

VBIAF SECTORAL GUIDE: OIL & GAS (O&G)

22 March 2022



TABLE OF CONTENTS

ACKNOWLEDGMENTS	3
DEFINITIONS	4
ACRONYMS AND ABBREVIATIONS	8
DISCLAIMERS	9
A. FOREWORD	10
B. INTRODUCTION	12
AIMS & OBJECTIVES	12
SCOPE & APPROACH.....	12
APPLICABILITY.....	12
C. SECTOR IN FOCUS : OIL & GAS	14
DEFINITION & SCOPE	14
ECONOMIC CONTEXT	16
ESG CONTEXT	17
POLICY & REGULATORY CONTEXT	20
D. SECTOR GUIDANCE	23
IMPACT-BASED RISK MANAGEMENT SYSTEM	23
i. Risk Identification	25
ii. Risk Measurement	30
iii. Risk Mitigation	36
ON-BOARDING CHECKLIST	43
PERFORMANCE MANAGEMENT	50
STAKEHOLDER INCLUSION & VALIDATION	52
REMEDIAL MEASURES	54
TECHNICAL APPENDICES & REFERENCES	55
POLICIES & INITIATIVES AND THEIR KEY MANDATES	55
CERTIFICATIONS & STANDARDS	57
CASE STUDIES	59
ESSENTIAL READINGS	61

ACKNOWLEDGMENTS

This document is a collaborative effort by the VBI Community of Practitioners (CoP), regulators, technical experts, and relevant industry stakeholders.

Key Roles	Team Members
Project manager and support	Ahmad Shahriman Mohd Shariff, CIMB Islamic Bank Berhad Nazzi Beck, CIMB Islamic Bank Berhad Hussam Sultan, CIMB Islamic Bank Berhad Azmir Abdullah, CIMB Islamic Bank Berhad Elaine Chan, CIMB Group Berhad David Lee, CIMB Group Berhad Ng Tsu Mae, CIMB Islamic Bank Berhad Frauline Josephine Hor, CIMB Islamic Bank Berhad
General experts & observers	Dr. Hamim Syahrums Ahmad Mokhtar, Bank Negara Malaysia Nik Faris Nik Sallahuddin, Bank Negara Malaysia Loong Sok Sim, Bank Negara Malaysia Nurul Khairunissa Esman, Bank Negara Malaysia Siti Nurul Ain Zakaria, Bank Negara Malaysia Paul Rajan A/L S.Savirimuthu, Syarikat Takaful Malaysia Am Berhad (STMAB) Shahril Jefry Bin Jaafar, Takaful Ikhlas General Berhad Syarifah Norfatimah Syed Mohri, Takaful Ikhlas General Berhad
Secretariat	Ratna Sha'erah Kamaludin, AIBIM Mazura Mohamed Jamil, AIBIM Norhisham Mohamed @ Salleh, AIBIM Asma' Tajul Arifin, AIBIM Balqis Abdul Rahim, AIBIM
Technical experts	Zakaria bin Mohamad Nor, SIRIM Md. Zaini bin Md Jai, SIRIM Jefriman Johari, MPRC James Chan, MPRC Rosman Hamzah, MGA Atiqah, MGA Noor Suhailah bt Othman, Petronas Thiagarajan Nadeson, WWF Dr. Adam Ng, WWF Siti Kholifatul Rizkiah, WWF Adam Farhan, WWF Fatin Zani, WWF Dr. Chen Wei-nee, Hibiscus Petroleum
Sub-working group members	Gavin Burgoyne, HSBC Malaysia M Azmi Yahya, HSBC Amanah Malaysia Kamarul Hisham Kasmin, OCBC Al-Amin Bank Berhad Meor Muhamad Meor Omar Baki, OCBC Al-Amin Bank Berhad Khalipah Marziana, OCBC Al-Amin Bank Berhad Chen Poh Loong, OCBC Bank (Malaysia) Berhad Ahmad Rizal Bin Lope Zainal Abidin, RHB Islamic Bank Ahmad Nazri bin Ismail, RHB Islamic Bank Roshan bin Jaafar, RHB Islamic Bank Noorshazrina binti Jamal, RHB Islamic Bank Zulkifli bin Mohamed Raymond, RHB Islamic Bank
Content management and Editorial team	IMPACTO Sdn Bhd <ul style="list-style-type: none"> • Dr. Kishore Ravuri • Veena P.

DEFINITIONS

Term/s Used	Definition
Blue Hydrogen	Natural gas split into hydrogen and CO ₂ either by Steam Methane Reforming (SMR) or Auto Thermal Reforming (ATR), whereby the CO ₂ is captured and then stored, reducing the environmental impact.
Corporate Value Intent (CVI)	The FI's VBI commitment, which forms the basis for the formulation of all policies and systems from the front office to the back office, including customer service, marketing, product development, risk management, treasury, compliance, finance, human resource and information technology.
Double-Materiality	The double materiality approach identifies a company's impact on the environment and society as well as the environment and society's impact on the company. This is achieved through making reference to a company's development, performance and position (thus indicating financial materiality), and reference to the impact of the company's activities (which indicates environmental and social materiality), while noting that these two risk perspectives overlap and are increasingly likely to do so in the future ¹ .
Environmental Impact Assessment (EIA)	EIA is a study to identify, predict, evaluate and communicate information about the impacts of a proposed project on the environment including the surrounding community, and to detail out the mitigating measures prior to project approval and implementation, and is a statutory requirement under certain legislations. The assessment covers the whole life cycle of project i.e., project planning, project development, operations up to decommissioning/abandonment phases.

¹ Guidelines on Reporting Climate-Related Information, European Commission, EU, 2019

<p>Environmentally Sensitive Areas (ESAs)</p>	<p>ESAs are identified and recognised to ensure sustainable management of resources, as well as to maintain the sustainability of our natural surroundings. Malaysia's National Physical Plan (NPP) clearly defines ESAs according to our environmental, physical, cultural and climate contexts. The NPP strictly advises that ESAs remain untouched and must be conserved or sustainably managed depending on the type, characteristic and level of sensitivity and importance. ESAs are ranked in three categories.</p> <p>RANK 1 ESAs: No development, agriculture or logging should be permitted for an altitude above 1,000m except for low-impact nature tourism activities, and for research and education purposes. Areas ranked in this category include the existing and proposed protected areas, as well as important habitats such as turtle landing sites, salt licks, important plant areas, limestone outcrops and natural wetlands of high conservation value.</p> <p>RANK 2 ESAs: These include other forests and wetlands outside protected area and areas with an altitude of between 300m and 1,000m. Sustainable logging and low-impact tourism are allowed, but no physical development and agriculture activities are permitted.</p> <p>RANK 3 ESAs: These include all marine parks, catchment zones for water intake and groundwater recharge, as well as areas with critical and significant risk of erosion, and areas with an altitude of between 150m and 300m. Minimal and strictly controlled development may be allowed in these areas depending on the type and intensity of the projected impact and constraints.</p>
<p>Green Hydrogen</p>	<p>Hydrogen produced from renewable energy and the most established technology is water electrolysis fuelled by renewable electricity. SMR (Steam Methane Reforming) with biogas is one of the other renewable-based solution to produce green hydrogen².</p>
<p>Grey Hydrogen</p>	<p>Hydrogen produced from methane using steam methane reforming (SMR) or coal gasification.</p>
<p>High Carbon Stock (HCS)³</p>	<p>High Carbon Stock forest are forests that have been identified using the High Carbon Stock Approach (HCSA) Toolkit. High Carbon Stock approach is a methodology that distinguishes forest areas for protection from degraded lands with low-carbon and biodiversity values that may be developed. The amount of carbon and biodiversity stored within an area of land varies according to the type of vegetative cover. The HCS Approach stratifies the vegetation in an area of land into six different classes using analyses of satellite data and ground survey measurements. These six classes are: High Density Forest, Medium Density Forest, Low Density Forest, Young Regenerating Forest, Scrub, and Cleared/ Open Land.</p>

² Green Hydrogen: A guide to policy making, IRENA 2020

³ Web: highcarbonstock.org | hcvnetwork.org, HCV Resource Network and HCS Approach, 2020

High Conservation Value (HCV)	According to High Conservation Value Resource Network (HCVN), HCV is a biological, ecological, social or cultural value of outstanding significance or critical importance. HCVs are classified into six categories: HCV 1: Species diversity; HCV 2: Landscape-level ecosystems and mosaics; HCV 3: Ecosystems and habitats; HCV 4: Ecosystem services; HCV 5: Community needs; and HCV 6: Cultural values.
Impact-based Risk Assessment	A comprehensive approach to identify and categorise impacts, both positive and negative to the value of the FI's financing and/or investment assets, also enabling them to determine the most appropriate risk management tools.
Impact-based Risk Management	Inclusion of an impact-based dimension to the existing credit risk management practices (base approach) to include towards managing various risks. In other words, it considers the implication of the financing and investment activities funded by the FIs on the stakeholders based on the principles and strategies established in accordance with its CVI and the broader goal of a sustainable and resilient future.
Life Cycle Assessment (LCA)	An evaluation of various stages of business and its supply chain – from sourcing raw materials to manufacturing or production to marketing and post-purchase consumer behaviour.
Nature-based Solutions	Nature-based solutions (NbS) are “actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits”. NbS are not limited to infrastructure but are highly relevant. Nature-based solutions for infrastructure include the use of natural and hybrid infrastructure to meet infrastructure service needs ⁴ (e.g., protecting a natural watershed to ensure drinking water quality).
Nature Positive	Halting and reversing nature loss (The global goal for nature stipulates a target for a nature positive by 2030).
Net Zero Emissions	Net zero emissions are achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period. Where multiple greenhouse gases are involved, the quantification of net zero emissions depends on the climate metric chosen to compare emissions of different gases such as global warming potential, global temperature change potential, and others, as well as the chosen time horizon (most commonly net-zero by 2050 latest). ⁵
On-boarding	The onboarding process in the context of both existing and new customers includes both evaluation of FI's customer' orientation to sustainability or ESG aspects, which is undertaken through due diligence, in keeping with regulatory, mandated and voluntary principles, standards and criteria.

⁴ International Good Practice Principles for Sustainable Infrastructure, United Nations Environment Programme, 2021

⁵ IPCC, 2018: Annex I: Glossary [Matthews, J.B.R. (ed.)]. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press

Policy Statement/s	FIs internal financing/investment policy statement/s on the sector, guiding their risk appetite as well as their risk management processes.
Precautionary Principle	Principle 15 of the Rio Declaration on Environment and Development 1992: In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.
Remedies & Exit Procedures	Mechanisms and options available for FIs to take exceptions to policies and procedures, corrective actions, resolution tactics, and pre-emptive strategies to safeguard interests, cut financial losses, and remain resilient.
Riparian	Riparian is the area between land and water alongside a body of water, including the vegetation, soil and natural biodiversity / habitat from the water's edge across the flood plain to the upland area.
Value-Based Intermediation (VBI)	An intermediation function that aims to deliver the intended outcomes of Shariah (Maqasid al-Shariah) through practices, conduct and offerings that generate positive and sustainable impact to the economy, community and environment, consistent with the shareholders' sustainable returns and long-term interests.

(The rest of this page has been intentionally left blank.)

ACRONYMS AND ABBREVIATIONS

BNM	Bank Negara Malaysia
CB	Certification Body
CITES	Convention on International Trade in Endangered Species
EC	Energy Commission
EIA	Environmental Impact Assessment
EIC	Energy Industries Council Malaysia
ESG	Environmental, Social and Governance
ESIA	Environmental & Social Impact Assessment
FIs	Financial institutions
FPIC	Free, Prior and Informed Consent
GHG	Greenhouse Gas
HBV	High Biodiversity Value
HCS	High Carbon Stock
HCV	High Conservation Value
IPCC	Intergovernmental Panel on Climate Change
ISCC	International Sustainability and Carbon Certification
IUCN	International Union for Conservation of Nature
JAS	Jabatan Alam Sekitar (<i>Department of Environment</i>)
JKKP	Jabatan Keselamatan dan Kesihatan Pekerjaan (<i>Department of Occupational Safety and Health</i>)
KBA	Key Biodiversity Area
KPDNHEP	Kementerian Perdagangan Dalam Negeri dan Hal Ehwal Pengguna (<i>Ministry of Domestic Trade and Consumer Affairs</i>)
MITI	Ministry of International Trade and Industry
MISC	Malaysian International Shipping Corporation
MMHE	Malaysia Marine and Heavy Engineering
MOGSC	Malaysia Oil & Gas Service Council
MPRC	Malaysia Petroleum Resources Corporation
MS	Malaysian Standard
NC3BUR2	Malaysia 3 rd National Communication and 2 nd Biennial Update Report to UNFCCC
NGO	Non-governmental organisation
OPEC	Organization of the Petroleum Exporting Countries
OGSE	Oil and gas services and equipment
OSH	Occupational Safety and Health
PD	Probability of default
PERKESO	Pertubuhan Keselamatan Sosial (Social Security Organisation/SOCSO, Malaysia)
PDA	Petroleum Development Act of 1974
PMU	Petroleum Management Unit
PETRONAS	Petroleum Nasional Berhad
PPE	Personal protective equipment
SCC	Supply Chain Certification
SEIA	Social and Environmental Impact Assessment
SPOTT	Sustainability Policy Transparency Toolkit
TCFD	Task Force on Climate-related Financial Disclosures
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNEP FI	United Nations Environment Programme Finance Initiative
UNFCCC	United Nations Framework Convention on Climate Change
UNPFII	United Nations Permanent Forum on Indigenous Issues
VBI	Value-based intermediation
VBIAF	Value-based intermediation Financing and Investment Impact Assessment Framework – Guidance Document
WHO	World Health Organisation

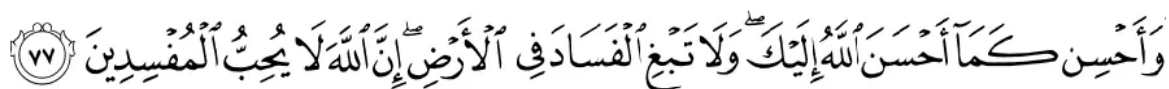
DISCLAIMERS

This document only serves as a guidance to the industry. Any views, findings, interpretations, conclusions or information provided in this document are a result of the collaboration between the institutions identified above and hence, do not necessarily represent the official policy of the said institutions unless otherwise stated, nor does reference to or citing of trade names or commercial processes, constitute endorsement, recommendation or preference by the said institutions.

The VBI Community of Practitioners (CoP) are key authors and collectively own this Sectoral Guide. The authors do not take any responsibility for any kind of losses that may have been reported due to application or misapplication of information, ideas, principles, recommendations etc. from this document. The authors expressly repudiate any and all implied warranties including, without limitation, warranties of accuracy, completeness, efficacy of any information contained in this report.

(The rest of this page has been intentionally left blank.)

A. FOREWORD: FROM THE CHAIRMAN



***Wa ahsin kamaaa ahsana Allaahu ilaika wala tabghi alfasada fee alardi
inna Allaha la yuhibbu almufsideena***

*And do good as Allah has done good to you. And desire not corruption in the land.
Indeed, Allah does not like corrupters. (Al-Qasas:77)*

Businesses can be a powerful force for good. With their collective networks and influence and through responsible practices and behaviour they can contribute to greater good of people and the planet. The biggest hurdle is to not look for a ‘reason’ to do good, but make doing ‘good’ a reason for being. The good we want to see in the world is the good we should demonstrate while pursuing business motives. The good of business or the business of good – both are really the foundation that will help shape a socially-just and an environmentally-sustainable world.

Globally, the energy industry including the O&G sector is in transition. In the next decade itself, we will witness a radical shift in the way businesses operate (with their business models, the energy mix and portfolios) as they decouple their economic growth from environmental degradation and social injustices.

The Malaysian O&G Sector, despite being part of an extractive industry susceptible to impacts on the environment and society, is also a catalytic force, with many socio-economic benefits that are beyond its direct contribution to national wealth creation. From employment opportunities to creating value in the domestic supply chain through transfer of skills, knowledge, and technology; from enabling the export sector especially in the petroleum-based product category to supporting other high-income businesses across industries – the O&G sector plays a critical role in accelerating globally significant, and nationally relevant growth.

However, with the increasing threat of climate change, evolving energy landscape and the global focus on sustainable development, the policy and regulatory regimes are set to change. In keeping with the new National Energy Policy (NEP 2021) and national climate action agenda, O&G players will need to embrace game-changing strategies and Environmental, Social, & Governance (ESG) principles to support Net Zero pathways and Net Positive Impact aspirations of the financial institutions from its lending and operations.

This O&G Sectoral Guide is our early attempt and a living document to encourage FIs to apply the ‘Do Good’ principle to the sector, and steer their customers to support accelerated climate action and governance; strategic investments in innovation and carbon technologies; increased portfolio shares of alternative and hybrid or renewable sector; and improved social and community support and respect for human rights. The guidance equips FIs with proven and effective methodologies and prescribed practices for promoting sustainable / responsible business practices in the O&G sector.

The guidance will inform FIs to apply sustainability screening and make responsible investment / lending decisions, while creating a new band of ESG-compliant O&G players. This document can also prove to be an insightful reference for customers, partners and other stakeholders of FIs in the O&G supply chain, who also play a critical role in the clean energy transition.

For FIs, the operationalisation of this Sectoral Guide will mean managing its ESG risk exposures, maintaining credit quality and accelerating its sustainability performance. On the other hand, the clear beneficiaries in the process, the O&G players will benefit from enhanced recovery, improved cost efficiencies, and mitigation of technical and operational challenges towards reducing impacts from methane leaks, flaring, decommissioning, energy extraction processes etc., which could fetch them new standards, new incentives and new opportunities for growth. By mainstreaming this sectoral guidance, FIs will also be able to encourage O&G players to funnel new investments in frontier and clean technologies including Electric Vehicle (EV) power networks, renewables, CCS (carbon capture and storage) amongst others.

On behalf of the VBI Community of Practitioners (CoP), regulator, technical experts, and individual contributors, I welcome all feedback for us to continue improving this guidance by integrating new emerging principles and global best practices. Please send your comments and suggestions to AIBIM (Secretariat) via staff@aibim.com.

Syamsul Azuan Ahmad Fauzi
Chief Executive Officer
Public Islamic Bank Berhad

B. INTRODUCTION

AIMS & OBJECTIVES

1. This Sectoral Guide should be read in conjunction with Bank Negara Malaysia's Value-based Intermediation Financing and Investment Impact Assessment Framework (VBIAF), which outlines the key principles, prescribed governance, and impact-based risk management approach.
2. VBI is an intermediary that functions to deliver the intended outcomes of Shariah (Maqasid al-Shariah). The application of Shariah principle of attainment of benefit, prevention of harm, doing good and integration of Shariah are key to this Sectoral Guide, whereby the FIs should define their respective approaches to integrate Shariah into their business strategies.
3. The main objective of the Sectoral Guide is to provide comprehensive or more granular guidance for implementing impact-based assessments for the sector. It also provides relevant sustainability metrics or indicators that can be considered when taking a more holistic approach to the classification of economic activities.
4. This Sectoral Guide is a living document that may be periodically edited and updated, when necessary, in response to changes in relevant government policies, laws and regulations, industry practices and other sector-specific developments.

SCOPE & APPROACH

5. The guidance provided is developed in reference to applicable policy documents issued by Bank Negara Malaysia, Malaysian laws and regulation, standards and guidance issued by international / multi stakeholder organisations and initiatives and publicly available information on best practices adopted by relevant institutions and practitioners.
6. The sector in focus has been selected for its significant contribution to the Malaysian economy, susceptibility to environment degradation and social issues, and potential significant exposure to transition risk.
7. The Sectoral Guide recommends an inclusive approach to adoption and implementation, where it is critical to orientate FIs' stakeholders including customers and investors to create a common understanding towards meaningful outcomes.

APPLICABILITY

8. This guidance is intended for financial institutions (FIs). Counterparties of the FIs (e.g., customers, investors) may refer to this guidance to obtain a general perspective on areas / criteria considered in financing and investment assessments. However, final decision making is subject to the policies and procedures of the respective FIs.
9. While the guidance provides basic framework to help the industry build capability, FI-level calibration may be necessary to drive decisions that are aligned to their respective vision, mission, strategies, risk and growth appetites.

10. Efforts have been made to consult diverse group of stakeholders and technical experts in documenting this Sectoral Guide, however, it is not recommended to take the prescriptions as 'standard' solutions or practices. When operationalising this guidance, FI's should take into account the double materiality and its complexity, especially when it comes to quantifying the impacts, e.g., measuring the "costs" of negative impacts such as excessive GHG emissions etc.
11. The guidelines are for voluntary adoption and implementation. The prescribed best practices, frameworks and solutions may not be applicable or material universally. The applicability should be determined based on individual appetite; maturity and preparedness to integrate sustainability principles into business models; ability to build own capacity or nurture value chain partners with appropriate skills and knowledge; as well as the long-term aspirations to align and support organisational, national and international agenda of sustainable development.
12. This Sectoral Guide might be updated periodically i.e., every 2-3 years as appropriate to reflect the evolving nature and maturity of risk management practices. The examples of ESG risk management practices featured in this document are meant to be illustrative, and are neither prescriptive nor exhaustive.

(The rest of this page has been intentionally left blank.)

C. SECTOR IN FOCUS: OIL & GAS

DEFINITION & SCOPE

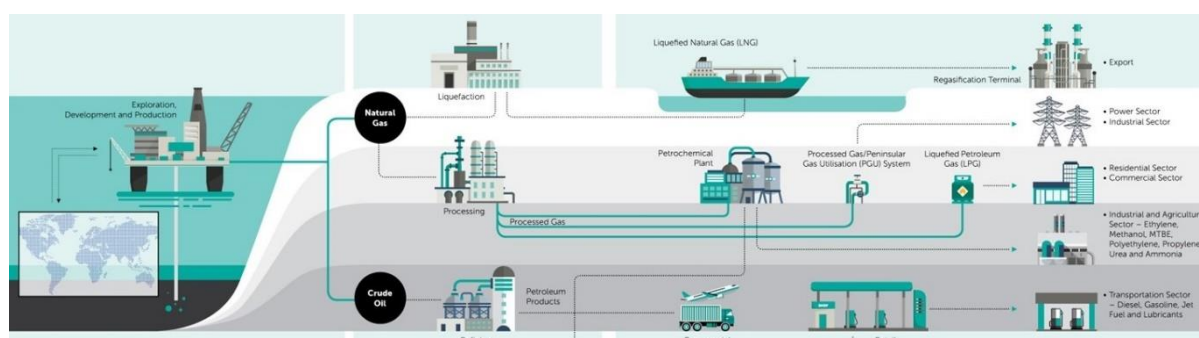
13. This O&G sector guidance focuses on three operational components of its lifecycle, namely upstream, midstream and downstream (as shown in Diagram-1 below).

Diagram 1: Lifecycle of O&G Operational Components



- (i) **The upstream** involves the exploration for petroleum crude oil and natural gas. The upstream oil sector is also known as the exploration and production (E&P) sector. The upstream sector includes the searching for potential underground or underwater oil and gas fields, drilling of exploratory wells, and subsequently operating the wells that recover and bring the petroleum crude oil and/or raw natural gas to the surface.
- (ii) **The midstream** involves storing, marketing and transporting petroleum crude oil, natural gas, and natural gas liquids (mainly ethane, propane and butane). Midstream operations, in some instances, may be included in the downstream category.
- (iii) **The downstream** involves the refining of petroleum crude oil and the processing of raw natural gas into products such as liquefied petroleum gas (LPG), gasoline or petrol, jet fuel, diesel oil, other fuel oils, sulfur, petroleum asphalt and petroleum coke, petrochemicals and lubricants. It also includes the selling, distribution and marketing of oil and gas products such as gas distribution companies and retail stations.

Diagram 2: Key Activities of O&G

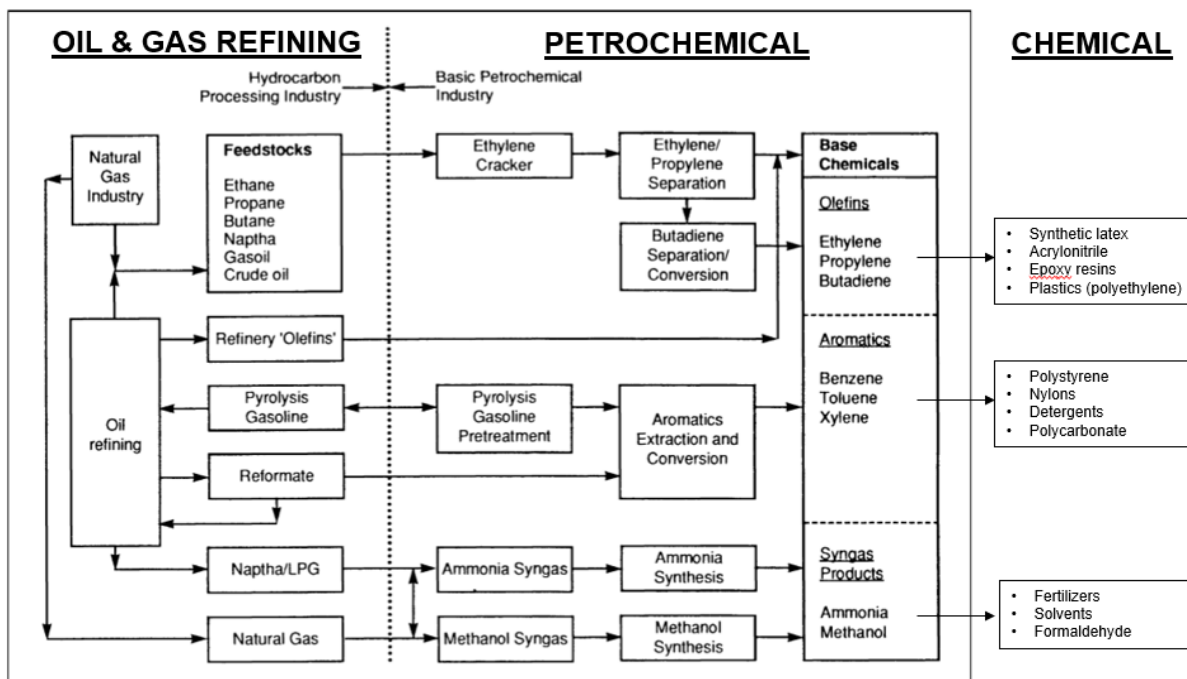


Source: PETRONAS Annual Report 2019

The Petrochemical industry is defined as a branch of heavy industry encompassing the production of synthetic materials from products of the refining of crude oil and natural gas.

The petrochemical industry produces specific petroleum-based hydrocarbons for use as basic building blocks in the wider chemical industry, as illustrated in Diagram 3: O&G Production Chart

Diagram 3: O&G Production Chart



Source of Diagram: [EIA Guidelines for Petrochemical Industries](#), 2018

(The rest of this page has been intentionally left blank.)

ECONOMIC CONTEXT

14. The O&G sector is a critical revenue source for major governments across the world, also contributing to socio-economic development, by creating jobs, attracting foreign direct investments, supporting lifestyles and fuelling the industry. This also makes the economies that are dependent on this sector highly vulnerable to price wars, market fluctuations, financial downturn, commodity and production disruptions etc.
15. Today, oil accounts for around 40% of the world's energy mix, whereas gas accounts for about 23% of the world's commercial energy mix. The world's dependence on oil and gas is increasing as global economies and infrastructure continue to rely heavily on petrol and petroleum-based products. According to industry reports, over the next two decades, the world will reach a point known as peak oil, where the aggregate demand for oil will peak and then start to decline. However, demand is likely to increase significantly before that point. This will affect demand for oil field services, which in turn will contribute to stranded reserves and weigh on prices, depending on the extent and timing of supply corrections, including the typical onshore conventional oilfield decline rate of 3%-6% per year⁶.
16. Collectively, oil and gas are the dominant primary energy supply sources for Malaysia, comprising approximately 71% of Malaysia's primary energy mix. Oil and gas also constitute 93% of domestic primary energy supply production⁷.
17. Malaysia is one of the key O&G producers in the Asia-Pacific region with daily production average 2,209 thousand barrels of oil equivalent per day. According to the national O&G player⁸, PETRONAS, the country's total petroleum reserves (proven & probable) are estimated at 5.25 billion barrels of oil equivalent as at January 2021.
18. According to CEIC Data⁹, the total exports were at 287,000 barrels of oil per day in 2019, positioning Malaysia as the 23rd largest oil exporter and the 5th largest LNG exporter globally in 2019. Malaysia's oil reserves are of high quality, owing to its light and sweet properties, with the benchmark Tapis crude as one of the most expensive on export markets.
19. The O&G sector has also been a significant contributor to Malaysia's GDP and energy security, but this is likely to change due to rising domestic demand and maturing reserves. To meet this challenge, the country will sustain production by rejuvenating existing fields and intensifying exploration activities while enhancing downstream growth and leveraging on its strategic location to become a regional hub for oilfield services¹⁰.

⁶ ESG Industry Report Card : Oil & Gas, S&P Global, 2019

⁷ New Economic Policy Malaysia, 2021

⁸ PETRONAS Integrated Report and Financial Report 2020

⁹ Malaysia Crude Oil: Exports, CEIC, 2020

¹⁰ APEC Energy Demand and Supply Outlook, 5th Edition, 2013

ESG/SUSTAINABILITY CONTEXT

No energy company will be unaffected by clean energy transitions. Every part of the industry needs to consider how to respond. Doing nothing is simply not an option.

Dr Fatih Birol, IEA Executive Director

20. The National Investment Aspirations (NIA) focuses on inclusivity and sustainability, with ESG goals that serve as an anchor to drive new investments and propel growth in the technologically-sophisticated sectors. This focus will also provide a pathway for investors to access new market opportunities, particularly in developed countries that mainstream sustainability throughout their value chain. In this context, the NIA takes into account the global interest surrounding carbon-neutrality, including the use of technology to help reduce carbon foot-print¹¹.
21. The Shared Prosperity Vision 2030¹² commits to sustainable development through Enabler 7 (i.e., sustainability), emphasising on the need to harmonise socioeconomic development with preservation of the environment and natural resources. Its guiding principles include Sovereignty and Sustainability, with a focus on strengthening environmental conservation and natural resources in development planning.
22. 189 countries worldwide have joined the Paris Agreement, which commits them to a pathway aimed at limiting the rise in temperature to 2°C while taking steps to decrease it further to 1.5°C. As of 2020, 12 countries¹³ have either ratified these targets in law, or are in the process of doing so. A further 18 countries have included the Agreement in policy, while the remaining countries are discussing national contributions to the targets. These growing regulatory developments will have significant ramifications for continued investments in fossil fuels, and states such as the Republic of Ireland, the United Kingdom, France and New Zealand have either divested entirely from fossil fuels or have placed restrictions on investments within that sector.
23. Oil extraction and natural gas play a major role in meeting the global energy demand today. Natural gas plays an important part in transition to a low-carbon future, which will be influenced by a) the extent to which oil cannot be decarbonised; b) the role of gas in bridging as a low-carbon fuel as it can be decarbonised; and c) its ability to manage intermittency of variable renewable energy. In either cases, it is important to note that the O&G sector maintains its high-risk status due to high-levels of GHGs from activities such as flaring and venting, drilling and production processes, decommissioning of O&G installation, managing storage tank disposal and other waste including drilling muds and fluids etc.
24. GHG emissions from O&G contribute significantly to climate change. In 2019, oil contributed 34% and gas 21%, of the world's 36.4 Gt of CO₂ emissions¹⁴, with GHG emissions from fossil fuels rising steadily in the last few decades. As oil and gas contributes more than half of GHG emissions worldwide, emissions reductions of 4.6% per year compounding between 2020 and 2040¹⁵ in that sector should be targeted across the value chain as part of a holistic net-zero strategy. Noting the challenges associated with a net-zero transition within the sector, this should be effectively

¹¹ Media Release: Investment Policy Reforms to be Rooted in National Investment Aspirations, MITI, 2021

¹² Shared Prosperity Vision 2030, Ministry of Economic Affairs, 2019

¹³ ECIU Net Zero Tracker, 2021

¹⁴ The Transition Away From Oil & Gas: A WWF Network Policy Position, 2021

¹⁵ WWF Oil and Gas Asset Owners Guide

- managed in conjunction with broader economic and societal concerns in order to avoid exceeding the carbon budget associated with a temperature rise within a 1.5°C trajectory, and thus to evade the worst foreseeable impacts of climate change.
25. The growing pressure from investors and regulators is pushing the transition away from carbon-based fuels and the trend is accelerating. Various extraneous factors such as the emerging regulations and national policies to support the global goals under the Paris Agreement continue to shape the future performance of the O&G sector.
 26. According to the International Energy Agency (IEA), the O&G players are facing increasing demand to clarify the implications of energy transitions on their operations and business models, and to explain the contributions that they can make to reducing greenhouse gas emissions and to achieving the goals of the Paris Agreement.
 27. The IPCC's conclusions¹⁶ reinforce the importance of rapid and deep cuts to greenhouse gas emissions to stay within a 1.5°C scenario, by reducing emissions by at least 50% by 2030, and achieving net zero by 2050. The IEA mentioned that the trajectory of oil and gas demand in the Net Zero Emissions (NZE) means that no exploration for new resources is required and, other than fields already approved for development, no new fields are necessary. On average oil demand in the NZE falls by more than 4% per year between 2020 and 2050. While global demand on natural gas is projected to decline by more than 5% per year on average in the 2030s.
 28. As countries around the world are taking steps to shape low-carbon economies, the transition from grey through blue to green hydrogen will also play a critical role in the energy transition. According to the IEA, hydrogen is a versatile energy carrier, which can help to tackle critical energy challenges of the future. For one, it offers ways to decarbonise sectors where managing emissions is proving to be a huge challenge. It can also help improve air quality and strengthen energy security. Therefore, the future landscape could see new opportunities where scaling-up of hydrogen will reduce costs and use of low-carbon hydrogen will be possible in both current and new applications.
 29. By 2050, emerging economies will double their share of the global energy mix, with particularly strong growth in Africa, ASEAN and India (from 24% to 34%). On a global average, power demand will double from 2020 to 2050. In order to reach an IPCC 1.5°C scenario, CO₂ emissions need to drop by 90% by 2050¹⁷. The phase-out of existing oil and gas production and infrastructure is a strategy that would keep emissions under the 1.5°C threshold, in order to build an energy system based 100% on sustainable renewables by 2050 at the latest. High- and upper-middle income countries are expected to take the lead and end oil and gas production by 2040, while low- and lower-middle income countries should end production by 2050.
 30. It must be noted that the O&G sector poses long-term financial risks, as assets are at risk of becoming stranded from the global transition to a low-carbon economy. It is estimated that in a pathway towards a 2 degrees limit, the value of stranded assets in the upstream fossil fuel sector alone could be worth up to USD 3.3 trillion by 2050, and a delay in action could cause this to nearly double to USD6.5 trillion.¹⁸

¹⁶ Climate Change and Land, IPCC Report, 2018

¹⁷ The Future is Now: How Oil & Gas Companies Can Decarbonise, McKinsey, 2020

¹⁸ World Energy Transitions Outlook: 1.5°C Pathway, International Renewable Energy Agency, Abu Dhabi, IRENA, 2021

31. According to the report by a coalition of NGOs, the world biggest 60 banks have provided USD3.8trillion of financing for Oil and Gas companies since the Paris Climate deal in 2015, according. Despite the Covid-19 pandemic cutting energy use, overall funding for oil and gas remains on an upward trend and the finance provided in 2020 was higher than in 2016 or 2017. Overall financing dipped by 9% in pandemic-hit 2020, but funding for the 100 Oil and Gas companies with the biggest expansion plans actually rose by 10%¹⁹.
32. Some of the largest banks in the world have adopted net-zero by 2050 targets, and have adapted lending policies in order to achieve climate targets. While some smaller banks such as Monzo and SEB have divested from fossil fuels completely, a number of larger banks are excluding financing to particularly carbon-intensive segments of the O&G value chain such as development of unconventional fields, and are setting targets for financing in renewables.
33. Following this global commitment, FIs may identify companies whose business model can be influenced through effective engagement. FIs should analyse O&G operators' plan and commitment to equitably and effectively reduce and address climate change impacts. FIs should support their O&G customers to aspire for a transition towards a low-carbon business such as by shifting and increasing their business portfolio share on renewable energy sources. FIs can support their O&G customers in their transition journey through preferential terms, lower rates of financing, or product offering such as sustainability linked loan (SLL). Further, FIs can also adopt different motivating strategies for oil and gas companies that are the least prepared, or not able or willing to shift their business towards low-carbon businesses, and gradually tighten their criteria to align with the stringent carbon constraints of a 1.5°C compliant transition.
34. Some of the recommendations on managing the transition away from fossil fuels include a) prioritizing zero-emissions solutions in end use and infrastructure; b) incorporating climate risk and 1.5°C alignment at the heart of public and private decision-making; and c) prioritizing equity and justice in the transition away from fossil fuels.
35. The various environmental and social risks burden O&G players with liabilities and losses, weighing on credit quality. Such risks include pollution and greenhouse gas emissions, the generation and disposal of waste, oil and chemical spills and safety incidents, and community impacts etc. The near-term issue for O&G sector has been the stigmatisation and reputational risks stemming from the civil society and stakeholder activism in fossil-fuel industry.
36. Environmental audit, fines and incentives help to mitigate unacceptable impact to the environment and to ensure there are no safety breaches. Long-term product substitution risks to the sector are also critical considerations, with their own challenges – financial and non-financial.
37. The emerging challenges for the sector include producing more energy at lower cost, with lower environmental footprint and positive social impact; continue to invest in infrastructure to meet the growing demand; and reinforce investor confidence in the sector, even in the wake of the shifting landscape towards renewables, alternatives, low and zero-carbon business models.

¹⁹ Banking on Climate Chaos – Fossil Fuel Finance Report, The Guardian, 2021

38. According to PwC, as oil and gas will remain a core part of the global energy mix for the foreseeable future, companies will need to develop proactive and transparent sustainability strategies that maintain their social license to operate in their traditional business, whilst identifying and securing new opportunities arising from the transition to a low-carbon economy.

(The rest of this page has been intentionally left blank.)

POLICY & REGULATORY CONTEXT

39. Historically, Malaysia has had a dynamic and a progressive stance on energy and related sector policies and regulations. From 1979's National Energy Policy to the Renewable Energy Policy and Action Plan 2010 and Renewable Energy Act 2011, the country has been responsive to the evolving energy landscape as well as the growing expectations from international trading and bilateral partners, especially in relation to sustainable development of O&G sector. Refer to Appendix I: Policies & Initiatives and their Key Mandates.
40. Malaysia has announced its intention to be carbon-neutral by 2050, and aims to reduce its economy-wide carbon intensity (against GDP) of 45% in 2030 compared to 2005 level. The updated NDC²⁰ includes an increased ambition: a) The 45% of carbon intensity reduction is unconditional; b) This target is an increase of 10% from the earlier submission; and c) The GHG coverage is expanded to seven greenhouse gasses.
41. Malaysia is also formulating its Long-term Low GHG Emission Development Strategies (LT-LEDS) which will contribute towards achieving Article 2, paragraph 1(a), and Article 4, paragraph 1, of the Paris Agreement. Additionally, at COP26 Malaysia committed to the Global Methane Pledge, which aims for signatories to cut 30% of their methane emissions by 2030. Additionally, the government is planning to table legislation on climate change in the foreseeable future.
42. The Government of Malaysia, in April 2021, launched the National OGSE Industry Blueprint 2021-2030 is expected to catalyse local OGSE development, adapt to the evolving needs and requirements of the global market such as the energy transition, to remain competitive.
43. Besides, the National Energy Policy (NEP) is aligned to the Paris Agreement and targets a 40% renewable energy share by 2040 to achieve 60% reduction in emissions intensity of the energy sector by 2035 compared to 2005. The NEP is expected to build pressure on the O&G sector to contribute to the transition by embracing more environmentally and socially responsible business practices. The NEP is also expected to introduce several stringent policies and regulations across energy sectors, also enabling energy governance structure and market liberalisation.
44. Malaysia aims to achieve a higher RE growth, from the existing 23% or 8.45 GW RE in its power installed capacity. Malaysia Renewable Energy Roadmap (MyRER)²¹ projected to increase the share of RE to 31% or 12.9 GW in 2025, and 40% or 18.0 GW in 2035.

²⁰ Malaysia updated NDC submission to UNFCCC, July 2021

²¹ Malaysia Renewable Energy Roadmap – Pathway Towards Low Carbon Energy System, Sustainable Energy Development Authority (SEDA) Malaysia, 2021

45. PETRONAS, which has a regulatory supervision and has the licencing authority on all upstream activities in Malaysia through the mandated Petroleum Arrangement Contracts (PACs) has made a public commitment to achieve Net Zero Carbon Emissions by 2050. However, its current Net Zero commitments apply to PETRONAS' own facilities and operations and not for PACs. The energy giant's emissions reduction plan is also supported by an ambitious target of increasing renewable energy installed capacity by 2024. This leadership move is not only strengthening the resolve amongst other energy and O&G players to transition to lower carbon energy systems and solutions, but is also signalling the impending change in policy and regulations to catalyse ESG performance of critical sectors such as O&G.
46. While the current policy regime, financial schemes and tax incentives focus only on fiscal sustainability of certain manufacturing and technology-enabled sectors, covering working capital and CAPEX, the emerging regulations will emphasise on balancing economic, environmental and social sustainability, especially in action to combat climate change. Initiatives to monetise natural resources such as solar and wind will be reiterated to include financial assistance and tax benefits.
47. Decarbonisation policies (in view of the growing carbon market with interventions such as carbon pricing etc.) and as a result, clean energy targets and positive ESG targets by O&G players will become a matter of compliance as well as competitive advantage.
48. In Malaysia, EIA is a statutory requirement for activities which have been prescribed under Section 34A of the Environmental Quality Act 1974 and the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015. For Sabah, the applicable legislation governing EIA is the Environment Protection Enactment, 2002 administered by the Sabah's Environmental Protection Department (EPD), while for Sarawak, the Natural Resources and Environment Ordinance, 1993 administered by the Natural Resource and Environment Board (NREB).
49. For offshore²² O&G projects that fall within the Exclusive Economic Zone Act 1984, the EIAs are required by virtue of an administrative arrangement within the relevant Federal Government, e.g., the DOE, the Marine Department, the Ministry of Domestic Trade and Consumer Affairs.
50. The emerging / future policy and regulatory landscape will also require FIs to reconfigure or balance their portfolios to include alternative and sustainable sectors. This will also mean FI's will be expected to also steer their customers to develop and adopt specific performance criteria to manage their potential negative impacts on the environment and society.

²² Offshore is defined as the waters from the lowest low tide level to the 200 nautical miles Exclusive Economic Zone limit

D. SECTOR GUIDANCE

IMPACT-BASED RISK MANAGEMENT SYSTEM

51. It is recommended for the FIs to strengthen their current risk evaluation framework or processes to include various dimensions of impact (for e.g., ESG risks contributing to impairment, weak credit ratios, liabilities, reputational and punitive damages etc.) to the existing credit risk management practices (which is by default the base approach), as well as make reference to the interconnectedness between the material impacts an FI has on the environment and how the environment will impact the FI. The purpose of including impact-based dimensions is to drive the O&G sector to adopt ESG practices, which will benefit both O&G operators and FIs in the long term
52. O&G project development and operation activities can result in impacts to the physical and social environment. The type and severity of impacts that may occur depend upon many factors, including the stage and timing of an activity or process; the size and complexity of a project or operating facilities; and the nature and sensitivity of the surrounding physical and social environment.
53. As Malaysia navigates its way in the transition towards a low-carbon nature-positive economy, the government will continue to adopt a market-driven approach. However, if not managed responsibly, these activities can have unacceptable adverse impacts on people or on the environment. Customers can improve their environmental and social performance by addressing key impacts of their project development and operational activities.
54. Additionally, FIs should adhere to the following principles when reviewing financing decisions for their O&G customers
 - 54.1 Affordable, clean energy and climate change: The business model operated by the customers should subscribe to science-based climate targets, such as alignment with a 1.5°C scenario. In doing so, the customer should promote greater access to affordable and sustainable energy while taking proactive climate action and enhancing social performance.
 - 54.2 Responsible consumption and production: FIs should encourage industries, businesses and consumers to support sustainable use of resources – energy and material efficiency, water conservation, and the protection and restoration of the natural environment. In their assessment, FIs to ensure that O&G operations and activities do not have adverse impacts on biodiversity, human rights, health and safety and the environment.
 - 54.3 Industry, innovation and infrastructure: Oil and gas is a key input into energy-intensive industries, catalysing further innovation, decarbonisation and downstream value-add to drive economic growth. Therefore, the selection of customers should be based on their intent or demonstrated efforts to build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation towards a climate transition.

- 54.4 Sound policy and governance: Advocate a sound policy on O&G that incentivises climate action, value creation and management of ESG risks that comply with international standards and best practices (such as the International Finance Corporation's (IFC) Performance Standards on Environmental and Social Sustainability), drives performance improvement, encourages transparency in corporate carbon disclosure, facilitates strong enforcement and supports flexibility and innovation.
- 54.5 Integration of Shariah governance: It is also recommended for Islamic FIs to integrate Shariah governance in their evaluation framework to obtain responses and advice from Shariah perspectives for decision-making purposes. The FIs should determine the role of Shariah governance functions in providing such responses including the application of *Maqasid al-Shariah* in assessing the priorities and impact-based dimensions based on *daruriyyat* (essentials), *hajiyyat* (needs) and *tahsiniyyat* (embellishments). With regards to the application of the Shariah principle on attainment of benefits and prevention of harm, it may require Shariah guidance and deliberation, for example, when making a choice between two harms when there is a constraint whereby the lesser of the two must be chosen. In addition, the prevention of public harm should be given priority over individual harm as guided by relevant Shariah principles.
55. FIs should also promote the following principles to advance ESG performance of O&G sector.
- 55.1 Adopt a Risk-based Approach: Customers to implement programmes using a risk-based perspective which will help assess and reduce risks and impacts of their activities on the environment and societies.
- 55.2 Apply Best Available Techniques (BAT): Refers to adopting the most effective methods of operations in achieving high level of protection on a scale which allows implementation under economically and technically viable conditions. Techniques refer to both the technology used and the way in which they are designed, built, maintained, operated and decommissioned.
- 55.3 Act per Precautionary Principle – Customers to take a precautionary approach to mitigating various impacts from its business activities. When there are threats of serious or irreversible damages, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation.
- 55.4 Engage Stakeholders – Customers to implement a proactive programme to engage and consult members of the public/communities and ecosystem partners/stakeholders in relation to the management of environmental and social impacts.
56. Apart from the above principles, FIs should also encourage customers to be equipped with knowledge, understanding and application of the internationally accepted and adopted methodologies and tools for identifying process hazard and management of associated risk. In short, the FIs should prioritise or incentivise customers with relevant certifications and recognised standards. Refer to Appendix II: Certifications & Standards.

Risk Identification

57. Along the value chain of O&G sector, there are various material environmental and social risks in addition to the financial risks that continue to threaten the assets, the performance, value creation and preservation. There is merit in the concept of ‘Double Materiality’, where FIs identify the ESG risks that impact O&G customers’ business and also the impacts of FIs customers’ business on the environment and society. In both instances, there could be financial implications, which should be taken into account during customer due diligence. Additionally, as also stated in VBIAF (paragraphs 41-43), FIs should consider aligning material matters with national / sectoral priority / focus areas.

Diagram 4: Dual Materiality



58. FIs should identify and balance trade-offs between the positive (benefits) and negative (risks) impacts related to financing and/ or investing (and any other relevant financial activities) in this sector.
59. The identified impact areas and risks can have financial (in the form of costs of remediation, fines and penalties, litigation etc.) and reputational implications if not well managed. These are also the areas (when proactively managed) that present significant opportunities to deliver stakeholder value.
60. Table 1 : O&G Lifecycle & Risk Transmission²³ (below) provides a brief description of various ESG impacts and the risk transmission across various stages of O&G Lifecycle.
61. Where applicable, we have also included the relevant risks, metrics and mitigations in relation to gender issues and social inclusion (GESI), adapted from the Gender Action Plan: Gender Equality and Social Inclusion Action Plan.

²³ The list is not comprehensive and have been adapted from various internationally accepted frameworks such as the Climate Action 100+ Net Zero Company Benchmark; Bloomberg NEF Oil and Gas Business Model Transition Scores; Barclays Environmental and Social Risk Briefing on Oil and Gas; UNEP Industry and Environment Report on Environmental Management in Oil and Gas Exploration and Production; TCFD Report; and good practices of companies derived from Dow Jones Sustainability Index (DJSI) and Morningstar.

Table 1: O&G Lifecycle & Risk Transmission

O&G LIFECYCLE & RISK TRANSMISSION			
Impact / Risk Categories	Upstream	Midstream	Downstream
<p>Environmental Environmental harm, including GHG Emissions is responsible for global heating, which further triggers natural disasters and extreme climatic conditions which affect O&G operations. The following risks / impact areas can severely affect issuer credit quality due to mounting liabilities from environmental remediation, fines, and litigation from consumers, civil society, and even, government (based on the magnitude of impact).</p>			
<p>Land access, land-use, land-use change and acquisition</p>	<ul style="list-style-type: none"> • Seismic and other disturbances from fracking activities 	<ul style="list-style-type: none"> • Changes in land-use patterns, affecting access and continuity of subsistence/economic activities (e.g., fishing, agriculture, etc.) • Displacement and involuntary resettlement of local and indigenous communities and use of indigenous customary land without Free, Prior, Informed Consent (FPIC) and/or adequate compensation • Potential land clearing, loss of vegetation, impacts on wildlife and biodiversity and encroachments on protected or high-conservation value areas • Land use change due to major O&G installation may result in localised 'heat island' effect 	
<p>Biodiversity loss and deforestation</p>	<ul style="list-style-type: none"> • Disturbance of maritime eco-systems in offshore and coastal activities • Light pollution and ensuing impacts on wildlife including birds and turtles • Possible short-term changes and/or permanent loss in habitat, food and nutrient supplies, breeding areas, migration routes, vulnerability to predators • High pH and salt content of drilling fluids pose impact to fresh-water sources • Potential protected area downsizing, downgrading or degazettement + fragmentation • Potential loss of forest ecosystems and carbon sequestration services • Places fragile ecosystems including marine protected areas at risk of oil spills, leaks, fires and explosions 		

<p>Climate / GHG emissions</p>	<ul style="list-style-type: none"> • GHG emissions from flaring or venting activities • Venting and flaring result in emissions of carbon dioxide (CO₂) and methane (CH₄) that can contribute to climate change and acid rain • Threat of operational disruptions as a result of the impact of climate change • Inefficient use of energy from non-renewable sources in operations 	<ul style="list-style-type: none"> • GHG emissions from combustion of fuel-burning equipment that generate steam, heat and electricity for process/operations e.g., boilers, furnace, heaters, turbines, engines, flares. These emissions can contribute to climate change, and ocean acidification • Fugitive emission from loading operations, tankage and losses from valves, flanges, pumps, connectors, and compressors • Inefficient use of energy from non-renewable sources in operations
<p>Water</p>	<ul style="list-style-type: none"> • Produced water discharge to the receiving water (oceans), impacting water quality 	<ul style="list-style-type: none"> • Overuse and depletion of freshwater • Wastewater discharges to the receiving water (rivers, coastal water) impacting water quality • Accidental spills and leakages that may lead to soil and groundwater and surface water contamination
<p>Pollution and waste</p>	<ul style="list-style-type: none"> • Generation and removal of drill cuttings and drilling mud • Generation and disposal of produced sand from the reservoir when separated from the formation fluids during hydrocarbon processing. The produced sand can contain hydrocarbons, the level of which can vary substantially depending on the location, depth, and reservoir characteristics • Generation and disposal of N.O.R.M. (Naturally Occurring Radioactive 	<ul style="list-style-type: none"> • Noise, light pollution and public disturbances/nuisance from use of equipment and activities • Generation of hazardous waste that will require proper and safe disposal • Disposal of waste to landfill • Vapours from petrochemical products such as diesel and petrol can pollute the air • Oil spills which can pollute rivers, bays, the ocean and land areas. This could be caused by accidents involving tankers, barges, pipelines, refineries and storage facilities

	<p>Material or materials enriched with radioactive elements that exist in the natural environment). This includes uranium, thorium, potassium, radium, and radon</p> <ul style="list-style-type: none"> • Emissions from ship engines, discharges to ocean (bilges, sewage, garbage disposal, etc.) • Natural gas/oil leaks and spills • Hazardous fluids and waste (explosive, oxidizing, flammable, irritant, harmful, toxic, carcinogenic) requiring careful transportation, handling, treatment and disposal • Emissions such as Nitrogen Oxides (NOx), Sulphur Dioxide (SOx), Carbon Monoxide (CO), Particulate Matter (PM), and Volatile Organic Compounds from electric power generation, operation of machine drivers for compression/pumping, flaring, vessel activity (e.g., supply or shuttle vessels) and helicopters, that can contribute to acid rain, ocean acidification and air quality impact 	<ul style="list-style-type: none"> • Refineries emit hydrocarbon compounds and benzene, CO, H2S, NO, PM, Sox and VOC's which can cause respiratory irritation, blood disorders and carcinogen • Soil contamination from metal, sludge and other residues • Emissions from ship engines, discharges to ocean (bilges, sewage, garbage disposal, etc.) • Hazardous fluids and waste (explosive, oxidizing, flammable, irritant, harmful, toxic, carcinogenic) requiring careful transportation, handling, treatment and disposal • Emissions such as NOx, SOx, CO, PM, H2S, VOCs from process, combustion of fuel-burning equipment and fugitive emission. These emissions can contribute to acid rain, ocean acidification and air quality impact
<p>Social Social inequalities and unrest, community exploitation and chaos are a threat to securing licence to operate. For instance, opposition from communities and even government can potentially delay the development of reserve/s or significantly increase the full-cycle costs, making them unviable, difficult to plan growth and assure returns on capital. Similarly, O&G players have to incur high costs to educate and ensure safety and compliance with local regulations (especially in offshore operations), affecting CAPEX etc.</p>		
<p>Labour rights and working conditions</p>	<ul style="list-style-type: none"> • Use of undocumented migrant labour and potential exploitation of vulnerable workers (e.g., forced labour including modern slavery indicators or child labour) • Unsafe working conditions and lack of benefits (e.g., sub-standard labour conditions, excessive working hours, lack of healthcare protections, failure to pay minimum wage, withholding of documents, contract substitution, inadequate and unhygienic living quarters etc.) • Gender/racial inequality and marginalisation in the workplace 	

<p>Occupational safety and health (OSH)</p>	<ul style="list-style-type: none"> • Exposure to work-related illness, injuries, and death • Respiratory irritation, blood disorders and carcinogen from emissions. • Exposure to heat radiation, air and water pollution from venting and flaring • Exposure of workers working outdoors (i.e., refineries) to increased UV, also increasing health risks • Spread of communicable diseases to local populations • Particulate emissions from refineries resulting in impacts to lung functions • Explosions and fire hazards
<p>Human rights and community relations</p>	<ul style="list-style-type: none"> • Interference with local communities and subsistence/economic activities (e.g., fishing, agriculture, etc.) and degradation of/access to resources (e.g., water) • Non-recognition of the socially excluded groups who were directly affected by the project • Changes in socio-economic and population/demographic patterns, including exacerbating gender inequality • Socio-economic dependency on the oil and gas industry without an exit or 'just transition' strategy • Site-hazards (physical, chemical, or other hazards associated with sites) and its impact to local communities • Involuntary resettlement issues associated with community relocation during project development phase of on-shore facilities • Non-availability and access of workers to public facilities such as housing, education and training, healthcare, electricity, sewage and waste disposal • Loss of social/community cohesion and unrest due to social exclusion, internal migration, new or increased/decreased employment opportunities, income differentials and inflation • Threat to sociocultural systems such social structure, practices and beliefs and value systems as a result of outsider influence or interference • Threats to the rights and ways of life of indigenous people • Damaging effects on cultural heritage • Potential threat to public health due to exposure to communicable diseases, sexually-transmitted diseases, respiratory irritation, etc. • Places neighbouring communities at risk of spills, leaks, accidents and heat radiation from operations
<p>Governance Good governance, even in terms of efficient policies to support the transition to a low-carbon industry or economy. Reputational and punitive damages as well as investigations that result in sanctions may affect cash and credit position of businesses.</p>	
<p>Governance mechanism</p>	<ul style="list-style-type: none"> • Host country governance, national economy and revenue transparency, risk of bribery, corruption, etc. sourcing increase both risks and costs of compliance • Risk of social unrest and conflict, including of a civil and/or political nature

Risk Measurement²⁴

62. In assessing the risks and impacts, FIs should develop different sets of metrics/ indicators for different categories of risks or ESG pillars (Refer to Table 2: Transaction-level Risk Metrics and Risk Score). Where the metrics or indicators are 'Policies', FIs should investigate if such policies are supported with time-bound programmes, targets, management accountability and oversight.
63. FIs should assign appropriate risk score/ level for each of the impact metrics/indicators. As stated in paragraph 52 of VBIAF, FIs should consider factors such as the likelihood and materiality of the impact-based risks, consideration of stakeholders' interest and national priorities/ targets. The assessment should include, where relevant, an analysis of the severity of the ESG risks, as well as capacity, commitment and track record of the customer in managing such risks. Transactions with higher ESG risks should be subjected to in-depth due diligence, which may include site visits and independent review by environmental risk specialists.
64. In addition to the various industry and global benchmarks as per footnote 21, IPIECA²⁵ Sustainability Reporting Guidance for O&G Industry, Global Reporting Initiative (GRI) Standards and Bursa Malaysia's Sustainability Reporting Guide have also been referred to for providing a filtered, non-comprehensive list of metrics in the table below. Kindly refer to Appendix IV: Essential Readings that includes links to comprehensive lists of indicators/metrics. In addition to these metrics, FIs should investigate / assess information pertaining to any breaches, fines, penalties, and litigation in relation to the various risks and impact categories.
65. **Guide to read / apply the following Risk Assessment Table:** The level 1 and level 2 assessments can be undertaken in phases (one after the other or simultaneously) depending on the risk appetite, the maturity of ESG adoption and integration, level of ESG governance etc. Where necessary and relevant, FIs may choose to partner with experts and external assurance bodies to conduct various assessments and generate evidence-based reports.
 - 65.1 Level 1: The preliminary assessment can be objective, mainly to determine if the businesses produce / track / monitor the most fundamental of widely accepted metrics using a polar question of YES/NO. A 'YES' would qualify positive scoring, where as a 'NO' could attract a negative or zero scoring.
 - 65.2 Level 2: The next level of assessment could be subjective, where specific thresholds or parameters could be set by FIs assigning weightages or different scores based on the quality (high, medium, low); extent of fulfilling the set thresholds / parameters (%); reduction in negative impact year on year (% / trend); positive impact from various measures taken such as technology deployment, new policy enforcement etc. (subjective indicators of positive impact on environment or communities) etc.
 - 65.3 While the table below provides some examples of various transaction-level risk metrics that can be assessed for scoring, please refer to Appendix IV: Essential Readings, for additional references to international frameworks that may prescribe comprehensive list of thresholds and parameters, where applicable.

²⁴ As stated in paragraph 52 of VBIAF, impact assessment should be conducted at both customer and transaction levels. The guidance provided in this document focuses on transaction-level risks but may also be used to assess customer-level risk. Customer-level on-boarding process is stated in paragraph 40 and Table 3 of VBIAF.

²⁵ ipieca-API-IOGP Sustainability Reporting Guidance for Oil & Gas Industry, 2020

Table 2: Transaction-level Risk Metrics and Risk Score

Impact / Risk Categories	Inherent Risk Level	Sources of Metrics	Mitigation	Risk Score Level ²⁶
Land access, land-use, land-use change and acquisition	High / Medium / Low	<ul style="list-style-type: none"> • EIA Report • ESIA Report • FPIC • Satellite images and geospatial data (i.e., Global Forest Watch) • Community / NGO reports, complaints and protests • Negative media coverage 	Disbursement subject to effective mitigation	<p>Metrics for type, scale, and location of the land use / projects, number of affected communities, number of formal and informal households that have to be/have been physically displaced, availability of resettlement sites and replacement land, No. (and/or percentage) of land / plots / houses / businesses for which compensation agreements were signed, team and budget considerations for implementation, evidence of a whistle-blower and grievance policy etc.</p> <p>Level 1: Polar Analysis (Yes / No) Conducted/secured EIA / ESIA / FPIC and have published relevant reports / documents.</p> <p>Level 2: Qualitative (High / Medium / Low) High: unsatisfactory report(s) Medium: sufficient evidence that effective mitigation measures are in place to address issues identified Low: satisfactory report/s</p>
Biodiversity loss and deforestation	High / Medium / Low	<ul style="list-style-type: none"> • HCV Assessment • HCS Assessment • On-Site / Desktop Biodiversity Assessment • Biodiversity Management - Mitigation & Action Plans • Satellite images and geospatial data (i.e., Global Forest Watch) • Community / NGO reports, complaints and protests • Negative media coverage 	Disbursement subject to effective mitigation	<p>Metrics for changes in forest cover, % of ocean and surrounding ecosystems, hectares of forest restored, funding for biodiversity conservation, absolute number and trend of threatened species in project area and its surroundings before and after project development and throughout operations (as per IUCN Red List of Threatened Species) etc.</p> <p>Level 1: Polar Analysis (Yes / No)</p>

²⁶ The risk score/level provided is an example. FIs can use either a numeric score (1-5) or categorisation (High, Medium, Low) according to their respective internal risk methodologies. FIs should determine the appropriate risk score/level based on their respective risk appetites. Examples for some of the risk scores/ levels are intentionally not provided as they will depend on the respective project/ transaction baselines. From risk management perspective, inherent risk means an assessed level of raw or untreated risk i.e., natural level of risk without doing anything to reduce the risk. However, this definition should be applied in the context of the project / transaction and with due consideration to the materiality of impact/risk categories.

				<p>Conducted HCV / HCS / IUCN assessments and have published relevant reports / documents.</p> <p>Level 2: Qualitative (High / Medium / Low) High: unsatisfactory report(s) Medium: sufficient evidence that effective mitigation measures are in place to address issues identified Low: satisfactory report/s</p>
Climate/ GHG emissions	High / Medium / Low	<ul style="list-style-type: none"> • Climate Adaptation Strategy • Carbon Emissions Abatement Strategy • GHG Emissions Data, covering scope 1 & 2 (in absolute terms, physical activity-based emission, or economic-based emission) • Climate Adaptation Strategy (to ensure minimal operation disruption) • Partnership for Carbon Accounting Financials (PCAF)'s Global GHG Accounting and Reporting Standard <p>(Refer to Appendix IV : Essential Readings for GHG Calculator / Methodology)</p>	Better Terms subject to consistent emissions reductions and a climate mitigation & adaptation strategy / plan	<p>Metrics for GHG emissions per tonne of production (GHG Intensity) ; emissions factor (Tons pf CO2 per GJ); production (GJ/barrels of oil/gas per year); production volume trajectory; change in planned production (BOE/day and bcm/day), projection of production capacity etc.</p> <p>Level 1: Polar Analysis (Yes / No) Measured the carbon footprint as per the defined boundary and scope and have published relevant reports / documents.</p> <p>Level 2: Qualitative (High / Medium / Low) High: no reduction targets or mitigation action plan Medium: some evidence of mitigation action plan but, not targets Low: consistent reduction of emissions and progress towards achieving targets²⁷</p>
<u>Water</u>	High / Medium / Low	<ul style="list-style-type: none"> • Water Source Vulnerability Assessment • Effluents Management Plan • Water Management Policy • Water Quality Index (that checks for Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), Oil & Grease (O&G, Ammoniacal Nitrogen, Turbidity, Faecal Coliform etc.) 	Better Terms subject to consistent reductions	<p>Metrics for total water withdrawn and water consumed, water savings, recycled water used, % of water withdrawn and consumed from high baseline water stress, % of wastewater treatment works meeting licencing conditions, baseline water stress, water scarcity, projected change in drought occurrence, drought frequency probability, estimated flood occurrence, projected change in flood occurrence etc.</p> <p>Level 1: Polar Analysis (Yes / No)</p>

²⁷ Targets can be expressed either in absolute emissions or carbon/emissions intensity

				<p>Defined a water management policy and undertaken / tracked water vulnerability, quality, and waste assessments</p> <p>Level 2: Qualitative (High / Medium / Low) High: no policy and/or assessments Medium: policy defined but partial assessment with some mitigation action Low: policy in implementation and assessments undertaken, with targets and action plan</p>
Pollution and waste	High / Medium / Low	<ul style="list-style-type: none"> • Pollution & Waste Reduction Plan • Emergency Preparedness, Management, Response Programmes and Policies • Air Emissions Management Plan 	Disbursement subject to effective mitigation	<p>Metrics for emissions per tonne (VOCs, SOx, NOx, CO, CH₄, PM, etc.), amount of waste produced by revenue, hydrocarbon and non-hydrocarbon spills / quantity and type of waste / water quality / waste reduction / per tonne / ha, spills per barrel / hydrocarbon spills > 1bbl etc.</p> <p>Level 1: Polar Analysis (Yes / No) Defined a waste management policy or strategy with assessments / audits on waste</p> <p>Level 2: Qualitative (High / Medium / Low) High: no policy and/or assessments Medium: policy defined but partial assessment with some mitigation action Low: policy in implementation and assessments undertaken, with targets and action plan</p>
Labour rights and working conditions	High / Medium / Low	<ul style="list-style-type: none"> • Collective Bargaining Agreements • Labour Welfare and Wellbeing Provisions / Policies • Transparent, Safe & Independent Grievance Procedures • Non-discrimination and gender equality policy • Gender-based violence and harassment (GBVH) Policy (in the workplace) 	Disbursement subject to effective mitigation	<p>Metrics for % of migrant and vulnerable workers, average salary, provision of minimum and equal wages, % of workforce covered under collective bargaining agreements; % covered by insurance; quality of housing and sanitation; minimum wage vs. living wage ratio; % of dispute resolution or number of legal cases/disputes per annum etc.</p> <p>Level 1: Polar Analysis (Yes / No) Defined all relevant policies and tracked relevant metrics</p> <p>Level 2: Qualitative (High / Medium / Low)</p>

				<p>High: no policies and programmes Medium: policies defined but metrics tracked partially Low: policy in implementation and programmes deliver positive data on social impact</p>
<p>Occupational safety and health (OSH)</p>	<p>High / Medium / Low</p>	<ul style="list-style-type: none"> • OSH Records including Safety Statistics etc. • Audit Report • OSH Training Plan / Coverage 	<p>Better terms subject to consistent OSH track record</p>	<p>Metrics for number of occupational injuries or loss time injury (LTI) / restricted work case / accidents / health issues / fatalities; legal cases/disputes ; % covered by insurance; satisfactory machinery maintenance reports; satisfactory training reports</p> <p>Level 1: Polar Analysis (Yes / No) Defined all relevant policies and tracked relevant metrics</p> <p>Level 2: Qualitative (High / Medium / Low) High: no policies and programmes Medium: policies defined but metrics tracked partially Low: policy in implementation and programmes deliver positive data on OSH</p>
<p>Human rights and community relations</p>	<p>High / Medium / Low</p>	<ul style="list-style-type: none"> • Social Impact Assessment or SIA (including community demography and profile, impacts by community profiles i.e., social hierarchy, ethnic groups, socio-cultural and religious practices, skills profile and public services / resources, provisions for labour standards, equal wages, non-discrimination policy etc.) • CSR Policy and Programmes • Community engagement policy • Community Complaints Procedures • Community / NGO reports/complaints • Free, Prior, Informed Consent Policy • Police reports • Satellite images and geospatial data (i.e., Global Forest Watch) • SEA and Cumulative Effects Assessments 	<p>Disbursement subject to effective mitigation</p>	<p>Metrics for number of engagement programmes including consultation with vulnerable groups, instances of gender-Based violence and harassment (GBVH) in local communities, number of law suits or legal action by the community / protests/ social activism/ disputes and negative coverage; etc.</p> <p>Level 1: Polar Analysis (Yes / No) Undertaken social impact assessment and defined a CSR policy, with community relations programmes</p> <p>Level 2: Qualitative (High / Medium / Low) High: no policy and/or assessments Medium: policy defined but partial assessment of human rights with some mitigation action</p>

				Low: policy on CSR in implementation with community investments and assessments undertaken, with targets and action plan
Governance	High / Medium / Low	<ul style="list-style-type: none"> • Anti-Corruption / Money Laundering Policy • Tariff Negotiation Process • Enterprise Risk Management Framework (with ESG Integration) • Statement of Commitment on Sustainability and Climate Change 	Better terms subject to effective governance mechanisms	<p>Metrics for % of operations scanned for the risk of corruption and corrupt business practices; number of ESG risks identified and integrated into the ERM framework; policies and governance in place to monitor and manage incidences of corruption and corrupt practices (and their impacts), complaints, and resolutions; % of policies supported with management KPIs and targets etc.</p> <p>Level 1: Polar Analysis (Yes / No) Defined relevant policies, with due diligence in place to monitor and manage governance issues</p> <p>Level 2: Qualitative (High / Medium / Low) High: no policies and inadequate governance Medium: policy defined but enforcement is weak or partially effective Low: policies in implementation with regular audits on governance aspects</p>

When assessing the risks, FIs may additionally review various cash flow projection variables such as the following:

- **Turnover:** forecast supply/demand market situation (volume / prices) using commodity mix versus a 2° C degree benchmark. Factor in offtake agreements in place and position on the cost curve to refine impact on turnover and proportion of the cash flows relying on the production post 2040.
- **Opex:** assess EBITDA per barrel sensitivity to carbon tax and impact on break even.
- **Capex:** assess the amount of investment required in gas and renewables vs future cash flows / access to capital.
- **Equity:** assess sensitivity of the value of oil reserves to O&G prices under different scenario. Forecast amount of stranded assets under different scenario by looking at exposure at capex intensive oil fields.
- **Externality:** assess the impact of an idiosyncratic event such as environmental disaster on cash flows.

Risk Mitigation

66. FIs should review the broad mitigation strategies of their customers in the context of their outcomes and how they will support the sector’s overarching ESG strategies. FIs should also refer to BNM’s Climate Change and Principle-based Taxonomy: Guiding Principle 4 on Remedial Measures to Transition for better alignment.

Table 3: Risk Mitigation and Remedial Measures

Metric/Measure	Risk Mitigation and Remedial Measures ²⁸
Land access, land-use, land-use change and acquisition	<ul style="list-style-type: none"> • Make provisions for compensation for relocation or loss of livelihoods that cannot be avoided • Select sites where the effects on the environment and local infrastructure can be minimised • Plan construction of access routes by taking into account land issues, long-term disturbances from traffic and population density • Implement a decommissioning and rehabilitation plan with periodic review • Develop appropriate compensation, resettlement, and livelihood restoration action plans where displacement is unavoidable • Identify, classify and protect cultural and heritage sites according to international standards • Prepare cultural / archaeological heritage plans - including site / feature "watching brief" (continuous visual monitoring)
Biodiversity loss and deforestation	<ul style="list-style-type: none"> • Use the EIA to identify protected areas and sensitivities (HCV, HCS, ESA) • Maintain, safeguard, increase natural landscape area, natural habitat and ecosystem services • Select sites where impact on biodiversity can be avoided altogether or minimised • Restore degraded biodiversity and strengthen natural capital where possible • Put in place a habitat restoration and rehabilitation plan • Engage with local community and stakeholders on biodiversity management • Monitor overlaps between oil and gas concessions and biodiversity sensitive areas • Minimise clearing of vegetation, and avoid nationally and internationally recognised HCV areas • Develop full decommissioning, restoration and aftercare plan in consultation with local authorities, communities and stakeholders • Devise a coastal management plan • Adhere to guidelines on business and key biodiversity areas (KBAs)

²⁸ Illustrations Only. Not Comprehensive.

<p>Climate / GHG emissions</p> <p>GHG emissions and reporting of Scope 1, Scope 2 and Scope 3 emissions in terms of carbon dioxide equivalent (CO₂e).²⁹</p>	<ul style="list-style-type: none"> • Have a science-based decarbonisation strategy to meet GHG reduction targets following a robust methodology such as the Sectoral Decarbonisation Approach³⁰. • Use sector-scenarios from the IEA 2DS model to calculate a 2-degree compatible company intensity pathway, which can inform a strategy to reduce absolute emissions and emissions intensity. <p>Measures to support a science-based pathway can include:</p> <ul style="list-style-type: none"> • Invest in and transition to sustainable energy³¹ and low-carbon fuel portfolios • Improve operational efficiency and reduce emissions in upstream operations • Improve energy efficiency and other carbon intensity reduction • Define the carbon offsetting mechanism • Reduce GHG-intensive activities and deploy efficient technologies to reduce emissions e.g., carbon capture and storage technology • Reduce Scope 1 and 2 emissions by managing methane leaks, venting and flaring • Increase operational resilience through climate change adaptation, a process which involves identification of risks & vulnerabilities, planning, assessment & selection of options, implementation and monitoring & evaluation (IPIECA 2013³²) <p>Mitigation Strategies³³ for Scope 1 and Scope 2 can include</p> <ul style="list-style-type: none"> • Electrifying operations and incorporating renewables to fulfill power needs. • Adopting low or no emission fuels such as hydrogen, e-fuels/synthetic fuels, biofuels and ammonia • Improving logistics to reduce fuel consumption. For instance, invoking the principles of a sharing economy, some operators coordinate logistics, • including trucks, marine vessels and helicopters, to optimize transport times and volumes • Reducing routine flaring • Employing methane capture • Optimising production and reservoir management through the use of digital tools such as IoT sensors, digital twins, and virtual reality to model scenarios, monitor operations, track emissions and energy usage and proactively maintain equipment • Producing lower-emission products moving from one hydrocarbon to another (for example, from coal to natural gas) or creating another product (such as biofuels or syngas) • Increasing reuse or employing additive manufacturing to decrease waste and increase supply-chain flexibility
--	---

²⁹ CO₂e equivalent refers to all greenhouse gasses, including carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O), and the global warming potential (GWP) expressed in terms of carbon dioxide equivalent (CO₂e).

³⁰ This approach allocates the remaining global 2 degrees carbon budget to different sectors, and within each sector companies can derive their science-based emission reduction targets based on their relative contribution to the total sector activity and their carbon intensity relative to the base year.

³¹ Covers both renewable energy and energy efficiency

³² Addressing adaptation in the oil and gas industry, Climate Change, ipieca, 2013

³³ The 2030 Decarbonisation Challenge. The Path to the Future of Energy, Oil & Gas, Deloitte, 2020

	<p>Other considerations</p> <ul style="list-style-type: none"> Align with the “G20 Principles for Quality Infrastructure Investment” Principle 4: “Building Resilience against Natural Disasters and Other Risks” (including human-made risks) Factor-in Sound disaster risk management at design stage. A comprehensive disaster risk management plan should influence the design of the project, the ongoing maintenance and consider the re-establishment of essential services
<p>Water</p>	<ul style="list-style-type: none"> Assess the mechanisms for sustainable water supply, and practice efficient use by recycling, reuse and minimising leakages Incorporate oily water treatment system for produced water and contaminated water to meet local, industry and international standards
<p>Pollution and waste</p> <p>Waste management, including wastewater release and management</p>	<ul style="list-style-type: none"> Assess the Emergency Preparedness and Management Procedures, including spill prevention and management plans, leak detections, flare monitoring and reduction, fugitive emissions monitoring and control etc. Check equipment maintenance records and use of silencers, Noise and Vibration Management Plan Inquire on the use of non-TNT (dynamite) based explosives, or thumper trucks in preference to explosives; low impact extraction chemicals where alternatives exist; and minimal use of oil-based muds Ensure operations with regard to emissions, noise and light pollution are in line with local and environmental requirements. Assess and manage implications of well treatment in terms of long-term disturbance and impact Prepare detailed waste management plan for toxic and hazardous substances Develop full decommissioning, restoration and aftercare plan in consultation with local authorities, communities and stakeholders in addition to a Habitat Restoration and Remediation Plan Develop marine management plan, if applicable Deploy carbon capture technologies, use and storage Use Best Available Technology Not Entailing Excessive Cost (BATNEEC) Ensure management of transportation, handling, treatment and disposal of hazardous waste Consult with local authorities on emissions, discharges, and solid waste disposal in regard to local communities
<p>Labour Rights and Working Conditions</p> <p>Policies on labour and workers’ accommodations (if applicable)</p>	<ul style="list-style-type: none"> Make provisions on core labour standards and equal wages, including living and working conditions Adopt equal employment policies and safeguards, and create a work environment that supports equality and respect, non-discrimination and anti-harassment, and promotes gender equity in all employment-related decisions e.g., Gender-based violence and harassment (GBVH) policy Drive equal opportunities in the company’s workforce and procurement practices Champion efforts to achieve inclusive staff profile, with women and people from the affected groups in positions of responsibility. This should also overcome barriers for women and affected groups in terms of skill levels, mobility, and social norms, access or control over resources

<p>Occupational Safety and Health (OSH)</p>	<ul style="list-style-type: none"> • Adopt effective OHS management and policies, adequate insurance coverage and compensation • Make a provision of a health and safety (or similar) policy supporting an embedded associated management system • Undertake ISO 45001 project certification for Health and Safety
<p>Human Rights and Community Relations</p>	<ul style="list-style-type: none"> • Conduct a comprehensive social assessment to know the impacts on people and communities • Establish a stakeholder engagement plan to identify and engage with affected stakeholders throughout a project's lifecycle • Select sites where impact on local communities can be avoided altogether or minimised • Ensure community relations are managed through the principles of Free, Prior, Informed Consent, and follows international frameworks such as the United Nations Declaration on the Rights of Indigenous Peoples • Ensure compensation takes into account both material and non-material assets • Develop tools such as the Resettlement Framework, Gender Equality and Social Inclusion (GESI) Action Plan, and Community Development Strategy for risk mitigation and implementation • Assess existing structures/mechanisms/processes and how responsive they are to the needs and issues of the affected groups • Ensure management of interface between local communities/foreign workers through stakeholder identification and consultation and disclosure • Prioritise job opportunities available for impacted community • Manage community tensions, grievances and concerns through transparent formal grievance mechanism • Undertake consultations at various stages of project cycle, especially with marginalised groups. In addition to mixed-sex consultations, offer men and women separate consultations
<p>Governance</p>	<ul style="list-style-type: none"> • Ensure the fulfilment of statutory and regulatory requirements, including regular third-party audits certifications • Check if there is a provision for an ethics, accountability, integrity, and transparency policy (or similar) supporting an embedded associated framework • Check for anticorruption policies & procedures, transparency and accountability policies and procedures, sustainability and compliance policies and procedures, and government policies for project fiscal transparency and procedures • Ensure a strong anti-corruption and whistle-blower policy is enforced

67. In assessing the risk mitigation strategies, FIs should include clear and comprehensive terms and conditions in the contractual agreements with the counterparties (applicable to new or renewal contracts) which require O&G operators to adhere the following steps in managing various risks and their impacts:
- 67.1 Risk awareness culture:** FIs should ensure that the O&G operator has a high risk consciousness, and understands the need to build a risk-averse culture amongst all employees across levels and across functions. It is important to operationalise effective risk audits, monitoring, control, and management mechanisms, strengthened by good governance. O&G operations require large investments, operate with long gestation period and high-risk probability. Although the risks of O&G operations are very complex, as long as the root causes and characteristics of such risks are identified, they can be prevented or controlled or managed. Therefore, FIs should periodically review the company's risk management strategy, ensure it is benchmarked against international standards and best practices, establish risk prevention mechanism and risk processing system with their own actual situations to make efficient use of funding from FIs.
- 67.2 Health, Safety, and Environment (HSE) habits:** FIs should ensure that the O&G operator has established a formal platform and mechanism for internal and external HSE information flow that encourages two-way communication, consultation and participation on HSE issues for continual improvement. It is important to make sure that clear responsibilities have been assigned in managing HSE risks and individuals are held accountable for their HSE behaviours and performance. Similarly, a mechanism needs to be in place to ensure all employees and contractors are aware of the relevant workplace hazards and risks through training programmes. It is also essential to examine if the records of the HSE trainings are maintained and if there exists a HSE Management System e.g., ISO14000 or OSHA 45000.
- 67.3 Quality control system:** FIs should collaborate with the O&G operators to establish a robust quality assurance system and quality responsibility system, to clarify their respective responsibilities and strictly control all aspects. O&G operators should meet the technical requirements by adhering to the process flow, standards and operating instructions, a strict examination system, and constantly improving technology to ensure the quality of petroleum operations.
- 67.4 Emergency preparedness and response:** FIs should ensure that the O&G operator develops and maintains emergency plans conforming to regulatory requirements and international best practices, mainly to manage the response operation and associated external issues. A process should be in place to identify and document credible emergency scenarios including medical (e.g., mass casualty, haze, pandemics (including Covid-19, Avian Flu, SARS, etc.) operational (e.g., toxic release, fire, explosion, leakages), environmental emergencies (e.g., oil spill), and natural disasters (e.g., flood, landslide, haze, drought) that can have impact on people, environment, biodiversity and assets. The identification of credible scenarios may be based on a risk management process. Emergency/crisis plans should be developed, tested and maintained to ensure effective responses to emergency/crisis situations and to prevent escalation.

- 67.5 Competency:** FIs should ensure that the O&G operator has identified the competency level for the respective positions that may have significant impact on ESG performance. All personnel who perform HSE critical activities require appropriate experience, qualifications and training to ensure they are competent to undertake these important risk control measures. The competency requirements of all HSE critical activities should be periodically reviewed and improved. The competence of employees also needs to be reassessed, with specific plans to address the shortfalls.
68. FIs should review the broad mitigation strategies of their customers in the context of their outcomes and how they will support the sector's overarching climate-transition and/or energy-transition strategy. These should include the following:
- 68.1 Adopt science-based targets:** FIs and O&G operators should adopt a science-based target where possible to mitigate climate risks, enhance business resilience, adapt to growing changes in the regulatory and business environment and ensure efficient climate action.³⁴ These science-based targets should further be supplemented with commitments, measurement, enabling action and reporting through frameworks such as the Partnership for Carbon Accounting Financials (PCAF), Science-based Target initiatives, Climate Action 100+, Task-Force for Climate-Related Financial Disclosures and the Carbon Disclosure Project.
- 68.2 Comply with industry and international standards:** FIs and O&G operators should establish best practices in relation to sustainability with reference to established frameworks and initiatives such as the IFC Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development (2015), Methane Guiding Principles and the Energy and Biodiversity Initiative: Integrating Biodiversity Conservation into Oil and Gas Development, SASB Sustainability Accounting Standard for O&G. This is an imperative given the growth in stakeholder expectations which underlines the need to monitor and improve performance in nature and climate-related issues. Refer to Appendix II – Certifications & Standards for a more comprehensive list.
- 68.3 Prioritise reducing overall carbon intensity in operations:** FIs should encourage O&G operators to focus on reducing the overall carbon intensity of operations and activities (i.e., through reducing GHG emissions during production) as a primary strategy of carbon reductions supplemented with strong climate commitments and carbon accounting to enable action and reporting, and ensure this strategy is science-based. FIs should also introduce incentives such as a reduction in loan rates for O&G operators who are able to demonstrate progress towards achieving their science-based overall carbon intensity reduction.

³⁴ The Intergovernmental Panel on Climate Change (IPCC)'s report on a 1.5°C warming scenario reinforces the importance of meeting science-based targets to avoid the worst impacts of climate change.

68.4 Prioritise an equitable and justice-based energy transition: FIs should encourage O&G operators to adopt Just Transition^{35*} strategies that are aligned with international frameworks such as the ILO and that respect the rights of workers and local communities. It is also important to ensure that the transition towards low-carbon economy is strengthened by measures that reduce overall energy demand while introducing affordable and reliable renewable alternatives in transport, heating, cooling and electricity for households. In addition, FIs should take a nurturing approach to help O&G operators minimise and manage any negative impacts on Indigenous and Community Conserved Areas (ICCAs) and that may lead to protected area downgrading, downsizing or degazettement (PADDD). This is an imperative as the Just Transition is an essential development priority identified by the UNFCCC and Paris Agreement, and while recognising that the O&G sector employs millions of people worldwide, the transition should therefore be managed to avoid producing social and economic crises while planning for future economic prosperity.

**ILO Guiding Principles for a Just Transition provides a practical tool to help countries at all levels of development manage the transition to low-carbon economies and can also help them achieve their Intended Nationally Determined Contributions (INDC) and the 2030 Sustainable Development Goals (SDGs).*

(The rest of this page has been intentionally left blank.)

³⁵ Guidelines for a just transition towards environmentally sustainable economies and societies for all, International Labour Organisation, 2015

ON-BOARDING CHECKLIST

69. FIs should develop an appropriate customer on-boarding checklist based on the key impact categories and potential risk transmission channels identified above. The following table suggests the information required for the initial on-boarding assessment to determine transaction-level risk. Depending on the materiality and the nature of the financing, some of the requirements may not be applicable. The list below is not exhaustive and is for illustration purposes only. FIs should build on this template to ensure all necessary aspects are covered for key risk categories.

Table 4: Template for Customer On-Boarding Checklist

1. Customer Details	Details
Group/Project Name:	
Customer(s) Name	
Country where headquartered	
If a project, country of operation	
Financial Services Proposed/Granted	
Date Customer was supplied with a copy of Bank's Oil and Gas Policy (public version)	
2. Scope	Details (Yes/No/Not Applicable, with summary details)
Oil and gas exploration, development and production	
Wholesale refining, processing, distribution, and marketing of products derived from oil and gas, including service stations operations	
Manufacture, distribution and marketing of chemical products derived from oil and gas to petrochemicals	
3. Risk Assessment	Details (Yes/No/Not Applicable, with summary details)
Environment	
<ul style="list-style-type: none"> - EIA and SIA where applicable has been undertaken - Climate change vulnerability assessment conducted and adaptation strategies have been devised - Aligned disclosures to recommendations of TCFD or other science-based targets made publicly - Locally relevant and global best practices and tools adopted 	
Land access, land-use, land-use change and acquisition <ul style="list-style-type: none"> - FPIC and resettlement & adequate compensation plans are in place - Land description is clear (e.g., size, type of land, proximity to water source, primary forest, peat, indigenous people and communities) including number of sites that have been decommissioned and sites that are in the process of being decommissioned - Effective, transparent and non-coercive consultation has been done with experts, civil society, regulators and local community 	

<ul style="list-style-type: none"> - Ensured there are no cases of legal and community land ownership contestations/territorial disputes 	
<p>Biodiversity loss and deforestation</p> <ul style="list-style-type: none"> - Impact assessments have been undertaken, most importantly HCV, HCS etc. - Land clearance methods have been selected to minimise impacts - Desktop biodiversity assessment has been done - Biodiversity management/preservation action plan is in place 	
<p>Climate/ GHG emissions</p> <ul style="list-style-type: none"> - Climate change vulnerability assessment conducted and adaptation strategies have been devised - Climate mitigation and/or GHG management plan is in place, with annual GHG emissions report (specific to project/s and/or the organisation) - GHG emission reduction target defined and decarbonisation strategy has been articulated - Technological, financial and human resources of company to achieve climate targets have been assessed 	
<p>Water</p> <ul style="list-style-type: none"> - Water management policy and plan exist with clear indication of the source of water, usage monitor, efficient use etc. 	
<p>Pollution and Waste</p> <ul style="list-style-type: none"> - Waste/ effluents/emission management plan exists - Applicable permits/approvals required by JAS – Jabatan Alam Sekitar are in order - Waste storage, handling and disposal are in accordance to legal requirements - Air/water/noise measurement and management in place - Required pollution control equipment are installed and effective 	
SCORE	
Social	
<p>Labour rights and working conditions</p> <ul style="list-style-type: none"> - SIA has been undertaken, where applicable - ILO and local labour regulations observed - Policies on migrant and vulnerable workers defined - Labour management includes, welfare and wellbeing policies, anti-discrimination and gender equality policy, collective bargaining agreements, fair contracts, provision on minimum wages, appropriate accommodation, training, grievance/ complaints mechanism - Desktop/ On-site assessments conducted on working conditions, living arrangements etc. 	

<ul style="list-style-type: none"> - Compliance with national employment and labour laws, and occupational health and safety laws ensured at Project-level 	
<p>Occupational safety and health (OSH)</p> <ul style="list-style-type: none"> - OSH management policy defined - Training and awareness programmes in place - OSH performance reports published (including data such as cases of fatalities and injuries) - Performance monitoring and internal / external audit reports are published - Certification of Fitness for machinery in plant (from Jabatan Keselamatan Dan Kesihatan Pekerjaan or JKKP) obtained - Sufficient protection i.e., adequate takaful/insurance coverage, compensation schemes offered to workers at risk - Emergency response plan in place 	
<p>Human rights and community relations</p> <ul style="list-style-type: none"> - Stakeholder management policy institutionalised, including requirements for FPIC, resettlement & adequate compensation plan, and transparent grievance/ complaints mechanism - Engagement programmes including awareness, supporting community events etc. 	
SCORE	
Governance	
<p>Governance mechanism</p> <ul style="list-style-type: none"> - Sustainability commitment, strategy and relevant ESG policies and risk management framework including monitoring mechanism, transparency and disclosures publicly made available. - If no, a credible (time-bound) plan/s to mitigate ESG issues is made available - Industry standards and/ or relevant certifications obtained - Outstanding legal claims relating to the customer's environmental and social performance disclosed - Issues reported (i.e., media backlash, protests by community, etc.) and how they were resolved 	
SCORE	
TOTAL SCORE	
OVERALL RISK CATEGORY	

Note: FIs should update the above assessment at least annually (e.g., by mandating the customer to provide at least an annual report with clear plans / programmes / policies implemented and their outcomes, with sufficient data, evidence, stakeholder statements to substantiate the claims) and/ or when renewing/reviewing financing facility / lending / investment.

70. FIs should determine their Scoring Criteria and Methodology and maintain certain degree of transparency with the businesses under assessment. The scoring rules can be based on various standards set by leading market indices and / or sustainability frameworks. For instance, the FTSE4Good ESG scoring by Bursa Malaysia as illustrated below (Refer to Appendix IV: Essential Readings).

Exposure		Score	
3	High	0	No Disclosure
2	Medium	1	
1	Low	2	
0	Negligible / NA	3	Good Practice
		4	
		5	Best Practice

71. For optimum decision making, FIs should determine a decision-making rule based on the aggregate risk score/level of the impact-based metrics/indicators and their respective risk appetite statement. The table below illustrates a description of decision-making rules specific to this sector. In addition, FIs should also refer to BNM’s Climate Change and Principle-based Taxonomy: Guiding Principle 3 & 4 - Do No Harm to the Environment & Remedial Measures to Transition respectively for better alignment.

Table 5: Decision-Making Rules Description

Categories	Description	Score
High Risk	High risk based on the impact categories/themes but has satisfactory mitigation strategy. Approval should be subject to strict compliance conditions/ covenants.	
Medium Risk	Exhibit evidence of effective mitigation strategy. Approval can be subject to standard compliance conditions/covenants.	
Low Risk	Scores “Low” for all impact categories and exhibit evidence of effective mitigation strategy. Approval can be subject to standard compliance conditions/covenants. (FIs may also consider not approving this category due to the nature of this sector and market developments)	

72. The scoring can also depend on customers' i) Intent and ii) Action. The intent suggests customers inclination to not just meeting minimum regulatory requirements, but go beyond to understand and manage ESG impacts along their value chain. An intent should always be supported by an action plan, which could be implemented over short, medium, or long-term depending on the FI facility that's being considered. Whereas, action refers to the demonstrated efforts in terms of operating to a more stringent set of international standards, adopting global sustainability frameworks to effectively not just manage but deliver positive ESG impacts. In either of the cases, when granting bank facilities, FIs should encourage customers to go beyond minimum expectations required to operate legally. Where possible, FIs should introduce standards which will make a tangible difference to the type of business that they support. The FIs should engage with customers, where appropriate, and support them in moving towards global best practices, which is also one of the most significant contributions FIs can make to sustainable development.
73. Both the intent and action can be assessed by FIs for their specific risk control approaches, which can go two ways: First is through avoidance, where FIs' customers may take a precautionary approach by not contributing to any negative ESG impacts, for e.g., by proactively deploying greener and cleaner technologies or by evolving to adopt RE business models. In such cases, it is necessary for the FIs to take a long-term view of their business viability as well as financial prospects and credit position especially in cases where new investments in technology and/or business mobilisation plans are impending. The second way is by elimination - a method where FIs' customers may identify and eliminate the root causes of negative ESG impacts, and in the long-run, manage to reduce the probabilities of occurrence or recurrence. In such cases, FIs should review the effectiveness of the measures put in place, which should be validated by data evidencing elimination over a significant period of time.
74. Companies are expected to use globally recognised and locally prescribed (by regulators) frameworks to disclose material ESG matters / issues in order to inform investors and the market about the risks and opportunities, and to increase transparency of both financial and non-financial impacts. Refer to Appendix IV - Essential Readings for recommended global frameworks.

Exclusion List

75. FIs should develop an exclusion list which would serve as a baseline risk appetite. Examples of general activities that should be avoided are provided in Table 6 of VBIAF pp. 30-31. Specific activities that should be avoided in this sector include the following (based on IFC as well as selected international and regional banks³⁶ exclusion list).
76. The following criteria serves as a benchmark for FIs to filter or exclude customers with a poor ESG performance track record. A general rule of thumb can be applied here – Activities that are in breach of national and international laws, with irreversible ESG impacts can be part of the exclusion or prohibited list. The exclusion list integrates the exclusion lists of banks listed in the Dow Jones Sustainability World Index with specific O&G sectoral policies and international standards and practices. FIs should also refer to BNM's Climate Change and Principle-based Taxonomy: Guiding Principle 5 on Prohibited Activities for better alignment.

Illustration: Sample Criteria to Exclude Customers with Poor ESG Performance

- Fatalities, where customers with five or more in either of the last two years, or a deteriorating trend over the last two years.
- Material accidents, spills or pollution - Material refers to occurrences serious enough to cause a controversy at a national level or reputational damage to the customer and, potentially, to FI
- Companies with breaches of laws and regulations in respect of workers, communities, the environment or corruption. This could typically relate to the suspension of an important operating licence or a fine which is substantial in either absolute size (above USD 1 million or Malaysia Ringgit equivalent) or by reference to the size and resources of the customers
- Track records of environmental breach, human rights violation as defined by Universal Declaration of Human Rights and other international standards, modern slavery, child labour, forced labour, any other labour abuses as defined in ILO conventions
- Activities involving deforestation/conversion of natural forests, resettlement or violations of the rights of indigenous peoples and other local communities without adherence to FPIC and other international human rights covenants
- O&G exploration or production activities within natural, cultural or mixed UNESCO World Heritage sites, Ramsar Wetlands, IUCN I-IV category areas, marine protected areas, Key Biodiversity Areas, Intact Forest Landscapes and other areas identified as HCV or under national protection

³⁶ This includes BBVA and Santander

77. The exclusion list below integrates the exclusion lists of banks listed in the Dow Jones Sustainability World Index with specific O&G sectoral policies and international standards and practices.³⁷ These may be considered by the FIs within the local context.

Illustration: Sample Exclusion List

- Track records of environmental breach, human rights violation as defined by Universal Declaration of Human Rights and other international standards, modern slavery, child labour, forced labour, any other labour abuses as defined in ILO conventions
- Companies with breaches of laws and regulations including involvement in corruption, activities involving significant deforestation/conversion of primary forests, resettlement or violations of the rights of indigenous peoples and other local communities without FPIC
- O&G exploration or production activities within natural, cultural or mixed UNESCO World Heritage sites.
- Development, construction, and expansion of oil and gas activities and infrastructure located north of the Arctic Circle, Antarctic region and Amazon Basin or close to, or in, UNESCO sites, Ramsar Wetlands, IUCN I-IV category areas, marine protected areas, Key Biodiversity Areas, Intact Forest Landscapes and other areas identified as HCV or under national protection
- Extra heavy oil extraction projects (defined as API equal to or below 10°) including all oil sands projects by whatever methods of production
- Gas To Liquids or Coal To Liquids projects

78. Additionally, the exclusion list below takes a progressive approach to assessing impacts as the industry matures and transitions to low-carbon business model/s.

Illustration: Sample Exclusion with Additional Exclusion Criteria

- Projects involving exploration for new oil and gas reserves
- Projects related to tar sands exploitation, fracking or similar controversial and unconventional processes for extracting oil and gas
- Extra heavy oil extraction projects (defined as API equal to or below 10°) including all oil sands projects by whatever methods of production
- Projects related to exploration or production in Arctic region, Antarctic region and Amazon Basin
- Gas-to-Liquids or Coal-to-Liquids projects
- Infrastructure projects, including pipelines, related to tar sands, fracking, oil sands and other unconventional methods of extracting oil and gas
- Companies for which unconventional oil and gas exploration and production represent a significant share of their total revenues or business
- Companies that own or operate pipelines or LNG export terminals supplied with a significant volume of unconventional oil and gas
- Companies that do not have a science-based climate ambition or target

³⁷ [IFC General Exclusion List](#), WWF's [Responsible Oil, Gas and Mining](#) document, [WWF Sustainable Finance Report](#), [WWF Asset Owner Guide to Oil & Gas Producers](#)

PERFORMANCE MANAGEMENT

79. In the event where the client does not comply with the conditions described in the FI's sustainability policies, ESG conditions may be added requiring clients to commit to a time-bound Action Plan describing how the clients intend to improve the ESG practices in the future, including specific goals and credible timescales. This aims to address ESG risks that have been identified as unacceptable and bring the client into alignment with the FIs' ESG criteria as part of the provision of financial services provided.
80. Contractual clauses regarding compliance with FI's sustainability policies and agreed time-bound action plan may be inserted into the relevant loan documentation, contracts or letters for prospects.
81. FIs should undertake regular client monitoring and reviews to ensure client's compliance to FIs' ESG policies and monitor the progress of the agreed time bound Action Plan, if any. This will also help FIs to understand the material issues their clients face periodically and help them identify and resolve problems with a view to positively influence their sustainability performance and minimise risks, and can include evaluating clients on an ad-hoc basis, triggered by a material social or environmental incident/s, adverse media/NGO coverage, fines and penalties, etc.
82. The monitoring and review frequency may be adjusted according to clients' ESG risk level. For instance, FIs can set to review and re-assess low, medium, and high-risk clients every five years, three years, or annually respectively.
83. FIs should establish appropriate performance tracking and reporting mechanism to adequately monitor the impact-based performance, based on the impact measures/ indicators established through a time-bound action plan.
84. An Action Plan can be mandated to O&G players seeking finance at two stages – either at the point of credit assessment, whereby performance status on specific ESG metrics can be requested and reviewed outrightly or at the point of sanction of financing facility with conditions to be fulfilled in different areas of ESG that may be material and relevant to the type and quantum of financing.
85. Performance status or progress on the Action Plan should be requested periodically – quarterly or half-year basis, so that necessary support may be extended by the FIs to help manage and / or mitigate ESG risks or accelerate ESG integration / implementation.
86. Where the performance is not as expected, FIs, depending on their capacity, can offer training programmes, skills and knowledge transfer, as well as any other support that may help O&G players to improve on their implementation of the Action Plan.

87. An Action Plan (at the minimum) should include the following components:

Illustration: Sample Action Plan Components

- A summary report on the assessment of ESG risks / exposure, dual materiality and the priority areas of focus and improvement
- A clear statement on the type and quantum of financing that has been approved either based on the current ESG performance or with specific conditions to improve ESG performance
- A definite and reasonable period of tracking of ESG performance improvements, which may be determined by the FIs, depending on the size of business as well as the type of financing and the ESG risk exposure. FIs can draw different timelines for different risk categories. However, this may also be subject to the ability as well as the maturity of businesses
- A globally established and locally relevant set of material ESG metrics / thresholds / performance targets and outcomes that will be tracked or monitored over the pre-determined time. (Refer to Point 60, Table 2 as well as Appendix IV for examples of ESG metrics based on various frameworks and standards)
- An absolute statement on the incentives as well as disincentives to motivate O&G operators to invest time and resources to improve ESG performance
- An expected reporting format, frequency, and channels to ensure the ESG performance is transparent to all key stakeholders of business

88. Additionally, detailed transition plan³⁸ or strategy should be drawn based on available technology and policy levers. The transition plan should be consistent with broader economy- or sector-wide science-based pathways to a low-carbon economy.

89. A transition plan (at the minimum) should include the following:

Illustration: Sample Transition Plan Components

- The organisation's current capabilities, technologies, pathways, and financial plan
- The risks that the organisation faces from a transition to a low-carbon economy
- The assumptions, significant limitations, constraints, and uncertainties in the transition plan, such as challenges regarding GHG emissions reductions of hard-to-decarbonise sectors
- The impact on businesses, strategy, and financial planning from a low-carbon transition
- The specific actions and activities to support transition, including GHG emissions reduction targets and planned changes to businesses and strategy

90. FIs should look beyond compliance, policy statements and check-list approaches and assess qualitative/in-depth evidence on positive or negative ESG exposure. This is critical especially when dealing with large businesses, with significant ESG footprint and who may be looking for long-term and high-value financing solutions.

³⁸ TCFD Guidance on Metrics, Targets, and Transition Plans, October 2021

STAKEHOLDER INCLUSION & VALIDATION

91. FIs should verify/validate the ESG strategies deployed by the O&G players and their outcomes/performance by mandating evidence in the form of policies, implementation programmes, corrective measures, stakeholder feedback and endorsements, internal or external audits, standards adopted, industry rankings and performance improvement on ESG Market Indices³⁹ etc.
92. FIs should request O&G operators to include information on stakeholder participation, materiality, and stakeholder feedback in their performance reports. In other words, comprehensive information on key capacity building/engagement initiatives and feedback/ grievances from wider stakeholders can help validate the performance of O&G operators, including their management of material ESG risks and their impacts on stakeholders.
93. The evidence in relation to stakeholders that FIs can assess include the following:

Illustration: Sample Stakeholder Assessment Criteria

- Quality of relationships with key stakeholders affected by direct ESG impacts
- Nature/ types of feedback/ grievances from the stakeholders affected
- Type and quality of engagement with stakeholders to improve ESG performance
- Perceptions of stakeholders on both negative and positive impacts e.g., improved policies and procedures, improved public sentiment/ branding, reduction in GHG emissions

94. FIs also should facilitate appropriate nurturing programmes for its stakeholders and some examples are as below:

Illustration: Sample Nurturing Programmes

Customers

- Collaborate with relevant government agencies/ NGOs to provide training/ awareness programme and advisory services on O&G practices
- Conduct regular workshop for FIs' customers to share experience and knowledge with the support of relevant external parties (e.g., GreenTech representatives, Malaysian Gas Association, Malaysian Green Technology and Climate Change Centre etc.)
- Offer green financial products to incentivise clients to improve on their sustainability practices (e.g., reduced margin based on predetermined target relating to adopting best O&G practices)
- Setting aside part of the total financing (at preferential rates) to the client for certification

³⁹ The use of ESG Market Indices should be treated with care as they pose a number of issues. Rating services are subjective and susceptible to issues such as potential biases in the methodology and inconsistencies across methodologies, affecting comparability of data. Furthermore, these ratings have the potential to reflect only the information available about a company rather than a companies' true ESG performance.

Community

- Collaborate with relevant government agencies/ NGOs to conduct awareness/ education programmes on green manufacturing practices (e.g., Malaysian Gas Association, SIRIM)
- Promote awareness on green finance alternatives to the public through roadshows and social media platforms

95. FIs can establish exceptions to the remedies and exit procedure in accordance to the FIs sustainability guiding principles as well as the quality of their business/client relationships and most importantly, FIs' own approach and strategy to manage ESG performance of their respective customers.
96. Overall, FIs should engage with the disclosing companies to support them to effectively communicate the value of their action. They can also support the investor community by highlighting the financial materiality of ESG risks and advise portfolio companies on how to engage with the issue.
97. FIs can play an important role of evaluating the impact and make it comparable. To motivate action, FIs should emphasise the critical need to address social and environmental challenges mainly because it makes business sense to manage the risks and optimise the opportunities at the same time.

(The rest of this page has been intentionally left blank.)

REMEDIAL MEASURES

98. FIs should establish remedial measures for the identified high impact-based risk O&G players. FIs should also refer to BNM's Climate Change and Principle-based Taxonomy: Guiding Principle 4 - Remedial Measures to Transition for better alignment.
99. FIs can clearly distinguish remedial measures as associated with 1) rectification plans (where immediate or time-bound and non-negotiable corrective measures can minimise negative ESG impact) and 2) performance plans (where long-term measures can help improve net positive impact of the business). The idea is to bring ESG risk exposure to a level that is acceptable to the FIs.
100. FIs can also offer two sets of remedial measures – steps that can be taken by the O&G players and advisory/support that can be offered by the FIs, depending on their capacity and the initial push to manage ESG risk exposure.
101. For instance, as part of its remedial measures, FIs can facilitate appropriate nurturing programmes for its stakeholders and some examples are stated under point 86 above.
102. FIs should establish clear escalation procedures as indicated below:

Illustration: Sample Criteria to Trigger Escalations

- Complex or controversial cases, these cases should be escalated to a higher committee such as Group Sustainability Committee for further deliberation
- A maximum term within which improvements must take place to address non-compliance and conduct the rectification plan for remedies. The maximum term will be determined on a case-by-case basis. In certain cases, an extension of this timeline is possible – for instance when substantial improvements have been made and full compliance is within reach
- Penalties e.g., increase/ step-up pricing, temporarily stop availability of revolving/ trade finance facility, no additional facility etc.
- Event of default e.g., continuous breach/ repeated breach, certification withdrawn, ESG controversies, stakeholders' activism etc.
- Exit procedure, although an option of last resort, can be an outcome of the process if the clients are not meeting a satisfactory progress level. This is done by taking into account existing contractual agreements e.g., action to be taken such as cancel undisbursed financing amount, recall financing and terminate relationship (negative list) etc.

103. FIs can establish exceptions to the remedies and exit procedure in accordance to the FIs sustainability guiding principles as well as the quality of their business/client relationships and most importantly, FIs' own approach and strategy to manage ESG performance of their respective customers.

TECHNICAL APPENDICES & REFERENCES

APPENDIX I: POLICIES & INITIATIVES AND THEIR KEY MANDATES

Policy/ Regulation/ Programmes	In Effect Year*	Scope/Objective
National Energy Policy 2021-2040	2021-2040	To achieve long-term energy security at competitive pricing while at the same time ensuring its environmental sustainability, aligned with the Paris Agreement commitment to reduce emissions intensity by 45% of GDP by 2030
Malaysia Renewable Energy Roadmap – MyRER	2021 - 2035	To achieve the vision of transitioning towards low-carbon energy system through a 31% RE share in the national capacity mix by 2025 and decarbonisation of the electricity sector by 2035.
Malaysia Electricity Supply Industry 2.0 (MESI 2.0)	2019 - 2029	To boost efficiency in the domestic electricity sector, to “future-proof” the main processes, regulations and structure of the energy sector, and to democratise and empower consumers by decentralising the electricity supply industry.
Net Energy Metering Scheme Programme (NEM)	2016 – 2020 (Initial) 2019 – 2020 (NEM 2.0) 2021 – 2023 (NEM 3.0)	To encourage Malaysia’s Renewable Energy (RE) uptake. To encourage NEM uptake, and the true net energy metering concept was adopted. To provide more opportunities to electricity consumers to install solar PV systems on the roofs of their premises to save on their electricity bill.
Renewable Energy Act (2011)	2011	To provide for the establishment and implementation of a special tariff system to catalyse the generation of renewable energy and to provide for related matters.
Sustainable Energy Development Authority Act (2011)	2011	To provide for the establishment of the Sustainable Energy Development Authority Malaysia and to provide for its functions and powers and for related matters.
Malaysia Petroleum Resources Corporation (MPRC)	2011	To advance the local oil and gas services and equipment (OGSE) industry and anchor on Malaysia’s strategic geographical location to transform the country into a thriving regional hub for the sector.
New Energy Policy (2010)	2010 - 2015	To ensure economic efficiency and security of energy supply as well as to meet the social and environmental objectives in National Energy Policy of 1979. To also safeguard the depletion of oil reserves by controlling the rate of crude oil production to avoid over-exploitation .
National Renewable Energy (RE) Policy and Action Plan (2010)	2010	Enhancing the utilisation of indigenous renewable energy resources to contribute towards national electricity supply security and sustainable socio-economic development. Achieving 20% renewable energy (RE) capacity mix by 2025.

National Biofuel Policy (2006)	2006	Use of environmentally friendly, sustainable and viable sources of energy to reduce the dependency on depleting fossil fuels. Enhanced prosperity and well-being of all the stakeholders in the agriculture and commodity-based industries through stable and remunerative prices.
Small Renewable Energy Power (SREP) programme (2001)	2001 - 2010	To further develop Renewable Energy resources for utilization in power generation. To promote small-scale renewable electricity in Malaysia.
Five-fuel Policy (2001)	2001 - 2005	To encourage the utilisation of renewable resources such as biomass, solar, mini hydro etc. Efficient utilisation of energy.
Energy Commission Act (2001)	2001	To provide for the establishment of the Energy Commission with powers to regulate the energy supply activities in Malaysia, and to enforce the energy supply laws , and for matters connected therewith.
Malaysian Industrial Energy Efficiency Improvement Project (MIEEIP)	1999	To develop and implement activities that will build stakeholders' capacity and facilitate improved industrial energy efficiency .
Malaysia Energy Centre (PTM)	1999	To promote and implement energy efficiency programmes at the national level.
Gas Supply Act (1993)	1993	For the appointment and functions of a Commission of Gas Supply, the licensing of the supply of gas to consumers through pipelines.
Petroleum (Safety Measures) Act (1984)	1984	To consolidate laws relating to safety in the transportation, storage and utilization of petroleum and to provide for matters relating thereto.
Petroleum Development Act (1974)	1974	To provide for exploration and exploitation of petroleum whether onshore or offshore by a Corporation in which will be vested the entire ownership in and the exclusive rights, powers, liberties and privileges in respect of the said petroleum. To control the carrying on of downstream activities and development relating to petroleum and its products. To provide PETRONAS with the rights to issue license to any contractors to commence and continue any business or service pertaining to upstream activities.

**As at Date of Publication*

APPENDIX II: CERTIFICATIONS & STANDARDS

Certification	Area of specialization
ISO 29001: 2020 Quality Management System	Sector-specific quality management systems for petroleum, petrochemical and natural gas industries
ISO 14001: Environmental Management System	Overarching criteria for certifying an environmental management system in an organization. Target areas include leadership, planning and performance evaluation
ISO45001: Occupational Health and Safety	Replaces OHSAS18001, is directed at top management to ensure a safe and healthy workplace for employees
ISO14064-1: 2018 Greenhouse Gases	An international standard that provides organizations with tools to quantify, monitor, report and verify GHG emissions
ISO14044:2006 Life Cycle Assessment	Provides specific requirements and guidelines for life cycle assessment, including defining goals and scope, inventory analysis and life cycle impact assessment
ISCC (International Sustainability and Carbon Certification)	Key areas include zero-deforestation, protection of biodiversity, compliance with human, labour and land rights, measurement and reduction of GHG emissions and supply chains traceability

Category	Applicable International Standards
	Environmental
1.	Oil and Gas Climate Initiative target to reduce the collective average carbon intensity of member companies aggregated upstream oil and gas operations to between 20kg and 21kg CO ₂ e/boe by 2025 in line with Paris Agreement goals
2.	IOGP offshore environmental monitoring in the oil and gas industry
3.	IFC Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development (2015)
4.	Methane Guiding Principles
5.	UNEP Human Rights and Hazardous Substances
6.	World Bank Guidance on Flaring Reduction Policy and Regulation IFC Performance Standard 1 and 3
7.	IFC Environmental, Health and Safety Guidelines for Liquefied Natural Gas Facilities (2017)
8.	IFC Environmental, Health and Safety Guidelines for Offshore Oil and Gas Development (2015)
9.	IFC Environmental, Health and Safety Guidelines for Crude Oil and Petroleum Product Terminals (2007)
10.	IFC Environmental, Health and Safety Guidelines for Natural Gas Processing (2007)
11.	IFC Environmental, Health and Safety Guidelines for Large Volume Petroleum-based Organic Chemicals Manufacturing (2007)
12.	IFC Environmental, Health and Safety Guidelines for Natural Gas Processing (2007)
13.	IFC Environmental, Health and Safety Guidelines for Petroleum Refining (2016)
14.	IFC Environmental, Health and Safety Guidelines for Petroleum-based Polymers Manufacturing (2007)

Climate	
15.	Paris Agreement
16.	IPCC Special Report on Global Warming of 1.5°C
17.	World Business Council for Sustainable Development Membership Criteria
Biodiversity	
18.	IUCN World Heritage Advice Note: Mining and Oil/Gas Projects
19.	Energy and Biodiversity Initiative: Integrating Biodiversity Conservation into Oil and Gas Development
20.	IPIECA Cross Sector Guide for Implementing the Mitigation Hierarchy
21.	IFC Performance Standard 6
22.	UN Global Compact Sustainable Ocean Principles for Oil and Gas
Social	
23.	United Nations Guiding Principles on Business and Human Rights
24.	United Nations Declaration on the Rights of Indigenous Peoples
25.	IFC Performance Standard 4, 5, 7 and 8
26.	ILO Convention 169
27.	United Nations Voluntary Principles on Security and Human Rights
28.	UNEP Human Rights and Hazardous Substances
Labour	
29.	IFC Performance Standard 2
30.	ILO Fundamental Conventions
31.	OECD Guidelines for Multinational Enterprises
32.	IPIECA Application of Globally Harmonized System criteria to petroleum substances
Transparency and Disclosure	
33.	IOGP-IPIECA Sustainability Reporting Guidance for Oil and Gas Industry
34.	Sustainability Accounting Standards Board (SASB)
35.	Carbon and Water Disclosure Project
36.	World Business Council for Sustainable Development (WBCSD): Climate-related financial disclosure by oil and gas companies: implementing TCFD recommendations (guidance document)
37.	Global Reporting Initiative Sector Standards for Oil and Gas
38.	Task-Force on Climate-Related Financial Disclosures
39.	Task-Force on Nature-related Financial Disclosures (upcoming)

APPENDIX III: CASE STUDIES

Green transition facilitated through ICMA Sustainability Linked Loan Principles

Announced in 2020, a range of sustainable finance agreements with an energy company for a total amount of 4.35 billion Euros, which are aimed at achieving sustainable development goals, was supported by international banks including HSBC, Barclays, Santander and SMBC. This initiative involves existing financial agreements, which consist of 1.5 billion Euros of loans, 2.4 billion Euros of committed credit lines and 450 million Euros of derivatives to hedge interest rate risk.

In doing so, the energy company transformed existing loans and credit lines into Sustainability Linked Loans and derivatives for hedging the interest rate risk into SDG linked Interest Rate Swaps, in compliance with the ICMA's Sustainability Linked Loan Principles. This financial initiative is part of the organization's broader financial climate transition strategy, which includes increased investments on green businesses, increasing capex for circular economy and bio-refinery capacity, and merging their retail and renewable market share.

Sustainability performance embedded in US\$1bn Revolving Credit Facility

In 2019, a key player in the oil and gas services industry signed a five-year sustainable Revolving Credit Facility (RCF) agreement, which is the first RCF linked to sustainability performance in the oil and gas services industry. The newly announced RCF replaces the previous US\$1bn RCF and includes an uncommitted option to increase borrowing by a further US\$0.5bn. The RCF may be used to finance engineering, procurement and construction (EPC) activities, working capital, bridge for long-term financing needs, and/or general corporate purposes.

What sets this RCF apart from comparable RCF facilities is the linkage between the Company's sustainability performance and the interest margin on the RCF, and that it has been structured without a restrictive leverage covenant to allow the Company more flexibility in matching its funding needs with its business model.

The sustainability performance adjustment allows for the RCF's margin to increase or decrease depending on the Company's environmental, social and governance (ESG) performance as measured by Sustainalytics. In the new RCF, the leverage covenant of the former RCF has been replaced by an innovative Lease Backlog Cover Ratio (LBCR). The LBCR links availability of the RCF to the future contracted cash flows of a defined portfolio of operational FPSOs in the Company's backlog.

The Company was able to structure this RCF with the continued support of 11 international banks who have provided the RCF. ING Bank acted as coordinator, documentation agent and facility agent, Rabobank acted as sustainability coordinator and ABN AMRO Bank and MUFG Bank acted as modelling banks.

BP Oil Spill⁴⁰

The damage to BP's reputation and market share as a result of the Deepwater Horizon oil spill shows how a company's negative impact on nature can cause socioeconomic harm, eventually translating into risk to the company's bottom line (i.e., financial consequences).

Leading up to the Deepwater Horizon spill, BP's US refineries had 760 "egregious and willful" safety violations from the Occupational Safety & Health Administration, compared to 19 such violations for all other US oil operators combined. A culture of prioritizing profits over safety made BP especially vulnerable to the threat of an environmental incident. When this threat came as an oil spill in April 2010, it became a physical risk—due primarily to the vulnerabilities posed by poor management and the exposures entailed in marine oil drilling—as BP's Deepwater Horizon rig in the Macondo well exploded, burned for 36 hours, and sank. Eleven workers died, and over 200 million gallons of oil gushed into the Gulf of Mexico.

As the largest oil spill in US history, the incident led to consequences which accrued not just to BP, but also to communities along over 1,100 miles of impacted coastline and to economies dependent on the 68,000 square miles of contaminated water. For the local tourism industry, the spill also imparted financial consequences to the tune of some USD 22.7 billion in lost revenue by 2013. By 2020, the local fishing industry is expected to have lost USD 8.7 billion in revenue and 22,000 jobs. This example shows how the threat of NRR generated by one company can become consequences for others.

BP suffered most from the regulatory & legal risk that arose out of the spill's macro-level impacts. Claims are still rolling in, but recent estimates show BP's ultimate fine from society in the USD 62.59-144.89 billion range.

BP also faced profound financing consequences, posting a loss of USD 3.7 billion in 2010, down from a USD 16.6 billion profit the prior year. Market cap plummeted by half after the spill, and share prices never recovered to pre-spill levels. After BP's spill, insurance companies raised premiums on deep-water drilling to alleviate financier risk even as oil companies ramped up demand for coverage, ballooning insurance costs industry-wide to over 100%.

Source: The Nature of Risk: A Framework for Understanding Nature-Related Risk to Business, WWF, 2019

⁴⁰ The Nature of Risk, A Framework for Understanding Nature-Related Risk to Business, WWF, 2019

APPENDIX IV: ESSENTIAL READINGS

Reference Documents / Information	Web Links
The Malaysia Standard Industrial Classification (MSIC) system based on the International Standard of Industrial Classification of All Economic Activities (ISIC)	http://msic.stats.gov.my/bi/carianDeskripsi.php
Government incentives on green assets, projects, and services	https://www.myhijau.my/green-incentives/ https://www.gtfs.my/
Functions relating to the construction industry and for matters connected.	https://www.cidb.gov.my/en/about-us/legislation/act-520
Climate Change and Principle-based Taxonomy, Bank Negara Malaysia	https://www.bnm.gov.my/documents/20124/938039/Climate+Change+and+Principle-based+Taxonomy.pdf
TCFD Implementation Guide	https://www.cdsb.net/sites/default/files/sasb_cdsb-tcfd-implementation-guide-a4-size-cdsb.pdf
IFC Performance Standards	https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/Performance-Standards
IPIECA Sustainability Reporting Guide	https://www.ipieca.org/our-work/sustainability/performance-reporting/sustainability-reporting-guidance/.
Best Available Techniques (BATs) for the Oil & Gas Industry	https://www.doe.gov.my/portalv1/en/info-untuk-industri/dokumen-sokongan/best-available-techniques-bat-documents/316535
FTSE4Good ESG Scoring by Bursa Malaysia	https://www.bursamalaysia.com/sites/5d809dcf39fba22790cad230/assets/5ecf5d7e39fba27917e28a04/BISS_FTSE_Russell_ESG_Index_Methodology_and_Trends.pdf
Air Quality Standards (Department of Environment)	https://www.doe.gov.my/portalv1/en/info-umum/english-air-quality-trend/108
Water Quality Standards	https://www.doe.gov.my/portalv1/wp-content/uploads/2018/09/ii-Standard-Kualiti-Air-Kebangsaan.pdf
Ground Water Quality Standards	https://www.doe.gov.my/portalv1/wp-content/uploads/2018/09/ii-STANDARD-AIR-TANAH.pdf
Marine Water Quality Standards	https://www.doe.gov.my/portalv1/en/standard-dan-indeks-kualiti-jabatan-alam-sekitar
Barclays: Environmental and Social Risk Briefing Infrastructure	https://www.banktrack.org/download/160620_infrastructure_guidance_note_pdf/160620_infrastructureguidancenote.pdf

ESSENTIAL READINGS: DUAL MATERIALITY: ENVIRONMENTAL IMPACT ON OIL & GAS SECTOR

The FIs should develop a clear understanding of the Dual Materiality i.e., the relationship and causality between the ESG risks and financial impact. The table below illustrates the various impacts that environment could have on O&G sectors as well as the ESG risks that O&G sector creates.



* Financial materiality is used here in the broad sense of affecting the value of the company, not just in the sense of affecting financial measures recognised in the financial statements.

Risk types	Consequences to Oil & Gas sector
Physical risk	<ul style="list-style-type: none"> • Global heating contributes to natural disasters and extreme climatic conditions which affect O&G operations e.g., borehole operations are affected due to heat stroke or excessive rainfall or snowfall, drought and water stress disrupting communities and refining process, etc. • Higher temperatures can impact worker productivity and health which may lead to a labour shortage. • Changes in sea ice conditions and melting of ice caps (especially in the Arctic region) could impact facilities if the warmer temperatures reduce the length of the ice road season and restrict well and facility construction times. The melting ice caps may also open up previously inaccessible oil and gas reserves. Sea level rise will affect some international maritime boundaries • Changes due to sea level rise and increasing storm intensity will affect offshore facility operation and design. Design return periods are being exceeded for air gaps on oil and gas rigs and production platform. • Existing flood management and drainage systems may be compromised by sea level rise, storm surges, coastal erosion, changes in precipitation, and greater intensity and frequency of flooding events. This will lead to asset damage, disruptions to off-site utilities, disruption to transportation links, and more downtime. • Rising temperatures will affect efficiency and performance of oil & gas plants and equipment (such as compressors, gas turbines, pumps, generators) • Increasing temperatures are causing permafrost thaw in higher latitudes and in high-mountain areas. Fixed assets and oil and gas pipelines designed for permanently frozen ground will be at risk from structural failure.
Regulatory & Legal risk	<ul style="list-style-type: none"> • Government policies and aspiration linked to the energy transition that affect O&G business • Threat to social licence to operate – with opposition from communities and even governments that can potentially delay the development of reserve/s or significantly increase the full-cycle costs, making them unviable, difficult to plan

	<p>growth and assure returns on capital. Legacy assets secured under advantageous terms may be at particular risk.</p> <ul style="list-style-type: none"> ● Prohibition of certain O&G activities with a significant negative impact on climate (i.e., fracking) ● Enhanced emissions-reporting obligations ● Unexpected or increased costs to meet the higher requirement of compliance for assets and/or products such as carbon costs, restrictions on the use of fossil fuels, and lack of net-zero-aligned global and national policy and frameworks. ● Fines and legal cost for environmental & climate change related action lawsuits (i.e., oil spill) ● Other regulatory changes such as restrictions on access to land and resources, quotas and thresholds, compensation costs and taxes, procurement standards, licensing and permitting procedures, energy efficiency requirements, carbon-pricing mechanisms which increase the price of fossil fuels, or even prohibitions and bans. ● Setting a price on carbon / methane emissions ● Costs of compliance for existing and future methane emissions regulations ● International territorial disputes may arise as nations lay claim to oil and gas reserves. Release of new licences may be delayed until international disputes are settled. ● The impact of climate change on operational processes (such as increasing temperatures) may have additional health and safety implications for the workforce. Employer and public liability insurance cover may be compromised if companies fail to take climate change into account during health and safety risk assessments.
<p>Market risk</p>	<ul style="list-style-type: none"> ● In the long-term, shifts in consumer behaviour will determine energy transition away from carbon-based fuels which leads to decreased demand for high-emissions fuel sources. This could lead to lower sales volumes and/or margins because of generally reduced or eliminated demand; the possibility of underutilised or stranded oil and gas assets; changing preferences of investors and financial institutions; and additional costs for decarbonisation of operations. ● Extreme weather events and reduced renewable energy costs will affect customers purchasing power and priorities ● Disruption to production facilities and damage to assets can result in price changes to the consumer and loss of markets to competitors. ● Disruption to third party utilities and transportation systems can further delay reopening of production facilities, adding costs and loss of markets
<p>Technological risk</p>	<ul style="list-style-type: none"> ● Transition to lower emissions technology, machine and equipment ● Increasing competition due to technology advances in other lower-emission fuel sources
<p>Reputational risk</p>	<ul style="list-style-type: none"> ● Stigmatization of the oil and gas sector ● Negative press coverage and stakeholder opposition related to support of projects or activities with negative impacts on environment and climate (i.e., exploration, venting) ● Increasing calls for methane management from stakeholders (e.g., local communities, investors, employees)

<p>Financial risk</p>	<ul style="list-style-type: none"> ● Transition to a low-carbon economy resulting in fall short of O&G industry demand forecasts and substitution of products and technologies may affect revenue, profitability and credit position. For e.g., reduced demand for Oilfield Services can result in stranded reserves, affect prices, depending on the extent and timing of supply corrections, including the typical onshore conventional oilfield decline rate of 3%-6% per year. ● Possibility of stranded assets in the event of a drop in fossil fuel prices or reduced renewable energy generation costs undercutting prices for oil and gas. Mixed signals on the ambition level in climate policy could lead to US\$12 trillion of stranded fossil fuel assets by 2035⁴¹. ● Major Asset retirement (decommissioning) obligations may be considered as debt, weakening credit ratios. ● Reputational and punitive damages, investigations may result in sanctions etc. affecting cash and credit position. ● The progress on the development of the reserves may be delayed, with unaccounted costs, and possibly compromising the quality of petroleum operations / products affecting revenues. ● Loss of petroleum operations, for e.g., factors such as rising workover material price and fuel prices will lead to higher workover costs, and will lead to decreased efficiencies in petroleum operations. ● Loss of production due to restricted access to the facilities, oil spills and loss of equipment, the cost of rescue of staff and other costs associated with safety and security measures. ● High costs to educate and ensure safety and compliance with local regulations (especially in offshore operations) ● Higher premiums and loss of insurance value ● Increased operational and transportation costs due to disruptions of essential supplies and business, and increased downtime ● Significant increases in material, labour and reconstruction costs following an extreme event ('demand surge').
-----------------------	---

⁴¹ Media Article: Macroeconomic impact of stranded fossil fuel assets, nature.com, 2018

ESSENTIAL READINGS: GHG CALCULATOR/ METHODOLOGY

Greenhouse gas emissions can be categorised into three groups or 'Scopes' by the most widely-used international accounting tool, the GHG Protocol.

- **Scope 1** covers direct emissions from owned or controlled sources.
- **Scope 2** covers indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the reporting company.
- **Scope 3** includes all other indirect emissions that occur in a company's value chain.

Source: <https://www.carbontrust.com/resources/briefing-what-are-scope-3-emissions>

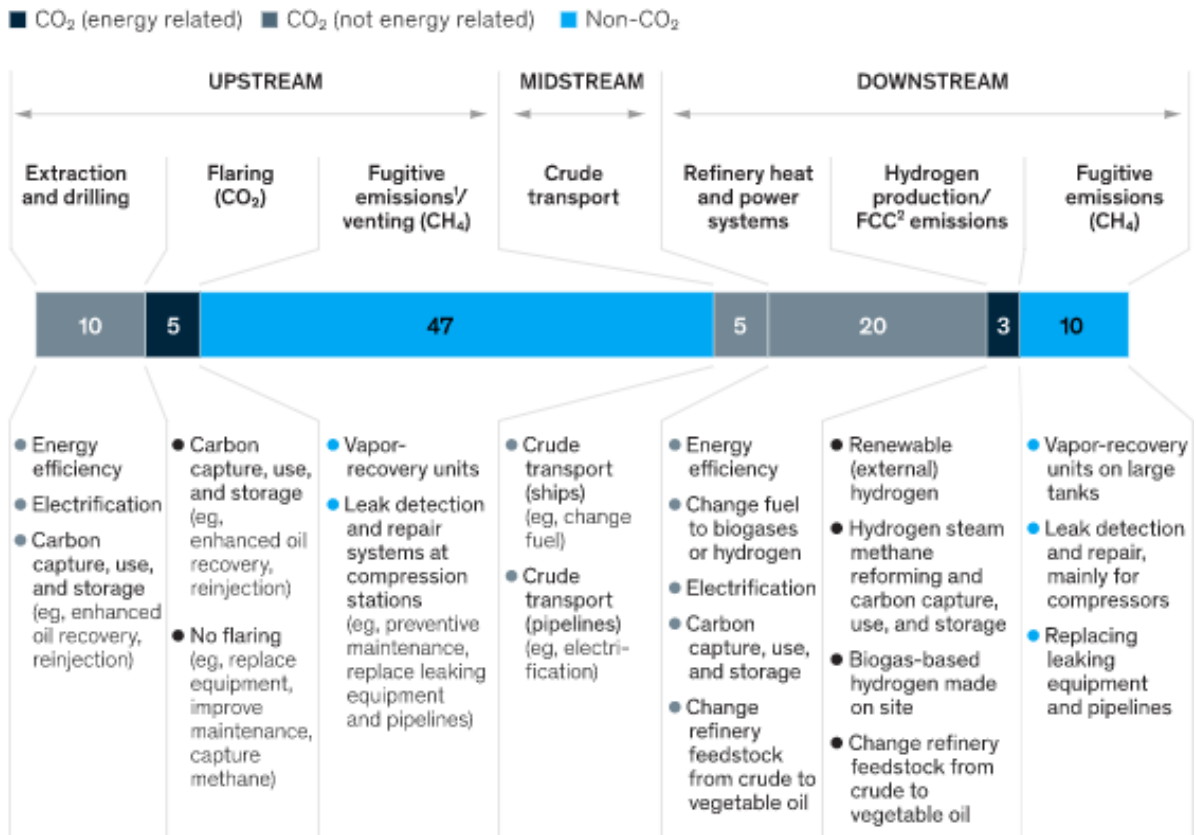
GHG accounting and reporting should be based on the following principles:

- a) **Relevance**—Define boundaries that appropriately reflect the GHG emissions of the organisations and the decision-making needs of users.
- b) **Completeness**—Account for all GHG emission sources and activities within the chosen organisational and operational boundaries. Any specific exclusions should be stated and justified.
- c) **Consistency**—Use consistent methodologies and measurements to allow meaningful comparison of emissions over time. Transparently document any changes to the data, methods or any other factors in the time series.
- d) **Transparency**—Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose assumptions and make appropriate references to the calculation methodologies and data sources used.
- e) **Accuracy** – Ensure that estimates of GHG emissions are systemically neither over nor under actual emission levels, as far as can be judged, and that uncertainties are quantified and reduced as far as practicable. Ensure that sufficient accuracy is achieved to enable users to make decisions with confidence as to the integrity of the reported GHG information.

The various standards that can help with Emissions Management Strategy:

- ISO 14064-1 Greenhouse gases — Part 1: Specification with guidance at the organisational level for quantification and reporting of greenhouse gas emissions and removals issued by International Standards Organization
- ISO 14064-2 Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements
- ISO 14064-3 Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions

Climate/GHG Emissions by Source, Share and Possible Solutions : O&G Sector⁴²



¹Fugitive emissions from midstream are included in upstream (~20% of total oil and gas emissions, mainly methane) to be consistent with IEA *World energy outlook 2018* classification.

²Fluid catalytic converter.

Source: World 2018 CO₂ and SF₆ emissions from fuel combustion, Organisation for Economic Co-operation and Development (OECD) and IEA; world 2018 emissions of CO₂, CH₄, N₂O, hydrofluorocarbons, and perfluorinated compounds, OECD and IEA; Global Greenhouse Gases Emissions EDGAR v4.3.2, European Commission Joint Research Centre, July 2017, edgar.jrc.ec.europa.eu; *World energy outlook 2018*, IEA, November 2018, iea.org

⁴² Web Article: The future is now: How oil and gas companies can decarbonise? McKinsey, 2020