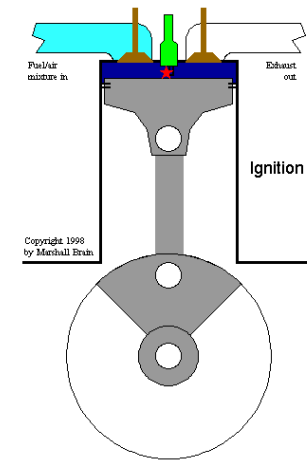


# Air Regulations for Stationary Reciprocating Internal Combustion Engines (RICE)

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# RICE New Source Performance Standards (NSPS)

- 40 CFR Part 60 Subpart IIII – New Source Performance Standards (NSPS) for Compression Ignition (CI) RICE
- 40 CFR Part 60 Subpart JJJJ – New Source Performance Standards (NSPS) for Spark Ignition (SI) RICE
- Required under CAA sec. 111



# RICE National Emission Standards of Hazardous Air Pollutants (NESHAP)

- 40 CFR Part 63 Subpart ZZZZ - NESHAP for RICE
- Required under CAA sec. 112 {(d),(c)(3),(k)}
- Often called the RICE MACT or GACT
  - MACT - Maximum Achievable Control Technology  
–for Major Sources of HAPs
  - GACT - Generally Achievable Control Technology  
–for Area Sources of HAPs

# Non Road Mobile

- 40 C.F.R. § 1068.30 -- mobile source regs

- Defines a non road engine as

- 1) self propelled,
- 2) propelled while being used, or
- 3) designed to be portable

AND

- does not remain at a single installation for more than 12 consecutive months or an entire operating seasonal period



# Promulgation Dates

- June 15, 2004 – RICE NESHAP (ZZZZ)
  - Proposed December 19, 2002
- July 11, 2006 – CI RICE NSPS (IIII)
  - Proposed July 11, 2005
- January 18, 2008 – SI RICE NSPS (JJJJ)
  - Proposed June 12, 2006
- January 18, 2008 – RICE NESHAP (ZZZZ)
  - Proposed June 12, 2006
- March 3, 2010 – CI RICE NESHAP (ZZZZ) & August 20, 2010 – SI RICE NESHAP (ZZZZ)
  - Proposed March 5, 2009
  - Advanced Notice of Proposal January 24, 2008

# Affected Source History



## AREA SOURCES



## MAJOR SOURCES



	<p><b>NEW</b></p> <p>2008 rule</p>	<p><b>EXISTING</b></p> <p>2010 rules</p>	<p><b>NEW</b></p> <p>2004 rule</p>	<p><b>EXISTING</b></p> <p>2004 rule</p> <p>2010 rule (non-emergency CI)</p>
	<p><b>NEW</b></p> <p>2008 rule</p>	<p><b>EXISTING</b></p> <p>2010 rules</p>	<p><b>NEW</b></p> <p>2008 rules</p>	<p><b>EXISTING</b></p> <p>2010 rules</p>

# New & Existing for the RICE NESHAP

- >500 HP at Major Source for HAPs

(began construction or reconstruction)

EXISTING before **December 19, 2002** after NEW

- All other engine sizes and sources

(began construction or reconstruction)

EXISTING before **June 12, 2006** after NEW

- NSPS uses similar the manufacture date to determine new /existing, not the construction date

# Compliance Dates for the 2010 NESHAP for RICE

- May 3, 2013
  - Compression Ignition
  
- October 13, 2013
  - Spark Ignition

# General Rule Requirements for Engines with Emission Limitations

- **RICE  $\geq$  300 HP at Area Sources or  $\geq$  100 HP at Major Sources**
  - Notify EPA and your state permitting agency
  - Install a crank case ventilation and/or catalyst to reduce pollutants from exhaust
  - Monitor inlet temperature and pressure drop or exhaust carbon monoxide concentration
  - Test the engine every 8,760 hours of operation or every three years
  - Report to the state annually that the standard is being met
  - Duration of startup and shutdown time to less than 30 minutes per event
  - Records need to be kept for five years

# Specific Rule Requirements for Engines with Emission Limitations

- Resources

- <http://www.epa.gov/ttn/atw/rice/ricepg.html>
  - Stationary Reciprocating Internal Combustion Engines: Applicability Flowchart
  - RICE Summary Table of Requirements
  - **Turbo Regulation Software**
- <http://www.deq.state.ne.us/>
  - Air Toxics Notebook

Stationary Reciprocating Internal Combustion Engines (RICE)


Stationary Reciprocating Internal Combustion Engines (RICE)

Question 6 of 23

Did you begin construction or reconstruction on your stationary engine before June 12, 2006?

Yes

No



SUBMIT

Stationary Reciprocating Internal Combustion Engines (RICE)


Stationary Reciprocating Internal Combustion Engines (RICE)

Question 9 of 23

Is your Existing Stationary Engine more than 500 HP?

Yes

No



SUBMIT


Stationary Reciprocating Internal Combustion Engines (RICE)

### Stationary Reciprocating Internal Combustion Engines (RICE)

Question 11 of 23

What is your Engine Category?

- Emergency Compression Ignition
- Non-Emergency Compression Ignition
- Emergency Spark Ignition
- Non-Emergency Spark Ignition 4 Stroke Lean Burn (that operate 24 hours or less per year)
- Non-Emergency Spark Ignition 2 Stroke Lean Burn
- Non-Emergency Spark Ignition 4 Stroke Rich Burn (that operate more than 24 hours per year)
- Non-Emergency Landfill/Digester Gas
- Residential/Commercial/Institutional Emergency
- Non-Emergency SI 4 Stroke Lean Burn (that operate more than 24 hours per year)



SUBMIT


Stationary Reciprocating Internal Combustion Engines (RICE)

Stationary Reciprocating Internal Combustion Engines (RICE)

Question

Existing Stationary Engine >500 HP Located at Area Sources of HAP Non-Emergency CI

[Existing Stationary Engine >500 HP Located at Area Sources of HAP Non-Emergency CI](#)

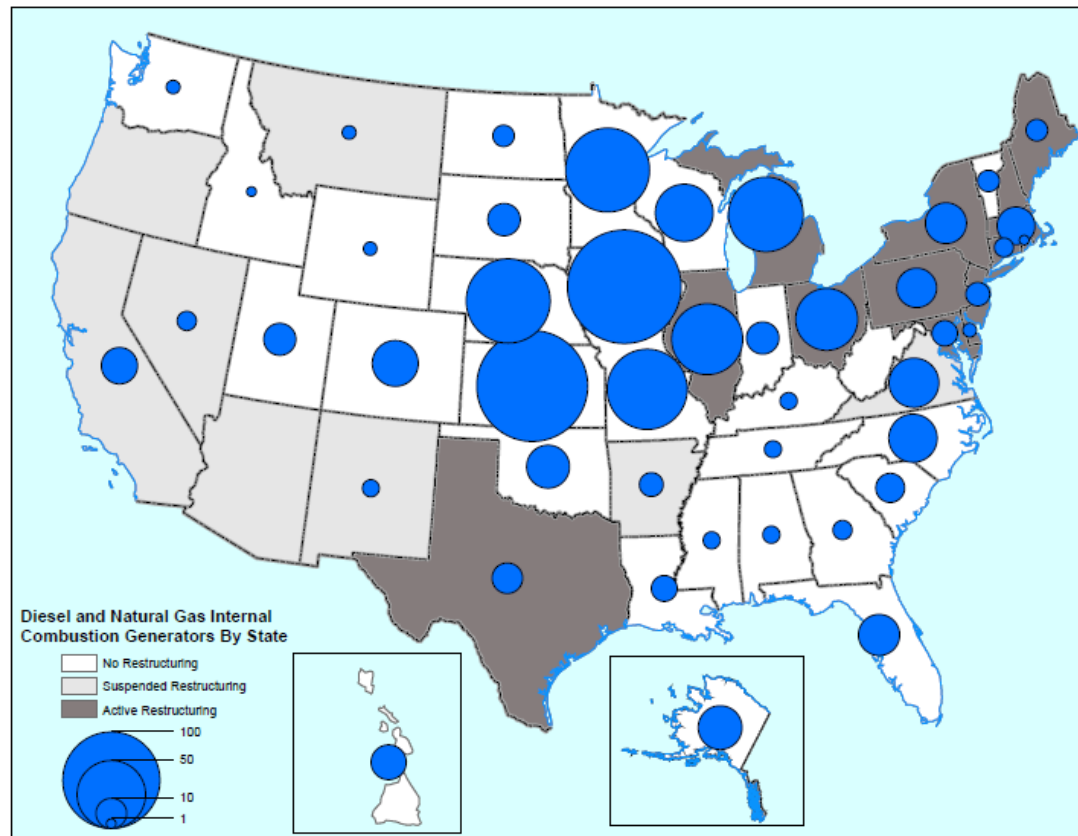


NEXT ►

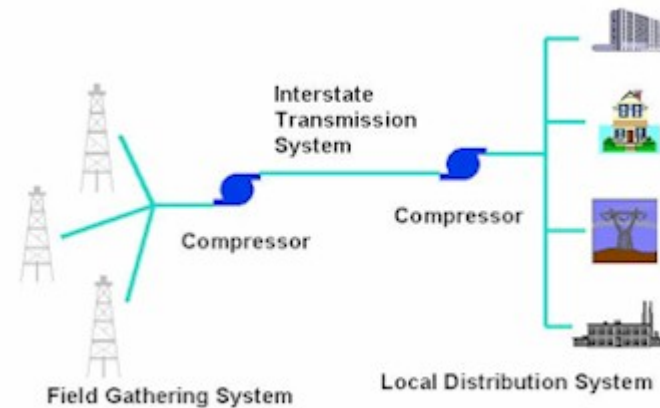
# Regulated Industries with Emission Limitations



# Number of Diesel/Gas Engines Used for Electricity Generation



# Regulated Industries with Emission Limitations



# Best Management Practices Requirements

- RICE < 300 HP at Area Sources or < 100 HP at Major Sources
  - Change oil filter annually or every 1,000 hours of operation
  - Inspect the air cleaner (filter) annually or every 1,000 hours of operation
  - Inspect all hoses and belts annually or every 500 hours of operation
  - Records need to be kept for five years
  - Duration of startup and shutdown time to less than 30 minutes per event

# Engines with Best Management Practices





# Engines with Best Management Practices



# Emergency Status

- Definition of emergency stationary RICE in rule
  - 40 CFR §63.6675
- Operation limitations for emergency RICE in rule
  - 40 CFR §63.6640
    - 100 hours of testing and maintenance
    - (Of that 100) 50 hours of non emergency use
    - (Of that 50) 15 hours of emergency demand response – petitioned for reconsideration granted
- Your engine is not emergency under the rule if the engine:
  - Provides peaking power for your facility or to the grid
  - Has an interruptible service contract with a power utility (in some situations emergency demand response is allowed where the engine can still be classified as emergency)
  - Is used for non-emergency purposes for more than 50 hours in a year

## EPA Reconsideration

- 15 hours of demand response under operational limitations for emergency engines
- Petitioned by Delaware asking that emergency demand response be removed and industry groups asking that the 15 hours be raised
  - Delaware's main concern was protecting ozone NAAQS during summer months
- Comments taken from December 7, 2010 to February 7, 2011
- Final rule revision is expected soon

# Exempt from RICE NESHAP

- If and only if the engine operates as an emergency engine under the rule and is located at residential, institutional, or commercial establishments that are area sources for HAPs
  - Residential could be an apartment complex or a house
  - Institutional establishments means places such as general medical centers and hospitals, nursing homes, research centers of higher education, correctional facilities, schools, libraries, police and fire stations, physicians and health specialist offices
  - Commercial could be office buildings or telecommunication tower sites

# Benefits & Outreach

- Emission reductions in 2013 will reduce the following each year:
  - 130 to 210 premature deaths,
  - 90 cases of chronic bronchitis,
  - 20 nonfatal heart attacks,
  - 185 hospital and emergency room visits,
  - 210 cases of acute bronchitis,
  - 17,500 days when people miss work,
  - 2,200 cases of aggravated asthma, and
  - 100,000 acute respiratory symptoms
  - (\$3 -5 billion annually)
- Outreach to Affected Industry
  - Kansas – KMU Meeting
  - Iowa – IAMU Meeting
  - Missouri – MPUA Meeting & Letter
  - Nebraska – Heartland Diesel Conf



## Question & Answer

- Why did you guys write this rule?  
-Kansas
- The Brick MACT vacatur required EPA to reopen MACTs where they had previously determined the MACT floor or GACT to be no requirements for smaller or area source engines. EPA was under consent decree deadline to rewrite the RICE MACT including MACT floors and GACT for all engines.

## Question & Answer

- Did EPA consider job loss, municipal economic impacts, or unfunded mandate requirements when writing the RICE NESHAP?

-Nebraska

- Absolutely. For every NESHAP, EPA does a Regulatory Impacts Analysis which takes into account economic factors for compliance.

<http://www.epa.gov/ttn/atw/rice/ricepg.html>

## Question & Answer

- I have 5 2,000 kW dual fuel engines that were all built, manufactured, and installed in 1965. Can I test 1 engine and use that test for compliance on the other 4 as well?

-Missouri

- No. Emission profiles change over time even for two engines of same make and model.
  - Though states may consider if the 5 engines tested have shown identical emission profiles for all loads, then it's possible to use a single test for compliance.

## Question & Answer

- Are Diesel Emission Reduction Act (DERA) funds available for these engine retrofits?  
-Iowa
- Yes. But, funding is only available to engines that aren't required to install controls because of regulation. So, funding is available for diesel engines until the compliance date for the RICE NESHAP – 2013.