Major Final Amendments Affecting New England: Stationary Reciprocating Internal Combustion Engine (RICE) NESHAP and NSPS

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Roy Crystal
U.S. EPA
Region 1 (New England)

What I'll Cover

- Overview of Major Final Amendments Affecting New England to:
  - NESHAP for Stationary Reciprocating Internal Combustion Engines (RICE)
    - 40 CFR part 63 subpart ZZZZ
  - NSPS for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE)
    - 40 CFR part 60 subpart IIII
  - NSPS for Stationary Spark Ignition (SI) ICE
    - 40 CFR part 60 subpart JJJJ
- Cost and Emissions Impacts
- Key Compliance Issues
- Upcoming Webinars
- Q&A

Background

- EPA finalized amendments to the RICE NESHAP in March 2010 that established standards for:
  - Existing compression ignition (CI) [diesel] engines ≤500 HP at major sources of HAP
  - Existing CI engines of any size at area sources of HAP
  - Existing non-emergency CI engines >500 HP at major sources of HAP

- EPA finalized amendments to the RICE NESHAP in August 2010 that established standards for:
  - Existing SI engines ≤500 HP at major sources of HAP
  - Existing SI engines of any size at area sources of HAP

- After promulgation of the 2010 amendments, EPA received several petitions for reconsideration, petitions for judicial review, and other communications regarding several issues with the final rules

Issues Addressed in Proposed Amendments

- Emergency engine operation for demand response and peak shaving
- Requirements for existing 4-stroke SI RICE at area sources of HAP
- Total hydrocarbon (THC) compliance option for 4-stroke rich burn SI RICE
- Tier 1/Tier 2 certified CI RICE scheduled for replacement
- Tier 3 certified CI RICE
- CI RICE at area sources of HAP in remote areas of Alaska

Requirements for Emergency Demand Response

- Issue: Limitations on operation of emergency engines for emergency demand response (EDR)
- Previous regulations:
  - RICE NESHAP:
    - Emergency engines can be used up to 15 hours per year for EDR when RTO/ISO determines that a blackout is imminent
    - No other operation as part of financial arrangement with another entity
  - ICE NSPS:
    - Engines used under a financial arrangement with another entity (including demand response and peak shaving) are not considered to be emergency engines

Requirements on Emergency Use and Emergency Demand Response (EDR)

- Final revisions to RICE NESHAP Subpart ZZZZ (Sec. 63.6640(f), NSPS Subpart IIII (Sec. 60.4211) and NSPS Subpart JJJJ (Sec. 60.4243)
  - No time limit on use of emergency ICE in emergency situations
  - May operate for maximum of100 hours per year for any combination of:
    - maintenance checks and readiness testing
    - Emergency Demand Response (EDR) in following situations:
      - Energy Emergency Alert (EEA) Level 2 is called
      - Voltage or frequency deviation of 5 percent or greater below standard

Requirements on Emergency Use and Emergency Demand Response – contd.

- Final Revisions :
  - RICE NESHAP and ICE NSPS:
    - **All emergency engines can be operated for up to 50 hours per year for non-emergency situations if not part of a financial arrangement with another entity**; counts as part of 100 hrs/yr for maintenance, testing, and **emergency** demand response (EDR)
    - For emergency engines at HAP area sources only (this provision not available at major sources), **50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity only if all of the following are met**:
    - Engine dispatched by local transmission system operator,
    - Dispatch mitigates local transmission or distribution limitations to avert voltage collapse or overloads,
    - Follows local, regional, or Public Utility Comm. Guidelines,
    - Power supplied to facility or local grid, and
    - Records of entity dispatching kept.

Additional Fuel Use & Reporting Requirements for Use of Emergency Stationary ICE for Demand Response

- Final revisions – RICE NESHAP and CI ICE NSPS:
  - Stationary emergency compression ignition > 100 HP and displacement < 30 liters/cylinder used for emergency demand response (15-100 hrs/yr) or local system reliability (up to 50 hrs/yr) must use ultra low sulfur diesel fuel (15 ppm sulfur) beginning Jan. 1, 2015
  - Diesel fuel purchased before Jan. 1, 2015 may be used until depleted
  - Emergency RICE > 100 HP operating > 15 hr/yr for EDR or for any number of hours for local reliability, beginning in 2015, must report electronically
    - dates and times used for EDR
    - dates, times, and situation used for local system reliability

Provisions Covering for Peak Shaving

- Issue: Limitations on operation of emergency engines for peak shaving

- Previous regulations:
  - RICE NESHAP and ICE NSPS:
    - Engines used under a financial arrangement with another entity (except RICE NESHAP allowance for EDR) or for peak shaving are not considered to be emergency engines.

Provisions for Peak Shaving

- Final revision (RICE NESHAP only):
  - For **existing RICE at area sources** of HAP:
    - EPA did not finalize proposed allowance for 50 of 100 hours allowed for maintenance/testing/EDR to be used for non-emergency operation, including peak shaving to provide power to facility, or for local distribution system
    - Due to short time period until 5/3/13 CI and 10/19/13 SI compliance dates, final rule includes provision limiting to 50 hours use of existing stationary emergency engines for peak shaving or to otherwise supply power as part of a financial arrangement prior to May 3, 2014
    - Must be used for peak shaving program with local system operator and supplied to facility or local distribution network
    - Provides time to comply

Emergency Engine Requirements

Category	2010 Regulations		Final Amendments	
	RICE NESHAP	CI/SI ICE NSPS	RICE NESHAP	CI/SI ICE NSPS
Emergencies	No limit	No limit	No limit	No limit
Maintenance & Readiness Testing and Emergency Demand Response (EDR)	100 hours, of which 15 can be used for EDR in emergency situations (no maintenance/testing limit and no allowance for emergency demand response if engine is >500 HP at a major source installed prior to June 12, 2006)	100 hours No allowance for EDR operation	100 hours EDR must be in defined emergency situations up to 100 hours	100 hours EDR must be in defined emergency situations up to 100 hours
Non-Emergencies	50 hours Counts as part of the 100 hr/yr maintenance/EDR limit No peak shaving or operation through financial arrangement (except demand response)	50 hours Counts as part of the 100 hr/yr maintenance limit No peak shaving or operation through financial arrangement	50 hours in non-emergency situations, which can include 50 hours to supply power as part of financial arrangement for local system reliability (criteria) Counts as part of the 100 hr/yr maintenance/EDR limit No peak shaving, ex. 50 hours of peak shaving or other fin. arrangement allowed for exis. area source RICE before 5/3/14	50 hours in non-emergency situations, which can include 50 hours to supply power as part of financial arrangement for local system reliability (criteria) Counts as part of the 100 hr/yr maintenance/EDR limit No peak shaving or operation through financial arrangement (except demand response)

Area Source SI RICE Requirements

- Issue: Emission standards for existing 4-stroke SI RICE >500 HP at area sources of HAP (generally natural gas-fired)

- Previous regulation:
  - Existing 4-stroke SI RICE >500 HP at area sources of HAP must do the following:
    - Meet emission limits for CO or formaldehyde
    - Continuous parameter monitoring
    - Initial and subsequent performance testing
    - Submit notifications and compliance reports

Area Source SI RICE Requirements

- Final revision:
  - For existing non-emergency 4-stroke lean burn and rich burn SI RICE >500 HP at area sources of HAP that are in remote areas:
    - Management practices similar to those required for other existing SI engines at area sources
      - Change oil and filter every 2,160 hours of operation or annually (or use oil analysis program)
      - Inspect spark plugs, hoses, and belts every 2,160 hours of operation or annually, and replace as necessary

Area Source SI RICE Requirements – Final Revision contd.

- Remote stationary RICE defined as:
  - Located in an offshore area; or
  - Located on a pipeline segment with 10 or fewer buildings intended for human occupancy and no buildings with 4 or more stories within 220 yards on either side of a continuous 1-mile length of pipeline (DOT Class 1 area), and the pipeline segment is not within 100 yards of a building or small well-defined outside area (playground, etc.), or
  - Not located on a pipeline and having 5 or fewer buildings intended for human occupancy and no buildings with 4 or more stories within a 0.25 mile radius around the engine

Area Source SI RICE Requirements

- Final revision:
  - For existing non-emergency 4-stroke SI RICE >500 HP at area sources of HAP that are not in remote areas:
    - Equipment standard requiring catalyst on engine
    - 4-stroke lean burn RICE: install oxidation catalyst; 93% CO reduction or 47 ppmvd CO
    - 4-stroke rich burn RICE: Install non-selective catalytic reduction (NSCR); 75% CO reduction, 30% THC reduction, or 270 ppmmvd CO
    - Initial stack test (3 15-minute runs) plus annual "checks"
    - High catalyst inlet temperature engine shutdown, or continuous catalyst inlet temperature monitoring
    - Notifications and compliance reporting

Formaldehyde Limits and THC Compliance Option

- Issue: Formaldehyde limits and performance testing requirements for certain 4-stroke rich burn (4SRB) SI RICE

- Previous regulation:
  - Following non-emergency 4SRB SI RICE must show compliance with formaldehyde concentration or % reduction standard through formaldehyde performance test
    - Existing >500 HP at major source of HAP
    - Existing >500 HP at area source of HAP
    - New >500 HP at major source of HAP

- Final revision:
  - 4SRB SI RICE subject to the 76% formaldehyde reduction limit can show compliance by demonstrating through testing that THC emissions are being reduced by at least 30%
  - Formaldehyde limit eliminated for existing area source 4SRB engines

Tier 1 /Tier 2 Engines Scheduled for Replacement

- Issue: Tier 1 and Tier 2 CI engines that must be replaced in next few years due to state/local rules
  - San Joaquin Valley District rule requires replacement of Tier 1 and 2 engines with Tier 3 or Tier 4 engines by January 1, 2015, or 12 years after installation date, but no later than June 1, 2018
    - Tier 1 = model years 1996 – 2001/2002
    - Tier 2 = model years 2001/2002 – 2005
- Previous regulation:
  - If >300 HP and non-emergency, subject to CO emission limit
  - These engines would likely not comply with RICE NESHAP without catalyst retrofit

Tier 1/Tier 2 Engines Scheduled for Replacement

- Final revision:
  - Amend area source engine requirements to allow compliance using management practices until January 1, 2015, or 12 years after the installation date of the engine, but not later than June 1, 2018, for Tier 1 and 2 CI engines that will be replaced due to state/local rules
  - Change applies to any engine in U.S. meeting this criterion
  - Must submit notification by 3/3/2013 identifying state/local regulation if intend to use this provision

Tier 3 Engines at Area Sources of HAP

- Issue: Tier 3* (model year 2006) CI engines that were constructed (installed) between January 1–June 12, 2006

- Previous regulation:
  - If >300 HP and non-emergency, subject to CO emission limit
  - These engines would likely not comply with RICE NESHAP without catalyst retrofit
  - Identical Tier 3* engine installed after June 12, 2006, does not require retrofit to comply with applicable EPA rule for that engine (NSPS)

*Tier 2 for engines ≥560 kW

Tier 3 Engines at Area Sources of HAP

- Final revision:
  - For engines at area sources of HAP, specify that certified Tier 3* CI engine installed before June 12, 2006, is in compliance with RICE NESHAP
  - Change applies to any engine in U.S. meeting this criterion

*Tier 2 for engines ≥560 kW

Cost and Emissions Impacts: Changes from 2010 RICE NESHAP Amendments

	Reductions – 2010 Rule		Reductions from 2010 Rule with Final Amendments	
	CI RICE	SI RICE	CI RICE	SI RICE
HAP	1,000	6,000	1,000	1,800
CO	14,000	109,000	14,000	22,000
PM	2,800	--	2,800	--
NOx	--	96,000	--	9,600
VOC	27,000	31,000	27,000	9,100

	Costs of 2010 Rule		Costs of 2010 Rule with Final Amendments (2010$)	
	Capital	Annual	Capital	Annual
Spark Ignition (2009$)	$383 million	$253 million	$103 million	$115 million
Compression Ignition (2008$)	$744 million	$373 million	$740 million	$373 million

Timeline of Key Dates

Milestone	Date
Final Rule Signature	January 14, 2013
Federal Register Publication	January 30, 2013
Effective date of Final Rule	April 1, 2013
Compliance date for existing CI RICE	May 3, 2013 (unchanged!)
Compliance date for existing SI RICE	October 19, 2013 (unchanged!)

Key Compliance Issues

- Determine if your engine is emergency – by compliance date
- Submit initial notification if required
- RICE NESHAP compliance dates fast approaching – 5/3/13 CI, 10/19/13 SI
- Determine if retrofit needed; obtain quotes; commit to vendor & schedule
- Select stack tester; submit notification of performance test (60 days advance notice!)
- One year compliance extensions to install controls – due date 1/3/13 for CI; 6/21/13 for SI

For More Information

- Federal Register Notice and Fact Sheets on Final Amendments to EPA RICE NESHAP and NSPS standards available at EPA national Technology Transfer Network air toxics website RICE page of record: http://www.epa.gov/ttn/atw/rice/ricepg.html

- EPA Region 1 and 10 RICE webpages – user-friendly and have some regional content (will be merged into national plain-language RICE webpage)
- www/epa.gov/region 1/RICE – Region 1 (New England)
- http://yosemite.epa.gov/R10/airpage.nsf/Enforcement/rice_rules – Region 10 (Pacific Northwest)

Upcoming EPA RICE Webinars

- Four EPA webinars upcoming (all same program); all times Eastern Standard or Daylight Time :
  - Thursday Feb. 28, 2013, 1:00-3:00 p.m.
  - Wednesday, March 6, 2013, 12 noon to 2:00 p.m.
  - Thursday, March 14, 11:30 a.m.-1:30 p.m.
  - Tuesday March 19, 12 noon to 2:00 p.m.

- Topics covered and speakers:
  - Summary of RICE NESHAP and NSPS – Melanie King, EPA RICE rulewriter
  - Recent final amendments – – Melanie King, EPA RICE rulewriter
  - Interactive question and answer period (participants type in questions)

  – Susan Lancey, EPA. R. 1 and Heather Valdez, EPA Region 10
  - Steps to comply and compliance tools – Roy Crystal, EPA Region 1

- To register: www/epa.gov/region 1/RICE – See "upcoming Training Events"

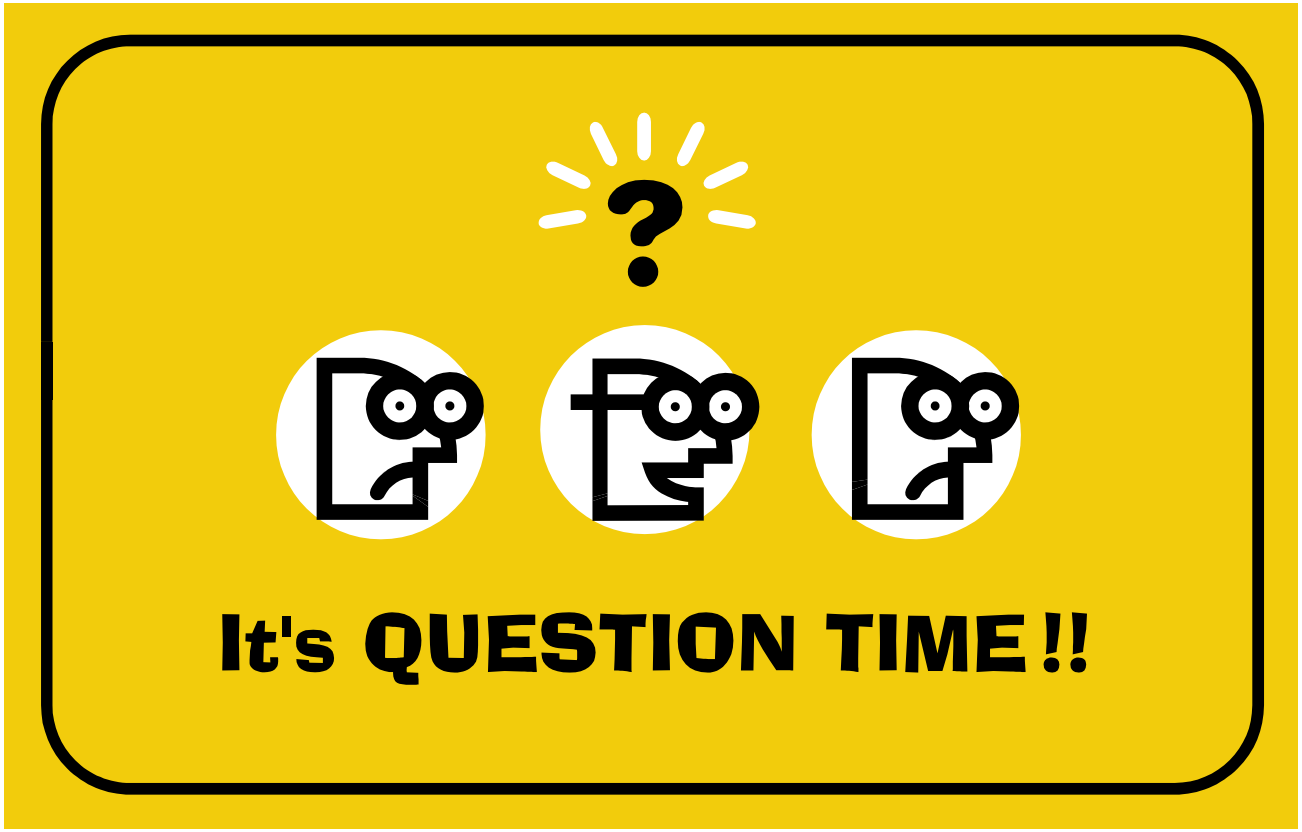
Contact Information

Melanie King
EPA Energy Strategies Group/Office of Air Quality Planning and Standards
(919) 541-2469
King.Melanie@epa.gov

Roy Crystal
U.S. EPA Region 1 (CT, NH, MA, RI, ME, VT)
Staff Contact for RICE Assistance/webinars
(617) 918-1745
Crystal.Roy@epa.gov

Susan Lancey
U.S. EPA Region 1
Regional Air Toxics Coordinator; applicability determinations
Lancey.Susan@epa.gov

U.S. EPA Regional Office RICE NESHAP Contacts:
http://www.epa.gov/ttn/atw/rice/EPARegionalRICEcontacts.pdf


It's QUESTION TIME!!