



## ANALYSIS OF THE CONFORMITY OF CARBON EMISSION DISCLOSURE BASED ON ENVIRONMENTAL MANAGEMENT ACCOUNTING THROUGH GRI 305 IN IDX LQ45 LOW CARBON LEADER INDEX COMPANIES (2022–2024)

### ANALISIS KESESUAIAN PENGUNGKAPAN EMISI KARBON BERDASARKAN AKUNTANSI MANAJEMEN LINGKUNGAN MELALUI GRI 305 PADA PERUSAHAAN INDEKS PEMIMPIN RENDAH KARBON IDX LQ45 (2022–2024)

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#### Abstract

This study aims to analyze the level of conformity of carbon emission disclosure based on Environmental Management Accounting (EMA) through the GRI 305 standard in companies included in the IDX LQ45 Low Carbon Leaders (LQ45LCL) index during the period 2022–2024. The increasing global attention to Environmental, Social, and Governance (ESG) issues encourages companies to improve transparency in environmental reporting, particularly regarding carbon emissions. EMA plays an important role as an internal accounting system that provides environmental information used in sustainability reporting. However, variations in the quality of carbon emission disclosure among companies indicate that the implementation of EMA is not yet fully optimal. This research uses a quantitative descriptive approach by analyzing the level of disclosure conformity of GRI 305 indicators in sustainability reports of companies included in the IDX LQ45 Low Carbon Leaders index. The level of conformity is calculated by comparing the number of disclosed indicator criteria with the maximum number of criteria that should be disclosed. The classification of disclosure levels includes not applied, limited disclosure, partially applied, well applied, and fully applied. The results show that the level of carbon emission disclosure among companies varies across the observation period. Several companies demonstrate an increasing trend in disclosure, while others experience fluctuations or remain at a limited disclosure level. Overall, most companies fall within the partially applied category, indicating that carbon emission disclosure has not yet been comprehensively implemented according to the GRI 305 standards. These findings suggest that although companies in the LQ45LCL index are recognized as low-carbon leaders, improvements in the implementation of Environmental Management Accounting are still needed to enhance the transparency and completeness of carbon emission reporting.

**Keywords** : Environmental Management Accounting, Carbon Emission Disclosure, GRI 305, Sustainability Reporting, IDX LQ45 Low Carbon Leaders.



### Abstrak

Penelitian ini bertujuan untuk menganalisis tingkat kesesuaian pengungkapan emisi karbon berdasarkan Akuntansi Manajemen Lingkungan (EMA) melalui standar GRI 305 pada perusahaan yang termasuk dalam indeks IDX LQ45 Low Carbon Leaders (LQ45LCL) selama periode 2022–2024. Meningkatnya perhatian global terhadap isu Lingkungan, Sosial, dan Tata Kelola (ESG) mendorong perusahaan untuk meningkatkan transparansi dalam pelaporan lingkungan, khususnya terkait emisi karbon. EMA memainkan peran penting sebagai sistem akuntansi internal yang menyediakan informasi lingkungan yang digunakan dalam pelaporan keberlanjutan. Namun, variasi kualitas pengungkapan emisi karbon di antara perusahaan menunjukkan bahwa implementasi EMA belum sepenuhnya optimal. Penelitian ini menggunakan pendekatan deskriptif kuantitatif dengan menganalisis tingkat kesesuaian pengungkapan indikator GRI 305 dalam laporan keberlanjutan perusahaan yang termasuk dalam indeks IDX LQ45 Low Carbon Leaders. Tingkat kesesuaian dihitung dengan membandingkan jumlah kriteria indikator yang diungkapkan dengan jumlah maksimum kriteria yang seharusnya diungkapkan. Klasifikasi tingkat pengungkapan meliputi tidak diterapkan, pengungkapan terbatas, diterapkan sebagian, diterapkan dengan baik, dan diterapkan sepenuhnya. Hasil penelitian menunjukkan bahwa tingkat pengungkapan emisi karbon di antara perusahaan bervariasi sepanjang periode pengamatan. Beberapa perusahaan menunjukkan tren peningkatan pengungkapan, sementara yang lain mengalami fluktuasi atau tetap berada pada tingkat pengungkapan yang terbatas. Secara keseluruhan, sebagian besar perusahaan termasuk dalam kategori penerapan sebagian, yang menunjukkan bahwa pengungkapan emisi karbon belum diterapkan secara komprehensif sesuai dengan standar GRI 305. Temuan ini menunjukkan bahwa meskipun perusahaan dalam indeks LQ45LCL diakui sebagai pemimpin rendah karbon, perbaikan dalam implementasi Akuntansi Manajemen Lingkungan masih diperlukan untuk meningkatkan transparansi dan kelengkapan pelaporan emisi karbon.

**Kata Kunci :** Akuntansi Manajemen Lingkungan, Pengungkapan Emisi Karbon, GRI 305, Pelaporan Keberlanjutan, IDX LQ45 Pemimpin Rendah Karbon.

## 1. INTRODUCTION

Companies require substantial funding sources to expand their operations and maintain competitiveness in the market. One common strategy is conducting an Initial Public Offering (IPO), which allows company shares to be publicly traded on the Indonesia Stock Exchange (IDX). According to PwC (2023), the IPO process not only aims to obtain additional capital but also requires improved corporate governance, transparency, and readiness to face public and regulatory oversight. After becoming publicly listed companies, firms face higher expectations from investors regarding sustainability practices and environmental disclosure, especially as global attention to Environmental, Social, and Governance (ESG) issues continues to increase (Agustina et al., 2025).

In terms of governance and organizational transparency, Ihsani et al. (2021) confirm that the Indonesian capital market has begun to respond positively to companies that demonstrate strong sustainability reporting practices. This indicates a shift in investor preferences toward firms that show commitment to environmental management and social responsibility. Once listed as public companies, firms are subject to broader scrutiny from investors and the public, including in relation to environmental sustainability, which has become a major global concern.

As part of sustainability initiatives in the capital market, the Indonesia Stock Exchange introduced ESG-oriented indices, including the IDX LQ45 Low Carbon Leaders (LQ45LCL) index. This index is derived from the LQ45 index but includes additional selection criteria related to lower carbon intensity compared to the average companies within the parent index (Indonesia Stock Exchange, 2022). Rahmawati and Sartika (2025) describe LQ45LCL companies as highly liquid firms that demonstrate commitment to reducing their carbon footprint in business practices.

The importance of the LQ45LCL index has also been emphasized by Putra et al. (2025), who state that the index is designed as an investment alternative with lower environmental risk while



encouraging companies to improve emission management. Moldovan et al. (2024) further highlight that low-carbon companies must demonstrate credible and consistent emission measurement. Simamora et al. (2022) explain that such companies are associated with strong environmental governance, which attracts green investors. Similarly, Ovina and Meiden (2023) and Jantana et al. (2024) emphasize that firms with lower emissions have greater potential to increase firm value by reducing environmental risks, aligning with national policies aimed at achieving Net Zero Emissions by 2050.

Based on previous literature, companies included in the IDX LQ45LCL index represent leading firms that ideally not only possess lower carbon intensity but also demonstrate strong commitment to transparency, accountability, and sustainable emission reduction performance. Being categorized as low carbon leaders requires not only low emissions but also the ability to manage and report environmental impacts responsibly. In this context, Environmental Management Accounting (EMA) becomes an important conceptual foundation that supports the measurement, management, and disclosure of environmental impacts.

EMA functions as a managerial accounting system that identifies and manages environmental flows both physically and monetarily, including carbon emissions. Ferreira and Moulang (2010) explain that EMA helps companies identify, measure, and manage emissions through verifiable accounting systems. Vasile and Man (2012) further state that EMA involves identifying, collecting, calculating, analyzing, and reporting information related to material and energy flows as well as environmental costs to support effective decision-making and environmental protection. Therefore, EMA provides the internal information base necessary for companies to implement sustainable management practices.

Environmental management is increasingly viewed not as a cost burden but as a strategic investment that supports long-term profitability and sustainability (Badu, 2020). Lukum et al. (2025) also emphasize that transparency and environmental responsibility are essential elements of sustainability. In this regard, companies within the IDX LQ45LCL index are expected to demonstrate accountability not only through their status as low carbon leaders but also through transparent carbon emission disclosure supported by reliable internal systems.

EMA also plays an important role in supporting external sustainability reporting. Qian and Jacob (2018) argue that effective EMA practices should be integrated with corporate sustainability reporting systems to ensure environmental accountability and transparency to stakeholders. Burritt et al. (2023) similarly state that a high-quality EMA system is reflected in transparent external sustainability reporting. One of the most widely used global standards for sustainability reporting is the Global Reporting Initiative (GRI) (PwC, 2023), which provides structured guidelines and indicators for evaluating corporate environmental disclosure (Font et al., 2016).

Previous studies have mainly focused on companies in high environmental risk sectors such as energy and mining when examining sustainability disclosure based on GRI standards (Athaya-Artanti et al., 2025; Pratama et al., 2023). Other studies have also explored sustainability reporting in specific companies or sectors, including mining companies receiving sustainability reporting awards and firms in service and healthcare sectors (Ririn et al., 2023; Yunari & Bayangkara I, 2025). Additionally, research has examined sustainability disclosure within market indices such as the Sustainable and Responsible Investment (SRI) and KEHATI index (Ovina & Meiden, 2023).

However, previous research on companies included in the IDX LQ45LCL index has generally focused on the impact of sustainability disclosure on firm value and investor perception (Jantana et al., 2024; Kusuma & Sari, 2025). There remains limited analysis linking the level of GRI disclosure conformity with the Environmental Management Accounting (EMA) approach as the internal environmental data foundation. Therefore, further analysis is necessary to address this research gap and provide recommendations for improving sustainability reporting among companies included in the LQ45LCL index.



## 2. RESEARCH METHOD

This study employs a quantitative descriptive research approach to analyze the conformity level of carbon emission disclosure based on Environmental Management Accounting through the GRI 305 standard. The research focuses on companies included in the IDX LQ45 Low Carbon Leaders (LQ45LCL) index listed on the Indonesia Stock Exchange during the 2022–2024 period. The data used in this study are secondary data obtained from sustainability reports and annual reports published by the sampled companies.

The data analysis technique is carried out by measuring the level of conformity of carbon emission disclosure using the GRI 305 indicators. The conformity level is calculated by comparing the number of disclosed indicator criteria with the total maximum criteria required by GRI 305. The calculation follows the formula:

Level of Conformity = (Number of disclosed indicator criteria / Maximum number of indicator criteria) × 100%.

Furthermore, the results of the conformity calculation are classified into five categories of disclosure levels: Not Applied (0%), Limited Disclosure (1–40%), Partially Applied (41–75%), Well Applied (76–99%), and Fully Applied (100%). Through this approach, the study evaluates the extent to which companies in the IDX LQ45 Low Carbon Leaders index disclose carbon emission information and assesses the consistency and adequacy of their sustainability reporting practices during the observation period.

## 3. RESULT AND DISCUSSION

### 1. PT Aneka Tambang Tbk

Based on the formula, PT Aneka Tambang Tbk's diversity level is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{21,43}{37} \times 100\% = \underline{58\%}$$

$$2023 : \text{Conformity Level} = \frac{22,43}{37} \times 100\% = \underline{61\%}$$

$$2024 : \text{Conformity Level} = \frac{28,42}{37} \times 100\% = \underline{77\%}$$

Based on the calculation of the compliance level of GRI 305 indicator disclosures, a steady upward trend was observed over the three years of observation. In 2022, the compliance level reached 58%, indicating that the company had disclosed more than half of the maximum required criteria, but there was still significant room for improvement to achieve more comprehensive disclosures. Entering 2023, the compliance level increased to 61% and became even more apparent in 2024, when the disclosure percentage reached 77%. This upward trend shifted ANTM from being categorized as partially applied to well applied. This improvement indicates that the company has made substantial improvements in its disclosure of carbon emissions information.

### 2. PT Bank Central Asia Tbk (BBCA)

Based on the formula, the level of compliance of PT Bank Central Asia Tbk Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{9}{37} \times 100\% = \underline{24\%}$$

$$2023 : \text{Conformity Level} = \frac{14}{37} \times 100\% = \underline{38\%}$$

$$2024 : \text{Conformity Level} = \frac{20}{37} \times 100\% = \underline{54\%}$$

Based on the results of the disclosure compliance calculation, BBCA showed improvement with an increasing disclosure trend from 2022 to 2024. In 2022, the compliance rate was at 24%, then increased to 38% in 2023. This percentage indicates that the company had only disclosed less than half of the total indicator criteria that should have been disclosed, thus categorizing it as limited disclosure. BBCA then made improvements, so that in 2024, the emissions disclosure rate reached 54% (partially applied). This substantial increase compared to previous years indicates that the company is increasingly responsive to stakeholder demands for transparency.



### 3. PT Bank Rakyat Indonesia Tbk

Based on the formula, the level of conformity of PT Bank Rakyat Indonesia Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{21}{37} \times 100\% = \underline{57\%}$$

$$2023 : \text{Conformity Level} = \frac{18}{37} \times 100\% = \underline{49\%}$$

$$2024 : \text{Conformity Level} = \frac{22}{37} \times 100\% = \underline{59\%}$$

Based on the results of the disclosure compliance calculation, BBRI showed fluctuations in disclosure between 2022 and 2024. In 2022, BBRI was classified as partially applied with a disclosure rate of 57%. Then, in 2023, the percentage decreased to 49%. In 2024, the company again improved its disclosure, indicated by a higher compliance rate than in 2022, at 59%, with a partially applied classification.

### 4. PT Bank Negara Indonesia Tbk.

Based on the formula, the level of conformity of PT Bank Negara Indonesia Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{11}{37} \times 100\% = \underline{30\%}$$

$$2023 : \text{Conformity Level} = \frac{15}{37} \times 100\% = \underline{41\%}$$

$$2024 : \text{Conformity Level} = \frac{17}{37} \times 100\% = \underline{46\%}$$

Based on the results of the disclosure compliance calculation, BBNI showed an increase in emissions disclosure from 2022 to 2024. In 2022, BBNI was classified as limited disclosure with 30% disclosure. In 2023, the percentage increased further to 41%, placing the company in the partially applied category. Furthermore, in 2024, BBNI further demonstrated its concern for environmental issues by improving its disclosure, increasing by 5% to 46%, but remaining in the partially applied category.

### 5. PT Bank Tabungan Negara Tbk

Based on the formula, the level of compliance of PT Bank Tabungan Negara Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{21}{37} \times 100\% = \underline{57\%}$$

$$2023 : \text{Conformity Level} = \frac{24}{37} \times 100\% = \underline{65\%}$$

$$2024 : \text{Conformity Level} = \frac{19,67}{37} \times 100\% = \underline{53\%}$$

Based on the calculation of the compliance level of GRI 305 indicator disclosure, BBTN's carbon emissions disclosure fluctuated throughout the period from 2022 to 2024. In 2022, the compliance level reached 57%, indicating that more than half of the emission indicator criteria had been disclosed. This percentage indicates that the company has a relatively adequate disclosure basis, although there is still room for improvement in reporting. Entering 2023, the compliance level percentage increased to 65%, indicating the company's commitment to expanding the scope of carbon emissions information. However, in 2024, the compliance level decreased to 53%, indicating that emissions disclosure was not as comprehensive as the previous year. For the three years, BBTN was categorized as partially applied.

### 6. PT Bank Mandiri Tbk

Based on the formula, the level of compliance of PT Bank Mandiri Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{15,32}{37} \times 100\% = \underline{41\%}$$

$$2023 : \text{Conformity Level} = \frac{15,32}{37} \times 100\% = \underline{41\%}$$

$$2024 : \text{Conformity Level} = \frac{20,66}{37} \times 100\% = \underline{56\%}$$

The results of the carbon emissions disclosure compliance measurement indicate that the company experienced gradual development in disclosure throughout the period from 2022 to 2024. In



2022, the compliance level was recorded at 41%. This value indicates that the company was only able to meet a small portion of the total disclosure criteria set by GRI 305, and remained at the same level in 2023. Then, progress was clearly visible in 2024, with the compliance level increasing to 56%. This percentage increase indicates the company's increased commitment to improving the completeness and quality of carbon emissions disclosure. However, BMRI remained in the partially applied category throughout 2022 and 2024.

#### 7. PT XI Axiata Tbk (EXCL)

Based on the formula, the level of compliance of PT XI Axiata Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{9}{37} \times 100\% = \underline{24\%}$$

$$2023 : \text{Conformity Level} = \frac{12}{37} \times 100\% = \underline{32\%}$$

$$2024 : \text{Conformity Level} = \frac{10}{37} \times 100\% = \underline{27\%}$$

Based on the calculation of the compliance level of GRI 305 indicator disclosures, it is clear that the quality of the company's emissions disclosure remained low throughout the observation period, with significant fluctuations from year to year. In 2022, EXCL's compliance level of 24% indicated that the company only disclosed a small portion of the overall 305 indicator criteria. In 2023, the compliance level increased to 32%. This 8% increase indicates that the company is beginning to improve its reporting. However, the opposite trend was observed in 2024, with the compliance level dropping back to 27%. This percentage of EXCL's emissions disclosures means that EXCL remains in the limited disclosure category throughout 2022-2024.

#### 8. PT Goto Gojek Tokopedia Tbk (GOTO)

Based on the formula, the level of compliance of PT Goto Gojek Tokopedia Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{17,67}{37} \times 100\% = \underline{48\%}$$

$$2023 : \text{Conformity Level} = \frac{18,57}{37} \times 100\% = \underline{50\%}$$

$$2024 : \text{Conformity Level} = \frac{20,76}{37} \times 100\% = \underline{56\%}$$

The calculation of the compliance level of GRI 305 indicator disclosures shows that the company experienced a gradual improvement in the quality of its carbon emissions reporting from 2022 to 2024. In 2022, the compliance level was at 48%. In 2023, the compliance level rose to 50%. This increase reflects the company's commitment to expanding the presentation of relevant information related to carbon emissions. This positive trend continued in 2024, with the compliance level increasing again to 56%. This percentage indicates that GOTO is included in the partially applied category, indicating GOTO's efforts to strengthen the completeness of emissions disclosures.

#### 9. PT Indofood CBP Sukses Makmur Tbk (ICBP)

Based on the formula, the level of compliance of PT ICBP Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{17,9}{37} \times 100\% = \underline{48\%}$$

$$2023 : \text{Conformity Level} = \frac{17,9}{37} \times 100\% = \underline{48\%}$$

$$2024 : \text{Conformity Level} = \frac{16,09}{37} \times 100\% = \underline{43\%}$$

Based on the calculation of the compliance level of emission indicator disclosures according to GRI 305, the company showed a stagnant disclosure pattern in 2022 and 2023. In 2022, the compliance level was recorded at 48% and remained at the same level in 2023. The lack of change in this percentage indicates that ICBP has not made any improvements in the presentation of emissions information. Meanwhile, in 2024, the compliance level of disclosure actually decreased to 43%. This percentage indicates that ICBP is included in the partially applied category throughout 2022 and 2024.

#### 10. PT Indofood Sukses Makmur Tbk (INDF)



Based on the formula, the level of compliance of PT Indofood Sukses Makmur Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{20,9}{37} \times 100\% = \underline{56\%}$$

$$2023 : \text{Conformity Level} = \frac{20,23}{37} \times 100\% = \underline{55\%}$$

$$2024 : \text{Conformity Level} = \frac{22,58}{37} \times 100\% = \underline{61\%}$$

Based on the calculation of the level of compliance with GRI 305 indicator disclosures, the company demonstrated an unstable level of disclosure, with a tendency to increase towards the end of the observation period. In 2022, the level of compliance reached 56%, then decreased by 1% in 2023. Meanwhile, an increase was seen in 2024, reaching 61%. This 5% increase demonstrates INDF's strengthening commitment to improving the completeness of its emissions information and placing INDF in the partially applied category during the observation period from 2022 to 2024.

#### 11. PT Kalbe Farma Tbk (KLBF)

Based on the formula, the level of compliance of PT KLBF Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{10,67}{37} \times 100\% = \underline{29\%}$$

$$2023 : \text{Conformity Level} = \frac{13,67}{37} \times 100\% = \underline{37\%}$$

$$2024 : \text{Conformity Level} = \frac{13,95}{37} \times 100\% = \underline{38\%}$$

The results of the GRI 305 indicator disclosure compliance measurement indicate that the company experienced an increase in disclosure from the beginning to the end of the observation period. The compliance level in 2022 was 29%. Then, in 2023, the compliance level increased to 37% and then slightly to 38% in 2024. This figure reflects that the company only disclosed a small portion of the required indicators, thus falling into the limited disclosure category.

#### 12. PT Medco Energi Internasional Tbk (MEDC)

Based on the formula, the level of compliance of PT Medco Energi Internasional Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{14}{37} \times 100\% = \underline{38\%}$$

$$2023 : \text{Conformity Level} = \frac{12,33}{37} \times 100\% = \underline{33\%}$$

$$2024 : \text{Conformity Level} = \frac{17,33}{37} \times 100\% = \underline{47\%}$$

Based on the calculation of the compliance level of GRI 305 indicator disclosures, it is clear that the quality of the company's emissions disclosure fluctuated between 2022 and 2024. In 2022, the compliance level reached 38%, but decreased to 33% in 2023. This decrease indicates that the company disclosed fewer emissions indicators than the previous year. Then, in 2024, the compliance level increased significantly to 46%. This brought the company from being in the limited disclosure category to partially applicable. This increase indicates that the company is again improving the quality of its reporting by increasing the number of indicators disclosed.

#### 13. PT Perusahaan Gas Negara Tbk (PGAS)

Based on the formula, the level of compliance of PT Perusahaan Gas Negara Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{22,43}{37} \times 100\% = \underline{61\%}$$

$$2023 : \text{Conformity Level} = \frac{23,43}{37} \times 100\% = \underline{63\%}$$

$$2024 : \text{Conformity Level} = \frac{26,43}{37} \times 100\% = \underline{71\%}$$

Based on the calculation of the compliance level of GRI 305 indicator disclosures, the company has consistently improved the quality of its carbon emissions reporting from 2022 to 2024. In 2022, the compliance level was recorded at 61%. This percentage indicates that more than half of the required emissions indicators have been successfully disclosed. In 2023, the compliance level increased to 63%



and reached a more significant 71% in 2024. The percentage of emissions disclosures from 2022 to 2024 consistently places PGAS in the partially applied classification.

#### 14. PT Telkom Indonesia Tbk

Based on the formula, the level of compliance of PT Telkom Indonesia Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{3}{37} \times 100\% = \underline{8\%}$$

$$2023 : \text{Conformity Level} = \frac{4}{37} \times 100\% = \underline{11\%}$$

$$2024 : \text{Conformity Level} = \frac{20.67}{37} \times 100\% = \underline{56\%}$$

The calculation results of the level of conformity of disclosure of GRI 305 indicators show a very significant change in the quality of the company's emissions reporting during the period 2022 to 2024. In 2022, the level of conformity only reached 8% and increased by 3% to 11% in 2023. This percentage indicates that the company almost did not disclose the emission indicators required by GRI 305. However, a significant increase occurred in 2024, namely the level of conformity of disclosure to 56%. The increase of 45% indicates that the company began to disclose most of the indicators required by GRI 305. This upward trend in disclosure shows that TLKM was originally included in the limited disclosure category, increasing to partially applied.

#### 15. PT Sarana Menara Nusantara Tbk (TOWR)

Based on the formula, the level of conformity of PT Sarana Menara Nusantara Tbk's disclosure is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{7}{37} \times 100\% = \underline{19\%}$$

$$2023 : \text{Conformity Level} = \frac{16}{37} \times 100\% = \underline{43\%}$$

$$2024 : \text{Conformity Level} = \frac{15}{37} \times 100\% = \underline{41\%}$$

Based on the calculation of the GRI 305 indicator similarity level, it appears that the company experienced significant improvement in the initial period, although this did not fully continue in the following year. In 2022, the similarity level was 19%, indicating that the company only disclosed a small portion of the GRI 305 emission indicators. In 2023, the similarity level jumped to 43%. This increase reflects a significant increase in the company's efforts to expand the coverage of information. However, in 2024, the similarity level decreased slightly to 41%. This 2% decrease indicates that the company was unable to fully maintain the quality of coverage achieved in the previous year. The disclosure percentage shows that TOWR in 2022 fell into the limited disclosure category, then increased to partial implementation in 2023 and 2024.

#### 16. PT United Tractors Tbk

Based on the formula, the level of compliance of PT United Tractors Tbk's disclosures is calculated as follows:

$$2022 : \text{Conformity Level} = \frac{8.67}{37} \times 100\% = \underline{23\%}$$

$$2023 : \text{Conformity Level} = \frac{18.67}{37} \times 100\% = \underline{50\%}$$

$$2024 : \text{Conformity Level} = \frac{20.67}{37} \times 100\% = \underline{56\%}$$

Based on the calculation of the compliance level of GRI 305 indicator disclosures, the company has seen significant progress in the quality of its carbon emissions reporting over the past three years. In 2022, the compliance level was 23%. Entering 2023, the compliance level increased dramatically to 50%. This 27% jump indicates the company's significant efforts to improve the transparency and completeness of emissions reporting. Then, in 2024, the compliance level continued to increase to 56%, indicating that the company continues to strengthen its commitment to presenting carbon emissions information. The increasing trend in disclosure levels indicates that UNTR fell into the limited disclosure category in 2022, then increased to partially applied in 2023 and 2024.



As an integration of the processing and analysis of data on the compliance level of emissions disclosures, the following summary table provides a comprehensive overview of the research findings:

TAHUN	KODE PERUSAHAAN															RATA-RATA	
	ANT M	BBCA	BBRI	BBNI	BBTN	BMRI	EXCL	GOT O	ICBP	INDF	KLBF	MED C	PGAS	TLKM	TOW R		UNT R
2022	58%	24%	57%	30%	57%	41%	24%	48%	48%	56%	29%	38%	61%	8%	19%	23%	39%
2023	61%	38%	49%	41%	65%	41%	32%	50%	48%	55%	37%	33%	63%	11%	43%	50%	45%
2024	77%	54%	59%	46%	53%	56%	27%	56%	43%	61%	38%	47%	71%	56%	41%	56%	53%

Based on the disclosure summary table for 2022–2024, there is a significant variation in disclosure levels among companies in the LQ45LCL index during each observation period. In 2022, PGAS recorded the highest disclosure rate at 61%, indicated in green, while TLKM recorded the lowest at 8%, indicated in red. In 2023, BBTN achieved the highest level with 65%, while TLKM again achieved the lowest at 11%. Furthermore, in 2024, ANTM recorded the highest disclosure rate at 77%, while EXCL recorded the lowest at 27%. In general, the average disclosure shows an increasing trend from 39% in 2022 to 45% in 2023 and 53% in 2024. However, the significant difference between companies with the highest and lowest disclosures in each year indicates that there are still inequalities in the consistency and depth of carbon emission disclosure practices among companies in the LQ45LCL index.

**Discussion**

The level of alignment in the implementation of Environmental Management Accounting (EMA) in carbon emission disclosure is measured through the percentage of compliance with the GRI 305 criteria. EMA is an integrated information system that facilitates the identification, collection, estimation, analysis, and reporting of internal data related to resource consumption and environmental costs. The results show a continuous increase in carbon emission disclosure during the observation period of 2022–2024. The average level of GRI 305 disclosure compliance among the sampled companies increased from 39% in 2022 to 53% in 2024, indicating an improvement in the companies’ capacity to measure and report greenhouse gas emissions as well as a response to increasing demands for transparency from stakeholders.

The improvement in emission disclosure transparency is consistent with Stakeholder Theory, which states that organizational sustainability depends on how well companies manage relationships with stakeholders such as investors, regulators, and the public. Companies appear to increasingly view carbon emission disclosure not merely as a reporting obligation but also as a strategic mechanism to maintain legitimacy and strengthen stakeholder relationships. However, the study also finds variations in disclosure levels among companies, reflecting differences in internal capacity, commitment, and environmental risk exposure. Firms in high-risk sectors such as energy and mining generally provide more comprehensive disclosure due to stronger external pressure, while companies in low-emission sectors like banking, telecommunications, and services tend to disclose less because environmental impacts are relatively smaller.

Overall, although disclosure has improved, the study reveals a gap between expectations and practice, particularly among companies included in the IDX LQ45 Low Carbon Leaders index. Weaknesses in several indicators (such as GRI 305-3, 305-6, and 305-7) indicate that EMA systems are not yet fully integrated into internal corporate processes. Nevertheless, the increasing disclosure trend suggests that EMA has begun to function as a foundational system supporting external sustainability reporting. The shift in the average disclosure category from Limited Disclosure (2022) to Partially Applied (2024) demonstrates that companies are gradually strengthening their internal environmental information systems, although deeper integration is still required to achieve comprehensive, standardized, and verifiable environmental reporting.

**4. CONCLUSION**

This study aims to analyze the conformity level of carbon emission disclosure based on Environmental Management Accounting (EMA) through the GRI 305 standard in companies included



in the IDX LQ45 Low Carbon Leaders (LQ45LCL) index during the 2022–2024 period. The findings indicate that the level of carbon emission disclosure among the observed companies varies significantly across the three years. Although some companies demonstrate substantial improvements in disclosure practices, others still show fluctuations or remain at relatively low disclosure levels.

Overall, the average level of disclosure increased from 39% in 2022 to 53% in 2024, indicating gradual progress in the transparency of carbon emission reporting. Several companies, such as ANTM, PGAS, and UNTR, show consistent improvements in disclosure levels, reflecting stronger commitment to environmental accountability and sustainability reporting. However, a number of companies remain within the limited disclosure category, suggesting that the implementation of EMA as an internal environmental information system has not yet been fully optimized.

The results also reveal disparities in disclosure practices across industries. Companies operating in sectors with higher environmental risks tend to provide more comprehensive carbon emission disclosures due to stronger external pressure from regulators and stakeholders. In contrast, firms in sectors such as banking, telecommunications, and services generally disclose fewer emission indicators because their direct environmental impacts are perceived as relatively lower.

In general, most companies in the LQ45LCL index fall within the partially applied category of GRI 305 disclosure. This indicates that while companies have begun to integrate environmental information into sustainability reporting, the disclosure of carbon emission information is not yet comprehensive or fully aligned with the GRI 305 standard. These findings highlight the need for stronger integration of Environmental Management Accounting systems within corporate management processes in order to improve the completeness, consistency, and reliability of carbon emission reporting.

Therefore, future improvements in environmental reporting require stronger internal environmental accounting systems, greater corporate commitment to sustainability transparency, and stronger regulatory encouragement to ensure that companies categorized as low carbon leaders can demonstrate more comprehensive and standardized carbon emission disclosures.

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