



EMPOWERING ALL TOWARD
INCLUSIVE GROWTH

OR Task Force on Climate-related Financial Disclosures (TCFD) Report

2023-2024



Climate-related Risk and Opportunity Assessment Progress

Climate-related Risk and Opportunity Assessment



OR's climate-related risks and opportunities assessment covers OR's own operations and value chain (upstream and downstream). OR reviews climate-related drivers for physical risk assessment covering both acute and chronic risks and reviews climate-related drivers for transition risks and opportunities assessment covering current regulations, emerging regulations, technology risks, legal risks, market risks, and reputational risks. Through a screening process, OR selects risks and opportunities based on perceived

Assessment Approach for Upstream and Downstream Operation



Physical scenario analysis

Physical risks from climate change can be changes in climate patterns resulting from events (acute) or long-term changes (chronic), such as floods, water stress/drought, and extreme heat. OR has conducted an assessment as a physical risk factor by focusing on 25 assets representative, examining the location of each asset, and assessing the physical risks associated with the type of building or the physical characteristics of that asset. In the physical risk analysis, the exposure rating multiplier will be different for each type of asset, and we will combine it with normalized climate data at asset location from asset-specific information to obtain the risk score.

The steps in conducting the physical risk assessment are as follows:

1. Selection of sites to be assessed prioritized by operating profit.
2. Review and identification of regional and country-level climate-related physical risks.
3. Evaluation of climate-related physical risks by scenario indicator and data source.
4. Identification of high-level business implications

Hazard	Scenario Indicator (Unit)	Definition	Data Source
Extreme Heat	Warm Spell Duration Index (WSDI) (days)	Annual number of days with at least 6 consecutive days when daily maximum temperature is above the 90th percentile of the daily climatic condition.	ISIMIP3b: https://www.isimip.org/
River Flooding	River Flooding Inundation Depth (metres)	Maximum inundation depth experienced within a 270m×270m area that is associated with a 1-in-500-year undefended river flooding event.	<ul style="list-style-type: none"> Fathom-Global 2.0: https://www.fathom.global/ ISIMIP3b: https://www.isimip.org/
Extreme Rainfall Flooding	Pluvial Flooding Inundation Depth (metres)	Maximum inundation depth experienced within a 270m×270m area that is associated with a 1-in-500-year pluvial (extreme-rainfall-induced) flooding event.	
Coastal and Offshore	Coastal Flooding Inundation Depth (metres)	Maximum inundation depth associated with a 1-in-500-year coastal flooding event as a result of sea level rise, land subsidence, storm surges, and/or high tide events.	WRI Aqueduct: https://www.wri.org
Water Stress and Drought	Water Stress (change in water stress category)	Ratio of total water withdrawals to available surface and groundwater supplies.	WRI Aqueduct: https://www.wri.org

Climate-related Risk and Opportunity Assessment



Assessment Approach for Upstream and Downstream Operation

Transition Risks and Opportunities Analysis



OR's vulnerability to the potential impacts of the globally shifting low-carbon economy trend. The objective of the scenario analysis on transition risks and opportunities was to understand the transition risks and opportunities by thoroughly analyzing both the upstream risks (such as a carbon tax on suppliers) and the downstream opportunities (such as electrification of the transport sector). The analysis of transition risks and opportunities uses a method called Delta. Δ (Delta) is a measure of the change associated with the transition from the base case to a low carbon scenario e.g. STEPS, APS. and using data from various sources to calculate, including the IEA (world energy outlook 2023). Deltas are a measure of change, and deltas on its own imply nothing about climate-related risk or opportunity. Once the delta value is obtained, it is multiplied by Influence Weightings, which is an analysis of Data on OR business areas (how could the business areas be impacted by low carbon transition?). A heatmap is produced when the two values are multiplied together.

The steps in conducting the transition risks and opportunities assessment are as follows:

1. Identification of relevant transition risks and opportunities drivers, scenarios, and timeframes for OR.
2. Qualitative assessment and prioritization of transition risks and opportunities under selected scenarios and high-level response measures (scenario analysis).

Transition Driver	Category	Driver Description	Scenario Indicator
Carbon pricing	Policy & legal	Thailand plans to impose a carbon pricing soon, which can affect the cost of oil and gas, and indirect way such as electricity.	Carbon pricing/CO2 price
Fossil-fuel demand change	Market	Fossil-fuel demand change: Alternative energy such as renewable energy or other alternative fuels has developed and tends to be cheaper. As a result, people are interested in and have a decreased demand for fossil fuel energy.	Total final consumption of Oil
Ban on single use plastics	Market risk/Policy & legal	According to the 2018–2030 national roadmap on plastic waste management, making the switch from single-use plastics to more sustainable packaging materials may disturb current supply chains and cause shortages or delays in the delivery of substitute materials.	Incremental cost/capex from the measures in response to single-use plastic bans
Demand for low carbon product	Market opportunity	The increase of demand for low-carbon products, this will affect the revenue of fuel station and goods in retail shop.	Incremental revenue from new market as low-carbon product
Electrification of the transport sectors (e.g. EV uptake)	Market opportunity	Increasing the demand for EVs following lower taxes from government promotions will be an opportunity to increase income from electric vehicle charging stations and income from purchases of people waiting for electric vehicle charging.	Electricity consumption: Transport

Identified physical risks for the Mobility business value chain (upstream and downstream).



Business Type	Risk Item	Baseline	2030	2050	Strategic Response/Adaptation Plan	
Upstream:						
PTT Station (Infrastructure/Equipment)	Extreme Heat	Low	Medium	Medium	<ul style="list-style-type: none">Engagement with suppliers, logistics partners and customer:<ul style="list-style-type: none">Develop mitigation actions/plans to prevent and mitigate risks and impacts e.g., reroute deliveries, or temporarily store inventory in flood-safe locations, etc.Develop contingency plans for alternate transport routes and protect workers’ health & safety in the flooding events.By implementing these measures, petroleum stations can enhance their resilience to climate risks from floods, minimize disruptions to their operations and supply chains, and ensure the continued availability of fuel and services to customers.	
	Flood	Low	Medium	High		
	Water stress & drought	Low	Medium	Medium		
Petroleum (Critical Supplier)	Extreme Heat	Low	High	Extreme		
	Flood	Low	Low	Medium		
	Water stress & drought	High	Extreme	Extreme		
Downstream:						
PTT Station (Dealer oil business)	Extreme Heat	Low	Medium	High		
	Flood	Low	Medium	High		
	Water stress & drought	Low	Low	Medium		
Commercial LPG (Dealer oil business)	Extreme Heat	Low	High	High		
	Flood	Low	Medium	Medium		
	Water stress & drought	Low	Medium	Medium		

Risk score color key:

Low	Medium	High	Extreme
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Upstream: Raw Material



Downstream: Key Customers



Identified physical risks for the Lifestyle business value chain (upstream and downstream).



Business Type	Risk Item	Baseline	2030	2050	Strategic Response/Adaptation Plan
Upstream of:					
Upstream (Coffee Sourcing)	Extreme Heat	Low	Medium	High	<ul style="list-style-type: none">Engagement and audits: OR engages with key suppliers to prevent and mitigate risks and impacts from the water stress & drought and expand service quality audits in collaboration with stakeholders.Training and Protocols: provide training to employees to identify and prevent symptoms of heat stress prevention, hydration strategies, and first aid and provide emergency response protocols to ensure employee safety during periods of water stress with stakeholders.
	Flood	Low	Low	Low	
	Water stress & drought	Medium	High	Extreme	
Downstream of:					
Downstream (Dealer lifestyle business)	Extreme Heat	Low	High	Extreme	
	Flood	Low	Medium	High	
	Water stress & drought	Low	Low	Medium	

Risk score color key:

Low

Medium

High

Extreme



Upstream: Raw Material



Downstream: Key Customers

Mobility business value chain

Transition Risk	2030	2050	Strategic Response/Adaptation Plan
Carbon pricing	High Risk	High Risk	<u>Transition Risk:</u> <ul style="list-style-type: none"> Analyze evolution of electricity/clean energy markets jurisdictions with current operations or planned investments according to national plans in terms of renewable capacity and decarbonization strategies together with suppliers. <u>Opportunity:</u> <ul style="list-style-type: none"> OR and all stakeholder to integrate analysis of national decarbonization strategies and renewable electricity targets in jurisdictions of planned investments. Develop with supplier for user-friendly mobile apps and web platforms that allow customers to locate, reserve, and pay for charging services easily.
Fossil-fuel demand change	High Risk	High Risk	
Demand for low carbon product	High Risk	High Risk	
Electrification of the transport sectors (e.g. EV uptake)	High Opp.	High Opp.	

Lifestyle business value chain

Transition Risk	2030	2050	Strategic Response/Adaptation Plan
Ban on single use plastics	High Risk	High Risk	<u>Transition Risk:</u> <ul style="list-style-type: none"> Low carbon and energy reduction production process: Source materials and products from suppliers committed to low-carbon practices. Ensure that suppliers adhere to environmental standards and certifications. <u>Opportunity:</u> <ul style="list-style-type: none"> Supply Chain Optimization: Collaborate with suppliers, stakeholders, technology providers, and research institutions to develop and implement innovative low-carbon solutions.
Demand for low carbon product	Mod. Opp.	Mod. Opp.	

Risk score color key and scoring for priorities:

High Opp.	Mod. Opp.	Low Opp.	Neutral 0	Low Risk	Mod. Risk	High Risk
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INCLUSIVE GROWTH**

OR เติมเต็มโอกาส เพื่อทุกการเติบโต ร่วมกัน

*Harnessing OR
competencies to support,
fulfill, and elevate*

*Sustainable growth
with Living Community,
Healthy Environment, and
Economic Prosperity*

*Moving forward with
strong determination and
leaving no one behind*

*6 groups of
OR stakeholders*