

Greenhouse Gas (GHG)

Mondol Intimates Ltd.

Factory Address: Shirir Chala, Bager Bazar, Gazipur, Bangladesh.



Report Prepared by: Greentech Testing Company Ltd.



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Date of Submission: April 22, 2017



1.0 Scope & Boundaries

The GHG inventory estimates the GHG emission as CO₂ emitted by **Mondol Intimates Ltd.**, from its utility sector. This factory is read-made garment manufacturing industries situated at Shirir Chala, Bager Bazar, Gazipur, Bangladesh. This inventory is prepared as per the request of factory management as the factory is interested to qualify its annual CO₂ emission which will helps them to incorporate carbon cost in decision making as well as to identify cost saving opportunities.

The annual GHG emission is estimated is following scopes:

- Scope 1: The Direct emission from Stationary combustion sources are considered here.

Stationary combustion sources are given below:

Name of Unit	Types of Fuel Used
☐ Generator	Diesel
☐ Electricity	Purchased Electricity

- Scope 2: Indirect Emission from purchased electricity.
- Scope 3: Corporate Value Chain (if any)

Organizational Boundary: Total CO₂ emission is considered for the utility sector of **Mondol Intimates Ltd.**, as the factory identify that utility is the main and major source of their GHG Emission. In this inventory Scope 3 is not considered as no data has been obtained from the supply chain of the factory.

In this Inventory 3 Greenhouse gases emission are considered and these are CO₂, CH₄, and N₂O. The Total GHG emission is considered for total Diesel in this factory and total electricity used by the factory in last one year. Fuel properties data (Net Calorific Value, Density) are unavailable at the factory, so some assumptions are done to estimate fuel properties.

2.0 Reporting Period

The annual GHG Inventory is prepared for the year of January 2016 to December 2016, by collecting data. The data were collected on 11th March, 2017.



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3.0 Methodology

The GHZ inventory has prepared in accordance with **“2006 IPCC Guidelines for National Greenhouse Gas Inventories for Stationary Combustion (Volume2_Energy_Chapter 2)”**. The emission of Greenhouse gases is calculated by applying **Tier 1 approach** following IPCC 2006 guidelines.

4.0 Data Management

Energy Consumption Data of March2016 to February 2017.

S:N:	Month	Diesel Oil Consumption (Liter)	Electricity Consumption (kWH)
1	March, 2016	12,788.46	88,290.00
2	April, 2016	7,673.08	109,092.00
3	May, 2016	12,211.54	49,901.00
4	June, 2016	12,211.54	128,984.00
5	July, 2016	4,884.62	31,484.00
6	August, 2016	7,326.92	99,192.00
7	September, 2016	4,884.62	63,984.00
8	October, 2016	7,530.00	114,393.00
9	November, 2016	4,884.62	94,317.00
10	December, 2016	7,326.92	76,350.00
11	January, 2017	2,442.31	66,179.88
12	February, 2017	4,884.62	83,351.70
Total Energy Consumption (March2016 to February 2017)		93,933.85	1,125,777.73

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5.0 Result:

Direct Emission:

1. In Case of Diesel:

CO ₂ Emission	For Diesel Consumption of 93,933.85 Liter/year CO₂ Emission is = 253.62 ton/year [Reference 1,2 & 5] (Note: Diesel density is estimated to be 0.714 kg/liter, NCV Of NG as per IPCC 2006 V2, table 1.2 is 48 Tj / Gg which is equivalent to 48 MJ/kg)
CH ₄ Emission	CH₄ Emission is 143.72 Kg CH₄ / year Now CH₄ Emission is Equivalent to Carbon-dioxide (CO₂e(using GWP 21 Is = 0.14 ton CO₂ /year. [Reference 1 & 3]
N ₂ O Emission	N₂O Emission is 122.11 Kg N₂O / Year Now N₂O Emission in Equivalent Carbon-dioxide (using CO₂ e) using GWP 310 is e = 0.12 ton CO₂ /year. [Reference 1 & 3]
Total CO ₂ e Emission	253.8872 ton CO₂ / year

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Indirect Emission:

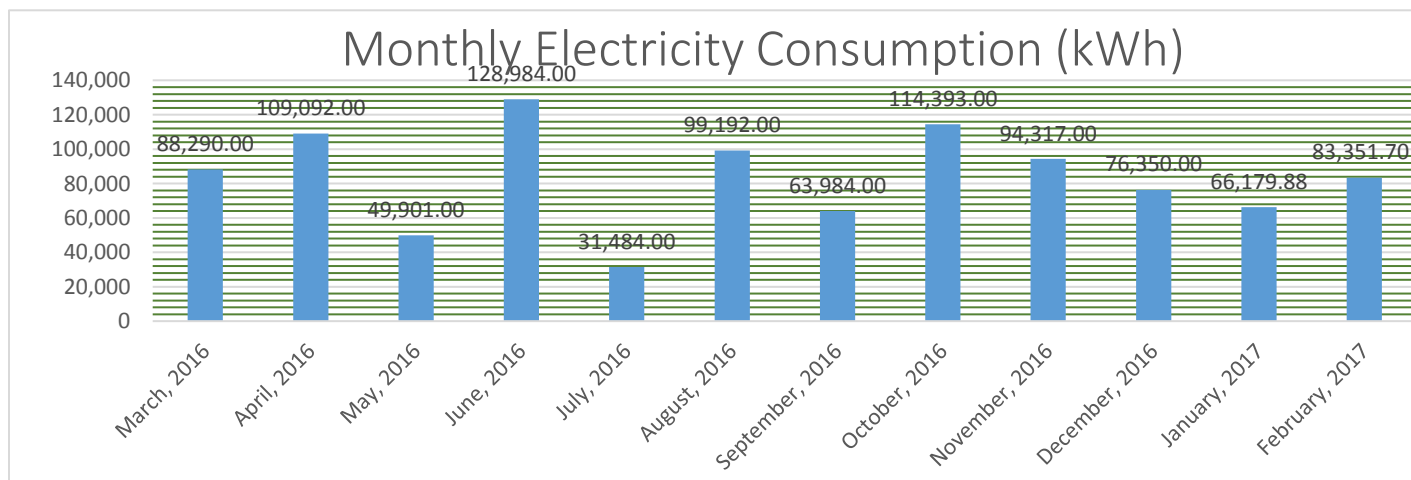
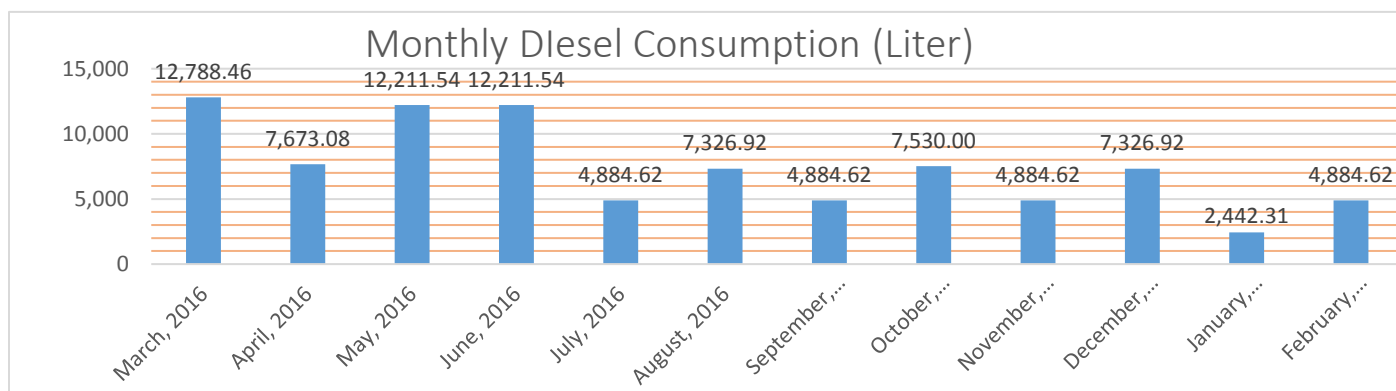
From Electricity Consumption

Total CO₂e Emission = (1,125,777.73 kWh/year) x (0.02 ton CO₂ /kWh) [Reference 4]
= 170.44318 ton CO₂ / year

Total GHG Emission = CO₂e emission from Diesel + CO₂e emission from Electricity consumption
= (253.8872 + 170.44318) ton CO₂ / year.

= 424.33038 ton CO₂ / Year

Graphical Representation of results:



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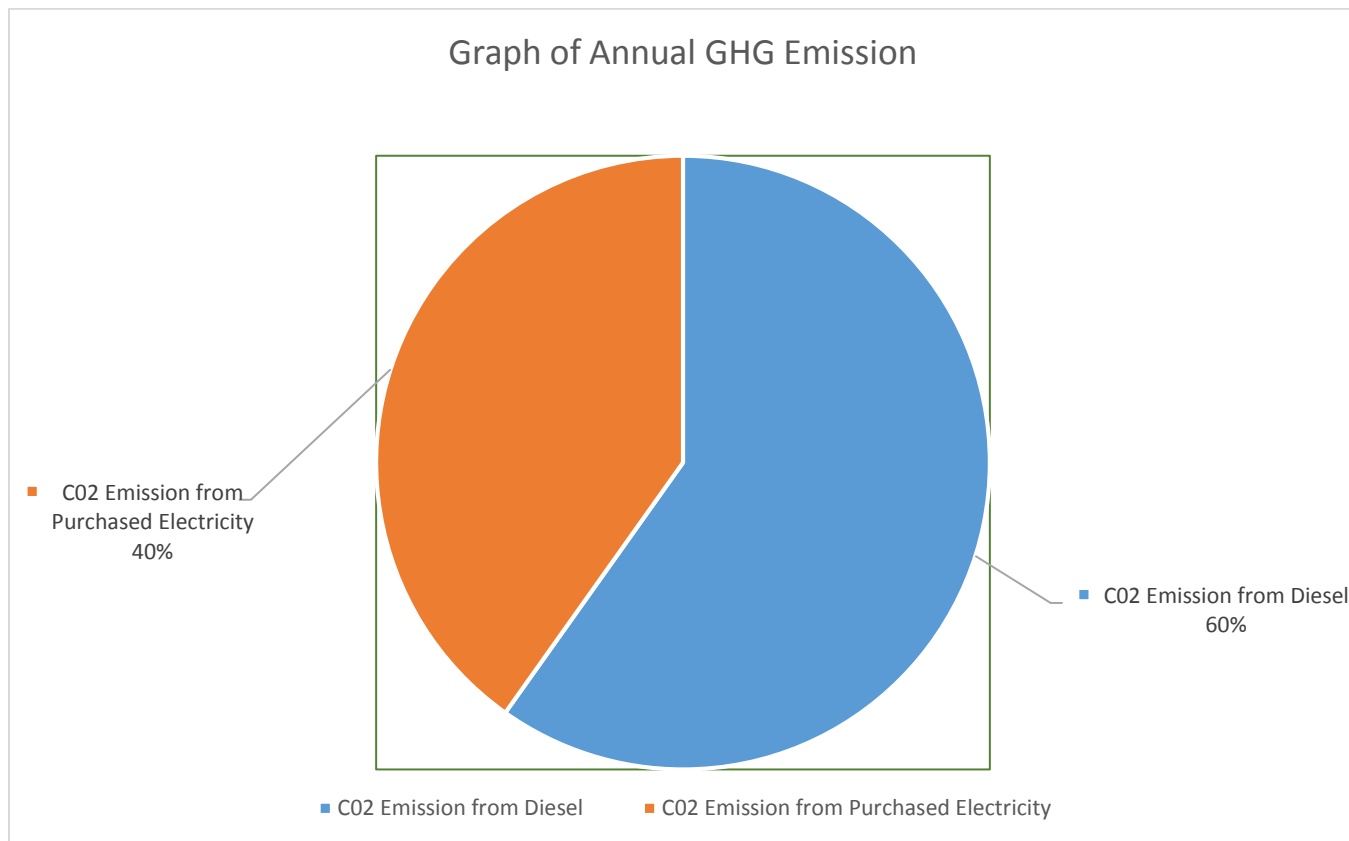


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Comment:

From the Greenhouse Gas (GHG) Inventory it has been observed that about 60% CO₂e is emitted by direct emission (Diesel) and CO₂e emission from indirect emission 40% from purchased electricity is negligible.

It is also found that the emission of CH₄ & N₂O is negligible comparing with CO₂ emission.

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