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Demand Response Programs - What You Need to Know

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Agenda

- > Brief Summary of Engine Rules
- > Deep Dive - Demand Response Language
- > Lessons Learned
- > Tier Standards
- > Quick Notes About Permitting



Engine Rules Summary

- > New Source Performance Standards
 - ❖ NSPS IIII applies to new, modified, or reconstructed stationary compression ignition (CI) engines
 - ❖ NSPS JJJJ applies to new, modified, or reconstructed stationary spark ignition (SI) engines
- > National Emission Standards for Hazardous Air Pollutants
 - ❖ NESHAP ZZZZ applies to all stationary reciprocating internal combustion engines (RICE) with a few notable exceptions

Compliance Date - CI RICE

> If you have

- ❖ An *existing* non-emergency CI RICE > 500 HP at a major source
- ❖ An *existing* CI RICE \leq 500 HP at a major source
- ❖ Any *existing* CI RICE at an area source

> Compliance date is

May 3, 2013

*Compliance date was June 15, 2007 for all other existing CI RICE

Compliance Date - SI RICE

- > If you have
 - ❖ *Existing* SI RICE \leq 500 HP at major source
 - ❖ *Existing* SI RICE at area source
- > Compliance date is

October 19, 2013

*Compliance date was June 15, 2007 for all other existing SI RICE

Engines NOT Subject to RICE MACT

- > These are the only engines NOT SUBJECT to RICE MACT
 - ❖ Existing commercial, institutional, and residential emergency RICE at area sources
 - ◆ To meet exemption, must comply with emergency use operation requirements defined in 40 CFR 63.6640(f)
 - ◆ To meet exemption, cannot operate and **or be contractually obligated to be available** for more than 15 hours per calendar year for emergency demand response (DR) or periods where there is a deviation of voltage or frequency of 5% below standard (40 CFR 63.6585)

Demand Response - The Details



Breaking Down Demand Response (1 of 6)

- > We will concentrate on NESHAP ZZZZ, but realize **(almost)** identical provisions are contained in NSPS IIII and NSPS JJJJ
- > Let's step through the DR section piece by piece as it is fairly complicated
- > Restrictions on how an emergency engine can be operated [40 CFR 63.6640(f)]
 - ❖ There is no time limit on the use of emergency stationary RICE in emergency situations [40 CFR 63.6640(f)(1)]

Breaking Down Demand Response (2 of 6)

- > Can operate for 100 hours per year for any combination of the following [40 CFR 63.6640(f)(2)]:
 - ❖ Maintenance checks and readiness testing
 - ❖ “Emergency” situations
 - ❖ NERC Reliability Coordinator or other authorized entity declares an Energy Emergency Alert Level 2 as defined by NERC Reliability Standard EOP-002-3
 - ◆ This is emergency demand response (EDR)
 - ◆ **Note how specific this is!** A fair number of DR contracts have similar emergency levels, but this doesn’t say “or similar”
 - ◆ Other programs fall into non-emergency discussed in next section
 - ❖ Deviation of voltage or frequency of 5% or greater below standard voltage or frequency

Breaking Down Demand Response (3 of 6)

> Major Sources [40 CFR 63.6640(f)(3)]

- ❖ Emergency engines can be operated for up to 50 hours per year in non-emergency situations
- ❖ Counts toward 100 hours
- ❖ **Cannot be used for peak shaving, non-emergency DR, or supplying power to grid**

> Area Sources [40 CFR 63.6640(f)(4) & (f)(4)(i)]

- ❖ Emergency engines can be operated for up to 50 hours per year in non-emergency situations
- ❖ Counts toward 100 hours
- ❖ Can be used for peak shaving (load management) prior to May 3, 2014 if:
 - ◆ Operated as part of program with local distribution system operator and power provided only to facility itself or to support local distribution system
 - ◆ **This does not include regional programs!** Agreement has to be with the local operator.

Breaking Down Demand Response (4 of 6)

- > Area Sources - 50 hours for non-emergency can be used to supply power as part of financial arrangement if all criteria are met [40 CFR 63.6640(f)(4)(ii)]:
 - ❖ Engine is dispatched by local balancing authority or system operator
 - ❖ Dispatch to mitigate local voltage collapse or line overloads causing interruption of power in local area
 - ❖ Dispatch follows NERC, regional, state, public utility commission or local emergency protocols/standards/guidelines
 - ❖ Power is provided only to the facility itself or to support the local system...**AND**...

Breaking Down Demand Response (5 of 6)

- > Area Sources - 50 hours for non-emergency can be used to supply power as part of financial arrangement if all criteria are met [40 CFR 63.6640(f)(4)(ii)] (con't)
 - ❖ Owner/operator identifies and records the entity that dispatches the engine standards or guidelines that are being followed
 - ◆ The local authority or operator may keep these records on behalf of the engine owner or operator
 - ◆ Be careful with relying on others to keep records for you
 - ❖ Important note - this section does not have a “sunset” provision as there was on the previous slide

Breaking Down Demand Response (6 of 6)

- > So why are the NSPS rules **almost** identical?
 - ❖ One year “grace period” for peak shaving units at area sources is not included
 - ❖ Must meet all criteria listed on previous two slides
- > What if my facility decides to operate in a non-emergency manner?
 - ❖ Depending on engine size, may be required to retrofit with add-on controls
 - ❖ Count both initial capital and ongoing costs such as stack testing, data collection and reporting, additional maintenance requirements

What About Reporting?

- > Reporting required for emergency RICE > 100 HP if
 - ❖ Operated or contractually obligated to be available > 15 hours per year (up to 100 hours per year) in emergency demand response
 - ❖ Operated for periods where there is deviation of voltage or frequency $\geq 5\%$ below standard
 - ❖ Operated for local grid system reliability (up to 50 hours per year)
- > Annual reporting begins during 2015 calendar year
 - ❖ First report due 3/31/2016
 - ❖ Company name & location
 - ❖ Date of report
 - ❖ Engine site rating and model year
 - ❖ Engine location (latitude and longitude)
 - ❖ Hours operated for purposes outlined above

Lessons Learned & Questions Answered

- > Every contract with every entity must be read in great detail
- > So far, very few contracts have met the definition of emergency DR included in the final rule
- > Don't forget to **check state/local rules** on demand response participation
 - ❖ Requirements vary widely from state to state
- > For engine non-exempt because contractually obligated to operate in EDR and contract expires can become exempt
 - ❖ Even after compliance date
- > RICE using “grace period” for peak shaving can use time to retrofit engine to meet non-emergency standards
- > “Dispatching” an engine can simply be a notification that power will soon be cut to the facility
 - ❖ In other words, it doesn't have to be an electronic/automated dispatch

A Word About Tier Standards

- > NSPS III requires that all engines subject to the rule meet certain tier standards
- > Four levels of emission standards = Tier 1 through Tier 4
- > Emergency engines are not required to meet Tier 4 standard (most stringent)
 - ❖ Even if Tier 4 would normally be required for that engine size and model year
- > Need to be careful to operate within the bounds of the emergency engine definition if purchasing an engine that does not meet non-emergency engine tier standard

Let's Talk Permitting

- > What does all of this have to do with permitting?
 - ❖ Operating in a DR program (even if it is EDR) may require re-evaluation of a previous permitting determination
 - ◆ Some states don't consider EDR programs to be “emergency” operation
 - ❖ Many states have permitting exemptions for emergency engines
 - ◆ May exempt based on category
 - ◆ May exempt based on calculating potential emissions at 500 hrs/yr of operation
 - ◆ If you operate in an EDR or non-EDR program you may be required to base your potential emissions on **running 8,760 hrs/yr!**

Questions?



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