PROPOSED RULE 1147.1 (PREVIOUSLY PROPOSED RULE 1147.3) WORKING GROUP MEETING #1

JUNE 25, 2020

SOUTH COAST AQMD

DIAMOND BAR, CA

Agenda

- Background
- Types of Aggregate Facilities
- Rule Development Process
- Approach for BARCT Determination
- Next Steps

Background

- In March 2017, the South Coast AQMD 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) as soon as feasible and no later than 2025
- In July 2017, Assembly Bill 617 was signed by the Governor
  - Requires expedited BARCT implementation for facilities in the state greenhouse gas cap and trade program by December 31, 2023

Meeting With Trade Associations

- On April 16, 2020, staff met with both the California Construction and Industrial Materials Association (CalCIMA) and the California Asphalt Pavement Association (CalAPA)
- The trade associations had inquiries regarding the following:
  - ✓ Discussions at earlier meetings with staff
  - ✓ BARCT emission limit development process
  - ✓ Rule applicability

Key Discussion Points

- Applicability of Proposed Rule (PR) 1147.1
  - Industry representatives were concerned that the applicability of PR 1147.1 would be to aggregate facilities only
  - Past discussions included aggregate, asphalt, and concrete facilities
  - Staff can expand the applicability of PR 1147.1 to include combustion equipment at aggregate, asphalt, and concrete facilities
- The Trade Associations suggested a *virtual* site visit in lieu of a physical visit due to COVID-19
- Staff is in contact with one of the asphalt facilities for a virtual site visit

Overview of Rule 1147 Series

Rule 1147 Series

Proposed Amended Rule 1147*	Proposed Rule 1147.1**	Proposed Rule 1147.2
NOx Reductions from Miscellaneous Sources	NOx Reductions from Equipment at Aggregate Facilities	NOx Reductions from Metal Melting and Heating Furnaces

*Rulemaking in progress, universe of impacted facilities to be determined at a later date
**Staff has renamed PR 1147.3 to PR 1147.1

Possible Universe of Sources for PR 1147.1

- Based on stakeholder comments, staff is looking at the universe of sources for PR 1147.1
- Three industry categories were identified:
  - Asphalt manufacturing
  - Roofing tile manufacturing
  - Cement manufacturing
- In considering which industry categories to include in PR 1147.1, staff evaluated existing rules

Asphalt Manufacturing

Asphalt Manufacturing

- Asphalt is produced by mixing petroleum-based cement to an aggregate of sand and crushed rock
  - ✓ A **heater** is used to maintain a consistent viscosity of the cement to allow for proper mixing
  - ✓ A **dryer** removes moisture from aggregate before being mixed with asphalt cement
- Altogether, approximately 21 different asphalt companies have the following combustion units:
  - ✓ 48 Dryers (> 50 MMBtu/hr; low temperature)
  - ✓ 20 Heaters (<10 MMBtu/hr; existing rules currently apply)
  - ✓ Various Internal Combustion Engines

Roofing Tile Manufacturing

Roofing Tile Manufacturing

- Asphalt roofing includes (1) felt saturation, (2) coating, (3) mineral surfacing, (4) cooling/drying, and (5) lamination
  - ✓ Felt is saturated with ~450°F heated asphalt and dried with external combustion units
  - ✓ Granular and sand coating is pressed onto hot tile sheets, with sand, talc and mica applied to the backing
- Altogether, approximately 6 different roofing companies have the following combustion units:
  - ✓ 5 Dryers (< 50 MMBtu/Hr; low temperature)
  - ✓ 5 Furnaces (< 10 MMBtu/Hr; ROG emissions)
  - ✓ 4 Kilns – clay roof tiles (< 50 MMBtu/Hr; high temperature)
  - ✓ 11 Boiler/Heaters (<10 MMBtu/Hr; existing rules currently apply)
  - ✓ 4 Afterburners – VOC Control (< 50 MMBtu/Hr; R1147 applies)

Cement Manufacturing

Cement Manufacturing

- Aggregated minerals are heated in a high-temperature kiln producing solid “clinkers”
  - ✓ Clinkers are ground to form a dry cement
- There are two former cement plants with non-operational kilns
  - ✓ One cement plant is now closed
  - ✓ The other cement plant still operates a heater (<10 MMBtu/Hr; existing rules currently apply)
  - ✓ Various types of ICE are used for conveying aggregate and product (existing rules currently apply)

Regulatory Overview

- There are currently five existing rules that establish NOx emission limits for equipment at asphalt, roofing, and cement manufacturing at non-RECLAIM facilities
  - Rule 1146 - Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters
  - Rule 1146.1 – Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters
  - Rule 1147 – NOx Reductions from Miscellaneous sources
  - Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines
  - Rule 1112 - Emissions of Oxides of Nitrogen from Cement Kilns

Applicability of Existing Rules

Rule Number	Applicability
Rule 1146	Applies to boilers, steam generators, and process heaters > 5 MMBtu/hr.
Rule 1146.1	Applies to boilers, steam generators, and process heaters > 2 MMBtu < 5 MMBtu/hr.
Rule 1147	Applies to ovens, dryers, dehydrators, heaters, kilns, calciners, furnaces, crematories, incinerators, heated pots, closed and open heated tanks and evaporators, distillation units, afterburners, degassing units, vapor incinerators, catalytic or thermal oxidizers, soil and water remediation units and other combustion equipment with nitrogen oxide emissions that require a District permit.
Rule 1110.2	All stationary and portable engines over 50 rated brake horsepower (BHP).
Rule 1112	Applies to cement kilns

Equipment Regulated Under Recently Amended Rules

- Staff is recommending that equipment for rules that were recently amended to establish NOx emission limits for RECLAIM and non-RECLAIM facilities continue to meet those emission limits
- Three rules have been amended to address NOx emission limits for RECLAIM and non-RECLAIM facilities
  - Rules 1146 and 1146.1 were amended on December 7, 2018 to establish NOx emission limits for boilers, steam generators, and process heaters for RECLAIM and non-RECLAIM facilities
  - Rule 1110.2 was amended on November 1, 2019 to establish NOx emission limit for engines for RECLAIM and non-RECLAIM facilities
- Asphalt, Roofing Tile, and Cement Manufacturing facilities with equipment regulated under these rules would continue to meet the NOx emission limits

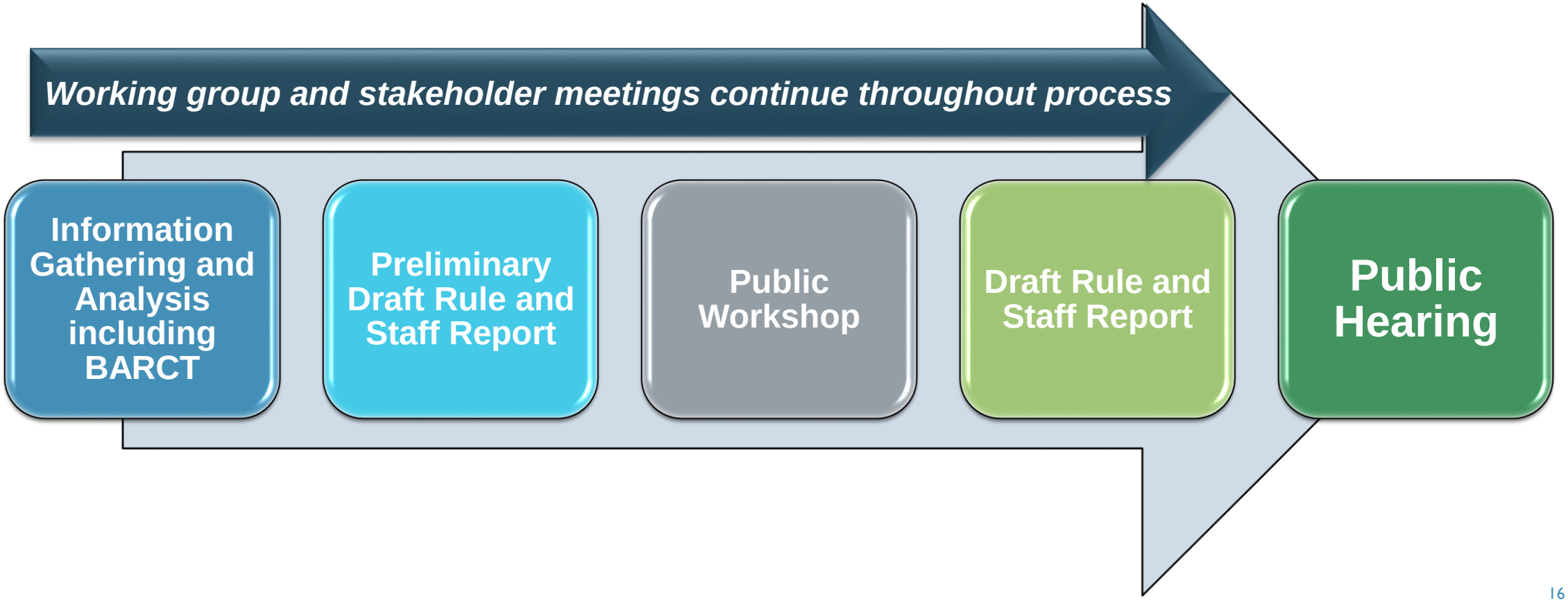
Equipment Regulated Under Miscellaneous Combustion

- Staff is recommending that aggregate equipment for rules that are regulated under Rule 1147 for miscellaneous combustion be moved to Proposed Rule 1147.1
- Rule 1112 currently regulates emissions of oxides of nitrogen from cement kilns for the calcining and clinkering of limestone, clay and other raw materials, and recycle dust in the dry-process manufacture of gray cement
  - ✓ Cement kilns are specifically regulated

Equipment Regulated Under an Existing Industry Specific Rule

- Staff is recommending that equipment for rules where there is an existing industry specific rule, continue to be regulated under that industry specific rule
- Rule 1112 currently regulates cement kilns in the Cement Manufacturing industry
  - ✓ Cement kilns are industry-specific equipment
- Kilns at Cement Manufacturing facilities would continue to meet the requirements of Rule 1112
  - Staff will be revisiting the NOx emission limits in Rule 1112 to ensure they are representative of Best Available Retrofit Control Technology (BARCT)

Overview of Rule Development Process

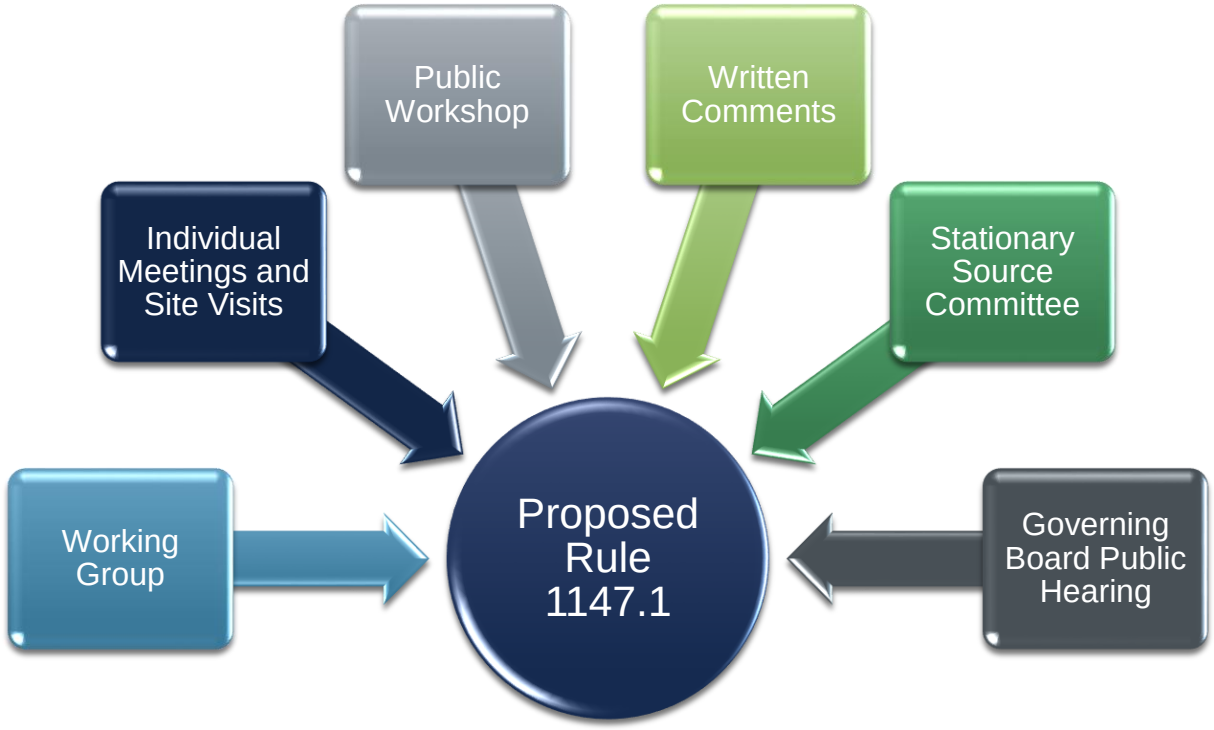


Working Group Meetings

- Comprised of stakeholders, including industry, environmental groups, community members, and public agencies
- Working group meetings are held throughout the rule development process and open to the public
- Objective
  - Build consensus and work through issues
  - Opportunity for early input
  - Develop a rule that affected facilities can implement
- Assists staff in understanding:
  - Key issues and concerns
  - Industry terms, industry practices, etc.
  - Applicable technologies

Stakeholder Input

- Variety of ways that stakeholders can provide input throughout the rulemaking process
- Early input is strongly encouraged to help develop proposed rule amendments and to address issues
- Working Group Meetings, Individual Meetings, and Site Visits allow stakeholders to dialogue directly with staff and discuss individual issues

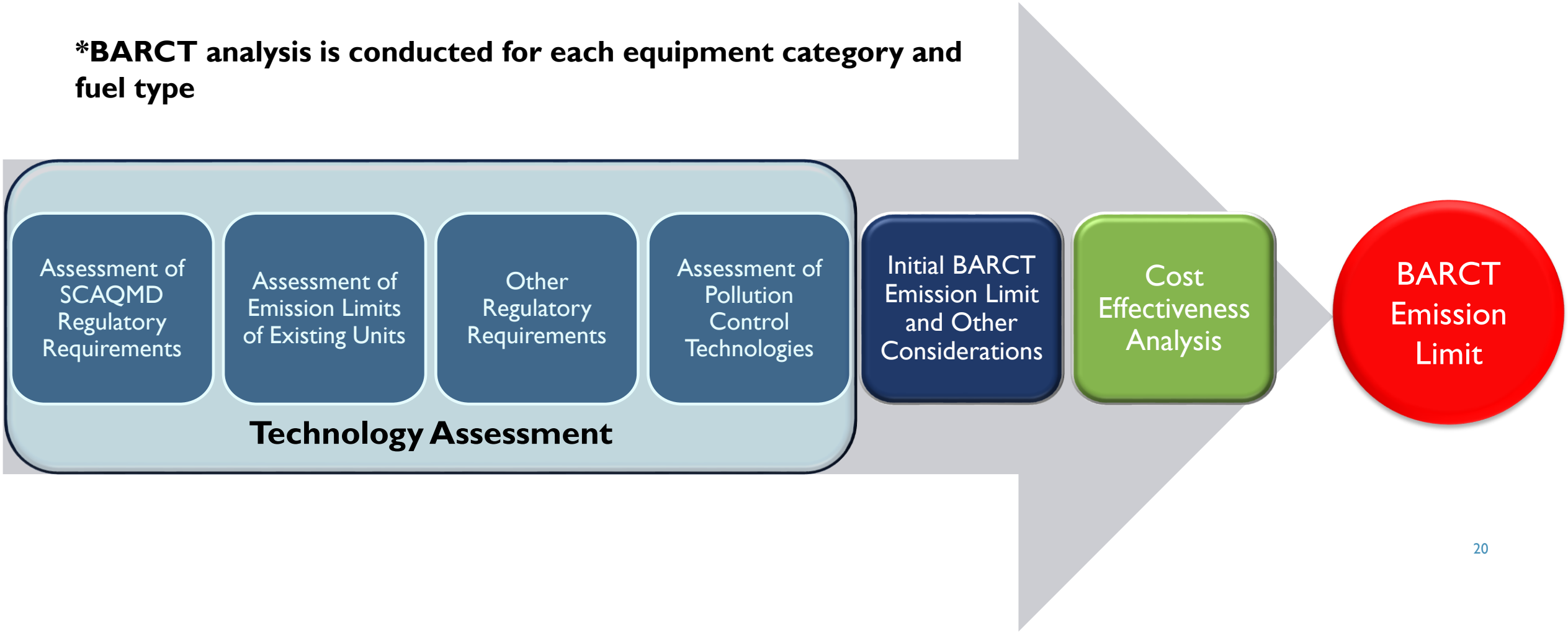


BARCT Requirements

- 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

***BARCT analysis is conducted for each equipment category and fuel type**



Approach for BARCT Determination

BARCT Assessment Approach

Technology Assessment

- BARCT analysis includes a technology assessment
  - Equipment-specific
  - Fuel-specific
  - Application and usage of unit (capacity, types of uses, etc.)

Cost Effectiveness Considerations

- Primary cost effectiveness considerations
  - Control equipment capital
  - Installation costs
  - Operation & Maintenance Costs
  - Monitoring costs
- Secondary considerations
  - Incremental cost effectiveness
  - Outliers
  - Recent installation to meet prior NOx reduction commitments

Next Steps

- Continue data gathering from stakeholders, site visits and determine applicability
- Focus on working group input, vendor data and trade organization comments
- Conduct BARCT analysis and evaluate emissions reduction potential

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Proposed Rule 1147.1

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