

# Greenhouse Gas (GHG) Emission Assessment

**ACS Textiles (Bangladesh) Ltd. &  
ACS Towel Limited**

Inspection Ref. No.: **E/G 10734**

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General Information		
Invoice Reference No: GB/2024/08/80		Inspection Date: 01.01.2025
Inspection Reference No: <b>E/G 10734</b>		Inspection Duration: 11am-5pm
Report Generation Date:	02.01.2025	Inspection Description: Offsite assessment
Report Submission Date:	03.01.2025	Inspection Location: GHG emitting source
Inspection Standards: 2004/108/EEC		
<u>Company Name:</u>  <b>ACS Textiles (Bangladesh) Ltd. &amp; ACS Towel Limited</b>  <i>Address: Tetlabo, Barpa, Rupgonj, Narayangonj.</i>		<u>Contact Person:</u>  <b>Md. Ruhul Alam Sharif</b>  <i>GM, Compliance</i>
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## Greenhouse Gases (GHG):

### Introduction

A greenhouse gas is a gas that absorbs and emits radiation within thermal infrared range. This process is the fundamental cause of the greenhouse Effect. Earth's natural greenhouse Effect makes life as we know it possible.

However, human activity since the industrial revolution has increased the amount of FGHG in the atmosphere, (CO<sub>2</sub>, methane, troposphere ozone, CFCs, etc.), with the resulting strengthening of the natural Greenhouse Effect, causing global warming.

### Methodology

GREENBUD Testing & Inspection Services Private Limited has collected the information from **ACS Textiles (Bangladesh) Ltd. & ACS Towel Limited** and reported the GHG Emission due to its operational activities in accordance with the International Greenhouse Gas Protocol - a Corporate Accounting and Reporting Standard revised edition.

For this report, client-supplied data is analyzed, and the GHG emissions are quantified using the most current emission factors in line with the GHG Protocol Standard.

Emission factors are sourced from GHG Protocol (version – march 2024), DEFRA (version – June 2024). The emission factor for electricity was obtained from the grid emission factor (GEF) of Bangladesh published in 2013.

### Abbreviations and Acronyms:

<b>GHG</b>	Green House Gas
<b>DoE</b>	Department of Environment
<b>EPA</b>	Environmental Protection Agency
<b>IFC</b>	International Finance Corporation
<b>WHO</b>	World Health Organization
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>CH<sub>4</sub></b>	Methane
<b>N<sub>2</sub>O</b>	Nitrous Oxide

# GREENHOUSE GAS (GHG) EMISSION ASSESSMENT

## Greenhouse Gases Assessment Results:

### GHG Emissions Sources, Factors and Activity Data

#### 1. GHG Emission: Purchased Electricity (January '24 - December '24)

ACS Textiles (Bangladesh) Ltd.				
Month	Purchased Electricity (kwh)	CO <sub>2</sub> e (tons)	Solar Photovoltaic (kwh)	CO <sub>2</sub> e (tons)
January-24	12170.0	8.154	200.1	0
February-24	7604.0	5.095	370.7	0
March-24	9130.0	6.117	590.4	0
April-24	9337.0	6.256	394.5	0
May-24	10341.0	6.928	722.2	0
June-24	26428.0	17.707	389.9	0
July-24	5817.0	3.897	583.9	0
August-24	28106.0	18.831	589.5	0
September-24	6999.0	4.689	469.7	0
October-24	8333.0	5.583	487.9	0
November-24	11468.0	7.684	470.9	0
December-24	17161.0	11.498	382.5	0
<b>Total</b>		<b>102.439</b>		<b>0</b>
<b>Total Emission from Purchased Electricity in CO<sub>2</sub>e (tons):</b>				<b>102.439</b>

Source: Grid Emission Factor of Bangladesh, DoE<sup>1</sup>

#### 2. GHG Emission: Purchased Electricity (January '24 - December '24)

ACS Towel Limited				
Month	Purchased Electricity (kwh)	CO <sub>2</sub> e (tons)	Solar Photovoltaic (kwh)	CO <sub>2</sub> e (tons)
January-24	10584.00	7.091	35.31	0
February-24	5822.00	3.901	65.40	0
March-24	2646.00	1.773	104.20	0
April-24	5822.00	3.901	69.60	0
May-24	8034.00	5.383	127.50	0
June-24	4668.00	3.128	68.80	0
July-24	2647.00	1.773	103.00	0
August-24	2117.00	1.418	104.00	0
September-24	2647.00	1.773	82.90	0
October-24	2948.00	1.975	84.60	0
November-24	1287.00	0.862	83.10	0
December-24	3176.00	2.128	67.50	0
<b>Total</b>		<b>35.107</b>		<b>0</b>
<b>Total Emission from Purchased Electricity in CO<sub>2</sub>e (tons):</b>				<b>35.107</b>

<sup>1</sup> [http://www.doe.gov.bd/site/notices/059ddf35-53d3-49a7-8ce6-175320cd59f1/Grid-Emission-Factor\(GEF\)-of-Bangladesh](http://www.doe.gov.bd/site/notices/059ddf35-53d3-49a7-8ce6-175320cd59f1/Grid-Emission-Factor(GEF)-of-Bangladesh)

### 3. GHG Emission from: Fuel Consumption from Generator (January '24 - December '24)

ACS Textiles (Bangladesh) Ltd.		
Month	Gas Use From Generator (m <sup>3</sup> )	CO <sub>2</sub> e (tons)
January-24	1377068.9	2596.010
February-24	1362238.9	2568.053
March-24	1400443.9	2640.076
April-24	1442896.3	2720.106
May-24	1528404.6	2881.304
June-24	1716512.1	3235.919
July-24	1542818.9	2908.477
August-24	1688485.1	3183.083
September-24	1601899.0	3019.854
October-24	1806200.7	3404.997
November-24	1797918.3	3389.383
December-24	1629865.7	3072.576
<b>Total</b>		<b>35619.839</b>
<b>Total Emission from Fuel Consumption from Generator in CO<sub>2</sub>e (tons):</b>		<b>35619.839</b>

Source: Greenhouse Gas Protocol for Emission from Stationary Combustion tool\_(Version4-1)<sup>2</sup>

### 4. GHG Emission from: Fuel Consumption from Generator (January '24 - December '24)

ACS Towel Limited		
Month	Gas Use From Generator (m <sup>3</sup> )	CO <sub>2</sub> e (tons)
January-24	243012.15	458.119
February-24	240395.10	453.186
March-24	247137.15	465.896
April-24	254628.75	480.019
May-24	269718.45	508.465
June-24	302913.90	571.044
July-24	272262.15	513.261
August-24	297967.95	561.721
September-24	282688.05	532.915
October-24	318741.30	600.882
November-24	317279.70	598.126
December-24	287623.35	542.219
<b>Total</b>		<b>6285.854</b>
<b>Total Emission from Fuel Consumption from Generator in CO<sub>2</sub>e (tons):</b>		<b>6285.854</b>

<sup>2</sup> <https://ghgprotocol.org/calculation-tools-and-guidance>

## 5. GHG Emission from: Fuel Consumption from Boiler (January '24 - December '24)

ACS Textiles (Bangladesh) Ltd.		
Month	Gas Use From Boiler (m <sup>3</sup> )	CO <sub>2</sub> e (tons)
January-24	1106105.9	2085.199
February-24	1043746.5	1967.641
March-24	1006466.3	1897.361
April-24	924440.5	1742.728
May-24	991004.8	1868.214
June-24	1151182.2	2170.175
July-24	1063873.6	2005.584
August-24	1157591.2	2182.257
September-24	1024552.6	1931.457
October-24	1166559.6	2199.164
November-24	1189321.7	2242.075
December-24	1163755.4	2193.878
Total		24485.733
Total Emission from Fuel Consumption from Boiler in CO <sub>2</sub> e (tons):		24485.733

Source: Greenhouse Gas Protocol for Emission from Stationary Combustion tool\_(Version4-1)<sup>12</sup>

## 6. GHG Emission from: Fuel Consumption from Boiler (January '24 - December '24)

ACS Towel Limited		
Month	Gas Use From Boiler (m <sup>3</sup> )	CO <sub>2</sub> e (tons)
January-24	195195.15	367.976
February-24	184190.55	347.231
March-24	177611.70	334.828
April-24	163136.55	307.540
May-24	174883.20	329.685
June-24	203149.80	382.972
July-24	187742.40	353.927
August-24	204280.80	385.104
September-24	180803.40	340.845
October-24	205863.45	388.088
November-24	209880.30	395.660
December-24	205368.60	387.155
Total		4321.012
Total Emission from Fuel Consumption from Boiler in CO <sub>2</sub> e (tons):		4321.012



**7. GHG Emission from: Fuel Consumption from Other Utility Operations (January '24 - December '24)**

ACS Textiles (Bangladesh) Ltd.		
Month	LPG Use (m <sup>3</sup> )	CO <sub>2</sub> e (tons)
January-24	0	0.000
February-24	5.5692	0.010
March-24	5.5692	0.010
April-24	0	0.000
May-24	0	0.000
June-24	0	0.000
July-24	0	0.000
August-24	0	0.000
September-24	5.5692	0.010
October-24	0	0.000
November-24	0	0.000
December-24	11.1384	0.021
Total		0.052
Total Emission from Other Utility Operations in CO <sub>2</sub> e (tons):		0.052

Source: Greenhouse Gas Protocol for Emission from Stationary Combustion tool\_(Version4-1)2

**8. GHG Emission from: Fuel Consumption from Other Utility Operations (January '24 - December '24)**

ACS Towel Limited		
Month	LPG Use (m <sup>3</sup> )	CO <sub>2</sub> e (tons)
January-24	0.000	0.000
February-24	0.983	0.002
March-24	0.983	0.002
April-24	0.000	0.000
May-24	0.000	0.000
June-24	0.000	0.000
July-24	0.000	0.000
August-24	0.000	0.000
September-24	0.983	0.002
October-24	0.000	0.000
November-24	0.000	0.000
December-24	1.966	0.004
Total		0.009
Total Emission from Other Utility Operations in CO <sub>2</sub> e (tons):		0.009



**9. GHG Emission from: Fuel (Diesel and Petrol) Consumption from Vehicles  
(January '24 - December '24)**

ACS Textiles (Bangladesh) Ltd.				
Month	Diesel Use (Liter)	CO <sub>2</sub> e (tons)	Petrol Use (Liter)	CO <sub>2</sub> e (tons)
January-24	1557.0	4.089	147.1	0.343
February-24	1989.2	5.224	436.3	1.017
March-24	1252.9	3.290	447.4	1.043
April-24	1176.4	3.089	449.7	1.048
May-24	1706.0	4.480	494.1	1.152
June-24	1146.1	3.010	485.2	1.131
July-24	974.0	2.558	267.4	0.623
August-24	1085.8	2.851	579.054	1.350
September-24	1291	3.390	604.4	1.409
October-24	1618.5	4.250	352.2	0.821
November-24	1413.2	3.711	828.2	1.931
December-24	1261.0	3.311	499.2	1.164
<b>Total</b>		<b>43.253</b>		<b>13.031</b>
<b>Total Emission from Fuel (Diesel/Petrol/Octane) Consumption from Vehicles in CO<sub>2</sub>e (tons):</b>		<b>56.28399067</b>		

Source: Greenhouse Gas Protocol for Emission from Stationary Combustion tool\_(Version4-1)<sup>2</sup>

**10. GHG Emission from: Fuel (Diesel and Petrol) Consumption from Vehicles  
(January '24 - December '24)**

ACS Towel Limited				
Month	Diesel Use (Liter)	CO <sub>2</sub> e (tons)	Petrol Use (Liter)	CO <sub>2</sub> e (tons)
January-24	274.77	0.722	25.95	0.060
February-24	351.03	0.922	25.95	0.060
March-24	221.10	0.581	25.95	0.060
April-24	207.59	0.545	25.95	0.060
May-24	301.06	0.791	25.95	0.060
June-24	202.25	0.531	25.95	0.060
July-24	171.87	0.451	25.95	0.060
August-24	191.61	0.503	25.95	0.060
September-24	227.88	0.598	25.95	0.060
October-24	285.09	0.749	25.95	0.060
November-24	249.39	0.655	25.95	0.060
December-24	222.53	0.584	25.95	0.060
<b>Total</b>		<b>7.632</b>		<b>0.726</b>
<b>Total Emission from Fuel (CNG/LPG) Consumption from Vehicles in CO<sub>2</sub>e (tons):</b>		<b>8.357</b>		

Source: Greenhouse Gas Protocol for Emission from Stationary Combustion tool\_(Version4-1)<sup>2</sup>

## 11. GHG Emission: Paper Consumption (January '24 - December '24)

ACS Textiles (Bangladesh) Ltd.		
Month	Paper Used (Kg)	CO <sub>2</sub> e (tons)
January-24	118.04	0.158
February-24	1611.7	2.159
March-24	1316.6	1.763
April-24	444.92	0.596
May-24	1402.86	1.879
June-24	310.99	0.417
July-24	685.54	0.918
August-24	179.33	0.240
September-24	805.85	1.079
October-24	1377.89	1.845
November-24	869.41	1.164
December-24	989.72	1.326
Total Emission from Paper Consumption in CO <sub>2</sub> e (tons):		13.544

Reference: DEFRA-Material Use factors for Paper<sup>3</sup>

## 12. GHG Emission: Paper Consumption (January '24 - December '24)

ACS Towel Limited		
Month	Paper Used (Kg)	CO <sub>2</sub> e (tons)
January-24	11.35	0.015
February-24	267.86	0.359
March-24	161.17	0.216
April-24	63.56	0.085
May-24	170.25	0.228
June-24	59.02	0.079
July-24	45.4	0.061
August-24	79.45	0.106
September-24	72.64	0.097
October-24	156.63	0.210
November-24	40.86	0.055
December-24	61.29	0.082
Total Emission from Paper Consumption in CO <sub>2</sub> e (tons):		1.593

<sup>3</sup> <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2023>

### 13. GHG Emission: Food Waste (January '24 - December '24)

ACS Textiles (Bangladesh) Ltd.						
Months	No. of occupant	Meal per day	Avg. Quantity of each meal (gm)	Avg. food waste (gm/day/meal)	Total Monthly Food Waste (tons)	CO <sub>2</sub> e (tons)
January-24	4629	1	250	20	2.7774	1.944
February-24	4311	1	250	20	2.5866	1.811
March-24	4266	1	250	20	2.5596	1.792
April-24	4229	1	250	20	2.5374	1.776
May-24	4623	1	250	20	2.7738	1.942
June-24	4642	1	250	20	2.7852	1.950
July-24	4844	1	250	20	2.9064	2.035
August-24	4629	1	250	20	2.7774	1.944
September-24	4569	1	250	20	2.7414	1.919
October-24	4542	1	250	20	2.7252	1.908
November-24	4467	1	250	20	2.6802	1.876
December-24	4439	1	250	20	2.6634	1.864
Total Emission from Food Waste in CO <sub>2</sub> e (tons):						22.760

Reference: DEFRA-Material Use factors for Food Waste<sup>3</sup>

### 14. GHG Emission: Food Waste (January '24 - December '24)

ACS Towel Limited						
Months	No. of occupant	Meal per day	Avg. Quantity of each meal (gm)	Avg. food waste (gm/day/meal)	Total Monthly Food Waste (tons)	CO <sub>2</sub> e (tons)
January-24	915	1	250	20	0.549	0.384
February-24	858	1	250	20	0.5148	0.360
March-24	854	1	250	20	0.5124	0.359
April-24	915	1	250	20	0.549	0.384
May-24	986	1	250	20	0.5916	0.414
June-24	973	1	250	20	0.5838	0.409
July-24	993	1	250	20	0.5958	0.417
August-24	948	1	250	20	0.5688	0.398
September-24	924	1	250	20	0.5544	0.388
October-24	905	1	250	20	0.543	0.380
November-24	883	1	250	20	0.5298	0.371
December-24	881	1	250	20	0.5286	0.370
Total Emission from Food Waste in CO <sub>2</sub> e (tons):						4.635

### 15. GHG Emission: Fugitive Emission (January '24 - December '24)

ACS Textiles (Bangladesh) Ltd. and ACS Towel Ltd.	
<b>Total Emission from Fugitive Emission in CO<sub>2</sub>e (tons):</b>	<b>355.537</b>

Reference: ODS Report of the Facility. The emission factors here are used from DEFRA- Refrigerant & other.<sup>3</sup>

### 16. GHG Emission: Fugitive Emission (January '24 - December '24)

ACS Towel Limited	
<b>Total Emission from Fugitive Emission in CO<sub>2</sub>e (tons):</b>	<b>44.345</b>

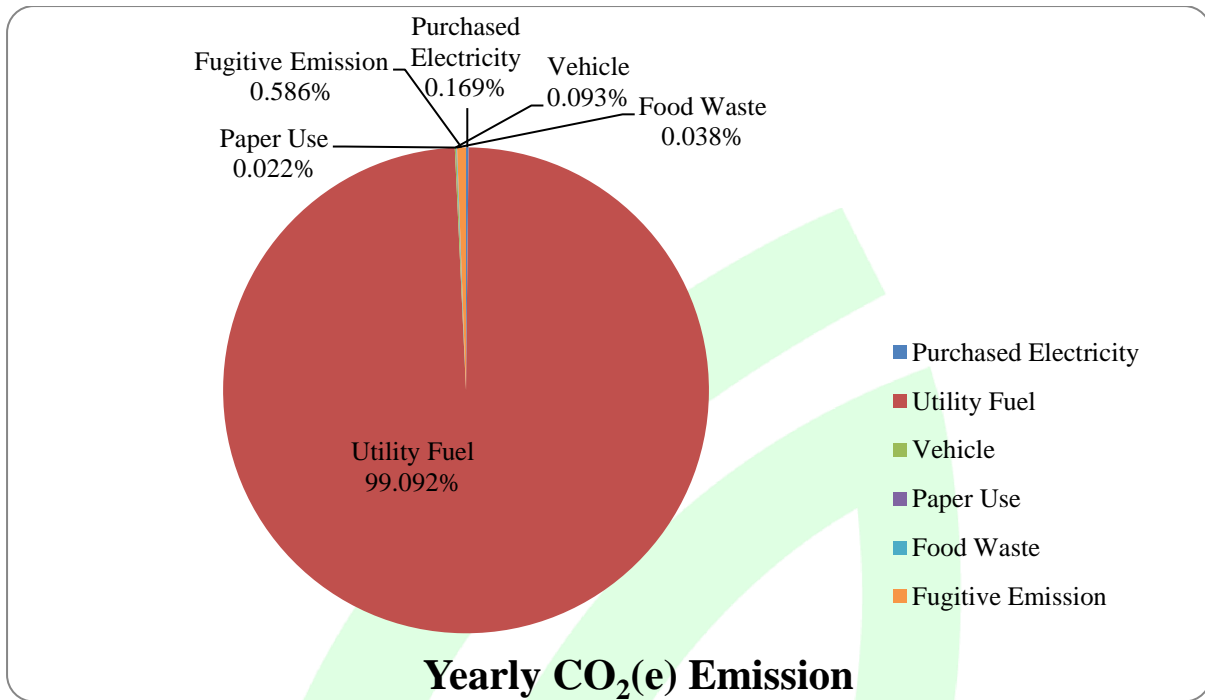
## Total GHG Emission

GHG emission from various sources of the project activity is shown below table. Calculation of GHG has been conducted for six sources and based on the provided consumption information for the last twelve months. To understand the contribution of different sources in the total emitted GHG, the obtained data is plotted in a pie diagram. The diagram indicates that the most significant source of GHG emission for this specific factory is **Utility Fuel**, which is **99%** of the total emission of GHG for both factories.

**Table: Overall Emission of GHG According to Activity (January '24 - December '24)**

ACS Textiles (Bangladesh) Ltd.						
Month	Emission of CO <sub>2</sub> e from different sources (Tons)					
	Purchased Electricity	Utility Fuel	Vehicle	Paper Use	Food Waste	Fugitive Emission
January-24	8.154	4681.209	4.432	0.158	1.944	355.527
February-24	5.095	4535.704	6.241	2.159	1.811	
March-24	6.117	4537.448	4.333	1.763	1.792	
April-24	6.256	4462.835	4.137	0.596	1.776	
May-24	6.928	4749.518	5.632	1.879	1.942	
June-24	17.707	5406.094	4.141	0.417	1.950	
July-24	3.897	4914.061	3.181	0.918	2.035	
August-24	18.831	5365.341	4.201	0.240	1.944	
September-24	4.689	4951.321	4.799	1.079	1.919	
October-24	5.583	5604.162	5.071	1.845	1.908	
November-24	7.684	5631.458	5.642	1.164	1.876	
December-24	11.498	5266.474	4.475	1.326	1.864	
<b>Total (scope wise)</b>	<b>102.439</b>	<b>60105.624</b>	<b>56.284</b>	<b>13.544</b>	<b>22.760</b>	<b>355.527</b>
<b>Total Emission CO<sub>2</sub>e in 2024</b>	<b>60656.18</b>					

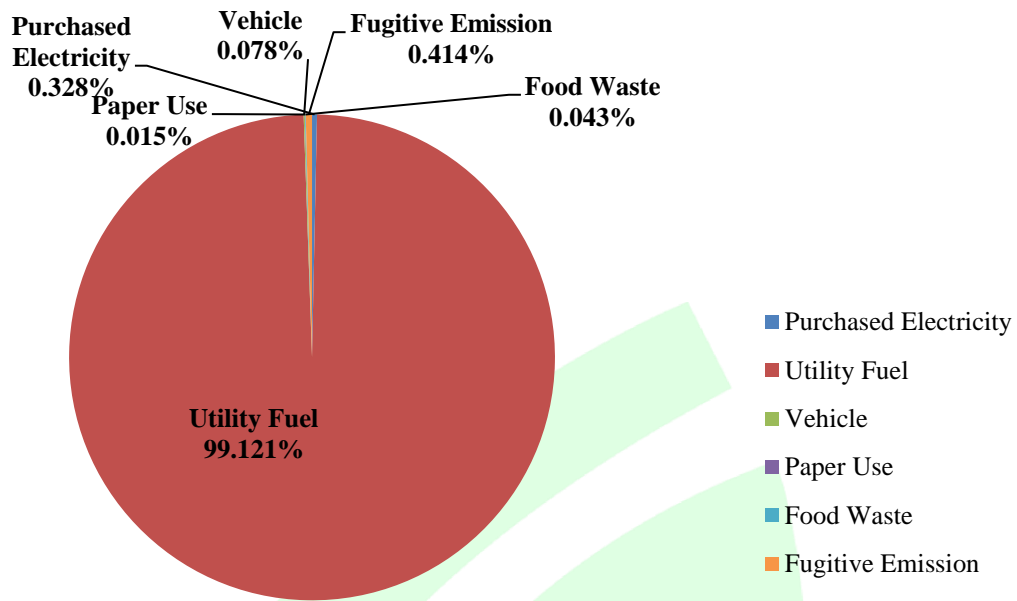
Figure 1: Contribution to the GHG emission of various sectors



**Table: Overall Emission of GHG According to Activity (January '24 - December '24)**

ACS Towel Ltd.						
Month	Emission of CO <sub>2</sub> e from different sources (Tons)					
	Purchased Electricity	Utility Fuel	Vehicle	Paper Use	Food Waste	Fugitive Emission
Jan-24	7.091	826.096	0.782	0.015	0.384	44.345
Feb-24	3.901	800.418	0.982	0.359	0.360	
Mar-24	1.773	800.726	0.641	0.216	0.359	
Apr-24	3.901	787.559	0.606	0.085	0.384	
May-24	5.383	838.150	0.851	0.228	0.414	
Jun-24	3.128	954.017	0.592	0.079	0.409	
Jul-24	1.773	867.187	0.512	0.061	0.417	
Aug-24	1.418	946.825	0.564	0.106	0.398	
Sep-24	1.773	873.762	0.659	0.097	0.388	
Oct-24	1.975	988.970	0.809	0.210	0.380	
Nov-24	0.862	993.787	0.715	0.055	0.371	
Dec-24	2.128	929.378	0.645	0.082	0.370	
<b>Total (scope wise)</b>	<b>35.107</b>	<b>10606.875</b>	<b>8.357</b>	<b>1.593</b>	<b>4.635</b>	<b>44.345</b>
<b>Total CO<sub>2</sub>e Emission in 2024</b>	<b>10700.91</b>					





**Yearly CO<sub>2</sub>(e) Emission**

## Discussion and Recommendation

The Greenhouse Gas Inventory of **ACS Textiles (Bangladesh) Ltd. & ACS Towel Limited** outlines the sources and methodologies to assess and estimate the emission of greenhouse associated with the business activities of **ACS Textiles (Bangladesh) Ltd. & ACS Towel Limited**. The assessment was conducted to meet both the CSA/ISO 14064-1 standard and the world Resources Institutes' GHG protocol standard. As the standards evolve, these principles will guide the evolution of this document and the procedures implementation or technology solution.

## KPI Analysis

**Table: KPI Analysis**

Facility Name	Year	Total CO <sub>2</sub> e emission (Ton)	Production (kg)	KPI (GHG emission (Ton)/Production (kg))	Reduced (%)
ACS Textiles (Bangladesh) Ltd.	2023	58460.354	10272328.77	0.0057	4.18
	2024	60656.18	11123648.25	0.0055	
ACS Towel Limited	2023	10265.611	2801784	0.0037	5.45
	2024	10700.91	3088815	0.0035	

## Recommendation

Documentation supporting the design, development and maintenance of the inventory is retained to support the verification process and provide a historical record. This task is the primary responsibility of the Data Collection Officer. In determining what information needs to be retained the following principles are applied:

- ✓ At any point in time, all past emissions inventories should be able to satisfy an audit.
- ✓ At any point in time, all past emissions inventory should be able to be recalculated from the retained records.

The following information is retained on an ongoing basis:

- ✓ The procedures, processes, and methodologies used to estimate the emissions inventory and relevant sources.
- ✓ All emission factors and their sources.
- ✓ All activity data, activity data models, and their sources.
- ✓ All supporting documentation and sources.
- ✓ The emissions inventory, reported at the facility level.



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MIEB No.: M/35960

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