

## Non-Road Certified Emission Standards

### Baseline NO<sub>x</sub> Emission Rate

For these calculations, the baseline NO<sub>x</sub> emission rate will normally be the federal NO<sub>x</sub> emission standard for the model year and horsepower of the baseline (old) engine. The federal NO<sub>x</sub> emission standards for non-road equipment are presented in Tables below. In situations where the model year of the equipment and the model year of the engine are different, the model year of the engine should be used for determining the standard to apply.

In some model years, the EPA used a combined NO<sub>x</sub> + NMHC (non-methane hydrocarbons) standard. For the standards listed in NO<sub>x</sub> + NMHC, the TCEQ will use a NO<sub>x</sub> fraction of 0.95 for diesel engines and 0.80 for alternative fuel engines to determine the NO<sub>x</sub>-only emissions based on the combined standards.

### Non-Road Diesel Compression Ignition Engine NO<sub>x</sub> Emission Standards By Model Year

#### **Engine Power (hp): Equal to or greater than 25hp (19 kW but less than 50hp (37kW)**

Tier	Model Year	Emissions (NO <sub>x</sub> ) g/bhp-hr	Emissions (NO <sub>x</sub> + NMHC) g/bhp- hr
Tier 0 (uncontrolled)	pre-1999	7.2	N/A
Tier 1	1999-2003	6.745	7.1
Tier 2	2004-2012	5.32	5.6
Tier 4	2013+	3.325	3.5

#### **Engine Power (hp): Equal to or greater than 50hp (37 kW but less than 75hp (56kW)**

Tier	Model Year	Emissions (NO <sub>x</sub> ) g/bhp-hr	Emissions (NO <sub>x</sub> + NMHC) g/bhp- hr
Tier 0 (uncontrolled)	pre-1998	8.8	N/A
Tier 1	1998-2003	6.9	N/A
Tier 2	2004-2007	5.32	5.6
Tier 3	2008-2013	3.325	3.5
Tier 4	2013+	3.325	3.5

**Engine Power (hp): Equal to or greater than 75hp (56 kW but less than 100hp (75kW)**

Tier	Model Year	Emissions (NO <sub>x</sub> ) g/bhp-hr	Emissions (NO <sub>x</sub> + NMHC) g/bhp-hr
Tier 0 (uncontrolled)	pre-1998	8.8	N/A
Tier 1	1998-2003	6.9	N/A
Tier 2	2004-2007	5.32	5.6
Tier 3	2008-2012	3.325	3.5
Tier 4 (Phase-In)	2012-2013	0.30-3.325 <sup>1</sup>	N/A
Tier 4	2014+	0.30	N/A

**Engine Power (hp): Equal to or greater than 100hp (75 kW but less than 175hp (130kW)**

Tier	Model Year	Emissions (NO <sub>x</sub> ) g/bhp-hr	Emissions (NO <sub>x</sub> + NMHC) g/bhp-hr
Tier 0 (uncontrolled)	pre-1997	9.5	N/A
Tier 1	1997-2002	6.9	N/A
Tier 2	2003-2006	4.655	4.9
Tier 3	2007-2011	2.85	3.0
Tier 4 (Phase-In)	2012-2013	0.30-2.85 <sup>1</sup>	N/A
Tier 4	2014+	0.30	N/A

**Engine Power (hp): Equal to or greater than 175hp (130 kW but less than 300hp (225kW)**

Tier	Model Year	Emissions (NO <sub>x</sub> ) g/bhp-hr	Emissions (NO <sub>x</sub> + NMHC) g/bhp-hr
Tier 0 (uncontrolled)	pre-1996	9.3	N/A
Tier 1	1996-2002	6.9	N/A
Tier 2	2003-2005	4.655	4.9
Tier 3	2006-2010	2.85	3.0
Tier 4 (Phase-In)	2011-2013	0.30-2.85 <sup>1</sup>	N/A
Tier 4	2014+	0.30	N/A

**Engine Power (hp): Equal to or greater than 300hp (225 kW but less than 600hp (450kW)**

Tier	Model Year	Emissions (NO <sub>x</sub> ) g/bhp-hr	Emissions (NO <sub>x</sub> + NMHC) g/bhp-hr
Tier 0 (uncontrolled)	pre-1996	9.5	N/A
Tier 1	1996-2000	6.9	N/A
Tier 2	2001-2005	4.56	4.8
Tier 3	2006-2010	2.85	3.0
Tier 4 (Phase-In)	2011-2013	0.30-2.85 <sup>1</sup>	N/A
Tier 4	2014+	0.30	N/A

**Engine Power (hp): Equal to or greater than 600hp (450 kW but less than 750hp (560kW)**

Tier	Model Year	Emissions (NO <sub>x</sub> ) g/bhp-hr	Emissions (NO <sub>x</sub> + NMHC) g/bhp-hr
Tier 0 (uncontrolled)	pre-1996	9.7	N/A
Tier 1	1996-2001	6.9	N/A
Tier 2	2002-2005	4.56	4.8
Tier 3	2006-2010	2.85	3.0
Tier 4 (Phase-In)	2011-2013	0.30-2.85 <sup>1</sup>	N/A
Tier 4	2014+	0.30	N/A

**Engine Power (hp): Equal to or greater than 750hp (560 kW)**

Tier	Model Year	Emissions (NO <sub>x</sub> ) g/bhp-hr	Emissions (NO <sub>x</sub> + NMHC) g/bhp-hr
Tier 0 (uncontrolled)	pre-2000	9.1	N/A
Tier 1	2000-2005	6.9	N/A
Tier 2	2006-2010	4.56	4.8
Tier 4 (Phase-In)	2011-2014	2.6/0.50 <sup>2</sup>	N/A
Tier 4	2015+	2.6/0.50 <sup>3</sup>	N/A

Note: For calculations use the NO<sub>x</sub> g/bhp-hr column. NO<sub>x</sub> + NMHC g/bhp-hr column is listed for reference only.

<sup>1</sup> These standards are phased-in during the indicated years. At least 50% of a manufacturer's engine production must meet these standards during each year of the phase-in. Therefore, it is not guaranteed

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that a Tier 4 (Phase-In) equipment and/or engine will meet the lower standard. If an applicant proposes to purchase a Tier 4 (Phase-In) equipment and/or engine, the applicant must certify, in the application, the emission level that the new equipment and/or engine will meet. Copies of the form certifying the engine family to the lower emission standard must be provided. If it is not yet known what emission standard to which the engine will be certified, then use the Tier 3 standard.

<sup>2</sup> The 0.50g/bhp-hr standard applies to gensets to over 1200 hp.

<sup>3</sup> Applies to all gensets