

Panel Discussion

Gas/Electric Partnership Conference XVII
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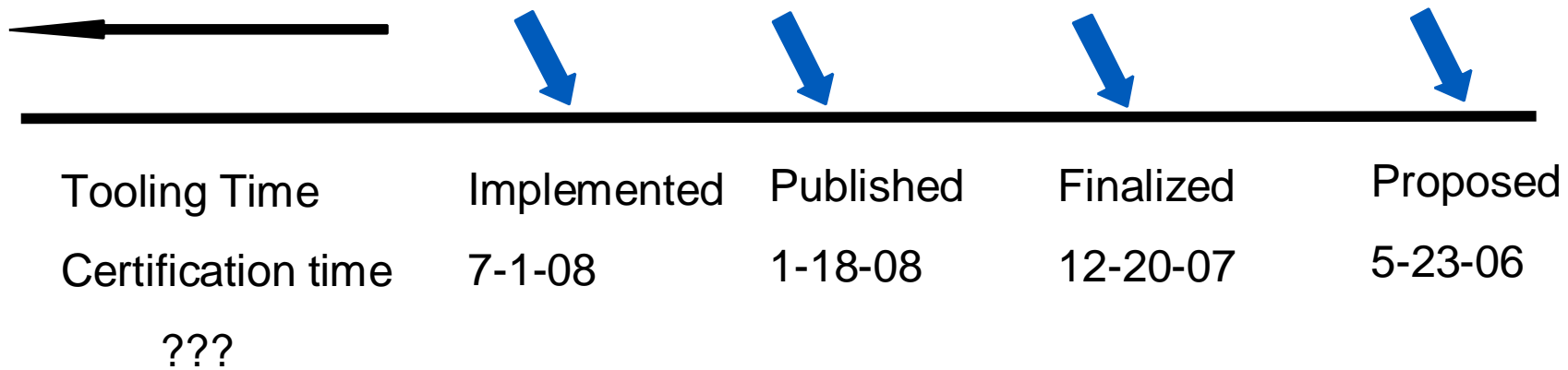
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FEDERAL SI NSPS RULE

An Engine Manufacturer's Perspective of 40CFR60, Subpart JJJJ The Stationary SI NSPS Rule

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Schedule



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Highlights

- No size or power exemptions – all engines covered
- No difference in limits between rich and lean burn engines
- Limits in two stages
 - Stage 1: current to 2010 / 2011
 - Stage 2: 2010 / 2011 and beyond
- Basic limits are readily achievable

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More Highlights

- Emergency, reconstructed, and modified engines have only Stage 1 requirements
- Voluntary manufacturer certification allowed for most segments
- Rule is complex
- Rule includes NESHAPS language

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Overview Requirements / Limits

g/bhp-hr	Commercial and Field Gas	
	Engines >500 Bhp	Engines <500 Bhp
Date	7/07 - 7/10	1/08 - 1/11
NOx	2.0	2.0
CO	4.0	4.0
NMHC	1.0	1.0
	Engines >500 Bhp	Engines <500 Bhp
Date	7/10+	1/11 +
NOx	1.0	1.0
CO	2.0	2.0
NMHC	0.7	0.7

g/bhp-hr	Landfill / Digester / Ag Bio Gasses	
	Engines >500 Bhp	Engines <500 Bhp
Date	7/07 - 7/10	1/08 - 1/11
NOx	3.0	3.0
CO	5.0	5.0
NMHC	1.0	1.0
	Engines >500 Bhp	Engines <500 Bhp
Date	7/10+	1/11 +
NOx	2.0	2.0
CO	5.0	5.0
NMHC	1.0	1.0

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Summary of Emission Limits:

Engine Type/Size	Fuel	Date	SI NSPS REQUIREMENTS 40 CFR 60 JJJJ					40 CFR 90 or 1048	
			Factory Certification	Emissions Requirements	NOx ^a	CO	VOC	HC+NOx	CO
≤ 25HP	ALL	1-Jul-08	Required	40 CFR Part 90 - Class Dependent				9.37	455.0
>25 HP	Gasoline	1-Jul-08	Required	40 CFR Part 1048*				2.0	3.3
≥ 130 HP Emergency	Gasoline	1-Jan-09	Required	40 CFR Part 1048				2.0	3.3
26-129 HP Emergency	Gasoline	1-Jan-09	Required	40 CFR Part 90.103 Phase 1, Class II	10 ^d	387.0	N/A		
>25 HP Rich Burn	LPG	1-Jul-08	Required	40 CFR Part 1048*				2.0	3.3
≥130 HP Rich Burn Emergency	LPG	1-Jan-09	Required	40 CFR Part 1048				2.0	3.3
26-129 HP Rich Burn Emergency	LPG	1-Jan-09	Required	40 CFR Part 90.103, Phase 1, Class II	10 ^d	387.0	N/A		
26-99 HP	NG, LPG	1-Jul-08	Voluntary	40 CFR Part 1048 OR 40 CFR 60 JJJJ*	2.0	4.0	1.0	2.0	3.3
26-99 HP	NG, LPG	1-Jan-11	Voluntary	40 CFR Part 1048*				2.0	3.3
26-129 HP Lean Burn Emergency	NG, LPG	1-Jan-09	Voluntary	40 CFR Part 90.103, Phase 1, Class II	10 ^d	387.0	N/A		
≥ 130 HP Lean Burn Emergency	NG, LPG	1-Jan-09	Voluntary	40 CFR 60 JJJJ Table 1	2.0	4.0	1.0		
26-129 HP Rich Burn Emergency	NG	1-Jan-09	Voluntary	40 CFR Part 90.103, Phase 1, Class II	10 ^d	387.0	N/A		
≥ 130 Hp Rich Burn Emergency	NG	1-Jan-09	Voluntary	40 CFR 60 JJJJ Table 1	2.0	4.0	1.0		
100 - 499 HP	NG	1-Jul-08	Voluntary	40 CFR 60 JJJJ Table 1 OR 40 CFR Part 1048	2.0	4.0	1.0	2.0	3.3
100 - 499 HP	NG	1-Jan-11	Voluntary	40 CFR 60 JJJJ Table 1	1.0	2.0	0.7		
100-499 HP Lean Burn	LPG	1-Jul-08	Voluntary	40 CFR 60 JJJJ Table 1 OR 40 CFR Part 1048	2.0	4.0	1.0	2.0	3.3
100-499 HP Lean Burn	LPG	1-Jan-11	Voluntary	40 CFR 60 JJJJ Table 1 OR 40 CFR Part 1048	1.0	2.0	0.7	2.0	3.3
500 - 1349 HP Lean Burn	NG, LPG	1-Jan-09	Voluntary	40 CFR 60 JJJJ Table 1 OR 40 CFR Part 1048	2.0	4.0	1.0	2.0	3.3
500 - 1349 HP Lean Burn	NG, LPG	1-Jul-10	Voluntary	40 CFR 60 JJJJ Table 1	1.0	2.0	0.7		
≥500 HP Rich Burn	NG	1-Jul-07	Voluntary	40 CFR 60 JJJJ Table 1 OR 40 CFR Part 1048	2.0	4.0	1.0	2.0	3.3
≥500 HP Rich Burn	NG	1-Jul-10	Voluntary	40 CFR 60 JJJJ Table 1	1.0	2.0	0.7		
≥1350 HP Lean Burn	NG, LPG	1-Jul-07	Voluntary	40 CFR 60 JJJJ Table 1 OR 40 CFR Part 1048	2.0	4.0	1.0	2.0	3.3
≥1350 HP Lean Burn	NG, LPG	1-Jul-10	Voluntary	40 CFR 60 JJJJ Table 1	1.0	2.0	0.7		
<500 HP	Landfill/Digester	1-Jul-08	Voluntary	40 CFR 60 JJJJ Table 1 OR 40 CFR Part 1048	3.0	5.0	1.0	2.0	3.3
<500 HP	Landfill/Digester	1-Jan-11	Voluntary	40 CFR 60 JJJJ Table 1	2.0	5.0	1.0		
500-1349 Lean Burn	Landfill/Digester	1-Jan-08	Voluntary	40 CFR 60 JJJJ Table 1 OR 40 CFR Part 1048	3.0	5.0	1.0	2.0	3.3
500-1349 Lean Burn	Landfill/Digester	1-Jul-10	Voluntary	40 CFR 60 JJJJ Table 1	2.0	5.0	1.0		
≥500 HP Rich Burn	Landfill/Digester	1-Jul-07	Voluntary	40 CFR 60 JJJJ Table 1 OR 40 CFR Part 1048	3.0	5.0	1.0	2.0	3.3
≥500 HP Rich Burn	Landfill/Digester	1-Jul-10	Voluntary	40 CFR 60 JJJJ Table 1	2.0	5.0	1.0		
≥1350 HP Lean Burn	Landfill/Digester	1-Jul-07	Voluntary	40 CFR 60 JJJJ Table 1 OR 40 CFR Part 1048	3.0	5.0	1.0	2.0	3.3
≥1350 HP Lean Burn	Landfill/Digester	1-Jul-10	Voluntary	40 CFR 60 JJJJ Table 1	2.0	5.0	1.0		

a. g/bhp-hr b. NOx+HC

*NOTE: All engines less than 40 HP and 1,000 cc total displacement may be certified to requirements of 40 CFR 90.

Courtesy Engine Manufacturers Association (EMA)

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Why Voluntary Certification?

- Gaseous fuel variability
 - Wide range of gaseous fuels
 - Variation with location
 - Variation with time
 - Requires adjustable fuel systems
- Not practical
 - Too many fuels to test

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Some Details

- SI NSPS Rule does not preempt more stringent state or local requirements!
- All engines must be labeled – both certified and uncertified
- Operators must follow factory maintenance specifications for factory certified engines

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Some More Details

- Certified emissions life of 5000 hours (or normal free warranty period) or 7 years, whichever comes first.
- Relationship between consultant, engine manufacturer, aftertreatment manufacturer, and packager responsibilities has not yet been clarified by EPA.
- EPA Reference Test Methods or ASTM portable test methods must be used for all required testing

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Recordkeeping and Reporting Requirements Include:

- Startup, Shutdown, and maintenance plan
- Initial notifications (when specified)
- Maintenance records
- Periodic reporting and deviation notification
- Parametric monitoring
- Emergency engines must record hours of use and reasons for use

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NESHAP rulemaking is included in the same EPA rule as the SI NSPS

- All area sources
- Engines \leq 500 bhp located at major sources
- Includes diesel (CI) engines

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Will Manufacturers Provide Certified SI Gas Engines?

Depends on several factors:

- Engine family sales volume – certification more likely with high volume families
- Engine sales demographics – limited certification value in many areas
- Manufacturer familiarity with the certification process
- Customer demand / acceptance
- Cost to benefit analysis

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Are Non-Certified SI Gas Engines Acceptable?

- **YES!**
- Can be used in all parts of the US
- Fully acceptable to the US EPA
 - Must meet SI NSPS emission limits at a minimum
- Remain subject to local regulation, permitting, and source testing

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Disclaimer

The information presented is based on Waukesha's understanding of the SI NSPS Rule and is believed to be reliable. However, Waukesha cannot guarantee the accuracy or completeness of the information. The author and Waukesha are supplying information but are not attempting to provide legal, engineering, or other professional services.

THANK YOU!