



LAMPIRAN

Lampiran 1: Gambaran Umum Obyek Penelitian

No	Nama Perusahaan	Sumber	
		Climate reporting	Annual Reporting
1	Shell	https://reportings.shell.co	https://reportings.shell.com/annual-
2	Chevron	https://www.chevron.co	https://www.chevron.com/-
3	TAQA	https://www.taqa.com/su	https://www.taqa.com/announcement
4	PetroChina	http://www.petrochina.co	http://www.petrochina.com.cn/ptr/nd
5	British	https://www.bp.com/cont	https://www.bp.com/content/dam/bp/
6	Bank of	https://www.bochk.com/e	https://www.bochk.com/en/aboutus/
7	JPMorgan	https://www.jpmorganch	https://www.jpmorganchase.com/con
8	Mitsubishi	https://www.mufg.jp/dam	https://www.mufg.jp/dam/csr/reporti
9	BNP	https://docfinder.bnppari	https://invest.bnpparibas/en/documen
10	DBS Bank	https://www.dbs.com/sus	https://www.dbs.com/investors/finan

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Lampiran 2: Hasil Penilaian *Climate Reporting Disclosure* Atas Rekomendasi TCFD Metode Kuantitatif

Tahun		Rekomendasi Task Force on Climate Related Financial Disclosure												Hak cipta milik BPRG (Indikator)	
Perusahaan	Gambaran dewan	Peran manajemen	Identifikasi ancaman	Dampak ancaman	Ketahanan strategi	Proses identifikasi ancaman	Proses mengelola ancaman	Integrasi pengelolaan ancaman menyeluruh	Metrik yang digunakan	Pengungkapan ruang lingkup emisi	Pengelolaan terkait target	Jumlah total			
													kuantitatif	kuantitatif	kuantitatif
2020	Shell	3	5	5	3	5	5	5	5	5	3	49			
	Chevron	5	5	5	5	5	5	5	5	5	5	55			
	Taga	5	5	5	5	0	5	0	0	3	0	28			
	Petro China	3	5	5	5	5	2	5	5	5	5	50			
	British Petroluem	5	5	5	5	5	5	5	4	5	5	54			
	Bank of China	3	5	4	2	5	5	5	4	5	5	48			
	JP Morgan Chase	5	5	5	5	2	5	5	3	4	5	49			
	Mitsubishi UFJ	3	5	5	5	5	5	5	3	5	2	48			
	BNP Paribas	5	5	5	5	5	5	5	5	5	5	55			
2021	DBS Bank	5	5	5	5	5	0	5	5	4	5	49			
	Shell	5	5	5	5	5	5	3	5	5	5	53			
	Chevron	5	5	5	5	5	5	5	5	5	5	55			
	Taga	5	5	5	5	0	0	0	0	5	0	30			
	Petro China	3	5	5	5	5	5	5	5	5	5	53			
	British Petroluem	5	5	5	5	5	5	5	5	5	5	55			
	Bank of China	5	5	5	5	5	5	0	0	5	5	45			
	JP Morgan Chase	5	5	4	0	0	5	5	0	5	0	24			
	Mitsubishi UFJ	5	5	5	5	5	5	5	5	5	3	52			
2022	BNP Paribas	5	5	5	5	5	5	5	5	5	5	55			
	DBS Bank	3	5	5	5	5	5	2	0	5	5	45			
	Shell	5	5	5	5	5	5	5	5	5	5	55			
	Chevron	3	5	0	0	0	2	0	3	0	5	18			
	Taga	5	5	0	5	5	5	0	0	5	5	40			
	Petro China	5	4	3	5	5	5	5	5	5	5	52			
	British Petroluem	5	5	5	5	5	5	5	5	5	5	55			
	Bank of China	5	5	5	5	5	5	5	5	5	5	55			
	JP Morgan Chase	5	5	5	5	5	5	5	5	5	5	55			
2023	Mitsubishi UFJ	5	5	5	5	5	5	5	5	5	5	55			
	BNP Paribas	4	5	5	5	5	5	5	5	5	5	54			
	DBS Bank	3	5	5	5	5	5	5	0	5	5	48			

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Lampiran 3: Hasil Penilaian *Climate Reporting Disclosure* Atas Rekomendasi TCFD Metode Kualitatif

Tahun	Perusahaan	Rekomendasi Task Force on Climate Related Financial Disclosure												Jumlah total
		Gambaran dewan	Peran manajemen	Identifikasi ancaman	Dampak ancaman	Ketahanan strategi	Proses identifikasi ancaman	Proses mengelola ancaman	Integrasi pengelolaan ancaman menyeluruh	Bisnis Metrik yang digunakan	Pengungkapan ruang lingkup emisi	Pengelolaan terkait target		
2020	Shell	4	1	1	1	1	1	4	1	7	4	3	28	
	Chevron	4	1	7	1	8	1	1	1	7	2	7	40	
	Taqa	4	4	1	1	0	7	0	0	0	2	0	19	
	Petro China	1	4	4	4	4	4	1	4	4	2	5	37	
	British Petroluerm	1	4	1	1	4	1	4	4	1	5	3	29	
	Bank of China	4	4	1	1	4	4	1	1	4	2	5	31	
	JP Morgan Chase	1	1	1	4	1	4	2	1	7	2	5	29	
	Mitsubishi UFJ	1	4	4	4	8	1	4	4	7	2	3	42	
	BNP Paribas	4	4	4	4	1	1	7	4	1	7	1	38	
	DBS Bank	4	1	7	1	7	1	0	1	7	7	1	37	
2021	Shell	1	4	4	1	7	1	1	1	7	7	4	38	
	Chevron	4	1	7	1	7	1	1	1	4	7	4	38	
	Taqa	4	4	1	4	0	4	0	0	0	7	0	24	
	Petro China	4	4	4	4	4	4	4	4	4	7	4	47	
	British Petroluerm	4	1	1	1	8	1	1	3	8	7	7	42	
	Bank of China	4	4	4	4	4	4	4	0	0	3	5	36	
	JP Morgan Chase	1	1	1	0	0	0	1	0	0	1	0	5	
	Mitsubishi UFJ	4	4	4	4	4	4	4	4	7	7	1	47	
	BNP Paribas	4	4	4	7	7	4	4	7	7	7	1	56	
	DBS Bank	4	1	4	1	1	1	1	1	0	7	7	28	
2022	Shell	4	1	1	1	8	1	1	1	4	7	7	36	
	Chevron	1	4	0	0	0	0	1	0	1	0	4	11	
	Taqa	4	1	0	4	4	4	1	0	0	7	1	26	
	Petro China	1	4	1	4	4	4	4	4	7	3	7	43	
	British Petroluerm	4	4	1	4	7	1	1	1	4	8	1	36	
	Bank of China	4	4	1	4	1	4	4	4	1	7	7	41	
	JP Morgan Chase	4	1	4	4	4	4	4	8	7	4	4	52	
	Mitsubishi UFJ	4	4	4	1	4	4	4	4	4	7	7	47	
	BNP Paribas	4	1	4	7	1	4	1	4	7	7	7	47	
	DBS Bank	1	1	4	4	4	1	1	1	0	7	7	31	

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Lampiran 4: Proses Penilaian Shell 2022

1. Gambaran dewan

Mendeskripsikan gambaran dewan terhadap ancaman dan peluang terkait dengan iklim.

Kuantitatif: 5

Kualitatif: 4

Halaman: hal 80 *annual report*

Governance of climate-related risks and opportunities

Board oversight of climate-related risks and opportunities
Our governance framework is designed to effectively deliver on the energy transition ambitions of Shell's Forward Progress strategy.

For detailed information on our Forward Progress strategy, refer to page 34.

The Board reviews our energy transition strategy periodically and oversees its implementation and delivery. In 2022, the Board considered climate-related matters throughout the year, including the assessment of climate-related risks and the effectiveness of corresponding risk management activities, and challenged and endorsed business plans, including consideration of major capital expenditures, acquisitions and divestments. In 2022, the Board considered eight times, and continued to oversee the Forward Progress strategy and our own initiatives, including at the Board Strategy Day in June 2022.

For more information on the Board's oversight of climate-related risks and opportunities, see pages 153-157.

These Board committees provide primary oversight of the delivery of our energy transition strategy: the Safety, Environmental and Sustainability Committee (SESC), the Audit Committee (AC) and the Remuneration Committee (REMACO). The importance of our energy transition strategy means that these committees are informed about climate-related matters on a frequent basis throughout the year. See "Climate change governance engagement" below.

The SESC provides oversight of our technical delivery when it comes to reducing our carbon emissions, and the potential impacts and adaptation measures related to the physical risks of climate change. This includes reviewing our carbon management framework (CMF) and monitoring progress in reducing emissions to meet targets. The SESC

met five times in 2022 and discussed some aspects of climate-related matters at every meeting. After each meeting the SESC's Chair provided updates to the Board.

For more information on the SESC's activities in 2022, see pages 153-154.

Our AC provides oversight of the effectiveness of the risk management framework and the integrity of our financial reporting to ensure that our financial statements reflect the risks and opportunities associated with our energy transition strategy and climate change. During 2022, the AC convened six times and discussed climate-related matters on each occasion.

For more information on the AC's activities in 2022, see pages 155-157.

The REMACO develops our remuneration policy and sets performance conditions designed to challenge and support the Executive Committee to reduce net carbon emissions while maintaining shareholder value. The REMACO met five times during 2022, with climate-related matters discussed at each meeting.

For more information on our Remuneration Committee's activities in 2022, see the "Climate Remuneration Report" on pages 175-182 and the "Remuneration Remuneration" on page 184.

For more information on the Board's oversight of climate-related risks and opportunities, see pages 153-157.

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2. Peran Manajemen

Mendeskripsikan peran manajemen dalam menilai dan mengelola ancaman dan peluang terkait dengan iklim

Kuantitatif: 5

Kualitatif: 1

Halaman: hal 81 *annual report*

The Chief Executive Officer (CEO) has the delegated authority from the Board to manage Shell's actions in relation to the Company's strategy, which includes climate change. The CEO is assisted by climate-related matters by members of the Executive Committee to implement Shell's energy transition strategy and ensure that such matters are appropriately monitored.

The Director of Strategy, Sustainability and Corporate Relations supports the CEO in developing Shell's energy transition strategy, including climate scenarios development, and representing our CMF. The CMF includes the setting of carbon budgets for our businesses, and the implementation of carbon management activities.

The Downstream Director is responsible for identifying and delivering climate-related opportunities, as well as managing and integrating the climate risks of our existing Downstream businesses. The Safety and Environmental Director supports the Downstream Director in implementing the safety and environmental approach.

The Integrated Gas, Renewables and Energy Solutions Director is responsible for developing and advancing low-carbon solutions and opportunities, including those across our solar, hydrogen and wind businesses, as well as managing and reducing carbon emissions from our business.

The Upstream Director is responsible for identifying and delivering low-carbon and emissions-reduction opportunities in our oil and gas business. This includes managing and reducing our carbon emissions, for example, by reducing routine flaring and, in some cases, by using renewable energy to power our oil and gas extraction activities.

The Projects & Technology (P&T) Director is responsible for setting emissions, climate, and reporting standards that are applicable to all our businesses. The P&T Director is also responsible for developing new technologies that will help our businesses to deliver on net-zero emissions reduction targets through both energy efficiency measures and solutions geared towards decarbonisation.

The Chief Financial Officer (CFO) is responsible for monitoring the effective application of the Shell Control Framework, which provides the basis for managing our material risks including climate-related risks and opportunities, and the assurance over our financial information, carbon emissions and climate-related disclosures.

On January 30, 2023, Shell announced it would reduce the size of its Executive Committee from nine to seven members. The changes are expected to take effect from July 1, 2023. The Integrated Gas and Upstream Directorates. The Downstream business will be combined with Renewables and Energy Solutions to form a new Downstream and Renewables Directorate. The Strategy, Sustainability and Corporate Relations Directorate will be discontinued, and Strategy, Sustainability and New Business Development will now report directly to the CEO. The new structure is aimed at enabling more expedient planning and capital allocation decisions. The intention of this change is to simplify the organization further and improve performance as we deliver our Forward Progress strategy.

Additional supporting governance
There are two key supporting management committees, with representatives from across Shell, which play a critical role in driving our energy transition strategy:

The Capital Investment Committee (CIC) facilitates portfolio management discussions and reviews each investment opportunity that is, due to its size, subject to approval by the CEO or the Board. These reviews ensure that the climate risks and opportunities, together with other defined criteria including shareholder value, are embedded in investment decision-making. This committee is made up of senior executives, including the CEO, CFO, and individual business directors.

The Carbon Reporting Committee (CRC) includes senior management representatives from business units, R&T climate-related disciplines and various functions, such as Strategy, Finance and Legal. This committee is tasked with ensuring that GHG emissions measures, both absolute emissions and carbon intensity, and associated metrics, comply with all regulatory and legal requirements. The CRC is responsible at Group level for the calculation methodologies and reporting of GHG emissions metrics, and the review and approval of external disclosures.

In addition to these committees, our network of country chairs supports the overall governance and development and deployment of climate-related initiatives. They facilitate the setting of each country's plans in support of Forward Progress.

Processes by which management is informed about climate-related issues
Several processes are employed across the organisation to ensure that management teams can effectively monitor and manage climate-related matters. The management teams are helped by a combination of carbon management-related standards and frameworks, forums at various levels of the organisation, and capability development programmes. These include our carbon management framework, carbon pricing, and the Greenhouse Gas (GHG) and Energy Management process, which forms part of our Health, Safety, Security, Environment and Social Performance (HSSE & SSP) Control Framework.

Carbon management framework
Shell's carbon management framework (CMF) helps us set carbon budgets in the operating plans for our businesses. The CMF seeks to manage and reduce emissions in a manner that is similar to how we set our financial framework. Carbon budgets are an effective measure for maintaining absolute emissions below a capped level, however achieving our intensity target is dependent on our energy product mix which is not driven by carbon budgets alone.

The CMF allows for carbon budgets to be allocated to our businesses and tradeoffs between emitting carbon and generating shareholder value to occur within those budgets. The CMF helps inform portfolio decisions and support our decarbonisation targets. It provides leadership with the information required to make decisions on GHG reduction opportunities and portfolio choices required to achieve our decarbonisation targets.

For the 2022 operating plan cycle, our net carbon intensity (NCI) targets were translated into Scope 1, 2 and 3 (see definition on page 82) carbon budgets for each business. These budgets were used to optimise the operating plans for each business.

Some examples of how our decarbonisation targets are taken into account in fundamental decisions across the organisation are as follows:

- Our businesses further embedded carbon emissions objectives in their respective Capital, Portfolio and Carbon forums. The forums consist of the most senior business management representatives who are responsible for active portfolio management through evaluation, and delivery of growth and divestment decisions.
- Certain assets are required to identify GHG disclosure opportunities and reflect them in their annual business plans.

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3. Identifikasi Ancaman	
Mendeskrripsikan ancaman dan peluang terkait dengan iklim yang sudah diidentifikasi perusahaan untuk jangka pendek, menengah, dan Panjang Kuantitatif: 5 Kualitatif: 1 Halaman: hal 83 <i>annual report</i>	Climate-related risks and opportunities identified by Shell over the short, medium and long term We are continually enhancing our strategic risk management approach to addressing climate-related risks. Our strategy is shaped in response to risks and opportunities identified across the customer sector and regions we work in. The process for identifying and assessing climate-related risks and opportunities is set out under "Climate Risk Management" below. Shell has identified climate change and the associated energy transition as a material risk based on societal concerns and developments related to climate change and managing GHG emissions. The risks could potentially result in changes to the demand for our products, our operational costs, supply chains, markets, the regulatory environment, our licence to operate, and litigation. The risks are comprised of a combination of complex and interrelated elements that affect Shell's overall business value chain, and our asset, product and business portfolio. The risk landscape is evolving rapidly. To achieve our emissions reduction targets, active holistic management of all climate-related risk components is important. The composite risk is broken down into the following sub-components: • commercial risk; • regulatory risk; • societal risk (including litigation risk); and • physical risk. We also seek to identify opportunities for Shell in the energy transition, from our existing position as a leading global energy provider. These risks and opportunities are described below and are also summarised in the "Risk factors" section of the Strategic Report on pages 15-16. Time horizons: short, medium and long Due to the inherent uncertainty, and the pervasive nature of the risks across our strategy and business model, we monitor climate-related risks and opportunities across multiple time horizons. • Short term (up to three years): we develop detailed financial projections and use them to manage performance and expectations on a three-year cycle. These projections incorporate decarbonisation measures required to meet our short-term targets. • Medium term (generally three to 10 years): embedded within our operating plan, with our continued focus on the customer, the investments and portfolio shifts required in the medium term that will fundamentally reshape Shell's portfolio. At the same time, our existing asset base is expected to provide the cash flow to finance this transition of our revenue in this period. • Long term (generally beyond 10 years): it is expected that our portfolio and product mix will look very different, addressing the shift from an asset-based approach to a customer-based business model.

4. Dampak Ancaman	
Mendeskrripsikan dampak ancaman dan peluang terkait dengan iklim bagi perencanaan bisnis, strategi, dan keuangan perusahaan Kuantitatif: 5 Kualitatif: 1 Halaman: hal 86-87 <i>annual report</i>	Impact of climate-related risks and opportunities on Shell's businesses, strategy and financial planning The transformation of the energy system to net-zero emissions will require simultaneous action in three areas - an unprecedented improvement in the efficiency with which energy is used, a sharp reduction in the carbon intensity of the energy mix, and the mitigation of residual emissions using technology and natural sinks. While it is difficult to predict the exact combination of actions that will deliver the net-zero goal, scenarios help us to consider the variables and the potential direction and pace of the transition needed. We have been developing scenarios within Shell for almost 50 years, helping Shell leaders to explore ways forward and make better decisions. Shell scenarios are designed to stretch management's thinking when it comes to considering events that may be remotely possible. Scenarios help management make choices in times of uncertainty and transition as we grapple with tough energy and environmental issues. They are aligned to different energy transition pathways and help in decisionmaking by guiding the identification of risks and opportunities. Impact on strategic planning The application of scenario analysis informs our assessment of the impact of a wide range of risks and opportunities, including climate change related issues, on our strategy and business planning, both at the Group and business unit levels. At the Group level, the potential impacts of the energy transition on our business model are discussed and assessed at the Board and the Executive Committee level as part of the annual strategic and business planning cycle. This assessment allows us to challenge accepted ways of thinking, identify material risks and opportunities, and identify key lessons and trade-offs. Key financial and non-financial components of business planning The Board approves our annual business plan. The plan contains operational and financial metrics, and its objective is to drive the delivery of our Powering Progress strategy. Decarbonisation targets are key to our business planning process. Each business covers often Scope 1, 2 and 3 reduction opportunities as part of this process, in line with the CMF (see page 81). The business plan is underpinned by assumptions about internal and external parameters and includes: • commodity prices; • production levels and product demand; • exchange rates; • labour costs; • the schedule of capital investment programmes; and • risks and opportunities that may have material impacts on free cash flow. These assumptions are developed with input from our scenarios and internal estimates and outlooks. The level of uncertainty around these assumptions increases over longer time horizons. Impact on business and financial planning There is no single scenario that underpins Shell's business and financial planning. Scenarios are not intended to be predictions of likely future events or outcomes and, therefore, are not the basis for Shell's operating plans and financial statements. Our scenarios help in developing our future oil and gas pricing outlooks. The oil and gas pricing outlooks takes account of factors relating to the energy transition, such as potential changes in supply and demand (see details of scenario assumptions above). The low, medium and high pricing outlooks are prepared by a team of experts, reviewed by the Shell Executive Committee, and approved by the CEO and CFO. The medium pricing outlook represents management's reasonable best estimate and is the basis for Shell's financial statements, operating plan and investment budget. Different socioeconomic and technological parameters are used to construct these scenarios, such as: • sectoral and regional energy demand; • future trajectory of oil consumption and demand for natural gas; • renewable electricity demand and the pace of the electrification of the global energy system; • supply of solar and wind energy; • pace of uptake of electric vehicles; • demand for biofuels; • growth of the hydrogen economy; • level of carbon capture and storage (CCS); • deployment of lower-carbon energy technologies; and • global trade of oil and gas. Management consideration of different climate change outcomes informs a range of areas including, but not limited to, the setting of the long-term strategy, business planning, and investment and divestment decisions. The outcomes considered by management vary in relation to the extent and pace of the energy transition. Shell's targets to reduce absolute Scope 1 and 2 emissions by 50% by 2030, compared with 2016 levels on a net basis (i.e. including carbon credits), and 20% reduction in net carbon intensity by 2030 have been included in Shell's operating plan. We will continue to update our business plan, price outlooks and assumptions as we move towards net-zero emissions by 2050. As described in "Climate-related risks and opportunities identified by Shell over the short, medium and long term", the low pricing outlooks could result in increased commercial, regulatory and societal risks, as well as transition opportunities. How these risks are prioritised is described in "Shell's processes for identifying and assessing climate-related risks". Given our target to become a net-zero emissions energy business by 2050, the use of low pricing outlooks is a part of our resilience testing and resulting action. Our strategy and national net-zero commitments In line with U.N. SDG13, we have considered the extent to which country-level net-zero commitments have been considered in developing our transition plan. Our Powering Progress strategy aims to deliver a net-zero emissions energy business by 2050. The pace of the energy transition will be heavily influenced by government policy, creating a strong country and regional dimension in making to deliver the aims of the Paris Agreement. Our commitment is a global one and, as such, we look to deliver our strategy through a global lens. We seek to translate our energy transition strategy into specific targets and plans at a business segment level, ensuring we take capital deployment and portfolio decisions in the context of the globally integrated nature of our operations. However, we continue to recognise the importance of engagement and collaboration in delivering the fundamental changes to the energy system that are required. This includes supporting and advising its policies that aim to reduce carbon emissions, and working with governments and other stakeholders in the development of policy that supports the transition to a lower-carbon energy system. As national transition plans develop, consideration will be given to the impact on our operations and the associated implications for our energy transition strategy.



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7. Proses mengelola ancaman	
Mendeskrripsikan proses perusahaan mengelola ancaman terkait dengan iklim Kuantitatif: 5 Kualitatif: 1 Halaman: hal 93-94 <i>annual report</i>	Shell's processes for managing climate-related risks Our climate-related risk management process is covered out of the Group, business, function and asset level, which includes projects. We apply the Shell Control Framework to ensure that we effectively manage our climate-related risks at all these levels. The framework includes: • mandatory risk standards and manuals; • project-level risk management processes; • management and Board reviews; • internal audits and investigations; and • annual attestation processes. Mandatory risk standards and manuals We have mandatory standards and manuals which establish the requirements on how to effectively manage material risks including the operation of appropriate controls. Our standards and manuals also provide guidance on how to monitor, communicate and report changes in the risk environment. These documents are to: • ensure consistent management and assessment of climate risk across Shell; • clarify expectations for risk management and reporting, including roles and responsibilities of the risk owners; • clarify types of assurance activities that may be applicable; • strengthen decision-making by ensuring that businesses have better awareness and understanding of climate risks (including their likelihood and potential impact) and mitigation plans; and • enable integration of Shell's reporting. We periodically review and, if necessary, update our standards and manuals in light of developments in risks, including those associated with climate change. Our approach continues to evolve as we increase our understanding of changing policies and the differing pace of energy transition in different regions. In addition, each business and function regularly reviews its risk profile, risk responses and assurance activities throughout the year to ensure climate-related risks are managed effectively. These insights are used to provide management with updates on the operational management of climate change and GHG emissions risks. During these updates, management considers the significance of the climate change and GHG emissions risks relative to other risks on the Group risk profile and reviews whether our risk responses are effective in addressing the four sub-components of the climate change and GHG emissions risk. Our management reviews help us to update Shell's plans and guide our day-to-day operational decisions such as maintenance schedules and our risk response plans. Internal audits and investigations processes Shell's Internal Audit and Investigations (IAI) team provides independent and objective assurance and advice management and the Board on the adequacy and effectiveness of our risk management and internal controls. For example, IAI conducted four GHG audits during 2022 to test whether controls are adequately designed and operating effectively to mitigate the identified risks. The controls tested covered GHG emissions measurement, reporting and forecasting and abatement projects. Additionally, IAI conducted two audits focused on decarbonisation of industry sectors and nature-based solutions. Annual attestation processes On an annual basis, all directors are required to provide an attestation of their business's or function's compliance with our HSSE & SP Control Framework and to report this to Shell's CEO. This includes the assessment of the effectiveness of the internal controls in managing climate-related risks. Project-level risk management processes At a project level, assessing climate-related risks is an important part of making related investment decisions. Projects of a certain size or which carry unusual risks are required to follow Shell's Opportunity Realisation Standard, which sets out the rules for managing and delivering opportunities in the organisation. Each project is assessed by experts from our global subject matter groups during its development, implementation and operation. Projects under development that are expected to have a material GHG impact must meet our internal carbon performance standards or industry benchmarks. Our performance standards are used for measuring a project's average lifetime GHG intensity or energy efficiency per unit type. Applying these criteria ensures that our projects can compare and prosper in the energy transition. An exception process is in place to manage specific isolated cases. Performance standards are under development for power and hydrogen projects. The performance standards are approved by the Executive Vice President responsible for implementation in the relevant business and by the Executive Vice President Safety, Environment and Asset Management. Projects with a material GHG footprint that meet the performance standards or industry benchmarks will often set more ambitious emissions targets for themselves. GHG abatement plans help determine the nature of these targets, and we assess the effects of a project's emissions alongside economic and technical design factors. We assess the future GHG emissions of projects against performance standards and by considering the GHG emissions from the use of the products that are to be manufactured. These assessments can lead to projects being stopped or design being changed. We expect the performance standards to evolve as our portfolio changes in the energy transition. Management and Board reviews Management, the Board and Board committees review the risk of climate change and GHG emissions to ensure awareness of emerging issues that may impact our strategy and to ensure the effectiveness of our responses in managing this risk at a more granular, operational level. For example, as part of the annual planning cycle, the Executive Committee and the Board assess how climate change and GHG emissions may affect the pace of the energy transition, business emission reduction plans and the implications for Shell's current portfolio. Project-level risk management in action: Shell Energy and Chemicals Park Singapore We are transforming our refining business and making it fit for the future. The Pulau Tekong Manufacturing Site in Singapore transformed into the Shell Energy and Chemicals Park Singapore. We have reduced our crude processing capacity by about half and delivered a significant reduction in CO₂ emissions. We are repurposing Bako by making significant changes in our refinery configuration, establishing a foundation for producing low-carbon energy products like bioethanol. We are also incorporating circularity, such as waste plastics for feedstock, as well as providing renewable energy.

8. Integrasi Pengelolaan Secara Menyeluruh	
Mendeskrripsikan bagaimana proses identifikasi, menilai, dan mengelola ancaman terkait dengan iklim diintegrasikan dengan pengelolaan ancaman perusahaan secara menyeluruh Kuantitatif: 5 Kualitatif: 1 Halaman: hal 94 <i>annual report</i>	Integration of the climate-related risk management process into Shell's overall risk management Our climate-related risk management process follows the approach set out by the Shell Control Framework, ensuring that it is integrated into the overall risk management processes of the Group. Climate-related risks are considered from a strategic and operational perspective to ensure we maintain a comprehensive view of the different types of climate risks we face and the different time horizons in which they may affect us. The monitoring and review of risks is a key risk management process in Shell. The Executive Committee, the Board and Board committees review climate-related risks and their impact on the Group. This allows management to take a holistic view and to optimise risk mitigation responses, to ensure that climate-related risk responses are properly integrated into the relevant activities.



9. Metrik yang Digunakan

Mengungkapkan metrik yang digunakan perusahaan untuk menilai ancaman dan peluang terkait dengan iklim sejalan dengan strategi dan proses pengelolaan ancaman

Kuantitatif: 5

Kualitatif: 4

Halaman: hal 95-97 *annual report*

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Climate-related metrics and targets

Metrics used by Shell to assess climate-related risks and opportunities in line with its strategy and risk management process

This section describes our energy product and carbon emissions performance and metrics used to monitor our progress in respect of significant climate-related transition risks and opportunities, including targets reflected in remuneration of senior management and employees.

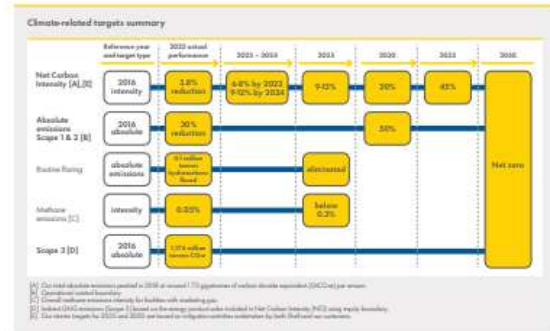
Key metrics we use to track progress against our energy transition strategy are the NCI of our portfolio and our absolute emissions. Additional metrics associated with the realisation of Shell's strategy to transition risks and opportunities are included in "Realisation of Shell's strategy to different climate-related scenarios" from page 88. This includes information on capital allocation between our business segments and the sensitivity of our assets to carbon, discount rate and commodity price assumptions.

Another potentially significant climate-related risk relates to Shell's physical risk exposure at an asset level. We are working to establish metrics in this area to monitor our exposure to this risk across the Group.

Our overall climate target is to become a net-zero emissions business by 2050. It includes net-zero emissions from our operations (Scope 1 and 2 emissions), as well as net-zero emissions from the end-use of all the energy products we sell (Scope 3 emissions). We have set short, medium and long-term targets to track our performance against our overall climate target over time.

We believe our total absolute emissions peaked in 2018 at 1.73 gigatonnes of carbon dioxide equivalent (GtCO₂e).

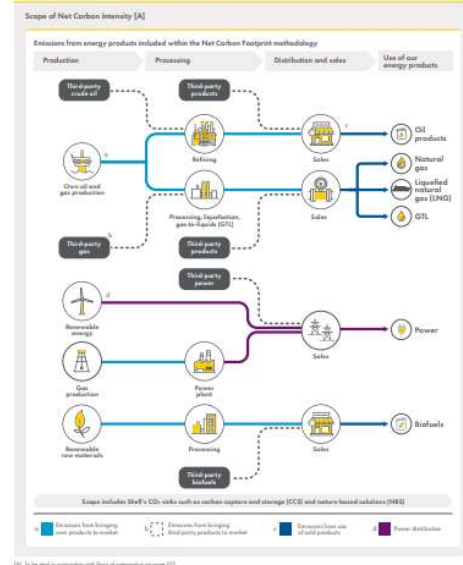
In October 2021, in support of our 2050 net-zero emissions target, we set a target to reduce Scope 1 and 2 absolute emissions from assets and activities under our operational control (including investments) by 50% by 2030 compared with 2016 levels on a net basis. We monitor our progress against these targets using the key metrics described.



Net carbon intensity (NCI)

Shell's NCI is the average intensity, weighted by sales volumes, of the energy products sold by Shell. It is broadly measured and reported using the Net Carbon Footprint (NCF) methodology.

We have received third-party limited assurance on our net carbon intensity for the period 2016 to 2021.



[A] To be read in conjunction with Scope 3 proportion on page 102

Performance - NCI

In 2022, Shell's NCI was 7.6 grams of carbon dioxide equivalent per megajoule of energy (gCO₂e/MJ), a 1.3% decrease from the previous year and a 3.8% reduction compared with 2016, the reference year. The decrease in Shell's NCI in 2022 was primarily due to an increased proportion of renewable power and corresponding reduction in the carbon intensity of our power sales. Shell's 2022 NCI includes 4.1 million tonnes of carbon credit, compared to the 5.1 million tonnes which were included in Shell's 2021 NCI.

NCI reference year 2016 (weight boundary)	2022	2021	2020	2019
NCI [A]	7.6	7.7	7.5	7.9
Estimated total energy delivered by Shell [B]	16,297	17,891	18,440	20,493
Estimated total GHG emissions included in NCI [C]	1,242	1,375	1,384	1,645
Carbon credit	4.1	5.1	3.9	0.0
Estimated total GHG emissions (scope 1) [D]	1,244	1,381	1,388	1,645

[A] The NCI calculation uses Shell's energy product sales volume data, as disclosed in the Annual Report and Sustainability Report. This includes certain volumes held for trading purposes and reported as sales volumes. Renewable technologies to not yet be included in the NCI calculation as they are not yet commercially available. These volumes are not included in the NCI calculation as they are not yet commercially available.

[B] These volumes include energy products (excluding) with energy products sold by Shell as an energy business. These also include the volumes of energy products sold by Shell as a manufacturing of energy products to others that are sold by Shell. Energy products sold by Shell as a manufacturing of energy products to others that are sold by Shell. Energy products sold by Shell as a manufacturing of energy products to others that are sold by Shell.

[C] All Scope 1 emissions are included in the NCI calculation as they are not yet commercially available. These volumes are not included in the NCI calculation as they are not yet commercially available. These volumes are not included in the NCI calculation as they are not yet commercially available.

[D] Emissions and discounts are included in the actual performance tracking with the target and carbon credit. These are not included in the NCI calculation as they are not yet commercially available. These volumes are not included in the NCI calculation as they are not yet commercially available.

As we implement our Powering Progress strategy, we are increasing the share of bioenergy products in our energy product sales, which is the biggest driver for reducing our NCI.

Our ability to change the emissions intensity of each energy product varies depending on the product type.

Hydrocarbon fuels: emissions tend to be higher than other products. As a result, the emissions intensity of hydrocarbon fuels is expected to stay relatively unchanged over time. This is why we are focused on helping our customers decarbonise.

Power: the emissions intensity of power can be highly variable, depending on how it has been generated. The proportion of our renewable power sales and the generation mix in countries where we sell power to the market both affect Shell's overall power mix and its resulting emissions intensity.

Biofuels: can vary significantly in intensity depending on the feedstock and production process used.

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Linking Shell's emissions targets to remuneration policies

We have established remuneration policies which are designed to support us in achieving our net-zero emissions targets:

- Our Performance Share Plan (PSP) and Long-term Incentive Plan (LTIP) are linked to net carbon intensity targets; and
- Our PSP, LTIP and annual bonus awarded are linked to performance indicators that guide our assessment of our success in delivering our energy transition strategy.

See also "Detailed Remuneration Report" on page 175-182

The LTIP and PSP are designed to ensure that remuneration is closely aligned with Shell's operating plan and longer-term strategic ambitions. The same measures apply to Executive Directors and Senior Management and to a significantly broader employee base.

The LTIP (measured over a three-year performance period) is used to make long-term share incentive awards to Executive Directors, Executive Committee members and Senior Executives.

PSPs are long-term incentives, also measured over a 3-year performance period, designed to retain key employees and ensure they have a greater investment in Shell's future.

Energy transition performance condition and the vesting of the 2020 LTIP and PSP awards

The following performance outcomes for the energy transition performance condition were considered in the assessment of the 2020 LTIP and PSP vest, covering the performance cycle 2020-2022:

Outcomes	
Reduce net carbon intensity	Performance indicator met
Grow a material power business	Substantively met
Grow low-carbon products	Performance indicator met
Develop emission risks	Performance indicator met

In addition to the above, a number of broader indicators of Shell's progress in the energy transition were considered. Overall, it was determined that the energy transition measure (accounting for 10% of the LTIP award and 5% of the PSP award) should vest at 100%.

See also "Annual Report on Remuneration" on pages 185-192

Energy transition performance condition in the 2022 LTIP and PSP awards

For LTIP and PSP awards granted in 2022, the energy transition performance condition had a weighting of 10% for the PSP and 10% for the LTIP. The energy transition performance condition for these awards includes a mix of leading and lagging indicators on the following strategic measures:

- Build a valuable power business: our ambition is to expand our power business through selective investments in generation and by trading power generated by others;
- Grow new lower carbon energy product offerings: continue to invest in low- and zero-carbon products, such as renewable electricity, hydrogen, biofuels and chemicals;
- Develop emission risks: invest in carbon capture and storage opportunities, to reduce emissions where there are no currently suitable low-carbon alternatives; and in the development of high-quality nature-based projects, to compensate for emissions; and
- Reduce the NCI of the energy products sold by Shell.

The vesting outcome of the LTIP awards is at the discretion of the REMCO, and will be guided by performance indicators set at the outset of the scheme alongside a more holistic assessment of progress.

Proposed energy transition performance condition for 2023 LTIP awards

For 2023 LTIP awards, measurement of performance against energy transition measures will be based on NCI reduction, plus supporting strategic themes including:

- Reducing Scope 1 and 2 emissions;
- Building a renewable power business;
- Growing new low-carbon energy offerings; and
- Developing emission risks and offsets.

The REMCO assesses progress against the NCI target and Shell's long-term goals for each strategic theme when making the vesting decision for each reward cycle.

See "Annual Report on Remuneration" on page 203 for more information on the proposed performance framework.

Energy transition targets in the annual bonus assessment

Delivering on our net-zero emissions target is a part of the annual assessment which helps determine annual performance bonus outcomes for senior management and across all of Shell's employees.

The energy transition progress measures in our annual scorecard have, until 2022, focused on managing and reducing our operational emissions. However, succeeding in the energy transition requires us to change what we sell. In 2022, we widened the scope of the energy transition progress measures in the annual bonus assessment:

- Selling lower carbon products – we help customers to reduce their emissions by supplying low-carbon products. We measure our success by the savings share of our Marketing activities from low-carbon energy products as well as non-energy products and non-emissions retail;
- Reducing operational emissions – our target is to achieve a 50% reduction by 2030; and this measure is based on reducing our Scope 1 and 2 operational emissions;
- Partnering to decarbonise – we seek to collaborate with our customers to help them reduce their emissions. In 2022, we measured success in this area in terms of our progress in rolling out our electric vehicle charging network.