



Summary of Pending Biomass Combustion Regulations

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Summary of Regulations



There are three proposed regulations regarding the combustion of biomass:

- New Source Performance Standard (NSPS)
 - 40 CFR, Part 60, Subpart CCCC [4-D]
- Solid Waste Combustion
 - 40 CFR, Part 241
- National Emissions Standards for Hazardous Air Pollutants (NESHAP)
 - 40 CFR, Part 63, Subpart DDDDD [5-D]
 - 40 CFR, Part 63, Subpart JJJJJJ [6-J]

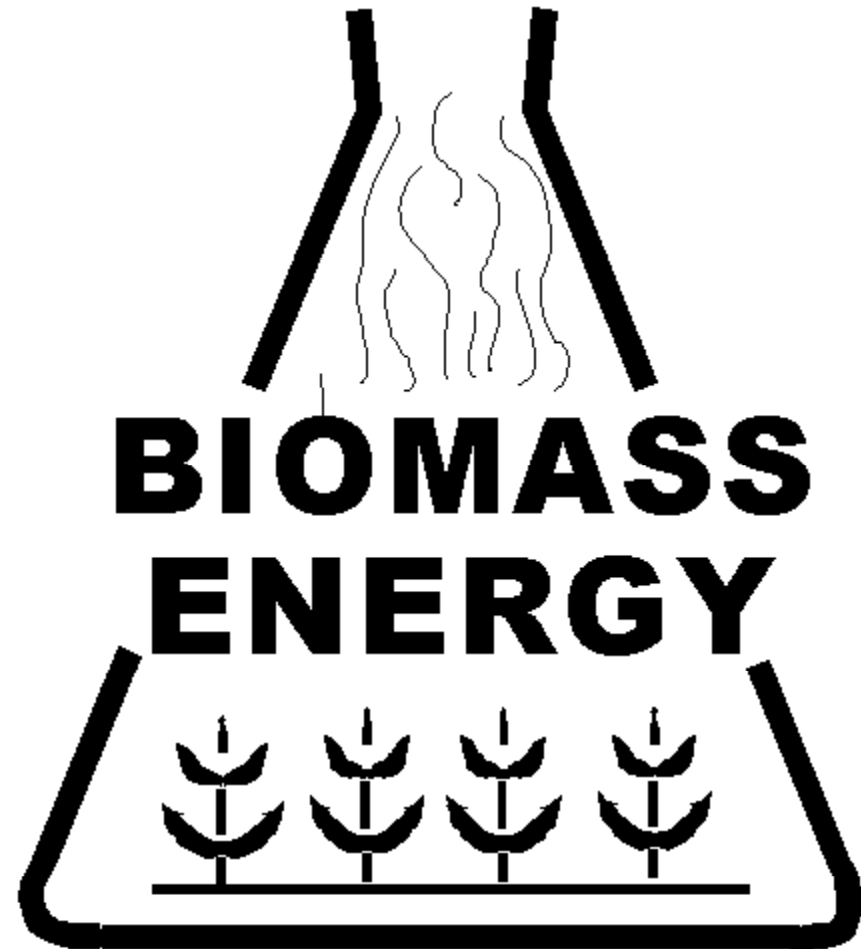


What is biomass?



Biomass is all plant material, or vegetation, either raw or processed, wild or cultivated

- Trees & Grass
- Agricultural Residues
- Wood Waste
- Methane (landfills, livestock, waste treatment, etc.)





NSPS 40 CFR, Part 60, Subpart CCCC



- Applicable to two categories of commercial and industrial solid waste incinerators (CISWI):
 - Construction commenced after June 4, 2010; or
 - Reconstruction/modification commenced >6 months six months after final rule published in the Federal Register
- CISWI: any commercial or industrial furnace, used in the process of combusting solid waste (RCRA, Subtitle D; see 40 CFR, Part 241) for the purpose of removing combustible matter from the waste



NSPS 40 CFR, Part 60, Subpart CCCC



The following furnaces are exempt from the NSPS:

1. Pathological and medical waste incinerators
2. Municipal waste incinerators
3. Small power production facilities
4. Cogeneration facilities
5. Hazardous waste incinerators with a Solid Waste Disposal Act Section 3005 permit
6. Material recovery units
7. Incinerators located at sewage treatment plants



NSPS 40 CFR, Part 60, Subpart CCCC



The following pollutants are regulated:

1. Cadmium (Cd)
2. Carbon Monoxide (CO)
3. Dioxins/Furans
4. Hydrogen Chloride (HCl)
5. Lead (Pb)
6. Mercury (Hg)
7. Opacity
8. Nitrogen Oxides (NO_x)
9. Particulate Matter (PM)
10. Sulfur Dioxide (SO₂)
11. Fugitive Ash (as Visible Emissions)

Emissions rates determined via air emission testing (stack test)



NSPS 40 CFR, Part 60, Subpart CCCC



- Successful stack test establishes operating limits / parameters for operation
- Continuous Emissions Monitoring Systems (CEMS) required for kilns (Hg), energy recover units (CO & opacity/PM)
- All new units must complete a siting analysis in which the air pollution control alternatives to the CISWI that minimize, to the maximum extent practicable, potential risks to public health or the environment are considered, including not constructing the CISWI



40 CFR, Part 241



This regulation details the methods for determining if the material being combusted is a solid waste.

1. Non-hazardous Secondary Materials Used as a Fuel
 - Materials used as a fuel in a combustion unit that remains within the control of the generator
2. Non-hazardous Secondary Materials Used as an Ingredient
 - Materials used as an ingredient in a combustion unit



40 CFR, Part 241



Legitimacy Criteria for Fuel / Materials:

1. Not a hazardous waste if discarded (40 CFR, Part 261)
2. Managed as a valuable commodity;
3. Storage does not exceed reasonable timeframes;
4. Adequately contained to prevent releases;
5. Where there is an analogous fuel/ingredient, the material must be managed in a consistent manner;
6. Have a meaningful heating value and be used as a fuel in a combustion unit that recovers energy or provide a useful contribution to manufacturing process
7. Contain contaminants at levels comparable or lower to those in traditional fuels / ingredients in the unit



NESHAP 40 CFR, Part 63, Subpart DDDDD (Major)



- Major Boiler MACT applies to all new and existing industrial, institutional, and commercial boilers and process heaters located at a major source of hazardous air pollutants (HAP); ≥ 10 tpy 1 HAP, ≥ 25 tpy 1+ HAP
- New sources constructed or reconstructed after June 4, 2010
- Existing sources prior to June 4, 2010
- Non-major sources subject to NESHAP 40 CFR, Part 63, Subpart JJJJJJ (Area Source Boiler MACT)



NESHAP 40 CFR, Part 63, Subpart DDDDD (Major)



Exemptions:

1. Electric utility steam generating unit.
2. Boiler or process heater that is used specifically for research and development (not supplying to R&D)
3. Hot water heaters: closed vessel, gaseous or liquid fuel, ≤ 120 U.S. gallon capacity, water withdrawn for use external to vessel, pressure not exceeding 160 psig, and water temperature not exceeding 210°F (99°C)
4. Blast furnaces or any boiler or process heater specifically listed in another MACT standard(s)
5. Temporary boilers: any gaseous or liquid fuel boiler at the location for less than 180 days



NESHAP 40 CFR, Part 63, Subpart DDDDD (Major)



The following pollutants are regulated:

1. Carbon Monoxide (CO)
2. Dioxins/Furans
3. Hydrogen Chloride (HCl)
4. Mercury (Hg)
5. Particulate Matter (PM)

Emissions rates determined via air emission testing
(stack test)

Successful stack test establishes operating limits /
parameters for operation



NESHAP 40 CFR, Part 63, Subpart DDDDD (Major)



- CEMS (PM) required for units ≥ 250 million British thermal units per hour (MMBTU/hr) and (CO) required for units ≥ 100 MMBTU/hr
- An energy assessment is required for most sources.
- Sources less than 10 MMBTU/hr are required to conduct biennial tune-ups.
- Sources firing gaseous fuels must conduct an annual tune-up.



NESHAP 40 CFR, Part 63, Subpart JJJJJJ (Area)



- Area Boiler MACT applies to all new and existing industrial, institutional, and commercial boilers and process heaters located at an area source of hazardous air pollutants (HAP); <10 tpy 1 HAP, <25 tpy 1+ HAP
- New sources constructed or reconstructed after June 4, 2010
- Existing sources prior to June 4, 2010
- Major sources subject to NESHAP 40 CFR, Part 63, Subpart DDDDD (Major Source Boiler MACT)



NESHAP 40 CFR, Part 63, Subpart JJJJJJ (Area)



Exemptions:

1. Boiler or process heater specifically listed in another MACT or Clean Air Act 129 Section standard(s)
2. Solid Waste Disposal Act Section 3005 permit boilers
3. Boiler or process heater that is used specifically for research and development (not supplying to R&D)
4. Gas-fired boilers: burn gaseous fuels; no solid fuels; only burning liquid fuels during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuel, (periodic testing not exceed 48 hours during any calendar year)



NESHAP 40 CFR, Part 63, Subpart JJJJJJ (Area)



The following pollutants are regulated:

1. Carbon Monoxide (CO)
2. Mercury (Hg)
3. Particulate Matter (PM)

Biomass only subject to CO limits

Emissions rates determined via air emission testing (stack test) and site-specific fuel analysis plan

Successful stack test establishes operating limits / parameters for operation



NESHAP 40 CFR, Part 63, Subpart JJJJJJ (Area)



- CEMS (CO) required for units ≥ 100 MMBTU/hr
- An energy assessment and fuel analysis are required for most sources.
- Sources less than 10 MMBTU/hr are required to conduct biennial tune-ups.