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Comparison of ESG Rating Methods with AHP Methods (A Study in A State-Owned Electricity Company in Indonesia)

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Abstract

The ESG Rating measurement method from Sustainalytic & S&P is the method that is considered the most suitable for analyzing ESG risks in State-owned electricity companies. This research analyzes the ESG Rating measurement method issued by 4 ESG rating agencies, namely S&P, MSCI, Sustainalytics, and Refinitiv using the method AHP, the results of which will determine which method is most suitable for analyzing ESG risks in state-owned electricity companies. From the results of data collection, it was found that the ESG rating measurement method from Sustainalytic had the highest priority value, namely 38.9%, which was not much different from the method from S&P with a value of 34.0%. Meanwhile, the methods of the other 2 ESG rating agencies have a lower weight, namely MSCI with 14.2% and Refinitiv with 12.9%. Research provides the view that the level of correlation between rating agencies is still low, requiring companies to first analyze the rating agency. The ones they choose will determine the company's strategy in managing their ESG risks.

Keywords: ESG, ESG Rating, ESG Risk, State-owned electricity companies, Sustainalytics, S&P, Analytical Hierarchy Process (AHP).

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1. Introduction

The ESG (Environmental, Social, and Governance) concept has garnered substantial attention in both the business and academic spheres. The performance of a company is intricately linked to the ESG risks it encounters, as companies do not function in isolation. Hence, it is unfeasible for a company to operate its business in a sustainable manner over an extended period without enacting efficient corporate governance and without considering the ramifications of its daily activities on the environment and society (IDX, 2020). According to research conducted by S&P Global, the sectors with the greatest environmental and social impacts worldwide are Oil & Gas, Mineral & Mining, and Power Generation. The State-Owned Electricity Company, being the largest electricity provider in Indonesia, will encounter a range of risks in the aforementioned sectors. ESG risks have garnered significant scrutiny from multiple stakeholders including investors, employees, consumers, regulatory bodies, and the broader community in recent years (Foro Económico Mundial. et al., 2021). This promotes companies' ability to effectively manage their ESG risks.

Within the framework of sustainable development and corporate social responsibility, the State-Owned Electricity Company encounters multiple factors that promote the incorporation of ESG principles into its strategy and operations. Internally, this drive is built upon four key pillars: the shift towards achieving the Net Zero Emission (NZE) goal by 2060, the development of new essential skills aligned with sustainability requirements, the promotion of an ESG culture in the workplace, and the enhancement of ESG awareness at all levels of the organisation. From an external standpoint, push factors can be categorised into two primary classifications: pull factors and push factors. Pull factors encompass favourable forces that drive companies to embrace and advance, such as technological innovation, cost reduction in renewable energy, harnessing Indonesia's natural resources, establishing sustainable financing sources, enhancing energy security, and unlocking fresh investment and corporate expansion prospects. Push factors are external pressures that compel companies to adapt their operations and strategies. These pressures include international obligations like

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Nationally Determined Contributions (NDC) and Carbon Border Adjustment Mechanism (CBAM), as well as the pursuit of Sustainable Development Goals (SDG) and corporate responsibility. The text discusses various topics including the Social and Environmental framework, the implementation of a cap-and-trade-and-tax system, the need for a proper assessment of power plants, the expectations of shareholders, and the use of ESG Key Performance Indicators (KPI) specifically for State-Owned Enterprises. Comprehending and addressing these factors is vital for State-Owned Electricity Companies to develop and execute successful sustainability strategies, guaranteeing their continued relevance and competitiveness in the age of global energy transition. The data and insight, presented by the HSE (Human Safety & Environment) Division of the State-Owned Electricity Company, reaffirms the company's dedication to integrating ESG principles into its long-term operations and strategy.

State-Owned Electricity Companies must develop and execute ESG risk management strategies. In order to facilitate risk management in its business operations, the company presently possesses an ESG Framework that encompasses commitments, key performance indicators (KPIs), and targets for achieving ESG objectives. In addition, the company has an ESG Task Force responsible for expediting the ESG initiation programme, as well as a Sustainability Committee that oversees the implementation of ESG practices. The State-Owned Electricity Company is presently engaged in the development of ESG governance, which involves utilising ESG assessment and reporting references from three institutions: sustainalytics, an ESG Rating Agency; BPKP, the institution responsible for publishing BUMN ESG assessment guidelines; and the Ministry of BUMN, which oversees and establishes ESG parameters to be monitored and reported.

The role of the ESG Rating Agency is crucial in determining ESG risk management strategies. ESG ratings have a significant impact on company policy. However, it is worth noting that ESG ratings provided by different institutions often vary from one another (Chatterji et al., 2016) A recent study examined six well-known ESG rating agencies, including Sustainalytics, KLD, Moody's ESG, S&P Global, Refinitiv, and MSCI. The research found that the correlation between these institutions ranged from 0.38 to 0.71(Berg et al., 2022). This has a significantly greater distance in comparison to the correlation between credit ratings, which stands at 0.99 (Jewell & Livingston, 1998).

Considering the significance of agency ratings, companies should perform comprehensive due diligence prior to selecting a rating agency over another(Berg et al., 2022). The objective of this research is to identify the most appropriate ESG rating methodology for the State-Owned Electricity Company's business model. The research will employ the Analytical Hierarchy Process (AHP) decision-making method. This study aims to assess and contrast different ESG rating methodologies in order to identify the most suitable one for the company's specific requirements and strategic objectives. The primary goal is to offer dependable and impartial recommendations to companies regarding the adoption and implementation of efficient ESG risk management practices.

Prior studies indicate substantial variations in ESG ratings, with a correlation ranging from 0.38 to 0.71. This calls into question the precision and uniformity of the ratings provided. The factors contributing to variations in outcomes among different rating agency methodologies include the choice of measurement methods, the extent of the measurements, and the weighting assigned to the measurements (Berg et al., 2022). Companies must assess the most appropriate ESG rating measurement method for State-Owned Electricity Companies to serve as a benchmark for managing their ESG risks. This research aims to identify the most suitable method for measuring the ESG rating of a State-Owned Electricity Company and develop an appropriate strategy for managing ESG risks.

This research provides numerous substantial advantages for multiple stakeholders, encompassing corporations, regulatory bodies, as well as the academic and research sphere. This research has the potential to make significant contributions in three main aspects for State-Owned Electricity Companies. Initially, aid companies in identifying the ESG measurement methodology that is most suitable for the company's unique characteristics and requirements. It is crucial to ensure that companies can successfully and proficiently incorporate ESG principles into their operations and strategies. Furthermore, this study aims to determine the most effective ESG risk management strategies that can be utilised to mitigate the potential ESG-related risks encountered. Furthermore, enhancing the ESG rating through precise assessments and efficient risk mitigation measures is anticipated to enhance the long-term viability of the business and bolster its standing among investors, employees, customers, regulators, and the broader society. Regulators can gain a fresh insight into the discrepancies in ESG rating outcomes among companies and use this research to make regulatory adjustments that promote enhanced company ESG performance. It is crucial to have this viewpoint in order to guarantee that regulations facilitate companies' endeavours to successfully incorporate sustainable practices, while also ensuring equity and openness in ESG evaluations. Within the realm of academia and future research, this study presents a fresh outlook on the factors used to determine the most optimal ESG rating, along with efficient risk management strategies to attain a superior ESG rating. This study not only enhances the existing academic literature on ESG factors, but also

establishes a solid foundation for future research endeavours that seek to investigate and enhance comprehension of ESG practices in the energy industry and other sectors.

2. Literature Review

This research aims to identify the most appropriate ESG measurement method for assessing the ESG risk of State-Owned Electricity Companies in Indonesia. The study examines the methodologies used by various rating agencies, including S&P (S&P Global Inc, 2023), Sustainalytic (ESG Risk Ratings-Methodology Abstract, 2021), Refinitiv (Environmental, Social and Governance (ESG) Scores from Refinitiv - May 2022, 2022), and MSCI (ESG Research LLC, 2023). The significance of identifying the most appropriate approach lies in the fact that prior studies have demonstrated a minimal correlation between ESG rating agencies, specifically ranging from 0.38 to 0.71 (Berg et al., 2022). This implies that the ESG rating calculation outcomes from one institution exhibit a strong correlation with those of other institutions, or alternatively, the assessment results from one institution may diverge from those of other institutions. The absence of consistency in ESG definitions and standards across different institutions results in notable disparities in ESG evaluations (Billio et al., 2021). According to previous studies, there is a significant level of uncertainty regarding the factors that arise from ESG data. The reliability and accuracy of ESG data primarily rely on the industry and country of origin of the company (Dorfleitner et al., 2015). This research aims to analyse the most suitable institution's ESG rating measurement method for describing the ESG risks of the State-Owned Electricity Company. Previous studies have not made any attempts to analyse which institutions are the most appropriate for assessing a company's ESG risks.

The research employed the AHP method, which is a type of Multicriteria Decision-Making Method (MCDM). Previous studies have also utilised this method to identify companies with superior ESG performance (Nguyen et al., 2023). The OPA (Ordinal Priority Approach) is an additional MCDM method employed to create decision support tools that incorporate ESG factors into the natural resource extraction industry, with the aim of promoting sustainable development (Quayson et al., 2023). Another MCDM technique that is effective in integrating multiple perspectives and uncovering hidden information in ESG data is TOPSIS (Technique for Order Preferences by Similarity to an Ideal Solution) (Lu et al., 2023). Therefore, it can be inferred that the MCDM (Multi-Criteria Decision Making) method can be employed to ascertain the most suitable ESG measurement method for characterising a company's ESG rating, considering its ESG risk.

The research titled "Causal complexity analysis of ESG performance" discovered that each industry possesses at least one factor associated with the resource-based view (RBV) that companies can opt to enhance their ESG performance. (Huarng & Yu, 2024). Additional research indicates that companies may exhibit varying responses to ESG assessments. The analysis findings demonstrate four distinct categories of corporate reactions to ESG assessments, which indicate the degree of adherence and opposition to these assessments in two aspects of corporate conduct (Clementino & Perkins, 2021). It is anticipated that this research will yield a favourable outcome for the State-Owned Electricity Company. The table below presents several prior studies that cover similar topics.

Table 1. Literature Review

Research Title	Method	Results
Breaking ground in ESG assessment: Integrated DEA and MCDM framework with spherical fuzzy sets for Vietnam's wire and cable sector (Nguyen et al., 2023)	Analytic Hierarchy Process (AHP), Envelopment Analysis (DEA), and Weighted Aggregated Sum Product Assessment (WASPAS)	Vietnam Electric Cable Corporation (A1) ranked top in ESG performance, followed by Hai Phong Electronic Mechanical JSC (A2),
Designing a decision support tool for integrating ESG into the natural resource extraction industry for sustainable development using the ordinal priority approach (Quayson et al., 2023)	MCDM (multicriteria decision-making method) OPA (Ordinal Priority Approach)	The environmental aspect ("E") is the most important in ESG, with the 5 most important subcriteria being Governance structure, Emission, Health and Safety, the composition of the highest governance body and its committee, and Risk Governance

Research Title	Method	Results
Aggregate Confusion: The Divergence of ESG Ratings (Berg et al., 2022)	regression-based decomposition method	The correlation between rating agencies is at 0.38 - 0.71, the difference is caused by Measurement 56%, Scope 38%, and Weight 6%
Corporate ESG rating divergence and excess stock returns (Wang et al., 2024)	Fuzzy Best Worst Method" (BWM) and Fuzzy Technique for Order Preferences by Similarity to an Ideal Solution" (TOPSIS) Sorting	ESG-based credit scoring models, the financial pillar is the most important, followed by the environmental, social and governance pillars, with the model showing high accuracy in evaluating borrowers for sustainable investments.
An ESG Assessment Approach with Multi-Agent Preference Differences: Based on Fuzzy Reasoning and Group Decision-Making (Lu et al., 2023)	Fuzzy Logic and TOPSIS	The method used is successful and has several advantages compared to commonly used methods. This method is good at combining many different opinions and finding information that may be hidden in ESG data.
Causal complexity analysis of ESG performance (Huarng & Yu, 2024)	Fuzzy set/Qualitative Comparative Analysis (fs/QCA) to understand how various factors contribute to ESG performance	Every industry has at least one factor related to the resource-based view (RBV) that companies can choose to improve their ESG performance.
Inside the ESG ratings: (Dis)agreement and performance (Billio et al., 2021)	Comparative methods for the assessment and comparison of ways to define ESG characteristics, attributes and standards	The lack of uniformity in ESG definitions and standards by various agencies leads to significant differences in ESG assessments.
Lights and shadows on sustainability rating scoring (Escrig-Olmedo et al., 2014)	Fuzzy Logic allows handling the complexity of sustainability concepts in a more effective way, and incorporates expert knowledge into the scoring system	Fuzzy logic is useful for overcoming some of the problems associated with traditional score aggregation methods, especially the offset effect. This allows decision makers to manage judgments in a more accurate way
ESG ratings: relevant information or misleading clue? Evidence from the S&P Global 1200 (Gyönyörová et al., 2023)	exploratory and confirmatory factor analysis to assess the consistency and convergent validity of ESG data provided by various sources	there is considerable uncertainty in the factors resulting from ESG data. The consistency and validity of ESG data depends largely on the type of industry and the country in which the company is domiciled.
Measuring the level and risk of corporate responsibility – An empirical comparison of different ESG rating approaches (Dorfleitner et al., 2015)	Comparing different assessment approaches of corporate social performance using ESG scores from three sustainability rating providers	There is a lack of convergence in ESG measurement concepts. Different ratings do not correspond either in distribution or in terms of risk. Therefore, all CSP stakeholders are advised to critically evaluate the validity of the ESG scoring models used.
The Consolidation of the ESG Rating Industry as an Enactment of Institutional Retrogression (Avetisyan & Hockerts, 2017)	interviews and also studied existing data to understand what is driving the consolidation of ESG rating agencies and its impact	consolidation in ESG assessments has, in part, led to 'institutional regression'. which means that the consolidation that occurs strengthens traditional norms and values. Thus, the institutional changes hoped for by the SRI (socially responsible investment) movement have been somewhat neglected.
How Do Companies Respond to Environmental, Social and	semi-structured interviews, the researchers collected data	companies can have different reactions to ESG assessments. The results of the analysis

Research Title	Method	Results
Governance (ESG) ratings? Evidence from Italy (Clementino & Perkins, 2021)	to understand how the companies responded to ESG assessments	reveal four types of corporate responses to ESG assessments, indicating the level of compliance and resistance to these assessments in two dimensions of corporate behavior.
Understanding ESG scores and firm performance: Are high-performing firms E, S, and G-balanced? (Lee et al., 2023)	a combination of quantitative and qualitative methodologies to analyze data from 562 US companies	The ESG score calculated with equal weighting is related to company performance. The greater the positive percentage difference between the institution's ESG score and the balanced ESG score, the lower the company's performance.
New measurement of sovereign ESG index (Jiang et al., 2022)	measures the ESG index with an entropy weighting method, which is based on related indicators from the World Bank ESG Database	countries with higher economic levels focus more on ESG development earlier, while lower-income countries invest less in sustainable development
ESG and financial performance: A qualitative comparative analysis in China's new energy companies (Liu et al., 2022)	longitudinal fuzzy set (fsQCA) to analyze different configurations of ESG pillars affecting corporate financial performance (CFP).	The social pillar is determined to be an important factor in generating high CFP. This study aims to guide new energy companies to strengthen their corporate social responsibility practices

3. Research Method and Materials

3.1. Conceptual Framework

The conceptual framework can be delineated as follows:

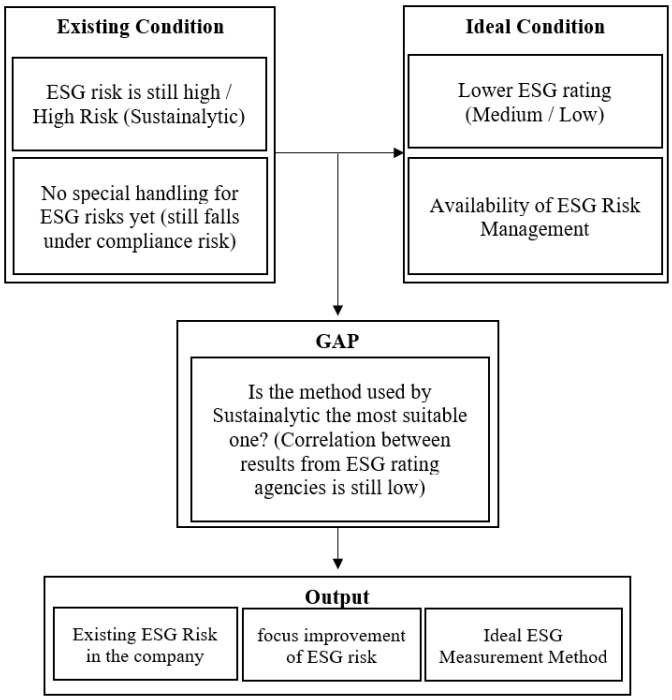

Figure 1. Conceptual Framework.

Figure.1 illustrates the progression from current circumstances to optimal conditions in ESG (Environmental, Social, Governance) risk management within a company. Currently, ESG risks remain elevated and are not subject to any specific mitigation measures, thus they continue to be categorised as compliance risks. Conversely, the optimal situation is to possess a lower ESG rating (either medium or low) while implementing efficient ESG risk management. The line that connects the two conditions emphasises the presence of an underlying "gap." This gap pertains to the inquiry of whether the methodology employed by Sustainalytic is the most appropriate, given the persistently low correlation between the outcomes of ESG assessment agencies. The analysis yields three main components: identification of current ESG risks within the company, emphasis on enhancing ESG risks, and exploration of the optimal ESG measurement approach. This document outlines the necessary procedures to transition from the current state to the desired state in ESG risk management.

3.2. Research data

The data sources utilised in this research consist of interviews conducted with informants, as well as preliminary secondary data pertaining to ESG ratings. Informants are chosen and identified based on the departments within the State-Owned Electricity Company that are directly involved with ESG risks. Derived from conversations with the ESG manager at the State-Owned Electricity Company. The resource person's comprehension of ESG risk and ESG rating is crucial in conducting interviews. Hence, the selection of the resource person for this research will be done directly by the relevant division, based on the following criteria:

- Employees in structural or functional roles involved in environmental, social, or governance risk-related functions.
- Possess knowledge of ESG Ratings
- Possesses over 5 years of experience in the relevant field

Hence, this individual can be considered as a representative of the pertinent department. The divisions pertaining to ESG risk are as follows:

Table 2. Research Data.

Relationship to ESG risk	Related Divisions
Risk Division	Construction, Generation and EBT Risk Management
Risk Division	Transmission and Distribution Risk Management
Risk Division	Strategic Risk Management, Finance and Human Capital
Risk Division	Infrastructure, Quality Assurance and Risk Management Reporting
Enviromental Risks	Energy Transition and Sustainability
Enviromental Risks	Occupational Safety and Health (K3), Security, & Environment
Social Risks	Corporate Communications and TJSL
Social Risks	Human Capital Strategy
Governance Risks	Regulations and Policies
Governance Risks	Information Systems and Technology

3.3. Phases of Research

The research process can be delineated shown on Figure 2. Figure 2 outlines the sequential stages involved in the risk assessment procedure pertaining to ESG. The process commences with problem identification, followed by gathering preliminary information from journals, literature, and initial interviews. Following that, criteria and sub-criteria are established via interviews, encompassing aspects such as scope, measurement, and weightage. Subsequently, a hierarchical framework is built. This framework facilitates the execution of calculations and prioritisation, potentially employing the Analytical Hierarchy Process (AHP) methodology. Once the AHP calculation results are obtained, a thorough analysis is conducted to identify the risks associated with the ESG risk measurement method. The process concludes with the formulation of conclusions and recommendations derived from the analysis. In summary, this flowchart outlines a systematic method for incorporating ESG risk evaluation into a comprehensive risk management plan.

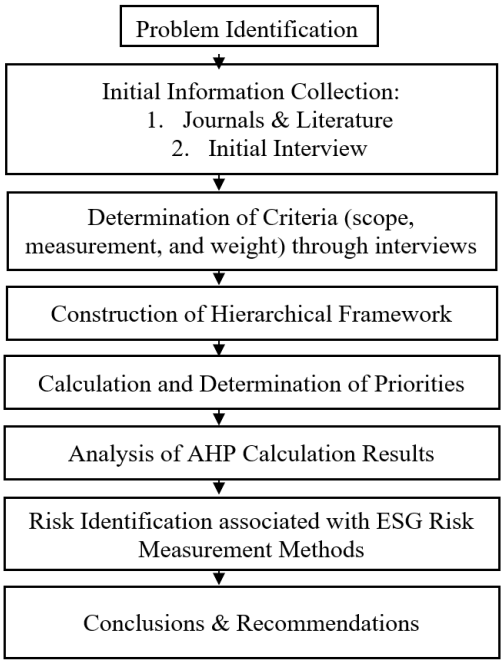

Figure 2. Phases of Research.

3.4. Analytic Hierarchy Process (AHP) Hierarchy

The research objectives can be determined by explaining the AHP hierarchy in the following manner:

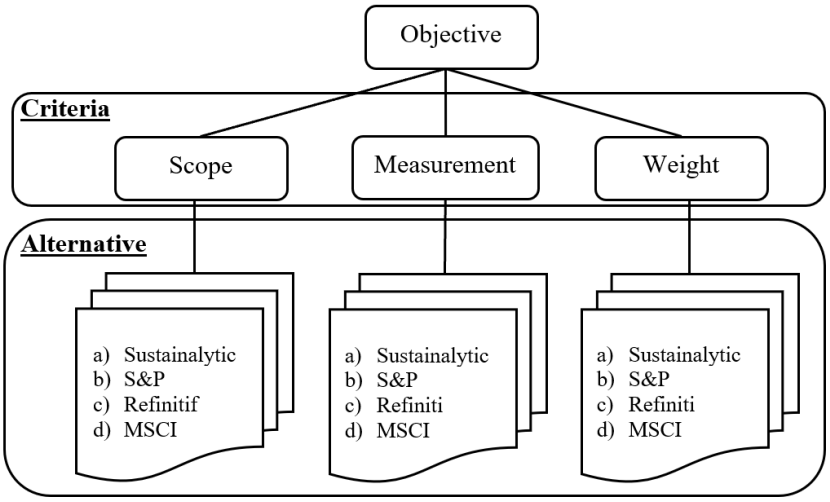

Figure 3. AHP Hierarchy

The objective of the AHP hierarchy outlined is to ascertain the optimal method for measuring a company's ESG rating. The decision-making process is categorised into three primary criteria: 'Scope', 'Measurement', and 'Weight'. The four alternatives considered for 'Scope', 'Measurement', and 'Weight' are Sustainalytics, S&P, Refinitiv, and MSCI. Each of these alternatives will be assessed according to their adherence to predetermined criteria. The term 'Scope' pertains to the extent and comprehensiveness of the aspects that are evaluated by an ESG measurement method. 'Measurement' refers to the process of quantifying or evaluating ESG values using the method. 'Weight' indicates the significance assigned to different ESG aspects in the overall assessment. Using the Analytic Hierarchy Process (AHP), each alternative will be evaluated and compared according to these three criteria in order to determine the most appropriate

option for the company. The outcome is a compilation of the most suitable ESG measurement techniques, offering valuable guidance in choosing an ESG measurement approach that will facilitate the attainment of their sustainability and corporate social responsibility objectives.

3.4.1. Criteria 1 Scope

Scope discrepancies may arise when a method encompasses a certain category that another institution does not include in its measurements. The table provided displays the identical categories associated with the four ESG rating measurement methods that will be compared.

Table 3. Indicator Equations For Scope Criteria.

Indicator	Sustainalytics	S&P	Refinitiv	MSCI
Access to Healthcare	Yes	Yes	Yes	Yes
Anti-competitive Practices	Yes	Yes	Yes	Yes
Biodiversity	Yes	Yes	Yes	Yes
Board	Yes	Yes	Yes	Yes
Business Ethics	Yes	Yes	Yes	Yes
Community and Society	Yes	Yes	Yes	Yes
Corporate Governance	Yes	Yes	Yes	Yes
Corruption	Yes	Yes	Yes	Yes
Employee Development	Yes	Yes	Yes	Yes
Energy	Yes	Yes	Yes	Yes
Environmental Fines	Yes	Yes	Yes	Yes
GHG Emissions	Yes	Yes	Yes	Yes
GHG Policies	Yes	Yes	Yes	Yes
Green Products	Yes	Yes	Yes	Yes
Health and Safety	Yes	Yes	Yes	Yes
Human Rights	Yes	Yes	Yes	Yes
Labor Practices	Yes	Yes	Yes	Yes
Privacy and IT	Yes	Yes	Yes	Yes
Product Safety	Yes	Yes	Yes	Yes
Remuneration	Yes	Yes	Yes	Yes
Reporting Quality	Yes	Yes	Yes	Yes
Resource Efficiency	Yes	Yes	Yes	Yes
Shareholders	Yes	Yes	Yes	Yes
Supply Chain	Yes	Yes	Yes	Yes
Sustainable Finance	Yes	Yes	Yes	Yes
Taxes	Yes	Yes	Yes	Yes
Waste	Yes	Yes	Yes	Yes
Water	Yes	Yes	Yes	Yes

In addition to the shared categories, there are also variations in the categories employed by each methodology utilized by the institution. The information is presented in the subsequent table 4.

Every institution opts to dissect the notion of ESG performance into distinct indicators. The presence of various indicators complicates the comprehension of the methods and rationales employed by different rating agencies when assigning different ratings to the same company. Initially, a comprehensive inventory of all accessible indicators is generated. Furthermore, it is important to group together indicators that pertain to the same attribute within the same category. Table 4 presents the results of the grouping process, which includes 28 identical indicators and 24 distinct

categories. S&P has the highest number of indicators, with a total of 49 indicators. It is followed by Sustainalytics, which has 42 indicators. Refinitiv and MSCI both have 32 indicators.

Table 4. Indicators Differences For Scope Criteria.

Category	Sustainalytics	S&P	Refinitiv	MSCI
Audit	Yes	Yes	Yes	No
Diversity	Yes	Yes	Yes	No
Environmental Mgmt. System	Yes	Yes	Yes	No
Responsible Marketing	Yes	Yes	Yes	No
Climate Risk Mgmt.	Yes	Yes	No	Yes
Indigenous Rights	Yes	Yes	No	Yes
Collective Bargaining	Yes	Yes	No	No
Employee Turnover	Yes	Yes	No	No
Environmental Policy	Yes	Yes	No	No
Hazardous Waste	Yes	Yes	No	No
Lobbying	Yes	Yes	No	No
Site Closure	Yes	Yes	No	No
Access to Basic Services	Yes	No	No	No
Non-GHG Air Emissions	Yes	No	No	No
Child Labor	No	Yes	Yes	No
ESG Incentives	No	Yes	No	Yes
Green Buildings	No	Yes	No	Yes
Animal Welfare	No	Yes	No	No
Customer Relationship	No	Yes	No	No
Financial Inclusion	No	Yes	No	No
Forests	No	Yes	No	No
Global Compact Membership	No	Yes	No	No
Systemic Risk	No	Yes	No	No
Public Health	No	No	Yes	No

3.4.2. Criteria 2 Measurement

Measurement discrepancies can arise when one institution employs a measurement technique that diverges from the ESG measurement method utilized by another institution.

Table 5. Aspect differences for Measurement criteria.

Aspect	Sustainalytics	S&P	Refinitiv	MSCI
Basis of Measurement	Uses ESG risk exposure and management effectiveness as the basis for measurement.	Focuses on the financial materiality of each ESG criterion to a specific industry.	Considers ESG controversies, magnitude measurements, and industry and country benchmarks.	Uses industry relevance and the impact of ESG issues as the basis for measurement.
Approach	Focuses on unmanaged ESG risk levels, including governance assessment.	Uses questionnaires tailored to the industry and involves normalized quantitative data according to company revenue.	Focuses on publicly reported data for ESG performance.	Evaluates company strategies and performance in managing ESG risks.

Aspect	Sustainalytics	S&P	Refinitiv	MSCI
Differentiator	Dynamic risk profile that reflects changes in ESG management.	Conducts Media & Stakeholder Analysis to check the consistency of company actions with its principles and policies.	Scoring percentile ranks and stimulating transparency.	Conducts detailed issue-based analysis.
Assessment Process	Company exposure is multiplied by management risk factors to obtain a manageable score, then reduced by the management score to obtain the final manageable score.	Requests data and supporting documents to verify answers in the CSA (Corporate Sustainability Assessment) questionnaire. The resulting CSA score becomes a major component of the ESG Score.	Uses more than 630 data points, ratios, and analytics, with 186 metrics that can be compared and used in assessing the ESG score, which is then combined with the controversy score to form the final score.	Collects public data, then calculates scores for each ESG issue. These scores are then aggregated into pillar scores adjusted based on the industry before being mapped into the evaluation matrix.

The table 5 presented offers a comparative overview of the methodologies employed by four distinct institutions in the measurement and assessment of ESG factors. Sustainalytics prioritizes the assessment of ESG risk exposure and the effectiveness of risk management strategies, particularly highlighting unaddressed ESG risks, including governance-related factors. Their approach is notable for its development of a dynamic risk profile that accurately captures fluctuations in ESG management. S&P places significant importance on the financial significance of ESG criteria for particular industries, employing industry-specific questionnaires that incorporate standardized quantitative data. Their primary distinguishing factor lies in their utilization of media and stakeholder analysis to assess the company's alignment with their principles and policies.

Refinitiv utilizes a public data method to evaluate ESG performance, employing over 630 data points and 186 metrics that can be used for comparison. Their distinguishing feature is a percentile scoring system that promotes transparency and assessments that incorporate controversy scores.MSCI utilizes the industry significance and influence of ESG matters as the foundation for their assessments, with evaluations concentrating on a company's approach and effectiveness in handling ESG risks. The MSCI methodology involves gathering publicly available data and consolidating it into pillar scores, which are subsequently modified according to industry specifications before being converted into a scoring matrix.

These four methodologies provide distinct viewpoints on ESG assessment, each employing a distinct strategy to analyze and present the risks and opportunities linked to ESG factors. This assortment of methodologies demonstrates the intricate and specific nature needed for successful ESG assessments, encompassing risk dynamics, transparency, and industry relevance.

3.4.3. Criteria 3 Weight

Weighting discrepancies may arise when a particular method assigns varying weights to each indicator in comparison to methods employed by other institutions.

Table 6. The Differences For Weight Criteria.

Criteria	Sustainalytics	S&P	Refinitf	MSCI
WEIGHT	Assessment of potential future material issues (risk exposure and management effectiveness)	Disclosure of criteria and weighting for the analyzed industry (Industry-specific financial materiality)	Percentile ranking based on company performance, sensitivity, and industry weight	Risk and opportunity analysis for all GICS subsectors (Global Industry Classification Standard)

The table 6 show the varying weights assigned by the four ESG rating agencies to specific aspects in their assessment process: Sustainalytics prioritizes the assessment of the likelihood of significant future problems by taking into account the extent to which the company is vulnerable to ESG risks, as well as the competence of management in addressing those risks. S&P prioritizes the disclosure of ESG criteria and their weighting based on industry-specific factors, emphasizing the financial significance of each ESG criterion, which varies across different industry sectors. Refinitiv

employs a percentile ranking system that considers company performance, sensitivity to ESG issues, and industry weighting in their evaluations. This approach demonstrates their commitment to incorporating various performance factors and industry sensitivities in their assessments. MSCI's primary focus is to analyze significant risks and opportunities within specific subsectors of the Global Industry Classification Standard (GICS). They use this classification system as a framework to evaluate the overall impact of ESG issues across various industries. The table's conclusion reveals that each institution employs distinct methodologies for assigning importance to ESG factors in their evaluation process. This reflects the diverse approaches taken by different industries in assessing ESG risks and opportunities. This highlights the significance of comprehending the industry context and sector specificity when implementing standards and carrying out ESG assessments.

4. Results and Discussion

4.1. Criteria Analysis

The table 7 show the criteria analysis for scope, measurement, and weight.

Table 7. Criteria Analysis

Criteria	Weights
Scope	16,4%
Measurement	46,8%
Weight	36,7%

The table 7 illustrates the allocation of weights for the three criteria employed in evaluating ESG rating methods by sources affiliated with the State-Owned Electricity Company. The criteria for evaluation are Scope, Measurement, and Weight, with Measurement being assigned the highest weightage (46.8%), followed by Weight (36.7%) and Scope (16.4%). This demonstrates that within the evaluation process, the Measurement factor holds the highest level of significance, whereas the Scope factor is regarded as the least significant. Based on the emphasis placed on Measurement, it appears that the interviewee highlighted the significance of metrics or methods used to assess ESG factors. The statement suggests that the perceived significance lies in how a rating agency evaluates ESG performance. This category is also assigned a substantial weight, indicating the relative importance or significance that rating agencies attribute to each aspect in their methodology. The weight assigned to scope was reduced, suggesting that the degree of similarity in measuring ESG aspects among rating agencies is not considered the primary criterion for evaluating ESG ratings.

4.2. Analysis of Scope Criteria Comparison Among Rating Agencies

The table 8 show the comparative outcomes of Sustainalytics, S&P, Refinitiv, and MSCI alternatives for the Scope Criteria.

Table 8. Comparison of Scope Criteria

Alternative ESG Rating Method	Weights
Sustainalytic	33,1%
S&P	47,0%
Refinitif	14,0%
MSCI	5,9%

The table 8 indicates that the S&P's ESG rating methodology is assigned the highest weight of 47.0%, followed by Sustainalytics with 33.1%, Refinitiv with 14.0%, and MSCI with 5.9%. According to sources, S&P is regarded as having the most suitable or robust methodology for assessing ESG factors, whereas MSCI is considered to have the least effective approach. The S&P index, which has the highest weighting, showed the most extensive indicators, suggesting that companies have a positive perception of the methodology that encompasses various aspects of ESG factors. This may also indicate a preference for the agency that offers the most extensive evaluation in terms of its range and coverage. In addition, the resource persons not only emphasised the quantity of indicators measured, but also underscored the significance of these indicators within the framework of company operations. The presence of significant indicators pertaining to the energy and sustainability sectors can impact the selection of the alternative ESG

Rating method. This demonstrates that the sources place significant importance on the ESG rating methodology, which encompasses a wide range of indicators and specifically focuses on those that are pertinent and significant to the energy and sustainability sectors. Superiority will be attributed to methodologies that most effectively cater to the specific needs of companies in their ESG assessments.

4.3. Analysis of Measurement Criteria Comparison Among Rating Agencies

The table 9 show the comparative results of Sustainalytics, S&P, Refinitiv, and MSCI alternatives for the Measurement Criteria.

Table 9. Comparison of Measurement Criteria

Alternative ESG Rating Method	Weights
Sustainalytic	37,8%
S&P	35,3%
Refinitif	10,3%
MSCI	16,6%

The sustainalytics methodology was assigned the highest weight, indicating that it is the most preferred method among State-Owned Electricity Companies. The approach, which focuses on evaluating ESG risk exposure and implementing effective risk management strategies, is highly regarded by companies. The company's emphasis on unmanaged ESG risks, along with its robust governance practices, makes it well-suited for companies seeking an adaptable approach to risk management that can effectively respond to evolving circumstances and proactively mitigate risks. S&P closely aligns with Sustainalytics in terms of interviewee preferences, focusing on the financial significance of each ESG criterion for a specific industry. Companies may find a questionnaire approach that is customised to their industry and incorporates normalised quantitative data appealing. This approach provides measurements that are more precise and applicable to the energy sector. The assessment is characterised by a high level of rigour and transparency, as evidenced by media and stakeholder analysis and verification processes. Refinitiv has a lower weighting in comparison to the other two institutions, suggesting that its approach is perceived as less in line with corporate preferences. Refinitiv employs comprehensive data analysis, prioritising ESG controversies and industry benchmarks that are considered less pertinent to a company's specific requirements. MSCI adopts a methodology that prioritises the industry significance and influence of ESG matters. It also assesses companies' approaches and achievements in handling ESG risks, aligning with the corporate emphasis on risk management. Companies find public data collection and aggregated score calculation methods to be a systematic and beneficial approach. The company's selected measurement mechanism places importance on a thorough and flexible approach to assessing and managing ESG risks, with a specific focus on industry relevance and the ability to adapt to change. Sustainalytics and S&P, with the highest scores, were considered the most appropriate due to their evaluated methodologies that offer the most precise assessment of how companies handle ESG risks and meet their corporate social obligations. This is particularly crucial for energy sector companies focused on long-term sustainability.

4.4. Analysis of Weighting Criteria Comparison Among Rating Agencies

The table 10 show the comparative results of Sustainalytics, S&P, Refinitiv, and MSCI alternatives for the Measurement Criteria.

Table 10. Comparison of Weighting Criteria

Alternative ESG Rating Method	Weights
Sustainalytic	42,9%
S&P	26,4%
Refinitif	15,6%
MSCI	15,0%

The sources assigned the highest weight to the ESG rating method provided by Sustainalytics. Sustainalytics' methodology for evaluating forthcoming risks and the efficacy of management showcases a robust emphasis on forecasting and averting ESG concerns prior to their manifestation. Given the State-Owned Electricity Company's involvement in the energy sector, which carries substantial environmental and social risks, it is crucial to evaluate potential future issues that may arise. This emphasises the necessity for companies to adopt proactive approaches in

identifying and managing ESG risks. S&P employs a methodology that centres around industry-specific financial materiality. The relatively lower weighting in comparison to Sustainalytics indicates that interviewees consider the industry's financial materiality aspects to be significant but insufficient in meeting their requirements for ESG assessments. They believe that a more comprehensive understanding of risk and management is necessary. Refinitiv's methodology incorporates percentile rankings that evaluate company performance, sensitivity, and industry weighting. This methodology includes a weighting factor that takes into account a company's relative performance compared to its peers in the industry. This approach is deemed less appropriate for companies that have few competitors to ascertain their relative position in the industry from an ESG standpoint. MSCI conducts a thorough analysis of both risks and opportunities for all subsectors of the Global Industry Classification Standard (GICS). This demonstrates a meticulously organised method for categorising ESG risks. While Refinitiv and MSCI have similar value, MSCI's standardised approach is regarded as less adaptable compared to Sustainalytics' more dynamic methodology. The company seems to prioritise methods that evaluate prospective future ESG risks and the efficiency of existing risk management. This is pertinent to the energy industry, which frequently encounters intricate and fluctuating ESG concerns. Methodologies that have the ability to anticipate future events and empower companies to proactively address risk management will be extremely valuable. Sustainalytics has received a high rating because their methodology is well-suited to measuring and managing ESG risks, which aligns with the company's strategic and operational needs.

4.5. Decision Analysis

The table 11 show the comparative outcomes of Sustainalytics, S&P, Refinitiv, and MSCI alternatives for decision-making using the Analytic Hierarchy Process (AHP) method.

Table 11. Decision Analysis

Alternative ESG Rating Method	Priority
Sustainalytic	38,9%
S&P	34,0%
Refinitif	12,9%
MSCI	14,2%

The rating method employed by Sustainalytics carries the greatest significance, signifying that the respondents ranked Sustainalytics as the most appropriate based on the three categories of scope, measurement, and weight. The reason for this assessment is that Sustainalytics provides a thorough approach that evaluates both existing and potential future ESG risks. The measurement methods employed take into account a company's risk exposure and the efficacy of its management, assigning appropriate importance to these factors in the final score. Sustainalytics' comprehensive and meticulous approach to assessing and prioritizing ESG factors aligns well with the State-Owned Electricity Company's focus on managing ESG risks. S&P Global is also highly rated by the company, indicating a more conventional approach that emphasizes industry-specific financial importance. S&P employs industry-specific questionnaires and verifies responses to create ESG Scores, offering a rigorous measurement approach that incorporates appropriate weightings based on the risks and opportunities encountered by energy sector companies. Refinitiv's approach to measuring and weighting ESG performance is generally regarded as robust, although it may not be as formidable as that of Sustainalytics and S&P in certain areas. Although the Refinitiv approach provides in-depth analysis using over 630 data points, it is considered deficient in accurately capturing the precise details of the ESG risks that companies face, particularly in terms of risk management. Despite not receiving the highest weighting, MSCI is still regarded as having a substantial approach in delivering material risk and opportunity based scores categorized by industry subsector. The MSCI analysis is regarded as offering valuable insights into certain aspects unique to the energy sector, but it is not as comprehensive or adaptable as the approach provided by Sustainalytics.

5. Conclusion

When choosing an ESG rating methodology, the State-Owned Electricity Company demonstrated a clear preference for Sustainalytics, which had a priority value of 38.9%. This indicates that Sustainalytics closely aligns with the company's requirements in terms of the extent of coverage, measurement approach, and importance assigned to different factors. The company has utilized Sustainalytics, a provider known for its comprehensive methodology in assessing ESG risks, forecasting potential future issues, and assigning appropriate significance to material ESG factors. Nevertheless, the S&P's priority value, although slightly lower, suggests that their approach is still highly pertinent to the company's requirements. S&P provides valuable insights, particularly through their emphasis on industry-specific

financial significance and thorough data authentication. S&P can offer insightful and detailed analysis that offers a more nuanced perspective on a company's ESG standing compared to its peers in the energy industry. The methodologies of Sustainalytics and S&P offer valuable resources to companies as they strive to manage ESG risks and enhance their corporate social responsibility. These approaches are distinct and effective.

This aligns with the practice of other companies that employ multiple rating agencies to evaluate and gauge their company's ESG performance and risk, to a greater extent. As an illustration, PT. Cikarang Listrindo, a company in the same industry, has a superior ESG rating. The company relies on three rating agencies, namely Sustainalytics, MSCI, and S&P. In addition, PT BRI (Bank Rakyat Indonesia), a state-owned company in Indonesia, is also recognized as an ESG leader. Like Cikarang Listrindo, BRI also employs three rating agencies to evaluate their company's ESG performance. This can serve as an illustration for State-Owned Electricity Companies in Indonesia. In addition to enhancing international ESG exposure, it can offer a comprehensive overview of the ESG risks present in the company.

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