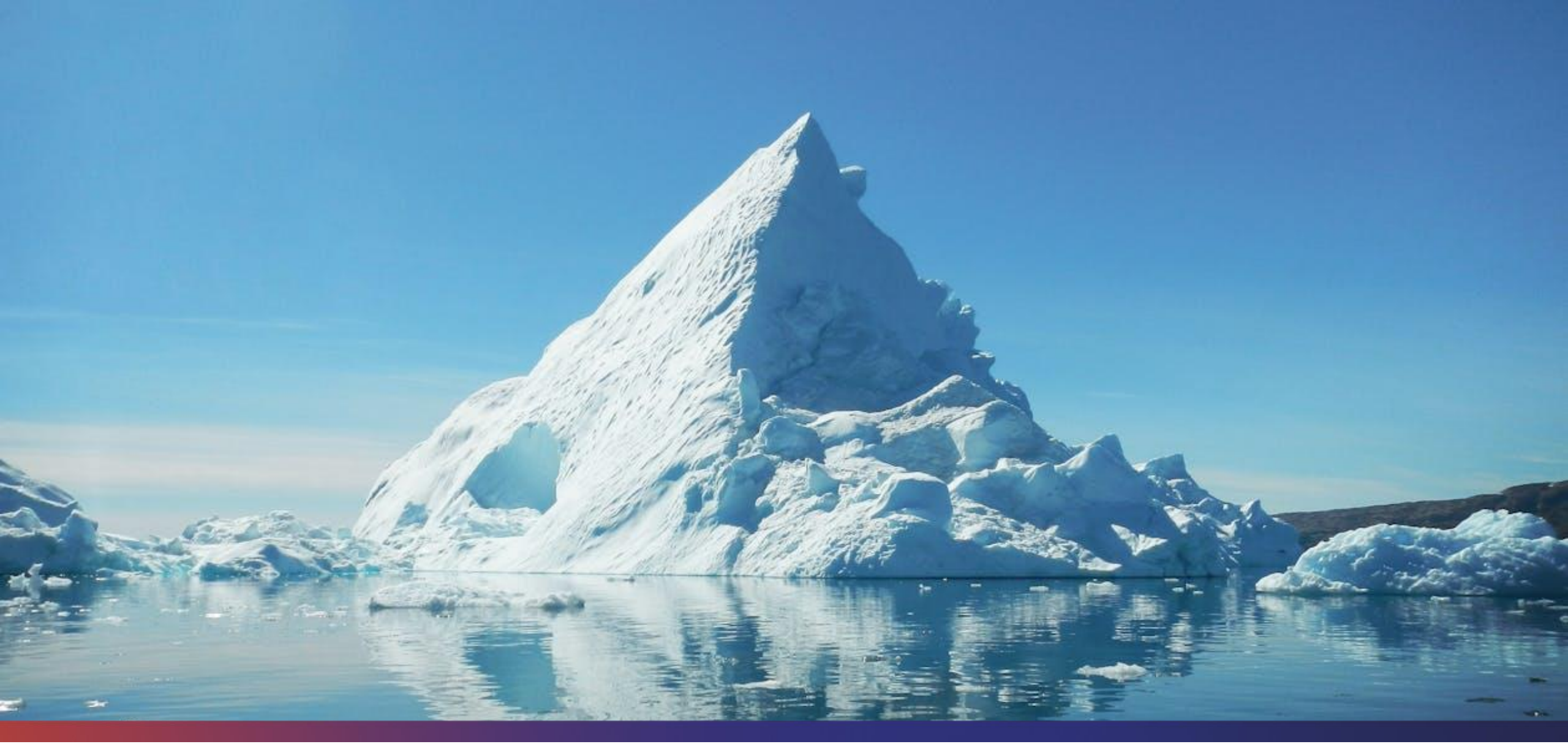

Climate Risk Assessment Report 2024/25

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EXECUTIVE SUMMARY

VGI focuses on managing risks and opportunities resulting from climate change, such as the dramatic changes in extreme weather conditions and natural disasters that may affect VGI's business activities. This year VGI first Climate Risk Assessment report assessed how business risks and opportunities caused by climate change could have potential impact on the company. The Climate Risk Assessment report has been prepared according to recommendations from TCFD and builds upon TCFD Scenario Analysis in Disclosure to demonstrate potential climate-related risks within the company. The report also provides explanation on methodology and serves as information for internal use in the future

Our Approach to Assess and Manage Climate-related Risks and Opportunities

Engage on climate risk and opportunity on the business where, in our view, climate risk and opportunity are relevant and pose the material impact in our value chain (upstream, downstream and own operation including suppliers, and customers).

EXECUTIVE SUMMARY

Structure of This Report

This report is structured in line with TCFD recommendations, in three sections.

1. “Risk & Opportunity Identification” section explains how climate-related risks and opportunities are related to VGI business and whether their impacts are material in the existing locations and to the operations
2. “Physical Risk Assessment” section focuses on material climate-related physical risks such as floods and tropical cyclones. Data source and methodology provided explanation to readers to show how quantitative and qualitative conclusions were reached.
3. “Transition Risk Assessment” section focuses on material climate-related transition risks such as energy price and regulation, specifically carbon prices. Data source and methodology provided explanation to readers to show how quantitative and qualitative conclusions were reached.

INTRODUCTION

VGI was established in 1998 and started business as a media rental company focused on traditional Out-of-Home ("OOH") advertising. We committed to being Thailand's most customer-oriented media company and today, we are an Offline-to-Online ("O2O") Solutions provider with a comprehensive ecosystem spanning Advertising, Payment and Logistics platforms. Our mission is to be the leader in designing pioneering experience for consumers. Through our ecosystem, we are able to deliver unique solutions to meet the demands of advertisers and brands. We also strive to build innovative and sustainable businesses for stakeholders, society and the environment.

Climate change is undeniably a global problem, therefore, as an Offline-to-Online ("O2O") solution service provider, VGI is committed to addressing challenges and opportunities arising from climate change and energy conservation. VGI not only intends to address the greenhouse gas emissions generated by its business activities but also aims to raise social awareness about the importance of climate change through the Company's various media channels and platforms.

Source: *One Report 2024/25 (FORM 56-1 One Report)*

INTRODUCTION

VGI also focuses on managing risks and opportunities resulting from climate change, such as the dramatic changes in extreme weather conditions and natural disasters that may affect VGI's business activities. Therefore, to address these climate change risks, VGI has implemented a corporate risk management process to review existing and emerging risk factors related to the impact of climate on business operations, including a disaster recovery plan to deal with adverse weather events. Climate Risk Assessment, including preparing the TCFD report according to the recommendations of the Task Force on Climate-related Financial Disclosures, have been put in place to disclose climate-related financial information to manage risks within the Company and to serve as information for investors to make decisions in the future. The climate risk management process is integrated to company wide risk management process.

What is climate risk assessment according to TCFD ?

Climate risk assessment involves the identification, measurement, and evaluation of climate-related risks and opportunities that could impact an organization's financial performance as follow;

- Identify risks and opportunities.
- Quantify potential financial impacts.
- Evaluate implications for strategies and planning.

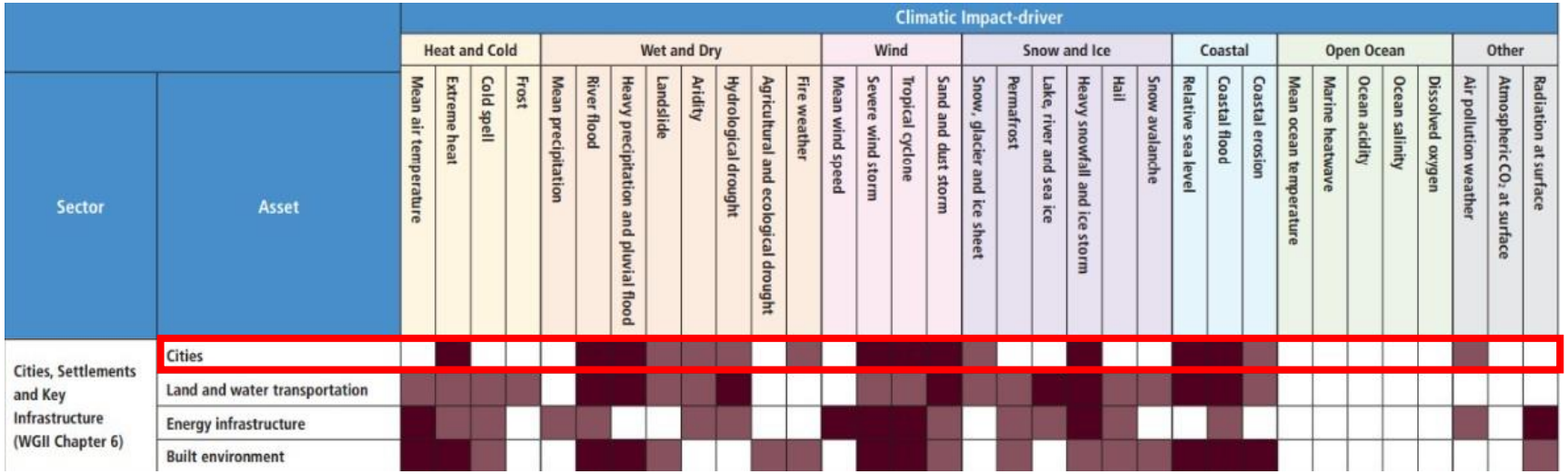
Risk & Opportunities Identification

1

PHYSICAL RISK IDENTIFICATION (1/2)

Potential climatic impact drivers are screened base on the study in IPCC AR6 report

- Climate risk identification is a common aspect of TCFD reports, although the categorization of these risks tends to be inconsistent.
- VGI assets are out of home media advertisement located in Bangkok, Khon Kaen, Songkhla provinces
- VGI operates in the media and entertainment sector. Most (98%) are in Bangkok, including 98 locations on BTS trains and 1 in-station. VGI has three building advertising locations in Khon Kaen and one in Songkhla.



High relevance to city and settlement

Low/medium relevance to city and settlement

No relevance to city and settlement

High relevance climate impact driver to city and settlement

- Extreme heat
- River flood
- Heavy precipitation and pluvial flood
- Drought
- Severe windstorm
- Tropical cyclone
- Sand and dust storm
- Relative sea level
- Coastal flood

Source: IPCC AR6 Report

PHYSICAL RISK IDENTIFICATION (2/2)

Physical risks applicability to VGI

Risk type	Sub-type	Climate-related risks	Climate-related risk description	Short-term (2023-2030)	Medium-term (2030-2040)	Long-term (2040-2050)
Physical risk	Acute	Increased severity of extreme weather events such as tropical cyclone – severe windstorm	Increased frequency and severity of climate-driven events with varying impacts based on location, weather conditions, and season. In Bangkok, metropolitan areas with fewer tall buildings may face higher wind speeds than built-up urban areas during such events.	Yes	Yes	Yes
		Heavy precipitation (rain, hail, snow/ice), floods	There is low potential direct and indirect impact due to short occurrence nature of the event	No	No	No
		River flood	There is potential direct impact from floodwaters which may damage outdoor advertising infrastructures and potential cost to replace them. And potential indirect which may affect number of impressions in VGI advertisement.	Yes	Yes	Yes
		Landslide and subsidence	There is low potential impact from landslide and subsidence	No	No	No
		Aridity	There is low potential impact from aridity	No	No	No
		Air pollution	There is low potential impact air pollution	No	No	No
	Chronic	Changing temperature (air, freshwater, marine water)	High temperatures may cause electronic components to overheat, which may result in malfunctions or failures. However, according to Digikey (2022), all of the LED backlights are specifically designed to operate from -40°C to +85°C. Therefore, low potential impact.	No	No	No
		Coastal flood	Coastal flooding may cause damage to outdoor advertising structures such as billboards, posters, and banners, making them ineffective and potentially costly to replace in longer timescales. It may affect number of impressions and reduce revenue per impression.	No	No	Yes

Yes, high relevance or contribute high financial impact to VGI

No, No impact/ low relevance or contribute low financial impact to VGI

TRANSITION RISK IDENTIFICATION (1/2)

How to identify transition risk and opportunities according to TCFD recommendation

Risk Driver	Approach to identify potential transition risks
Policy and legal	Assess potential risks arising from changes in climate-related policies, regulations, and laws. Consider how shifts towards lower-carbon economies, carbon pricing mechanisms, or stricter environmental standards may impact your organization
Technology	Consider the potential risks and opportunities associated with emerging technologies, such as renewable energy, energy efficiency solutions, or carbon capture and storage. Assess how these technologies may disrupt your operations, supply chains, or product offerings.
Market	Evaluate how market trends and shifts, such as changing consumer preferences, technological advancements, or shifts in energy sources, could affect your business model, demand for products or services, and market competitiveness.
Reputation	Evaluate the reputational risks that could arise from the perception of your organization's response to climate change. Consider how your stakeholders, including customers, employees, communities, and NGOs, may view your organization's actions on climate-related issues. Analyze investor attitudes and demands related to climate change. Consider how investors' increasing focus on environmental, social, and governance (ESG) factors may impact your access to capital, cost of capital, or investor relations.

Opportunity identification	
Transition Opportunities	Alongside risks, identify potential opportunities arising from the transition to a low-carbon economy. Assess how your organization can benefit from developing and investing in sustainable products, services, and technologies.

☐ Yes, high relevance or contribute high financial impact to VGI

☐ No, No impact/ low relevance or contribute low financial impact to VGI

TRANSITION RISK IDENTIFICATION (2/2)

Yes, high relevance or contribute high financial impact to VGI

No, No impact/ low relevance or contribute low financial impact to VGI

Transition risks applicability to VGI

Risk type	Sub-type	Climate-related risks	Climate-related risk description	Short-term (2023-2030)	Medium-term (2030-2040)	Long-term (2040-2050)
Transition risk	Policy and legal	Carbon pricing mechanism Current and Emerging regulation	Low potential direct impact due to low carbon intensity by nature of VGI's business and low GHG emissions scope 1. Low impact from current and emerging regulations	No	No	No
	Technology	Costs to transition to lower emissions technology	Low potential impact in increasing of the expenses associated with upgrading or replacing existing technology or equipment in order to reduce the amount of GHG emissions produced in the operation due to low energy consumption in most devices.	No	No	No
	Market	Uncertainty in market signals	The uncertainty of electricity and I-REC prices in the future, which could be volatile due to demand-supply dynamics, is further compounded by the uncertainties of the electricity prices.	Yes	Yes	Yes
	Reputation	Advertising related to supporting of projects or activities with negative impacts on climate (e.g., GHG emissions, coal, deforestation, water stress)	No potential impact from failure to deliver sustainability performance could result in reputational damage, or eventually leading to a revenue decrease.	No	No	No

Summary

Although the uncertainty in the I-REC market can have a high financial impact on financial markets, the transition risks arising from uncertainty in carbon pricing market signals are not directly involved in VGI's business, as indicated by the assessment analysis. This is because VGI's business has low carbon intensity and low greenhouse gas (GHG) emissions in scope 1. Therefore, the climate-related risk analysis report will not consider uncertainty in market signals from I-REC.

OPPORTUNITY IDENTIFICATION

Opportunities

Opportunity type	Climate-related opportunities	Climate-related opportunities description	Short-term (2023-2030)	Medium-term (2030-2040)	Long-term (2040-2050)
Resource efficiency	Use of recycling	Using recycled materials (e.g., recycle plastics instead of paper) to reduce the amount of waste generated during manufacturing and the environmental impact.	No	No	No
	Use of more efficient production and distribution processes	Implement energy efficiency programs for data center (e.g., airflow management in control room)	No	No	No
Energy Systems	Use of lower-emission sources of energy	Implement energy efficiency programs through switching to low carbon technology e.g., install the renewable energy for LED monitor such as solar panel system for outdoor LED digital display screen and install the energy storage for renewable technology during peak production period. The energy can be used to power LED screen during low production period	Yes	Yes	Yes
Products and Service	Development and/or expansion of low emission goods and services	Implement a branding and marketing policy that promotes environmentally sustainable business practices to effectively engage customers who value environmental responsibility and promote sustainability.	No	No	No
Markets	Access to new markets	Implement a recycling program to collect and recycle the waste generated by vinyl poster, paper poster, etc.	No	No	No
	Electricity price	Implementing renewable energy consumption in the electricity system aligns with STEPS and NZE scenarios, resulting in cost savings due to the decreasing electricity prices.	Yes	Yes	Yes
Resilience	New products and services related to ensuring resiliency	Digital disruption involves shifting from offline advertising to online advertising, which reduces the business risk in the event of natural disasters such as cyclone or floods. These events can affect the reachable number of customers, but using online advertising helps to ensure that customers can still access advertisements.	Yes	Yes	Yes

Yes, high relevance or contribute high financial impact to VGI

No, No impact/ low relevance or contribute low financial impact to VGI

Physical Risk Assessment

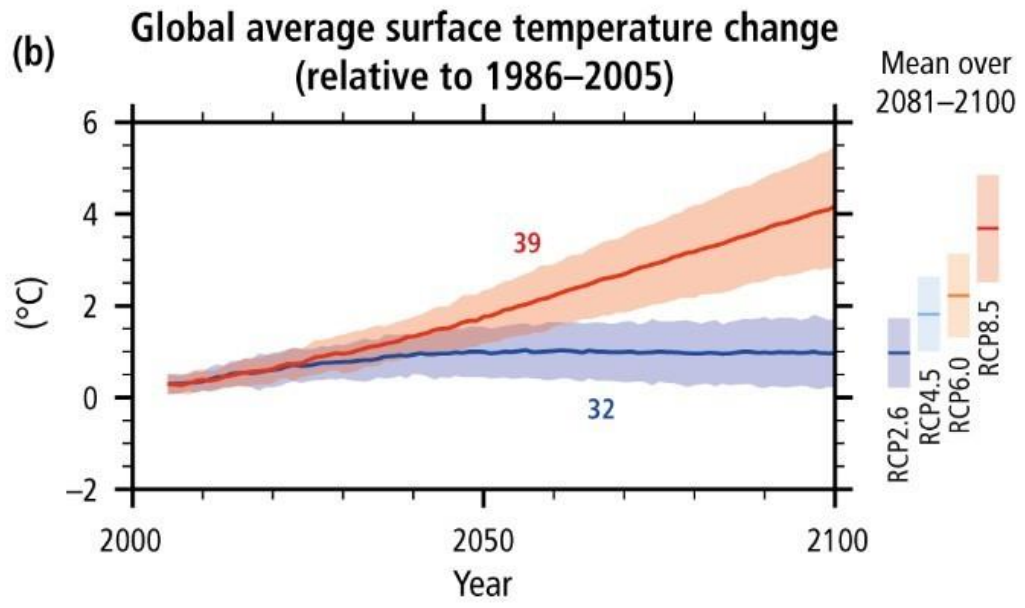
2

Increasing Temperature Causing Change in Physical Risks

Physical risk Assessment through Different Scenario & Timeframe

	RCP 2.6	RCP 8.5
Definitions	A stringent mitigation scenario. One pathway where radiative forcing peaks at approximately 3 W m-2 before 2100 and then declines (the corresponding Extended Concentration Pathways (ECP) assuming constant emissions after 2100);	A very high GHG emissions. One high pathway for which radiative forcing reaches greater than 8.5 W m-2 by 2100 and continues to rise for some amount of time (the corresponding ECP assuming constant emissions after 2100 and constant concentrations after 2250).
Objectives	To assume that CO_2 emissions remain constant until early this century, then decline, becoming negative by the end of century. This scenario assumes a sharp decline in the use of fossil fuel, increased use of cropland for biofuel production, and reduction of methane emissions by 40%.	To assume that by the end of the century, CO2 emissions will be three times higher than present. There is a large increase in methane emission. Energy use will further increase, mostly using fossil fuels. Uptake of renewable is very limited, and there is hardly any implementation of climate policies.

		2081–2100	
	Scenario	Mean	*Likely* range[c]
Global Mean Surface Temperature Change (°C)[a]	RCP2.6	1.0	0.3 to 1.7
	RCP4.5	1.8	1.1 to 2.6
	RCP6.0	2.2	1.4 to 3.1
	RCP8.5	3.7	2.6 to 4.8

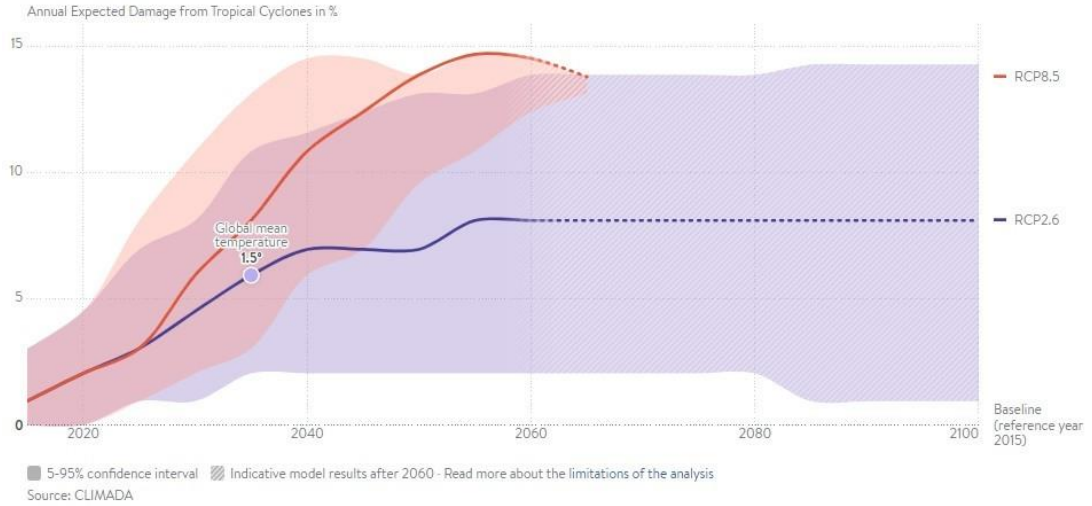


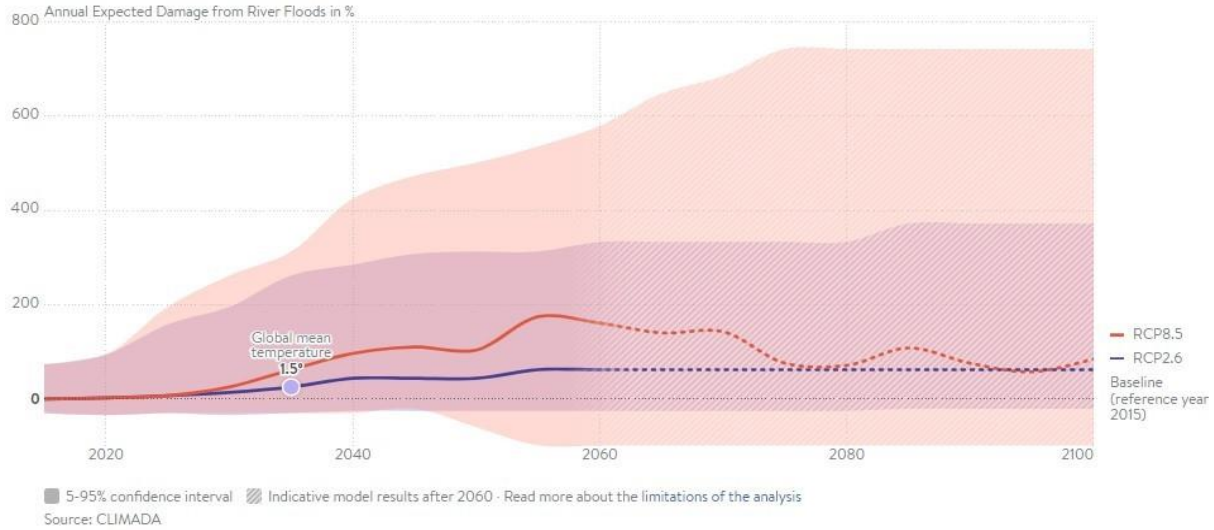
Source: IPCC AR5

SCENARIO ANALYSIS (PHYSICAL RISK))

Physical risk scenarios	Description	2046-2065 temperature change
RCP 2.6	• The mean radiative forcing at the earth's surface is 2.6 W/m2; • High effort on the implementation of decarbonization	0.4 to 1.6 °C
RCP 8.5	• The mean radiative forcing at the earth's surface is 8.5 W/m2; • Low effort on the implementation of decarbonization	1.4 to 2.6 °C

“An increase in global average temperature will cause change in climate impact driver…increasing or decreasing depends on area and timeframe”.





Annual expected damage from tropical cyclone (RCP 2.6) in %		
Short term (present - 2030)	**Medium term (present - 2040)**	**Long term (present - 2050)**
4.48	6.95	6.95

Annual expected damage from tropical cyclone (RCP 8.5) in %		
Short term (present - 2030)	**Medium term (present - 2040)**	**Long term (present - 2050)**
5.92	10.85	13.88

Annual expected damage from river flood (RCP 2.6) in %		
Short term (present - 2030)	**Medium term (present - 2040)**	**Long term (present - 2050)**
11.86	42.31	42.31

Annual expected damage from river flood (RCP 8.5) in %		
Short term (present - 2030)	**Medium term (present - 2040)**	**Long term (present - 2050)**
24.33	96.47	102.56

Source: Climate analytic tool

SCENARIO ANALYSIS (PHYSICAL RISK)

River flood and tropical cyclone are physical risks for media, movie and entertainment sector in VGI business.

Risk driver	Description	Tool/Data source
River flood	We used the data from climate impact explorer developed by Climate analytic tool website. Annual expected damage from flood is selected as the indicator to project the future impact data under RCP 2.6 and 8.5 for the locations that VGI have operations	CLIMATE ANALYTICS AQUEDUCT BETA WATER RISK ATLAS
Tropical cyclone/ windstorm	We used the data from climate impact explorer developed by Climate analytic tool website. Annual expected damage from Tropical cyclone is selected as the indicator to project the future impact data under RCP 2.6 and 8.5 for the locations that VGI have operations	CLIMATE ANALYTICS

Potential Impact from Tropical Cyclone over Thailand

Normalized number of financial impact from tropical cyclone/windstorm (T-W) event	x	Annual Expected Damage from tropical cyclone in % by country under RCP xxx in xxx timeframe	=	Financial impact from tropical cyclone in Thailand under RCP xxx in xxx timeframe

Business and Financial Impacts	
Business impacts	**Financial impacts**
The increase in likelihood and impact of tropical cyclone trigger the integration or shifting of offline to online (o to O) media	• Cost of maintenance from infrastructure damage • Total cost of insurance premium

Baseline Condition		
Condition # 1: Con 1 Historical impact without responses in THB	Condition # 2: Con 2 one day revenue loss on BTS station advertisement	Condition # 3: Con 3 one day revenue loss on BTS station + Empire big screen + MBK screen

Condition	Financial Impact from Tropical cyclone (RCP 2.6) (base on Tropical cyclone event) in THB			Financial Impact from Tropical cyclone (RCP 8.5) (base on Tropical cylone event)) in THB		
	Short term (present - 2030)	Medium term (present - 2040)	Long term (present - 2050)	Short term (present - 2030)	Medium term (present - 2040)	Long term (present - 2050)
Con 1/revenue in%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
Con 2/revenue in%	0.19%	0.19%	0.19%	0.19%	0.20%	0.21%
Con 3/revenue in%	0.19%	0.20%	0.20%	0.20%	0.21%	0.21%

Summary
- Under RCP 2.6 financial impact from tropical cyclone can be 0.03-0.19% of revenue generation in short term, and 0.03-0.20%in medium-long term
- Under RCP 8.5 financial impact from tropical cyclone can be 0.03-0.20% of revenue generation in short term, and 0.03-0.21%in medium-long term

Source: Climate analytic tool

Potential Impact from River Flood over Thailand (direct impact)

River Flood and Coastal flood

Business and Financial Impacts	
Business impacts	**Financial impacts**
• Indirect impact from flood may affect the number of impression • Long flood can affect the number of population in Bangkok because it may trigger the migration from Bangkok to other area	**Direct Impact:** Revenue generation per person who use BTS and see advertisement **Indirect Impact:** Increasing Cost per impression (CPM) due to lowering number of impression

Revenue 2018/Ridership in THB/person		Revenue 2011/Ridership in THB/person		Negative financial impact from flood in THB/person
6.18	-	5	=	1.39

Baseline negative financial impact in revenue/person	x	Annual Expected Damage from Floods in % by country under RCP xxx in xxx timeframe	=	Financial impact from flood by country under RCP xxx in xxx timeframe

Condition	Financial Impact from flood(RCP 2.6) (base on flood event) in THB			Financial Impact from floodRCP (8.5) (base on flood event) in THB		
	Short term (present - 2030)	Medium term (present - 2040)	Long term (present - 2050)	Short term (present - 2030)	Medium term (present - 2040)	Long term (present - 2050)
Baseline	1.55	1.98	1.98	1.73	2.73	2.81

We have compared the revenue generation per ridership in THB/person of flood year (2011) to the average compared the revenue generation per ridership in THB/person of normal situation without covid-19 period. The negative financial impact is the subtraction flood year and normal condition.

Source: Climate analytic tool

Potential Impact from River Flood over Thailand (indirect impact)

River Flood and Coastal flood

Business and Financial Impacts	
Business impacts	**Financial impacts**
• Indirect impact from flood may affect the number of impression • Long flood can affect the number of population in Bangkok because it may trigger the migration from Bangkok to other area	**Indirect Impact:** Indirect Impact from flood can affect the worthiness of the advertisement in terms of popularity. Flood can reduce the number of impression and can have an impact to VGI's customers for making the decision to purchase the advertisement area

$$Cost\ per\ impression\ (THB) = \frac{Advertising\ cost\ (THB)}{Number\ of\ impression\ (\#)}$$

In this context, advertising cost is VGI's revenue
Focus variable is number of impression

*Flood event in 2011 reduce number of impression **about 11.75%** from average (2009 – 2019)

Baseline Cost per Impression = 4.79 THB/impression x **Annual Expected Damage from Floods in % by country under RCP xxx in xxx timeframe** = **Financial impact from flood by country under RCP xxx in xxx timeframe**

Condition	Financial Impact from flood(RCP 2.6) (base on flood event) in THB			Financial Impact from floodRCP 8.5) (base on flood event)) in THB		
	Short term (present - 2030)	Medium term (present - 2040)	Long term (present - 2050)	Short term (present - 2030)	Medium term (present - 2040)	Long term (present - 2050)
Baseline	5.36	6.82	6.82	5.96	9.41	9.70

Please note that the baseline cost per impression was calculated from the revenue of VGI and number of impression in 2011 in order to estimate cost per impression during flood event
We used year 2011/2012 revenue of VGI and number of impression data; please note that number of impression have been adjusted according to the extension line already

*The covid-19 period lead the number of ridership to be significant different from normal situation; so we exclude the data after 2019

Source: Climate analytic tool

Potential Impact from River Flood over Thailand (indirect impact)

River Flood and Coastal flood

Business and Financial Impacts	
Business impacts	**Financial impacts**
• Indirect impact from flood may affect the number of impression • Long flood can affect the number of population in Bangkok because it may trigger the migration from Bangkok to other area	**Direct Impact:** Advertisements have very low likelihood to expose to the flood **Indirect Impact:** Increasing Cost per impression (CPM) due to lowering number of impression

$$Cost\ per\ impression\ (THB) = \frac{Advertising\ cost\ (THB)}{Number\ of\ impression\ (\#)}$$

In this context, advertising cost is VGI's revenue
Focus variable is number of impression

Flood event in 2011 reduce number of impression **about 11.75%** from average (2009 – 2019)

Revenue of VGI (in station and in train only) year 2011
= 1,143,177,081 THB

Number of Impression in Flood year 2011
= 238,659,668 impression

Baseline Cost per Impression
= 4.79 THB/impression

X

Annual Expected Damage from Floods in % by country under RCP xxx in xxx timeframe

=

Financial impact from flood by country under RCP xxx in xxx timeframe

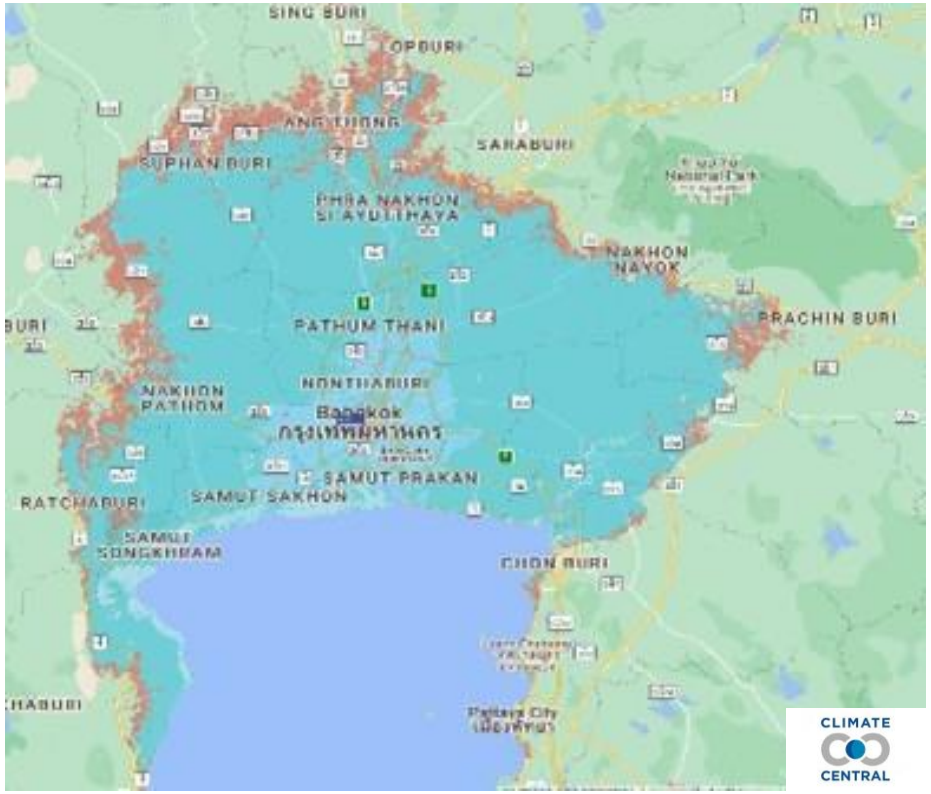
Condition	Financial Impact from flood(RCP 2.6) (base on flood event) in THB			Financial Impact from floodRCP 8.5) (base on flood event)) in THB		
	Short term (present - 2030)	Medium term (present - 2040)	Long term (present - 2050)	Short term (present - 2030)	Medium term (present - 2040)	Long term (present - 2050)
Baseline	5.36	6.82	6.82	5.96	9.41	9.70

Please note that the baseline cost per impression was calculated from the revenue of VGI and number of impression in 2011 in order to estimate cost per impression during flood event
We used year 2011/2012 revenue of VGI and number of impression data; please note that number of impression have been adjusted according to the extension line already

Source: Climate analytic tool

Potential Impact from Coastal Flood over Thailand

Coastal Flood



Below tideline after:

- 2.6°C of global warming
- 1.6°C of global warming

Sea level rise and Elevation data till 2050
Climate Central's sea level rise and coastal flood maps are based on peer-reviewed science in leading journals. As these maps incorporate big datasets, which always include some error, these maps should be regarded as screening tools to identify places that may require deeper investigation of risk.

This map uses localized sea level rise projections from Strauss et al. 2015, which builds on the projections of the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC 2013). Outside of the United States, the map uses elevation data from Climate Central's CoastalDEM®, which was peer-reviewed and published in Kulp and Strauss 2018 and further improved in Kulp and Strauss 2021. CoastalDEM was made by using artificial intelligence to improve elevation data developed by NASA. The horizontal resolution of CoastalDEM elevation data is one arcsecond, or about 30 meters (100 feet).

Bathtub approach
Map areas are identified as vulnerable based on land elevation relative to the selected shoreline water level alone. This means that low-lying but isolated areas that may potentially be protected by higher ground will be marked as inundated.

Limitation
Factors such as buildings, vegetation, land slope, and random noise can cause vertical errors in the elevation data, which may lead to areas being misclassified as safe or at risk.

*This picture use elevation data to project the impact; the level of impact can be change due to the capability of climate adaptation plan and flood management system

Potential level of coastal flood impact in Bangkok is high; more and more people will expose to coastal flood

Source: Climate central – map for coastal flood area

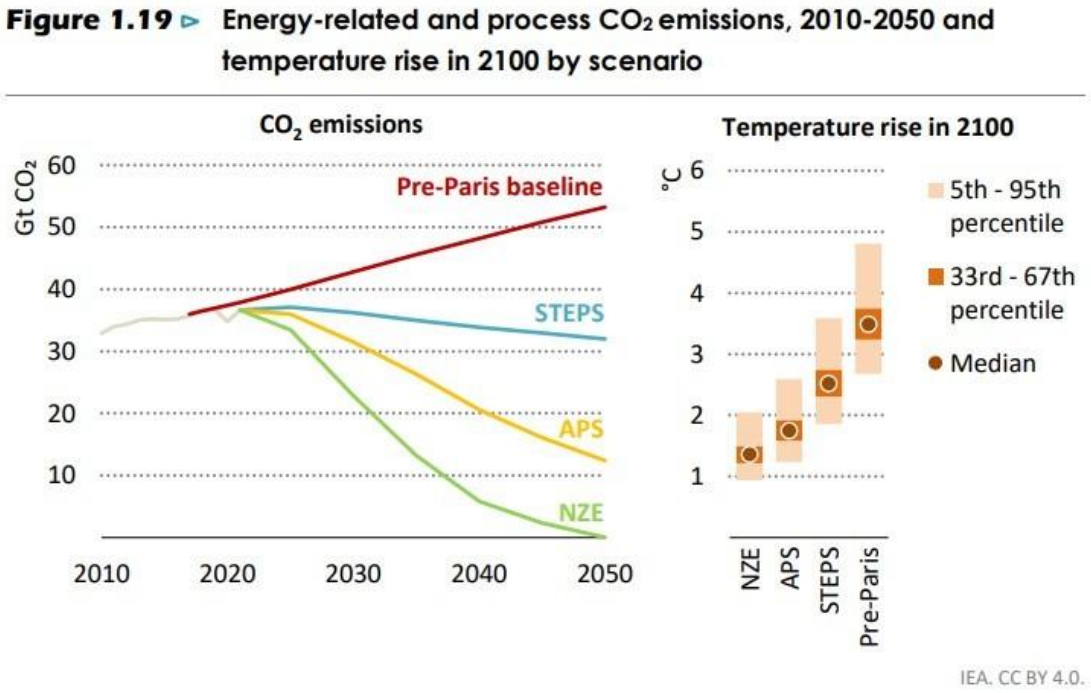
Transition Risk Assessment

3

The effects of maintaining global surface temperature at 1.5 C

Transition risk Assessment through Different Scenario & Timeframe

	Net Zero Emissions by 2050 Scenario (NZE)	Stated Policies Scenario (STEPS)
Definitions	A scenario which sets out a pathway for the global energy sector to achieve net zero CO2 emissions by 2050. It doesn't rely on emissions reductions from outside the energy sector to achieve its goals. Universal access to electricity and clean cooking are achieved by 2030.	A scenario which reflects current policy settings based on a sector-by-sector and country by country assessment of the specific policies that are in place, as well as those that have been announced by governments around the world.
Objectives	To show what is needed across the main sectors by various actors, and by when, for the world to achieve net zero energy related and industrial process CO2 emissions by 2050 while meeting other energy-related sustainable development goals such as universal energy access.	To provide a benchmark to assess the potential achievements (and limitations) of recent developments in energy and climate policy.



Source: [world energy outlook 2022]

SCENARIO ANALYSIS (TRANSITION RISK)

Electricity price and I-REC price are transition risks for media, movie and entertainment sector in VGI business.

Risk driver	Description	Tool/Data source
Electricity price	The electricity price change was estimated using data from 'International Energy Agency (2022), Global Energy and Climate Model Documentation 2022, IEA, Paris' and 'IEA's World Energy Outlook 2022'. While the base electricity price and emission factored are from 'GlobalPetrolPrice.com' (June 2022 data). The electricity consumption was given by VGI.	iea GlobalPetrolPrices.com
I-REC price	REC price forecasting methodology is based on the estimated Levelized Cost of Electricity (LCOE). The LCOE method assumes that an economically sensible renewable investor will engage in the I-REC market. The data based on 'International Energy Agency (2022), Global Energy and Climate Model Documentation 2022, IEA, Paris' and 'IEA's World Energy Outlook 2022'. **Remark:** Overall, the price of I-REC is expected to be relatively stable in the future. However, important to note that the actual price of I-REC will depend on a number of factors, and it is impossible to predict with certainty what the price will be in the future	iea

SCENARIO ANALYSIS (TRANSITION RISK)

Electricity price

Scenario Analysis Component	Output	
Name of Component	**Output Metric**	**Output Value**
Net Zero Emissions by 2050 Scenario (NZE)	Relative change from 2022	Short-term (2023-2030): -0.69% Medium-term (2030-2040): -1.65% Long-term (2040-2050): -2.62%
Stated Policies Scenario (STEPS)	Relative change from 2022	Short-term (2023-2030): -0.54% Medium-term (2030-2040): -1.13% Long-term (2040-2050): -1.72%

Business and Financial Impacts	
Business impacts	**Financial impacts**
Promote renewable energy consumption	Cost saving due to the decreasing in electricity price

Potential impact from changes in electricity price

Potential Financial Impact from Electricity Prices in NZE and STEPS

Electricity consumption in xxx timeframe	x	**Estimated electricity prices by country under NZE and STEPS in 2022**	x	**End-user electricity prices change under NZE and STEPS in xxx timeframe**	=	**Financial impact from Electricity Prices by country under NZE and STEPS in xxx timeframe**

Financial Impact Relevance Weighting	Description
0.4	Indirect impact on electricity prices pass through from generation cost

The table below shows the sum of financial impact from electricity price in NZE and STEPS Scenario

Business Unit	Total Projected Financial Impact from Electricity Prices					
	Short-term (present - 2030)		Medium-term (2030 - 2040)		Long-term (2040 - 2050)	
	NZE	STEPS	NZE	STEPS	NZE	STEPS
Cost (THB)/Revenue(THB) x 100	-0.09%	-0.07%	-0.23%	-0.15%	-0.40%	-0.26%
Cost (THB/year)/Asset value (%) x 100	-0.05%	-0.04%	-0.14%	-0.10%	-0.24%	-0.16%

Potential impact from purchased I-REC

Potential Financial Impact from Electricity Prices in NZE and STEPS

Electricity consumption in xxx timeframe	x	I-REC price in xxx timeframe*	=	Financial impact from purchased I-REC under NZE and STEPS in xxx timeframe

Financial Impact Relevance Weighting	Description
1	Direct financial impact from I-REC purchases

The table below shows the sum of financial impact from purchased I-REC in NZE and STEPS Scenario

Business Unit	Total Projected Financial Impact from Purchased I-REC					
	Short-term (present - 2030)		Medium-term (2030 - 2040)		Long-term (2040 - 2050)	
	NZE	STEPS	NZE	STEPS	NZE	STEPS
Cost (THB)/Revenue(THB) x 100	0.02%	0.01%	0.02%	0.01%	0.02%	0.01%
Cost (THB)/Asset value (%) x 100	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%

Assumptions: I-REC price in NZE is 50 THB/MWh (e.g., solar, wind), while STEPS is 30 THB/MWh (e.g., biomass, hydro), due to higher demand for renewable energy and stricter regulation to lower GHG emissions despite lower cost of renewable energy generation

Summary

SUMMARY OF PHYSICAL RISK ASSESSMENT

Physical risks applicability to VGI

Risk type	Sub-type	Climate-related risks	Climate-related risk description	Changes from Baseline
Physical risk	Acute	Increased severity of extreme weather events such as tropical cyclone – severe windstorm	Increased frequency and severity of climate-driven events with varying impacts based on location, weather conditions, and season. In Bangkok, metropolitan areas with fewer tall buildings may face higher wind speeds than built-up urban areas during such events.	**RCP 2.6** 2023-2050: 4.48 - 6.94 % **RCP 8.5** 2023-2050: 5.92 - 13.88 %
		Heavy precipitation (rain, hail, snow/ice), floods	There is low potential direct and indirect impact due to short occurrence nature of the event	No significant change
		River flood	There is a low potential direct impact from floodwaters which may damage outdoor advertising infrastructures and potential cost to replace them. While potential indirect impact may be higher which may affect number of impressions in VGI advertisement.	**RCP 2.6** 2023-2050: 11.86 - 42.31% **RCP 8.5** 2023-2050: 24.32 - 102.56%
		Landslide and subsidence	There is low potential impact from landslide and subsidence	No significant change
		Aridity	There is low potential impact from aridity	No significant change
		Air pollution	There is low potential impact air pollution	No significant change
	Chronic	Changing temperature (air, freshwater, marine water)	High temperatures may cause electronic components to overheat, which may result in malfunctions or failures. However, according to Digikey (2022), all of the LED backlights are specifically designed to operate from -40°C to +85°C. Therefore, low potential impact.	No significant change
		Coastal flood	Coastal flooding may cause damage to outdoor advertising structures such as billboards, posters, and banners, making them ineffective and potentially costly to replace in longer timescales. It may indirectly affect number of impressions and reduce revenue per impression. However, this risk is considered insignificant as there is no asset on ground level. Thus, the impact was assessed on qualification basis only.	Located in vulnerable area, but most assets are on building above ground level

Yes, relevance or contribute financial impact

No, no impact/ low relevance or contribute low financial impact

SUMMARY OF TRANSITION RISK ASSESSMENT

Transition risks applicability to VGI

Risk type	Sub-type	Climate-related risks	Climate-related risk description	Change from baseline (2022)
Transition risk	Policy and legal	Carbon pricing mechanism Current and Emerging regulation	Low potential direct impact due to low carbon intensity by nature of business and low GHG emissions scope 1. Low impact from current and emerging regulations	No significant change
	Technology	Costs to transition to lower emissions technology	Low potential impact in increasing of the expenses associated with upgrading or replacing existing technology or equipment in order to reduce the amount of GHG emissions produced in the operation due to low energy consumption in most devices.	No significant change
	Market	Uncertainty in market signals	The uncertainty of electricity and I-REC prices in the future, which could be volatile due to demand-supply dynamics, is further compounded by the uncertainties of the electricity prices.	**NZE** 2023-2050: -2.62% to –0.69% **STEPS** 2023-2050: -1.72% to -0.54%
	Reputation	Advertising related to supporting of projects or activities with negative impacts on climate (e.g., GHG emissions, coal, deforestation, water stress)	No potential impact from failure to deliver sustainability performance could result in reputational damage, eventually leading to a decrease in revenue.	No significant change

Yes, relevance or contribute high financial impact to VGI

No, no impact/ low relevance or contribute low financial impact to VGI

SUMMARY OF CLIMATE RISK ASSESSMENT

Physical Risk

► Risk identification

	Climate Impact Driver	Likelihood	Level of Impact	Historical Impact
Acute	Tropical cyclone/ windstorm (T-W)	Medium	Medium	Yes
Acute	Inland Flood	High	Medium	Yes
Acute	Water Stress	Low	Low	No
Acute	Lightning	Low	Low	No
Chronic	Increasing Temperature	High	Low	No
Chronic	Coastal Flood	Low	Low	No

► projected financial impact under 2 scenario in MTHB

Risks	Average Projected Financial Impact	
	Tropical cyclone	
	RCP 2.6	RCP 8.5
Negative Financial impact	0.31-2.49	0.32-2.65

► projected financial impact under 2 scenario in revenue (THB)/ridership

Risks	Average Projected Financial Impact			
	Direct: Flood		Indirect: Flood	
	RCP 2.6	RCP 8.5	RCP 2.6	RCP 8.5
Negative Financial impact	1.55-1.98	1.73-2.81	5.36-6.82	5.96-9.70

Transition Risk

► Risk identification

Risk Driver	Likelihood	Level of impact
Policy/Regulation	Low	Low
Market	Low	Low
Reputation	Low	Low
Technology	Low	Low

► projected financial impact under 2 scenario in MTHB

Risks	Average Projected Financial Impact	
	I-REC	
	STEPS	NZE
Negative Financial impact	0.13-0.16	2.25-2.75

Risks	Average Projected Financial Impact	
	Electricity Price	
	STEPS	NZE
Financial impact	0.84-3.24	1.06-4.94

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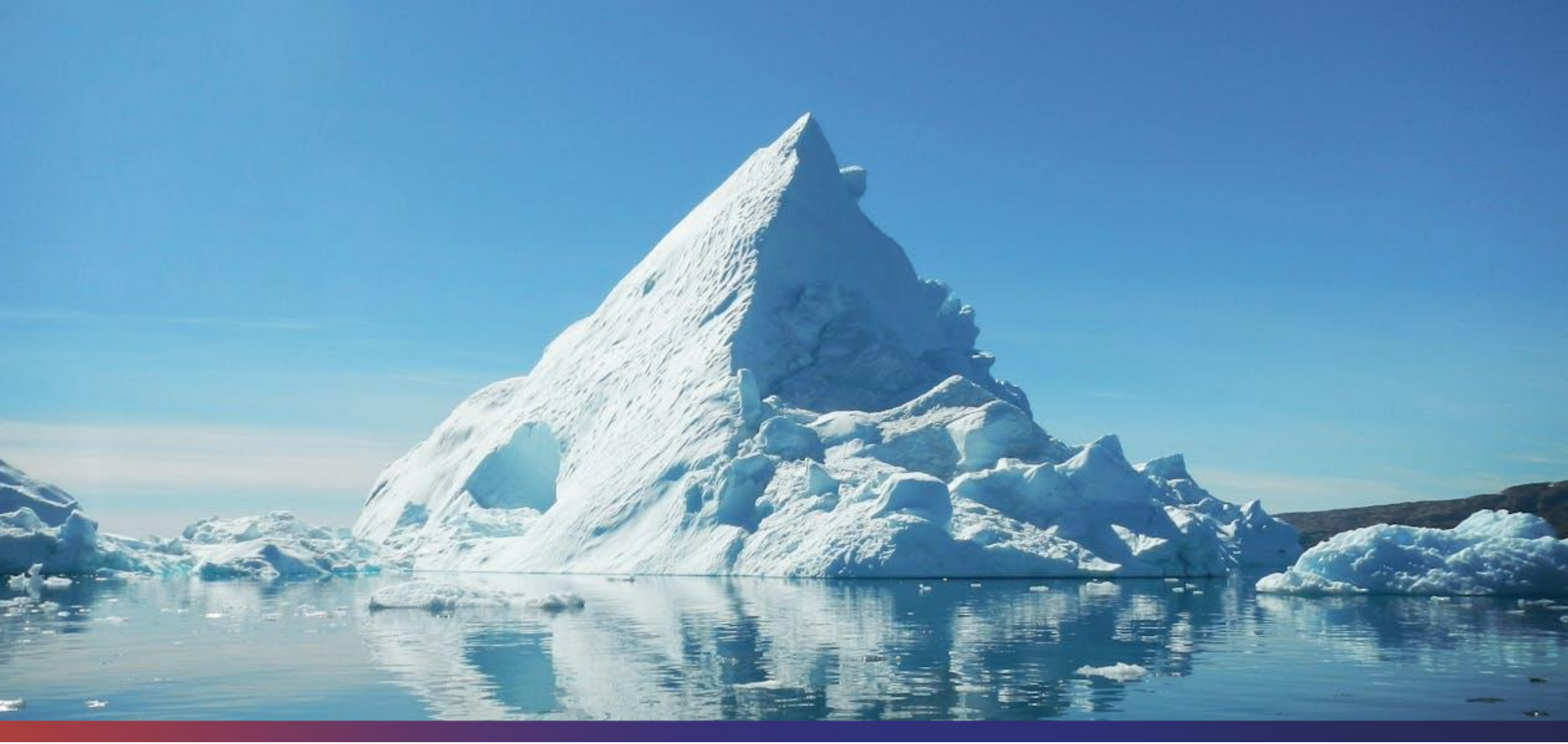

VGI PUBLIC COMPANY LIMITED
1000/9 BTS Visionary Park–South Tower 27 Floor, Phahonyothin Road, Chomphon Sub-district, Chatuchak District, Bangkok 10900 Thailand