

# Assurance Statement

To the Directors and Management  
Indorama Ventures Public Company Limited,  
Bangkok, Thailand

Indorama Ventures Public Company Limited (hereafter 'IVL') commissioned TUV India Private Limited (TUVI) to conduct independent external assurance of non-financial information disclosed in IVL's Sustainability Report (hereinafter 'the Report') for the period January 1, 2021 to December 31, 2021 period. This engagement comprises a "limited assurance" of IVL's sustainability information and a "reasonable assurance" of IVL's direct and indirect (Scope 1 and 2) GHG emissions as a whole for the applied reporting period. The Report is based on the principles of IIRC Integrated Reporting (<IR>), GRI Standards, AA1000AS Version 3 (Type 1, Moderate Level) for verification of the Report along with AA1000 AP (2018).

## Management's Responsibility

IVL has developed the Report content. Its Management is responsible for identifying material topics and carrying out the collection, analysis, and disclosure of the information presented in web-based and printed Reports, including website maintenance and integrity. IVL's Management is also responsible for ensuring the quality and accuracy of the Report in accordance with the applied criteria stated in the <IR> framework and GRI standards in such a way that it is free of intended or unintended material misstatements.

## Scope and Boundary

The scope of work includes limited assurance of the following non-financial performance / KPI disclosures disclosed in the Report. In particular, the assurance engagement included the following:

- Review of the disclosures submitted by IVL;
- Review of the quality of information;
- Review of evidence (on sample basis) for identified non-financial indicators

TUVI has verified the below-mentioned disclosures given in the report.

Topic	Indicator	GRI Disclosure
Energy	Energy consumption within the organization	302-1
	Energy intensity	302-3
Water and effluents <sup>1</sup>	Water withdrawal	303-3
	Water discharge	303-4
	Water Consumption	303-5
Emissions	Direct (Scope 1) GHG emissions	305-1
	Energy indirect (Scope 2) GHG emissions	305-2
	Nitrogen oxides (NO <sub>x</sub> )/sulfide oxides (SO <sub>x</sub> ) and other significant air emissions	305-7
Waste	Waste generated	306-3
	Waste diverted from disposal	306-4
	Waste directed to disposal	306-5
Occupational health and safety	Work-related injuries	403-9
Training and education	Average hours of training per year per employee	404-1
<i>Process Safety Events (Tier 1 and 2): As per the American Petroleum Industry's recommended Practice API RP 754</i>		

<sup>1</sup> "Out of total 112 reported sites, COD was monitored at 38 sites, 28 sites sent discharge wastewater to the third party for treatment, 41 sites reported negligible COD, and no liquid discharge reported by 5 sites."

The reporting boundaries for the above topics include 112 operating sites across 33 countries. Since COVID-19 prevented onsite verification, remote verification (via web-based video conference calls, and telephone calls) was conducted in November 2021, February, and March 2022. The assurance encompassed IVL Dhunseri Petrochem Industries – Haldia (PET) located in India; Indorama Petrochem (PTA) located in Thailand; Indorama Ventures Polymers Mexico (PET & Fibers) located in Mexico, Indorama Ventures Oxides Australia (IOD) located in Australia and Auriga Polymers (PET & Fibers) located in USA. The assurance activities were done together with a desk review carried out for all other IVL sites within the reporting boundary. Applicable boundaries for disclosures are explained in the Report.

## Limitations

TUVI did not perform any assurance procedures on the prospective information, such as targets, expectations, and ambitions, disclosed in the Report. Consequently, TUVI draws no conclusion on the prospective information. During the assurance process, TUVI did not come across any limitation to the agreed scope of the assurance engagement. TUVI expressly disclaims any liability or co-responsibility for any decision a person or entity would make based on this Assurance Statement.

## Our Responsibility

TUVI's responsibility in relation to this engagement was to perform a limited level of assurance and to express a conclusion based on the work performed. This engagement did not include an assessment of the adequacy or the effectiveness of IVL's strategy or Management of sustainability-related issues or the sufficiency of the report against principles of IIRC Integrated Reporting (<IR>), GRI Standards, AA1000AS Version 3, and AA1000 AP (2018), other than those mentioned in the scope of assurance. TUVI's responsibility regarding this verification is in accordance with the agreed scope of work which includes non-financial quantitative and qualitative information disclosed by IVL. This assurance engagement is based on the assumption that the data and information provided to us by IVL are complete and true.

## Verification Methodology

During the assurance engagement, TUVI adopted a risk-based approach, focusing on verification efforts with respect to disclosures. TUVI has verified the disclosures and assessed the robustness of the underlying data management system, information flows, and controls. In doing so:

- TUVI examined and reviewed the documents, data, and other information made available by IVL for non-financial disclosures;
- TUVI conducted interviews with key representatives, including data owners and decision-makers from different functions of IVL;
- TUVI reviewed the level of adherence to principles of "The <IR> Framework" and GRI standards: core option.

## Opportunities for Improvement

The following are the opportunities for improvement reported to IVL. However, they are generally consistent with the Management's objectives and programs.

- IVL can interlink the SAP data and define the material categories as stated under the disclosure GRI 301-1 for 'raw materials', 'associated process materials' and 'material for packaging' to increase the accuracy of the disclosure;
- In line with "Climate Change Strategy", IVL can list the green projects which were appraised by considering the ICP (Internal Carbon Price);
- A corporate level training on the data management and definitions of significant parameters can be planned to further improve the data disclosure mechanism;
- IVL can further update waste management data capturing to improve disclosure in line with the latest requirements of GRI 306 (2020)

## Our Conclusion

In our opinion, based on the scope of this assurance engagement, the disclosures on Sustainability performance reported in the Report along with the referenced information provides a fair representation of the material topics, related strategies, and performance disclosures and meets the general content and quality requirements of the GRI Standards: Core option.

**Disclosures:** TUVI is of the opinion that the reported disclosures generally meet the GRI Standards reporting requirements for in accordance with the "Core" option. IVL refers to general disclosure to report contextual information about IVL, while the Management Approach is discussed to report the management approach for each material topic.

**Universal Standard:** IVL followed GRI 101: Reporting Principles for defining report content and quality, GRI 102: General Disclosures were followed when reporting information about an Organization's profile, strategy, ethics and integrity, governance, stakeholder engagement practices, and reporting process. Furthermore, GRI 103 was selected for Management's Approach on reporting information about how an organization manages a material topic. TUVI is of the opinion that the reported specific disclosures for each material topic generally meet the GRI Standards reporting requirements in accordance with the "Core" option.

**Topic Specific Standard:** 200 series (Economic topics), 300 series (Environmental topics), and 400 series (Social topics); These Topic-specific Standards were used to report information on the organization's impacts related to environmental and social topics. *TUVI is of the opinion that the reported material topics and Topic-specific Standards that IVL used to prepare its Report are appropriately identified and addressed.*

**Limited Assurance Conclusion:** Based on the procedures we have performed, nothing has come to our attention that causes us to believe that the information subject to the limited assurance engagement was not prepared in all material respects. TUVI found the sustainability information to be reliable in all material respects, with regards to the reporting criteria ("Core") of the GRI Standards.

**Reasonable Assurance Conclusion:** TÜV Nord Cert GmbH has verified the information on GHG Scope 1 and 2 emissions in accordance with the GHG Protocol, ISO 14064-1, and ISO 14064-3. Based on the procedures we have performed, in our opinion, IVL reported the direct and indirect (Scope 1 and 2) GHG emissions as a whole.

TUVI confirms that IVL has transparently reported major material information pertaining to all its six capitals in line with the <IR> framework, as below

**Financial Capital:** net worth, capex, investment spent, the economic value generated, gross revenue, etc.

**Manufactured Capital:** Manufacturing facilities, R & D centers, number of new products launched, new plants, buildings, infrastructure, etc.

**Intellectual Capital:** Knowledge-based intangibles, including intellectual property, R & D activities, patents, designs registered new product development, etc.

**Human Capital:** IVL's Engineers, technicians, skilling and re-skilling of employees to enhance their competencies, safety performance, capabilities, experience, motivations to innovate, etc.

**Social and Relationship Capital:** IVL's relationship with stakeholders such as customers, business partners, regulators, suppliers, business partners, communities, legislators, policy-makers, and benefits associated with brand and reputation, along with IVL's ability to share information to enhance wellbeing.

**Natural Capital:** Sourcing responsibilities for the majority of renewable and non-renewable environmental resources and processes that provide goods or services. Reporting of circular economy, emissions, water consumption, waste disposal, etc.

### Evaluation of the adherence to AA1000 AccountAbility Principles

**Inclusivity:** Stakeholder identification and engagement is carried out by IVL on a periodic basis to bring out key stakeholder concerns as material topics of significant stakeholders. In our view, the Report meets the requirements.

**Materiality:** The materiality assessment process has been carried out based on the requirements of the GRI Standards, considering topics that are internal and external to the IVL range of businesses. The Report fairly brings out the aspects and topics and their respective boundaries of the diverse operations of IVL. In our view, the Report meets the requirements.

**Responsiveness:** TUVI believes that the responses to the material aspects are fairly articulated in the report, i.e., disclosures on IVL policies and management systems, including governance. In our view, the Report meets the requirements.

**Impact:** IVL communicates its sustainability performance through regular, transparent internal and external reporting throughout the year, aligned with GRI, and CDP as part of its policy framework encompassing the Environmental, Social, Ethical and other policies. IVL reports on sustainability performance to the Board of Directors and the Sustainability and Risk Management Committee (SRMC), who oversee and monitor the implementation and performance of objectives, as well as progress against goals and targets for addressing sustainability-related issues. IVL completed the process of establishing contemporary goals and targets against which performance will be monitored and disclosed periodically.

TUVI expressly disclaims any liability or co-responsibility for any decision a person or entity would make based on this Assurance Statement. The intended users of this assurance statement are the Management of IVL. The Management of the IVL is responsible for the information provided in the Report as well as the process of collecting, analyzing, and reporting the information presented in web-based and printed Reports, including website maintenance and its integrity. TUVI's responsibility regarding this verification is in accordance with the agreed scope of work which includes non-financial quantitative and qualitative information (Sustainability Performance) disclosed by IVL in the Report. This assurance engagement is based on the assumption that the data and the information provided to TUVI by IVL are complete and true.

### Our Assurance Team and Independence

TUVI is an independent, neutral third party providing sustainability services with qualified environmental and social specialists. TUVI states its independence and impartiality and confirms that there is "No Conflict of Interest" with regard to this assurance engagement. In the reporting year, TUVI did not work with IVL on any engagement that could compromise the independence or impartiality of our findings, conclusions, and recommendations. TUVI was not involved in the preparation of any content or data included in the Report, with the exception of this Assurance Statement. TUVI maintains complete impartiality towards any individuals interviewed during the assurance engagement.

For and on behalf of TUV India Private Limited



Manojkumar Borekar  
Project Manager and Reviewer  
Head – Sustainability Assurance Service



Date: 13-07-2022  
Place: Mumbai, India  
Project Reference No: 8120210379  
[www.tuv-nord.com/in](http://www.tuv-nord.com/in)



**AA1000**  
Licensed Assurance Provider  
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# CERTIFICATE

## Carbon Footprint 2021

according to DIN EN ISO 14064-1:2019 - Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals

The Carbon Footprint was verified by TÜV NORD CERT GmbH in accordance with DIN EN ISO 14064-3:2020 regarding its correctness and completeness for

**Indorama Ventures Public Company Ltd.**  
**75/102, Ocean Tower 2**  
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**Bangkok 10110**  
**Thailand**



Acting as an independent Certification Body TÜV NORD CERT GmbH has verified the carbon footprint, Scope 1, Scope 2 (Location based) and Scope 3 of the organisation for the reporting period 01.01.2021 - 31.12.2021 (inclusive) to be 35,184,172 t CO<sub>2</sub>e.

Summary	t Co <sub>2</sub> e
Scope 1	7,247,667
Scope 2 (Location based)	2,485,210
<b>Scope 1 and 2 (Location based)</b>	<b>9,732,877</b>
Scope 2 (Market based)	2,407,780
Scope 3 Emissions from raw material	23,787,293
Scope 3 Emissions from electricity	533,386
Scope 3 Emissions from fuels	1,130,616
<b>Scope 1, Scope 2 (Location based), Scope 3</b>	<b>35,184,172</b>

for the reporting period 01.01.2021 - 31.12.2021 (inclusive).

The level of assurance is Reasonable. The carbon footprint covers direct and indirect emissions. The calculation of the carbon footprint comprises of emissions arising from:

Scope 1: Stationary and mobile combustion, fugitive emissions, process off gas (PET and PTA), nitrogen production, waste water treatment (anaerobic and aerobic), fire suppression equipment, SF6 in electrical equipment, compressed air, chilled water, cooling water, biogas and biomass combustion.

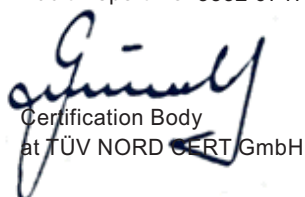
Scope 2: Electricity purchased (location and market based), third party electricity and heat, steam purchased.

Scope 3: Raw material, transmission and distribution, well to tank related to electricity purchased and fuels.

On the basis of the verification, the greenhouse gas statement is materially correct and a fair representation of greenhouse data and information. Furthermore, it can be confirmed that the greenhouse gas statement has been prepared in accordance with the ISO 14064-1 standard.

Certificate Registration No. 44 776 180191

Audit Report No. 3532 6747



Certification Body  
at TÜV NORD CERT GmbH

Essen, 2022-07-08

TÜV NORD CERT GmbH

Am TÜV 1

45307 Essen

[www.tuev-nord-cert.com](http://www.tuev-nord-cert.com)