Air Quality Regulatory Update

MD-DC Utilities Association

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GHG Mandatory Reporting Rule for Utilities

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MRR Background

- Key MRR Dates
  - October 30, 2009 – Final rule published in Federal Register
  - December 29, 2009 – Effective date of MRR
  - January 1, 2010 – Monitoring and recordkeeping required under MRR
  - January 30, 2011 – Certificate of Representation due (EPA recommends starting process at least two weeks prior to due date)
  - March 31, 2011 – First annual report due for each facility and/or supplier
- Recent MRR updates
  - Several subparts have been re-proposed or newly proposed during 2010
  - Several amendments and technical clarifications have been proposed and/or finalized (all are expected to be finalized by fall 2010)

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MRR Background

- MRR will provide the foundation for future GHG Regulation
- Represents first major EPA regulatory action affecting GHG reporting for industrial sectors and will form basis for developing GHG policy
- Establishes GHG emissions reporting requirements for direct emissions only - *unlike voluntary GHG reporting*
- Reporting is at the facility level, not corporate (with the exception of suppliers)

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MRR Background

- Subpart A establishes the general provisions of the rule
  - Applicability
  - General monitoring, reporting, and recordkeeping requirements
- Subpart C establishes requirements for stationary combustion sources
  - Most facilities subject to requirements of this subpart
- Subparts D through JJ (as well as QQ and SS) establish sector-specific requirements for direct emitters
  - Subpart D: Electricity Generation
  - Subpart W: Oil and Natural Gas systems
- Subparts MM through PP establish sector-specific requirements for suppliers
  - Subpart NN: Suppliers of Natural Gas (LDCs)

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Four-Door Applicability Approach Covers 85% of Total US Emissions

- Door #1 – Facilities that contains one or more of 17 identified source categories
- Door #2 - Any facility emitting at least **25,000 Metric Tons (MT) CO_2e** from the combined operation of:
  - Stationary fuel combustion equipment, AND
  - Miscellaneous uses of carbonate (e.g., limestone), AND
  - All source categories listed in Table 2
- Door #3 - Any facility that meets the following criteria:
  - The aggregate maximum rated heat input capacity for stationary combustion equipment is 30 MMBtu/hr or greater – AND –
  - The facility emits at least **25,000 MT CO_2e/yr**
- Door #4 - A supplier in ANY of the listed supplier categories

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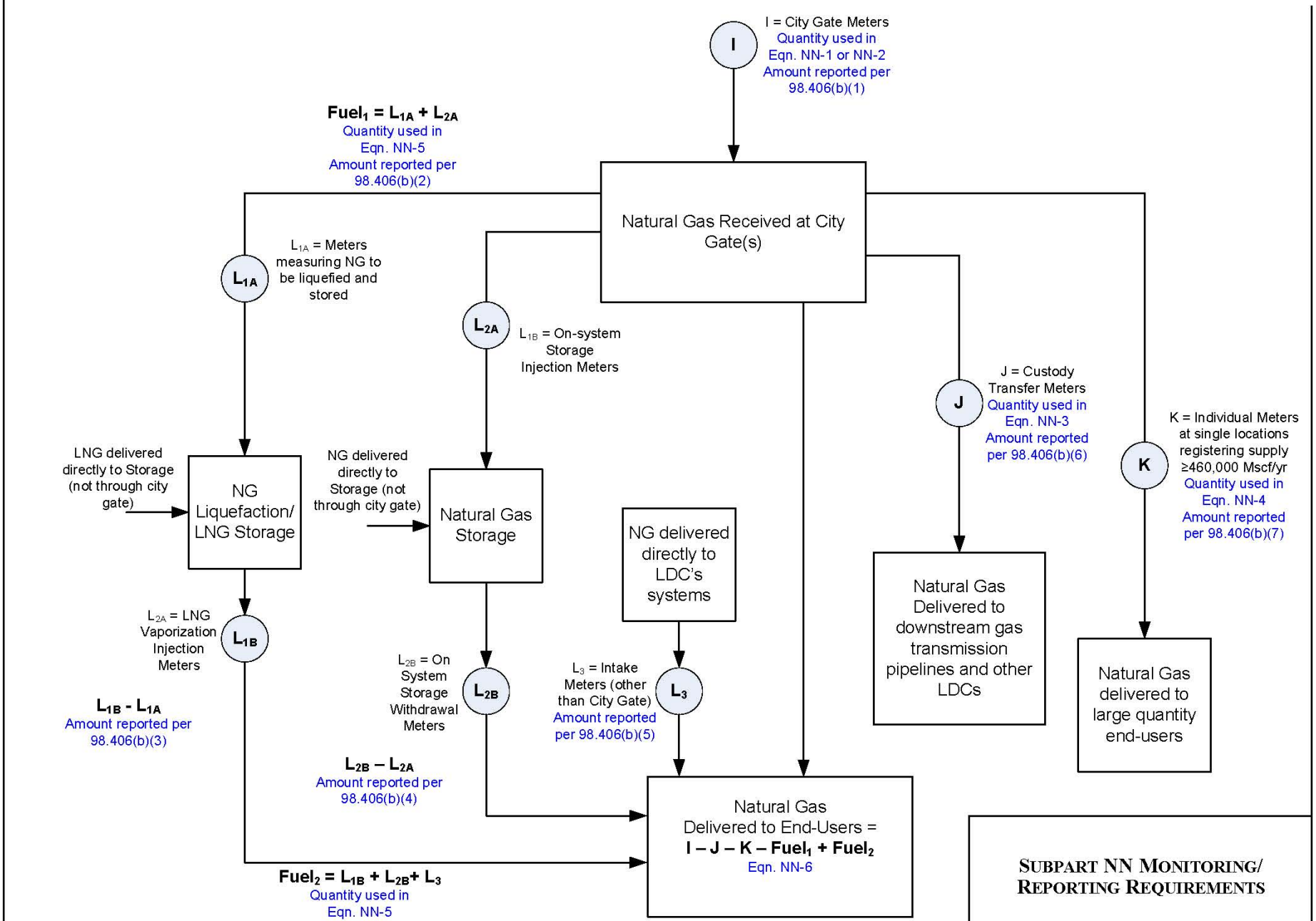
MRR Requirements

- MRR requirements vary by sector and tier
- All subparts include:
  - Emissions data monitoring
  - Emission calculation generation
  - Recordkeeping
  - Reporting
  - Missing data computations
  - Monitoring plan requirements
    - Identification of positions of responsibility
    - Explanation of data collection processes/methods
    - Description of QA, maintenance and repair methods for all CMS, flow meters and other instrumentation


I
I = City Gate Meters
Quantity used in Eqn. NN-1 or NN-2
Amount reported per 98.406(b)(1)
Fuel1 = L1A + L2A
Quantity used in Eqn. NN-5
Amount reported per 98.406(b)(2)
Natural Gas Received at City Gate(s)
L1A
L1A = Meters measuring NG to be liquefied and stored
L2A
L1B = On-system Storage Injection Meters
J
J = Custody Transfer Meters
Quantity used in Eqn. NN-3
Amount reported per 98.406(b)(6)
K
K = Individual Meters at single locations registering supply ≥460,000 Mscf/yr
Quantity used in Eqn. NN-4
Amount reported per 98.406(b)(7)
LNG delivered directly to Storage (not through city gate)
NG Liquefaction/ LNG Storage
NG delivered directly to Storage (not through city gate)
Natural Gas Storage
NG delivered directly to LDC's systems
Natural Gas Delivered to downstream gas transmission pipelines and other LDCs
Natural Gas delivered to large quantity end-users
L2A = LNG Vaporization Injection Meters
L1B
L1B - L1A
Amount reported per 98.406(b)(3)
L2B = On System Storage Withdrawal Meters
L2B
L3 = Intake Meters (other than City Gate)
Amount reported per 98.406(b)(5)
L3
L2B – L2A
Amount reported per 98.406(b)(4)
Natural Gas Delivered to End-Users = I – J – K – Fuel1 + Fuel2
Eqn. NN-6
Fuel2 = L1B + L2B+ L3
Quantity used in Eqn. NN-5
SUBPART NN MONITORING/ REPORTING REQUIREMENTS
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April 2010

Treatment of Reserved Subparts

- Based on the complexity of the public comments received, EPA marked 9 proposed source categories and 1 supplier category as *RESERVED* in the MRR
- On March 22, 2010, EPA re-proposed Subparts I, L, W and DD. Also proposed Subpart RR on CO_2 Injection and Geologic Sequestration, proposed the inclusion of additional sources of fluorinated GHGs in Subpart OO and proposed Subpart SS on Electrical Equipment Manufacture or Refurbishment (published in FR 4/12/10)
- EPA plans to complete supplemental evaluations and issue final rules for all *RESERVED* subparts in 2010

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Proposed/Re-Proposed Subparts of Interest

- Subpart RR for CO_2 Injection and Geologic Sequestration
  - Facilities that inject CO_2 underground for the purpose of long-term geologic sequestration or to enhance oil and gas recovery.
- Re-Proposed Subpart W for Petroleum and Natural Gas Systems
  - Final version of Subpart W currently awaiting signature at OMB
  - Fugitive and vented methane and CO_2 process emissions and combustion emissions from petroleum and natural gas facilities ≥ 25,000 CO_2e MT/year.
  - Includes onshore petroleum and natural gas production sites and natural gas local distribution companies not included in original proposed version of Subpart W

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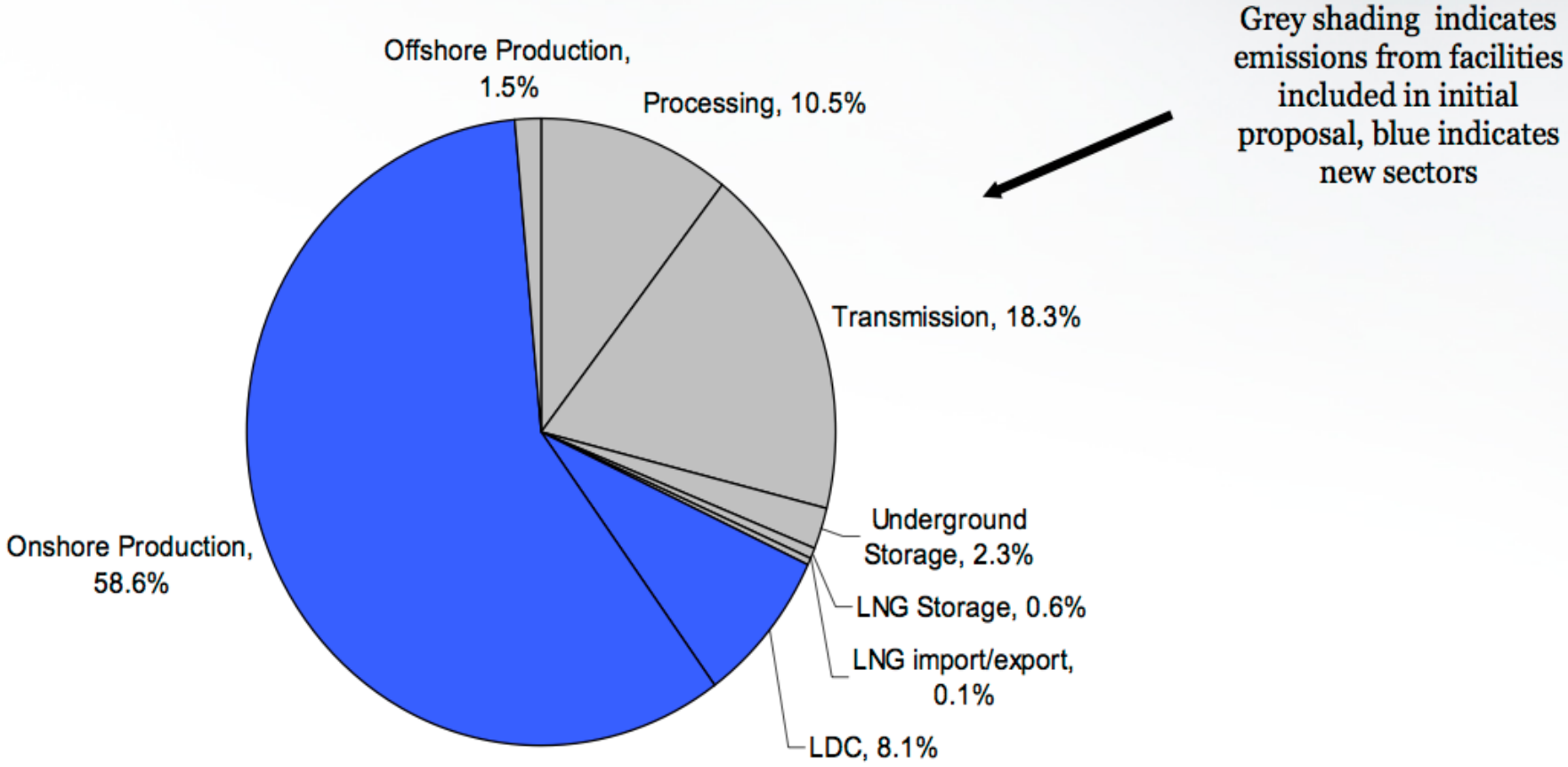
Breakdown of Oil ad Gas Process (Fugitive and Vented) GHG Emissions by Sector



Source: http://www.epa.gov/climatechange/emissions/downloads10/Subpart-W_Briefing-03-22-10.pdf

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Proposed Subpart W: NG Distribution Sector

- Natural Gas Distribution Facility defined in rule as distribution pipelines, metering stations and regulating stations that are operated by a LDC that is regulated by a public utility commission (same definition as NN). LDCs must report each source in the aggregate for pipelines and for Metering & Regulating Stations

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Distribution Source Categories

- Sources requiring direct measurement to estimate emissions
  - Above ground meter regulators and gate station fugitive emissions from connectors, block valves, control valves, PRVs, orifice meters, other meters, regulators, and open-ended lines
- Sources with emission factors provided in rule
  - Below ground meter regulators and vault fugitives
  - Pipeline main fugitives
  - Service line fugitives
- Other sources not requiring direct measurement to estimate emissions
  - Flares
  - Stationary combustion units

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Proposed Subpart W: Underground NG Storage

- Subsurface storage, including depleted gas or oil reservoirs and salt dome caverns used for storing natural gas that has been transferred from original location for load balancing purposes.
- Processes and operations include compression, dehydration and flow measurement, and all wellheads connected to the compression units located at the facility.

Underground Storage Source Categories

- Sources requiring direct measurement to estimate emissions
  - Centrifugal compressor wet seal degassing venting
  - Reciprocating compressor rod packing venting
  - Fugitive emissions from connectors, block valves, control valves, compressor blowdown valves, PRVs, orifice meters, other meters, regulators, and open-ended lines.

Proposed Subpart W: LNG Import, Export, and Storage

- LNG Import Terminal: Onshore or offshore facilities that receive imported LNG via ocean transport, store it, re-gasify it, and deliver the NG to transmission or distribution systems
- LNG Export Terminal: Send LNG via ocean transportation
- LNG Storage Facilities: Store LNG in above-ground tanks

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LNG Source Categories

- Sources requiring direct measurement to estimate emissions
  - Centrifugal compressor wet seal degassing venting
  - Reciprocating compressor rod packing venting
  - Fugitive emissions from valves, pump seals, connectors, vapor recovery compressors and other fugitive sources.
- Other sources not requiring direct measurement to estimate emissions
  - Blowdown vent stacks (LNG Import/Export sources)
  - Flares
  - Stationary combustion units

Annual Leak Survey Procedures

- Must use optical gas imaging instrument (e.g., FLIR camera) annually
- Rule does not specify when the survey must be completed, so this is at user discretion
- For every leaker, find the associated emission factor in Tables W-2 through W-7, depending on source category

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Subpart W Preparation

- Review proposed rule carefully
  - Look for gaps in current procedures and the procedures proposed in the rule
  - What additional equipment and resources will you need?
  - What systems will you need to have in place?
  - How will you communicate with the field and keep track of assets, and activities?
    - Blowdowns, throughput, hours, etc.

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MRR General Updates

- On October 7, 2010, EPA finalized rule revisions that include technical corrections and clarifying and other amendments to the MRR
  - In general, does not change the overall requirements of the rule but would improve clarity and ensure consistency across the calculation, monitoring and data reporting
  - Included amendment to Subpart NN to update the HHVs and default CO_2 emission factors in Tables NN-1 and NN-2 to be consistent with similar factors in Subpart C and Subpart MM.

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Proposed MRR Revisions - CBI

Proposed Confidentiality Determinations (FR 7/7/2010, supp. 7/27/2010, supp. 8/27/2010)

- Examples of emissions data (NOT CBI):
  - Facility and Unit Identifier Information (e.g., facility name and physical address);
  - Emissions;
  - Inputs to Emission Equations;
  - Calculation Methodology and Methodological Tier; and
  - Data elements reported for periods of missing data that are not inputs to equations.
- Examples of CBI (from direct emitters):
  - Production/throughput data that are not inputs to emission equations;
  - Raw materials consumed that are not inputs to emission equations; and
  - Process-specific and vendor data submitted in best available monitoring methods (BAMM) extension requests

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Proposed MRR Revisions

- On 8/11/2010 EPA proposed additional amendments to provide clarification or flexibility for various subparts including:
  - Subpart A – General Provisions
  - Subpart C – Stationary Combustion Sources
  - Subpart D – Electricity Generation
  - Subpart NN – Suppliers of Natural Gas and NGLs
- Proposed revisions expected to be finalized in 2010 and are expected to be implemented in March 2011 reporting.

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Proposed MRR Revisions – Subpart A

- Revisions to 40 CFR 98.3(i) with respect to equipment calibration requirements
- Clarification on reporting of biogenic emissions
  - *"We intended for the reporting of biogenic CO_2 emissions to be optional for units subject to subpart D. However, the current rule does not consistently affirm this."*
    - Proposing to amend subparts A and C so that separate accounting and reporting of biogenic CO_2 for Part 75 units is optional.
- Clarification of requirements for correction and resubmission of annual reports if errors found – only for "substantive errors" that impact the quantity of GHG emissions reported or otherwise prevents the reported data from being validated or verified.

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Proposed MRR Revisions – Subpart C

- Numerous proposed revisions (see handouts for details)
- Revisions add clarification based on questions/comments received by EPA
- Once finalized, will need to revisit monitoring plans to incorporate latest requirements/guidance

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Proposed MRR Revisions – Subparts D and NN

- Subpart D revision to clarify applicable units:
  - ARP Units
  - Non-ARP electricity generating units required to report CO_2 *mass* emissions data to EPA year-round (i.e., units subject to RGGI) – does not include non-ARP, non-RGGI units subject to CAIR which report CO_2 *concentration* data to EPA year round (would report under Subpart C instead).
- Subpart NN revisions
  - Applicability threshold – Only LDCs that deliver ≥ 460,000 mscf natural gas per year must report

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MRR Electronic Reporting System

- Electronic GHG Reporting Tool (e-GGRT) – web-based system for reporting under MRR
- Designed to support reporting via completed web forms as well as bulk file uploads for reporters to submit emissions data according to e-GGRT XML reporting schema
- System to be operational early 2011, prior to the March 31, 2011 deadline
- Training available from EPA:
  - November 3, 2010 1:00-2:30 pm EST
  - November 17, 2010 1:00-2:30 pm EST

http://www.epa.gov/climatechange/emissions/training.html#eggrt

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Information from October EPA Webinar

- e-GGRT supported by Explorer 7 or Firefox 3 or greater
- System will be equipped to handle CBI
- Need to submit new user registration if no existing CDX account (e-GGRT is integrated with CDX, so can login with TRI information)
- Anyone using system will need a user account – no limit on number of users per facility, must have designated representative at a minimum
- Can appoint agents during registration (or anytime before reporting deadline) who will fill out report on behalf of DR (i.e., consultants)
- System should be available "very soon" – future webinars on emissions reporting not scheduled yet

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MRR Implementation Considerations (1/2)

- Do you have the right information gathering efforts in place according to your monitoring plan?
  - Have you been tracking all the necessary information to be reported for 2010? (i.e., conduct and audit of gaps analysis)
  - Have you identified the sources of input data for the GHG calculations? (i.e., to ensure data availability and completeness)
  - Have you assigned responsibilities to staff? (should be in monitoring plan) (i.e., are assigned duties being completed per the plan?)
- Will your plan require revision once proposed changes (particularly for Subpart C) are finalized?
  - Have you reviewed the proposed revisions to Subpart C? (i.e., will you be ready to implement changes quickly?)
  - Are you planning to use Tier 2 for natural gas combustion because you receive HHV data from your gas supplier?

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MRR Implementation Considerations (2/2)

- Will you rely on e-GGRT to calculate emissions or do you have an emissions calculation tool that accurately utilizes the required input data to calculate GHG emissions according to the prescribed methodologies that you wish to upload?
  - If you are developing an internal calculation tool, will you validate it against e-GGRT?
  - If you have voluntarily computed CO_2e using other methods, how do the result compare with MRR results?

- Is your compliance strategy consistent across all facilities?
  - Have you implemented consistent methods and
  - Does the emissions data developed based on Part 98 make sense when comparing facilities.

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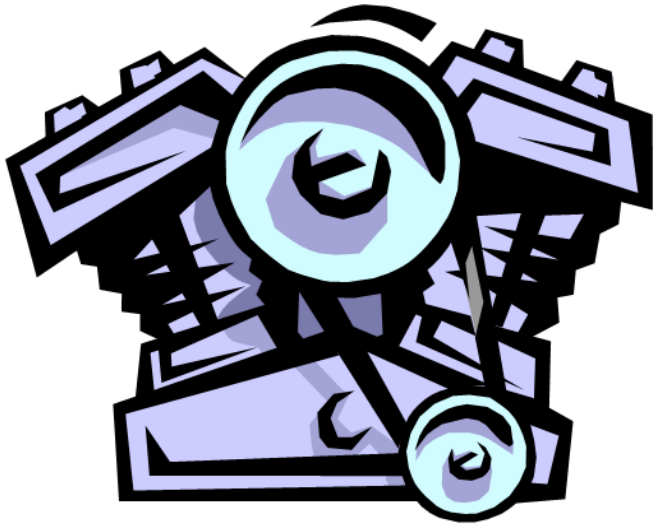
RICE MACT



40 CFR 63 Subpart ZZZZ

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What is a Stationary RICE?

- Not mobile and not a *non-road engine*
- *Non-road engines* (per 40 CFR 1068.30) are:
  - Self-propelled (e.g., bulldozer)
  - Intended to be propelled while operating (lawnmower)
  - Portable – designed to be carried or moved from location to location (e.g., wheels, trailers, skid) AND
  - Does not remain at a fixed location for more than 12 consecutive months or for the full annual operating period at seasonal source
- Excludes stationary RICE being tested at test cell/stand

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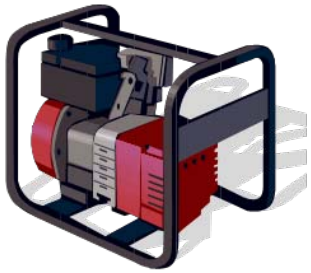
40 CFR 63 Subpart ZZZZ RICE MACT



- June 15, 2004 – Original promulgation; only for RICE > 500 HP at major sources
- March 18, 2008 – Effective date of standards for *new & reconstructed* stationary RICE ≤ 500 HP at major sources and all *new & reconstructed* RICE at area sources

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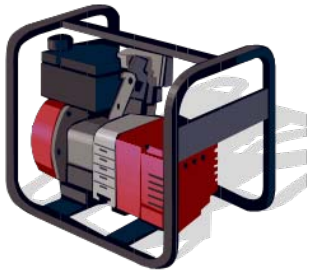
40 CFR 63 Subpart ZZZZ RICE MACT **2010**



- March 3, 2010 – Final standards for *existing* non-emergency *CI* RICE > 500 HP at major sources, *existing CI* engines ≤ 500 HP at major sources, and all *existing CI* RICE at area sources
- August 20, 2010 – Final standards for *existing SI* engines ≤ 500 HP at major sources, and all *existing SI* RICE at area sources

Engines with NO Requirements

- Not Applicable to:
  - RICE being tested at a test cell/stand
  - RICE used for national security purposes
- Applicable with no requirements:
  - Area source – *existing* residential, commercial or institutional emergency RICE
  - Major source – *existing* SI 2SLB > 500 HP, *existing* SI 4SLB > 500 HP, ALL *existing* emergency or limited use RICE > 500 HP, *existing* RICE > 500 HP combusting landfill or digester gas (>10% gross heat input annually)

Engines that meet RICE MACT requirements by meeting NSPS

(Have no other requirements under 40 CFR 63)

- Major Sources
  - *New/reconstructed* CI RICE ≤ 500 HP
  - *New/reconstructed* 2SLB RICE ≤ 500 HP
  - *New/reconstructed* 4SLB RICE < 250 HP
  - *New/reconstructed* 4SRB RICE ≤ 500 HP
  - *New/reconstructed* RICE ≤ 500 HP combusting landfill gas or digester gas (>10% gross heat input annually)
  - *New/reconstructed* emergency or limited use RICE ≤ 500 HP
- Area Sources
  - ALL *new/reconstructed* RICE

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RICE - Important Definitions

- Emergency RICE –
  - Operation is limited to emergency situations and required testing and maintenance
  - Examples: emergency power generation during outage, fire/flood water pump
  - Does NOT include peak shaving or demand response units (except as permitted in 40 CFR 63.6640(f))
- Limited Use RICE –
  - Operates <100 hours per year (includes routine testing and maintenance)

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Emergency Use Requirements

- All emergency stationary RICE must comply with the requirements of 63.6640(f)
  - No time limit on emergency use
  - Maintenance checks and readiness testing limited to 100 hrs/year
  - Up to 50 hours per year non-emergency use operation (counts towards 100 hours per year for maintenance and testing) ***Added in 2010 amendments:*** Cannot include peak shaving or to generate income for facility by supplying power to grid (guidance from EPA to Trinity indicates this has always been their intent)
  - ***Added in 2010 amendments:*** Allowance for up to 15 hrs/year as part of demand response if RTO-declared emergency for all emergency RICE (Note: this does not include existing emergency RICE >500 HP at major source as they were not covered by 2010 amendments)

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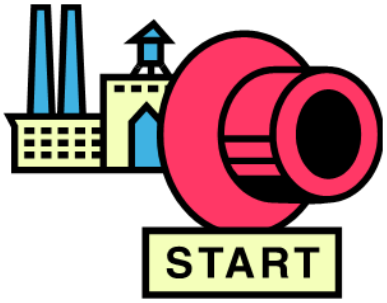
RICE - Affected Source



- RICE at major/area sources
- Existing source dates:
  - > 500 bhp @ major source – Dec 19, 2002
  - ≤ 500 bhp @ major source – June 12, 2006
  - All bhp @ area source – June 12, 2006
- Existing determination is based on the date you "commence construction" which is date the engine is installed by the owner/operator

Overview of Requirements for Existing CI Engines

Source Status	Use Category	Rating	Numerical Emission Limits	Control Device Monitor.	Initial Perform. Test	Ongoing Perform. Testing	Initial Notif./ Comp. Reports	Work Practices /Maint. Plan	Hour Meter
Major	Non-Emergency	300<HP≤500	✓		✓		✓		
	Non-Emergency	100≤HP≤300	✓		✓		✓		
	Non-Emergency	<100 HP						✓	
	Emergency	≤500 HP						✓	✓
Area	Non-Emergency	>500 HP	✓	✓	✓	✓	✓		
	Non-Emergency	300<HP≤500	✓		✓		✓		
	Non-Emergency	≤300 HP						✓	
	Emergency	Any						✓	✓

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Overview of Requirements for Existing SI Engines

Source Status	Use Category	ICE Type	Rating	Operating Hours	Numerical Emission Limits	Control Device Monitor.	Initial Perform. Test	Ongoing Perform. Testing	Initial Notif./ Comp. Reports	Work Practices /Maint. Plan	Hour Meter
Major	Non-Emergency	2SLB	100 - 500 HP	Any	✓		✓		✓		
	Non-Emergency	4SLB	100 - 500 HP	Any	✓		✓		✓		
	Non-Emergency	4SRB	100 - 500 HP	Any	✓		✓		✓		
	Non-Emergency	Landfill	100 - 500 HP	Any	✓		✓		✓		
	Non-Emergency	2SLB	<100 HP	Any						✓	
	Non-Emergency	Not 2SLB	<100 HP	Any						✓	
	Emergency	Any	≤500 HP	Any						✓	✓
Area	Non-Emergency	4SLB	>500 HP	>24 hrs/yr	✓	✓	✓	✓	✓		
	Non-Emergency	4SRB	>500 HP	>24 hrs/yr	✓	✓	✓	✓	✓		
	Non-Emergency	2SLB	Any	Any						✓	
	Non-Emergency	4SLB	≤500 HP	Any						✓	
	Non-Emergency	4SRB	≤500 HP	Any						✓	
	Non-Emergency	Landfill	Any	Any						✓	
	Non-Emergency	4SLB	>500 HP	≤24 hrs/yr						✓	
	Non-Emergency	4SRB	>500 HP	≤24 hrs/yr						✓	
	Emergency	Any	Any	Any						✓	✓

All Existing Emergency CI and SI RICE ≤ 500 HP

- Change oil and filter every 500 hours of operation or annually, whichever comes first (can extend oil change interval if oil is part of oil analysis program and condemning limits are not exceeded)
- Inspect air cleaner on CI engines and spark plugs on SI engines every 1,000 hours of operation or annually, whichever comes first, and replace as necessary;
- Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
- Operate and maintain according to manufacturer's instructions OR implement *maintenance plan* for maintenance and operation consistent with good air pollution control practices
- Must install non-resettable hour meter to record hours of operation of engine.

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RICE MACT Performance Testing for CI Engines**

- ALL CI RICE with NO numerical limits
  - No performance test required
  - Operate in accordance with maintenance plan
- Existing CI RICE $100 \leq HP \leq 500$ @ major source or existing CI RICE $300 \leq HP \leq 500$ @ area source
  - Initial performance test required
- Existing CI RICE $HP \geq 500$ @ major source or existing CI RICE $HP \geq 500$ @ area source
  - Initial performance test and test every 8760 hrs of operation (or 3 yrs)

**If have non-operational RICE subject to performance testing, you do not need to start up engine solely to test – conduct testing when engine is started up again.

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RICE MACT Performance Testing for SI Engines**

- ALL SI engines with NO numerical limits
  - No performance test required
  - Operate in accordance with maintenance plan
- Existing Non-emergency SI RICE 100 ≤ HP ≤ 500 @ major source
  - Initial performance test required
- Existing Non-emergency 4SLB and 4SRB SI RICE > 500 HP that operate > 24 hours per year @ area source
  - Initial performance test and test every 8760 hrs of operation (or 3 yrs)

**If have non-operational RICE subject to performance testing, you do not need to start up engine solely to test – conduct testing when engine is started up again.

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CI Engine Compliance Date

If you have

- An *Existing* non-emergency CI RICE > 500 HP at a major source
- An *Existing* CI RICE ≤ 500 HP at a major source
- Any *Existing* CI RICE at an area source

You must comply with the applicable emission limits and operating limits by no later than

May 3, 2013

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SI Engine Compliance Date

If you have

- *Existing* non-emergency SI RICE > 500 HP at major source, compliance date was June 15, 2007
- *Existing* SI RICE ≤ 500 HP at major source and existing SI RICE at area source –

You must comply with the applicable emission limits and operating limits by no later than

October 19, 2013

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Initial Notification Requirement
(40 CFR 63.6645)

- Initial Notification was required by August 31, 2010 for CI engines with performance testing requirements
- Initial Notification is required by February 16, 2011 for SI engines with performance testing requirements

Example Initial Notification and Submittal Information available on EPA Website at:

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

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Considerations for Engine Rule Applicability

So what does this mean to me?

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Example 1

- Emergency Fire Pump
  - 4SLB, 325 Hp engine (gasoline)
  - Located at a major source
  - Ordered on 4/1/2010
- What requirements apply to the unit?
- Is performance testing required?

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Example 2

- New 600 Hp emergency diesel generator to be purchased and installed in 12/2010
- Will provide back-up power during power failures
- Operation will be limited to 400 hrs/yr
- Located at an HAP area source
- Is the unit subject to emission testing?
- What monitoring is required?
- What if source were major source?

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Other Emerging Air Quality Issues

- Tailoring Rule
  - Will it survive court challenges?
  - What is GHG BACT?
- NAAQS
  - Will common sense prevail in the implementation of the 1-hr NO_2 and SO_2 NAAQS?
- MACT
  - Landmark Portland Cement MACT rule
  - Boiler MACT
  - Utility MACT

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Questions?

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