Danantara Indonesia

PLN

ESG Performance Report 2024

Sustainability-Related Financial Disclosure

Director's Statement

Evy Haryadi

Director of Transmission and System Planning

We are pleased to present PLN's Environmental, Social, and Governance (ESG) Performance Report for 2024, highlighting our continued dedication to integrating ESG principles across every facet of our operations. Now in its second year, this report reaffirms our resolve to contribute meaningfully to a more sustainable, inclusive, and resilient future for Indonesia. In accordance with the IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information, PLN's sustainability-related disclosures reflect our integrated approach to identifying and managing material ESG-related risks and opportunities. Under the oversight of the Board of Directors and Board of Commissioners, we continue to strengthen governance structures to support strategic alignment with long-term sustainability goals.

Our disclosures demonstrate how sustainability-related risks and opportunities are embedded in the development and execution of our strategic plans, including the *Rencana Usaha Penyediaan Tenaga Listrik* (RUPTL) and *Rencana Kerja dan Anggaran Perusahaan* (RKAP). These plans are underpinned by our ambition to lead Indonesia's clean energy transition, enhance operational resilience, and create long-term value for all stakeholders.

In 2024, PLN made significant strides in advancing its ESG agenda in alignment with its Net Zero Emission (NZE) 2060 target. On the environmental front, PLN's Greenhouse Gas Emissions reduction program successfully reduced 12.7 million tons CO_2 surpassing the set target of 10.8 million tons CO_2. This progress was underpinned by the execution of the RUPTL 2021–2030 and supported by energy transition initiatives such as co-firing in coal plants, utility-scale solar PV development, and early retirement of high-emission assets.

PLN also continued to drive positive community impact and workforce development. In 2024, the company maintained a 99.83% electricity coverage ratio across Indonesia, contributing to inclusive energy access and national development. Internally, PLN launched sustainability and ESG capacity-building programs, supported by a growing number of sustainability focal points across directorates. The company also prioritized occupational health and safety, tracking performance on a number of safety indicators and rolling out corporate-wide awareness campaigns. On the governance side, PLN strengthened oversight of sustainability risks through regular ESG reporting to its Board-level Risk Management Committee and introduced a dedicated ESG steering team to coordinate cross-functional integration of ESG priorities. These efforts underscore PLN's commitment to accountable, transparent, and forward-looking governance practices.

Through enhanced risk management processes and scenario analysis aligned with climate-related considerations, PLN is building a future-ready business that prioritizes reliability, affordability, and environmental responsibility. We are also committed to improving the quality and transparency of our sustainability-related financial disclosures, ensuring that investors and stakeholders are equipped with relevant and comparable information to make informed decisions.

This report marks another step in PLN's sustainability journey and reflects our ongoing efforts to align with global best practices in sustainability reporting and corporate governance.

Jakarta, 23 May 2025

Evy Haryadi
Director of Transmission and System Planning

Preface

Kamia Handayani

Executive Vice of Energy Transition and Sustainability

This report presents PT PLN (Persero)'s application of the IFRS S1 General Requirements to disclose sustainability-related risks and opportunities that could materially influence our financial performance, access to capital, and long-term resilience. It provides a structured overview of how sustainability-related risks and opportunities with potential financial effects are governed, integrated into strategy, managed, and measured across PLN's operations.

Aligned with IFRS S1's core pillars: governance, strategy, risk management, and metrics and targets, this report outlines how PLN identifies, assesses, and responds to sustainability-related matters that could reasonably affect our enterprise value over the short, medium, and long term. Our sustainability approach is also designed to align with Indonesia's national targets, including its Net Zero Emissions (NZE) commitment by 2060, and global disclosure expectations, reinforcing our accountability to both domestic and international stakeholders.

By grounding our disclosures in IFRS S1, we aim to enhance the transparency, comparability, and reliability of information available to investors and other users of general-purpose financial reports. This marks PLN's continued progress toward embedding sustainability in financial decision-making and long-term value creation.

Kamia Handayani

Executive Vice President Energy Transition and Sustainability

Executive Summary

PLN's 2024 IFRS S1 Sustainability Disclosure highlights its commitment to integrating environmental, social, and governance (ESG) principles into its corporate strategy and operations. As Indonesia's largest electricity provider, PLN plays a pivotal role in advancing the nation's energy transition, aligning with Indonesia's Enhanced Nationally Determined Contribution (E-NDC) and NZE 2060 targets. This report outlines PLN's sustainability governance, climate risk management, key performance metrics, and long-term commitments to ESG integration. PLN has identified 10 priority ESG topics which this report analyzes through the four IFRS S1 pillars:

ENVIRONMENT

Climate Change Management

PLN monitors its greenhouse gas (GHG) emissions encompassing Scope 1, 2, and 3 emissions, energy efficiency improvements, and carbon intensity reduction targets. Key reporting metrics include GHG emission reductions, energy transition roadmaps, and NZE pathways. PLN continues to expand its renewable energy portfolio and reduce its GHG emissions in support of the energy sector's E-NDC target, which aims for a 358 million tons CO_2 equivalent reduction. PLN's potential contribution is estimated at 127 million tons of CO_2 reduction which is aligned with the company's stated emissions trajectory toward achieving its climate transition objectives.

Environmental Management

PLN discloses its waste, effluent, and air emissions management efforts through ISO 14001:2015 certification, external and internal audits, and government-mandated environmental performance assessments. The company reports on hazardous and non-hazardous waste management, effluent treatment, and non-GHG air emissions control, in alignment with environmental regulations set by the Ministry of Environment (MoE).

Resource Management

PLN tracks its resource efficiency initiatives, focusing on energy consumption, water use, and circular economy programs. The company reports on renewable energy adoption, water recycling programs, and asset management strategies aimed at enhancing sustainability and reducing environmental impact.

Nature Management

PLN discloses biodiversity conservation efforts, including reforestation, land rehabilitation, and engagement with local communities to protect ecosystems impacted by energy projects. Reporting includes biodiversity identification, mitigation strategies, and alignment with the Taskforce on Nature-related Financial Disclosures (TNFD) recommendations.

SOCIAL

Community Relations

PLN reports on community development initiatives, focusing on stakeholder engagement, emergency response programs, and social impact assessments. Metrics include Corporate Social Responsibility (CSR) investments, infrastructure projects for underserved communities, and programs promoting economic opportunities in PLN's operational areas.

Occupational Health and Safety (OHS)

OHS reporting follows ISO 45001:2018 and PLN's internal OHS management framework, tracking workplace safety incidents, contractor safety programs, and employee well-being initiatives. Metrics include safety performance, accident rates, and compliance with national labor standards. As of this report's publication, 42 out of 46 PLN units (91%), have been certified under ISO 45001:2018.

Human Capital Management

PLN discloses its human resource development strategies, including talent retention, employee training programs, and workforce satisfaction. Reporting covers labor rights compliance, equal opportunity policies, and performance-based human capital investment metrics.

Gender Equality, Disabilities, and Social Inclusion (GEDSI)

PLN tracks diversity and inclusion initiatives, reporting on gender representation in leadership, employee inclusion programs, and accessibility improvements for people with disabilities. Key reporting areas include equal pay, career advancement for women, and social impact programs for marginalized communities.

GOVERNANCE

Product Governance

PLN ensures transparent product governance by reporting on customer satisfaction, service reliability, cybersecurity measures, and data protection. The company tracks grid performance metrics, electricity transmission efficiency, and customer service improvements.

Business Ethics

PLN reports on its corporate ethics policies, anti-corruption programs, and regulatory compliance measures. The company discloses information on integrity training, governance frameworks, and adherence to national and international business conduct regulations. PLN is committed to leading Indonesia's clean energy transition, reducing its environmental impact, and enhancing corporate sustainability governance. With clear ESG targets, decarbonization strategies, and financial investments, PLN is well-positioned to drive long-term value creation while ensuring climate resilience and regulatory compliance.

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LIST OF ABBREVIATIONS

ACN	Accounting
AKHLAK	*Amanah, Kompeten, Harmonis, Loyal, Adaptif, Kolaboratif* (Trustworthy, Competent, Harmonious, Loyal, Adaptive, Collaborative).
ARED	Accelerated Renewable Energy Development
AVM	Asset Valuation Management
BAU	Business as Usual
BCMS	Business Continuity Management System
BMP	Biodiversity Management Plan
BNPB	*Badan Nasional Penanggulangan Bencana* (National Disaster Management Agency)
BOC	Board of Commissioners
BOD	Board of Directors
BRF	Biodiversity Risk Filter
BUD	Budget
CBI	Corporate Business Development and Investment
CCPP	Combined Cycle Power Plant
CCS	Carbon Capture and Storage
CCT	Clean Coal Technology
CDP	Carbon Disclosure Project
CEMS	Continuous Emissions Monitoring System
CES	Customer Experience and Excellence Services
CFPP	Coal-Fired Power Plant
CGN	Construction, Generation, and NRE Risk Management
CIA	Chief of Internal Audit
CID	Community Involvement Development
CLB	Corporation and Legal Business Partner
CMA	Commercial and Marketing
COBIT	Control Objectives for Information and Related Technology
COC	Corporate Communication and CSR
COF	Corporate Finance

CORSEC	Corporate Secretariat
CPC	Corporate Performance Control
CPD	Commercial Product Development
CPL	Compliance
CRM	Chief of Risk Management
CSI	Community Satisfaction Index
CSIRT	Computer Security Incident Response Team
CSMS	Contractor Safety Management System
CSP	Corporate Strategic Planning
CSR	Corporate Social Responsibility
DGE	Directorate General of Electricity
DGM	Digital Management
DPP	Diesel Power Plant
DPS	Distribution Planning Strategic
DRKPL	*Dokumen Ringkasan Kinerja Pengelolaan Lingkungan* (Environmental Management Performance Summary Document)
E-NDC	Enhanced Nationally Determined Contribution
ECS	Enterprise Sales and Customer Service
EIA	Environmental Impact Assessment
EMS	Environmental Management System
ESIA	Environmental and Social Impact Assessment
ESG	Environmental, Social, Governance
ESMS	Environment and Social Management Systems
EPP	Engineering and Procurement Planning
ER	Electrification Ratio
ERP	Emergency Response Program
ESL	Electricity System Planning
ESP	Electrostatic Precipitator
ETS	Energy Transition and Sustainability
EV	Electric Vehicles
EVP	Executive Vice President
FABA	Fly Ash & Bottom Ash
GAP	General Affairs and Property Assets
GEDSI	Gender Equality, Disability, and Social Inclusion
GEPP	Gas-Engine Power Plant
GHG	Greenhouse Gas
GHP	Green Hydrogen Plant
GIP	Generation and IPP Procurement
GOI	Generation Operation and Independent Power Producer
GFPP	Gas-Fired Power Plant
GPP	Geothermal Power Plant
GSP	Generation Strategic Planning
GTM	Geothermal
GWh	Gigawatt hour
HSC	Human Capital Services
HCR	Human Capital Readiness
HEPP	Hydroelectric Power Plant
HST	Human Capital Strategy
HSSE	Health, Safety, Security, Environment
HTD	Human Talent Development
IASB	International Accounting Standards Board
IAU	Internal Audit Unit
IFRS	International Financial Reporting Standards
IGSCE	Integrated Green Supply Chain Excellence
IKN	*Ibu Kota Nusantara*/Nusantara Capital City
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer
IPPKH	*Izin Pinjam Pakai Kawasan Hutan* (Forest Area Borrow-to-Use Permit)
ISO	International Organization for Standardization
ISSB	International Sustainability Standards Board
IQR	Infrastructure, Quality Assurance, and Risk Management Report
KHS	*Kesepakatan Harga Satuan*/Unit Price Agreement
KPI	Key Performance Indicator
LTSHE	*Lampu Tenaga Surya Hemat Energi* (Energy Saving Solar Lamp)
MCJ	Construction Java, Madura, Bali, Maluku, Papua, and Nusa Tenggara
MCS	Construction Sumatra, Kalimantan, and Sulawesi
MDU	*Material Distribusi Utama* (Main Distribution Material)
MIP	Mitra Instansi Pengelola
MoU	Memorandum of Understanding
MoEF	Ministry of Environment and Forestry
MPTS	Multi-Purpose Tree Species
MSMEs	Micro, Small & Medium Enterprises
MTU	*Material Transmisi Utama* (Main Transmission Material)
NDC	Nationally Determined Contribution

NGOs	Non-Governmental Organizations
NRE	New Renewable Energy
NZE	Net-Zero Emission
OCR	Organization Capital Readiness
ODJ	Distribution Operation Java, Madura, and Bali
ODM	Operation Distribution Sulawesi, Maluku, Papua, and Nusa Tenggara
ODS	Operation Distribution Sumatra and Kalimantan
OHS	Occupational Health and Safety
PFM	Portfolio Management
PLN	Perusahaan Listrik Negara
PM	Particulate Matter
PMN	*Penyertaan Modal Negara* (State Capital Participation)
PMO	Project Management Office
PPA	Power Purchase Agreement
PROPER	*Penilaian Peringkat Kinerja Perusahaan dalam Pengelolaan Lingkungan Hidup* (The Corporate Performance Rating Assessment Program in Environmental Management)
PTBAE-PU	*Persetujuan Teknis Batas Atas Emisi bagi Pelaku Usaha* (Technical Approval of Upper Emission Limits for Business Entity)
PUMK	*Program Pendanaan Usaha Mikro dan Kecil* (Micro and Small Enterprise Funding)
PUSLITBANG	*Pusat Penelitian dan Pengembangan* (Center for Research and Development)
RCP	Representative Concentration Pathway
RCS	Retail Sales and Customer Service
RE	Renewable Energy
REC	Renewable Energy Certificate
RES	Renewable Energy Source
RKAP	*Rencana Kerja Anggaran Perusahaan* (Company's Budget Plan)
RJPP	*Rencana Jangka Panjang Perusahaan* (Company's Long-Term Plan)
RPL	Regulation and Policy
RUPTL	*Rencana Usaha Penyediaan Tenaga Listrik* (National Electricity Supply Business Plan)
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SAMP	Strategic Asset Management Plan
SASB	Sustainability Accounting Standards Board
SCM	Supply Chain Management
SDGs	Sustainable Development Goals
SFH	Strategy, Finance, and Human Capital Risk Management
SHB	Stakeholder Management and BoD Support
SIMPEL	*Sistem Pelaporan Elektronik Bidang Lingkungan Hidup* (Environmental Electronic Reporting Information System)
SLA	Service Level Agreement
SMAP	*Sistem Manajemen Anti Penyuapan* (Anti-Bribery Management System)
SPE	*Sertifikat Pengurangan Emisi* (Emission Reduction Certificate)
SPBKLU	*Stasiun Penukaran Baterai Kendaraan Listrik Umum* (Public Electric Vehicle Battery Exchange Station)
SPKLU	*Stasiun Pengisian Kendaraan Listrik Umum* (Public Electric Vehicle Charging Stations)
SPLN	*Standar* PLN (PLN's Standard)
SPM	*Sistem Pemantauan Mutu* (Quality Supervision System)
SOE	State-Owned Enterprise
SOP	Standard Operating Procedure
SRM	*Surat Rekomendasi Mutu* (Quality Recommendation Letter)
SROI	Social Return on Investment
SWR	Sustainability War Room
TCFD	Task Force on Climate Related Financial Disclosures
TCO	Corporate Transformation and CEO Office
TDR	Transmission and Distribution Risk Management
TFS	Technology Information System
TNFD	Taskforce on Nature-related Financial Disclosures
UAV	Unmanned Aerial Vehicle
UIW	*Unit Induk Wilayah* (Regional Main Unit)
U.S. EPA	United States Environmental Protection Agency
VP	Vice President
VRE	Variable Renewable Energy
VRF	Values Reporting Framework
WEF	World Economic Forum
WRF	Water Risk Filter
WWTP	Wastewater Treatment Plant

ABOUT THIS REPORT

PLN's 2024 ESG Performance Report references several frameworks and standards, ensuring alignment with global sustainability reporting practices and enhancing transparency and comparability in sustainability performance. This report adopts IFRS S1, IFRS S2, SASB, and TNFD as reporting frameworks and follows ESG rating requirements to measure the company's performance and management on sustainability aspects.

ESG Reporting Frameworks

International Financial Reporting Standards (IFRS) S1 General Requirements for Disclosure of Sustainability-related Financial Information and International Financial Reporting Standards S2 Climate-related Disclosures.

The IFRS Foundation began planning the establishment of the International Sustainability Standards Board (ISSB) in response to global demands for standardized sustainability disclosures. In April 2021, the IFRS Trustees proposed amending its Constitution to accommodate the ISSB. The board's establishment was officially announced on November 3, 2021 at COP26.

To prepare for the ISSB, the Technical Readiness Working Group (TRWG) was formed, including organizations like the Task Force for Climate-Related Financial Disclosures (TCFD), Value Reporting Framework (VRF), Climate Disclosure Standards Board (CDSB), World Economic Forum (WEF), and International Accounting Standards Board (IASB), with support from International Organization of Securities Commissions (IOSCO) with the aim of accelerating convergence of global sustainability reporting standards.

In June 2023, the ISSB issued its first two sustainability disclosure standards: IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information and IFRS S2 Climate-related Disclosures. These standards are aimed to enable users of general-purpose financial reports in evaluating an entity's exposure to and management of sustainability- and climate-related risks and opportunities over the short, medium, and long term, thereby informing their resource allocation decisions.

In response to these new standards, PLN used IFRS S1 for sustainability-related disclosures and IFRS S2 for climate-related reporting as the basis for its 2023 ESG Performance Report. However, the early adoption process still requires further refinement and enhancement. While the initial adoption marked a significant milestone, PLN has worked to implement key improvements to strengthen alignment with these standards. One notable advancement was the integration of risk mapping between operational units and the corporate level, allowing PLN to better consolidate and align material sustainability risks across its vast operations. This enhancement has improved the consistency, accuracy, and relevance of PLN's sustainability risk disclosures, in line with IFRS S1 and S2 expectations.

Sustainability Accounting Standards Board (SASB)

The Sustainability Accounting Standards Board (SASB) was founded in 2011 with the aim of developing industry-specific standards to help companies disclose financially material, decision-useful sustainability information for investors. The SASB Standards, published in 2018, cover 77 industries and were developed through a rigorous, evidence-based process involving companies, investors, experts, and the independent SASB Standards Board.

In August 2022, the ISSB assumed responsibility for the SASB Standards, committing to maintain, enhance, and evolve them. The SASB Standards are integral to IFRS S1 and IFRS S2, which require industry-specific disclosures, encouraging companies to use the SASB Standards to identify sustainability-related risks, opportunities, and metrics.

PLN has utilized the SASB Standards since 2022 as a tool to determine sustainability-related metrics specific to the electric utilities and power generation industry and will continue to follow this standard for the 2024 ESG Performance Report.

Taskforce on Nature-related Financial Disclosures (TNFD)

In July 2020, an initiative to bring together a Taskforce on Nature-related Financial Disclosures was announced, with a preparatory phase lasting until June 2021. With support from the founding partners and funders, the TNFD was launched in June 2021, receiving global endorsements from the G7, G20 and other influential leaders.

The TNFD published its final framework on September 18, 2023. These recommendations provide companies and financial institutions of all sizes with a risk management and disclosure framework to identify, assess, manage and, where appropriate, disclose nature-related issues. It includes 14 recommended disclosures covering nature-related dependencies, impacts, risks and opportunities.

In 2024, PLN began developing its disclosures in alignment with the TNFD Recommendations and published them in December 2024 as part of its annual corporate sustainability reporting. PLN also aligned its 2024 ESG Performance Report with the Nature Management topic from this framework and will continue to follow these guidelines in the following years.

ESG Rating

- Carbon Disclosure Project (CDP)
  CDP is a non-profit organization that operates a global disclosure platform for investors, businesses, cities, states, and regions to track and manage their environmental impacts. Recognized as the gold standard for environmental reporting, CDP holds the most extensive and comprehensive dataset on corporate and city actions toward sustainability.

  Annually, CDP evaluates the information submitted through its reporting process and assigns scores to companies and cities, assessing their progress in disclosure and environmental leadership. Through its independent scoring methodology, CDP measures corporate and city progress and incentivize actions on climate change, forest, and water security.

  In 2024, PLN's CDP score was C for climate and B for water, reflecting an improvement driven by PLN's enhanced management in addressing climate and water-related risks.

- Sustainalytics
  Morningstar Sustainalytics' ESG Risk Ratings offer a standardized, comparable measure of a company's exposure to material ESG risks, as well as the degree to which those risks are being effectively managed. The resulting score reflects both unmanaged risk and management performance, providing insight into the company's overall ESG risk profile.

  As of May 2024, PLN received an ESG Risk Rating score of 30.7 from Sustainalytics, positioning the company within the "high risk" category. This score reflects PLN's current level of exposure to material ESG issues and the robustness of its risk management framework. Recognizing the need for continued improvement, PLN is actively pursuing initiatives to strengthen ESG governance, enhance transparency, and mitigate key sustainability risks. These efforts are aimed at progressively lowering the company's ESG risk rating in future evaluations.

SUSTAINABILITY-RELATED GOVERNANCE

01

SUSTAINABILITY-RELATED GOVERNANCE

Sustainability Governance Body

The Board of Directors (BoD), through the Sustainability Committee, ensures that ESG considerations are integrated into strategic decision-making. The Energy Transition and Sustainability (Transisi Energi dan Keberlanjutan (TEK)) Division is tasked with implementing PLN's net-zero roadmap.

Its functions include overseeing climate risk management, ensuring compliance with international sustainability standards and driving energy transition initiatives.

Its responsibilities include developing and monitoring sustainability goals, implementing climate risk mitigation strategies and engaging stakeholders to align ESG policies with business objectives.

Sustainability Committee

PLN is committed to implementing sustainable business principles to fulfill its vision and mission. These principles are applied by all management, employees, and partners within the Company. PLN integrates ESG aspects into the Company's management that align with the aspirations of the shareholders, investors, and other parties, which may influence the Company's performance and reputation. Through the Statement of Corporate Intent No. 0314 of 2022 concerning the Sustainable Business Principles, PLN ensures the Company's sustainability is prioritized in environmental, social, governance, and economic aspects. This initiative aims to enhance PLN's contribution to achieving sustainable development goals while enhancing its competitive advantage.

PLN Sustainability Committee Structure

The Board of Directors delegated sustainability management authority to the Sustainability Committee, which was established in 2021 and updated periodically. In 2024, it was updated through the Decree of the Directorate Number 0322.K/DIR/2024 concerning the Establishment of the Sustainability Committee of PT PLN (Persero). The Board serves as a steering committee that has the duties and responsibilities of determining the strategic direction of sustainability implementation, discussing sustainability progress, and reporting it to the Board of Commissioners. The structure of Sustainability Committee is shown in **Figure 1**.

To support effective implementation across the organization, Sustainability Committees have also been established within PLN Units, Sub-holdings, and subsidiaries to carry out sustainability activities aligned with the business processes of each respective unit and entity.

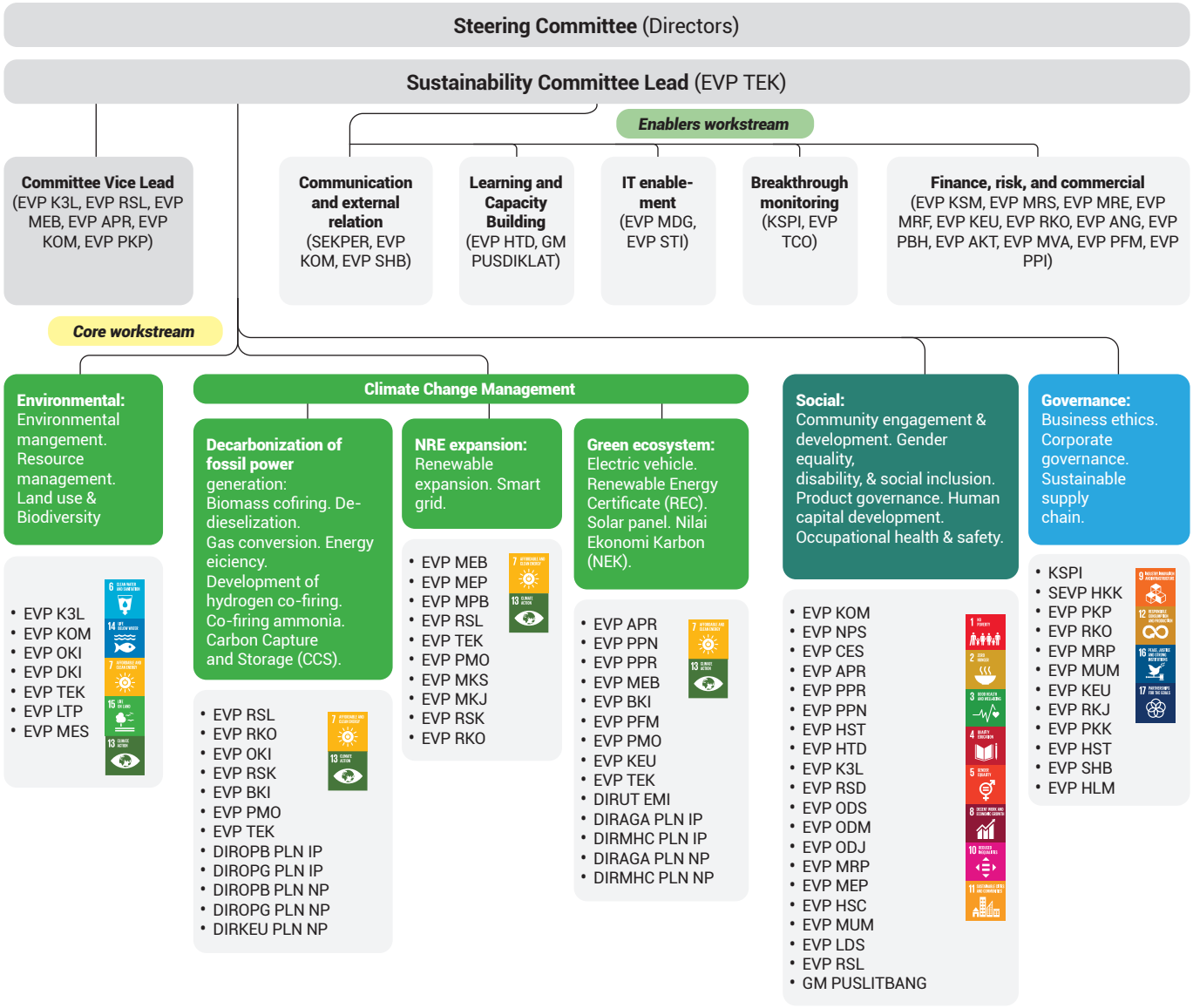


Figure 1 Sustainability Committee Organizational Structure

The Sustainability Committee's duties and responsibilities are laid out in the Director's Decisions No. 0322 of 2024 and apply to the 10 sustainability aspects discussed in this report. The responsibilities are further detailed below:

A. Steering Committee
   1. To determine the strategic direction of sustainability implementation;
   2. To discuss sustainability progress with the sustainability committee through regular meeting;
   3. To report sustainability progress to the Board of Commissioners (BoC) through management report meetings.

B. Committee Lead
   1. Lead the team in implementing, monitoring, and ensuring the implementation of the sustainability principles;
   2. Lead the preparation and updating of the sustainability framework, including establishing KPIs and targeting all aspects of sustainability as well as coordinating the entire workstream;
   3. Monitor and evaluate the sustainability target achievements on a regular basis;
   4. Deliver the sustainability progress and development to the BoC as builder, through management reports;

5. Report sustainability development progress to the BoD every month through committee meetings which are attended by at least two PLN directors;
6. Prepare the entire administrative process including the letter of note and documentation required for the performance of the sustainability committee team's duties and responsibilities;
7. Document and archive all documents related to the sustainability team's duties.

C. Committee Vice Lead
1. Support the Committee Lead execute their duties and responsibilities and represent the Committee Lead when needed.

D. Environmental Workstream
1. Ensure achievement of environmental (non-energy transition) workstream targets including environmental management, resource management, land management, and promotion of biodiversity;
2. Adjust and contribute to the programs related to environmental SDGs in the PLN's environment such as clean water, clean and inexpensive energy, and action supporting climate, marine life and land life;
3. Develop a plan for the workstream's initiatives that aligns with the company's annual environmental goals and meets the criteria set by independent institutions, ensuring improvements in social indicator quality;
4. Monitor the progress of workstream initiatives to ensure that any issues that could hinder the achievement of environmental KPIs, aligned with national targets, are promptly identified, addressed, and mitigated;
5. Report progress on implementation of environmental workstream initiatives to the coordinator of the sustainability committee.

E. Climate Change Workstream
1. Analyze the climate change sub-workstream's initiatives to meet the overall energy transition target in the RUPTL;
2. Coordinate routine meetings with sub-workstreams to track progress and ensure the availability of energy transition targets;
3. Set monthly targets for each sub-workstream;
4. Regularly report on the progress of energy transition efforts to the coordinator of the Sustainability Committee;
5. Complete the required documents related to the energy transition to ensure compliance with the criteria set by independent agencies;
6. Assist sub-workstreams in resolving issues that may interfere with the progress of energy transition initiatives.

F. Social Workstream
1. Ensure the accomplishment of workstream targets, such as community development, gender equality, product governance, human capital development, disability equality, and social inclusion;
2. Adjust and contribute to the programs related to the social SDGs in PLN's environment, such as eradication of poverty and hunger, improvement of health and education, gender equality, jobs and economy quality, and sustainable cities;
3. Prepare social initiative plans in accordance with the Company's annual targets to enhance the social quality and fulfillment of the criteria set by independent institutions;
4. Monitor progress of the workstream's initiatives to ensure the resolution of issues that may impede the achievement of KPIs;
5. Report on the progress of social workstream initiatives implementation to the sustainability committee coordinator regularly.

G. Governance Workstream
1. Ensure the accomplishment of workstream targets, such as business ethics and overall corporate governance;
2. Adjust and contribute to the programs related to the governance SDGs in PLN's environment, such as industrial innovation, responsible consumption and production, peace and justice, and collaboration toward common goals;
3. Prepare governance initiative plans in line with the Company's annual targets to strengthen governance quality and meet the criteria set by independent institutions;
4. Monitor progress of the workstream's initiatives to ensure the resolution of issues that may impede the achievement of KPIs;
5. Report on the progress of the governance workstream initiatives implementation to the sustainability committee coordinator regularly.

H. Enablers Workstream

1. Communication and Institutional Relations Workstream:
   - Develop communication plans for external stakeholders regarding sustainability programs;
   - Formulate communication strategies on sustainability for both internal and external stakeholders;
   - Mainstream sustainability across the company's external communication platforms, such as the sustainability report, corporate website, and other official media; and
   - Provide communication support and materials for both internal and external needs related to the duties and responsibilities of the Sustainability Committee.
2. Capacity Development Workstream:
   - Establish partnerships with external institutions to support formal and informal sustainability-related learning; and
   - Implement formal and informal learning programs under the Sustainability Academy.
3. Digitalization Workstream:
   - Integrate data provisioning across the PLN Group to support the implementation and monitoring of sustainability initiatives; and
   - Develop platforms that showcase sustainability performance, presented through internal dashboards and external websites featuring policies, commitments, and sustainability programs.
4. Transformation and Audit Workstream:
   - Report on the performance of sustainability initiatives under the transformation program;
   - Coordinate with initiative owners to ensure the achievement of sustainability targets set within the transformation program; and
5. Conduct audits and oversight of all sustainability-related initiatives, either through assurance services and/or consultancy.
6. Finance, Risk, and Commercial Workstream:
   - Prepare assessments, calculations, and necessary support from financial, risk, and commercial perspectives for sustainability program implementation;
   - Provide input and recommendations based on studies and analysis to support the execution of sustainability initiatives; and
   - Integrate sustainability objectives into financing, risk management, and commercial strategies.

Board of Directors (BoD) and Board of Commissioners (BoC)

The BoD and BoC are collectively tasked with supervising the Company guidelines and strategic plans, as well as the monitoring and evaluation of economic and financial performance. Additionally, they engage in deliberations on corporate policies and fulfill other responsibilities. The BoD ensures all its members have the necessary knowledge, experience, and competence to effectively oversee ESG performance. In 2023, the BoD established the PT PLN (Persero) Sustainability Committee to address sustainability governance where they serve as the steering committee. The Committee's primary responsibilities include setting the strategic direction for sustainability initiatives, reviewing progress, and reporting updates to the Board of Commissioners. The Executive Vice President of the TEK Division has been appointed by the BoD to serve as the Head of the Committee. Moreover, the Company mandates all members of the BoD and BoD-1 to integrate ESG aspects into their respective roles, responsibilities, and decision-making processes, thereby further embedding sustainability into the Company's core operations and leadership practices.

ESG-Related Experience of Board Members

Each board member possesses extensive experience in ESG-related topics. Most of them are pursuing academic degrees in engineering, energy, and business management, which are core to PLN's business processes. They have held significant leadership positions for many years, serving primarily as analysts, evaluators, planners, and strategists, thus ensuring the Company's governance is in capable hands.

In 2024, PLN's President Director, Darmawan Prasodjo, was honored with two prestigious accolades at the 2024 ESG IDX Channel Awards: The Most Inspiring ESG Corporate Leader and the Special Award for the Energy Sector. These awards recognize PLN's leadership in driving Indonesia's green energy transformation and energy transition. The Most Inspiring ESG Corporate Leader award was also presented for his outstanding leadership in steering PLN toward green electrification and accelerating the nation's energy transition. This recognition underscores PLN's strong commitment to achieving Net Zero Emissions (NZE) by 2060.

In addition, PLN received the Special Award for the Energy Sector, highlighting the company's significant contributions to the development of renewable energy power generation and its broader impact on the energy landscape in Indonesia.

Figure 2 PLN's President Director Achieved the CEO of the Year and the Best ESG Campaign Awards

Darmawan Prasodjo is also a recognized expert in climate change and energy transition. He completed a Post Doctoral at the Nicholas Institute at Duke University focusing on climate change, energy transition, and international climate agreements. He earned his Doctorate at Texas A&M University, specializing in energy policy, energy modeling, and climate change. He is also deeply involved in discussing the implementation of cap and trade, carbon trading, and the operationalization of carbon capture and storage in the power and utility sector.

PLN's Director of Finance, Sinthya Roesly also serves as the Chairwoman of Srikandi PLN, a women's community within PLN that plays a crucial role in delivering exceptional services to the public. This community actively promotes women's empowerment both within the organization and in the broader community through capacity building and social initiatives. Srikandi PLN exemplifies PLN's commitment to gender mainstreaming, aligning with its corporate strategy that emphasizes ESG aspects and represents a concrete step toward achieving the Sustainable Development Goals (SDGs).

Sustainability War Room (SWR)

The SWR is a strategic initiative designed to drive, coordinate, and accelerate PLN's ESG commitments and energy transition strategies. It serves as a central hub for monitoring progress, addressing challenges, and aligning sustainability initiatives with both national and global targets.

Through the SWR, PLN ensures the effective implementation of policies and actions necessary to achieve Indonesia's NDC by 2030 and NZE by 2060. The SWR provides a structured platform for the Sustainability Committee to oversee and execute sustainability strategies, facilitating data-driven decision-making and cross-functional collaboration.

As a key component of PLN's long-term vision, the SWR plays a critical role in transforming the company into a leading green and sustainable enterprise. By leveraging this initiative, PLN aims to enhance operational sustainability, strengthen ESG performance, and position itself among the world's top 500 sustainable companies.

SWR meetings are conducted biweekly, serving as a structured forum for tracking the Sustainability Committee's progress in achieving PLN's NZE goals. These meetings are attended by the BoD in their capacity as top-level supervisors, ensuring that each sustainability program is executed effectively and aligned with PLN's strategic vision.

To achieve NZE by 2060, PLN has established a roadmap with 29 priority moonshots, categorized into Growth Moonshots, Digital Moonshots, NZE Moonshots, and the Moonshot Launchpad. Within this framework, four key NZE Moonshots are actively monitored through the SWR:

- Accelerated Renewable Energy Development (ARED): Planning for the aggressive expansion of Renewable Energy Sources (RES) post-2030, positioning PLN as a leader in Indonesia's clean energy transition.
- Green Enabling Transmission: Addressing supply-demand mismatches across Indonesia's islands by strengthening interconnection and grid resilience.
- Scale-up Co-firing Biomass: Aiming to reduce carbon emissions by 11.6 million tons of CO_2 equivalent per year by 2028 through biomass co-firing technology in PLN's energy mix.
- REC Market Expansion: Enhancing the REC market to unlock 690 billion rupiah in cumulative Green Funding between 2023 and 2028.

As part of the SWR framework, PLN has developed a Quick-Win ESG Strategy to accelerate ESG improvements by focusing on four key material issues that account for 65% of the company's total ESG risk exposure. While two of these issues remain at an average risk management level, SWR enables PLN to closely monitor and mitigate these risks. The priority ESG material issues include:

- Carbon – Own Operations: Reducing direct emissions and improving energy efficiency across PLN's operations.
- Emissions, Effluents, and Waste: Strengthening environmental compliance and minimizing pollutants through better waste management.
- Community Relations: Enhancing engagement with local communities to ensure sustainable and socially responsible development.
- Resource Use: Optimizing natural resource consumption to improve sustainability performance.

Each of these material ESG indicators are supported by targeted action plans designed to mitigate risks and improve sustainability outcomes. Through the SWR platform, PLN ensures real-time monitoring of action plan progress, tracking key performance metrics, and enforcing accountability to ensure all sustainability targets are met within the designated timeframes.

ENVIRONMENT

Climate Change Management

PLN is actively managing climate change through its decarbonization and energy transition initiatives, aiming to meet Indonesia's NDC by 2030 and achieve NZE by 2060.

The company has established a Climate Change Policy that guides its strategy for reducing emissions and enhancing energy resilience. This policy is implemented through Director's Regulation No. 0161 of 2021, which sets the framework for climate change governance across PLN's business units. Key components of this strategy include GHG emission management, climate change mitigation, adaptation measures, and climate finance utilization. To support its transition, PLN has developed a long-term energy transition roadmap, aligned with Indonesia's RUPTL. This roadmap includes initiatives such as scaling up renewable energy capacity, phasing out coal-fired power plants, and integrating new grid technologies to improve energy efficiency and resilience. The company also actively mitigates physical risks posed by climate change, including flooding, extreme weather, and grid disruptions, by implementing adaptation measures such as flood control systems, elevated infrastructure for power plants, and weather monitoring technologies. These actions demonstrate PLN's strategic commitment to ensuring climate resilience while navigating the risks associated with energy transition.

PLN has established a robust governance framework to oversee its climate change management and energy transition initiatives, ensuring alignment with its long-term sustainability goals. The BoC plays a critical role in supervising PLN's energy transition strategy, monitoring progress, and providing oversight to ensure the company meets its sustainability commitments. The BoC also advises the BoD on key decisions related to climate-related risks and opportunities, ensuring that sustainability remains a central focus in corporate governance.

Within the BoD, the President Director leads efforts to integrate sustainability considerations into corporate strategy, actively engaging in decision-making and ensuring that energy transition initiatives align with national and global climate commitments. Supporting this mandate, PLN has established a Risk Management and Internal Audit Unit, which is directly accountable to the President Director. All sustainability-related decisions, including those concerning climate change management, undergo a structured consultation process with the Risk Management Directorate. This ensures that sustainability risks are properly assessed, and necessary recommendations are incorporated before implementation. The Internal Audit Unit further evaluates the effectiveness of the sustainability agenda, providing independent oversight of PLN's climate-related initiatives.

To drive the company's transition toward NZE by 2060, PLN created the TEK Division under Director's Regulation No. 0058 of 2022. Amended by Director's Regulation No. 0022 of 2023, this division is responsible for leading, planning, implementing, monitoring, evaluating, and fostering PLN's energy transition agenda under the supervision of the BoD. To support the effectiveness of PLN's climate strategy, the company has also established a dedicated environmental management structure across all business units and subsidiaries, formalized under Director's Regulation No. 0161 of 2021 on the Strategic Policy for Climate Change Management. This policy provides a framework for climate governance and strengthens PLN's ability to implement its RUPTL while driving the transition to clean energy. Each environmental entity within PLN's subsidiaries is authorized to execute climate change initiatives, enabling consistent monitoring and periodic evaluation of progress toward emissions reduction targets.

The strategic climate policy covers key focus areas, including GHG emission management, climate change mitigation, adaptation measures, climate finance, carbon pricing instruments, budget allocation for climate initiatives, capacity building, and continuous monitoring and evaluation. These efforts are designed to ensure PLN's sustainability commitments translate into measurable action and long-term resilience.

At the executive level, climate change management is coordinated by the Director of Transmission and System Planning, who oversees the planning, implementation, and evaluation of PLN's electricity production and distribution processes. The Director is also responsible for spearheading efforts to accelerate the development of renewable energy projects and optimize energy efficiency across PLN's operations. Several divisions contribute to climate change management, including the Electricity System Planning

Division, which is responsible for developing the RUPTL, projecting GHG emissions, and mitigating transition risks. Additional supporting divisions include the Project Management Office, Generation Strategic Planning, Transmission Strategic Planning, Distribution Strategic Planning, Risk Management, Commerce and Marketing, and Corporate Strategic Planning Divisions.

The TEK Division, plays a central role in PLN's decarbonization strategy. This division is tasked with developing and updating PLN's long-term energy transition roadmap, ensuring that policies and guidelines align with Indonesia's NDC 2030 targets and the NZE 2060 vision. The division also ensures that renewable energy deployment, regulatory alignment, and investment in clean energy technologies are effectively implemented. Climate change management at PLN is further reinforced at the operational level, with the Vice President of Energy Transition and Climate Change overseeing execution, while each sub-holding and subsidiary appoints a dedicated leader responsible for climate-related activities. The implementation of these initiatives across PLN's subsidiaries is continuously monitored by the TEK Division, ensuring alignment with corporate sustainability goals and regulatory requirements.

By embedding climate governance across all levels of its organization, PLN ensures that its energy transition strategy remains transparent, accountable, and effectively managed, positioning the company as a key player in Indonesia's transition toward a low-carbon and resilient energy future.

Environmental Management

PLN is committed to minimizing its environmental impact by focusing on waste and effluent management, non-GHG emission control, and compliance with environmental regulations. The company has implemented comprehensive measures to utilize FABA, manage hazardous waste, and enhance air quality, ensuring that its environmental initiatives align with national and global sustainability standards. As part of its environmental risk management strategy, PLN has adopted pollution control technologies, promoted a circular economy approach, and reinforced compliance with environmental policies to mitigate environmental risks and improve performance.

PLN's environmental governance framework is built on strong corporate policies and procedures that regulate its environmental impact. Key policies include the Statement of Corporate Intents No. 0314 of 2022 on Sustainable Business Principles, Director's Regulation No. 0110 of 2023 on Strategic Policy for Environmental Protection and Management, and Safety, Occupational Health, Security, and Environment Policy of 2023. These policies outline PLN's commitment to environmental awareness, responsible waste management, emissions reduction, and regulatory compliance. Through these initiatives, PLN promotes solid waste reduction, paperless operations, and efficient resource utilization while ensuring continuous environmental monitoring and stakeholder engagement.

Environmental management responsibilities are delegated across PLN's sub-holdings and subsidiaries through the Holding-Sub Holding Pact, with oversight provided by the K3L Division. This division manages PLN's environmental management system, which adheres to ISO 9001:2015 and ISO 14001:2015 standards.

Management

PLN's environmental management responsibilities are structured within its sustainability committee, ensuring strategic oversight, implementation, and compliance with environmental regulations. At the highest level, the Director of Legal and Human Capital is responsible for coordinating environmental management strategies, supervising environmental aspects, and ensuring alignment with PLN's sustainability commitments.

The EVP of the K3L Division oversees environmental supervision across the PLN Group. This division is responsible for developing policies, guidelines, and management strategies related to HSSE while ensuring that environmental management aligns with PLN's corporate objectives and ESG commitments. Additionally, the HSSE Division plays a critical role in measuring, monitoring, and evaluating environmental performance, ensuring that PLN meets both regulatory requirements and sustainability targets.

As part of PLN's ongoing environmental management advancements, the company launched the ESMS in 2024 through the TEK Division. This system provides a structured framework to identify, assess, prevent, mitigate, evaluate, and communicate environmental and social risks arising from PLN's operational and business activities. The ESMS includes specific management guidelines covering air quality, wastewater and water management, and hazardous and non-hazardous waste disposal, reinforcing PLN's commitment to strong environmental governance and risk mitigation. In alignment with their respective mandates, specific responsibilities are further allocated across key divisions to ensure effective implementation and oversight.

The OKI Division assumes primary responsibility for the management of Fly Ash and Bottom Ash (FABA), while the K3L Division acts as co-lead by supporting data validation, technical integration, and compliance with applicable regulations. Concurrently, the MES Division is tasked with managing the Environmental Management System (EMS), with a particular focus on maintaining ISO 14001:2015 certification. The K3L Division also plays a supporting role in this area, ensuring consistency, alignment, and integration of environmental practices across the organization.

At the operational level, environmental management responsibilities are delegated across PLN's units, sub-holdings, and subsidiaries to ensure effective implementation of sustainability initiatives. Within each PLN unit, the K3L Manager oversees environmental management efforts, ensuring compliance with regulations and corporate policies. In sub-holdings and subsidiaries, a designated chairperson, appointed by the authorized Leader or Director, is responsible for managing environmental programs and initiatives.

To maintain consistent environmental performance across the organization, PLN's TEK Division closely monitors and evaluates the environmental management activities of all sub-holdings and subsidiaries, ensuring alignment with sustainability goals. Environmental management also plays a crucial role in identifying and mitigating sustainability-related risks, supported by an integrated management system that enables real-time monitoring, evaluation, and reporting. All environmental activities require approval from the EVP of the K3L Division, reinforcing accountability and governance in PLN's sustainability framework.

Resource Management

PLN's environmental management focuses on waste and effluent management, non-GHG emission control, and compliance with environmental regulations. The company is committed to reducing environmental impacts by utilizing fly ash, managing hazardous waste, and implementing air quality measures. PLN has identified environmental-related risks and implemented mitigation measures through adoption of pollution control technologies, promotes circular economy, and ensures compliance with environmental regulations.

Company's Commitment

PLN is dedicated to resource management optimization and efficiency, particularly in water and energy usage, as part of its broader commitment to sustainability and operational excellence. This commitment is reflected in PLN's corporate policies, including the Statement of Corporate Intent No. 0314 of 2022 on Sustainable Business Principles and Safety, Occupational Health, Security, and Environmental Policy. PLN has implemented enhanced water management strategies within its electricity production processes and supporting activities, incorporating 3R programs to improve efficiency and reduce reliance on non-renewable resources.

Management

Within the sustainability committee, responsibility for resource management and water risk management is allocated across multiple leadership roles. The Director of Legal and Human Capital oversees resource management, ensuring that strategies are effectively developed and implemented. Meanwhile, water risk management is coordinated by the Director of Power Plant Management, who leads planning, execution, evaluation, and performance standardization for PLN's generation assets, sub-holdings, and subsidiaries, including coordination with IPPs.

At the division level, the EVP of HSSE manages resource management across PLN Group. This includes developing policies, providing strategic guidance, monitoring HSSE performance, and ensuring ESG-aligned implementation across the organization. Additionally, water risk management falls under the EVP of Generation Control and Operation and Independent Power Producer, who is responsible for operational efficiency planning, performance oversight, risk management, and compliance. The EVP ensures that PLN's water resource management aligns with good corporate governance, risk management, and compliance frameworks, including the 4 Eyes Principle and the 3 Lines Model for business process oversight.

In accordance with Regulation No. 0032.P/DIR/2024 on the Implementation of the Organizational Structure of PT PLN Nusantara Power UP Cirata, the Subdivision of Civil, Dam, and Environmental Affairs, specifically the Reservoir, Hydrology, and Sedimentation stewardship unit, is responsible for managing the maintenance of reservoirs and dams to ensure both water quality and quantity are preserved. This includes sedimentation control and ensuring water quality complies with prevailing environmental standards. The Reservoir, Hydrology, and Sedimentation stewardship unit also coordinates water availability planning with relevant government agencies and supports primary energy needs through continuous monitoring of geotechnical and hydrological conditions, as well as sustainable reservoir management. These efforts are part of the company's broader commitment to ESG

performance. Furthermore, the Reservoir, Hydrology, and Sedimentation stewardship unit plays a critical role in managing water stress risks in the Cirata area.

Operational-Level Resource and Water Risk Management

At the unit level, resource management is overseen by the K3L Manager in the PLN operational unit. In PLN's sub-holdings and subsidiaries, resource management is supervised by a chairperson appointed by the authorized Leader or Director, with the TEK Division responsible for monitoring implementation as part of sustainability performance tracking.

Water risk management follows a similar governance structure, with chairpersons appointed in each PLN unit, sub-holding, and subsidiary to oversee its implementation. In the Indonesia Power sub-holding, water risk management is led by the VP of Primary Energy Planning and Control II Division, under the Director of Gas Operations' supervision. Meanwhile, in the Nusantara Power sub-holding, water risk management is handled by the VP of Operation & Maintenance Control and Planning of the New and Renewable Energy Division, under the Director of Operations' supervision.

Nature Management

PLN integrates sustainable nature management into all business processes by employing mitigation hierarchies to protect biodiversity, particularly in priority areas. PLN conducts reforestation programs to restore ecosystems impacted by power generation activities. PLN also works closely with local communities and stakeholders on conservation initiatives, such as mangrove restoration and wildlife protection. PLN has identified nature-related risks and implemented mitigation strategies to maintain biodiversity and land.

Company's Commitment

PLN is committed to sustainable and responsible biodiversity management, aligning its operations with the Biodiversity and Land Restoration Policy. The company prioritizes the mitigation hierarchy, aiming to avoid operations in areas with high biodiversity value whenever possible. When avoidance is not feasible, PLN implements strategies to minimize, restore, or compensate for biodiversity impacts throughout all phases of its projects, including planning, construction, operation, and post-operation. This approach is designed to achieve no net loss or a net positive impact on biodiversity. Additionally, PLN conducts regular monitoring and evaluation to improve its conservation efforts.

In addition to biodiversity conservation, PLN is dedicated to land rehabilitation to restore ecosystems, minimize negative impacts, and maximize environmental benefits. The company allocates funding for site closure and post-operational rehabilitation, ensuring that affected land is effectively restored. PLN also implements countermeasure programs for unforeseen environmental impacts, ensuring adequate recovery and remediation efforts are in place.

Management

Nature management within PLN is coordinated by the Director of Transmission and System Planning, who is responsible for leading, planning, implementing, and evaluating transmission planning and power system functions. This role also includes developing asset management strategies, ensuring accountability in transmission asset management, and integrating ESG planning into PLN's operations. The Director ensures that all nature management activities align with PLN's ESG performance indicators and environmental and social safeguard requirements, supporting the company's sustainability commitments.

The EVP of TEK Division oversees nature management across PLN Group. The EVP's responsibilities include:

- Ensuring nature conservation programs support the energy transition in alignment with PLN's NZE goals.
- Developing mitigation strategies and safeguard programs for the energy transition, including biodiversity conservation and ESG safeguards.
- Overseeing the implementation of ESG and safeguard performance, including social safeguard measures and gender mainstreaming.
- Facilitating collaborative programs, such as CSR initiatives, to support nature management and biodiversity conservation.
- Ensuring that all business processes follow governance, risk management, and compliance (GRC) principles, implementing checks and balances through the 4 Eyes Principle within the 3 Lines Model framework.

At the operational level, PLN's Vice President of ESG and Safeguard oversees nature management efforts. In each sub-holding and subsidiary, a designated chairperson appointed by the authorized Leader or Director is responsible for managing nature conservation programs and ensuring compliance with PLN's biodiversity policies. These activities are monitored and evaluated by the TEK Division, ensuring alignment with corporate sustainability objectives.

SOCIAL

Community Relations

PLN is committed to give positive impact to the communities by fostering collaboration and improving quality of life through its community development programs. It emphasizes empowering local communities through programs that include skills training, education, local economic development, and support for vulnerable groups. To ensure sustainable development, PLN also implements risk management strategies, including emergency response training and regular monitoring of community relations, to prevent disruptions.

Company's Commitment

PLN is fully committed to empowering communities in the areas surrounding its operational regions, integrating community development, collaboration with local stakeholders, and emergency preparedness as core elements of its Corporate Social Responsibility (CSR) strategy. These commitments are outlined in PLN's Community Social Aspect Policy, which serves as a guiding framework for enhancing social welfare and fostering resilience in local communities.

Executive Responsibility

As part of its commitment to sustainable development, PLN established the Sustainability Committee on July 20, 2023, which will be updated annually. Within this committee, the Social Workstream specifically oversees the implementation of community development programs and enhances collaboration with local stakeholders. This governance structure ensures that PLN's social responsibility initiatives are effectively managed and aligned with its broader sustainability objectives.

Responsible Director

The Corporate Secretary holds executive responsibility for Community Relations and Disaster Emergency Response Preparedness within PLN's Sustainability Committee. This role ensures that PLN's engagement with communities and emergency response programs are strategically implemented across all operational areas.

Responsible Division

The EVP of Coorporate Communication and CSR (Komunikasi Korporat dan TJSL (KOM)) Division oversees community involvement and development programs across all PLN units. This division is responsible for supervising and coordinating PLN's social initiatives, ensuring they align with PLN's corporate mission, sustainability goals, and community engagement strategies. In addition to setting specific performance targets, the Village Electricity Development (*Pengembangan Listrik Desa* (LDS)) Division is leads the strategic planning, implementation, and oversight of the electrification ratio program supporting the organization's broader commitment to equitable energy access and stakeholder engagement.

Responsible Management Level

At the operational level, community relations and disaster response responsibilities are managed as follows:

In each PLN Unit, Community Relations and Disaster Emergency Response Preparedness is led by the General Manager, who appoints a dedicated Implementing Unit to oversee local engagement and emergency preparedness efforts.

In sub-holdings and subsidiaries, responsibility is assigned to a Chairperson appointed by the authorized Leader or Director of the sub-holding or subsidiary. The implementation of community involvement and development programs is considered a key part of the sustainability performance of sub-holdings and subsidiaries and is monitored by PLN's TEK Division.

The Sustainability Committee is tasked with designing and overseeing initiatives that positively impact local communities. With a strong focus on sustainability, transparency, and social responsibility, PLN seeks to strengthen its relationships with communities, address local needs, and co-develop sustainable projects that enhance economic and social well-being.

Stakeholder Engagement and Social Inclusion Framework

In 2024, PLN launched the ESMS through the TEK Division. This framework provides a structured approach to identifying, assessing, mitigating, and communicating environmental and social risks associated with PLN's management and operational activities. Specifically, for Community Social Inclusion, the ESMS includes Stakeholder Engagement Management Guidelines, which guide PLN in fostering inclusive relationships with local communities, ensuring meaningful stakeholder participation, and addressing social impact concerns proactively.

Community Relations-Related Risks and Opportunities

PLN recognizes that community relations risks can significantly impact its operations and corporate reputation. These risks include rejections or protests due to non-compliance, environmental incidents, or workplace accidents that disrupt community activities. While these risks may not always have a direct financial impact, PLN actively mitigates them by conducting regular monitoring procedures, enhancing partnerships with local communities, and implementing emergency response training.

Risk Mitigation Measures

PLN classifies community relations risks into quantitative and qualitative categories. Quantitative risks, such as community protests, operational disruptions due to natural disasters, and local employment demands, are managed through regular engagement, empowerment programs, and periodic recruitment for local residents. Qualitative risks, such as the feasibility of CSR programs, are mitigated by conducting feasibility studies with community involvement, monitoring program effectiveness, and collaborating with third-party organizations. These mitigation measures ensure social stability, support local economic development, and enhance PLN's long-term sustainability goals.

Community Development Program

Through a range of initiatives and programs, PLN actively works to improve the quality of life and generate positive social impact in local communities. The company's community empowerment programs include skills training, education, economic development initiatives, and support for local businesses.

PLN's Community Development Program is an integral part of its sustainability strategy, aligning with the Social SDGs. Within the Sustainability Committee, the Social Workstream oversees Community Involvement Development (CID) initiatives, which cover community empowerment, local consultations, emergency preparedness, gender equality, disability inclusion, and social inclusion.

A key aspect of PLN's community development efforts is its CSR program, which aims to sustain the local economy around PLN's operational areas. These programs adhere to Director's Regulation No. 0138 of 2019 on CSR Guidelines Based on ISO 26000, ensuring that PLN's community initiatives remain structured and impactful throughout the development, operational, and post-operational phases.

PLN has also developed formal CID procedures to enhance community engagement and local participation in sustainable development. These guidelines ensure that all empowerment programs align with sustainability principles and CSR best practices. The CID programs focus on small business development and entrepreneurship, particularly through:

- Micro and Small Enterprises Development via SOE Houses: Providing dedicated spaces for small businesses.
- Empowering Villages and Tourism Areas: Supporting small businesses in rural and tourism-focused regions.
- Economic Inclusion for Vulnerable Groups: Training and financial support for businesses owned by people with disabilities, indigenous communities, and economically disadvantaged individuals.
- PLN Peduli for Micro and Small Enterprises Development: Providing direct funding for small businesses to foster local entrepreneurship.
- The implementation of Partnership and Community Development Programs is governed by Director's Regulation No. 0135 of 2019, ensuring effective monitoring and evaluation of social impact initiatives.

Emergency Response Program

PLN has developed a comprehensive Emergency Response Program to handle disaster preparedness and crisis management. This initiative is guided by PLN's Community Social Aspect Policy, Statement of Corporate Intent No. 0314 of 2022, Director's Circular No. 0036 of 2022, and OHS Policy ensuring a structured and proactive approach to disaster management.

Director's Regulation No. 0072 of 2021 serves as the primary framework for PLN's disaster response strategy, detailing planned, integrated, and coordinated actions to protect employees, their families, and local communities while ensuring uninterrupted electricity services. Under this regulation, PLN's Taruna Team is responsible for implementing disaster mitigation strategies.

The PLN Taruna Team operates at both Head Office and Parent Unit levels, with leadership responsibilities designated as follows:

- Head Office Team: Led by the President Director, with regional Director-level oversight.
- Parent Unit Team: Led by Regional Directors, with the General Manager of each Parent Unit in charge of on-the-ground execution.

To strengthen disaster resilience, PLN has introduced mandatory emergency response training programs for both employees and local communities. This training is required across all PLN operational units, ensuring that both employees and the public are equipped with critical disaster preparedness skills.

Stakeholder Governance

PLN has formalized stakeholder engagement guidelines under Director's Regulation No. 0119 of 2017, ensuring transparent and inclusive interactions with both internal and external stakeholders, particularly local communities. This regulation guides PLN's consultations with communities throughout all project phases, pre-construction, construction, operation, and post-operation, ensuring fairness, accountability, and responsiveness.

Community Engagement and Grievance Mechanism

PLN has implemented a GRM to handle community complaints transparently and efficiently. This mechanism, signed by the EVP of K3L Division, is outlined in PLN's internal policy on Complaint Handling. The GRM process includes receiving, screening, resolving, and evaluating complaints related to PLN's operational activities. Complaints can be submitted through PLN Mobile, the PLN contact center, or directly through PLN offices.

In 2024, PLN enhanced the GRM system by integrating it into the ESMS. The new GRM framework aims to:

- Ensure accessibility and inclusivity for project-affected communities and PLN workers.
- Facilitate early-stage issue resolution throughout the project lifecycle.
- Strengthen transparency and continuous community engagement.
- Stakeholder identification and analysis.

PLN follows a structured Stakeholder Identification and Analysis Mechanism, which categorizes stakeholders into:

- Project-Affected Parties: Including local communities and vulnerable groups.
- Other Interested Parties: Including government bodies, NGOs, and businesses.
- By engaging with stakeholders early, PLN ensures community concerns are addressed, and impact mitigation strategies are developed accordingly. Public consultations are conducted throughout project phases, allowing local communities to provide input and feedback on PLN's operational activities.

Occupational Health and Safety (OHS)

PLN is committed to creating a safe and healthy work environment, aiming for zero accidents through the implementation of the OHS Management System. It focuses on employee health monitoring, safety culture development, and continuous improvement of OHS practices. PLN manages OHS risks by regularly communicating safety policies and providing training to employees and contractors.

Company's Commitment

PLN recognizes that workplace safety and well-being are just as critical as business profitability and operational efficiency. As part of its corporate values, PLN prioritizes OHS as a fundamental pillar of its operations, fostering a culture of safety with the ultimate goal of achieving zero workplace accidents. This commitment is enshrined in PLN's policy on Safety, Health, Security, and Environment, which establishes comprehensive safety measures across all PLN units.

To implement this commitment effectively, PLN has established an OHS Management System in compliance with Government Regulation No. 50 of 2012, ensuring that all business units are certified under the OHS Management System. PLN's OHS policy is fully integrated with its Environmental Protection policy, guided by the following key principles:

- Prioritizing OHS, security, and environmental protection in all activities.
- Ensuring compliance with all relevant laws, regulations, and industry standards related to OHS and environmental protection.
- Identifying workplace hazards and security threats while implementing preventive and control measures, with periodic reviews to minimize risks.
- Enhancing employee awareness and competency, ensuring that workers can perform tasks safely, reliably, and in an environmentally responsible manner.
- Fostering strong stakeholder relationships, promoting collaboration with government agencies, industry partners, and local communities to create mutually beneficial safety initiatives.
- By embedding these OHS principles into its operations, PLN continuously improves workplace safety standards, protects employee well-being, and strengthens overall business resilience.

Executive Responsibility

PLN has assigned clear executive responsibilities for managing health and safety issues within the Sustainability Committee to ensure structured oversight and implementation.

Responsible Director

The Director of Legal and Human Capital holds executive responsibility for overseeing OHS strategies and ensuring compliance with regulatory and corporate safety policies. This role ensures that health and safety considerations are integrated into all aspects of PLN's operations and workforce policies. Notably, the implementation of OHS across PLN's operational activities is a collective responsibility shared by all PLN directors.

Responsible Division

The K3L Division EVP is responsible for managing OHS implementation across PLN's business units. This division ensures that OHS policies and best practices are consistently applied, monitored, and improved throughout PLN's operational areas. Furthermore, the day-to-day implementation of OHS at the operational level is the responsibility of each General Manager within their respective units.

Responsible Management Level

At the operational level, OHS responsibilities are managed as follows:

- In each PLN Unit, the General Manager oversees OHS implementation, supported by a dedicated department responsible for Health, Safety, and Security Management.
- In each sub-holding and subsidiary, OHS responsibilities are managed by a chairperson appointed by the authorized Leader or Director of the sub-holding or subsidiary. The implementation of health and safety measures is closely monitored and evaluated to ensure alignment with PLN's corporate safety objectives.

Contractor Safety Management System (CSMS) Performance

Throughout 2024, the number of contractors/vendors with CSMS certification increased by 687. A total of 2,518 vendors completed the full CSMS assessment cycle, with scores above the required standard (>70). This represented 99.09% of all active contracts. Notably, over 65% of these vendors scored above 80, reflecting a strong level of safety management maturity. The number of certified vendors increased by 38% compared to 2023, rising from 1,831 to 2,518.

Human Capital

PLN's Human Capital Management has developed a Strategic Policy for the Human Experience Management System, focusing on creating positive experiences through the utilization of integrated information technology, while also considering internal equity and external competitiveness to drive superior performance and support the achievement of business objectives, and equitable workplace. The Company prioritizes extensive employee training programs, performance-based compensation, gender equality initiatives, and a strong commitment to

workplace diversity. Recognizing human capital-related risks, PLN actively mitigates them through enhanced development programs, competency-building initiatives, and initiatives to promote work-life balance.

Company's Commitment

The Company's Commitment as part of the "Unleashing Energy and Beyond" program, PLN conducts a Human Resource Transformation initiative that aims to adjust to the company's strategy. Currently, PLN's Human Experience Management System (HXMS) is built on the basis of employee experience and is supported by four main pillars: Right Size, Right Skill, Right Spend, and Right System. These pillars ensure that PLN's workforce is optimally structured, equipped with the necessary expertise, cost-efficient, and supported by an effective management framework.

The maturity of Human Capital Transformation is assessed through Human Capital and Organization Capital Readiness Indicators. Human Capital Readiness reflects the preparedness of PLN's workforce in terms of skills, knowledge, competencies, and motivation to meet evolving workplace demands. Ensuring organizational readiness allows PLN to effectively achieve strategic objectives while enhancing employee engagement and productivity.

PLN is committed to developing human capital through comprehensive training programs that focus on technical expertise, leadership development, and soft skills enhancement. These initiatives foster a culture of innovation and excellence, empowering employees to drive the Company's long-term growth and success.

In line with PLN's Code of Conduct, the Company guarantees the freedom of association for all employees. PLN actively supports the establishment of labor unions and facilitates the development of Collective Labor Agreements (CLAs (PKB)), which formally define the clear rights and obligations between the Company and its employees. These efforts aim to foster harmonious industrial relations, support the creation of a conducive working environment, and strengthen good corporate governance, ultimately contributing to a productive workplace.

Executive Responsibility

PLN's Human Capital Management is overseen by the Sustainability Committee, with responsibilities allocated across various leadership levels to ensure strategic alignment and effective execution.

Leadership and Oversight

The Responsible Director for Human Capital is the Director of Legal and Human Capital Management, who leads the overall strategic direction and governance of human capital management.

The Responsible Divisions include:

- EVP of HST Division, which focuses on developing business processes, workforce planning, organizational structure, job management, competency systems, and human capital strategies that align with PLN's long-term vision.
- EVP of HTD Division, responsible for leading and managing talent development across PLN, including the Head Office, Regional Offices, Centers, Implementation Units, Service Units, and Subsidiaries. This division ensures optimal talent growth and capability-building through structured training and leadership programs.
- EVP of HSC Division, which oversees employee services, retiree management, industrial relations, outsourcing, and centralized HR information systems to ensure seamless operations across all PLN units.
- GM of Corporate University, is focused on strengthening the knowledge, skills, and behaviors of PLN employees through the integration of resources, learning initiatives, and corporate values, all aligned with PLN's performance objectives.

Implementation at the Subsidiary Level

In each sub-holding and subsidiary, Human Capital responsibilities are managed by a Chairperson, appointed by the authorized Leader or Director of the respective entity.

The implementation of human capital management across sub-holdings and subsidiaries is monitored by PLN's Strategi Human Capital Division, ensuring alignment with sustainability goals and workforce development strategies.

Governance Strategy

PLN's Human Capital Management framework is driven by strategic policies and structured initiatives aimed at achieving workforce optimization, development, and engagement. By integrating effective governance structures, performance-driven policies, and continuous talent development, PLN ensures that its human capital management functions are aligned with corporate goals, industry best practices, and sustainability objectives.

PLN Human Resource Management

PLN is committed to fostering a harmonious and cooperative work environment, as outlined in the periodically reviewed Collective Labor Agreement. This commitment ensures fair and transparent employment practices while aligning with national labor regulations and global best practices.

PLN's Human Capital Management policies prioritize:

- Full compliance with all applicable employment regulations to uphold labor rights.
- Creating positive experience to drive superior performance.
- A fair, transparent, and accountable performance-based remuneration system that rewards employees based on merit and contribution.
- Protection and promotion of human rights, ensuring employees are treated with dignity and respect while providing full support for trade unions.
- Competency enhancement programs designed to improve the skills and performance of individuals, teams, and the organization as a whole.
- Equal career opportunities, ensuring that all employees have access to professional growth and development pathways.
- Gender equality initiatives, promoting diversity, inclusion, and equal representation across all levels of the organization.

Through these strategies, PLN continues to develop a skilled, engaged, and high-performing workforce, essential for achieving its long-term corporate vision and sustainability goals.

Respectful Workplace Policy

PLN is committed to fostering a workplace that is free from discrimination, violence, and harassment, ensuring an inclusive and productive environment that supports the Company's sustainability goals. Through its Respectful Workplace Policy, PLN continuously improves recruitment programs to attract diverse talent, regardless of ethnicity, religion, race, social status, gender, or physical condition. This policy aligns with the Commitment to Respectful Behavior in the Workplace and the Policy for a Discrimination-Free, Violence-Free, and Harassment-Free Workplace, reinforcing a peaceful and supportive work culture. Additionally, PLN's AKHLAK Culture Journey further strengthens workplace productivity by promoting ethical values and professional conduct.

Freedom of Association

PLN upholds freedom of association as a fundamental right, legally protected under the Constitution and ratified in PLN's Code of Conduct. The Company supports this right by facilitating Trade Unions and ensuring the formation of Collective Labor Agreements. These agreements provide clarity on employee rights and obligations, establish favorable working conditions, promote harmonious labor relations, and reinforce Good Corporate Governance principles. By maintaining a structured and transparent approach to labor relations, PLN ensures that employees can advocate for their rights while contributing to the Company's long-term sustainability.

Discrimination Policy

PLN actively promotes equal employment opportunities by aligning its policies with the International Labour Organization (ILO) Convention on Eliminating Discrimination in Employment and Occupation. This commitment is embedded in the Collective Labor Agreement between PLN and the Trade Union. In support of these principles, PLN updated its Collective Labor Agreement for 2022–2024, ensuring that anti-discrimination measures remain at the core of its human resource policies.

Throughout 2024, PLN has actively conducted a series of training programs aimed at enhancing employee awareness and understanding of human rights-related issues, as shown in **Table 1**.

Table 1 Human Rights-related Training and Number of Participants at PLN Throughout 2024

No	Training Name	Participants
1	Gender Mainstreaming Workshop: Inclusive Workplace and Gender-Based Violence	37
2	Stop Workplace Violence	434
3	System Thinking: Managing Chaos and Diversity Strategic Specialist Education I	11
4	Inclusive Leadership for Senior Leaders	37
5	Leadership Capability Development Program IV: Get Beyond Work Life Balance (Inclusive Leadership Training)	12
6	Leadership Capability Development Program IV: Becoming Successful Leader (Inclusive Leadership Training)	5
7	Digital Leadership Series 2021 #6 Leading Across Generation: Cultivating Diverse and Inclusive Teams	278

Human Capital Readiness (HCR) and Organization Capital Readiness (OCR) Implementation

PLN recognizes HCR and OCR as key indicators of workforce development and business sustainability. These programs focus on alignment, business ecosystem, corporate culture, and leadership development, ensuring that PLN's workforce is equipped with the necessary skills and competencies to meet strategic goals. In 2024, HCR and OCR performance indicators demonstrated strong governance in human capital management. A total of 128 training sessions were delivered across OHS, Emergency Response, Cybersecurity, and Corporate Ethics, engaging more than 3,200 employees nationwide. Moreover, 78% of targeted personnel obtained relevant certifications, reinforcing PLN's commitment to competency enhancement through structured learning and knowledge-sharing platforms.

The Impact of ESG Performance on Remuneration

PLN integrates ESG performance into its KPIs to enhance employee welfare and corporate sustainability. Since 2023, all KPIs for Units and Divisions have included ESG performance metrics, directly influencing employee performance incentives at both semi-annual and annual evaluation periods. Some of the ESG performance metrics include:

HSSE Compliance – Compliance with HSSE standards is a core KPI, ensuring a safe and sustainable work environment. Employees are expected to integrate OHS principles into daily operations, reducing workplace risks and enhancing safety measures. Safety performance is also embedded in the performance evaluation of all directors through the "Zero Fatality" indicator, which serves as a performance deduction factor in the event of safety incidents.

Climate Change Management – Since 2021, climate change and power system reliability have been embedded in PLN's corporate KPIs, reinforcing efforts to reduce carbon emissions and advance clean energy transition. Employees are encouraged to innovate and adopt environmentally friendly technologies in their work.

Maturity Level Sustainability for Subsidiaries and Sub-Holdings – PLN has implemented a sustainability maturity level framework across all subsidiaries and sub-holdings since 2024. The criteria outlined in this framework are intended to support the internalization of a sustainability culture and enhance the overall ESG performance of the PLN Group, contributing to improved ESG ratings.

Gender Equality, Disability, and Social Inclusion (GEDSI)

PLN is dedicated to advancing GEDSI by implementing initiatives that increase female representation in management, empower women, and promote inclusive recruitment, particularly for individuals with disabilities and those from underdeveloped regions. To uphold its commitment to diversity and equity, PLN has also identified potential GEDSI-related risks and established mitigation strategies to ensure inclusive and equitable governance across all levels of the organization.

Company's Commitment

PLN is committed to equal employment opportunities for all individuals, regardless of gender, ethnicity, religion, race, social status, or physical condition. This commitment is reflected in initiatives aimed at increasing female representation in managerial roles, expanding the talent pipeline for women eligible for promotion to SOE Director positions, and revisiting leadership and workplace culture to better support women's professional growth. PLN also promotes inclusive recruitment practices, ensuring equal opportunities for all candidates.

Gender equality is a key focus of PLN's human capital management policies. The Company actively supports women's empowerment through programs that enhance female leadership representation, expand women-friendly workplace facilities and childcare services, and offer certified gender mainstreaming training.

Additionally, PLN is committed to supporting individuals with disabilities and fostering social inclusion. To advance this goal, the Company has launched targeted recruitment programs specifically designed for individuals from eastern Indonesia, ensuring that the hiring process is accessible and adapted to support diverse applicants effectively.

Executive Responsibility

PLN has established a clear governance structure to oversee GEDSI initiatives within the Sustainability Committee. The Director of Legal and Human Capital holds overall responsibility for GEDSI-related policies and programs.

At the division level, responsibility is shared between two key executives:

- The EVP of the TEK Division, who oversees Environmental and Social Safeguards, ensuring compliance with Safeguards Requirements.
- The EVP of the HTD Division, who focuses on gender and disability inclusion within PLN's human capital strategy.

At the operational level, responsibility is structured as follows:

- In each PLN Unit, the General Manager appoints a Chairperson to oversee GEDSI programs.
- In each sub-holding and subsidiary, the authorized Leader or Director appoints a Chairperson responsible for implementing and monitoring GEDSI initiatives.

The TEK Division plays a central role in monitoring the execution and effectiveness of GEDSI programs, ensuring they align with PLN's sustainability goals across all units, sub-holdings, and subsidiaries.

GOVERNANCE

Product Governance

PLN is dedicated to enhancing product governance by implementing robust strategies that reinforce business continuity, cybersecurity, procurement, and asset management. The Company has established comprehensive emergency response protocols, a cybersecurity framework, and sustainable procurement practices that integrate environmental and social responsibility. Additionally, PLN actively identifies and mitigates risks in these areas, ensuring a resilient electricity supply, sustainable infrastructure development, and alignment with its long-term sustainability commitments.

Company's Commitment

PLN upholds Business Continuity Management (BCM) as a key component of its sustainable business strategy, as outlined in Director's Circular No. 0036 of 2022. BCM is a comprehensive management approach that identifies potential threats and their impact on PLN's operations, ensuring organizational resilience and the ability to respond effectively. This framework protects the interests of key stakeholders, PLN's reputation, brand value, and overall business continuity. PLN's Business Continuity Management System (BCMS) is structured around four core aspects—Response, Resume, Recover, and Restore—aligned with ISO 22301:2019 standards.

Product governance plays a critical role in mitigating risks associated with PLN's goods and services, ensuring compliance with social and environmental standards while safeguarding customers from unethical business practices such as predatory lending, discriminatory policies, misleading disclosures, and illegal foreclosure practices. Throughout this reporting year, PLN has prioritized four key focus areas under its Business Continuity Management framework to strengthen product governance:

- Emergency Response
- Cybersecurity
- Procurement
- Asset Management

Executive Responsibility

PLN has established a structured disaster management framework in accordance with Director's Regulation No. 0072 of 2021. As part of this framework, PLN formed the Taruna Team, responsible for coordinating emergency response efforts across all operational units. The formation and leadership of the Taruna Team are determined based on the scale of the disaster:

- Large-scale disasters: The President Director appoints the Taruna Team, with the Regional Business Director serving as the executive chair.
- Small/Medium-scale disasters: The Regional Business Director appoints the Taruna Team, with the General Manager of the related Parent Unit serving as the executive chair.

The Taruna Team operates within a defined structure that includes key functions such as electricity restoration, logistics, HSSE, IT and telecommunications, social and humanitarian efforts, and trauma healing. PLN's emergency response mechanism ensures swift coordination, disaster relief, and operational continuity to minimize service disruptions.

Cybersecurity

The Head of Digital and Information Technology is responsible for overseeing PLN's cybersecurity infrastructure. Reporting directly to the President Director, this role includes leading, managing, and monitoring PLN's Digital and Information Technology Unit. Key responsibilities include strategic planning, implementation, monitoring, and evaluation of digital and centralized IT systems. By prioritizing effective and efficient IT governance, this function supports PLN's broader vision of enhanced digital security and operational resilience.

The Information System and Technology (STI) Division serves as the principle lead for the strategic planning, implementation, and monitoring of IT maturity level and the ISO 27001 certification metric. This responsibility includes setting specific goals, aligning them with PLN's broader ESG objectives, and fostering cross-functional collaboration across relevant departments to ensure consistent and effective execution.

Procurement

The Supply Chain Management Division plays a crucial role in ensuring the sustainability of PLN's supply chain. This division reports to the Project Management and New Renewable Energy Directorate and is responsible for strategic procurement, supplier assessments, and the integration of ESG principles into PLN's supply chain management.

Asset Management

The EVP of Assets Management, Engineering, and Integrated Management System Division oversees PLN's asset strategy and infrastructure planning. Reporting to the Director of Transmission and System Planning, this role includes developing asset management strategies, implementing engineering advancements, and ensuring compliance with integrated management systems. By maintaining a structured and proactive approach to asset development, PLN ensures the reliability and efficiency of its electricity infrastructure.

Through these governance structures, PLN enhances business continuity, risk mitigation, and operational resilience in emergency response, cybersecurity, procurement, and asset management.

Business Ethics

PLN upholds the highest standards of business ethics through a comprehensive Code of Conduct, enforcing anti-corruption measures, whistleblower protection, and compliance management. To mitigate ethics-related risks, PLN conducts regular compliance assessments, fraud prevention initiatives, and ethics training. By fostering a culture of integrity and accountability, PLN ensures transparency, regulatory compliance, and responsible business practices across all operations.

Company's Commitment

PLN is dedicated to fostering a professional and ethical corporate culture, guided by its Code of Conduct and Business Ethics, which sets clear behavioral expectations across all business operations. This framework regulates key areas such as conflict of interest, bribery prevention, gratuities, equal employment opportunities, information protection, and social and political activities, ensuring compliance with ethical and legal standards.

To strengthen ethical governance, PLN conducts business ethics risk identification in accordance with Director's Regulation No. 0015 of 2023 on strategic compliance management policies. Anti-corruption measures are reinforced through Director's Regulation No. 0015 of 2023, which outlines bribery prevention strategies, detection mechanisms, and sanctions. Additionally, Director's Regulation No. 0076 of 2017 provides clear guidelines on gratuity control, covering reporting mechanisms, management practices, and compliance enforcement to uphold transparency and integrity.

Executive Responsibility

PLN's Sustainability Committee oversees the implementation and monitoring of business ethics programs, ensuring adherence to ethical standards across all operations. The EVP of Compliance Division, who reports to the Director of Legal and Human Capital, leads compliance efforts, while General Managers at the unit level and appointed Chairpersons in sub-holdings and subsidiaries manage execution and supervision. These leaders ensure ethical practices are upheld and provide consultancy on ethical matters. Additionally, the Gratuity Control Unit offers guidance on anti-corruption and gratuities, while the PLN TEK Division monitors compliance across sub-holdings and subsidiaries.

RISK MANAGEMENT

02

RISK MANAGEMENT

Risks and Opportunities

PLN has identified several key risks that could impact its long-term sustainability and financial performance, including climate-related, operational, and financial risks. Physical risks such as extreme weather events, including heavy precipitation, flooding, and heatwaves, threaten to reduce power generation efficiency, damage solar and wind infrastructure, and disrupt grid operations, leading to increased maintenance costs and potential revenue loss. Additionally, droughts and rising sea levels pose risks to hydropower production and coastal energy assets, impacting PLN's long-term energy security. Transition risks also play a significant role, particularly potential regulatory changes which could result in stricter emissions reduction policies and carbon pricing mechanisms, leading to compliance costs and potential stranded assets, particularly for coal-based power plants. Market and technology shift further challenge PLN's existing business model, as advancements in renewable energy and battery storage require significant investment in clean energy and grid modernization. Additionally, operational and cybersecurity risks continue to emerge, with the increasing digitalization of PLN's grid exposing it to a higher risk of cyberattacks that could disrupt electricity supply, lead to data breaches, and incur financial losses. Supply chain vulnerabilities also remain a concern, as disruptions in the supply of key materials for energy projects could delay infrastructure development and increase costs, thereby affecting PLN's ability to meet its sustainability targets. These risks vary in their financial impact, with some classified as low-impact risks, while others, particularly those related to the energy transition and cybersecurity, are considered high-impact risks and could have a financial impact exceeding IDR12.3 trillion.

Despite these challenges, PLN has also identified numerous opportunities that could drive sustainable growth and financial resilience. The company's ARED program is focused on significantly increasing solar, wind, and hydropower capacity beyond 2030, reducing reliance on fossil fuels and unlocking new green investment opportunities. Investments in grid modernization and digitalization, particularly through the Green Enabling Transmission program, will enhance energy efficiency, improve grid resilience, and reduce transmission losses, ultimately leading to long-term cost savings. Furthermore, PLN is expanding its REC market, targeting IDR690 billion in cumulative green funding between 2023 and 2028. This initiative allows businesses to offset their carbon emissions while providing PLN with an additional revenue stream. The company is also strengthening its decarbonization initiatives, such as biomass co-firing and energy efficiency programs, positioning itself as a leader in sustainable finance and attracting ESG-linked investments and green bonds. By integrating sustainability into its financial planning, PLN aims to capitalize on these opportunities while ensuring long-term resilience in a rapidly evolving energy landscape.

PLN has structured its risk and opportunity assessments into three-time horizons. In the short term (1-3 years), the company is prioritizing grid stability, cybersecurity improvements, and early-stage decarbonization projects to enhance operational efficiency and reduce vulnerabilities. The medium-term (4-10 years) will focus on implementing large-scale renewable energy expansion, developing energy storage solutions, and ensuring compliance with emerging regulatory frameworks. Over the long term (10+ years), PLN is committed to transitioning towards a net-zero energy system, phasing out fossil fuel-based power generation, and integrating smart grid networks to optimize energy distribution and consumption. To effectively respond to these risks and opportunities, PLN has aligned its business model with NZE 2060 targets, investing in technological innovations to enhance energy efficiency, expanding partnerships for green financing and carbon trading, and strengthening its risk management frameworks under ISO 31000:2018. By embedding these considerations into its sustainability strategy, PLN is ensuring regulatory compliance, long-term financial resilience, and a competitive edge in the global transition to clean energy.

Risk Identification/Assessment/Prioritization/Monitoring

PLN has adopted a risk management framework aligned with ISO 31000:2018 and employs a three-lines-of-defense model, which includes risk management, supervisory, and assurance functions. The BoD is responsible for coordinating and overseeing this framework directly, while the BoC supervises its implementation through the Risk Management Committee. This mechanism is described in the Three Lines of Defense, as shown in **Figure 3**.

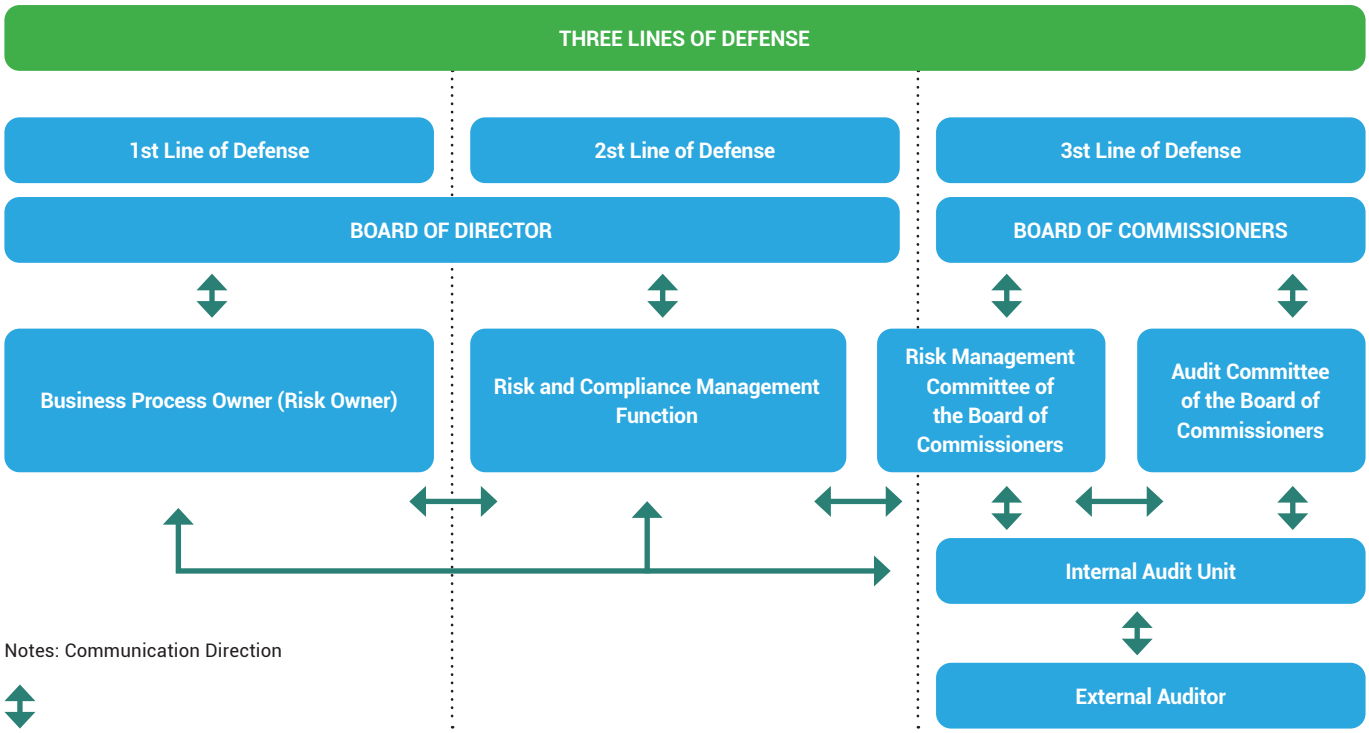


Figure 3 Three Lines of Defense Strategy

As outlined in BoD Regulation No. 0016 of 2023 on the Strategic Policy for Integrated Risk Management at PT PLN (Persero), the risk management process involves identifying, analyzing, documenting, monitoring, evaluating, and reporting risks, as shown in **Figure 4**. This regulation provides a reference for executing PLN's Integrated Risk Management, ensuring that risks are systematically mapped, assessed, mitigated, and managed to support the achievement of PLN's ESG goals.

Figure 4 Risk Management Process

PLN has adopted a structured risk management framework to assess and address both climate-related and nature-related risks across its operations and supply chain. This approach is aligned with internationally recognized best practices and follows a defined process encompassing risk identification, analysis, evaluation, treatment, and continuous monitoring and communication.

The process begins with defining the scope, context, and criteria for risk management. These parameters are established with reference to internationally recognized climate models and energy transition scenarios. During the risk assessment phase, PLN undertakes the following steps:

1. Risk Identification: Physical and reputational risks related to biodiversity loss and water stress are identified across PLN's operational and supply chain locations.
2. Risk Analysis: PLN employs a range of tools and models to support its risk analysis. For biodiversity and water-related risks, the company utilizes the Biodiversity Risk Filter (BRF) and Water Risk Filter (WRF) platforms. The BRF helps identify biodiversity-related exposures, while the WRF assesses physical, regulatory, and reputational water risks. Climate-related risks are evaluated using climate modeling based on Representative Concentration Pathways (RCP) 4.5 and 8.5 to project GHG emissions and assess potential physical climate impacts, such as extreme temperature changes and rainfall variability. In addition, PLN applies the ARED scenario to evaluate future emissions intensity in the power sector under different energy transition pathways.

3. Risk Evaluation: Identified risks are prioritized based on their likelihood and potential impact. This enables PLN to focus on material risks that could significantly affect its operations and assets.

Following the assessment, PLN proceeds with risk treatment, implementing mitigation and adaptation measures. These include climate adaptation efforts, like infrastructure reinforcement, renewable energy development aligned with the ARED scenario, and biodiversity conservation initiatives in ecologically sensitive areas.

To ensure transparency and accountability, PLN maintains comprehensive documentation of its risk assessments, mitigation strategies, and performance results. This information is incorporated into both sustainability and risk management disclosures. Continuous communication and consultation are maintained throughout the process by engaging internal stakeholders and external experts, including regulators and environmental specialists.

Finally, PLN undertakes ongoing monitoring and review of its risk landscape. This involves regularly updating climate models, reassessing exposure through risk filters, and revising strategies in response to evolving environmental conditions and regulatory developments.

Through this integrated and iterative approach, PLN enhances its organizational resilience and contributes to a responsible and sustainable energy transition.

Risk analysis is aligned with business operations and specific activities or programs that may present risks. PLN incorporates risk assessments into its risk profile, risk studies, and risk ratings. The risk profile identifies key risks that may affect the company's long-term goals (outlined in the RUPTL and RJPP) and short-term goals (outlined in the RKAP). Risk studies detail potential risks related to particular initiatives, projects, or strategic decisions. Risks are categorized across five primary types: strategic, financial, operational, project, and compliance. Additionally, PLN classifies risks using various typologies and taxonomies, including those related to ESG as shown in **Figure 5**.

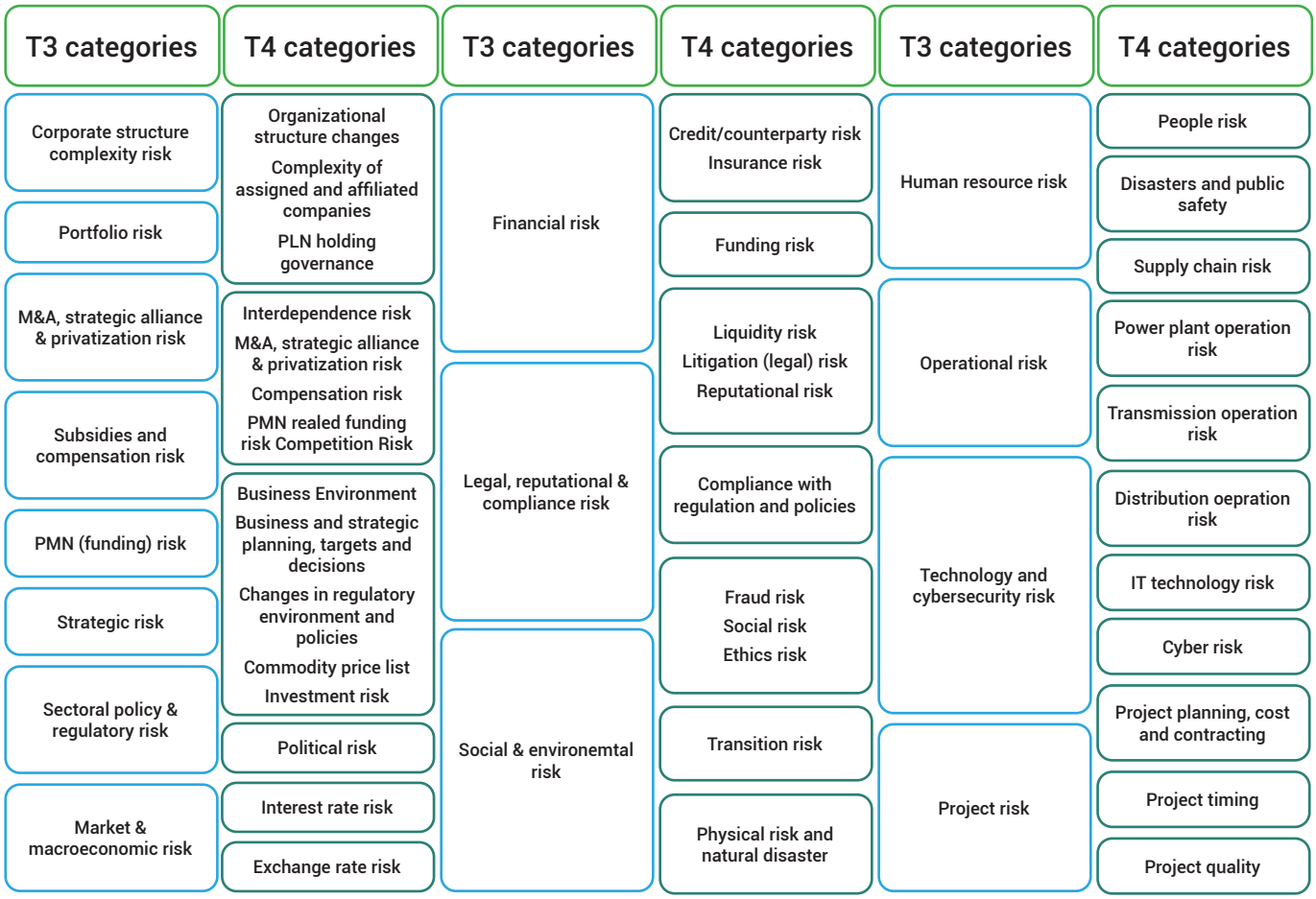


Figure 5 PLN Risk Taxonomy

PLN evaluates and manages risks through actions such as identification, assessment, mitigation, transfer, or acceptance, in alignment with its strategic objectives. Its risk thresholds are determined by four key elements:

1. Risk Capacity – The maximum level of risk PLN can sustain based on financial strength such as capital and liquidity.
2. Risk Appetite – The level of risk the company is willing to take to achieve its objectives.
3. Risk Tolerance – The acceptable range of risk exposure within defined limits.
4. Risk Limit – A specific value used as a reference point for risk owners.

PLN applies both qualitative risks, based on internal parameters, and quantitative risks, measured by potential financial impacts, as shown in **Table 2**.

Table 2 Quantitative Impact Risk Level

Impact Level (Quantitative)					
Level	**Parameter**	**Financial Impact**			
1	Not Significant (1)	<	IDR3,080,000,000,000		
2	Minor (2)		IDR3,080,000,000,000	-	IDR6,170,000,000,000
3	Medium (3)		IDR6,170,000,000,000	-	IDR9,250,000,000,000
4	Significant (4)		IDR9,250,000,000,000	-	IDR12,340,000,000,000
5	Very Significant (5)	>	IDR12,340,000,000,000		

Risk assessments in PLN's power plants cover various aspects, including climate-related physical risks, facility design and configuration, utility system hazards, process controls, loss prevention measures, and business interruption vulnerabilities as shown in **Table 3**. These assessments also extend to operational and future asset inspection practices, with special attention to climate change implications. Evaluating physical climate risks involves analyzing the potential consequences of natural disasters, such as earthquakes, extreme weather events, and flooding, on PLN's infrastructure.

Table 3 Qualitative Risk Level

No	Category / Impact Parameter	Very Low (1)	Low (2)	Moderate (3)	High (4)	Very High (5)
Human Capital Risk						
1	Employee Complaints	Employee complaints submitted at the Unit level and resolved by Unit Leader	Complaints requiring resolution by Supervisor/Unit Leader	Complaints escalated to regional/provincial level	Employee protests disrupting operations and/ or causing serious injury/permanent disability	Coordinated demonstrations with fatal workplace accidents
2	Talented employees' turnover (Regretted turn over)	Talented employees' turnover <1% per year	Talented employees' turnover 1%–5% per year	Talented employees' turnover 5%–10% per year	Talented employees' turnover 10%–15% per year	Talented employees' turnover 15% per year
IT Infrastructure & Cybersecurity Risk						
1	Supporting Infrastructure Downtime	Non-critical applications and infrastructure down for 1 day	Non-critical applications and infrastructure down for more than 1 day up to 3 days	Critical infrastructure (e.g., electricity, water, communication networks, online systems) down for <1 hour	Critical infrastructure down for 2–6 hours	Critical infrastructure down for more than 6 hours

No	Category / Impact Parameter	Very Low (1)	Low (2)	Moderate (3)	High (4)	Very High (5)
2	Cyber Attacks	Average number of cyberattacks per week below 50	Average number of cyberattacks per week 50–99	Average number of cyberattacks per week 100–199	Average number of cyberattacks per week 200–500	Average number of cyberattacks per week more than 500
3	Decline in Security Platform Rating	X > 90%	90% ≥ X > 80%	80 % ≥ X > 70%	70% ≥ X > 60%	X ≤ 60%
Strategic Risk						
1	Delays in Strategic Program Achievement	At least one strategic target scheduled for this year delayed <1 month	At least one strategic target scheduled for this year delayed 2–3 months	At least one strategic target scheduled for this year delayed 3–6 months	At least one strategic target scheduled for this year delayed 6–9 months	At least one strategic target scheduled for this year delayed >9 months
Legal Risk						
1	Legal Violations	No legal warnings/ lawsuits	Company receives legal warning	Company is sued	Company ruled against in first-instance court	Company ruled against in higher court
Compliance Risk						
1	Compliance Breach	Informal/verbal warning	Required to meet with regulator (e.g., OJK, Bank Indonesia, IDX, relevant ministries, Tax Directorate General, etc.)	Formal written warning/fined	Regulator imposes restriction and/or freeze on specific operations / products/ services	Regulator imposes significant sanctions (e.g., stock delisting, clearing prohibition, product withdrawal, etc.)
Reputation Risk						
1	Customer / Buyer / Supplier Complaints	Isolated complaint resolved within 1 business day	Isolated complaint resolved within 3 business days	Complaint escalated to sectoral level and/or submitted collectively and resolved within 7 business days by Branch/Regional Leader	Complaint escalated to national level and/or submitted collectively and resolved within 10 business days and/or requires Headquarters-level authority	Complaint escalated to national/ international level and/or submitted collectively and resolved in more than 10 business days and/or requires Headquarters-level authority
2	Negative Media Coverage	Isolated negative coverage in sectoral area via conventional media (e.g., local radio, local TV, regional newspaper)	Negative coverage across sectors/ regions/provinces via conventional media	National-level negative coverage via conventional media	National-level coverage via social media and/or requires Headquarters response	International-level coverage via social media and/or requires Headquarters response
3	Loss of Competitive Advantage	Market share decrease up to 5%	Market share decrease 5%–10%	Market share decrease 10%–15%	Market share decrease 15%–20%	Market share decrease more than 20%

No	Category / Impact Parameter	Very Low (1)	Low (2)	Moderate (3)	High (4)	Very High (5)
Operational Risk						
1	SLA (Service Level Agreement) Breach	<1% deviation from SLA standard (measured by service downtime or product/service unavailability or additional cost)	%–2.5% deviation from SLA standard	2.5%–10% deviation from SLA standard	10%–20% deviation from SLA standard	>20% deviation from SLA standard
Health, Safety, Security, Environmental (HSSE) and Social Risk						
1	Fatality	First Aid Case	Medical Treatment Case	Non-permanent disability / limited work absence	Single fatality / permanent disability / prolonged work absence	Multiple fatalities
		No impact on work performance	Minor, reversible health effects, no hospitalization	Irreversible effects without fatality but with severe disability and prolonged hospitalization	Irreversible effects leading to fatality	Outbreak to the environment
						Potential to cause many deaths e.g. hazardous toxic chemicals
2	Environmental Damage	Damage limited to minimal area with low significance	Minor impact on biological or physical environment	Short-term impact (1–2 years) without affecting ecosystem function	Medium-term (3–5 years) serious environmental impact	Severe / long-term (>5 years) environmental damage resulting in loss of ecosystem function
3	Sustainalytics ESG Rating Decline	X > 90% or receives rating "0–10 (negligible)"	90% ≥ X > 80% or receives rating "10–20 (low)"	80% ≥ X > 70% or receives rating "20–30 (medium)"	70% ≥ X > 60% or receives rating "30–40 (high)"	X ≤ 60% or receives rating "40+ (severe)"
State Capital Investment (PMN) Risk						
1	Delay in PMN Disbursement	Received on time as per RKAP	1-month delay from RKAP target	2-month delay from RKAP target	3-month delay from RKAP target	>4-month delay from RKAP target
Product and Service Risk						
1	Area or System Outage	Outage affects several feeders simultaneously	Outage affects one substation or small system	Outage affects several substations or medium system simultaneously	Outage affects one major subsystem	Outage affects one large power system/total blackout

To determine its overall risk appetite, PLN integrates both qualitative and quantitative methodologies, factoring in the likelihood and severity of risks.

Table 4 Probability Level

Probability Level						
Level	Parameter	Probability				Qualitative Description
5	Certain (5)	>	80%	-	100%	Almost certainly will occur
4	Likely (4)	>	60%	-	80%	Most likely to occur
3	Even Chance (3)	>	40%	-	60%	It is equally likely to occur and not occur
2	Unlikely (2)	>	20%	-	40%	Less likely to occur
1	Impossible (1)		0%	-	20%	Almost certainly will not occur.

The Risk Level Framework outlined a structured method for PLN to monitor and manage risk effectively, supporting a cohesive and informed decision-making process, shown in **Table 5**.

Table 5 Risk Level

Probability x Impact		Impact Level				
		Not Significant (1)	Minor (2)	Medium (3)	Significant (4)	Very Significant (5)
Probability Level	Certain (5)	Low to Moderate (7)	Moderate (12)	Moderate to High (17)	High (22)	High (25)
	Likely (4)	Low (4)	Low to Moderate (9)	Moderate (14)	Moderate to High (19)	High (24)
	Even Chance (3)	Low (3)	Low to Moderate (8)	Moderate (13)	Moderate to High (18)	High (23)
	Unlikely (2)	Low (2)	Low to Moderate (6)	Low to Moderate (11)	Moderate to High (16)	High (21)
	Impossible (1)	Low (1)	Low (5)	Low to Moderate (10)	Moderate (15)	High (20)

ENVIRONMENT

Climate Change Management

GHG Risk Management

PLN effectively managed and monitored GHG-related risks through its corporate risk management mechanism, ensuring that climate-related challenges were integrated into its overall risk profile. As part of its Energy Transition Analysis, PLN identified key risks across physical, financial, and legal categories. Physical risks include the exposure of electrical infrastructure to extreme weather events and gradual changes in climate variables, both of which threaten the stability of PLN's power grid and energy supply. Financial risks stem from challenges such as inadequate funding mechanisms for renewable energy development and volatile electricity costs, which may impact the feasibility of PLN's energy transition initiatives. Meanwhile, legal risks include regulatory changes that could slow progress toward NZE 2060 and legal uncertainties regarding the financial impact of energy transition programs, which could lead to increased scrutiny from law enforcement agencies. These risks are formally registered under the Directorate of Transmission and System Planning and the TEK Division, which are responsible for continuous monitoring and reporting.

Physical Risk Management

To address physical climate risks, PLN has conducted studies on the impact of climate change on its power system assets, assessing vulnerabilities related to supply, demand, and infrastructure resilience. One major concern is the increased disruption of the transmission network due to a higher frequency of lightning strikes, which could lead to power transfer interruptions or blackouts. Additionally, extreme weather events such as heavy rainfall and prolonged droughts pose significant risks to hydroelectric power production, potentially affecting PLN's ability to meet energy demand. To mitigate these risks, PLN implemented BOD Regulation No. 0072 of 2021, which provides a structured framework for managing disasters and physical climate risks across PLN assets. The company has also introduced a series of adaptation measures to enhance climate resilience. These include elevating key power plant areas to prevent flooding, constructing tetrapods using FABA waste to mitigate coastal abrasion, installing advanced lightning detection and protection systems, and optimizing hydroelectric power production planning. Furthermore, PLN has upgraded its drainage systems and constructed new flood control infrastructure, ensuring that its energy facilities remain resilient and operational in the face of extreme climate events. Through these targeted risk management strategies, PLN is strengthening its ability to navigate the uncertainties of climate change while advancing its long-term sustainability commitments.

Identification of Climate Transition and Physical Risk

PLN takes part in joint efforts to address climate change through both adaptation and mitigation. The company identifies climate-related physical and transition risks by assessing their potential financial impacts, as shown in **Table 6** and **Table 7**.

Table 6 PLN's Physical Climate Risk for NZE 2060 Target

Physical Risk	Target	Risk Level
Power Generation		
Heavy precipitation	Net Zero	Low (4)
Heavy wind and high sea waves		Low (3)
Heatwaves/Heat stress		Low (4)
Droughts		Low (3)
Sea level rise		N/A
Wildfire		N/A
Sea surface temperature		N/A
Transmission Networks		
Lightning	Net Zero	Low (2)
Heavy wind		Low (3)
Flood		Low to Moderate (7)
Distribution Networks		
Heavy wind	Net Zero	Low to Moderate (7)
Heavy precipitation		Low (3)
Flood		Low (3)
Landslide		Low (3)

Table 7 PLN's Transition Climate Risk for NZE 2060 Target

Transition Risk Type	Transition Risks	Related Metrics & Targets	Risk Level
Quantitative			
Technical	Carbon emission reduction initiatives are encountering implementation challenges.	GHG Reduction Target	Moderate (14)
	Biomass supply limitations.	Net-Zero	Moderate to High (18)
Social and Environment	Social inequality issues have emerged in relation to the deployment of new technologies during the energy transition.	Net-Zero	Low (3)
Qualitative			
Regulation	There is currently no comprehensive, end-to-end guideline governing the energy transition within the power sector.	Net-Zero	High (23)
	Permitting processes and land management remain key barriers to the development of new and renewable energy projects.	Net-Zero	High (21)
Financial	The energy transition presents a risk of increased electricity generation costs, particularly under the ARED scenario.	NDC	High (23)
	Limited access to sustainable financing continues to be a challenge for energy transition project execution.	NDC	High (24)
Social and Environment	Community resistance to the development of new energy infrastructure may delay project implementation.	NDC	High (22)

Environmental Management

PLN actively mitigates environmental risks through targeted strategies and compliance measures. The company ensures that all environmental management risks are identified, assessed, and addressed using a structured mitigation framework, as shown in **Table 8**.

Table 8 Risk and Mitigation of Environmental Management

Risk	Related Metrics and Target	Risk Level	Treatment Measurement
Quantitative Risks			
Administrative sanctions may be imposed due to non-compliance with environmental management regulations.	FABA recycling	Low (2)	Installation and maintenance of pollution control systems.
Additional costs may arise from obligations related to the restoration of environmental functions.	Environmental management	Low (2)	Ensuring compliance with quality standards in accordance with government regulations and implementing effective environmental management measures.

Risk	Related Metrics and Target	Risk Level	Treatment Measurement
Qualitative Risk			
Failure to achieve the targeted ESG rating.	ESG rating	Low (2)	Standardization of ISO 14001 documentation across all units, development of a green supply chain roadmap, establishment of a dedicated water resilience management unit, and ongoing monitoring of sustainability target achievements through defined KPIs are underway.

Resource Management

Effective resource management is critical to maintaining the reliability and resilience of electricity generation, particularly amidst evolving supply chain dynamics and environmental challenges. PLN continuously identifies, assesses, and mitigates key risks that could disrupt the availability of energy resources such as coal, natural gas, and water as shown in **Table 9**.

Table 9 Risk and Mitigation of Resource Management

Risk	Related Metrics and Target	Risk Level	Treatment Measurement
Water			
Disruptions in the Coal Supply Chain	Electricity Production	Moderate to High (18)	• Securing additional long-term contracts with suppliers and pursuing amendments to existing contracts to allow for greater flexibility in volume and delivery points. • Coordinating with the government to secure affordable LNG for uncontracted demand, conducting regular evaluations of gas infrastructure providers, ensuring the readiness and completeness of LNG infrastructure across regions, accelerating the development of gasification infrastructure, and strengthening stakeholder management in response to regulatory changes in the gas sector.
Disruptions in the Gas Supply Chain	Electricity Production	High (21)	Enhancing coordination with the government regarding supply prioritization, securing long-term contracts with gas suppliers, optimizing the coal supply chain infrastructure, implementing digital systems (P2EP), monitoring SLA compliance, and supporting the implementation of the e-DKB and Mitra Instansi Pengelola (MIP) to ensure continuity of primary energy supply at the national level.
Increased Sediment Volume in Hydropower Reservoirs	Electricity Production	Low to Moderate (7)	Managing sedimentation through various technical methods including flushing, sluicing, dredging, and dry excavation. These efforts are supported by dam infrastructure improvements and active coordination with upstream and downstream stakeholders to reduce sedimentation, maintain water quality, and ensure the sustainability of hydropower operations.
Water Shortages Impacting Hydropower Generation Targets	Electricity Production	Low to Moderate (8)	Implementing upstream conservation efforts, controlling aquatic weeds and waste, and managing sedimentation through technologies such as dredgers and dry excavation. Additional measures include weather modification in selected river basins, technical studies on sediment control, and close coordination with stakeholders in developing annual and monthly reservoir operation plans to ensure water availability and the reliability of hydropower as a primary energy source.

Nature Management

The development and operation of electricity infrastructure can have significant impacts on ecosystems, biodiversity, and natural resources. Effective nature management is vital to mitigate environmental risks, uphold social responsibility, and maintain compliance with conservation standards. PLN addresses both physical and reputational risks through sustainable planning, biodiversity protection, and active engagement with stakeholders to ensure that infrastructure development aligns with environmental and social values, as shown in **Table 10**.

Table 10 Risk and Mitigation of Nature Management

Risk	Sector	Risk Level	Treatment Measurement
Qualitative Risk			
Physical			
Declining forest productivity and increased distance to market	Fossil fuels	High	Implementation of sustainable forestry practices and reforestation programs to maintain forest productivity and ecosystem services.
Changes in land, freshwater, and marine use	Hydropower	High	Adoption of spatial planning approaches that integrate ecological and sustainability considerations to minimize environmental disruption.
Forest canopy loss	Hydropower & Transmission Line	High	Reforestation using native tree species in affected areas; maximizing the use of existing transmission corridors to limit new deforestation.
Reputational			
Development near Key Biodiversity Areas (KBA)	Fossil fuels & Transmission Line	High	Establishment of ecological buffer zones or green corridors to reduce impacts on sensitive ecosystems; implementation of conservation programs in collaboration with local communities and ecological experts.
Impacts on Indigenous Peoples and Local Communities	Hydropower	High	Enhanced community involvement in project planning and decision-making; development of inclusive economic empowerment programs to support local livelihoods.
Operations near Protected Areas	Transmission	High	Preparation of comprehensive feasibility studies that incorporate biodiversity conservation principles and avoid ecologically sensitive zones.
Range rarity	Fossil fuels, Hydropower, Transmission Line	High	Conducting biodiversity assessments before and after project implementation; designing infrastructure to avoid critical habitats; protecting rare species through conservation partnerships with NGOs and experts.
Media scrutiny	Fossil fuels, Hydropower, Transmission Line	High	Maintaining transparent and proactive communication strategies; facilitating media and stakeholder visits to project sites to showcase mitigation efforts; addressing environmental concerns through open dialogue and factual reporting.

SOCIAL

Community Relations

PLN continuously identifies and monitors potential risks that may impact its operations, reputation, and relationship with stakeholders. These risks may arise from external factors such as natural disasters, as well as from social dynamics within the communities where PLN operates. To address these challenges, PLN has developed and implemented a range of mitigation strategies to minimize disruption and ensure the effectiveness of its programs and initiatives, as shown in **Table 11**.

Table 11 Risk and Mitigation of Community Relations

Risk	Related Metrics and Target	Risk Level	Treatment Measurement
Quantitative Risks			
Loss of operational time and significant management resources to address disruptions arising from natural disasters.	Community involvement across all business units and related offices	Low to Moderate (7)	Conduct regular emergency response training and establish community-based emergency response teams, in coordination with the National Disaster Management Agency (BNPB). These preparedness efforts are complemented by disaster relief measures, which include the distribution of essential supplies, operation of public kitchens, evacuation support, and other forms of assistance during emergency situations.
Limited availability of local employment opportunities within communities surrounding operational areas.	Community involvement across all business units and related offices	Low to Moderate (7)	Facilitate skills development programs for local communities to enhance their employability and support PLN's operations. These training initiatives are designed to prepare community members for potential employment opportunities with third-party vendors or project contractors.
Failure to implement the Corporate Social Responsibility (CSR) programs due to misuse of funds by beneficiaries or non-compliance with agreement terms.	Community involvement accross all business units and related offices	Low (2)	Strengthen social impact management through social mapping, feasibility and effectiveness evaluations based on Community Satisfaction Index (CSI) and Social Return on Investment (SROI), enhance program alignment through coordination between headquarters and operational units, and develop implementing regulations to ensure procedural compliance for Community Involvement and Development (CID), non-CID, and micro and small enterprise funding (PUMK) programs.
Ineffective tree planting outcomes due to insufficient growth or survival of planted trees.	Program implementation	Low (4)	Conduct regular monitoring and maintenance of tree planting initiatives to ensure successful growth and sustainability.

Occupational Health and Safety (OHS)

PLN identifies and evaluates potential risks that may affect the safety, reliability, and continuity of its operations. Through a structured risk management approach, the company monitors key risk areas and implements targeted mitigation measures. The following outlines the main risks identified by PLN, along with the corresponding mitigation actions, as shown in **Table 12**.

Table 12 Risk and Mitigation of Occupational Health and Safety

Risk	Related Metrics and Target	Risk Level	Treatment Measurement
Quantitative Risks			
Occupational accidents occurring in the workplace (construction sites or operational areas).	Maturity level of OHS	High (22)	Implementation of Contractor Safety Management Systems (CSMS) for high-risk vendors, promotion of occupational health and safety (OHS) culture, updates to training materials, standardization of OHS-related costs, development of an HSSE application, benchmarking of OHS governance practices, and improvement of KPI mapping for workplace accidents, including corrective actions in the event of incidents.
Fire incidents during electricity installation	Maturity level of OHS	Moderate to High (19)	Implementation of fire protection systems in accordance with SPLN standards, regular OHS inspections by the K3L Division, budget approval for fire detection and protection systems, development of hazard management criteria within the OHS Maturity Level framework, and collaboration with the Center for Research and Development (Puslitbang) for the enhancement of SPLN-based fire protection systems in warehouses, along with a roadmap for the implementation of fire detection systems across all PLN units.

Human Capital

PLN identifies and addresses risks related to human capital, organizational development, and capacity building to ensure the long-term success of its strategic initiatives, including the energy transition. These risks can affect workforce readiness, program execution, and the achievement of key performance targets. PLN has implemented structured mitigation strategies to anticipate and respond to these challenges effectively, as shown in **Table 13**.

Table 13 Risk and Mitigation of Human Capital

Risk	Related Metrics and Target	Risk Level	Treatment Measurement
Quantitative Risks			
Failure to achieve a targeted number of new partners in energy transition capacity building.	Human Capital Management	Low (3)	Strengthen coordination with external stakeholders and conduct regular monitoring of capacity-building program implementation.
Failure to implement employee development programs and programs to fulfill the capacity and capability of personnel.	Performance (KPI)	Low to Moderate (8)	Enforce and monitor the implementation of a comprehensive employee development policy.
Decrease in Employee Engagement score.	Human Capital Readiness	Low to Moderate (6)	Implement cultural and wellbeing programs targeting employee engagement, including follow-up actions based on the 2024 engagement survey results, with a focus on driving work-life balance initiatives.
Work programs fail to meet established performance targets.	Human Capital Readiness	Low (3)	Conduct regular training sessions, at least twice a year, to continuously improve employee competence and job performance.

Risk	Related Metrics and Target	Risk Level	Treatment Measurement
Work programs fail to meet established performance targets due to employee health and wellness issues.	Human Capital Management	Low (4)	Implement a corporate wellness program and regularly evaluate healthcare costs and the employee wellness index to support overall performance.
Failure to meet sustainability learning targets due to limited training aligned with global standards.	Human Capital Readiness	Low (2)	Develop a comprehensive sustainability learning framework aligned with global standards to strengthen competencies in sustainability, energy transition, and climate change mitigation. This includes enhancing capacity-building strategies, improving the quality of sustainability-related learning materials, and fostering partnerships with both domestic and international institutions for module development and instructor quality improvement.

Gender Equality, Disability, and Social Inclusion (GEDSI)

PLN recognizes the risks associated with GEDSI compliance, particularly in meeting regulatory mandates such as Law No. 8 of 2016, Article 53, which requires state-owned enterprises (SOEs) to employ at least 2% of persons with disabilities—non-compliance with which may result in financial penalties. Additionally, the failure to achieve the target of 20% female representation in management by 2025 poses reputational and operational challenges. While the financial impact of these risks may be limited, achieving these targets is essential to fostering an inclusive workplace and aligning with PLN's broader sustainability and governance objectives. The following outlines key GEDSI-related risks and the mitigation strategies implemented to address them, as shown in **Table 14**.

Table 14 Risk and Mitigation of GEDSI

Risk	Related Metrics and Target	Risk Level	Treatment Measurement
Quantitative Risks			
Failure to achieve the targeted representation of women in the talent pool required for funding eligibility.	Women in talent pool	Low (2)	• Prioritize the recruitment of female employees in roles that align with their skills and qualifications. • Provide leadership development programs for female employees to support their advancement into management-level positions and strengthen gender representation in leadership.
Qualitative Risk			
Inclusive recruitment for persons with disabilities remains suboptimal.	The number of employees with disabilities.	Low (2)	• Conduct role mapping to identify suitable positions, determine the number of roles to be allocated, and carry out targeted recruitment. • Collaborate with external partners (e.g., universities) to expand outreach and attract qualified candidates with disabilities.
Incidents of discrimination in verbal, written, or visual form.	Business ethics	Moderate to High (16)	• Reinforce the organization's commitment to the Respectful Workplace Policy. • Operate an Employee Care Center to handle reports and complaints related to discrimination and ensure appropriate follow-up actions.

GOVERNANCE

Product Governance

PLN recognizes that strong product governance is essential to ensuring reliable electricity supply and supporting infrastructure growth, especially amid increasing energy demand and renewable integration. Key risks include infrastructure gaps in remote areas, grid vulnerabilities, and exposure to cyber threats and natural disasters. This section highlights the major ESG-related risks, both quantitative and qualitative, and outlines the strategies in place to manage them, ensuring operational reliability, regulatory alignment, and long-term value creation.

Table 15 Risk and Mitigation of Product Governance

Risk	Related Metrics and Target	Risk Level	Treatment Measurement
Quantitative Risks			
Inadequate infrastructure in remote areas slows down the increase in electrification ratios	Electrification Ratio	Low (3)	• Preparation of Unit Price Agreements (KHS) and allocation of materials, as well as monitoring the Main Distribution Materials (Material Distribusi Utama (MDU)) plan. • Optimizing customer acquisition to improve the national electrification ratio (ER), securing 2024 rural electrification funding through APLN, and following up on MoUs between UIW P2B and the TNI Kasuari and Cendrawasih units.
Suboptimal Distribution Loss Management	Transmission Loss Rate	Moderate to High (17)	• Dissemination of a loss reduction roadmap, accelerated budget realization, and prioritization of key activities. • Implementation of network efficiency programs (medium-voltage networks, substations, low-voltage lines, and customer metering), digitalization and enhancement of inspection governance through EPM 3.0, AMI, and regulatory updates. • Additional measures include kWh meter replacement, optimizing new connections, and customer education on illegal electricity use.
Uncertainty in Electricity Sales	Sales Growth	Low to Moderate (11)	Acceleration of high-voltage customer connections, expansion and acquisition of captive markets, enhancement of electric vehicle charging infrastructure (SPKLU/SPBKLU), and active monitoring and replacement of damaged or outdated meters.
Partial Outages and Potential Blackouts	GWH Sales	Moderate (14)	• Upgrading protection systems and standardizing equipment maintenance. Enhancing the reliability of substations and transmission networks through infrastructure replacement and quality improvement. • Implementing large-scale outage prevention programs, digital and routine asset monitoring, and maintenance including component replacement and transmission line clearing.
Barriers to Business Development	Beyond kWh	Low (4)	Investment in biomass facilities and feasibility studies for renewable-based power plant projects. Development of applications to support carbon trading management and exploration of strategic partnerships through joint ventures for renewable energy projects across various regions.
Cybersecurity Threats to IT and OT Systems	100% GHG handling	Moderate to High (19)	Enhanced cybersecurity awareness and strengthened data protection protocols to prevent and mitigate cyber-attacks.

Risk	Related Metrics and Target	Risk Level	Treatment Measurement
Limited Internal Funding for Electricity Investments		Moderate (13)	Development of revenue models that account for tariff adjustments, allocation of depreciation funds for new investments, and ensuring timely loan repayments.
Qualitative Risk			
Failure to Meet Domestic Component Usage (PDN) Targets	PDN Achievement 95%	Low to Moderate (11)	Monthly monitoring and evaluation of corporate PDN achievement reports to ensure compliance with local content requirements.
Non-Implementation of Integrated Green Supply Chain Excellence (IGSCE)		Moderate (13)	Planning and scheduling the implementation of the IGSCE program and ensuring vendor/supplier compliance with PLN procurement regulations.
Failure to Obtain ISO 27001 Certification or Recertification	IT Data Center and Server Room Certification	High (21)	Strengthening cybersecurity team capacity and awareness, developing secure applications, and ensuring 100% follow-up on potential cyberattack findings.
Non-Achievement of Performance Targets Related to Cybersecurity Resilience (Permen-2/MBU/2023)	Information Technology (IT) maturity level score 3.28	Low to Moderate (11)	Development of procedures aligned with COBIT 2019 maturity assessments and engagement of third-party partners to address identified cybersecurity gaps.

Business Ethics

Governance risks play a critical role in shaping the ethical foundation, transparency, and compliance of our organization. PLN is committed to upholding the highest standards of integrity and accountability through structured policies, continuous education, and rigorous oversight mechanisms. The following outlines key governance-related risks and our strategic mitigation actions to ensure ethical conduct, prevent conflicts of interest, and promote a safe and transparent reporting environment for all stakeholders.

Table 16 Risk and Mitigation of Business Ethics

Risk	Related Metrics and Target	Risk Level	Treatment Measurement
Quantitative Risks			
Existence of concurrent positions	Business Ethics	Low to Moderate (6)	• Mandatory signing of an Integrity Pact and management commitment declaration by all employees, accompanied by regular reporting to the Board of Directors. • Internal communication and periodic monitoring of the Anti-Bribery Management System (SMAP) are conducted consistently, including maturity level assessments for each unit. • Full implementation and triannual renewal of ISO 37001 certification are enforced, alongside annual conflict-of-interest surveys to identify and mitigate potential ethical risks.

Risk	Related Metrics and Target	Risk Level	Treatment Measurement
Existence of Legal Violations	Business Ethics	Low (3)	Regular dissemination of the Code of Ethics to all employees, covering individual rights, responsibilities, and workplace conduct guidelines. In addition, Fraud Risk Management certification is conducted for all employees within the Internal Supervision Division (PKP), representatives from the corporate compliance teams, and compliance representatives at the unit level to ensure consistent awareness and adherence to legal and ethical standards.
Intimidation or Retaliation Against Whistleblowers	Business Ethics	Low (3)	Strengthening the whistleblowing system by adding in-person reporting channels to complement existing ones. Annual whistleblower satisfaction surveys are conducted to evaluate system effectiveness and comfort. Further, biannual compliance awareness programs are implemented to enhance employee understanding of the reporting mechanisms and ensure strong protection measures for whistleblowers.

SUSTAINABILITY-RELATED STRATEGY

03

SUSTAINABILITY-RELATED STRATEGY

PLN's sustainability strategy is built on a structured approach that identifies, assesses, and mitigates risks associated with climate change, resource management, and energy transition. The company discloses its progress against established goals, outlining key trade-offs considered in its strategic decisions. By leveraging 29 priority moonshots to achieve NZE by 2060, PLN ensures a forward-looking strategy that aligns with Indonesia's NDC. The company's efforts include investments in Accelerated Renewable Energy Development (ARED), Green Enabling Transmission, Co-firing Biomass Scale-up, and Renewable Energy Certificate (REC) market expansion. These initiatives are central to PLN's ambition of joining the top 500 global green and sustainable companies, with financial impacts assessed for both current and future performance.

The sustainability strategy is structured across multiple key areas, addressing climate change management, environmental management, resource efficiency, nature conservation, and community engagement. The Company has outlined clear initiatives to decarbonize its operations, transition to renewable energy, and enhance grid resilience through smart infrastructure. In the environmental domain, PLN is committed to improving its waste management, continuing emissions reductions, and implementing circular economy practices, while its social strategy focuses on enhancing workforce diversity, maintaining strong and positive community relations, and occupational health and safety. Finally, its governance framework focuses on reinforcing strong business ethics, sustainable governance, and comprehensive risk management to ensure compliance with international standards. Together, these strategic pillars underpin PLN's ambition to achieve NZE by 2060 while fostering long-term sustainability and financial resilience.

ENVIRONMENT

Climate Change Management

GHG Reduction Program

As of 2024, GHG emissions from the electricity sector reached 276.6 million metric tons of CO_2e. If PLN continues with a business-as-usual scenario, these emissions could rise to approximately 1.1 million tons of CO_2e annually by 2060, assuming an average annual growth rate of around 4%. This increase is largely driven by PLN's continued reliance on fossil fuels, particularly coal, for electricity generation. GHG emissions pose significant environmental risks due to their global warming potential, which contributes to climate change. Through its NZE policy, PLN is committed to reducing emissions across its operational activities and supporting facilities throughout the business process chain.

As part of its decarbonization efforts, PLN has committed to an aggressive GHG reduction program designed to curb emissions and accelerate the shift toward clean energy. Key elements of this program include ARED, which focuses on expanding solar, wind, and hydropower capacity to replace fossil fuel-based power generation, as well as the Co-firing Biomass Scale-up initiative, which integrates biomass into coal-fired power plants to reduce carbon intensity. Additionally, PLN is making significant investments in energy efficiency improvements, including introducing smart grid technologies and grid interconnection projects that enhance transmission efficiency and reduce emissions.

Short-Term (2024-2025) and Medium-Term (2026-2030) Initiatives

PLN is actively advancing its renewable energy initiatives to support Indonesia's sustainable energy transition. By 2030, PLN aims to increase new renewable energy (NRE) power capacity by 20.9 GW, with a targeted energy mix of 51.6% from renewables, including 10.4 GW of hydroelectric power, 3.4 GW of geothermal energy, 4.7 GW of solar power, and 1.5 GW from other renewable sources. By the end of 2024, PLN had built 480 MW of renewable energy capacity, including the Asahan #3 and Jatigede hydropower plants, as well as Phase 1 of the IKN solar power plant (10 MW). In addition, a total of 105 projects, representing 3.4 GW of capacity had entered the construction phase as of December 2024. These projects require close monitoring to ensure timely completion. Additionally, PLN is converting diesel power plants to renewable energy sources across 2,130 locations in Indonesia totaling 5,200 diesel power plants. This program, which also includes an expansion of gas-fired power plants, is being implemented in two phases and is expected to be completed by 2025.

To ensure that the energy transition is inclusive, PLN has also worked to expand electricity access across Indonesia. By Q4 2024, the national electrification ratio reached 99.83%, with 85.8 million out of 86 million households electrified. Of these, 84.7 million households were powered by PLN, 841.4 thousand by non-PLN sources, and 337,869 through solar home systems (LTSHE). The village electrification ratio reached 99.92%, covering 83.7 thousand areas, including 77.9 thousand villages powered by PLN, 3.1 thousand by non-PLN sources, and 2.6 thousand by LTSHE, leaving only 70 villages unelectrified. These efforts were accompanied by a total electricity production of 1.2 TWh by the end of 2024.

PLN's biomass co-firing program has already been implemented at 43 coal-fired power plants (CFPPs) and is expected to expand to 52 CFPPs by 2025, ultimately reaching a total capacity of 10.6 GW. In 2024, PLN absorbed 1.6 million tons of biomass for co-firing, marking a 70% increase from 2023. To further reduce emissions, PLN is improving energy efficiency and grid reliability, ultimately achieving an 8.55% reduction in network losses in 2024. PLN is also taking significant steps toward the early retirement of fossil fuel-based power plants. A Memorandum of Understanding (MoU) with the Asian Development Bank (ADB), PT Cirebon Electric Power, and the Indonesia Investment Authority has accelerated the retirement of the Cirebon CFPP (1 x 660 MW) by seven years. As part of its decarbonization commitment, PLN has canceled 13.3 GW of planned coal power plants and 1.3 GW of projects in the Power Purchase Agreement (PPA) stage, reducing emissions by 1.8 billion tons of CO_2 over 25 years. In line with PLN's Net Zero Emissions (NZE) roadmap, the implementation of coal-fired power plants utilizing clean coal technology has set an ambitious target of reducing emissions by 6.06 million tons of CO_2 by 2024. Remarkably, this initiative has already surpassed expectations, successfully reducing emissions by 13.9 million tons of CO_2 compared to the business-as-usual scenario.

PLN is also investing in carbon capture and storage (CCS) technology, signing an implementation MoU with Karbon Korea Co., Ltd. in September 2023. Finally, PLN's subsidiary PLN Nusantara Power, is collaborating with Mitsubishi Heavy Industries to explore hydrogen co-firing in gas and coal plants, an initiative expected to significantly reduce carbon intensity in energy production.

Long-Term Initiatives (2031-2060)

As part of its energy transition strategy, PLN is developing an integrated national grid to distribute renewable power throughout Indonesia's archipelago. This initiative is designed to harness the country's diverse renewable energy potential—particularly in Sumatra, Kalimantan, Sulawesi, and Nusa Tenggara—and channel it to electricity load centers and emerging green industries. PLN also plans to integrate 28 GW of solar and wind power into this network, requiring the construction of smart grid infrastructure and flexible generation technologies to support large-scale variable renewable energy (VRE) integration. Several interconnection projects have already been completed, including the 150 kV Sumatra-Bangka interconnection, 150 kV Sebuku-Kotabaru interconnection, 20 kV Sebatik-Nunukan-Kaltara interconnection, 20 kV Manado-Bunaken interconnection, and 20 kV Senggigi-Gili Trawangan-Gili Meno-Gili Air interconnection.

Another cornerstone of PLN's long-term strategy is the development of energy storage technology, particularly in partnership with Indonesia Battery Corporation (IBC) to establish a domestic electric battery ecosystem. Additionally, PLN is scaling up CCS technologies, with plans to achieve 54 GW capacity by 2060. The company has conducted CCS feasibility studies at four CFPPs and two combined-cycle power plants (CCPPs) in collaboration with global partners including JERA, Karbon Korea, Inpex, Medco, and GE. These efforts are aimed at significantly reducing emissions from existing power generation infrastructure while advancing Indonesia's decarbonization goals.

Development of Supporting Technologies and Ecosystem

To further accelerate the energy transition, PLN is pioneering Green Energy as-a-Service, a program designed to encourage stakeholder participation in renewable energy consumption and development. This service offers two primary models: dedicated green energy, where electricity is bundled with Renewable Energy Certificates (RECs) to ensure 100% renewable energy consumption, and unbundled RECs, which allow businesses to purchase renewable energy credits separately.

PLN continues to accelerate the adoption of decentralized renewable energy through its rooftop solar program, which has reached 9,928 customers as of December 2024. Regulatory support through MEMR Regulation No. 2/2024 and the simplified permit process via the PLN Mobile app have significantly improved accessibility. In parallel, PLN's biofuel initiative continues to support emission reductions across its generation fleet. Biofuels are utilized in various PLN power plants, including Steam Power Plants, Diesel Power Plants, and Gas Engine Power Plants.

PLN has already launched Indonesia's first Green Hydrogen Plant (GHP) in Muara Karang, capable of producing 51 tons of hydrogen per year for industries including steel, chemicals, concrete, and fertilizers. This facility is powered by a solar plant bundled with RECs from the Kamojang Geothermal Power Plant. The REC market has also seen significant growth, with sales reaching 5.38 TWh in 2024, a 117% increase from 3.54 TWh in 2023, bringing the total amount of energy sold through RECs since 2020 to over 10.99 TWh, to more than 300 industrial and commercial customers.

As an innovative step, PLN introduced PLN EYE, a project that converts power poles into electric vehicle (EV) charging stations, with three prototype units deployed in West Jakarta and South Jakarta.

Beyond renewable energy and EV infrastructure, PLN has positioned itself as a leader in carbon trading. Since 2023, the company has been active in the national emission trading scheme, leveraging platforms including PLN Climate Click and APPLE-Gatrik to facilitate carbon trading transactions. In 2024, the emission allowance for the PLN Group (PTBAE-PU) was set at approximately 119.4 million metric tons of CO_2e, in PLN units. This was supplemented by a carryover allocation of around 2.5 million metric tons of CO_2e from the previous year, bringing the total available allocation for the year to approximately 121.9 million metric tons of CO_2e. Intra-Group emission trading transactions amounted to approximately 6.8 million metric tons of CO_2e, conducted through the PLN Climate Click platform and formally recorded in the APPLE-GATRIK system. These efforts underscore PLN's commitment to leveraging market-based mechanisms to drive decarbonization, create financial incentives for sustainability, and position itself as a key player in Indonesia's low-carbon economy.

Net Zero Scenario

PLN's Net Zero Scenario outlines a comprehensive approach to achieving NZE by 2060, emphasizing the gradual phase-out of coal-fired power plants while simultaneously expanding renewable energy financing and digital energy solutions. To achieve these targets, PLN is prioritizing the retirement of coal plants, replacing them with renewables and battery storage, and expanding green energy financing mechanisms such as green bonds, carbon pricing, and RECs to support its transition. In addition, the company is investing in smart energy systems, digital solutions, demand-side management, and grid modernization technologies, all of which are critical to optimizing energy use and ensuring efficiency. By taking a leadership role in shaping Indonesia's national energy policy, PLN is collaborating with government agencies, financial institutions, and technology providers to drive systemic changes that will accelerate the country's energy transition.

To support its transition strategy, PLN has projected GHG emissions and energy transition pathways using Representative Concentration Pathways (RCP) 4.5 and 8.5 for physical risk assessments and the ARED scenario for emission intensity projections in the electricity sector. The RCP scenarios indicate that climate change risks will require greater power generation capacity, necessitating additional investment to meet future electricity demand. The ARED scenario serves as PLN's interim target toward NZE 2060, accelerating the implementation of renewable energy while ensuring economic growth and a stable electricity supply. Under this scenario, it presents a superior emissions performance relative to the BAU Coal/Gas scenarios. Through various emission reduction initiatives, PLN aims to contribute a reduction of 127 million tons of CO_2, supporting Indonesia's target to reduce 358 million tons of CO_2 from the energy sector by 2030. These targets align with Indonesia's NDC and are integrated into PLN's short-term business strategy. ARED's effective performance establishes PLN as a key enabler of Indonesia's nationally determined low-emission development strategy while maintaining energy reliability and affordability.

In the long term, PLN aims to achieve NZE by 2060, which requires reducing GHG emissions intensity from 0.89 tons of CO_2e/MWh in 2021 to zero by 2060 and cutting absolute GHG emissions by 1.057 million tons CO_2e compared to the BAU scenario. To achieve this, the ARED scenario projects 75% of PLN's power generation capacity will need to come from renewable energy sources and 25% from gas by 2040, increasing the baseload renewable energy (NRE) capacity to 33 GW and VRE capacity to 28 GW. These strategic measures will enable PLN to meet its long-term sustainability commitments while ensuring energy security, affordability, and resilience as Indonesia transitions to a low-carbon economy.

Scope of GHG Reporting

In line with global best practices, PLN has implemented a comprehensive GHG reporting system that provides transparency on its emissions across Scope 1, Scope 2, and Scope 3 categories, following Director's Circular No. 0025 of 2022 on Greenhouse Gas Emissions Management. Scope 1 emissions, as defined in the Electricity Sub-sector GHG Calculation and Inventory Guidelines based on the 2006 IPCC Guidelines, result from direct fuel combustion in power plants, generators, operational vehicles, and from SF_2 gas releases. Scope 2 emissions represent electricity energy losses, energy imports, and office electricity consumption. Scope 3 emissions cover additional indirect emissions, including electricity purchased from IPPs and supplied to PLN customers, fuel purchases, purchase of goods and services, asset purchases, employee's business trips, and waste discharge.

In 2024, PLN's total GHG emissions were 276.6 million tons CO_2e, reflecting a 7.2% increase from 2023, where emissions measured at 258.0 million tons CO_2e. This increase was primarily driven by higher production levels, increased electricity purchases from IPPs, and expanded business activities. The increase in Scope 2 and Scope 3 emissions significantly contributed to this growth, underscoring the impact of greater electricity procurement and operational expansion on PLN's overall carbon footprint. Despite this, PLN remains committed to reducing its emissions by enhancing decarbonization initiatives, improving emissions monitoring, and aligning with global sustainability frameworks.

By integrating climate resilience strategies, emissions reduction initiatives, and robust GHG reporting, PLN is reinforcing its position as a leader in the sustainable energy transition. These efforts not only support Indonesia's national climate goals but also ensure that PLN remains financially and operationally resilient in the face of climate-related risks. Through a combination of strategic planning, technological innovation, and financial mobilization, PLN is paving the way for a more sustainable and low-carbon future.

Environmental Management

Environmental Management System

PLN has established a comprehensive Environmental Management System (EMS) to ensure that its operations align with regulatory requirements, sustainability goals, and best environmental practices. This system is designed to monitor compliance, implement corrective actions, track environmental performance, and engage stakeholders in environmental initiatives. Through structured policies, regular audits, and strategic investments, PLN aims to minimize its environmental footprint while enhancing operational efficiency. The company continuously improves its EMS through ISO 14001:2015 certification, external and internal audits, and dedicated environmental programs, reinforcing its commitment to sustainable energy transition and responsible environmental stewardship.

Compliance with Environmental Regulations

PLN remains committed to strict environmental compliance, ensuring that its operations align with Indonesian regulations. In 2024, 123 PLN units complied with national environmental regulations, as evaluated by the MoEF. Of these, 42 units achieved beyond-compliance status, earning 24 Gold and 18 Green PROPER awards, demonstrating PLN's commitment to high environmental performance standards.

Corrective Actions for Continuous Improvement

To drive continuous environmental improvement, PLN has issued Manual Document Environmental and Social Management System, which provides guidelines for identifying, reviewing, correcting, and preventing nonconformities. This corrective action framework consists of four key stages: identifying nonconformities, reviewing potential risks, implementing corrective measures, and verifying preventive actions. To strengthen its environmental expertise, PLN has also expanded its Health, Safety, Security, and Environment (HSSE) training programs, offering internal and external environmental management courses aligned with ISO 14001:2015. These external programs cover key areas of environmental governance and compliance, ensuring that personnel are equipped with the necessary knowledge and skills to uphold PLN's sustainability commitments. Training topics include environmental monitoring, permits and land clearance, preparation and evaluation of environmental documents, and company performance assessment for environmental management. Additionally, employees receive guidance on the fundamentals of environmental auditing, supervision of environmental programs, and monitoring and evaluation of environmental protection initiatives. PLN also provides specialized training on ISO 14001:2015 Environmental Management Systems, environmental policies, and regulatory compliance with the MoEF and the Feasibility Testing Team. These training sessions ensure that employees remain up to date with best practices and evolving environmental regulations, reinforcing PLN's commitment to responsible environmental stewardship and continuous improvement.

Environmental Performance Monitoring

PLN has developed an internal environmental performance monitoring system, enabling the real-time tracking of environmental compliance across all units and subsidiaries. This digital tool consolidates environmental documentation, permits, technical approvals, and hazardous waste management data, ensuring that each division updates its environmental records monthly.

Environmental Impact Assessment of Operations

Given PLN's involvement in power plant construction, electricity generation, and transmission, the company ensures that all activities comply with environmental impact assessments (EIA) and regulatory frameworks. Power plant managers are required to implement EIA recommendations and report compliance on periodic basis, with oversight provided by the K3L Division. These reports are also used as key performance indicators (KPIs) for environmental governance.

Environmental Communications and Stakeholder Engagement

PLN has implemented a Manual Document for the Environmental and Social Management System in which one of the guidelines regulates structured communication channels to support both internal coordination and external engagement on environmental and social management issues. This framework ensures environmental issues are effectively communicated across PLN's organizational hierarchy and with external stakeholders, including government agencies and local communities. To enhance stakeholder engagement, PLN has officially launched the ESMS, which provides a structured approach to identifying, assessing, mitigating, and communicating environmental and social risks. Additionally, PLN actively raises environmental awareness through annual Earth Day initiatives, which have been held since 2021.

ISO 14001:2015 Environmental Management System Certification

To standardize environmental management practices across its operations, PLN has implemented ISO 14001:2015 as the primary framework for its power production, operational, and maintenance activities. As of 2024, 84.7% (39 out of 46 parent units) have achieved ISO 14001:2015 certification, with PLN aiming for 100% certification across all parent units by 2027, as shown in **Table 17**.

Table 17 Units with ISO 14001-2015 Certification

No	Certified Unit	Status ISO 14001 :2015	Certification Date	Expired Date
1	UIP SBS	Certified	11/07/2022	10/07/2025
2	UIP JBB	Certified	09/11/2022	08/11/2025
3	UIP JBT	Certified	31/12/2021	30/12/2024
4	UIP NUSRA	Certified	23/10/2024	22/10/2027
5	UIP SBU	Certified	11/12/2024	10/12/2027
6	UIP SBT	Certified	11/12/2024	10/12/2027
7	UIK TJB	Certified	16/06/2023	15/05/2026
8	UIT JBB	Certified	19/12/2023	18/12/2026
9	UIT JBT	Certified	01/02/2022	31/01/2025
10	UIT JBM	Certified	22/03/2023	08/03/2026
11	UID JAYA	Certified	06/02/2024	05/02/2027
12	UID JATIM	Certified	29/11/2023	28/11/2026
13	UIP3B SUM	Certified	06/03/2023	05/03/2026
14	UIP3B KAL	Certified	18/10/2024	17/10/2027
15	UIP3B SUL	Certified	13/03/2024	22/11/2026
16	UIW BABEL	Certified	26/09/2022	25/09/2025
17	UID SUMUT	Certified	26/05/2023	25/05/2025
18	UID RKR	Certified	21/11/2024	20/11/2027
19	UID LAMPUNG	Certified	09/11/2022	08/11/2025
20	UID KALSELTENG	Certified	09/11/2022	08/11/2025
21	UID SULUTTENGGO	Certified	26/11/2021	25/11/2024

No	Certified Unit	Status ISO 14001 :2015	Certification Date	Expired Date
22	UID SULSELRABAR	Certified	04/05/2021	03/05/2024
23	UID LAMPUNG	Certified	08/11/2023	08/11/2025
24	UID RKR	Certified	21/11/2024	20/11/2027
25	UID KALBAR	Certified	19/12/2024	18/12/2027
26	UID BANTEN	Certified	20/12/2024	19/12/2027
27	UID KALTIMRA	Certified	11/12/2024	10/12/2027
28	UID JATENG & DIY	Certified	30/04/2024	29/04/2027
29	UID JABAR	Certified	04/12/2024	03/12/2027
30	UIW PPB	Certified	23/12/2021	23/12/2024
31	UIW NTB	Certified	01/07/2024	30/06/2027
32	UIW NTT	Certified	22/10/2023	21/10/2026
33	PUSHARLIS	Certified	21/06/2022	20/06/2025
34	PUSLITBANG	Certified	25/11/2022	24/11/2025
35	PUSDIKLAT	Certified	23/11/2024	22/11/2027
36	UIW BABEL	Certified	26/09/2022	25/09/2027
37	UIP SUL	Certified	19/09/2024	18/09/2027
38	UIP KALBAGTIM	Certified	19/09/2024	18/09/202
39	UID ACEH	Certified	18/10/2024	17/10/2027

External Environmental Audits

PLN undergoes regular external environmental audits to ensure compliance with national regulations. Under Law No. 32 of 2009 and Government Regulation No. 22 of 2021, PLN reports its environmental performance through SIMPEL, an MoEF-developed platform for environmental management reporting. As mandated by MoEF Regulation No. 03 of 2013, PLN's Hydroelectric Power Plants (HEPPs) are subject to environmental audits every five years to assess risks related to dam height, reservoir size, and potential environmental impacts. Additionally, PLN undergoes ISO 14001:2015 certification audits every three years, a requirement for achieving Beyond Compliance status in the PROPER assessment program.

Internal Environmental Audits

PLN has established a risk management policy to address potential environmental risks, including pollution, natural disasters, and regulatory non-compliance. The company employs two distinct internal audit approaches: the Internal Audit Unit, which evaluates operational activities and performance, and the ISO 14001:2015-based audit system, which focuses on environmental compliance. As part of PLN's continuous improvement strategy, internal audits are conducted annually, with guidelines outlined in the Environmental and Social Management System Manual Document, ensuring a systematic and standardized approach to environmental management across all PLN units.

Through these comprehensive environmental management initiatives, PLN reinforces its commitment to sustainability, regulatory compliance, and responsible resource management, ensuring that its business operations align with global environmental best practices and Indonesia's long-term sustainability goals.

Non-Hazardous Waste Management

PLN generates non-hazardous solid waste from various operational and domestic activities. Common sources include paper waste from work documents, plastic and packaging waste from cafeterias, and other materials such as boxes, glass, and metal generated through daily operations. To reduce non-hazardous solid waste, PLN has implemented several initiatives, including the use of two-sided paper, transitioning from conventional paper to electronic paper (E-paper), and integrating digital applications for managing employee records, corporate risk reports, and administrative functions. Additionally, PLN has undertaken plastic waste reduction efforts by implementing policies such as PT PLN (Persero) Letter No. 0433 of 2018 on Plastic Waste Control and EVP HSSE Letter No. 00631 of 2018, which includes waste management criteria in performance appraisals for parent units and subsidiaries.

Beyond waste reduction, PLN has also implemented reuse initiatives to extend the life cycle of materials. This includes repurposing wood waste into wooden pallets, signboards, and furniture, as well as reusing metal waste for material racks. To further its sustainability efforts, PLN has launched a solid waste recycling program as regulated under Board of Director's Regulation No. 0110 of 2023 related to the Strategic Policy on Environmental Protection and Management. In addition, PLN also refers to the Non-Hazardous Waste Management Guideline as outlined in the Environmental and Social Management System (ESMS) Manual Guideline. Key recycling initiatives include green leaves composting, organic waste recycling using maggots, and collaborations with waste banks and local communities. Additionally, PLN promotes circular economy awareness through initiatives including HSSE Talks on Circular Economy in Waste Management in collaboration with the MoEF and internal competitions for best Reduce, Reuse, Recycle (3R) implementation.

Fly Ash and Bottom Ash (FABA) Management

PLN has also taken proactive steps in managing Fly Ash and Bottom Ash (FABA), a byproduct of CFPPs. All CFPPs within PLN's network are equipped with FABA storage facilities, including Temporary Storage Locations, landfill facilities, and utilization workshops. To ensure responsible waste utilization, PLN collaborates with 147 off-takers, including cement factories, batching plants, government entities, Micro, Small, and Medium Enterprises (MSMEs), and community groups. FABA is repurposed into various construction materials, such as cement PCC, concrete for road and bridge infrastructure, road base materials, fiber cement roofing, and precast concrete products like tetrapods, concrete tubes, and road barriers. Additional applications include acid-resistant waterproofing material, hydroponic planting media, and MSME-produced paving blocks and roasting trays.

PLN has introduced several strategic directives and roadmaps to further enhance FABA waste management. Key initiatives include issuing guidelines for massive FABA utilization, incorporating FABA management criteria in performance evaluations, and monitoring waste management activities on a monthly basis. PLN has also developed comprehensive FABA management procedures covering storage, transportation, emergency response, documentation, and reporting. Additionally, the company is actively exploring new applications for FABA within the circular economy, supporting research and pilot projects across eight CFPP units. These initiatives focus on utilizing FABA as a non-structural concrete road material, a backfilling agent for acid mine drainage neutralization, a fertilizer and soil conditioner, and a landfill cover layer.

Finally, to promote industry-wide best practices, PLN has launched a competition for the best HSSE implementation in FABA utilization and 3R categories and developed PLN Standard No. SPLN U2.004-1:2022, which provides technical guidelines for FABA utilization in coal-fired power plants. These ongoing efforts align with PLN's commitment to reducing industrial waste, supporting circular economy principles, and ensuring compliance with environmental regulations.

Hazardous Waste Management

PLN uses several hazardous materials, including lubricating oil, gypsum, toner, and ion exchange materials, for the operation and maintenance of electricity generating machines. All PLN units have facilities for storing hazardous waste, equipped with Technical Details of Hazardous Waste Storage and Environmental Approval documents. Hazardous waste storage is typically located within the operational area, reducing the need for long-distance transportation and concentrating the waste in one location. PLN also collaborates with third-party hazardous waste management companies that have Environmental Approvals for the collection, transportation, utilization, treatment, and landfilling of hazardous waste.

All PLN operational areas manage hazardous waste in accordance with ISO 14001, internal standards, and applicable national regulations. These practices are formally codified in a series of PLN Standards (SPLN), which serve as technical and procedural references to ensure environmental compliance. The key SPLN documents guiding PLN's hazardous and non-hazardous waste management include:

1. SPLN U2.004-3:2025 – Waste Management, Part 3: Guidelines for Environmental Emergency Response.
2. SPLN U2.010:2025 – Design Guidelines for Storage Facilities of Decommissioned Fixed Assets and Non-Hazardous Waste.
3. SPLN U2.003-2:2023 – Waste Management in Construction Planning, Part 2: Emissions.
4. SPLN U2.004-2:2023 – Waste Management, Part 2: Guidelines for the Management of Polychlorinated Biphenyls (PCBs).
5. SPLN U2.004-1:2022 – Waste Management, Part 1: Utilization of Fly Ash and Bottom Ash from Coal-Fired Power Plants.
6. SPLN U2.003-1:2022 – Waste Management in Construction Planning, Part 1: Hazardous and Toxic Waste (B3).
7. SPLN U1.012-1-1:2021 – Waste Management in Generation Systems, Part 1: Operational Stage of Coal-Fired Power Plants.

Initiatives to Reduce Hazardous Waste

PLN is committed to minimizing hazardous waste generation through technological advancements and process modifications. The company employs oil purifier technology to clean and purify used transformer oil, removing contaminants like water, gas, solid particles, and organic compounds, to extend the oil's usability. Additionally, PLN has modified its processing equipment to reduce hazardous waste created from electricity generation activities, ensuring more efficient operations.

To further reduce waste, PLN has implemented a resin regeneration process for water treatment systems, which extends the life cycle of resins used in wastewater treatment plants (WWTPs). The company has also taken steps to replace single-use hazardous waste packaging with sustainable, reusable containers, such as specialized tanks for hazardous solvents and liquid waste storage. Finally, PLN has improved its WWTP separators by introducing the Parallel Plate Separator method, which reduces hazardous sludge accumulation and enhances wastewater treatment efficiency.

Through its subsidiary, PT PLN Nusantara Power, PLN has established partnerships with licensed third-party service providers to ensure comprehensive waste management across its operational areas. This collaboration covers a wide range of waste streams, including domestic waste, electronic waste (e-waste), medical waste, and wastewater from worker accommodation facilities. All stages of waste handling, collection, transportation, temporary storage, and final processing are carried out in compliance with applicable environmental regulations. Notably, electronic waste is not stored on-site, as it is immediately managed by certified e-waste processing partners. Meanwhile, small volumes of medical waste are placed in designated containers before being transferred to licensed Temporary Hazardous Waste Storage Facilities (TPS LB3). This partnership model ensures that waste management activities at project sites are conducted in a safe, controlled, and fully compliant manner.

Initiatives to Reuse Hazardous Waste

PLN has developed initiatives to repurpose hazardous waste, focusing on extending the useful life of materials. One key initiative focuses on reusing used batteries for solar cells, reducing the demand for new materials while promoting renewable energy applications.

Initiatives to Recycle Hazardous Waste

In addition to reducing and reusing hazardous waste, PLN has implemented recycling programs for a number of waste materials. The Company repurposes gypsum as a raw material for cement production, reducing industrial waste while supporting sustainable construction practices. PLN has also introduced processes to recycle used lubricating oil, ensuring that valuable resources are reprocessed and reused instead of being discarded.

Initiatives for Proper Hazardous Waste Disposal

PLN follows a strict hazardous waste management framework to ensure oil waste, boiler crust, sludge, and other hazardous materials are properly handled from their source to final disposal. The Company adheres to Board of Director's Regulation No. 0110 of 2023 related to the Strategic Policy on Environmental Protection and Management. In addition, PLN also refers to the Non-Hazardous Waste Management Guideline as outlined in the Environmental and Social Management System (ESMS) Manual Guideline, which outlines best practices for hazardous waste storage, transport, and disposal. This structured approach ensures that PLN meets regulatory requirements while minimizing the environmental impact of its operations.

Additional Initiatives

Beyond the previous examples PLN conducts monthly monitoring of hazardous waste management across parent units and subsidiaries to track progress and identify areas for improvement. Additionally, the company has developed a business process model to enhance hazardous waste reporting and implementation tracking.

To further reinforce compliance, PLN has introduced management procedures for hazardous waste, Polychlorinated Biphenyls, and asbestos, ensuring safe handling within the distribution network and alignment with international funding requirements. PLN also recognizes and rewards high-performing units that excel in reducing solid waste, emissions, and hazardous waste utilization.

Non-GHG Air Emissions Management

In 2024, PLN's non-GHG emission reduction targets were applied primarily to PROPER-beyond compliance units, with progress tracked through the ESG Dashboard since 2022. PLN adheres to MoEF Regulation No. 15 of 2019 on Thermal Power Plant Emission Standards, which sets parameters for SOx, NOx, particulates, NH_2, and H_2S emissions across various types of power plants, including coal-fired, gas, combined cycle, diesel, and geothermal plants.

PLN is committed to enhancing air quality control by installing more air pollution control devices, expanding the use of low-NOx burners, and developing new technologies to further reduce emissions. In 2024, PLN's non-GHG emissions data showed an increase in particulate matter (PM), NH_2, and H_2S, while SOx and NOx levels decreased compared to 2023. The emissions reduction targets for 2021–2030 focus on developing emission databases, refining monitoring methods, and implementing progressive reduction strategies. PLN's first phase reduction goal (2021–2024) aims for a 14% decrease in SO_2, NOx, and PM emissions, while the second phase (2025–2030) targets a 25% reduction from baseline levels. To address these challenges, PLN implements a policy for controlling non-GHG emissions, with a particular focus on sulfur dioxide (SO2) emissions resulting from coal combustion.

Effluent Management

PLN implements a structured program in collaboration with licensed and competent third parties for the management of hazardous waste and effluent (wastewater). This includes handling used lubricants, sludge from wastewater treatment systems, and hazardous contaminated waste resulting from maintenance activities across power generation, transmission, and distribution assets. All processes are carried out in accordance with regulatory standards and guided by the principles of reduce, reuse, and recycle.

Transformer oil purification is conducted routinely across nearly all PLN distribution units. This activity is supported by qualified service providers with proven expertise in electricity asset maintenance. The purification process helps sustain the insulating and cooling properties of transformer oil, thereby extending the operational lifespan of the equipment. Regular purification also reduces the demand for new oil, lowers the generation of waste oil, and helps prevent the formation of effluent containing harmful hydrocarbon compounds.

Monitoring and Measurement of Non-GHG Air Emissions

PLN monitors air emissions in real-time through the Continuous Emissions Monitoring System (CEMS) Which continuously measures the concentration levels of emission parameters at exit stacks to ensure regulatory compliance and track environmental performance. PLN also utilizes data analysis and management dashboards to assess air and water quality metrics, providing actionable insights for emission reduction strategies and operational improvements. Through these initiatives, PLN reinforces its commitment to environmental sustainability and air quality management.

Resource Management

PLN has embedded resource efficiency into its corporate sustainability strategy, aligning with Statement of Corporate Intent No. 0314 of 2022 and the Safety, Occupational Health, Security, and Environmental Policy. The company is committed to optimizing energy and water use, integrating environmental risk management into its business activities, and implementing long-term strategies to transition toward clean energy solutions.

Resource-Related Risks and Opportunities

PLN recognizes that resource-related risks can significantly impact operational efficiency, particularly within coal, gas, and hydroelectric power plants. Disruptions in fuel supply, water availability, and energy efficiency can pose both operational and financial risks. However, PLN has identified space for opportunities to enhance sustainability through technological advancements, infrastructure upgrades, and digitalization of resource management systems.

PLN's Strategy for Resource Management

Energy Efficiency Programs

To enhance energy efficiency, PLN has implemented digitalization, automation, and centralized distribution systems to minimize energy losses. The company is modernizing its distribution networks using Internet of Things (IoT) and Artificial Intelligence (AI) and has introduced Automated Metering Infrastructure (AMI) to improve data accuracy and energy efficiency.

Water Management Programs

PLN has adopted water conservation programs, including rainwater harvesting and wastewater recycling. In 2024, 42 PLN power plant units successfully implemented water recycling and reuse technologies, reducing their dependence on freshwater sources. One example is the Tanjung Jati B power plant in Central Java, which utilizes reverse osmosis technology to improve water quality for operational activities.

PLN uses water for various operational needs, including:

- Power plant operations: Generating electricity in hydroelectric plants, cooling boilers in coal-fired plants, and cooling combustion chambers in gas-fired plants.
- Turbine lubrication: Preventing turbine overheating and extending operational lifespan.
- Cooling towers: Preventing condenser overheating and improving efficiency.
- Water treatment: Removing contaminants from water used in power plants to protect equipment and ensure efficiency.

To enhance water efficiency, PLN has introduced a 3R water management program, which includes:

- Recycling water for non-potable uses, such as cooling power plants, boiler make-ups, irrigation, and sanitation.
- Protecting water resources by reducing pollution, managing demand, and promoting conservation awareness.
- Implementing water-saving measures, including installing low-flow fixtures and optimizing operational schemes.
- Detecting leaks and improving conservation awareness through employee training programs.

PLN has also implemented closed-cycle water systems, reusing leachate from ash landfills to suppress dust at landfills. These measures not only improve water conservation but also minimize environmental impact.

To ensure PLN's operations do not negatively impact community water resources, the company has initiated the following processes:

- Monitoring water volume sufficiency and using Weather Modification Technologies (WMT) to enhance rainfall in areas affected by prolonged droughts.
- Adhering to government regulations on floating solar power plant areas, ensuring compliance with the Ministry of Public Works and People's Housing Regulation No. 6/2020, which limits floating solar farms to 5% of reservoir areas.

Water Risk Management Strategy

PLN has conducted comprehensive water risk assessments to identify power plants operating in water-stressed areas. Using the WRI Aqueduct Water Risk Atlas, PLN evaluated 1.7 thousand power plants and selected 246 units for in-depth water stress analysis based on 2022 baseline data. The findings revealed that 17 power plants operate in high (40–80%) and 13 operate in extremely high (>80%) water stress areas. However, one plant is projected to experience reduced water stress by 2030, leaving 16 plants in PLN's long-term water stress mitigation plans.

To address water scarcity and prolonged droughts, PLN launched a water risk management strategy in late 2023, integrating WMT. This strategy includes deploying airplanes, UAV drones, and ground-based generators to induce rainfall in targeted areas. In 2024, PLN will pilot WMT programs in three key watersheds:

- Brantas (Sutami HEPP)
- Citarum (Cirata HEPP)
- Mamasa (Bakaru HEPP)

As part of its long-term commitment to sustainable water management, PLN formally joined the Alliance for Water Stewardship in 2024, reinforcing its dedication to global best practices in water conservation and responsible resource management.

Nature Management

Nature-Related Risks and Opportunities

PLN categorizes biodiversity risks using both quantitative and qualitative approaches. The company's quantitative risk assessment includes evaluating the impact of PLN's projects on agroforestry areas, ensuring compliance with forest and land protection regulations, and working with local communities to develop agroforestry rehabilitation programs. Mitigation strategies include replanting affected areas, ensuring legal compliance, and developing reforestation and biodiversity conservation plans.

PLN's qualitative risk assessment focuses on assessing potential reputational risks associated with community concerns regarding biodiversity conservation. To address this, PLN conducts community engagement programs, collaborates with local stakeholders to maintain biodiversity, and integrates environmental protection measures into infrastructure projects including geothermal and hydropower plants. Relevant biodiversity risks include habitat fragmentation due to geothermal power plant development, ecosystem changes caused by hydropower dams, and pollution from solar power plant maintenance. PLN mitigates these risks by implementing conservation areas, monitoring biodiversity, and ensuring regulatory compliance.

Certain PLN operational areas are designated as high conservation zones. To minimize biodiversity risks, PLN signed Strategic Development Cooperation Agreements with national parks in 2023, focusing on forest protection, ecotourism development, community empowerment, and sustainable energy distribution. Additionally, PLN actively identifies opportunities to enhance biodiversity conservation, aligning its efforts with global best practices.

Biodiversity Identification and Management Plans for Priority Areas

PLN has established a Biodiversity Management Guideline that outlines the company's policy on biodiversity conservation and land reclamation, particularly for power generation units. The company's biodiversity conservation efforts are initiated through the identification of priority biodiversity areas, with a focus on locations surrounding its power generation sites. These efforts are guided by the Biodiversity Management Guideline, which is integrated into PLN's Environmental and Social Management System (ESMS) and developed in alignment with the International Finance Corporation (IFC) Performance Standards.

PLN's Environmental and Social Management System (ESMS) includes comprehensive guidelines for environmental and social safeguards, including provisions for the sustainable management of natural resources and raw materials. When complete avoidance of impacts is not feasible, the ESMS requires that impact assessments identify specific mitigation actions to reduce the significance of those impacts to acceptable levels. For instance, in cases where a project is expected to cause landscape changes or require significant natural resource intake for its operations, potential measures may include minimizing the project's physical footprint and selecting infrastructure, equipment, and technologies that enhance resource efficiency (e.g., energy, water, raw materials). In addition, the ESMS encourages exploring measures that generate positive environmental and social outcomes, such as the adoption of labor-intensive technologies that support local employment.

PLN's Strategy for Nature Management

One major initiative is the Cooperation Agreement signed with Perhutani (State Forestry Public Enterprises) in September 2023, to improve forest conservation in the Upper Cisokan Pumped Storage Hydroelectric Power Plant area (4 x 260 MW). Under this agreement, PLN carried out Phase 1 of a revegetation program, covering 77.2 hectares in South Bandung. The agreement involves planting a combination of forest trees (25%) and Multi-Purpose Tree Species (MPTS) (75%), to balance biodiversity preservation with economic benefits for local communities. Local residents were involved in species selection, planting, and maintenance, with ongoing monitoring and evaluation to ensure revegetation success.

In addition, PLN monitors Rare, Endangered, Endemic, and Protected Species (REEPS) in its operational areas. This includes tracking 10 important species in the 1040 MW Upper Cisokan hydropower development area, including the Javan leopard, Javan gibbon, Trenggiling (pangolin), and Javan kukang (slow loris), to ensure their conservation and habitat protection. PLN also supports the initiative of power generation units to designate parts of their operational areas as conservation zones and habitats for flora and fauna species within their respective regions.

Best Practices in Mitigation Hierarchy

PLN applies the Mitigation Hierarchy through Environmental Impact Assessments (EIAs) or Environmental and Social Impact Assessments (ESIAs) for all electricity projects. For projects that are required to undergo an ESIA, specific measures are implemented to address potential impacts on biodiversity. These include the conduct of Critical Habitat Assessments for projects located near protected areas or areas of high biodiversity value, as well as the development of a Biodiversity Management Plan (BMP) to further mitigate environmental and landscape impacts. The BMP also mandates regular reporting on biodiversity conservation efforts by relevant PLN units and sub-holdings. Moreover, the BMP is integrated into the ESIA review process, particularly for projects financed by international lenders.

In addition to assessing biodiversity impacts in new project areas through Environmental Impact Assessments (EIA) and Environmental and Social Impact Assessments (ESIA), PLN also evaluates potential social impacts on communities prior to project development through a Land Acquisition and Resettlement Action Plan (LARAP). The LARAP is required for projects that may affect local communities and productive land. In cases where adverse impacts are identified, PLN is committed to implementing Livelihood Restoration Programs to ensure that affected communities can regain or improve their standard of living.

As part of the avoidance strategy within the mitigation hierarchy, PLN has implemented several best-practice programs, including:

1. Preliminary Study for Micrositing of the Banten Wind Power Plant (PLTB Banten), which involved geospatial analysis to identify suitable and low-risk land areas. This analysis considered multiple parameters such as proximity to residential zones, conservation areas, nature reserves, protected forests, national parks, wildlife sanctuaries, areas of high biodiversity, and regions with slopes greater than 30%, in order to minimize the need for intensive site development.
2. Environmental and Social Impact Scoping for the Bakaru-Bantaeng Transmission Line Project (South Sulawesi, Indonesia), which aims to identify key environmental and social aspects for further assessment in the detailed ESIA. This scoping phase also establishes the basis for potential resettlement planning and stakeholder engagement in accordance with national and international standards, while defining the project footprint, evaluating alternative routes, determining baseline data needs, and initiating early stakeholder consultations.

These practices are further reinforced by PLN's internal policy framework, particularly through the Biodiversity Management Guideline, which is integrated into PLN's ESMS and serves as the primary reference for biodiversity management and mitigation actions. This guideline outlines avoidance, mitigation, and offset measures required during the assessment process and ensures compliance with regulatory permits and environmental licenses. As part of its ESMS, PLN also establishes Exclusion Criteria that define specific conditions under which projects are not permitted to proceed. One of the key criteria prohibits the development of any project that is expected to have adverse impacts on existing or proposed protected conservation areas and/or nationally or internationally protected ecosystems—unless a legally and technically acceptable process is in place to compensate for biodiversity net loss. To uphold these standards, PLN conducts Environmental and Social (E&S) screening during site selection, specifically evaluating potential impacts on environmentally significant and culturally protected areas.

Reforestation and Land Rehabilitation

PLN has implemented a reforestation program to restore ecosystems impacted by construction projects. This program not only helps rehabilitate disturbed areas but also contributes to carbon sequestration and environmental quality improvements. Efforts include urban greenery expansion, pollution reduction, and oxygen production enhancement, promoting a healthier and more sustainable environment.

As part of its environmental stewardship commitment, PLN continues to implement forest rehabilitation in areas utilized under the Borrow-to-Use Permit (IPPKH). As of 2024, rehabilitation activities have been carried out across several provinces, including South Sumatra, Riau, West Sumatra, Maluku, North Maluku, Central Sulawesi, East Kalimantan, West Nusa Tenggara, and North Sumatra. The cumulative planted area under ongoing implementation reaches 1.2 thousand hectares, with 1.0 thousand hectares already handed over to the Ministry of Environment and Forestry. In 2025, PLN plans to rehabilitate an additional 629.7 hectares.

As stated in Biodiversity Management Guideline, PLN is committed to conducting habitat restoration within the previous project area. The objective of land rehabilitation of project area that located in natural ecosystem is to restore them to their original habitat condition; whilst for project situated in a modified habitat, the objective is to restore to its original functions, which are primarily social and economic in nature.By the end of 2024, PLN planted over 1 million trees across 1,200 hectares as part of its reforestation efforts. Commonly planted species include the *Samanea saman, Mangifera indica, Persea americana Mill*, and *Bambusa sp.*, while endemic species such as *Litsea tomentosa* and *Bouea macrophylla* were prioritized in West Java. In coastal areas, PLN planted *Avicennia marina, Rhizophora apiculata*, and *Sonneratia obovata* to support mangrove restoration.

Engagement with Local Communities and Stakeholders

PLN actively collaborates with local communities, non-governmental organizations (NGOs), and conservation groups to promote biodiversity conservation and ecosystem protection. In 2024, PLN's tree planting programs engaged students, community members, and environmental organizations, fostering a culture of environmental stewardship.

Since 2021 PLN has collaborated with with Barru CFPP and the Lima Putra Pesisir Community to support a sea turtle conservation initiative at Lowita Beach in South Sulawesi. This eco educational tourism program simultaneously protects the marine biodiversity while boosting local livelihoods. Its positive impacts include:

- Fishermen – Restoration of coral reefs and marine habitats contributes to healthier ecosystems and increased fish populations, directly benefiting local fishers.
- Local Communities – Waste materials are creatively repurposed into souvenirs and local products, generating new income streams and supporting microenterprise development.
- Education & Tourism – The site attracts students, researchers, and eco-tourists, providing a platform for awareness, conservation education, and sustainable tourism.

In partnership with PT PLN Nusantara Power, BPDAS Indragiri Rokan, the Riau Watershed Forum, and local communities PLN leads a reforestation initiative to rehabilitate the degraded ecosystem surrounding the Koto Panjang Reservoir in Kampar, Riau. The program aims to restore biodiversity, improve watershed quality, and enhance ecosystem services vital to hydroelectric power operations.

Finally, in partnership with Selamatkan Yaki, PPS Tasikoki, and the Manembo-Nembo Forest Conservation Community Forum (FMKH) PLN supports the conservation of the endangered and endemic Sulawesi Black Macaque (*Macaca nigra*). The 2024 program includes:

1. Capacity building for members FMKH to strengthen local conservation leadership.
2. Yaki deterrence patrols, led by FMKH members, to prevent illegal activities and protect the macaque's habitat.
3. “Save Yaki” public awareness campaigns, promoted through billboard media, to increase visibility and community engagement in species conservation.

Systematic Consideration of Local Threats to Biodiversity

PLN actively monitors local biodiversity threats to ensure environmental sustainability. The company employs a structured risk assessment approach, which includes:

- Identifying and mapping biodiversity threats in PLN's operational areas.
- Conducting risk analyses to assess the potential impact on ecosystems and local communities.

- Measuring vulnerability levels and developing appropriate mitigation strategies.
- Implementing ongoing monitoring and evaluation to track biodiversity changes over time.

One example of PLN's biodiversity protection efforts is its Muntjac Deer Conservation Initiative at Paiton CFPP. Illegal hunting posed a significant threat to the Muntjac Deer population near the plant. In response, PLN established a Muntjac Deer Conservation Center, serving as both an educational hub and an eco-tourism site to enhance community income and conservation awareness.

To further prevent illegal wildlife hunting, PLN signed a Memorandum of Understanding (MoU) with Bhinor Village to conduct patrols, install conservation signage, and raise awareness among local communities. Conservation efforts include:

- Placing hunting prohibition signs in sensitive areas.
- Designating specific zones as protected conservation areas for wildlife.
- Conducting regular forest patrols to prevent illegal poaching.

SOCIAL

Community Relations

PLN remains committed to advancing social sustainability goals aligned with the Sustainable Development Goals (SDGs) through its Social Workstream, which is a key component of the Sustainability Committee. This workstream is dedicated to ensuring the achievement of Community Involvement & Development (CID) targets, which focus on community empowerment, stakeholder consultations, emergency preparedness and response, gender equality, disability inclusion, and social inclusion. By taking a structured and strategic approach, PLN aims to generate long-term positive impacts, strengthen community resilience, and uphold principles of sustainability and equitable development.

As part of its commitment to fostering local economic growth, PLN actively supports community development initiatives around its operational areas through its CSR program. These initiatives adhere to Director's Regulation No. 0138 of 2019 on CSR Guidelines Based on ISO 26000, ensuring that PLN's community engagement efforts contribute to the economic well-being of local communities throughout all phases of infrastructure development, pre-construction, operational, and post-operational.

PLN also established community involvement targets across all business units to enhance community participation in sustainable development. In 2021, the company introduced CID procedures, which serve as a comprehensive framework for implementing effective, inclusive, and impactful community empowerment programs. These procedures align with sustainability principles and CSR best practices, ensuring that PLN's social initiatives are structured, measurable, and responsive to community needs.

Empowering Small Businesses and Local Entrepreneurs

PLN's CID activities are designed to support Micro and Small Enterprises (MSEs) and local entrepreneurs, fostering economic self-sufficiency and business growth. Key programs under this initiative include:

- Micro and Small Enterprises Development through SOE Houses (SOE House Management): Providing dedicated spaces for small businesses to operate, access resources, and receive mentorship.
- Empowering Villages and Tourism Areas: Offering training and business support to small enterprises in rural and tourism-dependent communities.
- Economic Inclusion for Vulnerable Groups: Extending training and financial support to businesses owned by persons with disabilities, indigenous groups, and economically disadvantaged individuals.

- PLN Peduli for Micro and Small Enterprises Development: A dedicated funding program for small businesses to help expand operations and enhance their financial sustainability.
- To ensure ongoing success and measurable impact, PLN adheres to Director's Regulation No. 0135 of 2019, which governs the monitoring and evaluation of partnership and environmental development programs. This regulation ensures that all CID and CSR initiatives are effectively managed, assessed for impact, and continuously improved to maximize benefits for local communities.

Through these efforts, PLN reinforces its commitment to social sustainability, striving to uplift communities, promote economic resilience, and create a lasting positive impact across its operational areas.

Stakeholder Governance and Community Engagement

Stakeholder Governance Framework

PLN has established a structured stakeholder governance system, as outlined in Director's Regulation No. 0119 of 2017, which provides comprehensive guidelines for managing interactions with internal and external stakeholders, including local communities. This regulation serves as the foundation for stakeholder engagement, ensuring transparency, accountability, and fairness throughout PLN's project lifecycle, from the initial planning phase through construction, operation, and post-operation.

By adhering to these governance principles, PLN ensures that community engagement and stakeholder consultations are conducted in a structured and inclusive manner, allowing affected parties to provide input, voice concerns, and participate in decision-making processes that may impact them.

Indigenous Communities

PLN, through its Environmental and Social Management System (ESMS), integrates stakeholder engagement assessments into every project, particularly when Indigenous Peoples may be affected. In such cases, PLN conducts consultations aligned with the principles of Free, Prior, and Informed Consent (FPIC) to ensure that the community's perspectives, cultural values, and traditional knowledge are respected throughout the design and implementation phases. Consistent with its ESMS, PLN is also committed to enhancing the quality of life of Indigenous Peoples by defining clear criteria for participation in its empowerment programs, which fall under the Corporate Social Responsibility (CSR) initiatives, specifically within the economic and environmental development pillars. In 2024, this commitment was demonstrated through free electricity installations for 120 Indigenous community members in Dusun Adat Kampung Kuta, Ciamis, West Java. Additionally, PLN supported local economic development through Indigenous MSME empowerment programs, such as forest honey cultivation and salted fish paste production in Ketapang, West Kalimantan, involving 125 Indigenous participants.

Community Involvement and Public Consultation

PLN is committed to fostering strong relationships with local communities through structured and meaningful consultations. As part of Indonesia's environmental permitting process, PLN conducts early-stage public consultations for each project to ensure communities are well informed and their rights are protected. These engagements enable PLN to identify potential concerns, develop mitigation strategies, and build trust with affected stakeholders from the outset, including vulnerable groups and indigenous peoples. Throughout the project lifecycle, structured consultation mechanisms are implemented at scheduled intervals to maintain open communication and ensure community needs and expectations are continuously heard, assessed, and addressed.

Stakeholder engagement is strategically planned and timed, with relevant information disclosed well in advance to promote understanding, encourage dialogue, and support active participation. This inclusive approach is anchored in PLN's Community Social Aspect Policy and Stakeholder Engagement Plan, reinforcing the company's commitment to safeguarding community rights and integrating local perspectives into project development.

Grievance Redress Mechanism (GRM)

As part of its commitment to community transparency and engagement, PLN has developed a Grievance Redress Mechanism (GRM) to handle public complaints and grievances effectively. Grievances can be submitted to the relevant functions or departments, depending on the nature of the issue being raised.

PLN's GRM process involves:

1. Receiving complaints from affected individuals or groups.
2. Screening and categorizing grievances to determine appropriate responses.

3. Resolving concerns transparently, ensuring that affected communities receive fair treatment.
4. Evaluating the effectiveness of grievance resolutions and making improvements where needed.

To enhance accessibility and inclusivity, PLN refined the GRM system in 2024 by incorporating it into the ESMS as a formal guideline for stakeholder engagement. This improved GRM will ensure that both external project-affected parties and internal workers, including contractors, have access to a fair and responsive grievance resolution process.

An effective GRM system enables PLN to address concerns at an early stage, throughout all project phases (pre-construction, construction, and operation), minimizing conflicts and fostering positive relationships with communities and stakeholders.

Stakeholder Identification and Analysis

PLN follows a systematic approach to stakeholder identification and analysis, ensuring that all affected and interested parties are engaged appropriately, as shown in **Figure 6**. This framework categorizes stakeholders into:

- Project-Affected Parties – Individuals or communities directly impacted by PLN's operations, including vulnerable groups.
- Other Interested Parties – Government agencies, NGOs, business partners, and civil society organizations with a vested interest in PLN's sustainability efforts.

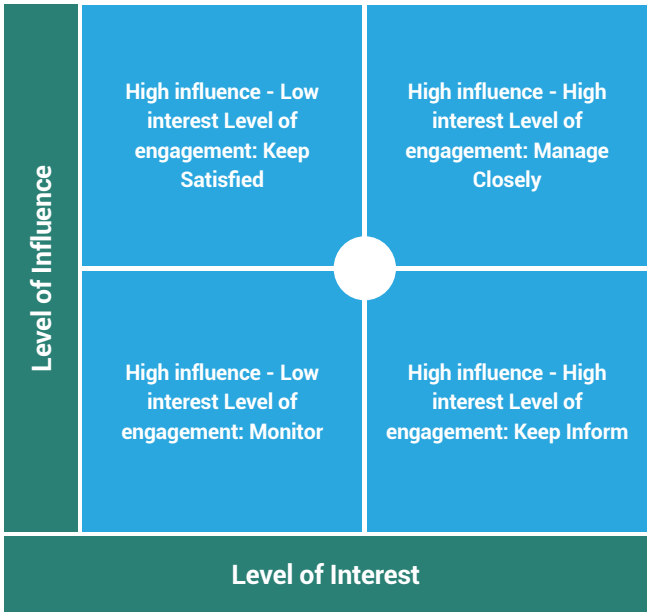


Figure 6 Stakeholder Mapping Diagram

PLN prioritizes effective engagement strategies based on the level of stakeholder influence and interest, ensuring that those most affected by projects receive targeted consultations and tailored engagement approaches.

The identification of vulnerable groups is a key component of PLN's stakeholder engagement strategy. This process enables PLN to recognize individuals and sub-groups with unique concerns and priorities regarding project impacts, mitigation measures, and potential benefits. PLN tailors engagement efforts to ensure that every voice is heard and considered in decision-making.

Public Consultation and Complaint Mechanisms

PLN actively creates spaces for public consultation, encouraging local communities to participate in discussions on potential project impacts. This inclusive approach enables PLN to co-develop mitigation strategies that address community concerns while ensuring project feasibility.

For customer-related complaints, PLN offers multiple communication channels:

- In-person consultations at the nearest PLN implementation unit.
- PLN Mobile Application for submitting electricity-related issues.
- PLN Contact Center (area code) 123 for direct customer support.
- Public Information Requests via PLN's official website (www.pln.co.id) or through the nearest PLN office.
- PLN Social Media:
  - X: @pln_123
  - Facebook: PLN 123
  - Instagram: pln123_official

By maintaining open, accessible, and transparent communication mechanisms, PLN strengthens its commitment to responsible stakeholder engagement, community empowerment, and inclusive decision-making.

Occupational Health and Safety (OHS)

PLN prioritizes OHS as a core operational principle, ensuring workplace safety is consistently upheld across all business units, projects, and subsidiaries. The company has implemented comprehensive safety strategies, integrating international best practices, regulatory compliance, and continuous safety culture development to achieve its Zero Accident goal.

OHS governance is reinforced through Executive Directive No. 013 of 2023 and Board Regulation No. 0182.P/DIR/2022, which establishes PLN's Strategic Policy on Occupational Health and Safety, Installation Safety, and Public Safety. These policies apply across all operational areas, including subsidiaries. Furthermore, contractor safety management is regulated under the CSMS policy, ensuring that external partners also adhere to PLN's high safety standards.

In order to do so it has implemented the following policies:

Implementation of ISO 45001:2018 and OHS Management System

To ensure consistent application of the OHS Management System, PLN mandates that all operational units adhere to ISO 45001:2018 and Government Regulation No. 50 of 2012. Internal audits are conducted annually to assess compliance, while external audits are performed every three years to validate the effectiveness of the OHS framework. The Director's Regulation No. 182 of 2022 provides detailed implementation guidelines, with additional emergency preparedness procedures outlined in Director's Circular No. 0013 of 2023.

As part of this system, PLN integrates emergency response planning, workplace accident prevention, and occupational health monitoring, ensuring that all business units and employees operate within a structured and certified safety environment.

Contractor Safety Management System (CSMS)

PLN has implemented a Contractor Safety Management System (CSMS), formalized through Director's Decision No. 0325 of 2021, which establishes comprehensive safety criteria for the procurement of goods and services. This system ensures that contractors working within PLN's operational areas meet stringent HSSE requirements.
The CSMS process includes:

- Risk Assessment – Evaluating the risk level of tendered work to ensure proper safety protocols.
- Pre-Qualification – Selecting contractors with proven HSSE management capabilities.
- Selection and Appointment – Only awarding contracts to vendors who have obtained a CSMS qualification certification and submitted an approved HSSE plan.
- Pre-Job Activity Review – Ensuring all HSSE aspects are fulfilled before work begins.
- Work Execution and Monitoring – Conducting field inspections and ongoing evaluations to maintain HSSE compliance throughout the project.
- Final Evaluation – Assessing the contractor's performance based on adherence to HSSE standards.

All CSMS stages are reported and monitored via the online portal csms.pln.co.id, reinforcing PLN's commitment to contractor safety and workplace hazard prevention.

OHS Maturity Level Assessment

PLN applies OHS Management System maturity criteria to all operational units, with the K3L Division responsible for monitoring, verifying, and assessing OHS compliance every six months. These periodic evaluations ensure that each PLN unit is complying with the highest safety standards while continuously improving workplace health and safety practices.

Moonshot Transformation Program for Zero Accidents

As part of its Zero Accident initiative, PLN launched the Moonshot Transformation Program on February 2, 2022, focusing on four key initiatives:

- Strengthening CSMS Implementation – Expanding contractor safety protocols.
- Developing a Stronger Safety Culture – Encouraging proactive safety behavior among employees.
- Structuring Corporate OHS Policies – Standardizing OHS regulations across all business units.
- Digitizing Safety Management Tools – Implementing advanced monitoring systems to track safety performance.

This program underscores PLN's commitment to eliminating workplace accidents and enhancing compliance with global safety standards.

Development of Safety Culture

PLN has strengthened its safety culture transformation program through a collaboration with DuPont Sustainable Solutions Indonesia, launching a pilot project at UID Banten in early 2022. In 2024, PLN extended safety culture training to all of its Distribution Units.

To reinforce workplace safety behavior, the K3L Division has partnered with the HST Division to implement:

- "Zero Work Accidents" Initiative – A company-wide program promoting safety awareness.
- "Pointing and Calling" System – A behavioral safety technique that enhances hazard recognition.

These initiatives aim to embed safety awareness into daily operations, ensuring that employees actively contribute to a safer work environment.

Standardizing Safety Regulations Across PLN

PLN continuously reviews and updates its OHS standards, ensuring that workplace safety regulations align with the latest industry best practices. This includes the development of:

- SPLN Fire Protection Systems
- SPLN Personal Protective Equipment (PPE) Guidelines
- SPLN CSMS
- SPLN OHS Signage Regulations

By maintaining rigorous safety standards, PLN ensures that employees and contractors operate within a secure and well-regulated environment.

OHS Certifications and Compliance

PLN is fully compliant with national and international safety standards, requiring all operational facilities to obtain:

- ISO 45001:2018 Certification – Ensuring adherence to global occupational health and safety management practices.
- OHS Management System Certification – Demonstrating compliance with Indonesian safety regulations.

These certifications reinforce PLN's commitment to safety excellence and continuous improvement in workplace health and security measures.

Ongoing Review and Updates to Corporate OHS Regulations

PLN regularly reviews and updates its OHS policies to ensure they align with evolving industry standards and regulatory requirements. This proactive approach helps maintain an effective, up-to-date safety framework, fostering a culture of continuous improvement in workplace safety across all operational units, installations, and employee networks.

Performance Monitoring and Measurement

PLN has adopted a proactive approach to monitoring and measuring OHS performance, conducting regular audits and evaluations to ensure compliance and effectiveness. The K3L Division conducts:

- Quarterly OHS Maturity Level Assessments – Evaluating safety performance and risk mitigation efforts.
- Annual Internal Audits – Verifying the implementation of OHS best practices.
- External Audits Every Three Years – Ensuring ISO 45001:2018 certification compliance.

These monitoring mechanisms allow PLN to identify gaps, implement improvements, and uphold workplace safety standards.

Human Capital

PLN is dedicated to ensuring effective human capital management through strategic policies and initiatives that align with corporate sustainability goals. By fostering a harmonious and inclusive workplace, PLN prioritizes employee well-being, professional development, fair labor practices, and diversity, reinforcing its commitment to corporate governance and long-term business resilience.

PLN Human Resource Management

PLN cultivates strong employee relations through cooperative and transparent engagement as outlined in the Collective Labor Agreement, which is periodically reviewed to align with evolving labor standards. The Company adheres to key principles in human resource management, including:

- Compliance with all applicable employment regulations related to upholding labor rights.
- Implementation of a performance-based remuneration system that is fair, transparent, and accountable.
- Commitment to human rights and full support for employee representation through the Trade Union.
- Competency enhancement programs to improve individual, group, and organizational performance.
- Career path equality, ensuring fair opportunities for professional growth.
- Commitment to gender equality, fostering diverse and inclusive leadership development.

By embedding these principles into its human capital management framework, PLN promotes workplace stability, employee engagement, and continuous professional development.

Respectful Workplace Policy

PLN upholds a zero-tolerance policy toward discrimination, violence, and harassment, as part of its Respectful Workplace Policy. This policy is designed to create a safe, inclusive, and productive work environment that supports corporate sustainability and employee well-being.

As part of this commitment, PLN continually improves recruitment programs to attract diverse talent, ensuring equal opportunities regardless of ethnicity, religion, social status, gender, or physical condition. The Commitment to Respectful Behavior Policy and the Policy for a Discrimination-Free, Violence-Free, and Harassment-Free Workplace further reinforce PLN's culture of inclusivity and professional integrity.

Additionally, PLN promotes the AKHLAK Culture Journey Program, which encourages ethical behavior, workplace harmony, and productivity growth, contributing to a positive corporate culture.

Freedom of Association

Recognizing freedom of association as a fundamental labor right, PLN guarantees employees the ability to organize and participate in trade unions in accordance with the Indonesian Constitution and corporate governance policies. The company formalizes this right through its Code of Conduct, ensuring that employees can collectively negotiate employment conditions, labor rights, and workplace policies.

PLN facilitates this right through the establishment of a Trade Union and the formation of a Collective Labor Agreement (CLA), which serves to:

- Define the rights and obligations of both PLN and its employees.
- Establish favorable and transparent working conditions.
- Foster harmonious employer-employee relations for company progress and sustainability.
- Promote Good Corporate Governance (GCG) principles in labor practices.

By ensuring that worker representation and labor relations are respected, PLN strengthens employee engagement, job satisfaction, and workforce stability. As part of its commitment to uphold human rights and labor standards, PLN fully respects and supports the principle of freedom of association. This commitment is reflected in the establishment of a Collective Labor Agreement (CLA), which was developed through constructive dialogue in a bipartite setting. The outcomes of these discussions are documented in the TISFD Report.

Non-Discrimination Policy

PLN is fully committed to eliminating discrimination in employment and occupation, as reinforced through its ratification of the International Labour Organization (ILO) Convention. The company actively integrates ILO principles into its labor policies, using them as a reference in the preparation of the Collective Labor Agreement.

PLN has also updated its Collective Labor Agreement for 2022–2024, ensuring continuous alignment with evolving labor rights and inclusion standards. Through these measures, PLN guarantees equal opportunities for all employees, irrespective of gender, background, or social status.

Human Capital Readiness (HCR) and Organizational Capital Readiness (OCR) Program Implementation

PLN actively develops HCR and OCR programs, which are key enablers for long-term value creation and sustainable workforce development. These programs focus on:

- Alignment between HCR and OCR to ensure a cohesive corporate strategy.
- OCR Business Ecosystem Development, fostering an adaptive and resilient corporate structure.
- Organizational Culture Enhancement, promoting strong ethical values and professional integrity.

- Leadership Development, equipping employees with the skills needed to drive sustainable growth.

In 2024, PLN successfully advanced HCR and OCR initiatives, strengthening governance in human capital policies. The company also expanded employee training and certification programs, particularly in:

- Occupational Health and Safety (OHS)
- Emergency Response
- Cybersecurity Awareness
- Corporate Ethics and Compliance

In line with these efforts, PLN also reinforced its commitment to leadership development as part of a broader employee growth strategy. Referring to the Implementation Regulation of PT PLN (Persero) Number 0046.E/DIR/2023 on the Standard Procedure for the Employee Development Management System, leadership training is made available to all employees in accordance with career levels. Specifically, the Leadership Development Program (LDP) 4 is designated for certain levels of leadership, ensuring that talent development is aligned with organizational needs and succession planning.

By continuously enhancing talent development programs, PLN ensures that its workforce remains competent, innovative, and adaptable to evolving business and environmental challenges.

The Impact of ESG Performance on Remuneration

PLN acknowledges the critical role of ESG performance in both corporate sustainability and employee welfare. As a result, ESG factors have been integrated into the company's KPIs, directly influencing employee performance evaluations and incentives.

Key ESG metrics incorporated into PLN's KPIs include:

1. HSSE Compliance
   PLN prioritizes HSSE compliance, demonstrating the company's commitment to workplace safety and environmental responsibility. By embedding OHS standards into performance assessments, PLN ensures that employees consistently consider safety measures in all operational activities, fostering a secure and healthy work environment.

2. Climate Change Management
   Since 2021, climate change mitigation and power system reliability have been included in PLN's corporate KPIs. This supports PLN's commitment to reducing carbon emissions and promoting a clean energy transition. By integrating climate change management into employee performance evaluations, PLN encourages its workforce to innovate and implement environmentally sustainable technologies across all operations.

3. Sustainability Maturity Level for Subsidiaries and Sub-Holdings
   In 2024, PLN introduced Sustainability Maturity Level assessments as part of the KPIs for subsidiaries and sub-holdings. This ensures that all PLN-affiliated entities adopt and implement sustainability principles, further embedding ESG values across the organization.

4. ESG-Linked Incentives
   ESG performance metrics directly impact employee incentives, both semi-annually and annually. By linking compensation and rewards to sustainability goals, PLN not only enhances employee motivation and productivity but also reinforces corporate responsibility in environmental and social governance.

Gender Equality, Disability, and Social Inclusion (GEDSI)

PLN is committed to fostering an inclusive, diverse, and equitable workplace, ensuring that all employees—regardless of gender, ethnicity, race, nationality, age, disability, or other characteristics—are provided with equal opportunities in recruitment, career development, and leadership advancement. This commitment is reinforced through strategic policies and programs aimed at promoting gender diversity and talent retention, particularly through the Srikandi Program and Women Talent Retention initiatives.

Diversity Programs

PLN upholds zero tolerance for discrimination, as outlined in Director's Regulation No. 0015 of 2020, which governs the protection, prevention, and handling of sexual harassment within the company. This regulation ensures that all company activities, including hiring, promotions, performance evaluations, training, compensation, and workplace interactions, are conducted fairly and equitably. Additionally, PLN's Gender Mainstreaming Policy, detailed in the Statement of Corporate Intent No. 0056 of 2023, sets out strategic initiatives to promote gender diversity. A key focus of this policy is increasing women's participation across all levels of the organization, particularly in decision-making and leadership roles.

Srikandi Programs: Advancing Women in Leadership

PLN actively supports gender equality and female representation in strategic positions, aligning with the Ministry of State-Owned Enterprises (SOE) initiative to enhance female empowerment. As part of this commitment, PLN established the Srikandi Task Force Team through Director's Decision No. 0135 of 2023, with an updated directive in Director's Decision No. 0118 of 2024.

The Srikandi Program is designed to:

- Increase the number of women in leadership roles, ensuring balanced gender representation in executive and managerial positions.
- Create a female-friendly workplace by implementing policies and facilities that support women's career growth and work-life balance.
- Strengthen leadership development for female employees, providing mentorship and career progression opportunities.

Women Talent Retention: Developing Future Female Leaders

PLN places significant emphasis on talent retention for female employees, recognizing that diverse leadership drives innovation and business growth. To achieve this, PLN has introduced the Talent Pool for Female Employees, a program that identifies and develops high-potential women within the organization, preparing them for future leadership roles.

A key performance metric for this initiative is the Women in Management Positions indicator, which measures progress in gender diversity at the leadership level. Through this Talent Pool, PLN successfully achieved a nominated talent proportion of 33.33% in 2024, an increase 3% from 32.25% in 2023, surpassing the target of 32%. These women are expected to advance into Director positions within SOEs, further strengthening female representation in executive leadership.

By investing in talent retention and leadership development for women, PLN ensures that its workforce remains inclusive, diverse, and representative of the communities it serves. The company remains steadfast in its mission to empower female employees, create equal opportunities, and cultivate an environment where women can thrive and lead.

GOVERNANCE

Product Governance

PLN is committed to ensuring operational resilience by implementing robust emergency response protocols and cybersecurity measures that safeguard critical infrastructure and services. Through internationally recognized standards, comprehensive training, and strategic policy frameworks, PLN prioritizes business continuity, disaster preparedness, and cybersecurity resilience to mitigate risks and enhance response capabilities.

Emergency Response Program

Emergency preparedness is a critical element of PLN's operational strategy, ensuring rapid and effective responses to potential disruptions. To achieve this, PLN has established comprehensive emergency response policies and procedures, which include staff training, emergency drills, and well-defined communication channels for crisis management.

PLN has reinforced its commitment to operational continuity and risk mitigation by adopting the ISO 22301:2019 standard for Business Continuity Management Systems (BCMS). This integration enhances PLN's ability to address disruptions that may affect electricity supply and infrastructure operations.

To ensure effective disaster response, PLN has developed Emergency Response Guidelines, which provide standardized procedures for handling emergencies across all levels of the organization. These guidelines are grounded in PLN's internal regulatory framework, including:

- Director's Regulation No. 0072 of 2021, outlining Disaster Emergency Response Guidelines, which establish protocols for incident management and post-disaster recovery.
- Director's Regulation No. 0182 of 2022, which defines PLN's Strategic Policy for Occupational Health and Safety (OHS), Installation Safety, and Public Safety. This policy ensures that safety measures are in place for employees and communities near PLN's operational areas.

By integrating these policies, PLN ensures that its emergency response framework is systematic, efficient, and aligned with international best practices, minimizing potential operational disruptions and enhancing resilience.

Cybersecurity Program

As the sole electricity provider in Indonesia, PLN recognizes that cybersecurity is as critical as operational reliability. With the increasing digitalization of power systems, PLN has identified cybersecurity as a top-tier risk, alongside operational and global supply chain challenges. This proactive approach ensures that PLN remains resilient against cyber threats, protecting customer data, IT infrastructure, and the continuity of electricity services.

Compliance and Cybersecurity Standards

PLN's cybersecurity governance is aligned with international standards, including ISO 27001:2013 for Information Security Management Systems (ISMS). In July 2022 PLN achieved ISO 27001 certification, demonstrating its commitment to cyber risk management. This certification is evaluated annually through surveillance audits, ensuring ongoing compliance and continuous improvement. The scope of this certification covers both Information Technology (IT) and Operational Technology (OT) environments. It includes PLN's Data Center within the IT domain, as well as the Control Center Server Room at UIP2B Java, Madura, Bali under the OT domain.

To strengthen its cybersecurity framework, PLN updated its organizational structure through Director's Regulation No. 0027.P/DIR/2024 on PLN's Organizational and Work Procedures. PLN established the Digital Technology and Information Unit, consisting of:

- Digital Management Division (MDG), responsible for digital and IT planning.
- System and Information Technology Division (STI), handling IT operations and cybersecurity management.

STI and MDG are responsible for supporting both the development and operational needs of IT and OT across PLN. These divisions report regularly on IT and OT performance to the Head of the Digital and Information Technology Unit, ensuring alignment with strategic priorities.

Within this structure, the Information Technology Planning and Strategy Sub-Division under the STI Division plays a crucial role in:

- Developing IT strategies and roadmaps aligned with corporate objectives.
- Implementing an IT disaster recovery plan to ensure business continuity.
- Managing IT risk assessment and mitigation strategies.
- Monitoring IT projects and cybersecurity compliance.

To strengthen governance and ensure compliance with Personal Data Protection regulations, PLN has appointed a Data Protection Officer (DPO) within the Compliance Division. The DPO is tasked with overseeing the planning, implementation, and evaluation of activities related to data protection, as well as ensuring compliance with environmental regulations and licensing obligations.

Security Operations and Incident Response

PLN operates a 24/7 Security Operations Center (SOC), equipped with advanced cybersecurity monitoring tools. In 2024, the SOC successfully prevented around 2.2 thousand cyberattack attempts and resolved all high-severity security alerts, reinforcing PLN's cybersecurity defenses.

Additionally, PLN has collaborated with the National Cyber and Crypto Agency since 2019, which led to the establishment of Cyber Security Incident Response Teams (CSIRTs) within PLN Holding in 2022 and its sub-holdings in 2023. These CSIRTs are fully integrated with the National CSIRT, enabling coordinated, real-time responses to cyber threats. To further strengthen incident response capabilities, PLN conducts regular activities such as tabletop exercises, CSIRT training sessions, incident response workshops, and Cybersecurity Preparedness Drills.

PLN also performs regular internal and external cybersecurity audits to monitor ISO 27001 implementation to uphold cybersecurity best practices. Annual internal audits and surveillance assessments are conducted to maintain ISO 27001:2023 certification eligibility, with full recertification occurring every three years. As of the latest assessment, PLN achieved a cybersecurity maturity level of 3.33, as evaluated by external experts, demonstrating alignment with global IT governance standards and a continuous commitment to improving cybersecurity resilience.

Cybersecurity Awareness and Training

PLN places strong emphasis on cultivating a cybersecurity-aware culture across the organization by embedding cyber resilience into its Human Capital development programs. Key training initiatives include:

1. Cybersecurity Awareness Sessions
   Since 2010, PLN has conducted mandatory monthly cybersecurity awareness sessions through the Compliance Online System (COS). These sessions educate employees on common cyber threats such as phishing, malware, and ransomware, aiming to enhance awareness and responsiveness to cybersecurity risks.
2. Annual Cybersecurity Drills
   PLN conducts annual cybersecurity drills that simulate real-world cyberattack scenarios. These exercises are designed to test and strengthen the company's incident response capabilities.
3. Mandatory Cybersecurity Training
   In 2024, cybersecurity training was made a compulsory component of PLN's Human Capital Development Program. This training is delivered by the PLN Training and Education Center to ensure employees are equipped with up-to-date knowledge and best practices in cybersecurity.
4. Employee Certification
   Throughout 2024, PLN also provided certifications for 3 employees as Certified Ethical Hackers (CEH) and for 5 employees as Computer Hacking Forensic Investigators (CHFI).

Table 18 Impact of Cyber Security Awareness

Description	2024	2023	2022
Sample employees falling victim to phishing attack	4%	2%	4%

Data Protection and Compliance with Privacy Laws

In compliance with Indonesia's emerging privacy laws, PLN has implemented strict measures to protect customer data, including:

- Ensuring legal compliance in data processing.
- Preventing unauthorized disclosure of sensitive information.
- Strengthening data security controls to safeguard personal information.

By integrating robust cybersecurity frameworks, operational resilience strategies, and compliance with privacy regulations, PLN reinforces its commitment to secure and reliable digital infrastructure that protects both customers and corporate assets.

PLN also established a comprehensive strategic policy on personal data protection that serves as a guideline for managing personal data across all its business processes. This policy ensures that personal data is processed in a lawful, specific, and transparent manner, while upholding the rights, privacy, and security of Data Subjects. This policy governs the processing of personal data, including data handled by partners and subsidiaries acting as processors of personal data owned by PLN. All data processing activities are conducted responsibly, with clear communication to data subjects. Personal data is destroyed after the designated retention period, unless retention is otherwise required by applicable regulations.

To regulate the use of personal data by third parties, PLN has implemented the Standard Operating Procedure for the Implementation of Personal Data Protection. Under this procedure, any third party acting as a personal data processor, whether a subsidiary or external partner, must ensure secure data processing, return or delete the data upon service completion, and fully comply with contractual obligations and relevant personal data protection laws. The SOP also outlines provisions for data subject rights, including the ability to access, correct, delete, or request a copy of their personal data. PLN is committed to responding to such requests within three working days (3x24 hours) from the date of submission to ensure a timely response.

The strategic personal data protection policy applies across the entire PT PLN (Persero) environment and encompasses all the company's business processes. This policy governs the processing of personal data, including data handled by partners and subsidiaries acting as processors of personal data owned by PLN.

Procurement

PLN views the procurement of goods and services as a critical component of its sustainability strategy, ensuring a balance between business growth, environmental sustainability, and social responsibility. The Company collaborates with suppliers and contractors who prioritize sustainable practices and incorporate ESG principles into their operations. PLN's Green Procurement Policy and Social Policy for Suppliers and Contractors guide responsible sourcing, emphasizing energy efficiency, environmentally friendly raw materials, waste reduction, and carbon footprint minimization. The Company actively integrates renewable energy solutions, such as solar panels and wind turbines, while adopting low-emission vehicles and promoting efficient waste and water management. PLN is also conducting a Sustainability Supply Chain study aimed at establishing guidelines for systematic sustainability integration across procurement processes to further strengthen green procurement. In addition to environmental considerations, PLN assesses suppliers based on their social impact, ensuring compliance with ethical labor practices, OHS, and responsible business conduct. The CSMS ensures rigorous adherence to OHS standards, minimizing workplace risks and ensuring safe and fair working conditions.

Green Procurement Initiatives

PLN recognizes the environmental impact of its supply chain and is committed to reducing carbon emissions and resource consumption. The Company follows the Responsible and Sustainable Resource Utilization Principle, ensuring that purchased products and services:

- Prioritize energy efficiency and environmentally friendly raw materials.
- Minimize waste and emissions throughout their lifecycle.
- Integrate renewable energy solutions, such as solar panels and wind turbines.
- Utilize low-emission vehicles and promote efficient water and waste management.

PLN applies these green procurement principles across its Engineering, Procurement, and Construction (EPC) contracts and Main Distribution Material (MDU) and Main Transmission Material (MTU) contracts. Notably, 100% of PLN's EPC vendors are ISO 14001 certified, reflecting high environmental management standards. Additionally, a vendor survey from 2023 to mid-2024 indicated that 72 out of 106 manufacturer vendors (68%) are ISO 14001 certified, underscoring PLN's influence in fostering sustainability among its supply chain partners.

To further advance supply chain sustainability, PLN is conducting a comprehensive Sustainability Supply Chain study, aimed at developing guidelines for systematic green procurement practices. This initiative will provide clear strategies for integrating sustainability across every stage of the procurement process.

Supplier Social Assessments

PLN assesses suppliers' social impact to ensure that procurement decisions reflect ethical business practices and CSR. The Social Policy for Suppliers and Contractors ensures that suppliers:

- Uphold ethical labor practices.
- Comply with OHS regulations.
- Demonstrate environmental responsibility.

PLN also ensures all contracted security service providers adhere to ethical commitments. Every security service provider is required to comply with key principles including fairness and equality, business ethics, legal compliance, employee welfare, and occupational safety. Security service providers must ensure a safe working environment and are strictly prohibited from implementing any form of physical punishment that could harm, endanger, or violate human rights.

As part of this initiative, PLN implements the CSMS, which ensures suppliers:

- Identify and mitigate work-related risks.
- Enforce the use of Personal Protective Equipment.
- Provide OHS training to employees.
- Monitor working conditions to maintain a safe workplace.

By holding suppliers accountable for both environmental and social sustainability, PLN strengthens the integrity and resilience of its supply chain, ensuring compliance with global best practices.

Local Content or Domestic Products

PLN has established and prioritized the use of domestic products and services, through Director Regulation No. 02 of 2022 concerning the Strategic Policy on Guidelines for the Use of Domestic Products. Additionally, Director Regulation No. 018 of 2023 concerning the Strategic Policy on Goods and Services Procurement at PT PLN (Persero), includes derivative regulations. Together, these regulatory frameworks are designed to maximize the procurement of local products and services, strengthen national industry capabilities, and support Indonesia's economic growth through the empowerment of domestic suppliers and service providers.

Asset Management

PLN is committed to effective asset management to optimize its infrastructure, ensure operational efficiency, and enhance service reliability. Since 2021, the company has been implementing an ISO 55001-aligned Asset Management System, designed to enhance asset lifecycle planning, maintenance, and risk management. PLN is also integrating digital transformation, artificial intelligence, and predictive maintenance strategies into its asset management framework to enhance efficiency and reliability. By aligning asset investment planning with risk mitigation, PLN ensures long-term infrastructure sustainability while maintaining high service quality for electricity consumers.

Asset Management Strategy

PLN's asset management framework is designed to ensure the efficient operation, maintenance, and sustainability of its electricity infrastructure. The Company's asset management objectives are aligned with ISO 55001 standards, ensuring a systematic approach to asset lifecycle management.

Commitment to ISO 55001 Certification

Since 2021, PLN's Board of Directors has been committed to advancing asset management system development. The ISO 55001 framework is used to enhance PLN's asset management maturity and operational efficiency. Following an initial assessment in 2021, PLN identified 62 major and 10 minor non-conformities to ISO 55001:2014, with a maturity level of 21% (developing). PLN has since implemented corrective actions and is targeting ISO 55001 certification by 2026.

Asset Management Improvement Program (AMIP)

To bridge the compliance gap and enhance PLN's asset management capabilities, the company has implemented the Asset Management Improvement Program (AMIP). This initiative is structured into two key phases:

1. Building Solid Foundations
    - Development of asset management policies and objectives.
    - Strategic Asset Management Plan (SAMP) formulation.
    - Establishment of a Business Value Framework.
    - Implementation of investment prioritization assessment and maturity assessments.
2. Building Good Practices
    - Integration of asset-risk frameworks into decision-making.
    - Enhancement of data quality and asset information management.
    - Strengthening organizational capabilities to support asset lifecycle activities.

PLN has also issued several key policies and guidelines in 2024 to support asset management, including:

- Director's Decision No. 0053.P/DIR/2022 – Asset Management Policy.
- Director's Decision No. 0371.K/DIR/2022 – Asset Management Objectives.
- Director's Decision No. 0372.K/DIR/2022 – Asset Information Strategy.
- Director's Decision No. 0373.K/DIR/2022 – High-Level Asset Information Standard.

These initiatives ensure that PLN maintains high asset performance standards, reducing operational risks and enhancing long-term infrastructure sustainability.

Business Ethics

PLN is committed to preventing bribery and corruption through strong governance measures and ethical business practices. The Code of Conduct and Business Ethics serves as a guideline for ethical behavior, covering key principles such as conflict-of-interest management, anti-gratification policies, OHS, environmental compliance, financial integrity, corporate information protection, and stakeholder relations. In adherence to the 4 No's Principle: No Bribery, No Kickback, No Gift, and No Luxurious Hospitality. PLN personnel and partners are required to sign an Integrity Pact annually as a commitment to ethical conduct.

In the realm of political activities, PLN maintains strict neutrality and does not affiliate with or sponsor any political party. Donations made by the company are strictly for branding and corporate social responsibility purposes. While respecting the political rights of its employees, PLN enforces clear boundaries to maintain professionalism and neutrality, including restrictions on political involvement, prohibition of using company resources for political activities, and a ban on displaying political attributes in the workplace. Employees seeking political office are required to resign, and violations of these policies may result in disciplinary sanctions.

The Compliance Management Strategy plays a key role in mitigating compliance risks across PLN's business operations. This strategy focuses on assessment, prevention, detection, and response, ensuring adherence to business ethics and anti-corruption policies. To enhance awareness, PLN holds biannual business ethics training programs, along with weekly behavioral campaigns through its internal platforms (https://cos.pln.co.id and https://budaya.pln.co.id). Additionally, PLN has achieved SNI ISO 37001:2016 Anti-Bribery Management System certification, reinforcing its efforts in corruption prevention and detection.

Whistleblowing System and Compliance Oversight

PLN has established a Whistleblowing System (WBS) as part of its anti-corruption framework, in accordance with Implementing Regulation No. 0018 of 2024.This system enables employees, consumers, suppliers, and external stakeholders to report violations of ethics, illegal activities, and breaches of company regulations. Reports can be made through multiple confidential channels, including:

- Website: Compliance Online System
- PLN Mobile Application
- Phone/SMS/WhatsApp: 081-1986-1901
- Email: wbpln@pln.co.id
- Mail: Executive Vice President Compliance, PLN Headquarters, Jakarta

To ensure whistleblower protection, PLN has issued a Confidentiality and Whistleblower/Witness Protection Policy. This policy guarantees identity protection, non-retaliation measures, and secure case handling. Violations of confidentiality are considered disciplinary infractions, and reports are processed through the agreed-upon mechanisms in the Collective Labor Agreement, with sanctions corresponding to the severity of the violation.

Additionally, PLN conducts compliance awareness programs twice a year through its internal training platform (cos.pln.co.id). This mandatory training covers fraud prevention, integrity due diligence, anti-bribery policies, the whistleblowing system, and real-world case studies. By implementing these measures, PLN continues to strengthen its compliance culture, reinforce ethical business practices, and uphold transparency and accountability.

METRICS AND TARGETS

04

Environment

Climate Change Management

To support the achievement of Indonesia's NDC by 2030 and NZE target by 2060, PLN is actively implementing comprehensive decarbonization programs. One of the key strategies includes a significant expansion of new and renewable energy (NRE) power generation capacity, targeting up to 20.9 GW by 2030. In addition, PLN is pursuing a series of short-term strategic initiatives aimed at accelerating the energy transition and reducing emissions across its operational value chain.

Table 19 GHG Emissions Reduction Target (Million CO_2e)

Initiatives	2024		2023		2022
	Target	Realization	Target	Realization	Realization
Addition of NRE Generation	3.1	4.2	1.9	3.4	2.0
CCT	4.2	4.6	3.9	4.2	2.9
Conversion from Gas-Fired Power Plants to Combined Cycle Power Plants	0.97	2.1	0.55	1.1	0.57
Biomass Co-firing	2.6	1.8	0.65	1.1	0.60
Total GHG Emission Reduction	10.9	12.8	7.0	9.7	6.0

In 2024, PLN's decarbonization program successfully reduced GHG emissions by 12.8 million tons CO_2, surpassing the set target of 10.9 million tons CO_2 as shown in **Table 19**. The largest reduction was from Scope 1 which reached 165.66 tons CO_2. PLN will continue to enhance its GHG reduction initiatives with a target of 51 million tons CO_2e by 2025. This target is aligned with Indonesia's Enhanced Nationally Determined Contribution (E-NDC), using 2010 as the baseline year.

Carbon Emission and Intensity

Table 20 Total Emission based on Scope (Million Ton CO_2e)

Emissions	Activities	2024	2023	2022
SCOPE 1	Oil	7.7	6.4	6.0
	Gas	23.9	25.1	21.5
	Coal	123.7	117.2	119.0
	SF6	0.61	1.3	1.4
	Fugitive Emissions from Fire Extinguisher*	0.00	-	-
	Fugitive Emissions from AC in Vehicles*	0.02	-	-
	Fugitive Emissions from AC in Rooms*	0.00	-	-

Emissions	Activities	2024	2023	2022
	Fugitive Emissions from Refrigerators*	0.00	-	-
	Fugitive Emissions from Water Treatment Plants (WTP)*	0.05	-	-
	Fugitive Emissions from Wastewater Treatment Plants (WWTP)*	0.01	-	-
	Vehicle and Generator fuel	0.25	0.64	0.33
	TOTAL	**156.3**	**150.7**	**148.3**
SCOPE 2	Electricity energy losses	9.4	8.5	7.5
	Energy Imports*	3.8	-	-
	Office Electricity Consumption	0.40	0.29	0.63
	TOTAL	**13.6**	**8.8**	**8.2**
SCOPE 3	IPP Electric Energy Distributed to Customers	101.4	91.9	79.3
	Fuel Purchases	1.5	1.1	1.3
	Employees' Business Trips*	0.01	-	-
	Asset Purchases	0.42	0.93	0.35
	Purchase of Goods and Services	3.0	4.7	3.7
	Solid Waste Disposal*	0.45	-	-
	TOTAL	**106.7**	**98.6**	**84.6**
Total Emissions Scope 1, 2, and 3 Generation Activities		**266.1**	**249.1**	**233.4**
Total Emissions Scope 1, 2, and 3 Non-Generation Activities		**10.5**	**8.9**	**7.6**
Total Scope 1, 2 and 3 Emissions Generation and Non-Generation Activities		**276.6**	**258.0**	**241.0**

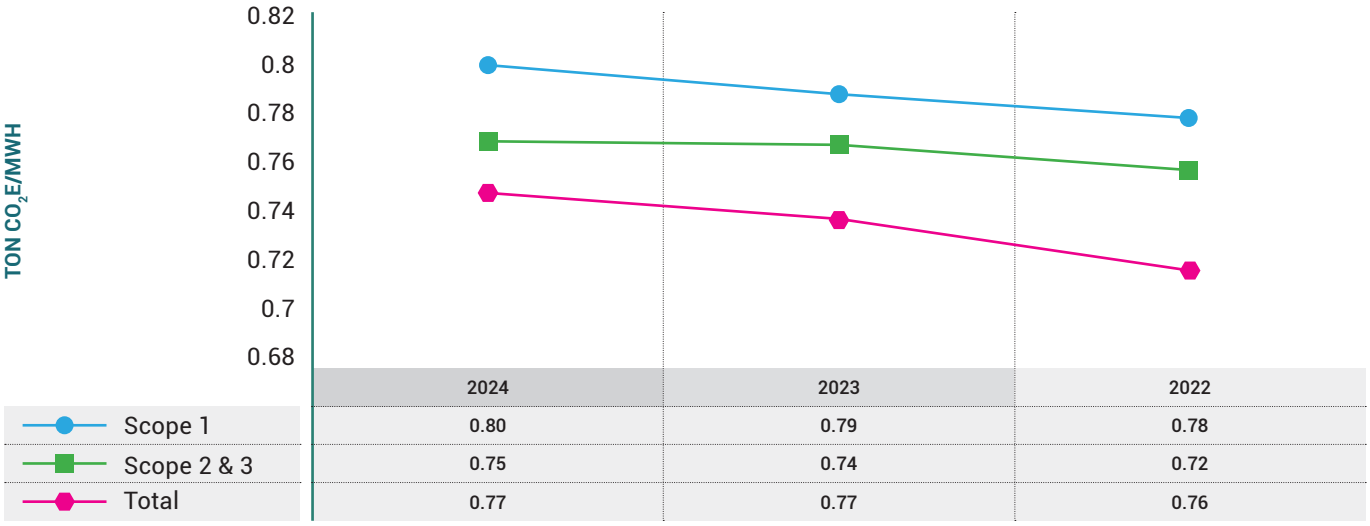
* Emissions from these activities were not inventorized in the years 2022 and 2023.

Emissions for the previous reporting years (2023 and 2022) have been recalculated to reflect updates to the methodology, including revised emission factors and approaches. In 2024, total GHG emissions from generation and non-generation activities in 2024 reached 276.56 million tons of CO_2e, an increase of 7.2% compared to the previous year's 258 million tons of CO_2e, as shown in **Table 20**. This increase was due to a 6.4% rise in electricity production. PLN has projected that GHG emissions in 2025 will amount to 358.2 million tons of CO_2e, despite an expected addition of 342 TWh in electricity production.

Table 21 Emission Intensity based on Electricity Production for Generation Activities

Carbon (Ton CO_2e/MWh)	2024		2023		2022
	Target	Realization	Target	Realization	Realization
Scope 1 Emission Intensity	N/A	0.80	N/A	0.79	0.78
Scope 2 and 3 Emission Intensity	N/A	0.75	N/A	0.74	0.72
Scope 1, 2, and 3 GHG Emission Intensity	0.80	0.77	0.86	0.77	0.76

In 2024, the GHG emission intensity for Scope 1, 2, and 3 from generation activities amounted to 0.774 tons CO_2e/MWh, a slightly increase from 0.770 tons CO_2e/MWh, as shown in **Table 22**, **Figure 7**, and **Figure 8**. In 2023 PLN's target for GHG emission intensity in 2025 is set at 0.79 tons CO_2e/MWh, in line with the RKAP projection for generation activities.



	2024	2023	2022
Scope 1	0.80	0.79	0.78
Scope 2 & 3	0.75	0.74	0.72
Total	0.77	0.77	0.76

Figure 7 GHG Emission Intensity

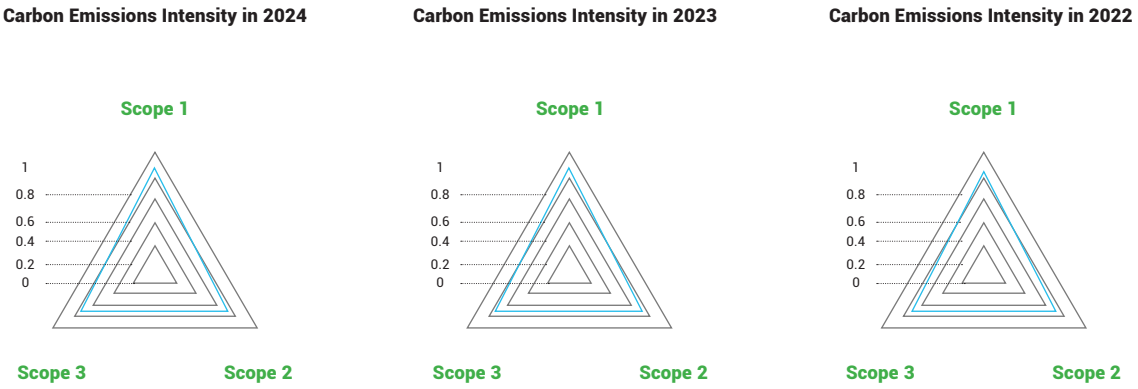


Figure 8 Carbon Emission Intensity History

The carbon intensity trend for Scope 1 and 2 shows improvement as shown in **Table 22**, with values consistently decreasing over the past three-year average. A negative value indicates that each year's carbon intensity has been lower than the past three-year average.

Table 22 Emission Intensity based on Revenue

Carbon	Units	2024	2023	2022
Total GHG Emission Scope 1 and 2	Million Ton CO_2e	164.8	157.3	154.2
Total Revenues	Billion USD	34.3	32.1	29.6
Carbon Intensity of Scope 1 and 2	Million Ton CO_2e/ USD	0.0048	0.0049	0.0052

Carbon Emission and Intensity of Generation

Carbon emission data for 2022 to 2024 are presented to provide a three-year overview to explain the intensity of emission by each type of powerplant, as shown in **Table 23**.

Table 23 Emission based on Generation

Power Plants	Units	2024	2023	2022
DPP	million Ton CO_2e	3.8	3.5	3.3
CFPP	million Ton CO_2e	125.1	118.6	119.4
GFPP	million Ton CO_2e	3.3	3.8	3.7
CCPP	million Ton CO_2e	18.1	18.0	15.5
GEPP	million Ton CO_2e	5.2	4.9	4.8

From 2022 to 2024, CFPPs consistently remained the largest source of carbon emissions, contributing 125.1 million tons CO_2e or 80% of total power generation emissions in 2024, despite a slight decline in 2023. Diesel Power Plants (DPPs) showed a steady increase over the three years, emitting 3.8 million tons CO_2e or 2.4% of the total in 2024. Gas-Fired Power Plants (GFPPs) experienced a decrease to 3.3 million tons CO_2e, likely due toapplied higher-tier methodologies resulted more accurate emission. Combined Cycle Power Plants (CCPPs) recorded a gradual increase, reaching 18.1 million tons CO_2e or 11.6% in 2024. Gas Engine Power Plants (GEPPs) reported a incline in emission, contributing 5.2 million tons CO_2e or 5.3%% in 2024.

Table 24 Carbon Intensity Generation based on Generation Electricity Production

Power Plants	Units	2024	2023	2022
DPP	Ton CO_2e/MWh	0.53	0.54	0.56
CFPP	Ton CO_2e/MWh	1.06	1.03	1.03
GFPP	Ton CO_2e/MWh	0.54	0.81	0.71
CCPP	Ton CO_2e/MWh	0.47	0.49	0.46
GEPP	Ton CO_2e/MWh	0.50	0.50	0.51

During this period, GFPPs showed the most notable increase in efficiency, with carbon intensity decreasing from 0.81 ton CO_2e/MWh in 2023 to 0.54 in 2024. Meanwhile, Diesel Power Plants DPPs slightly decrease compared to 2023. Carbon intensity for Coal-Fired Power Plants CFPPs remained relatively stable, rising marginally by 0.3% from 1.03 in 2022 to 1.06 in 2024. GEEPs shows maintained a stable intensity at 0.5 ton CO_2e/MWh in 2024. **Table 24** presents a comparative overview of carbon intensity from 2022 to 2024.

Table 25 Carbon Intensity Generation based on Revenue

Power Plants	Units	2024	2023	2022
DPP	thousand Ton CO_2e/million USD	0.11	0.11	0.11
CFPP	thousand Ton CO_2e/million USD	3.64	3.70	4.03
GFPP	thousand Ton CO_2e/million USD	0.10	0.12	0.12
CCPP	thousand Ton CO_2e/million USD	0.53	0.56	0.52
GEPP	thousand Ton CO_2e/million USD	0.15	0.15	0.16

Over the past three years, based on revenue, the carbon intensity trend in **Table 25** showed an improvement for most power plant types within PLN.

As of 2024, total GHG emissions from production reached 266.1 million tCO_2e, showing a increase compared to the previous year, as shown in **Table 26**. Despite this, electricity production increased 343.9 TWh in 2024 compared to 323.3 TWh in 2023.

GHG emission intensity improved slightly to 0.774 tCO_2e/MWh from 2023, reflecting enhanced energy efficiency. Emission growth for power generation increased to 6.82%, while non-power generation emissions showed a 7.18% increase. Additionally, emissions per gross revenue (Million Rupiah) dropped to 0.488, and per gross revenue (Million USD) to 0.000205, reflecting a 3.7% decrease from the previous year in terms of Million USD. These improvements indicate continued efforts in operational efficiency and emission reduction strategies across both production and non-production areas.

Table 26 Increasing Emission Compared to Increasing Production

Description	Units	2024	2023	2022
Electricity production including rental and purchase	TWh	343.9	323.3	308.0
kWh output growth	%	6.4	5.0	6.4
Total GHG emissions and breakdown production	Million tCO_2e	266.1	249.1	233.4
Non-production GHG emissions, Scope 1, 2, and 3	Million tCO_2e	10.5	8.9	7.6
Emission growth for power generation	%	6.8	6.7	1.2
Emission growth for non-power generation	%	7.2	7.0	0.6
GHG emission intensity	tCO_2e/MWh	0.774	0.770	0.758
Growth emission intensity	%	0.4	1.7	-4.9
Emission per gross revenue	tCO_2e/Million Rupiah	0.49	0.51	0.53
Emission growth per gross revenue	%	-4.5	-3.4	-15.6
Emission per gross revenue	tCO_2e/Million USD	7,752	7,769	7,887
Emission growth per gross revenue	%	-0.2	-1.5	-12.1

GHG Emissions Management, Monitoring, and Measurement

PLN has established a standardized procedure for GHG emission management, outlined in Director's Circular No. 0025 of 2022. This procedure defines organizational responsibilities, authority structures, and monitoring frameworks to ensure effective GHG management and evaluation.

To track performance, PLN conducts a biweekly Sustainability War Room (SWR), where the TEK Division reports absolute GHG emissions in metric tons as a KPI.

Additionally, PLN utilizes APPLE-GATRIK, a web-based platform for reporting emissions from generating units to the Directorate General of Electricity, Ministry of Energy and Mineral Resources. The reporting follows a structured verification process at both the PLN Parent Unit and Head Office levels, with regular audits ensuring compliance.

In 2024, PLN published an updated Climate-related Disclosure Report, reaffirming its commitment to climate risk management and sustainability.

Environmental Management

Environmental Management System

PLN is committed to achieving full environmental compliance through the implementation of an Environmental Management System (EMS) as part of its integrated management system roadmap. This initiative ensures alignment across all business units, covering power generation, transmission, distribution, and supporting activities. A key component of this strategy is obtaining ISO 14001:2015 certification across all PLN units, reinforcing its commitment to sustainable environmental practices.

Currently, 84.7% of PLN's parent units (39 out of 46) have achieved ISO 14001:2015 certification, while the remaining units continue to implement the system in preparation for future certification. PLN aims to have all units certified by 2025 and to maintain in all subsequent years. Certification ensures that PLN's operations meet international environmental standards, improving resource efficiency, pollution control, and overall sustainability performance.

Monitoring and Measurement of the Environmental Management System

To track and enhance environmental performance, PLN has deployed an internal application that provides real-time monitoring of EMS implementation across all business units. This system enables comprehensive oversight of compliance, operational improvements, and adherence to best practices, ensuring continuous progress toward PLN's sustainability goals.

Non-Hazardous Waste

PLN continues to enhance its solid waste management efforts across all generation units, focusing on reduction, reuse, and recycling initiatives, as shown in **Table 27**. In 2024, PLN generated 5.12 thousand tons of non-hazardous solid waste, marking a 0.3% increase from the previous year. Of this, 2.7% was reduced, 1.4% was reused, and 6.71% was recycled. However, these figures reflect a decline compared to 2023, when reduction, reuse, and recycling rates stood at 47.4%, 0.29%, and 36.9%, respectively. The remaining waste that has not been managed internally is transferred to third-party waste management services.

Table 27 PLN's Performance in Non-Hazardous Solid Waste Management

Parameter	Unit	2024	2023	2022
Non-Hazardous Solid Waste Generation	Thousand Ton	5.12	5.11	6.05
Non-Hazardous Solid Waste being Reduced	Thousand Ton	0.14	2.4	3.7
Non-Hazardous Solid Waste being Reused	Ton	70.64	14.61	20.36
Non-Hazardous Solid Waste being Recycled	Thousand Ton	0.34	1.9	3.1

Waste Generation by Type

PLN categorizes non-hazardous solid waste into seven types, and currently applies this classification at PLN Indonesia Power, PLN Nusantara Power, and the Tanjung Jati B Generation Parent Unit. In 2024, overall waste generation increased significantly, with the most notable increase being plastic waste, which saw a 38.3% rise compared to 2022, as shown in **Table 28**. Other waste types showed mixed trends — metal waste decreased by 52.7%, while glass waste dropped by 97.2%. Meanwhile, paper and organic waste types (food and other organics) experienced substantial increases, indicating a shift in waste composition that may reflect operational changes or improved segregation practices.

Table 28 PLN's Waste Generation by Type

Waste Generation by Type	Unit	2024	2023	2022
Plastic	Ton	490.7	77.0	354.7
Paper	Ton	419.8	59.7	201.6
Metal	Ton	66.1	70.7	139.9
Glass	Ton	0.3	7.3	9.0
Other	Ton	2,773.0	122.9	167.2
Food Waste	Ton	720.3	78.11	124.4
Other Organic Waste	Ton	753.2	283.6	746.6

Monitoring and Measurement of Non-Hazardous Solid Waste

PLN monitors its non-hazardous solid waste management through an internal application that tracks environmental performance metrics. This system provides monthly updates on solid waste generation, 3R program effectiveness, and reports on waste-related challenges encountered by PLN units. Through continuous monitoring and measurement, PLN aims to improve waste management efficiency and achieve higher sustainability performance.

PLN has set targets for managing non-hazardous (domestic) waste in 2028 as part of its environmental sustainability commitment, as shown in **Table 29**. These targets include a 5% reduction in domestic waste generation compared to the previous year, reuse of domestic waste by 0.7% based on the 2023 baseline, and recycling of 60% of total domestic waste generated.

Table 29 Progress on Non-Hazardous Waste Reduction Targets Compared to Previous Year

Description	Target 2024	2024	2023	2022
Additional non-hazardous (domestic) waste reduced	5% reduction in the amount of domestic waste generated compared to the prior year (2023) generation	2.72%	0.28 %	0.39%

In 2024, PLN generated 3.2 million tons of FABA, marking a 6.5% increase form previous year. Of these, PLN successfully utilized 2.3 million tons of FABA, representing 72.7% of the total FABA produced. This recycling effort reduced the accumulation of FABA waste from 6.6 million tons in 2023 to 7.7 million tons in 2024.

Table 30 PLN's Performance in FABA Waste Management

Parameter	Unit	2024	2023	2022
FABA Generation	Million Ton	3.2	3.0	3.1
FABA being utilized (Recycled)	Million Ton	2.3	3.7*	2.2
FABA being delivered to the third party	Million Ton	0	0	0.53
FABA being stored	Million Ton	0	0	0.29
Accumulated FABA being stored	Million Ton	7.7	6.6	7.3

*) The utilization of FABA in 2023 exceeded 100%, taking the balance of FABA stored in the Waste Collection Site in 2022

A key factor in this achievement was the contribution of the of the Suralaya 1-7 and Tanjung Jati B CFPPs, which effectively implemented recycling initiatives to manage FABA waste. These results underscore PLN's commitment to waste reduction, with a target of achieving at least a 65% recycling rate in 2024, and 85% recycling in 2028. PLN plans to sustain and expand these initiatives with annual reduction targets set through 2031, as shown in **Table 31**.

Table 31 FABA Management Targets 2022 - 2031

Target	Year									
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Reduction of FABA deposits in the ash yard	• Reduction of FABA deposits in the Sulmapana and Sumkal Regions by a minimum of 30% from the 2021 baseline. • Zero increase of FABA deposits in the ash yards of the JMB regions	• Reduction of FABA deposits in the Sulmapana and Sumkal Regions by a minimum of 60% from the 2021 baseline. • Zero increase of FABA deposits in the ash yards of the JMB regions	• Reduction FABA deposits in the Sulmapana and Sumkal Regions by 100% from the 2021 baseline. • Zero increase of FABA deposits in the ash yards of the JMB regions	Zero increase of FABA deposits in the ash yards of the JMB regions						
Increase in FABA utilization	Increase FABA utilization by a minimum of 55% from the 2021 baseline	Increase FABA utilization by a minimum of 60% from the 2021 baseline	Increase FABA utilization by a minimum of 65% from the 2021 baseline	Increase FABA utilization by a minimum of 70% from the 2021 baseline	Increase FABA utilization by a minimum of 75% from the 2021 baseline	Increase FABA utilization by a minimum of 80% from the 2021 baseline	Increase FABA utilization by a minimum of 85% from the 2021 baseline	Increase FABA utilization by a minimum of 90% from the 2021 baseline	Increase FABA utilization by a minimum of 95% from the 2021 baseline	Increase in FABA utilization by a minimum of 100% from the 2021 baseline
Reduction of FABA management costs	Reduce costs by a minimum of 15% from the 2021 baseline	Reduce costs by a minimum of 30% from the 2021 baseline	Reduce costs by a minimum of 45% from the 2021 baseline	Reduce costs by a minimum of 60% from the 2021 baseline	Reduce costs by a minimum of 75% from the 2021 baseline	Reduce costs by a minimum of 85% from the 2021 baseline.				

Hazardous Waste

In 2024, PLN managed hazardous waste including used oil, battery waste, gypsum waste and others. Detailed information on the types of hazardous waste can be found in the 2023 PLN Sustainability Report. Total hazardous waste generation in 2024 amounted to 0.48 million tons. PLN has set targets for managing hazardous waste in 2028 as part of its environmental sustainability commitment, which is 2.5% reduction in hazardous waste intensity against the 2023 baseline, as shown in **Table 32**.

Table 32 Progress on Hazardous Waste Reduction Targets

Description	Target 2028	Target 2027	Target 2026	Target 2025	Target 2024
Hazardous waste intensity reduction	A 2.5% reduction in hazardous waste intensity against the 2023 baseline	A 2.0% reduction in hazardous waste intensity against the 2023 baseline	A 1.5% reduction in hazardous waste intensity against the 2023 baseline	A 1.0% reduction in hazardous waste intensity against the 2023 baseline	A 0.5% reduction in hazardous waste intensity against the 2023 baseline

Table 33 PLN's Performance in Hazardous Waste Management

Parameter	Unit	2024	2023	2022
Hazardous Waste Generation	Thousand Ton	475.3	294.6	193.4
Hazardous Waste being managed (stored, utilized, processed, landfilled)	Thousand Ton	475.3	294.6	193.4
Hazardous waste being reduced	Thousand Ton	1.9	1.4	1.7
Hazardous waste being reused	Thousand Ton	0.028	0.005	0.007
Hazardous waste being recycled	Thousand Ton	248.1	219.3	165.8

In 2024, PLN effectively managed 52.6% of its hazardous waste through Reduce, Reuse, and Recycle (3R) initiatives, with the remaining 47.7% being stored, processed, or landfilled. Specifically, 0.4% of the waste was reduced, 0,01% reused, and 52.2% recycled. This reflects a decrease compared to 2023, where 0.48% was reduced, 0.0017% reused, and 74.4% recycled. This percentage decrease was due to a significant overall increase in total hazardous waste generation. Nevertheless, in absolute terms, the Company successfully enhanced its 3R efforts, managing 250.1 thousand tons of waste through 3R initiatives in 2024, a substantial rise from 220.7 thousand tons in 2023, as shown in **Table 33**. This substantial increase reflects a continued commitment to responsible and sustainable waste management.

Monitoring and Measurement of Hazardous Waste Management

PLN tracks hazardous waste management using an internal application, which provides monthly performance updates across all business units. Additionally, PLN reports environmental management performance through SIRAJA LIMBAH, an online platform provided by the MoEF for waste monitoring. PLN also submits hazardous waste manifests electronically through FESTRONIK, ensuring real-time reporting and traceability of hazardous waste from producers, transporters, recipients, and the MoEF.

Effluent/Water Discharge

In 2024 PLN set a target to maintain 100% effluent treatment while increasing the percentage of wastewater reuse across all business activities. Treated effluent was either discharged back into water bodies or reused in operational activities. PLN successfully treated 100% of its effluent, ensuring full compliance with environmental quality standards, as shown in **Table 34**. PLN also has set targets for managing effluent in 2028 as part of its environmental sustainability commitment, which is 15,100 million m^3 water discharge.

Table 34 Volume of Treated Effluent and Discharged Destination

Effluent Discharge by Destination	Unit	Target 2024	2024	2023	2022
Surface Water (River and Reservoir)	Million m^3	14,316.1	4,861.9	11,211.4	6,229.0
Ground Water	Million m^3		340.1	0.01	7,360.8
Sea Water	Million m^3		11,475.7	2,996.2	0.02
Handed over to third parties	Million m^3		0.00	0.00	0.000024
Total	Million m^3		16,677.7	14,207.7	13,590.7

Variations in water discharge volumes may be attributed to several factors, including:

1. Revisions to measurement methods or updates to water data reporting systems, resulting in significant changes to both historical and current data.
2. Implementation of water reuse and recycling initiatives (closed-loop systems) by certain units, as part of PLN's water efficiency programs outlined in the water-saving table.
3. Maintenance activities such as plant overhauls, which may lead to temporary shutdowns or shifts in electricity production, thereby affecting water discharge related to operations, maintenance, performance testing, or equipment preservation.

Monitoring and Measurement of Effluent Management

PLN systematically tracks effluent management through an internal application, where activities such as measurements, issue reporting, and compliance monitoring are documented on a monthly basis.

Non-GHG Air Emissions

PLN actively monitors non-GHG air emissions through the CEMS, which provides real-time measurements of emission parameters directly from power plant stacks, as shown in **Table 35** and **Table 36**. In 2024, PLN expanded its PROPER Beyond Compliance program, incorporating seven additional generation units to further strengthen environmental performance.

Table 35 Non-GHG Parameters

Power Plants	SOx	NOx	Particulate	NH_3	H_2S
Coal-fired	✓	✓	✓		
Gas	✓	✓	✓		
Combined Cycle (Steam and Gas)	✓	✓	✓		
Diesel	✓	✓	✓		
Geothermal	✓	✓	✓	✓	✓
Diesel and Gas	✓	✓	✓		

To mitigate emissions, PLN is installing more air pollution control devices, using low-NOx burners, and developing new emission-reduction technologies. As part of its long-term commitment, PLN has established non-GHG emission reduction targets for 2021–2030, with a phased approach to reducing SO_2, NO_2, and PM emissions. These efforts align with MoEF Regulation No. 15 of 2019, ensuring compliance with Indonesia's thermal power plant emission standards.

Table 36 Non-GHG Emissions

Parameter	Unit	2024	2023	2022
SOx	Ton/million USD	4.61	5.44	8.15
NOx	Ton/million USD	3.94	5.17	10.13
Particulate	Ton/million USD	3.21	2.35	1.32
NH_3	Ton/million USD	0.0049	0.0348	0.0002
H_2S	Ton/million USD	0.0885	0.1004	0.0007

Note:
Calculation of Non-GHG Emissions only included for units with PROPER Beyond Compliance

PLN has established a Non-GHG emissions reduction target for the 2024–2028 period, as outlined in its Non-GHG Emissions Reduction Roadmap. The target aims for a 25% reduction in NO_x, SO_2, and particulate matter (PM) emissions by 2028, using 2020 as the baseline year (measured in tons), as shown in **Table 37**.

Table 37 Progress on Non GHG Emissions Reduction Target

Parameter	Target 2028	2024	2023	2022
NOx emission	25% (2020 baseline)	30.64%	23.84%	15.77%
SO_2 emission		40.85%	27.64%	23.80%
PM emission		51.79%	67.16%	70.65%

Moving forward, PLN will enhance its internal emission monitoring application, which will function as a centralized management dashboard for tracking air and water quality across its operations.

Resource Management

Energy

PLN calculates total energy consumption by summing the energy used from primary sources, measured in Gigajoules (GJ), using conversion factors specific to each fuel type. In 2024, total energy usage from all sources reached 1.85 billion GJ, reflecting a 7.1% increase from 1.73 billion GJ in 2023, as shown in **Table 38** and **Table 39**. This rise was primarily driven by increased consumption of coal, natural gas, and biomass throughout the year.

Table 38 Volume of Energy Source Usage

Energy Sources and Types		Unit	2024	2023	2022
Non-Renewable Energy	Oil Fuel	Billion liter	2.9	2.4	2.3
	Coal	Million Ton	71.7	69.2	70.4
	Natural Gas	MMSCF	460.6	417.0	381.6
Renewable Energy	Biomass	Million Ton	1.62	0.99	0.59
	Biofuel	Kilo liter	991.0	848.5	718.8

Table 39 Energy Sources for Electricity Production

Value of Energy Used from Energy Sources for Electricity Production Million GigaJoule				
Energy Sources and Types		2024	2023	2022
Non-Renewable Energy Source (1)	Oil Fuel	110.6	91.5	87.4
	Coal	1,197.7	1,156.0	1,176.4
	Natural Gas	474.4	429.6	393.1
	Total 1	1,782.8	1,677.1	1,656.8
Renewable Energy (2)	Biomass	27.1	16.6	9.8
	Biofuel	37.7	32.2	7.3
	Total 2	64.8	48.8	37.1
Total Energy Usage (Total 1 + Total 2)		1,847.5	1,725.8	1,694.0

Total electricity production in 2024 reached 343,891 GWh, marking a 6.4% increase from 323,321 GWh in the previous year, as shown in **Table 40**. Non-renewable sources contributed approximately 87% of the total, while renewable energy accounted for 13.02% (44,717 GWh), slightly higher than 12.99% in 2023 (41,988 GWh). Nevertheless, PLN recorded a significant increase in the share of renewable energy within its overall energy mix. This achievement reflects the Company's ongoing commitment to supporting the global energy transition and contributing to climate change mitigation through the adoption of cleaner and more sustainable energy sources.

Table 40 Electricity Production (TWh)

Electricity Production				
Electricity Production		2024	2023	2022
NRE Electricity Generation (1)	Hydropower	21.5	19.9	22.4
	Geothermal Power	16.8	16.9	16.7
	Biofuel	3.5	3.0	2.5
	Other NRE	3.0	2.1	1.4
	Total 1	44.7	41.99	42.96
Non-NRE Electricity Generation (2)	Steam Power	228.4	216.8	205.3
	Diesel Power	10.1	8.6	8.3
	Steam Gas Power	60.7	56.0	51.4
	Total 2	299.17	281.33	265.04
Total Electricity Production (Total 1 + Total 2)		343.9	323.3	308.0

PLN plans to increase the share of renewable energy in its generation mix to 51.6% by 2030, equivalent to an additional 20.93 GW of capacity. In 2024, PLN successfully added 480 MW of new renewable energy capacity through the completion of various power plant projects. Furthermore, PLN has set an interim target to achieve 61 GW of new and renewable energy capacity by 2040.

Energy Intensity

Energy intensity measures the energy required per unit of electricity produced. In 2024, energy intensity increased by 0.3%, rising from 6,024.92 GJ/GWh in 2023 to 6,045.24 GJ/GWh, as shown in **Table 41**. This slight increase occurred despite efforts to enhance efficiency and was primarily influenced by the rise in coal usage, which grew by 2.6 million tons (from 69.22 million tons in 2023 to 71.72 million tons in 2024). However, PLN also increased biomass utilization significantly to 1.62 million tons, up from 0.99 million tons in 2023, reflecting continued commitment to transitioning toward cleaner energy sources.

Table 41 Energy Intensity

Description	Unit	2024	2023	2022
Total Energy Use (Other than Water and Geothermal Sources)	GJ	1,847,568,299	1,725,855,642	1,693,941,809
Electricity Production (Other than Water and Geothermal Sources)	GWh	305,623	286,453	268,971
Energy Intensity	GJ/GWh	6,045.24	6,024.92	6,297.87

Water

PLN actively monitors water management across its power plant units, tracking key metrics such as water withdrawal, consumption, intensity, and recycling efforts.

Water Withdrawal

In 2024, total water withdrawals reached 35.4 billion m³, with surface water contributing 45.25% and seawater accounting for 49.50%, as shown in **Table 42**. The high proportion of seawater use reflects the operational requirements of coastal power plants. Changes in water withdrawal data over time result from several key factors, including updates to measurement methods and reporting systems, the wider adoption of water reuse and recycling through closed-loop processes, and operational variations due to power plant maintenance. These factors have also contributed to fluctuations in electricity generation, which directly impact overall water usage.

Table 42 Volume of Water Withdrawn by Source

Water Sources	2024		2023		2022	
	Million m³	%	Million m³	%	Million m³	%
Water Withdrawn by Source						
Surface Water	16,033.06	45.25	11,332.11	28.27	27,210.36	69.72
Groundwater	1,859.30	5.25	0.152	0.0004	3.90	0.01
Sea Water	17,536.47	49.50	28,759.34	71.73	11,809.89	30.26
Rainwater	0.00	0.00	0.000167	0.00	0.02	0.00
PDAM (Third Party Water Provider)	0.02	0.00	0.02	0.00	4.08	0.01
Self-produced water	0	0.00	0	0.00	0.00	0.00
Total Water Withdrawn	35,428.85	100.00	40,091.62	100.00	39,028.06	100.00
Water Consumed	2,108.03		25,104.76		24,122.48	
Water Returned to Nature	16,677.70		14,207.61		13,590.66	

As part of its commitment to environmental sustainability, PLN has set a water management target of 42.8 billion m³ in water withdrawal by 2028. This increased water withdrawal is a consequence of the anticipated rise in electricity production.

Water Consumption

Total water consumption for 2024 amounted to 2.1 billion m³, representing 99.2% of total water withdrawn, as shown in **Table 43**. The remaining 16.7 million m³ was returned to nature, benefiting economic activities such as agriculture, fisheries, and tourism.

Table 43 Water Consumed by Source

Water Sources	2024		2023		2022	
	Million m³	%	Million m³	%	Million m³	%
Rain Water	0.00	0.00	0.00	0.00	0.02	0.00
Sea Water	15.63	0.74	16,187.71	64.48	6,869.63	28.48
Surface Water	2,090.21	99.16	8,916.97	35.52	17,245.30	71.49
Ground Water	2.17	0.10	0.06	0.00	3.45	0.01
PDAM	0.01	0.00	0.02	0.00	4.08	0.02
Water Usage	2,108.03	100.00	25,104.76	100.00	24,122.48	100.00

PLN also conducted a water stress analysis using WRI's Aqueduct Water Risk Atlas, identifying 17 units operating in high or extremely high-water stress areas. These units accounted for 3.4% of total water withdrawals, with only 0.0031% of this water being consumed. As part of its water resource management efforts, PLN has set a water consumption target of 26.7 billion m³ by 2028.

The decrease in overall water use was driven by several key factors:

a. Revisions to the water measurement methodology or updates to the water data reporting system, which resulted in significant changes to both historical and current data.
b. Implementation of water efficiency programs by operational units, including the adoption of reuse and recycling practices (closed-loop system), as reflected in the water savings table.
c. Certain units underwent maintenance (overhaul), resulting in temporary shutdowns or changes in electricity production, which in turn affected water consumption for operational activities, maintenance works, performance testing, or equipment preservation.

Water Intensity and Reduction Targets

In 2024, water intensity was 1.06 million m³ per million USD as shown in **Table 44**, reflecting a 17% decrease from 2023 due to efficiency improvements and revenue growth.

Table 44 Water Intensity (per million USD)

Parameter	Unit	2024	2023	2022
Water Intensity	Million m³/million USD	1.06	1.27	1.37
Freshwater Intensity	Million m³/million USD	0.54	0.36	1.37

PLN is currently conducting a study to establish a baseline for water use and consumption. This baseline will serve as the foundation for setting future water reduction targets. While PLN hasn't established formal targets for water intensity or consumption reduction, the company remains strongly committed to advancing water management practices. PLN continues to implement efficiency measures aimed at optimizing water use across its operations, reflecting a proactive approach to environmental responsibility and long-term sustainability.

Recycled Water Programs

In 2024, PLN successfully recycled 4.7 billion m³ of water across 42 power plants, a decrease from 8.0 billion m³ in 2023, as shown in **Table 45**. Despite the lower volume, the recycling rate improved significantly to 0.63%, up from 0.37% the previous year, reflecting more efficient and targeted water reuse practices. Additionally, the number of power plants implementing 3R water programs increased from 39 in 2023 to 42 in 2024. PLN has set a target to increase its water recycling rate by 2030 to a target of 8.1 billion m³ by 2028.

Table 45 Recycled Water Programs

Parameter	Unit	2024	2023	2022
Recycled Water	Billion m^3	4.7	8.0	6.0
	%	0.63	0.37	0.39
Generation Unit with 3R Water Program *)	Unit	42	39	33

*) The data is from the units that achieved the Gold and Green PROPER award.

Water Use Monitoring and Reporting

PLN employs real-time monitoring systems to track water withdrawals, consumption, and recycling efforts. Water withdrawals from each source are measured using flow meters and calibrated pumps, ensuring optimal water use for electricity production efficiency.

Since 2022, water consumption monitoring and 3R program reporting have been mandatory under PLN's Key Performance Index (KPI). To streamline tracking, PLN integrates its water management program into the ESG SWR monitoring dashboard, providing monthly updates across all business units and subsidiaries.

Nature Management

Biodiversity and Land Rehabilitation

Monitoring and Preservation Efforts

PLN actively monitors biodiversity within its operational areas, which covers 42 areas, particularly in generation units that have achieved Gold PROPER awards for environmental performance. The PROPER program, conducted by the Ministry of Environment and Forestry (MoEF), also serves as a verification and assessment platform for PLN's biodiversity-related initiatives. Efforts include habitat restoration, reforestation programs, and partnerships with conservation organizations to enhance species protection. PLN remains dedicated to improving biodiversity management by integrating safeguarding measures into its land rehabilitation strategies and enhancing collaboration with relevant stakeholders.

Tree Plantation and Environmental Restoration

PLN continues its environmental rehabilitation efforts by implementing tree plantation programs in designated areas surrounding its power plant units. These initiatives are part of the Company's commitment to restoring ecosystems impacted by power generation activities and ensuring long-term environmental sustainability.

Expansion of Rehabilitation Areas

In 2024, PLN significantly expanded its rehabilitation efforts, restoring 1,200 hectares of land, a substantial increase from previous years. This growth was largely attributed to the certification of new rehabilitation areas at the end of the year. The initiative also resulted in the planting of over 1 million trees across 1,200 hectares, further supporting PLN's goal of enhancing biodiversity and ecological balance. To reinforce this commitment, PLN has also set a target of achieving 540 hectares of revegetation coverage by 2028.

Reporting on Biodiversity and Land Rehabilitation

Biodiversity Program Monitoring

PLN monitors and reports its biodiversity programs every semester through environmental management performance reports. These reports provide detailed insights into monitoring activities, identification efforts, and conservation measures for flora and fauna at PLN's power plant units.

Land Rehabilitation and Reforestation Reporting

PLN documents its land rehabilitation and reforestation initiatives through a Quarterly Report for the Result-Based Lending Program in selected regional units. These reports outline the program structure, management approach, and implementation progress, including details on closure plans and site rehabilitation activities. This structured reporting ensures transparency and accountability in PLN's environmental restoration efforts.

Table 46 PLN's Performance in Land Rehabilitation

Parameter	Unit	2024	2023	2022
Land area rehabilitated **)	Thousand Ha	1.2	0.83	0.26
Number of trees planted*)	Million Trees	1.0	0.73	1.5
Tree planting area	Ha	1,200	120.74	258.87
Total CO_2 Emission Sequestration Potential***)	Million Ton CO_2	3.9	2.8	5.6

*) Data sources based on Summary Document of Environmental Management Performance (DRKPL)
**) Data sources based on Leasehold of forest area license (IPPKH) data
***) There is a restatement of data in 2023 and 2022 due to changes in the calculation method

SOCIAL

Community Relations

Community Development Implementation

Financial Impact and Beneficiaries

In 2024, PLN continued the successful implementation of the CID program, with a realization of IDR377.37 billion from an allocation of IDR400 billion, reaching 0.68 million beneficiaries. PLN has set a target of 0.85 million beneficiaries in 2028.

Key Pillars of the CID Program

The CID program is structured around four primary pillars:

- Social: Provides education, healthcare, and essential social services to support community well-being.
- Environmental: Engages in sustainability efforts, promoting environmental preservation and responsible resource management.
- Economic: Supports small businesses and entrepreneurs, fostering local economic growth and financial independence.
- Legal and Governance: Ensures all activities align with legal and regulatory requirements, reinforcing strong governance principles.

The CSR targets for the social and environmental pillars for 2028 are determined through trend analysis of historical data from previous years. As part of its PLN aims to achieve the following by 2028: the establishment of 105 hectares of mangrove plantations, the provision of 405 units of clean water and sanitation units, and the implementation of 125 empowerment sites for vulnerable and indigenous populations.

Program Outcomes

The CID program has contributed to notable improvements in community satisfaction and social impact:

- Community Satisfaction Index (CSI): Decreased from 89.61 in 2023 to 88.31 in 2024.
- Social Return on Investment (SROI): Improved from 2.71 in 2023 to 2.94 in 2024.

These results underscore the positive economic and social impact of PLN's community engagement initiatives.

Access to Basic Service

Core Business: Electrification Across Indonesia

PLN plays a crucial role in meeting the community's basic needs through both its core business (electricity supply) and non-core business (socio-economic development). By the end of 2024, PLN, in collaboration with key stakeholders, achieved 99.83% household electrification and 99.92% village coverage, reaching over 84.6 million households and 83.7 thousand areas nationwide, as shown in **Table 47**. This was made possible through grid expansion, renewable mini grids, and off-grid solar solutions, reflecting PLN's role in advancing inclusive energy access and climate-resilient infrastructure.

Table 47 Electrification Ratio

Indicator	Unit	2024	2023	2022
Power Plant Capacity in Our System	MW	75,936	72,976	69,039
Total Customers	Customer	92.8 million	89.2 million	85.6 million
National Electrification Ratio	%	99.83	99.79	99.63

PLN sets progressively increasing target for the electrification ratio, in alignment with Government Regulation Number 79/2014 regarding National Energy Policy. While the MEMR defines the official electrification ratio targets, PLN is responsible for monitoring and reporting annual progress. By 2028 the electrification ratio is targeted to reach 99.99% demonstrating PLN's continued commitment to universal energy access.

Non-Core Business: Socio-Economic Development

Through the PLN Peduli program, PLN actively engages in community empowerment initiatives that improve quality of life and drive economic development.

- Clean Water and Sanitation Initiatives: PLN implemented clean water and sanitation projects in 19 provinces across 158 locations, constructing 50 new spots for clean water facilities, benefiting over 26 thousand individuals, particularly in remote and underserved (3T) areas.
- Electrification for Agriculture: PLN expanded its agricultural electrification program, reaching over 300 thousand customers in 2024, a 122% increase from 247 thousand customers in 2023.
- Electrifying Marine Program: To reduce fossil fuel use at ports and curb air pollution, PLN increased its Electrifying Marine customers from 42.9 thousand customers in 2023 to 49.2 thousand in 2024.

Customer Eco-Efficiency Programmes

PLN is committed to promoting energy efficiency and environmental sustainability among its customers through Customer Eco-Efficiency Programs. These initiatives provide education, tools, and incentives to encourage responsible energy use and support eco-friendly practices. To enhance participation, PLN offers special rewards and incentive-based programs for customers who engage in sustainability efforts.

Key Customer Eco-Efficiency Initiatives

- Energy Efficiency Education: Provides customers with guidance on reducing energy consumption in homes and businesses.
- Energy-Efficient Appliance Programs: Offers discounts and incentives for adopting energy-efficient appliances and lighting.
- Energy Efficiency-Based Payment Systems: Implements dynamic tariff structures that reward customers for reducing electricity consumption.
- Community Environmental Initiatives: Engages customers in sustainability programs, including tree planting and recycling campaigns.
- Sustainable Transportation Promotion: Encourages the use of EVs and public transportation through incentive programs.
- Eco-Friendly Community Programs: Supports local environmental sustainability projects to foster community-wide engagement.

Occupational Health and Safety (OHS)

OHS Management System Performance

PLN continuously monitors and evaluates its OHS Management System to ensure workplace safety, minimize risks, and enhance overall health standards. Several key indicators are tracked to measure OHS performance and drive continuous improvement.

PLN's Health and Safety Division is responsible for setting and enforcing minimum safety standards across the PLN Group. Each operational unit also holds responsibility for developing and implementing health and safety programs tailored to their specific operational conditions, ensuring alignment with corporate standards while addressing local risks and needs.

Accident and Fatality Rate

In 2024, PLN recorded 24 workplace accidents involving both employees and contractors working on PLN-controlled projects. These incidents resulted in 6 contractor worker fatalities, as shown in **Table 48**.

Table 48 PLN's OHS Performance

OHS Performance	Unit	2024	2023	2022	Target 2028
Number of Accidents	Total cases	24	22	29	17
Employee Fatality	Total fatality	0	1	1	0
Contractor Fatality	Total fatality	6	14	9	0
Lost Time Injury Frequency Rate (LTIFR)	Rate	Data have not been calculated			0.119

PLN sets OHS targets that align with its ongoing efforts to promote OHS awareness and embed a strong safety culture across all employees and contractors. By 2028, PLN aims to reduce the number of workplace accidents to 21 cases, achieve zero fatalities among both employees and contractors, and maintain a Lost Time Injury Rate (LTIR) of 0.119.

OHS Maturity Level

PLN assesses the maturity level of its OHS practices to gauge the effectiveness of safety measures. By 2024, the OHS maturity level reached 4.47 on a scale of 5. This score reflects PLN's progress in six key action areas:

- Leadership & Management Commitment
- Audit, Assessment, and Inspection
- Hazard Identification, Assessment, and Risk Management
- Safety Training and Education
- Safety Campaign and Communication
- Incident Reporting

Each operational unit conducts a self-assessment of its Occupational Health and Safety (OHS) maturity level every three months. These assessments are then verified by the central K3L Division every six months. The OHS maturity level has shown consistent improvement over the years:
2024 = 4.47
2023 = 4.08
2022 = 3.98

Severity Rate

The severity rate, which measures the number of workdays lost due to workplace incidents, was 128.67 Lost Work Days per 1 Million Person Hours/Year in 2024.

ISO 45001:2018 Certification

By the end of 2024, 42 out of 46 PLN units (91%) had obtained ISO 45001:2018 certification, reflecting compliance with international safety standards. PLN aims to certify all parent units under ISO 45001:2018 by 2027 as part of its Integrated Management System goals.

Internal audits of the Company's OHS management are conducted annually and are the responsibility of each parent unit. In addition, external audits are carried out by an accredited certification body every three years.

Employee Medical Check-Ups

Annual medical check-ups are a key part of PLN's proactive health management strategy. In 2024, PLN conducted 37,062 medical check-ups for its employees, with the following results:

- 171 (0.5%) employees Fit for Work.
- 35,646 (96.1%) employees Fit with Medical Notes.
- 1,245 (3.4%) employees Temporarily Unfit.

CSMS Performance

Given PLN's extensive collaboration with vendors and contractors, ensuring that external partners align with PLN's OHS standards is a critical priority. As part of the Breakthrough Zero Accident Program, PLN launched initiatives to prevent and mitigate OHS risks associated with business relationships. One key initiative was the implementation of the Contractor Safety Management System (CSMS) in 2021, ensuring that all external partners adhere to PLN's safety requirements.

PLN had successfully incorporated CSMS clauses into 100% of bidding documents and contracts for all work conducted in proximity to PLN workplaces. By the end of 2024, a total of 5,026 partners had completed the CSMS prequalification process and were awarded the CSMS certification by PLN. Looking ahead, PLN has set a target of achieving 100% full-cycle CSMS implementation by 2025, reinforcing its commitment to a strong safety culture across all business partnerships.

Human Capital

Human Capital and Organization Capital Readiness

The effectiveness of HCR and OCR plays a crucial role in creating value within PLN's Human Capital Strategy. Strong performance in these areas ensures the successful implementation of strategic plans and human capital programs, driving organizational growth and workforce development.

In 2024, PLN's total training costs amounted to IDR1,042.7 billion, lower than the IDR1,157.9 billion spent in 2023. However, average training hours per employee increased by 0.07%, reaching 85.62 hours per employee, compared to 85.56 hours in 2023.

PLN continuously monitors HCR and OCR performance through the Human Talent Development (HTD) division, setting annual performance targets. From 2020 to 2024, the HCR and OCR performance consistently improved, exceeding the targets set each year. These improvements underscore PLN's commitment to enhancing employee competencies and organizational effectiveness.

Gender Equality, Disability, and Social Inclusion (GEDSI)

Employee Diversity Programme

Gender Equity

The increasing proportion of female employees in 2024 underscores PLN's commitment to gender equality by ensuring equal opportunities for all individuals to showcase their skills without discrimination. The percentage of female employees have steadily increased, reaching 21.1% in 2024, up from 20.9% in 2023, as shown in **Table 49**.

PLN is also dedicated to improving gender diversity in leadership, with consistent growth across all management levels, reinforcing PLN's commitment to gender balance in decision-making positions.

Table 49 Percentage of PLN's Female Employees

Description	2024 (%)	2023 (%)	2022 (%)
Percentage of Female Employees	21.1	20.9	19.8
Percentage of Women in Management Positions	16.2	15.2	14.7

PLN sets an increasing target for the proportion of women in management position. The percentage of women in management position is calculated by dividing the total women employees in management position by total employees in management position. Women in management positions are expected to make up 18.0% of all employees in management positions by 2028, with 414 women in management positions and 2,297 in total.

Inclusivity for Persons with Disabilities

PLN upholds its inclusive employment policies as outlined in Director's Circular No. 0056 of 2023, ensuring equal opportunities for individuals with disabilities. In 2024, PLN employed 37 individuals with disabilities, constituting 0.1% of its workforce. Employees with disabilities are placed in roles aligned with their abilities, ensuring they can perform effectively while maintaining high work quality.

Between 2024 and 2028 PLN aims to increase the number of employees with disabilities through recruitment efforts with a target employment of 73 employees with disabilities by 2028 in alignment with the 2% required employment ratio as mandated by Law Number 8/2016 Article 53.

Recruitment for Indigenous Communities from frontier, outermost, and underdeveloped regions (3T)

As part of its Respectful Workplace Policy, PLN conducts special recruitment programs for indigenous communities in its operational areas, particularly in frontier, outermost, and underdeveloped (3T) regions. In 2024, PLN did not conduct the recruitment for indigenous and 3T communities.

GOVERNANCE

Product Governance

PLN is dedicated to ensuring quality at every stage of its operations, as evidenced by its commitment to meeting international quality standards. By the end of 2024, 91% of PLN's business units (42 out of 46) successfully obtained ISO 9001:2015 certification, demonstrating PLN's continuous efforts to enhance quality management systems. This progress aligns with PLN's Integrated Management System target of achieving 100% certification by 2027.

Quality Monitoring System

To ensure the reliability and quality of electrical materials, PLN established Director's Regulation No. 0069 of 2016, which governs material quality standards, supports domestic product utilization, and supervises imported products not produced locally. PLN collaborates with domestic suppliers to meet Main Distribution Unit (MDU) and Main Transmission Unit (MTU) requirements, ensuring compliance with quality and reliability benchmarks.

PLN's certification body, PLN PUSERTIF, issues SPM Certificates for contractors using domestic manufacturing processes and SRM Certificates for those relying on overseas production. By 2024, PLN PUSERTIF has issued 1,918 SPM certificates to 125 contractors and 16 SRM certificates to 10 contractors, reinforcing PLN's commitment to standardized and high-quality materials in electrical infrastructure development.

Implementation and Certification of ISO 27001

PLN obtained ISO 27001:2013 certification in 2022, which remains valid until 2025, with annual surveillance audits ensuring compliance with ISO standards. The 2024 audit findings confirmed PLN's continued eligibility for certification. Looking ahead, PLN plans to upgrade to ISO 27001:2022 in 2025 to enhance cybersecurity resilience.

PLN is committed to expanding and progressively acquiring ISO 27001 certification across its operational units to strengthen information security management. In 2026, PLN plans to initiate ISO 27001 certification for its distribution unit, specifically UP2D Bali. This will be followed by certification efforts for the DCS system and Suralaya Power Plant in 2028, reflecting the company's continued focus on enhancing cybersecurity and operational resilience.

As part of its integrated cybersecurity system, PLN conducts external verification for IT maturity levels every two years. Using COBIT IT measurement criteria, PLN's IT maturity level was determined to be 3.33 in 2023 reflecting continuous improvements in cybersecurity governance and risk management. PLN will conduct external verifications in 2025 and 2027, with target scores of 3.28 and 3.75 respectively. To ensure continuous progress and address identified gaps between external assessments, PLN regularly carries out internal IT maturity self-assessments as part of its ongoing improvement efforts.

Transmission Loss Rate

PLN prioritizes efficiency and reliability in its electrical transmission system to ensure high-quality service for customers. Two key performance indicators used to monitor system reliability are System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI). SAIDI measures the average duration of power outages over a given period, while SAIFI tracks the frequency of outages experienced by customers. SAIDI and SAIFI data are shown in **Table 50**.

To maintain and improve system reliability, PLN's Strategic Distribution Planning Division continuously monitors SAIDI and SAIFI data. This information is regularly reported to the BoD via the ESG SWR Dashboard, an integrated platform that facilitates the collection, analysis, and reporting of ESG performance data.

Table 50 Targets and Achievement of SAIDI and SAIFI

Product Responsibility	2024		2023		2022	
	Target	Achievement	Target	Achievement	Target	Achievement
SAIDI (Minute/Customer)	400	320.24	530.08	338.13	756	463.20
SAIFI (Event/Customer)	5	3.23	6.60	4.27	8.30	5.62

PLN sets progressively decreasing targets for SAIDI and SAIFI, in alignment with the targets outlined in the RJPP 2024-2028. These targets are established based on PLN's proposals to the Directorate General of Electricity, with customer impact serving as a key consideration in the calculations. By 2028, PLN aims to achieve a SAIDI score of 247 minutes per customer and a SAIFI score of 2.93 events per customer.

Vendor Evaluation

PLN conducts vendor evaluations based on contractual performance monitoring, ensuring suppliers meet the company's operational and quality standards. The corporate-level evaluation is managed by PLN, with contract users or user representatives responsible for assessing contractual performance and ratings, as outlined in the applicable procurement regulations.

Currently, Enterprise Resource Planning (ERP) system capabilities support data acquisition from both contract datasets and contractual performance datasets. This process is integrated with Supply Chain Management Marketplace Application data and manual data collection methods.

To enhance supplier accountability and transparency, PLN's Vendor Management Department regularly publishes vendor performance evaluation reports, ensuring continuous assessment and improvement of supplier contributions to PLN's operations.

The Vendor Management department has published vendor performance evaluation report as shown in **Table 51**.

Table 51 PLN's Vendor Performance Evaluation

No	Cluster	Contract Quantity	Organizational Involvement	Vendor Quantity
1	Contractual Performance Evaluation from KHS Contracts for Lubricants Management - PLN Headquarters (Period Semester I & II 2024)	73 detailed contracts	15 PLN Units	29 Distributors
2	Contractual Performance Evaluation of Goods/ Services Providers – EPC Cluster and Non-KHS Procurement (Period Semester I & II 2024)	1,984 EPC contract datasets	23 PLN Units	394 contracted business entities
3	Contractual Performance Evaluation of Goods/ Services Providers (Period Semester I & II 2024)	298 contracts and 6,297 detailed contracts	1 PLN Headquarters	111 companies

Business Ethics

Compliance Management System Implementation

PLN evaluates the maturity level of its compliance management system on a six-level scale, ranging from Level 0 (initial stage) to Level 5 (highest maturity). This assessment is based on quantitative and qualitative criteria fulfillment, ensuring a structured approach to compliance improvement.

In 2024, PLN achieved a compliance maturity level of 4.64. This progress reflects PLN's commitment to continuous enhancement of compliance standards and operational efficiency. Achieving this level demonstrates a robust management framework and well-established operational processes.

To further strengthen compliance, PLN has implemented mandatory Integrity Awareness e-learning through its Compliance Online System. This initiative aims to enhance employees' understanding and commitment to integrity and ethical business conduct.

The completion rates for PLN's Integrity Awareness e-learning sessions have consistently remained high, reaching 98.16% in the second half of 2024. The completion rates for the Awareness Integrity e-learning sessions are addressed in **Table 52**.

Table 52 Awareness Integrity Completion Rate

Awareness Integrity Completion Rate	2024	2023	2022
1st Semester (%)	97.62	94.98	98.20
2nd Semester (%)	98.16	97.14	98.72

The structured e-learning curriculum covers critical compliance topics, equipping PLN personnel with the knowledge and tools needed to navigate ethical challenges and maintain the Company's high governance standards.

FUTURE PLAN

05

Future Plan

PLN is committed to advancing the quality and relevance of its ESG disclosures through a future-focused approach that prioritizes investor-oriented reporting, strengthened risk analysis, and regulatory alignment. To meet growing investor expectations, future disclosures will emphasize financially material ESG issues, particularly those impacting long-term value creation and climate-related risks, with alignment to global frameworks such as IFRS, CDP, and ISSB. Risk analysis will be enhanced through quantitative impact assessments, scenario analysis, and integration with the corporate risk governance framework to ensure consistency in risk identification and mitigation across the organization. In parallel, PLN is preparing for the adoption of Indonesia's Sustainability Reporting Standards (PSPK 1 and PSPK 2) by conducting gap analyses, enhancing internal systems, and building reporting capacity to ensure full compliance and elevate the credibility, comparability, and accountability of its sustainability reporting in line with emerging national and international standards. As part of this process, PLN will also strengthen its Key Performance Indicators (KPI's) and corporate targets to ensure they reflect evolving ESG priorities, support measurable progress, and drive alignment across business functions with long-term sustainability objectives.

ATTACHMENT

06

Attachment

IFRS S1 Alignment

The IFRS S1 Report 2024 reflects PLN's continued progress in aligning with international sustainability disclosure standards. Building on the foundation established in 2023, this report demonstrates enhanced adherence to the IFRS S1 Standard, reinforcing our commitment to transparent and accountable sustainability reporting. PLN will continue to strengthen its disclosure practices in pursuit of global best practices and long-term value creation.

Main Elements	IFRS S1 Sustainability-related Disclosure	Report Section
Governance	The governance processes, controls and procedures to monitor and manage sustainability-related risks and opportunities.	Sub Section GOVERNANCE on each Chapter
Strategy	The approach to manage sustainability-related risks and opportunities.	Sub Section STRATEGY on each Chapter
Metric and Targets	The performance in relation to sustainability-related risks and opportunities, including progress towards any targets to meet by law or regulation.	Sub Section METRICS & TARGETS on each Chapter
Risk Management	The processes to identify, assess, prioritise and monitor sustainability-related risks and opportunities.	Sub Section RISK MANAGEMENT on each Chapter

International Financial Reporting Standards (IFRS) S2 Climate-related Disclosure Alignment

Theme	Recommended Disclosure	PLN Report	Report Sections
Governance	a) Describe the governance body for oversight of climate-related risks and opportunities	IFRS S1	Sustainability-Related Governance
	b) Describe management's role in the governance processes, controls and procedures used to monitor, manage and oversee climate-related risks and opportunities	IFRS S1	Sustainability-Related Governance

Theme	Recommended Disclosure	PLN Report	Report Sections
Strategy	a) Describe the climate-related risks and opportunities the organisation has identifies over the short, medium, and long term	IFRS S1	Climate Change Management
	b) Describe business model and value chain based on climate-related risks and opportunities	IFRS S1	Risk Management – Risks and Opportunities
	c) Describe strategy and decision-making based on how the entity responds to climate-related risks and opportunities	IFRS S1	Risk Management – Risks and Opportunities
	d) Describe financial position, financial performance, and cash flows over the short, medium, and long term (anticipated financial effects of climate -related risks and opportunities	-	We do not disclose in this report
	e) Describe the entity climate resilience strategy, how and when the climate-related scenario analysis was carried out	IFRS S1	Climate Change Management – Strategy
Risk Management	a) Describe the process and related policies uses to identify, assess, priorities, and monitor climate-related risks	IFRS S1	Climate Change Management – Governance
	b) Describe the processes the entity uses to identify, assess, prioritise, and monitor climate-related opportunities	IFRS S1	Climate Change Management – Governance
	c) Describe how the processes for identifying, assessing, prioritising, and monitoring climate-related risks are integrated into organisation's overall risk management	IFRS S1	Risk Management
Metric & Targets	a) Disclose about information relevant to the cross-industry metric categories (greenhouse gas (GHG), climate-related transition and physical risks and opportunities, capital deployment, internal carbon prices, and remuneration)	IFRS S1	Climate Change Management – Metrics & Targets
	b) Disclose industry-based metrics that are associated with the particular business models, activities, or other common features that characterise participation in and industry	-	We do not disclose in this report
	c) Disclose targets set by the entity including metrics uses by the management, target required to meet the regulation, mitigate, or adapt to climate-related risks and opportunities	IFRS S1	Climate Change Management – Metrics & Targets

Taskforce on Nature-related Financial Disclosures (TNFD) Alignment

Theme	Recommended Disclosure	Report Sections
Governance	Describe the board's oversight of nature –related dependencies, impacts, risks and opportunities	Nature Management - Governance
	Describe management's role in assessing and managing nature-related dependencies, impacts, risks, and opportunities	
	Describe the organization's human right policies and engagement activities, and oversight by the board and management, with respect to Indigenous Peoples, Local Communities, affected and other stakeholders, in the organization's assessment of, and response to nature-related dependencies, impacts, risks, and opportunities	Nature Management - Social
Strategy	Describe the nature-related dependencies, impacts, risks and opportunities the organization has identified over the short, medium, and long term	Nature Management - Strategy
	Describe the effect nature-related dependencies, impacts, risks and opportunities have had on the organization's business model, value chain, strategy and financial planning, as well as any transition plans or analysis in place	Nature Management – Risk Management
	Describe the resilience of the organization's strategy to nature-related risks and opportunities, taking into consideration different scenarios	Nature Management - Strategy
	Disclose the locations of assets and/or activities in the organization's direct operations and, where possible, upstream and downstream value chains that meet the criteria for priority locations	
	Describe how processes for identifying, assessing, prioritizing and monitoring nature -related risks are integrated into and inform the organizations overall risk management processes.	Risk Management
Risk Management	Describe the organizations processes for identifying, assessing and prioritizing nature-related dependencies, impacts, risks and opportunities in its direct operations	Nature Management - Strategy
	Describe the organisations processes for identifying, assessing and prioritising nature-related dependencies, impacts, risks and opportunities in its upstream and downstream value chains	
	Describe the organizations processes for managing nature-related dependencies, impacts, risks and opportunities	
	Describe how processes for identifying, assessing, prioritizing and monitoring nature-related risks are integrated into and inform the organizations overall risk management processes.	Risk Management
Metrics and Targets	Disclose the metrics used by the organization to assess and manage material nature-related risks and opportunities in line with its strategy and risk management process	Nature Management- Metrics and Target
	Disclose the metrics used by the organization to assess and manage dependencies and impacts on nature.	
	Describe the targets and goals used by the organization to manage nature-related dependencies, impacts, risks and opportunities and its performance against these.	

Sustainability Accounting Standards Board (SASB) Alignment

Topic	Metric	Category	Unit Of Measure	Code	Report Section
Greenhouse Gas Emissions & Energy Resource Planning	(1) Gross global Scope 1 emissions, percentage covered under (2) emissions-limiting regulations and (3) emissions-reporting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	IF-EU-110a.1	Climate Change Management – Metric & Targets
	Greenhouse gas (GHG) emissions associated with power deliveries	Quantitative	Metric tons (t) CO_2 -e	IF-EU-110a.2	We do not disclose in this report
	Discussion of long- and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	IF-EU-110a.3	Climate Change Management – Strategy – GHG Reduction Program
Air Quality	Air emissions of the following pollutants: (1) NOx (excluding N_2O), (2) SOx,(3) PM_{10}, (4) lead (Pb), and (5) mercury (Hg); percentage of each in or near areas of dense population	Quantitative	Metric-tons (t), Percentage (%)	IF-EU-120a.1	Environmental Management – Metric & Targets – Non GHG Air Emission
Water Management	(1) Total water withdrawn, (2) total water consumed; percentage of each in regions with High or Extremely High Baseline Water Stress	Quantitative	Thousand cubic meters (m^3), Percentage (%)	IF-EU-140a.1	Resource Management – Metric & Targets - Water
	Number of incidents of non-compliance associated with water quality permits, standards and regulations	Quantitative	Number	IF-EU-140a.2	We do not disclose in this report
	Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	IF-EU-140a.3	Resource Management – Risk Management
Coal Ash Management	(1) Amount of coal combustion residuals (CCR) generated, (2) percentage recycled	Quantitative	Metric-tons (t), Percentage (%)	IF-EU-150a.1	Information not disclosed in this report
	Description of coal combustion products (CCPs) management policies and procedures for active and inactive operations	Discussion and Analysis	n/a	IF-EU-150a.3	Information not disclosed in this report
Energy Affordability	Average retail electric rate for (1) residential, (2) commercial, and (3) industrial customers	Quantitative	Rate	IF-EU-240a.1	Information not disclosed in this report
	(1) Number of residential customer electric disconnections for non-payment, (2) percentage reconnected within 30 days	Quantitative	Number, Percentage (%)	IF-EU-240a.3	Information not disclosed in this report
	Discussion of impact of external factors on customer affordability of electricity, including the economic conditions of the service territory	Discussion and Analysis	n/a	IF-EU-240a.4	Information not disclosed in this report

Topic	Metric	Category	Unit Of Measure	Code	Report Section
Workforce Health & Safety	(1) Total recordable incident rate (TRIR), (2) fatality rate, and (3) near miss frequency rate (NMFR)	Quantitative	Rate	IF-EU-320a.1	Occupational Health & Safety – Accident and Fatality Rate
End-Use Efficiency & Demand	Percentage of electric load served by smart grid technology	Quantitative	Percentage (%) by megawatt hours (MWh)	IF-EU-420a.2	Information not disclosed in this report
	Customer electricity savings from efficiency measures, by market	Quantitative	Megawatt hours (MWh)	IF-EU-420a.3	Information not disclosed in this report
Nuclear Safety & Emergency Management	Total number of nuclear power units, broken down by results of most recent independent safety review	Quantitative	Number	IF-EU-540a.1	Not relevant
	Description of efforts to manage nuclear safety and emergency preparedness	Discussion and Analysis	n/a	IF-EU-540a.2	Not relevant
Grid Resiliency	Number of incidents of non-compliance with physical or cybersecurity standards or regulations	Quantitative	Number	IF-EU-550a.1	Product Governance – Strategy - Cybersecurity Program
	(1) System Average Interruption Duration Index (SAIDI), (2) System Average Interruption Frequency Index (SAIFI), and (3) Customer Average Interruption Duration Index (CAIDI), inclusive of major event days4	Quantitative	Minutes, Number	IF-EU-550a.2	Product Governance

Activity Metric	Category	Unit Of Measure	Code	Report Section
Number of: (1) residential, (2) commercial, and (3) industrial customers served	Quantitative	Number	IF-EU-000.A	Environment – Climate Change Management
Total electricity delivered to: (1) residential, (2) commercial, (3) industrial, (4) all other retail customers, and (5) wholesale customers	Quantitative	Megawatt hours (MWh)	IF-EU-000.B	Information not disclosed in this report
Length of transmission and distribution lines (6)	Quantitative	Kilometers (km)	IF-EU-000.C	Information not disclosed in this report
Total electricity generated, percentage by major energy source, percentage in regulated markets	Quantitative	TWh	IF-EU-000.D	Resource Management – Energy
Total wholesale electricity purchased (8)	Quantitative	TWh	IF-EU-000.E	Increasing Emissions Compared to Increasing Production

Sustainable Development Goals (SDGs) Alignment

Topic	Aspects	Support SDGs Indicators
Climate Change Management	GHG Reduction Programme	13.2.2 Total greenhouse gas emissions per year
Climate Change Management	GHG Reduction Target	13.2.2.(a) Potential reduction in greenhouse gas emissions
Climate Change Management	Carbon Emission and Intensity	13.2.2.(b) Potential reduction in greenhouse gas emission intensity
Climate Change Management	Scope of GHG Reporting and GHG Emission Management Monitoring & Measurement	13.2.1 Implementation of greenhouse gas (GHG) inventory, as well as monitoring, reporting, and verification of GHG emissions reported in the Biennial Update Report (BUR) and National Communications.
Environmental Management	Environmental Management System	12.6.1.(a) Number of companies with SNI ISO 14001 certification
Environmental Management	Non-Hazardous Waste Management	11.6.1.(b) Percentage of national waste managed 12.5.1.(a) Amount of recycled waste.
Environmental Management	Hazardous Waste Management	12.4.2 (a) Hazardous waste generated per capita; and (b) Proportion of hazardous waste treated/managed
Environmental Management	Effluent Management	6.3.1.(a) Percentage of industrial wastewater safely treated
Environmental Management	Non-GHG Air Emission Management	11.6.2.(a) Annual average concentration of PM10 11.6.2.(b) Air Quality Index
Resource Management	New Renewable Energy Programs	7.2.1 Renewable energy mix. 7.3.1 Primary energy intensity. 7.b.1 Installed Capacity of Renewable Energy Power Plants (in watts per capita)
Resource Management	Energy Efficiency	12.1.1 Plan and implementation of the Strategy for Achieving Sustainable Consumption and Production Patterns 12.a.1 Installed Capacity of Renewable Energy Power Plants (in watts per capita)
Resource Management	Water management programs	6.4.1 Change in water use efficiency over time
Resource Management	Water Risk Management	6.4.2.(a) Proportion of surface water withdrawal against availability 6.4.2.(b) Proportion of groundwater withdrawal against availability 6.5.1 Degree of integrated water resources management (0-100)
Nature Management	Biodiversity Identification & Management	15.9.1.(a) Biodiversity utilization Aichi Biodiversity Target 2 from the Strategic Plan. 15.5.1 Red List Index
Nature Management	Biodiversity and Land Rehabilitation	15.2.1 Progress towards sustainable forest management 15.3.1 Proportion of degraded land
Community Relations	Community Development & Community Involvement Program	8.3.1 Proportion of informal employment, by sector and gender 8.3.1.(a) Percentage of MSMEs (Micro, Small, and Medium Enterprises) with access to financial services 12.8.1.(a) Number of formal education units and community organizations focused on environmental awareness

Topic	Aspects	Support SDGs Indicators
Community Relations	Emergency Response Program	8.8.1 Frequency rates of fatal and non-fatal workplace accidents, by gender, sector, and migrant status 8.8.1.(a) Number of companies implementing occupational health and safety standards 13.1.2 Plan and implementation of national disaster risk reduction strategy aligned with the Sendai Framework for Disaster Risk Reduction 2015-2030
Community Relations	Access to Basic Service	1.4.1 Percentage of population living in households with access to basic services. 6.1.1* Percentage of households using safely managed drinking water services 7.b.1 Installed capacity of renewable energy power plants (in watts per capita)
Community Relations	Customer Eco-Efficiency Program	12.1.1 Plan and implementation of the Strategy for Achieving Sustainable Consumption and Production Patterns 12.8.1.(a) Number of formal education units and community organizations focused on environmental awareness 17.17.1 Number of commitments for public-private partnerships for infrastructure (in US dollars) 17.17.1.(b) Number of projects offered for implementation under the Government and Business Entity Cooperation scheme.
OHS	Contractor Safety Management System (CSMS)	8.8.1 Frequency rates of fatal and non-fatal workplace accidents, by gender, sector, and migrant status 8.8.1.(a) Number of companies implementing occupational health and safety standards 12.7.1 Degree of public procurement policy and implementation of action plans.
OHS	Maturity Level of OHS Management	8.8.1 Frequency rates of fatal and non-fatal workplace accidents, by gender, sector, and migrant status 8.8.1.(a) Number of companies implementing occupational health and safety standards
Human Capital Management	Labour Rights	5.1.1 Availability of legal frameworks that promote, establish, and monitor gender equality and the elimination of discrimination based on gender 8.8.2 Improvement in compliance with workers' rights (freedom of association and collective bargaining) based on ILO textual sources and relevant national legislation
Human Capital Management	Human Capital and Organization Capital Readiness (HCR & OCR)	8.5.1 Average hourly wage of workers 8.b.1 Existence of a national strategy for youth employment that is developed and operational as a specific strategy or as part of the national employment strategy 9.5.2.(a) Proportion of human resources in science and technology with a Doctorate (PhD)
GEDSI	Diversity Programs	16.7.2.(c) Equality Index
GEDSI	Srikandi Programs & Women Talent Retention	5.1.1 Availability of legal frameworks that promote, establish, and monitor gender equality and the elimination of discrimination based on gender 5.5.2 Proportion of women in managerial positions
Product Governance	Cybersecurity	7.1.1 Electrification ratio 7.1.1.(a) Electricity consumption per capita

Topic	Aspects	Support SDGs Indicators
Product Governance	Procurement	12.1.1 Plan and implementation of the Strategy for Achieving Sustainable Consumption and Production Patterns 12.7.1 Degree of public procurement policy and implementation of action plans
Product Governance	Asset Management	7.1.1 Electrification ratio 7.1.1.(a) Electricity consumption per capita
Product Governance	Quality Monitoring System	7.1.1 Electrification ratio 7.1.1.(a) Electricity consumption per capita
Product Governance	Transmission Loss Rate	7.1.1 Electrification ratio 7.1.1.(a) Electricity consumption per capita
Business Ethics	Business Ethics	16.5.1.(a) Anti-Corruption Behavior Index

Danantara Indonesia

PLN

Sustainability-Related Financial Disclosure