

EMISSIONS STANDARDS

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Emissions standards for Thailand are set by the Pollution Control Department of the Ministry of Natural Resources and Environment under the authority of the [National Environmental Quality Promotion and Preservation Act \(1992\)](#). Emission standards for new power plants operating after 5 January 2010 were published in the Royal Thai Government Gazette, volume 127, section 7 (15 Jan 2010) in the [Announcement on the regulation of emission standards for waste air from new power plants](#) and the [Announcement Re: Establishment of a new power plant as a source of pollution that must be controlled to release polluted air into the atmosphere](#). These provide limits for the emission of SO₂, NO_x and particulate matter from new fuel burning power plants. Emission standards for existing power plants are covered in the Royal Thai Government Gazette, volume 113, section 9 (30 Jan 1996) in the [Announcement on setting standards for waste air emissions from power plants](#) and the [Announcement: Determining that the power plant is the source of pollution that must be controlled to discharge waste air into the environment](#). These provide limits for the emission of SO₂, NO_x, particulate matter and other chemicals from industrial processes.

The Pollution Control Department’s website contains a [summary](#) of all of the emission standards.

The emission limits in the following tables for SO₂ have been converted into mg/m³ under the assumption that 1 ppm = molecular weight of SO₂ (64.06 g/mol) divided by a constant (22.41), that is, ppm x 2.86. Those for NO_x have been converted into mg/m³ under the assumption that 1 ppm = molecular weight of NO + NO₂ (46.01 g/mol) divided by a constant (22.41), that is, ppm x 2.05.

Emission standards for new power plants

The emission standards for new power plants replaced the earlier standards issued on 30 January 1996. They apply to plants generating, transmitting, or distributing electricity that acquired a permit for operation or expansion after 15 January 2010.

Emission standards for new coal-fired power plants

Capacity, MW	Particulate matter, mg/m ³	SO ₂ , ppm	NO _x (as NO ₂), ppm
≤50	80	360 (1030 mg/m ³)	200 (410 mg/m ³)
>50	80	180 (515 mg/m ³)	200 (410 mg/m ³)

Note: Reference conditions are 25 °C at 101.3 kPa (1 atm) or 760 mmHg on a dry flue gas basis, with 50% of excess air or 7% of O₂ during combustion.

Emission standards for existing power plants

The emission standards for existing power plants apply to power plants that acquired a license for operation or expansion after 30 January 1996 (but before 15 January 2010).

Emission standards for existing coal-fired power plants

Capacity, MW	Particulate matter, mg/m ³	SO ₂ , ppm	NO _x (as NO ₂), ppm
>500	120	320 (912 mg/m ³)	350 (717 mg/m ³)
300 – 500	120	450 (1287 mg/m ³)	350 (717 mg/m ³)
<300	120	640 (1830 mg/m ³)	350 (717 mg/m ³)

Note: Reference conditions are 25 °C at 101.3 kPa (1 atm) or 760 mmHg on a dry flue gas basis, with 50% of excess air or 7% of O₂ during combustion.

Emission standards for plants using mixed fuels

For power plants that utilise mixed fuels (coal, oil and/or natural gas), for each generating unit the emission standard is calculated based upon the ratio of each fuel type as follows:

$$\text{Emission standard} = AX + BY + CZ$$

where:

- A = emission standard when only coal is used
- B = emission standard when only oil is used
- C = emission standard when only gas is used
- X = ratio of heat input from coal
- Y = ratio of heat input from oil
- Z = ratio of heat input from gas

For power plants that utilise mixed fuels (coal, oil, natural gas and/or biomass), for each generating unit the emission standard is calculated based upon the ratio of each fuel type as follows:

$$\text{Emission standard} = AW + BX + CY + DZ$$

where:

- A = emission standard when only coal is used
- B = emission standard when only oil is used
- C = emission standard when only gas is used
- D = emission standard when only biomass is used
- W = ratio of heat input from coal
- X = ratio of heat input from oil
- Y = ratio of heat input from gas
- Z = ratio of heat input from biomass

Emission standards for Mae Moh power plant

Separate emission standards for Mae Moh power plant were announced in the Government Gazette, volume 118, section 24 (16 Mar 2001) in [Announcement No. 3 \(BE 2544\) Re: Determination of Emission Standards for Mae Moh Power Plant.](#)

Emission standards for Mae-Moh power plant

Unit	Particulate matter, mg/m ³	SO ₂ *, ppm	NO _x (as NO ₂), ppm
Group 1: units 1 – 3	180	1300 (3718 mg/m ³)	500 (1025 mg/m ³)
Group 2: units: 4 - 7	180	320 (915 mg/m ³)	500 (1025 mg/m ³)
Group 3: units 8 - 13	180	320 (915 mg/m ³)	500 (1025 mg/m ³)

* Sulphur dioxide emissions for all units must not exceed 11 tons per hour.

Emission standards for old power plants

The emission standards for specified old power plants were announced in the Government Gazette, volume 116, section 108 (27 Dec 1999) in [Announcement No. 2 \(BE 2542\) Re: Prescribing standards for the control of emissions of polluted air from old power plants](#) and the [Announcement No. 2 \(1999\) Re: Determining that old power plants are the source of pollution that must be controlled to discharge waste air into the environment.](#)

Emission standards for old power plants

Power plant		Particulate matter, mg/m ³	SO ₂ , ppm	NO _x (as NO ₂), ppm
Bangpakong (thermal power) units 1 – 4		120	320 (915 mg/m ³)	200 (410 mg/m ³)
Bangpakong (combined heat power)	Units 1 and 2	60	60 (172 mg/m ³)	450 (922 mg/m ³)
	Units 3 and 4	60	60 (172 mg/m ³)	230 (471 mg/m ³)
Phra Nakhon Tai (thermal power) units 1 and 2		120	320 (915 mg/m ³)	180 (369 mg/m ³)
Phra Nakhon Tai (combined heat power)	Unit 1	60	60 (172 mg/m ³)	250 (512 mg/m ³)
	Unit 2	60	60 (172 mg/m ³)	175 (359 mg/m ³)
North Bangkok		150	500 (1430 mg/m ³)	180 (369 mg/m ³)
Surat Thani		320	1000 (2860 mg/m ³)	200 (410 mg/m ³)
Lan Krabue		60	60 (172 mg/m ³)	250 (512 mg/m ³)
Nong Chok		60	60 (172 mg/m ³)	230 (471 mg/m ³)
Sai Noi		60	60 (172 mg/m ³)	230 (471 mg/m ³)
Wang Noi		60	60 (172 mg/m ³)	175 (359 mg/m ³)
Nam Phong		60	60 (172 mg/m ³)	250 (512 mg/m ³)
Others (using coal)		320	700 (2002 mg/m ³)	400 (820 mg/m ³)

Reference conditions are 25 °C at 101.3 kPa (1 atm) or 760 mmHg on a dry flue gas basis, with 50% of excess air or 7% of O₂ during combustion.

Emission standards for industrial processes

The emission standards for industrial processes cover production processes with or without fuel consumption for boilers or the production process itself. These regulations were announced in the [Ministry of Natural Resources and Environment, volume 123, section 50, Issue of the Standard for Air Pollution Control from Industrial Plants, dated 18 May 2006](#), and in the [Announcement Subject to industrial factories is the source of pollution that must be controlled to discharge waste air into the atmosphere](#).

Emission standards for coal-burning boilers or furnaces

Pollutant	Emission limit
Particulate matter, mg/m ³	320
SO ₂ , ppm	700 (2002 mg/m ³)
NO _x (as NO ₂), ppm	400 (820 mg/m ³)

Reference conditions are 25 °C at 101.3 kPa (1 atm) or 760 mmHg on a dry flue gas basis, with 50% of excess air or 7% of O₂ during combustion.

This paper reflects the IEACCC understanding of the relevant legislation and is not a substitute for the official version. The IEACCC does not guarantee the accuracy of the data included in this paper and accepts no responsibility for any consequences of their use.

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