs at offshore oil production facilities	23

Distribution of Engines by Size (bhp)

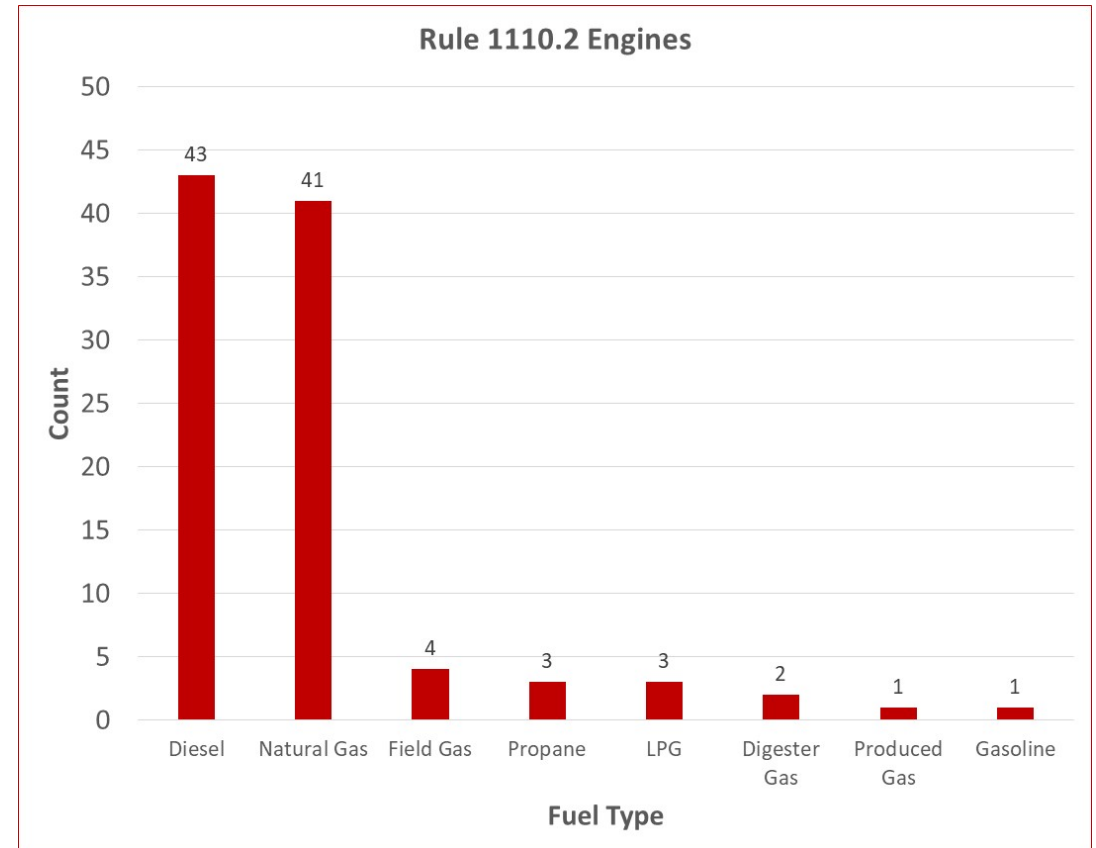
No. of Engines per Size Distribution (bhp)	
0 – <50	1
50 – <250	38
250 – <1000	34
1000 – <2000	2
2000 – <3000	9
3000 – 5500	14



- Engine size data was collected from RECLAIM permits

Distribution of Engines by Fuel Type

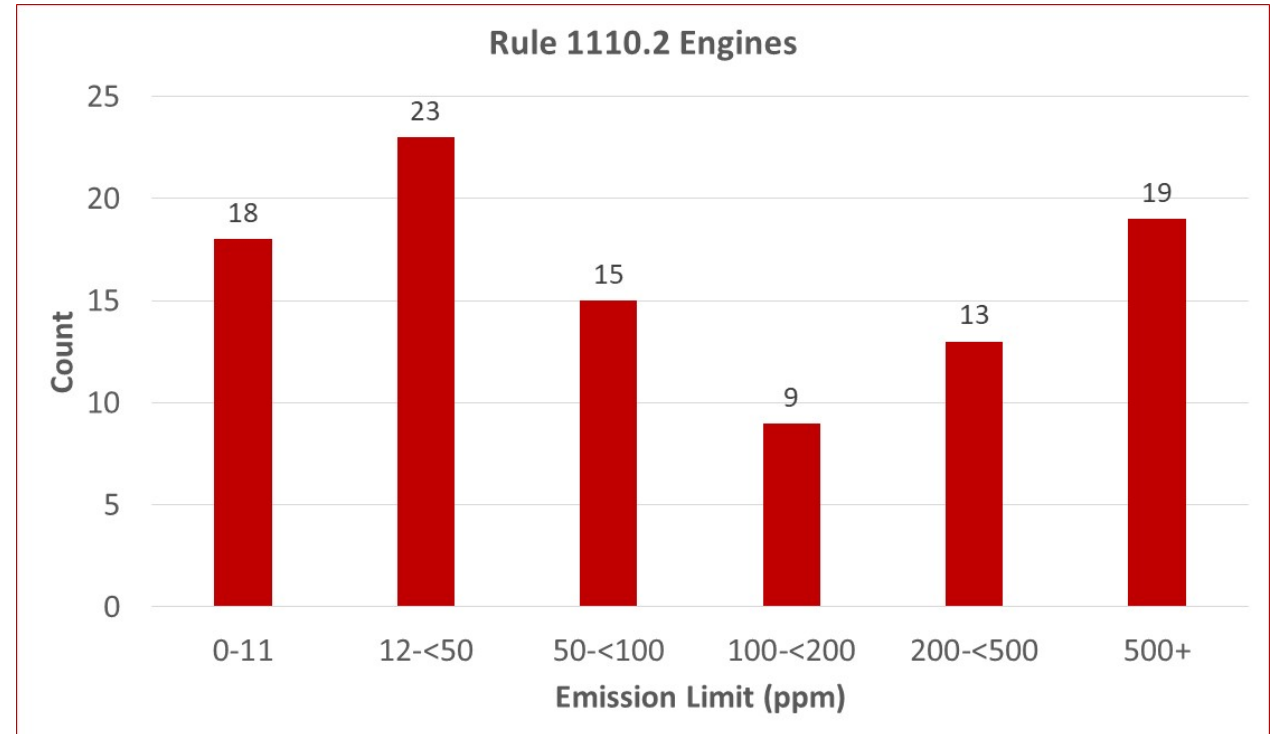
No. of Engines per Fuel Type	
Diesel	43
Natural Gas	41
Field Gas	4
Propane	3
LPG	3
Digester Gas	2
Produced Gas	1
Gasoline	1



- Engine fuel type was collected from RECLAIM permits

Distribution of Engines per Emission Limit (ppm)

No. of Engines per Emission Limit Distribution (ppm)	
0 - 11	18
12 - <50	23
50 - <100	15
100 - <200	9
200 - <500	13
500+	19



- 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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