



# GMR WARORA ENERGY LIMITED

## Stack Emission Concentration

**Table - 1: Emission Concentration (mg/Nm<sup>3</sup>)**

Emission Parameters	2020 - 21	2021 - 22	2022 - 23	2023 - 24
NO <sub>x</sub>	260	276	304	335
SO <sub>x</sub>	1110	1135	1121	1123
Dust Emission	38	37	36.2	35
Direct Mercury Emission	0.0012	0.0013	0.0025	0.0036

Above Emission parameters are reported in Environment Statement (Form V) to Maharashtra Pollution Control Board. compliance with statutory requirement Unit of measurement used here was mg/Nm<sup>3</sup>.

AS per CSA questionnaire we converted this into Metric Ton (MT)/Annum as follows:

- 1. Identify the flow rate:** Determine the flow rate of the gas in Nm<sup>3</sup>/day by multiply with 24 with flow rate (Nm<sup>3</sup>/hr). Flow rate is being calculate from Iso - kinetic stack monitoring in (Nm<sup>3</sup>/hr).
- 2. Convert mg to kg:** Since 1 kg = 1,000,000 mg, we convert mg to kg divided by 1000000.
- 3. Average Flow Rate for FY 2023 - 24 is 59639616 Nm<sup>3</sup>/day.**

$$\text{Emission Concentration (kg/day)} = \left[ \frac{\text{Emission Concentration (mg/Nm}^3\text{)} \times 24}{1,000,000} \right] \times \text{Flow Rate (Nm}^3\text{/hr)}$$

$$\text{Emission Concentration (MT/Annum)} = \frac{\text{Emission Concentration (kg/day)} \times \text{Avg. Generation Running Days of FY}}{1000}$$



# GMR WARORA ENERGY LIMITED

## Stack Emission Concentration

### FY 2020 - 21

1. NO<sub>x</sub> (MT/Annum) =  $\{[260/1,000,000] \times (59639616)\}/1000 \times 307.57 = 4769.20$
2. SO<sub>x</sub> (MT/Annum) =  $\{[1110/1,000,000] \times (59639616)\}/1000 \times 307.57 = 20360$
3. Dust Emission (MT/Annum) =  $\{[38/1,000,000] \times (59639616)\}/1000 \times 307.57 = 697.04$
4. Mercury (MT/Annum) =  $\{[0.0012/1,000,000] \times (59639616)\}/1000 \times 307.57 = 0.02$

### FY 2021 - 22

1. NO<sub>x</sub> (MT/Annum) =  $\{[276/1,000,000] \times (59639616)\}/1000 \times 288.77 = 4753.31$
2. SO<sub>x</sub> (MT/Annum) =  $\{[1135/1,000,000] \times (59639616)\}/1000 \times 288.77 = 19547.12$
3. Dust Emission (MT/Annum) =  $\{[37/1,000,000] \times (59639616)\}/1000 \times 288.77 = 637.22$
4. Mercury (MT/Annum) =  $\{[0.0013/1,000,000] \times (59639616)\}/1000 \times 288.77 = 0.022$

### FY 2022 - 23

1. NO<sub>x</sub> (MT/Annum) =  $\{[304/1,000,000] \times (59639616)\}/1000 \times 326.31 = 5916.05$
2. SO<sub>x</sub> (MT/Annum) =  $\{[1121/1,000,000] \times (59639616)\}/1000 \times 326.31 = 21815.45$
3. Dust Emission (MT/Annum) =  $\{[36.2/1,000,000] \times (59639616)\}/1000 \times 326.31 = 704.48$
4. Mercury (MT/Annum) =  $\{[0.0025/1,000,000] \times (59639616)\}/1000 \times 326.31 = 0.05$

### FY 2023 - 24

1. NO<sub>x</sub> (MT/Annum) =  $\{[335/1,000,000] \times (59639616)\}/1000 \times 341.48 = 6829.61$
2. SO<sub>x</sub> (MT/Annum) =  $\{[1121/1,000,000] \times (59639616)\}/1000 \times 341.48 = 22894.50$
3. Dust Emission (MT/Annum) =  $\{[36.2/1,000,000] \times (59639616)\}/1000 \times 341.48 = 713.54$
4. Mercury (MT/Annum) =  $\{[0.0025/1,000,000] \times (59639616)\}/1000 \times 341.48 = 0.07$

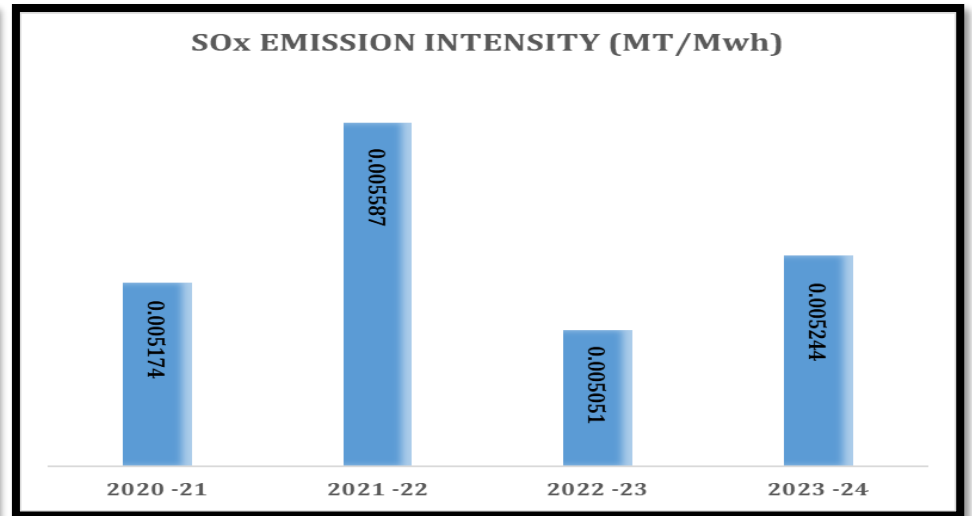
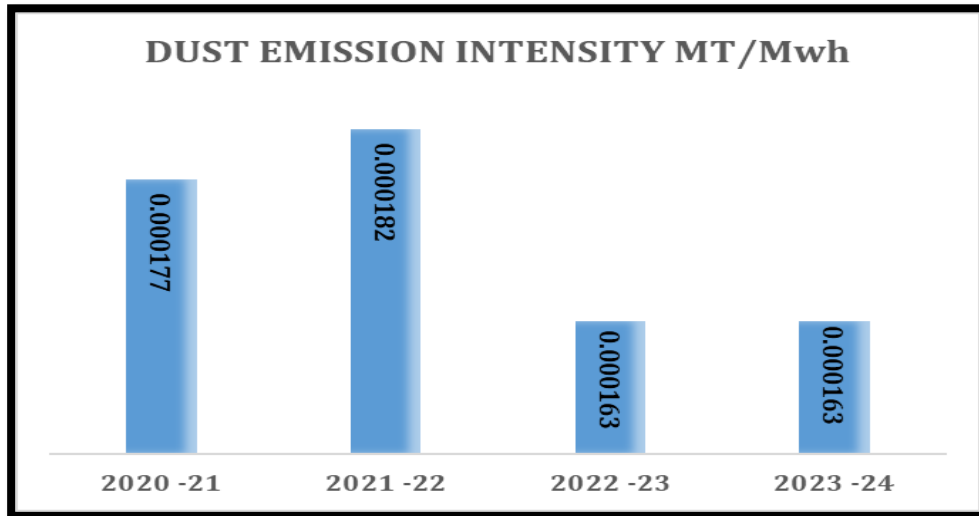


# GMR WARORA ENERGY LIMITED

## Stack Emission Concentration

**Table - 2: Comparison Emission Concentration (mg/Nm<sup>3</sup> Vs. MT/Annum)**

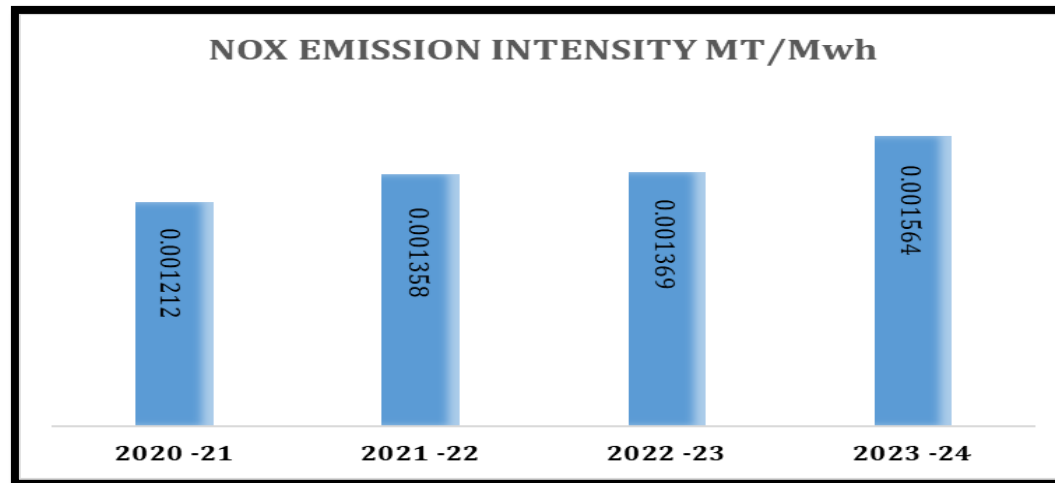
Emission Parameters	2020 - 21		2021 - 22		2022 - 23		2023 - 24	
	Mg/Nm <sup>3</sup>	MT/Annum	Mg/Nm <sup>3</sup>	MT/Annum	Mg/Nm <sup>3</sup>	MT/Annum	Mg/Nm <sup>3</sup>	MT/Annum
Nox	260	4769.20	276	4753.31	304	5916.05	335	6829.61
Sox	1110	20360.79	1135	19547.12	1121	21815.45	1123	22894.50
Dust Emission	38	697.04	37	637.22	36.2	704.48	35	713.54
Direct Mercury Emission	0.0012	0.02	0.0013	0.022	0.0025	0.05	0.0036	0.07





# GMR WARORA ENERGY LIMITED

## Stack Emission Concentration



*Remark: Environment Statement (Form - V) is an annual reporting summary of Environmental monitoring parameters to Statutory Authority Every Year. Emission monitoring is one of the annual reporting criteria in the Environmental Statement. GWEL submitted Environmental Statement to Maharashtra Pollution Control Board Every financial year.*

**Page: 2, (Part C), [B]Air (Stack)**