GHG EMISSIONS VERIFICATION REPORT FOR FY2024

MEMC ELECTRONIC MATERIALS SDN BHD

11th September 2025

Prepared for MEMC Electronic Materials Sdn Bhd

One Island Consultancy Sdn Bhd

This report presents the Greenhouse Gas (GHG) Emissions Assessment calculated by MEMC Electronic Materials Sdn Bhd for the financial year FY2024.

It is important to note the following:

Data Accuracy and Reliability:
The GHG Verification Report assesses the accuracy and reliability of the emissions data provided by MEMC Electronic Materials Sdn Bhd. The verification process involves a detailed review of the data sources, data collection methodologies, and data management practices to ensure the completeness and accuracy of the emissions data. Any discrepancies or limitations identified during the verification process are noted and addressed.

Verification Methodology:
The verification of GHG emissions was conducted following established verification protocols and standards, such as ISO 14064-3, ensuring alignment with industry best practices. This involved confirming the accuracy of emissions factors, activity data, and calculation methods. The verification process is designed to provide a reasonable level of assurance on the emissions reported.

Scope and Boundaries:
The verification scope and boundaries are based on the specifications provided by MEMC Electronic Materials Sdn Bhd. The verification process evaluates whether the emissions data accurately reflect the defined scope and boundaries. Any deviations or non-conformities are documented, and recommendations are provided for addressing these issues.

Assumptions and Estimates:
Where assumptions and estimates are used in the emissions data, the verification process evaluates the appropriateness and justification of these assumptions. The potential impact of these assumptions on the overall uncertainty of the emissions data is assessed, and findings are clearly communicated in the report.

EXECUTIVE SUMMARY

MEMC Electronic Materials Sdn Bhd (referred herein as MEMC), through One Island Consultancy Sdn Bhd (referred herein as OIC), conducted the verification of its GHG Emissions Report (referred herein as “report”) for the year 2024, covering the period from January 2024 to December 2024. The report recorded total GHG emissions of 35,118.95 tCO_2e for 2024. This total includes emissions from direct sources (Category 1), indirect sources from purchased electricity (Category 2), and other indirect sources (Categories 3 to 6).

To ensure the credibility and alignment of the GHG emissions data, OIC followed the ISO 14064-1:2018 standard for quantification and reporting. The verification process included both internal and external audits. An internal audit was conducted on August 6, 2025, to verify all emission sources within the company's reporting boundaries. Additionally, an external audit was performed by a third-party company to provide independent assurance and certification of the GHG inventory.

MEMC commitment to sustainability is further demonstrated by its proactive approach to managing GHG emissions and enhancing its public image. The company has implemented strategies to reduce emissions, such as using fewer fossil fuels and adopting low-carbon procurement. These efforts align with MEMC' Greenhouse Gas Policy and sustainability goals, ensuring transparency, accountability, and measurable progress.

This report shows a commitment from OIC to implement a robust GHG emissions strategy that aligns with its sustainability goals, ensuring transparency, accountability, and measurable progress. The report serves as a continuation of the GHG emissions monitoring and reflects OIC' engagement with global sustainability goals.

INTRODUCTION

This report reviews the GHG Emissions Data (using Excel) for MEMC Electronic Materials Sdn Bhd (MEMC) for Year 2024. The report evaluates the accuracy, completeness, and reliability of MEMC's GHG inventory in accordance with ISO 14064-1:2018 standards, which specify requirements for quantifying and reporting GHG emissions and removals.

SCOPE

The scope of verification includes:

- Geographic coverage limited to MEMC's operations in Malaysia.
- The operational boundary, applying the operational control approach.
- Emissions sources from Categories 1 to 4, including stationary combustion, electricity consumption, transportation, and emissions from raw materials.
- Reporting period: January 2024 to December 2024.

METHODOLOGY

OIC conducted the verification in accordance with "ISO14064-1:2018". The scope of this verification assignment covers GHG emissions from (1) direct GHG emissions (energy derived CO2 & air conditioner leakage HFCs); (2) indirect GHG emissions from purchased electricity; (3) indirect GHG emissions from procurement & shipping transportation; and (4) indirect GHG emissions from purchased raw material & waste disposal (hereafter "Category 1, 2, 3 and 4"). The verification was conducted to a limited level of assurance. The organizational boundary of the verification is only at Petaling Jaya, Selangor, Malaysia.

Our verification methodology included checking on:

(1) scope and boundaries (geographic, operations covered, timeframe, etc.);
(2) any missing information and potential uncertainty in regard with the provided raw data;
(3) validity of methodology applied;
(4) validity of assumptions made;
(5) accuracy of emissions calculations; and
(6) magnitude of errors and faults.

Type of Evidence	Tasks & Activities
Cross-referenced documents like invoices and bills	Confirmation is carried out by cross-referencing the gathered data with supporting documents such as fuel records (invoice), electricity bills, and log sheet to ensure its authenticity.
Interview records, notes from personnel discussions	Inquiring with a sample basis of individuals with overall responsibility for information measurement and collection and reporting about the information collection processes.
Independently calculated GHG emissions vs reported values	Confirming that what is disclosed is consistent with the findings of the assurance process. Recalculation involves performing independent GHG emissions calculations based on raw data, comparing them with the facility's reported figures.

RISK ASSESSMENT

Critical Control Point	Description	Likelihood	Impact	Risk Rating	Evidence Requirements
Activity Data	There are some necessary data on activities contributing to GHG emissions are not available and incomplete. The incomplete data are comprehensive records on fuel consumption.	Low	Low	Low	Clearly specify the types of activities included and excluded. State the source of data in the spreadsheet and provide access to collected data. Verify data integrity through cross-checks with invoices, logs, and utility records.
Emissions Factor	Complexity in Emission Factor Selection Use of multiple sources of EF can create inconsistencies.	Medium	Medium	Moderate	The selection of emission factors involves multiple sources, including local government databases, domestic and international research, and custom factors when no standard factors are available.
Calculation and Estimation Risk	The MEMC decided to use variety of method for emission factor baseline 1. UK Government GHG Conversion Factors for Company Reporting 2022 2. Mass Balance Method 3. IPCC 2006 Guidelines for National Greenhouse Gas Inventories	Medium	Medium	Moderate	Ensure all documentation reflects the calculations using the variety methods which are Mass Balance Method, UK Government GHG Conversion Factors for Company Reporting 2022 and IPCC 2006 Guidelines for National Greenhouse Gas Inventories for emissions factor data.

BOUNDARY

Type of Boundary	Scope of Boundary
Organizational Boundary	Covers MEMC's operational facilities and assets within Malaysia, using the operational control approach to account for emissions within MEMC's control.
Operational Boundary	Includes direct and indirect emissions, classified into four categories: • Category 1: Direct emissions from stationary and mobile sources under MEMC's control. • Category 2: Indirect emissions from purchased electricity. • Category 3: Indirect emissions from transportation and logistics (e.g., raw material transport, product distribution). • Category 4: Indirect emissions from upstream raw materials and waste management.

SOURCES OF GHG EMISSIONS

Main Category		Sub Category	Source of Emissions	Total Emissions (tCO_2eq)				
				2020	2021	2022	2023	2024
1	Direct GHG emissions and removal	1.1 Mobile Combustion	1.1.1 Direct GHG emissions from forklift	10.49	9.34	9.09	8.72	7.94
			1.1.2 Direct GHG emissions from company car	0.47	0.59	Inclusive in Category 3	0.02	
		1.2 Stationary Combustion	1.2.1 Direct GHG emissions from sludge dryer	62.61	63.93	69.07	83.03	88.24
			1.2.2 Direct GHG emissions from canteen	29.98	31.74	21.16	20.28	
			1.2.3 Direct GHG emissions from generator	2.16	1.62	0	2.435	
			1.2.4 Direct GHG emissions from fire fighting pump	Data not collected	Data not collected	Data not collected	2.435	
		1.3 Fugitive Emissions	1.2.5 Direct GHG emissions from air conditioning (R123)	Data not collected	6.93	13.86	13.86	105.32
			1.2.6 Direct GHG emissions from air conditioning (R22)	130.01	123.08	123.08	98.46	

SOURCES OF GHG EMISSIONS

Main Category		Sub Category	Source of Emissions	Total Emissions (tCO_2eq)				
				2020	2021	2022	2023	2024
2	Indirect GHG emissions from imported energy	2.1 Purchased electricity	2.1 Purchased of electricity from external source	15, 076.23	14,582	14,432.73	13,460.62	12,207.78
3	Indirect GHG emissions from transportation & logistics	3.1 Upstream Transport	3.1.1Transportation of raw material	Data not collected	Data not collected	1,327.3	1,088.91	1,089.57
			3.1.2 Transportation of consumable material	Data not collected	Data not collected	408.12	489.04	
		3.2 Downsrtream Transport	3.2.1 Distribution of product	Data not collected	Data not collected	2,940.54	2,141.40	1,117.94
		3.3 Employee Commuting	3.3.1 Bus	Data not collected	Data not collected	346.53	320.25	295.94
			3.3.2 Car	Data not collected	Data not collected			
			3.3.3 Motorbike	Data not collected	Data not collected			
			3.3.4 Passenger Car	Data not collected	Data not collected			
		3.4 Visitor Transport	3.4 Transportation of clients and visitors	Data not collected	Data not collected	0.07	0.07	1.19

SOURCES OF GHG EMISSIONS

Main Category		Sub Category	Source of Emissions	Total Emissions (tCO_2eq)				
				2020	2021	2022	2023	2024
3	Indirect GHG emissions from transportation & logistics	3.5 Business Travel	3.5.1 International flight	Data not collected	Data not collected	0.37	1.69	0.3187
4	Indirect GHG emissions from products used by organization	4.1 Emissions from purchasing of goods	4.1.1 Emissions from upstream raw material	Data not collected	Data not collected	20,235.77	20,555.40	20,108.6463
		4.2 Emissions from handling of solid & liquid waste	4.3.1 Disposal of waste	Data not collected	Data not collected	80.33	63.46	51.02
			4.3.2 Transportation of waste	Data not collected	Data not collected	37.52	36.18	45.05

FINDINGS

Category	Source of GHG Emissions	tCO2eq Emissions	% of tCO2eq Emissions	Methodology
1	Direct GHG emissions from stationary combustion	88.2389	0.25	UK Government GHG Conversion Factors for Company Reporting 2022 Calculations involve specific emission factors for refrigerants and septic tank emissions Refrigerants Fugitive Emissions: Refrigerant initial charge × equipment fugitive rate (%) × GWP value Septic Tank Fugitive Emissions: Calculated using BOD emissions factor (0.6 tCH4/tBOD) and Methane correction factor (0.5)
	Direct GHG emissions from mobile combustion	7.94	0.02	
	Direct fugitive emissions from the release of GHGs from air conditioning system leakages	105.32	0.30	
	Sub total	201.50	0.57	
2	Purchased of electricity from external source	12,207.78	34.76	Suruhanjaya Tenaga - 2019
3	Upstream Transport	1,089.5750	3.0997	Provided by supplier
	Downstream Transport	1,117.94	3.1833	Provided by supplier
	Employee commuting	295.94	0.8427	Emissions are calculated using the Emissions Factor Approach
	Visitor transport	1.19	0.0034	
	Business travel	0.3187	0.0009	
	Subtotal	2,504.96	7.13	

FINDINGS

Category	Source of GHG Emissions	tCO2eq Emissions	% of tCO2eq Emissions	Methodology
4	Emissions from upstream raw material	20,108.6463	57.26	Emissions are calculated using the Emissions Factor Approach
	Disposal of waste	51.02	0.14	
	Transportation of waste	45.05	0.1283	
	Subtotal	20,204.72	57.53	
	TOTAL	35,118.96	100%	

APPENDIX A

Internal Verification Report by GHG Verifier

The data assess against following parameter:

No	Parameter	Findings
1	Scope and boundaries (geographic, operations covered, timeframe, etc.).	MEMC has reported data that cover adequately all its geographic locations of operation (Malaysia) and type of operations (operational control). MEMC also submitted data relevant to 2024 which is between the time frame from January 2024 to December 2024
2	Missing information and potential uncertainty in regards with the provided raw data.	There is a lack of detailed records for certain activities, such as the monthly testing of diesel generators, where the average duration of each test was used as a proxy. This introduces potential uncertainty in the data. The data quality analysis uses a deviation rating scale, but the results show a score of 0.00, indicating a Level 1 deviation, which suggests high data quality.
3	Validity of methodology applied.	MEMC follows the ISO 14064-1:2018 standard and uses the "Emissions Factor Approach" for quantification, which is a widely accepted methodology. The selection of emission factors prioritizes factors from local government databases, domestic research, and international research, ensuring the use of relevant and accurate data.
4	Validity of assumptions made	The assumptions made in the GHG Emission Report for 2024 include using an average test duration for diesel generators due to a lack of records, estimating gasoline consumption for lawnmowers due to negligible generator use, and calculating refrigerant charges based on similar models, which introduces potential inaccuracies and uncertainties in the emissions data

APPENDIX A

Internal Verification Report by GHG Verifier

The data assess against following parameter:

No	Parameter	Findings
5	Accuracy of emissions calculations	The report provides detailed calculations for each category of emissions, with total emissions for 2024 amounting to 35,118.95 tCO2e. The uncertainty assessment for Categories 1 and 2 uses a quantitative approach, with the uncertainty of activity data and emissions factors quantified using the "First order error propagation method".
6	Magnitude of errors and faults	The report identifies special calculation assumptions, such as the inclusion of gasoline consumption in lawnmower calculations due to negligible consumption by gasoline generators. These assumptions need to be clearly documented and justified to ensure transparency. The uncertainty assessment results for Category 1 and 2 emissions sources show a confidence interval of 0.00%, indicating no significant errors in the data. However, qualitative uncertainty is used for Categories 3 to 6, which rely on secondary or estimated data

APPENDIX B

Recommendation

MEMC has made notable progress in its GHG emissions management which the reduction in GHG emissions from 38,386.27 tCO_2eq to 35,118.95 tCO_2eq (a decrease of 3,267.32 tCO_2eq), To continue this trend, it is below are the recommendation that MEMC should consider to refine emissions calculations and uncover further reduction opportunities.

1) Enhance Data Collection and Accuracy
The report highlights some gaps in data collection, such as incomplete records for fuel consumption and emissions from certain activities. Improving data collection methods and ensuring comprehensive records can help in accurately tracking emissions and identifying reduction opportunities.

2) Focus on High-Impact Areas
The largest source of emissions in 2024 was from upstream raw materials, accounting for 57.26% of total emissions. Targeting this area for reduction, perhaps by sourcing materials with lower carbon footprints or improving supply chain efficiency, could significantly decrease overall emissions.

3) Engage in Continuous Monitoring and Improvement
The report emphasizes the importance of monitoring GHG emissions and formulating reduction strategies. Regularly reviewing and updating these strategies can ensure ongoing progress towards emission reduction goals.

APPENDIX C

Conclusion

Based on the methodology described above, the statement of the information regarding the GHG Emissions Calculation Report for Year 2024 for Category 1, 2, 3 and 4 is prepared in accordance with ISO14064-1:2018.

Category	1	2	3	4	Total
CO2e Emissions (tCO2e)	201.50	12,207.78	2,504.96	20,204.72	35,118.96

Nurul Salihah binti Mat Nor
(Lead Verifier, ENR-01276703)

STATEMENT OF COMPETENCY & INDEPENDENCE

One Island is an independent professional services firm that provides strong industry knowledge and sustainability subject matter expertise. One Island appointed GEES Group as an independent verifier and assurer, which GEES Group (licensing under HSE Solutions Sdn Bhd) is a Global Reporting Initiative Certified Training Partner for the Asean region and European Federation of Financial Analyst Societies (EFFAS) Certified Training Partner. Our team of experts has the technical expertise and competency to conduct assurance to the AA1000 assurance standard, which meets the criteria for assurance of Life Cycle Analysis (LCA) and GHG emissions data.

None of our assurance team members have a business relationship with MEMC beyond what is required by this assignment. We conducted this verification and assurance independently, and, to our knowledge, there has been no conflict of interest.

Malaysia, 12 September 2025

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GREENHOUSE GAS EMISSIONS VERIFICATION REPORT

Attention to: MEMC Electronic Materials Sdn Bhd

1. Objective and Scope of the GHGs Emission Calculation

HSE Group (hereafter "HSEG") was engaged by One Island Consultation (hereafter "OIC) to provide an independent verification (2nd party) on GHG Emissions Calculation Report for Year 2023 (hereafter "Report") for MEMC Electronic Materials Sdn Bhd (hereafter "MEMC"). The content of verification was to express the conclusion, based on the verification methodology, on whether the statement of information regarding the Greenhouse Gas (GHG) emissions in the Report was correctly measured and calculated, in accordance with the "ISO14064-1:2018". The purpose of the verification is to evaluate the Report objectively and to enhance the credibility of information regarding GHG emissions in the Report. The data in the Report is collected within 1st January 2023 until 31st December 2023.

2. Methodology for Verification

HSEG conducted the verification in accordance with "ISO14064-1:2018". The scope of this verification assignment covers GHG emissions from (1) direct GHG emissions (energy derived CO2 & air conditioner leakage HFCs); (2) indirect GHG emissions from purchased electricity; (3) indirect GHG emissions from procurement & shipping transportation; and (4) indirect GHG emissions from purchased raw material & waste disposal (hereafter "Category 1,2,3 and 4"). The verification was conducted to a limited level of assurance. The organizational boundary of the verification is only at Petaling Jaya, Selangor, Malaysia.

Our verification methodology included checking on:

(1) scope and boundaries (geographic, operations covered, timeframe, etc.);
(2) any missing information and potential uncertainty in regard with the provided raw data;
(3) validity of methodology applied;
(4) validity of assumptions made;
(5) accuracy of emissions calculations; and
(6) magnitude of errors and faults.

3. Conclusion

Based on the methodology described above, the statement of the information regarding the GHG Emissions Calculation Report for Year 2023 for Category 1,2,3 and 4 is prepared in accordance with ISO14064-1:2018.

Category	1	2	3	4	Total
tCO2eq Emissions	229.25	13,460.62	4,041.36	20,655.04	**38,386.27**

4. Scope of Work

OIC was responsible for preparing the Report for MEMC, and HSEG's responsibility was to conduct verification of GHG emissions in the Report only. There is no conflict of interest between MEMC, OIC and HSEG.

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(GHG Verifier – PQ-00267982)
HSE Group
4th November 2024