
Analysis of Sustainability Report Disclosure and Sustainability Performance in Energy, Oil, and Gas Cluster State-Owned Enterprises**Harbi Ash Shidiq¹, Adam Zakaria¹, Hafifah Nasution¹**¹Department of Management, Universitas Negeri Jakarta, Indonesia**Corresponding Author:** Harbiashshidiq_1704519047@mhs.unj.ac.id**Abstract**

This study aims to analyze the level of Sustainability Report (SR) disclosure and sustainability performance of PT Perusahaan Listrik Negara (Persero) and PT Pertamina (Persero), two major State-Owned Enterprises (SOEs) operating in the energy, oil, and gas cluster in Indonesia. A descriptive quantitative approach was employed, utilizing content analysis of Sustainability Reports for the 2021–2022 period. The variables examined include Sustainability Report disclosure and sustainability performance measured through economic, environmental, and social indicators.

The findings indicate a positive trend in SR disclosure. PT PLN increased its disclosure rate from 84% in 2021 to 88% in 2022, while PT Pertamina improved from 88% in 2021 to 100% in 2022. These results reflect a strengthened corporate commitment toward transparency, accountability, and sustainable business practices. This research contributes to the literature on sustainability reporting and performance in Indonesian SOEs, particularly within high-impact industries. The findings underscore the strategic importance of sustainability performance in enhancing corporate reputation and stakeholder trust.

Keywords: Sustainability Report; Sustainability Performance; State-Owned Enterprises; PT PLN; PT Pertamina

1. Introduction

The Sustainable Development Goals (SDGs) have become a central global framework guiding countries toward balanced development across economic, social, and environmental dimensions. Despite this global consensus, economic growth strategies often generate environmental externalities that challenge sustainability objectives. The World Economic Forum (2022) identifies environmental degradation as one of the most significant risks facing corporations in the coming decades.

Growing public awareness of environmental degradation caused by corporate activities has intensified demands for corporate accountability. As income levels and living standards increase—particularly in developing countries—societal expectations regarding sustainability performance also rise. From a legitimacy perspective, companies disclose sustainability information to influence stakeholder perceptions regarding corporate image, performance, and environmental and social impacts (Lăzăroiu et al., 2020; Alsayegh et al., 2020; Rajesh, 2020; Simoni et al., 2020). Sustainability reporting thus functions not only as a transparency mechanism but also as a strategic legitimacy tool.

In Indonesia, sustainability practices are legally grounded in Law No. 40 of 2007 concerning Limited Liability Companies, which mandates social and environmental responsibility, particularly for firms operating in natural resource sectors. Further regulatory reinforcement is provided through Financial Services Authority (OJK) Regulation No. 51/POJK.03/2017, which defines Sustainability Reports as disclosures of economic, financial,

social, and environmental performance in conducting sustainable business activities. More detailed guidance is stipulated in OJK Circular Letter No. 16/SEOJK.04/2021.

State-Owned Enterprises (SOEs) play a strategic role in Indonesia's economic development. As entities predominantly owned by the state, SOEs face heightened scrutiny regarding transparency and sustainability accountability. Sustainability Reports are therefore essential instruments for reducing information asymmetry, strengthening stakeholder trust, and enhancing corporate reputation (Argento et al., 2019; Orazalin & Mahmood, 2018; Nguyen et al., 2021). Effective disclosure must adhere to principles of accuracy, completeness, and reliability.

Sustainability performance is commonly conceptualized through the Economic–Environmental–Social (EES) framework. Companies are expected to balance these three dimensions to ensure long-term viability (Fonseca et al., 2020; Agudelo et al., 2019). Sustainability performance indicators typically encompass economic performance, environmental stewardship, and social responsibility (Dubey et al., 2017). Within this framework, sustainability becomes a strategic pillar rather than merely a compliance obligation.

The energy, oil, and gas sector represents a particularly critical context for sustainability analysis. While the industry plays a fundamental role in economic growth and energy security, it also poses significant environmental risks, including pollution and ecosystem degradation (Danso et al., 2019; Borges et al., 2022). Due to these dual impacts, companies in this sector are frequently scrutinized by sustainability advocates (Orazalin & Mahmood, 2018). Nevertheless, the sector also contributes positively through employment generation, infrastructure development, and energy access (Inkpen & Ramaswamy, 2018).

Prior empirical studies on Sustainability Report disclosure present mixed findings. Some research indicates that SR disclosure positively influences sustainability performance and overall corporate performance (Silver et al., 2019; Alsayegh et al., 2020; Zarefar et al., 2022). However, further empirical investigation is required to deepen understanding of the relationship between SR disclosure and sustainability performance, particularly within Indonesian SOEs in high-impact industries.

Accordingly, this study analyzes Sustainability Report disclosure and sustainability performance in two major SOEs within the energy, oil, and gas cluster: PT Perusahaan Listrik Negara (Persero) and PT Pertamina (Persero).

2. Materials and Methods

2.1 Research Design and Data Collection

This study adopts a descriptive quantitative research design to examine Sustainability Report (SR) disclosure and sustainability performance in State-Owned Enterprises (SOEs) operating within the energy, oil, and gas cluster. The unit of analysis consists of SR disclosures and sustainability performance indicators, while the objects of analysis are the Sustainability Reports of PT Perusahaan Listrik Negara (Persero) and PT Pertamina (Persero) for the 2021–2022 reporting period. Data were collected using a documentation study technique, which involves the systematic examination of secondary data sources, including corporate reports and official publications (Abdussamad, 2021). The Sustainability Reports analyzed in this study were obtained directly from the official websites of the respective companies to ensure data authenticity and reliability.

2.2 Data Analysis

The study employs content analysis as the primary analytical technique, enabling a systematic evaluation of documented information to quantify the extent of specific disclosure items (Hardani, 2020). The independent variable is Sustainability Report disclosure, measured using a binary scoring method in which a score of 1 is assigned if an item is disclosed and 0 if

it is not disclosed. The Sustainability Report Disclosure Index (SRDI) is calculated using the formula $SRDI_x = \frac{\sum X_{yx}}{n_x}$, where $SRDI_x$ represents the disclosure index of company x, $\sum X_{yx}$ denotes the total number of disclosed items, and n_x refers to the total required disclosure items. The measurement instrument is based on OJK Circular Letter No. 16/SEOJK.04/2021, which emphasizes three principal aspects: economic, environmental, and social disclosures. The dependent variable, sustainability performance, is measured using Key Performance Indicators (KPIs), which serve as quantitative metrics for evaluating organizational performance across multiple dimensions (Hristov & Chirico, 2019; Warren, 2011). The KPIs encompass economic, environmental, and social performance indicators, consistent with the Economic–Environmental–Social (EES) framework, thereby reflecting the multidimensional nature of corporate sustainability performance.

3. Result

Sustainability Reporting (SR) is a report used by companies to communicate information related to sustainability efforts to stakeholders. In measuring *Sustainability Reporting*, the researcher uses the SRDI ratio, by assigning a score to the disclosure item disclosed by the company. Based on the SRDI scoring in (Appendix 1), the results of the analysis show the following:

Table 1. Sustainability *Reporting* (SR) disclosure level of PT Perusahaan Listrik Negara and PT Pertamina

Sustainability Report Company	2021		2022		Average
	Items Disclosed	Percentage of Disclosure	Items Disclosed	Percentage of Disclosure	
PT Perusahaan Listrik Negara	42	84%	44	88%	43 86%
PT Pertamina	44	88%	50	100%	47 94%

Based on table 4.5, it can be seen that the *level of Sustainability Reporting* disclosure of PT Perusahaan Listrik Negara and PT Pertamina shows a positive level of disclosure. For PT Perusahaan Listrik Negara, there was an increase from 84% in 2021 to 88% in 2022, with an average disclosure of 86%. Meanwhile, PT Pertamina recorded 88% disclosure in 2021 which increased to 100% in 2022, with an average disclosure of 94%. These results reflect the company's commitment and efforts to improve transparency and accountability related to sustainability. This increase in disclosure rates can be interpreted as a positive response to the increasing demands of stakeholders for information related to the company's sustainability practices. (Daniel & Ratnasari, 2019)

In analyzing the level of SR disclosure based on the Financial Services Authority Circular Letter Number 16/SEOJK.04/2021. The results of this study identified seven indicators implemented by PT PLN and PT Pertamina. The seven indicators include: sustainability strategy, overview of sustainability performance aspects, company profile, explanation of the board of directors, sustainability governance, sustainability performance and others. Based on the results of the analysis on *the Sustainability Reporting* (SR) OF PT PLN and PT Pertamina, the researcher found several findings presented in (Table 2) and (Table 3):

Table 2. Disclosure of Sustainability Reporting (SR) of PT Perusahaan Listrik Negara for the Period of 2021-2022

<i>Sustainability Report PT Perusahaan Listrik Negara</i>			2021		2022	
No	Indicator	Number of Disclosures	Total Disclosure	CPD□	Total Disclosure	CPD□
1	Sustainability Strategy	1	1	100%	1	100%
2	Overview of Performance of Sustainability Aspects	3	3	100%	3	100%
3	Company Profile	6	6	100%	6	100%
4	Explanation of the Board of Directors	1	1	100%	1	100%
5	Sustainability Governance	5	5	100%	5	100%
6	Sustainability Performance	30	24	80%	25	83%
7	Miscellaneous	4	2	50%	3	75%
Total Disclosure		50	42	84%	44	88%
Average		50	0,84	84%	0,88	88%

Table 3. Disclosure of *PT Pertamina's Sustainability Reporting* (SR) for the 2021-2022 Period

<i>Sustainability Report PT Pertamina</i>			2021		2022	
No	Indicator	Number of Disclosures	Total Disclosure	CPD□	Total Disclosure	CPD□
1	Sustainability Strategy	1	1	100%	1	100%
2	Overview of Performance of Sustainability Aspects	3	3	100%	3	100%
3	Company Profile	6	6	100%	6	100%
4	Explanation of the Board of Directors	1	1	100%	1	100%
5	Sustainability Governance	5	5	100%	5	100%
6	Sustainability Performance	30	25	83%	30	100%
7	Miscellaneous	4	3	75%	4	100%
Total Disclosure		50	44	88%	50	100%
Average		50	0,88	88%	1	100%

Sustainability performance is a series of prioritized and focused actions, through the establishment of an agreed framework to direct investment, drive performance, and engage stakeholders from both internal and external companies. With the goal of achieving long-term business goals through consideration of the economic, environmental, and social impacts arising from the company's activities. In analyzing sustainability performance, researchers use *Key Performance Indicators* (KPIs). Sustainability performance measurement was carried out by analyzing the sustainability performance achievements of PT PLN and PT Pertamina for the 2021-2022 period. Based on the sustainability performance analysis in (Table 4), the results of the analysis are as follows:

Table 4. Sustainability Performance Achievements of PT Perusahaan Listrik Negara for the 2021-2022 Period

Sustainability goals	Impact categories	KPI code	KPI	PT Perusahaan Listrik Negara (Persero)		PT Pertamina (Persero)	
				Performance 2021	Performance 2022	2021 Performance	2022 Performance
Environment	Climate change	E 1.1	Carbon footprint (CO/year)	252,377 million tons of CO2	270,338 million tons of CO2	20.99 million tons of CO2	20.58 million tons of CO2
	Air quality	E 2.1	Acidification (SO2/year)	143,244 tons SO2	188,521 tonnes SO2	Not Available	Not Available

Sustainability goals	Impact categories	KPI code	KPI	PT Perusahaan Listrik Negara (Persero)		PT Pertamina (Persero)	
				Performance 2021	Performance 2022	2021 Performance	2022 Performance
	Water scarcity	E 3.1	Water consumption (m3/year)	2,208.3 million m3	24,122.48 million m3	554,317.53 ml	799,365.02 ml
	Ecological footprint	E 4.1	Land use (Ha/year)	237.92 Ha	258.87 Ha	Not Available	Not Available
	Energy	E 5.1	Energy requirements (GJ/TJ/year)	6,605.84 GJ	6,297.87 GJ	6,663.11 TJ	36,133.54 TJ
	Depletion of abiotic resources	E 6.1	Cumulative fossil energy consumption (GJ/m2/year)	1,676,613,557 GJ	1,693,941,809 GJ	128,939.09 TJ	173,606.95 TJ
	Waste production	E 7.1	B3 Waste (tons/m2/year)	98,491 tons	177,868 tons	81,351.53 tons	122,913.82 tons
		E 7.2	Recycling potential (tons/m2/year)	576,244.90 tons	226,2123.79 tons	1,682.28 tons	5,079.19 tons
Social	Equality between workers	S 1.1	Competency Development (program/year)	943/year	490/year	352/year	464/year
		S 1.2	Building a Culture of Sustainability (program/year)	2/year	0	0	481/year
		S 1.3	Equal Employment Opportunity	Achieved	Achieved	Achieved	Achieved
		S 1.4	Decent Working Environment	Achieved	Achieved	Achieved	Achieved
	Surrounding community	S 2.1	Community Complaints (%/m2/year)	0	0	12.131	13.411
Economy	Financial performance	EC 1.1	Sales (Rp-Billion/year)	257.634	273.761	USD 57,509	USD 84,888
		EC 1.2	Operating Income (Rp-Billion/year)	366.972	441.132	USD 58,287	USD 85,905
		EC 1.3	Net Profit/Loss (Rp-Trillion/year)	13,18	14,41	USD 4,060	USD 2,239

4. Discussion

The findings indicate that both PT PLN (Persero) and PT Pertamina (Persero) have systematically integrated sustainability principles into their corporate strategies. Within the sustainability strategy indicators, both companies articulate comprehensive sustainability visions and missions encompassing short-term and long-term targets, risk management mechanisms, and measurable performance outcomes. Their Sustainability Reports (SR) explicitly emphasize the application of the triple bottom line framework—planet, people, and profit—demonstrating alignment with globally recognized sustainability paradigms. The institutionalization of sustainability strategies reflects a structured approach toward achieving Sustainable Development Goals (SDGs), consistent with prior research highlighting the strategic role of sustainability orientation in long-term corporate value creation (Mio et al., 2020).

Regarding sustainability performance overview indicators, both companies achieved full (100%) disclosure. This comprehensive presentation provides stakeholders with a summarized evaluation of economic, environmental, and social performance dimensions. Such transparency reduces information asymmetry and enhances corporate legitimacy. These findings support Saputra and Bernawati (2020), who emphasize that structured sustainability performance disclosures strengthen corporate accountability and performance credibility.

In terms of company profile disclosure, PT PLN and PT Pertamina have provided detailed information covering corporate vision and mission, sustainability values, operational scale, product portfolio, institutional affiliations, and significant corporate changes. Full disclosure of corporate identity and operational context enhances stakeholders' understanding of the companies' sustainability orientation and industry positioning. Membership in professional and industry associations further signals institutional embeddedness and adaptive capacity within evolving market and regulatory environments (Rindiyawati & Arifin, 2019).

The directors' statements within the SR further reinforce corporate commitment to sustainability. Both companies acknowledge global pressures—particularly the transition toward renewable energy—and outline strategic responses. PT PLN's restructuring into Holding and Sub-Holding entities represents a strategic governance transformation aimed at optimizing electricity business management while integrating environmental, social, and economic considerations. This aligns with Tjahjadi et al. (2021), who argue that top management commitment is a critical determinant of sustainability integration in corporate governance structures.

From a governance perspective, both companies demonstrate the establishment of sustainability governance frameworks, including dedicated structures and competency development programs. Continuous training initiatives reflect organizational efforts to embed sustainability awareness internally. Strong governance mechanisms are widely recognized as fundamental to improving sustainability outcomes and ensuring alignment between corporate strategy and stakeholder expectations (Jia et al., 2019).

Empirical data show that PT PLN improved its sustainability disclosure level from 80% in 2021 to 83% in 2022, indicating progressive enhancement in transparency practices. This upward trend may reflect regulatory adaptation, stakeholder pressure, and growing global sustainability awareness. Consistent with Papoutsi and Sodhi (2020), greater disclosure intensity often signals improvements in sustainability performance quality.

However, PT PLN has not engaged independent external assurance providers in evaluating its Sustainability Report. Although not mandatory, third-party verification significantly enhances report credibility, reliability, and stakeholder trust. Independent assurance reduces reporting bias and strengthens accountability mechanisms, suggesting an area for future improvement.

From an environmental performance perspective, PT Pertamina recorded a reduction in carbon emissions from 20.99 million tons of CO₂ in 2021 to 20.58 million tons in 2022, demonstrating tangible progress in climate change mitigation efforts. This aligns with sustainability performance literature emphasizing emission control as a core environmental performance metric (Nguyen et al., 2021).

Nevertheless, certain disclosure gaps remain. PT Pertamina did not report data related to SO₂ emissions (acidification indicators) for both years analyzed, limiting stakeholder evaluation of air quality management. Transparency in such indicators is essential for comprehensive environmental accountability.

Water consumption data show a substantial increase from 554,317.53 m³ in 2021 to 799,365.02 m³ in 2022. This escalation may indicate operational expansion but also raises concerns regarding resource efficiency and water stewardship. Sustainable water management strategies, partnerships, and efficiency programs are critical in addressing such risks (Grøgaard et al., 2019).

Energy consumption indicators reveal a significant rise in cumulative energy needs from 6,663.11 TJ in 2021 to 36,133.54 TJ in 2022. Similarly, fossil energy consumption increased from 128,939.09 TJ to 173,606.95 TJ. While growth may correspond to operational expansion, dependence on fossil energy underscores the challenge of balancing energy security with environmental sustainability. Transition strategies toward renewable energy and energy efficiency remain crucial (Simoni et al., 2020).

Regarding hazardous (B3) waste management, production increased from 81,351.53 tons in 2021 to 122,913.82 tons in 2022. Despite this rise, recycling capacity improved significantly from 1,682.28 tons to 5,079.19 tons, reflecting strengthened waste management initiatives. Enhanced recycling performance indicates progress toward circular economy principles (Hussain et al., 2018), although further reduction in waste generation remains necessary.

Overall, the findings illustrate that while disclosure practices are improving, sustainability performance outcomes—particularly environmental indicators—present mixed results. This suggests that transparency improvements do not automatically correspond to proportional environmental impact reductions.

5. Conclusion, Implication, and Recommendation

This study concludes that Sustainability Report disclosure levels in PT PLN and PT Pertamina show measurable improvement during the 2021–2022 period. PT PLN increased its disclosure rate from 84% to 88%, while PT Pertamina achieved full disclosure (100%) in 2022. These results reflect enhanced transparency, regulatory compliance, and institutional commitment to sustainability reporting practices.

In terms of sustainability performance, both companies demonstrate positive developments across economic, environmental, and social dimensions. Notably, reductions in carbon emissions and improvements in waste recycling reflect meaningful environmental progress. However, increases in energy consumption, fossil fuel dependency, water usage, and hazardous waste generation highlight ongoing sustainability challenges.

The practical implication of this study is that sustainability disclosure serves as a strategic instrument for strengthening corporate legitimacy, reputation, and stakeholder trust. Improved transparency can enhance investor confidence and align corporate strategy with national sustainable development objectives. For regulators, the findings provide empirical insights to monitor SOE compliance and evaluate the effectiveness of sustainability reporting regulations.

Managerially, companies should intensify efforts to reduce environmental impacts through renewable energy adoption, energy efficiency improvements, water stewardship

programs, and circular waste management strategies. Additionally, involving independent assurance providers would strengthen report credibility and governance quality.

Future research is recommended to incorporate primary data collection methods—such as interviews, surveys, or direct observations—to enrich contextual understanding of sustainability implementation. Further studies may also develop more refined sustainability performance indices to enable deeper comparative analysis and stronger theoretical generalization.

6. References

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