

Analysis of Climate-Related Disclosures in Telkom's 2024 Sustainability Report According to IFRS S2 Requirements

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ABSTRACT

The implementation of the global IFRS S2 standard regarding climate-related disclosures presents new challenges for corporate reporting transparency in developing economies. This study aims to evaluate the readiness of climate-related disclosures of PT Telkom Indonesia (Persero) Tbk in its 2024 Sustainability Report based on IFRS S2 requirements. This research employs a qualitative approach using content analysis of public corporate documents, utilizing the IFRS S2 disclosure checklist instrument, which covers four main pillars: governance, strategy, risk management, and metrics and targets. The findings indicate that PT Telkom Indonesia demonstrates a partial level of readiness in adopting the standard. Mature readiness is identified in the governance and risk management pillars, where climate change issues have been effectively integrated into board oversight structures and enterprise risk management frameworks. However, material gaps are found in the strategy and metrics pillars, particularly regarding the absence of quantified financial effects of climate risks on the company's financial position, the lack of quantitative climate scenario analysis, and the incomplete Scope 3 GHG emissions inventory. The study concludes that while institutional foundations are established, the company needs to prioritize the development of financial impact models and the expansion of supply chain data to achieve full compliance in the future.

KEYWORDS Sustainability Reporting, IFRS S2, Climate, Connectivity Information



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INTRODUCTION

In the 21st century, climate change has evolved from an environmental issue into one of the most significant challenges facing the global economy (World Economic Forum, 2024). The World Economic Forum (2025) highlights that climate change is the dominant economic risk, emphasizing the potential for enormous losses—such as health impacts estimated at USD 1.5 trillion and insured losses due to extreme weather exceeding USD 100 billion in the first half of 2025. This view is reinforced by the central bank community, which argues that climate-related risks are a source of financial risks, thereby requiring key considerations to maintain macroeconomic stability (Network for Greening the Financial System, 2019). In general, these risks are divided into two categories, namely physical risks and transition risks (Carney, 2015).

Some stakeholders, such as investors, creditors, and underwriters, need consistent, comparable, reliable, and verifiable sustainability data to integrate climate-related risks and opportunities into their companies' value and capital allocation decisions (BlackRock, 2021). Referring to traditional financial statements—which are designed to present the historical financial performance and position of an entity—these have proven insufficient to capture the long-term and probabilistic nature of climate risks (Cohen et al., 2012). As a result, stakeholders face uncertainty in assessing how a company is positioned to transition to a low-carbon future, creating market inefficiencies and the potential for capital misallocation (Christensen et al., 2021). This has prompted an urgent global demand for a new reporting

framework to bridge the gap between conventional financial disclosures and sustainability information that is relevant to investors and decision-makers (IFRS Foundation, 2020).

In response to this demand, the IFRS Foundation, which oversees the International Accounting Standards Board (IASB), established the International Sustainability Standards Board (ISSB) at COP26 in Glasgow in November 2021. In June 2023, the ISSB published two sustainability reporting standards—IFRS S1 (International Financial Reporting Standard Sustainability 1) and IFRS S2 (International Financial Reporting Standard Sustainability 2). IFRS S1 is the General Requirement for Disclosure of Sustainability Standards, while IFRS S2 focuses on Climate-related Disclosures. The implementation of these standards took effect globally on January 1, 2024, although actual adoption will depend on each country's local jurisdiction (KPMG, 2023).

In this regard, Indonesia has also begun preparing to apply these standards to public companies (Ahyani et al., 2022; Irawan et al., 2022; Prisandani, 2023). The Indonesian Institute of Accountants (IAI), as a professional accounting organization and issuer of sustainability reporting standards (PSPK), has taken several proactive steps in response to international developments in sustainability reporting (IAI, 2024). The implementation of these standards in Indonesia will become effective on January 1, 2027, for issuers, public companies, and financial services institutions. Therefore, companies required to implement PSPK 1 and PSPK 2 need to begin preparing for the publication of sustainability reports using the new standards.

The Global Reporting Initiative (GRI) standards and the Sustainable Development Goals (SDGs) remain the most widely used sustainability reporting frameworks in most jurisdictions (PwC, 2023). According to the Asia Pacific Sustainability Counts II report published by PwC, 80% of Indonesian companies surveyed in 2023 continued to use the GRI Standards for their sustainability reporting. This framework, particularly GRI, focuses on the concept of impact materiality, which considers a company's impact on the environment (GRI, 2023). In contrast, IFRS S2 adopts a financial materiality perspective, specifically emphasizing how climate issues affect enterprise value and prospects for capital providers (IFRS Foundation, 2023).

These philosophical differences—combined with the more prescriptive IFRS S2 requirements regarding financial impact quantification and climate scenario analysis—are expected to create a significant disclosure gap between current reporting practices and the new standard (PwC, 2024). Given that IFRS S2 will be officially adopted in Indonesia in early 2027 and that many companies are still in the preparation stage, empirical research mapping the extent of this gap in the Indonesian context remains limited. Therefore, this study is crucial to fill that gap in the literature by providing an in-depth analysis of current practice alignment as a basis for understanding the readiness of companies in Indonesia.

The urgency to assess the readiness of Indonesian companies to adopt IFRS S2 is increasing in line with the establishment of January 1, 2027, as the effective date for implementation by the Indonesian Institute of Accountants (IAI, 2024). The philosophical gap between the currently dominant GRI framework—based on impact materiality—and IFRS S2, which is based on financial materiality, presents complex adaptation challenges (PwC, 2024). Companies are not only required to change their reporting format but must also transform how they identify, measure, and communicate climate risk as a financial risk

affecting corporate value (IFRS Foundation, 2023). Without proper preparation, companies risk difficulties in providing relevant information to investors, which could ultimately affect market perception and capital allocation (Christensen et al., 2021).

Based on the Asia Pacific Sustainability Counts II report published by PwC (2023) regarding Indonesian companies' readiness to adopt IFRS S2, the adoption of the TCFD Framework increased from 4% in 2021 to 10% in 2022. This indicates growing use of the TCFD Framework in Indonesia in recent years. The four key components of IFRS S1 are derived from the TCFD Framework—governance, strategy, risk management, and metrics and targets (PwC, 2023)—which means applying the TCFD Framework will significantly support companies' transition toward implementing IFRS S2 standards.

To translate these global and national challenges into an empirical context within the digital industry, this research focuses its analysis on PT Telkom Indonesia (Persero) Tbk (Telkom). The telecommunications sector faces substantial exposure to physical risks, as critical assets such as Base Transceiver Stations (BTS), data centers, and fiber optic networks are highly vulnerable to damage from extreme weather events that are increasingly common in Indonesia (GSMA, 2024). Conversely, this sector also encounters transition risks linked to massive energy consumption—especially for data center operations—while holding significant potential as an enabler of decarbonization in other sectors through digital technologies such as IoT and smart cities.

This research aims to contribute to the application of climate-specific IFRS S2 requirements in the company's sustainability disclosures. Specifically, the purpose of this study is to analyze the disclosure of Telkom's Sustainability Report against IFRS S2 requirements related to climate. More precisely, it seeks to assess the extent to which climate-related disclosures in Telkom's Sustainability Report align with IFRS S2 requirements and to identify recommendations for improvement in future reporting periods.

METHOD

The approach used in this study is qualitative with a descriptive-analytical design. The qualitative approach was chosen because this study aims to understand the depth, richness, and complexity of climate disclosures presented by Telkom, rather than merely calculating frequencies or statistically measuring relationships between variables (Creswell & Poth, 2018). The requirements in IFRS S2 cover many narrative and qualitative aspects (e.g., explanations of governance, strategies, and risk management processes) that require contextual interpretation. The qualitative approach allows researchers to explore the meaning behind the reported text and data.

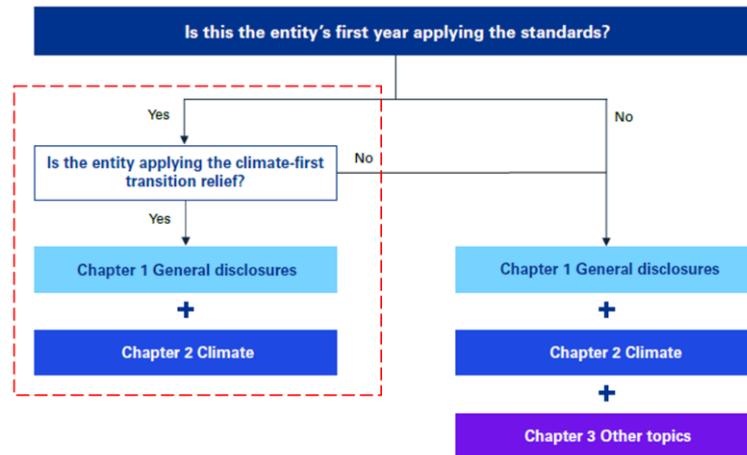
In line with the qualitative approach and case study strategy, the primary data collection technique used is the analysis of public documents. This research exclusively relies on secondary data sourced from official reports published by Telkom for the 2024 period. It should be emphasized that this study does not employ primary data collection methods, such as interviews, focus group discussions, or internal company observations. Although these limitations are acknowledged, an in-depth analysis of public documents can still provide valuable insights into a company's external disclosure practices (Bowen, 2009).

Qualitative data collected from public documents were analyzed using the qualitative content analysis method. This method is a systematic procedure for analyzing textual (or Analysis of Climate-Related Disclosures in Telkom's 2024 Sustainability Report According to IFRS S2 Requirements

visual) material to objectively and deeply identify patterns, themes, and meanings (Schreier, 2012; Hsieh & Shannon, 2005). To conduct this readiness analysis, the researcher uses a tool in the form of a disclosure checklist published by KPMG in 2025.

RESULT AND DISCUSSION

Based on the disclosure checklist published by KPMG which is used as an aid in the analysis of climate-related disclosures in the sustainability report, Telkom will use parts 1 (general disclosure) and 2 (climate) in this disclosure checklist.



Gambar 2 – KPMG Disclosure Checklist Guidance

Source: KPMG Disclosure Checklist, 2025 with limited author processing

The following is a discussion of each section accompanied by an analysis of each disclosure checklist point.

Chapter 1 - General Disclosure (13 Disclosure Checklist Point)

Interaction with Law or Regulation

Telkom has conducted a materiality analysis in determining material sustainability-related financial information. This is done every year by looking at existing developments and involving stakeholders as well as upstream and downstream in Telkom's value chain process. The short stages carried out by Telkom in this materiality analysis include gaining an understanding of sustainability within the scope of Telkom, identifying actual and potential impacts, assessing the significance of these impacts, and prioritizing the most significant impacts in this reporting. Telkom discloses sustainability information in accordance with local regulations (POJK 51/2017) and there is no indication that Telkom is hiding material information due to legal prohibitions. Information is presented transparently without claims of regulatory barriers. The conclusion of this point is that Telkom has fulfilled this disclosure checklist.

A. Commercially Sensitive Information

There is no statement in the report that Telkom used this exemption to omit certain sustainability opportunity information. Telkom continues to disclose its digital business strategy initiatives related to ESG. Therefore, this disclosure checklist is not relevant for Telkom.

Reporting Entity

The reporting boundary in the Sustainability Report includes Telkom and its subsidiaries, which is consistent with the consolidated entities in the Financial Statements. In the sustainability report, it is stated that there are 13 subsidiaries with direct ownership that are covered by the reporting entity, where the same is also done in the financial statements as of December 31, 2024. The conclusion of this point is that Telkom has fulfilled this disclosure checklist.

B. Connected Information

There is no explicit cross-reference linking climate risks in SR to specific items in the Financial Statements (e.g., the impact of energy transition risks on the useful life of network assets or asset value allowances). Telkom only identifies financial impacts at a high level without looking at the connection with Telkom's financial statements. The conclusion of this point is that Telkom has not fulfilled this disclosure checklist.

C. Source of Guidance

Telkom explicitly identifies the standards used in the preparation of the report, namely: GRI Standards 2021, POJK 51/2017, as well as references to SASB and TCFD. In addition, Telkom is trying to develop reporting using IFRS S1 and S2 standards. The conclusion of this point is that Telkom has fulfilled this disclosure checklist.

D. Location of Disclosure

Telkom presents the information in a separate sustainability report published in conjunction with the annual report. IFRS S1 allows this as long as there is cross-reference. Telkom's annual report usually provides a link/reference to the sustainability report for ESG details. In 2023, Telkom will publish a climate risk report separately from the sustainability report. This document is still used as a reference in 2024, especially with a focus on climate-related topics. The conclusion of this point is that Telkom has fulfilled this disclosure checklist.

E. Timing of Reporting

The Sustainability Report is published for the same period (1 January – 31 December 2024) and at the same time as the financial statements. Regarding the time of issuance of the report, which should be at the same time, there is still a gap for Telkom because the financial statements are published before the sustainability report (and also the annual report). In addition, Telkom may also not have identified incidents after the reporting period that may affect the decision making of the report users. The conclusion of this point is that Telkom fulfills part of this disclosure checklist.

F. Comparative Information

Telkom presents multi-year trend data (generally the last 3 years: 2022-2024) for key metrics such as energy consumption and GHG emissions, which allows users to see performance trends. The conclusion of this point is that Telkom has fulfilled this disclosure checklist.

Statement of Compliance

Telkom only declares compliance with GRI and POJK 51/2017. There is no "Explicit and unreserved statement" on the IFRS Sustainability Disclosure Standards because this standard has not been fully adopted by Telkom. Considering that Telkom has not fully adopted it in 2024, this disclosure checklist is not relevant for Telkom.
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Judgement

Telkom revealed that the materiality assessment process is a form of management consideration in determining priority topics. However, in-depth judgement regarding the selection of climate scenarios or assumptions of financial impacts has not been elaborated in detail. The conclusion of this point is that Telkom fulfills part of this disclosure checklist.

Measurement Uncertainty

Telkom includes the methodology for calculating GHG emissions and the conversion factors used (e.g., from the IPCC or the Ministry of Energy and Mineral Resources). However, there is no specific disclosure regarding the degree of uncertainty of these estimates, especially for Scope 3 which usually has high variance. The conclusion of this point is that Telkom fulfills part of this disclosure checklist.

Errors

If there is a correction of data from the previous year (restatement), Telkom generally provides an explanatory footnote under the performance data table (e.g., changes in emission factors or data coverage). The conclusion of this point is that Telkom has fulfilled this disclosure checklist.

Transition Relief

IFRS S1 allows entities in the first year to report only climate risks (Climate-only). Telkom currently reports all aspects (ESG) according to GRI. If Telkom switches to IFRS S1 later, they have the right to use this relief to postpone non-climate reporting (S1), but since the first year of implementation is 2027, this disclosure checklist is not relevant for Telkom in 2024.

Chapter 2 – Climate (13 Disclosure Checklist Point dari 4 core content)

Governance

Telkom revealed that the Board of Directors and Board of Commissioners are responsible for ESG supervision. There is a Sustainability Committee that helps monitor the implementation of sustainability strategies. The report describes the role of management in assessing and managing climate risks that are integrated into the company's organizational structure. All IFRS S2.5-6 requirements have been met by Telkom. The conclusion of this point is that Telkom has fulfilled this disclosure checklist.

Strategy

- a. Climate-related risk & opportunity (CRRO): Based on the existing disclosures, Telkom has identified transition risks (regulations, technology) and physical risks (flooding in infrastructure). Energy efficiency opportunities and green digital businesses were also revealed. The conclusion of this point is that Telkom has fulfilled this disclosure checklist.
- b. Business model & value chain: Telkom has integrated into the business model and value supply chain (upstream & downstream) for each CRRO identified. This is comprehensive because each existing CRRO has been mapped into Telkom's business model and value supply chain. The conclusion of this point is that Telkom has fulfilled this disclosure checklist.
- c. Strategy & decision-making: Telkom has revealed a strategy set in the form of mitigation or management actions in dealing with the CRRO that has been identified.

This mapping is also carried out using a specified time horizon. The conclusion of this point is that Telkom has fulfilled this disclosure checklist.

- d. Current & anticipated financial effect: There is no quantification of monetary impact. Disclosure is only carried out at a high level related to the financial impact on each CRRO. IFRS S2 requires disclosure of the impact of climate risks on current financial positions (assets, liabilities) and futures. Telkom's Financial Statements do not present adjustments in asset values or disclosures due to climate risks. The conclusion of this point is that Telkom has not fulfilled this disclosure checklist.
- e. Climate resilience: Disclosure is still of a general qualitative nature or high level. Meanwhile, IFRS S2 requires the analysis of climate scenarios (e.g., <math><2^{\circ}\text{C}</math> vs $>4^{\circ}\text{C}$ scenarios) to test the resilience of the strategy. There was no in-depth quantitative analysis of how Telkom's cash flow would survive in the extreme global warming scenario. The conclusion of this point is that Telkom has not fulfilled this disclosure checklist.

Risk Management

Regarding the risk management identification and review process, Telkom explained the ESG risk identification process which includes impact and likelihood assessments. In addition, related to risk management integration, climate risk is stated to have been integrated into Telkom's enterprise risk management (ERM) system, not a stand-alone process. The conclusion of this point is that Telkom has fulfilled this disclosure checklist.

Metric & Target

- a. Greenhouse gas emissions: Telkom discloses Scope 1 (fuel generator/vehicle) and Scope 2 (PLN electricity) emission data in units of CO₂e tons with a clear methodology and includes all consolidated entities. However, when it comes to Scope 3 emissions, reporting is limited to certain emission groups. IFRS S2 requires disclosure of all 15 Scope 3 categories if material. For telecommunications companies, supply chain (device) emissions are huge and have not been fully revealed. Therefore, Telkom has fulfilled part of this disclosure checklist.
- b. Other cross-industry metrics: Telkom has not made any disclosures related to cross industry metrics, in accordance with the requirements of IFRS S2.29, there are 7 metrics that need to be disclosed. Therefore, Telkom has not fulfilled this disclosure checklist.
- c. Industry-based metrics: Based on IFRS S2 – industry based guidance, for Telkom as a company engaged in the telecommunications sector, it is necessary to disclose several metrics according to figure 3. As for this list, Telkom only reveals the total energy consumption metrics. In addition, Telkom has not disclosed that although the reference in attachment 4 of the sustainability report provides a reference to the related page, no metric information was found. Therefore, Telkom has not fulfilled this disclosure checklist.

Gambar 3 – Sustainability Disclosure Topics & Metrics (Telecommunication)

TOPIC	METRIC	CATEGORY	UNIT OF MEASURE	CODE
Environmental Footprint of Operations	(1) Total energy consumed, (2) percentage grid electricity and (3) percentage renewable	Quantitative	Gigajoules (GJ), Percentage (%)	TC-TL-130a.1
Managing Systemic Risks from Technology Disruptions	(1) System average interruption duration, (2) system average interruption frequency and (3) customer average interruption duration ¹⁰⁵	Quantitative	Minutes, Number	TC-TL-550a.1
	Discussion of systems to provide unimpeded service during service disruptions	Discussion and Analysis	n/a	TC-TL-550a.2

Sumber: IFRS S2 – Industry based guidance

1. Finance emission: Telkom and its subsidiaries are not engaged in asset management, commercial banks, and insurance, so this checklist is not relevant to Telkom. Therefore, this disclosure checklist is not relevant for Telkom.
2. Other metrics: Other climate-related metrics have been revealed by Telkom. Therefore, Telkom has fulfilled this disclosure checklist.
3. Climate-related targets: Telkom has set long-term emission reduction targets (Net Zero 2060) and medium-term targets. On its way, Telkom has a roadmap towards Net Zero Emission 2060 and a decarbonization strategy. Therefore, Telkom has fulfilled this disclosure checklist.

CONCLUSION

An evaluation of PT Telkom Indonesia's 2024 Sustainability Report shows that the company is in a transition phase towards IFRS S2 compliance. The findings of this study answer the purpose of the research by identifying that the pillars of Governance and Risk Management have met the requirements of the standard (compliant), this is due to the integration of climate monitoring into existing corporate mechanisms. In contrast, the Strategy and Metrics & Targets pillars still need substantial improvement. The lack of connected information connectivity between sustainability risks and financial statements, as well as the absence of quantitative climate scenario analysis, is the main obstacle for investors to accurately assess the financial impact of climate risks. In addition, apart from the main content, related to general requirements, some things to note are related to connected information and measurement uncertainty. For future research, it is recommended to use a longitudinal approach to observe the progression of the adoption of the IFRS S2 standard as the mandatory period approaches in 2027.

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