



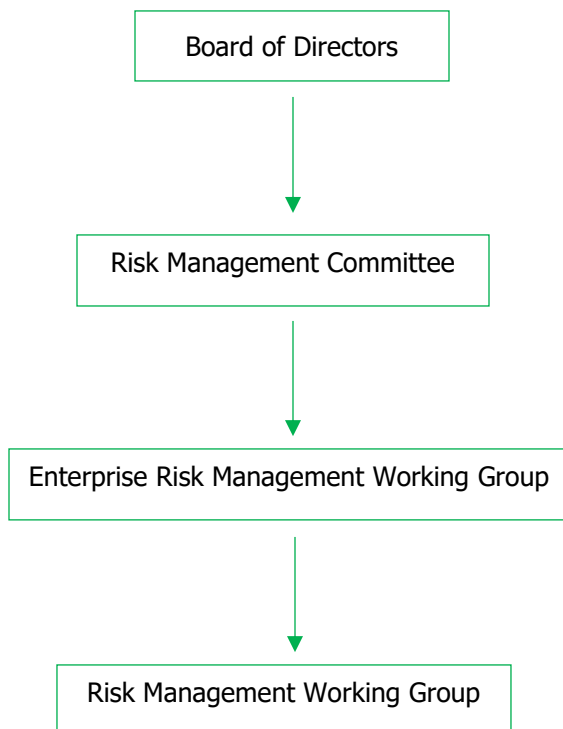
PTG Energy Public Company Limited

Climate-Related Risk Management Report

Prepared in accordance with the recommendation of Task Force on
Climate-Related Financial Disclosure (TCFD)



1. Climate-Related Risk Management Governance (Governance)



PTG Energy Public Company Limited (“the Company”) requires its organization to have corporate climate-related risk management in place as part of overall risk management to achieve sustainability and to ensure risk prevention and adaptation to climate change. In addition, based on the corporate risk management policy implemented to mitigate all risks encountered to an acceptable level and to strengthen confidence of all stakeholders, the Company also seeks new opportunities to thrive its business efficiently amidst the climate fluctuations.

The Company hence established a Corporate Risk Management Committee consisting of 2 directors and 1 c-suite executive who are particularly responsible for corporate risk management. The Committee further formed a Enterprise Risk Management Working Group and Risk Management Working Group whose responsibilities are to engage in internal risk management process, which includes management of climate induced risks for effective results.

Responsibilities of Risk Management Committee and Enterprise Risk Management Working Group

1. Systematically and consistently conduct climate-related risk and opportunity analyses that are aligned with current situations in order to ensure all areas of business operations have been included in the risk management.
2. Identify indicators for assessment of climate-related risk and opportunity management measures.
3. Review climate-related risk management reports and ensure the Company has proper risk management plans in place.
4. Report climate-related risk management results to the Board of Directors.



Responsibilities of Risk Management Working Group

1. Coordinate with the Risk Management Committee to incorporate risk management policies and mechanisms in climate-related risk management.
2. Be responsible for ensuring that each department complies with risk management procedures by identifying, analyzing, assessing risk factors and opportunities contributed by climate change in correspondence with recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).
3. Provide and propose analyses and assessment of climate-related risks, opportunities and impacts under given scenarios to the Corporate Risk Management.

2. Climate Change Management Strategy

Identification and assessment of physical and transition risks as well as opportunities contributed by climate change.

The Company has identified climate-related risks and opportunities, as well as conducting climate change scenario-based impact analyses according to the Intergovernmental Panel on Climate Change (IPCC), the International Energy Agency (IEA) and Greenpeace, in order to efficiently respond to impacts imposed by climate change while also formulating proper measures to address such challenges.

The Company has conducted physical risk and transition risk assessment based on three different scenarios as follows:

1. Physical Risk: Representative Concentration Pathways: RCP8.5

The RCP8.5 is a scenario of a greenhouse gas concentration trajectory brought about by activities of the public and private sectors throughout the globe while necessary policies are still absent or remain ineffective to mitigate and limit greenhouse gas emissions. The scenario expects sea level variability of 0.8 metres in certain regions and also anticipates that situations in the days to come will still be the same as those of today (Business as Usual: BAU) given the absences of government policies and private measures to address the climate change while the level of greenhouse gas emission is inevitably high.

2. Transition Risk: 2 Degrees Scenario (ETP 2DS) Analysis of the International Energy Agency (IEA)

The transition to a low carbon society scenario namely ETP 2DS is a postulated sequence of transitions taking place from 2013 to 2050, during which it is expected that, in comparison to the Pre-Industrial Revolution (1990), the possibility for success of limiting global warming to 2 degrees Celsius within 2050 is 50 per cent and the consumption ratio of alternative energy, clean energy and renewable energy will increase globally, resulting in approximately 70 per cent decrease in global energy usage and leading to a reduced quantity of carbon dioxide generated by electricity consumption. In terms of policies, carbon tax will increase from \$35/tCO₂ to \$210/tCO₂. In terms of technology, 47 per cent of urban electricity usage worldwide will be generated by rooftop photovoltaic systems, leading to average electricity consumption of 9 per cent in the



urban area. Besides, it has been expected that there will be 100 million electric automobiles used throughout the globe by 2050.

3. Transition: Limiting Global Warming to Below 2 Degrees Celsius – Greenpeace Advanced Energy [R]evolution Scenario

The transition to a low carbon society scenario of Greenpeace Advanced Energy [R]evolution is a scenario of transitions taking place from 2012 to 2050, which aim to limit global warming to below 2 degrees Celsius when compared to the Pre-Industrial Revolution (1900) or a complete transition to a decarbonized society within 2050. Renewable energy, biofuel and hydrogen will replace the current form of energy or electricity, and there will also be enactment of carbon tax to control both public and private activities. It is hypothesized that the industrial, household and service sectors will manage to reduce the consumption of fossil fuels and electricity to 16,700 Terawatts and is expected that 14 per cent of the total electricity will be generated by photovoltaic cells by 2030.

2.1 Physical Risk Assessment under the RCP 8.5 Scenario

2.1.1 Natural Disaster Risk (Acute): Short-term risks (1–3 years)

Natural disaster risks such as floods, drought, result in business damage and interruption. The Company has prepared a risk management measure, namely Business Continuity Plan (BCP), to deal with specific natural disasters which has been reviewed on an annual basis.

Potential Financial Impact: Company's revenue may tremendously drop as more than one of the following segments: service stations, MAX Mart convenience stores and Punthai Café, may be damaged and it may require temporary closure in some areas, which potentially affect the revenues.

2.1.2 Permanent Climate-Related Risk (Chronic): Long-term risks (over 5 years)

Risks induced by higher temperatures lead to increasing management costs. This is because the higher temperatures may harm equipment, e.g., when fire reactive goods used in service stations and storage facilities being out of service, resulting in damage to such materials and people living in the proximity. Therefore, the Company has scheduled equipment assessment at service stations and storage facilities, launching different initiatives to reduce greenhouse gas emissions and limit global warming. Among those are campaigns to promote energy-saving light bulbs, measures for cost-effectiveness of energy efficiency, installations of rooftop PV systems at service stations. Moreover, the Company has rolled out a measure to change fuel used by Company's transportation fleets, from diesel to biodiesel B7 and B10, helping mitigate greenhouse gas emission, which is a reason of higher temperature. Furthermore, the Company has preparedness and response plans as well as regulations in place, which concern flammable material controls as prescribed by applicable laws to prevent damage that potentially occurs.

Potential Financial Impact: Management costs increase as the business has been bombarded by the global warming crisis. Flammable materials used within service stations



or petroleum warehouses will be damaged, meaning that there will be losses to Company's assets and adverse impacts against stakeholders living in the proximity in certain areas.

2.2 Transition Risk under the 2 Degrees Scenario (2DS) and Greenpeace Advanced Energy [R]evolution Scenarios

2.2.1 Policy & Legal: Long-term risks (over 5 years)

Risks caused by amendments of government policies and legislations that are related to climate change; for example, the Climate Change Bill, Energy 4.0 Policy which encourages clean energy usage within 2036, may require the Company to adjust its plan in order to align the business with official requirements. The Company manages this specific risk by investing in a solar farm, which is a joint venture project with the Electricity Generating Authority of Thailand (EGAT) and the Royal Thai Army (RTA) to generate solar energy. Moreover, the Company has prepared business's carbon footprint data and had itself registered and certified for Carbon Footprint of Organization by the Thailand Greenhouse Gas Management Organization (Public Organization). This aims to analyses data and adjust operation approaches to further mitigate organizational carbon footprint. In addition, the Company also erected charging stations for electric vehicles under the EleX by EGAT project, which is a co-investment with the Electricity Generating Authority of Thailand (EGAT).

Potential Financial Impact: As the Company may need to adjust its business plan, investment budgets of certain projects may need to be higher than the estimates in order to ensure business continuity based on the changing policies and laws.

2.2.2 Technology: Medium-term risks (3-5 years)

Risks caused by investments in technology intended to enhance energy efficiency and reduce GHG emissions throughout the Company's supply chain may subject the Company to a substantially higher investment budget for technology procurement, as well as research and development. The Company has conducted research on global trends towards a low carbon society to prepare budget for technological investment. Additionally, it further identifies opportunities to collaborate with business partners for product and service development to achieve cost reduction and well respond to such risks. In addition, the company has developed an electronic money service system. and service providers accepting payments on behalf of, it will provide e-wallet services through the Max Me Application, which is an Ecosystem & Communities, linking services through the Max Card to be a platform for connecting online and offline (O2O) together, supports changing consumer behavior that focuses more on digital transactions It aims to be the leader in the electronic money service system among energy companies, and completely answers the needs of stepping into a digital society.

Potential Financial Impact: It may affect the company's costs to increase from investing part of the money in new technology that will occur.



2.2.3 Market: Medium-term risks (3-5 years)

These are risks caused by shifting consumer behaviors towards environmentally-friendly products and services, including electric automobiles, resulting in less demand in petroleum. To respond to such risks, the Company has adjusted its business plans and targets to increase sales volumes and gross profit of the non-oil business such as food and beverage, LPG retailers, MAX Card membership and e-Money segment, with a plan to establish a new health & wellness business, and co-investment in the Palm Complex project to produce and distribute biodiesel (B100), which helps enhance engine combustion performance and minimize air pollution.

Potential Financial Impact: The Company shall consider business plan adjustment to serve the evolving needs of consumers, which may result in budget excess as more budget is required to be invested in producing products that are friendly to the environment to fulfill consumers' changing preferences.

2.2.4 Reputation: 1-3 years

Risks due to complaints lodged by stakeholders concerning Company's business operations that adversely affect the environment or are against environment-related laws, resulting in negative reputation and an extensive loss of brand loyalty, leading to less profits generated. In order to address such risks, the Company thus has risk control measures in place whereby different activities have been organized to minimize environmental impacts. For example, there were public hearings to acquire opinions of stakeholders prior to each service station construction. It has established a good relationship with the surrounding communities through a CSR project called "PTG never leaves anyone behind." Moreover, the Company has been part of the Thailand Voluntary Emission Reduction Program (T-VER) to prove its commitment to mitigating GHG emissions and minimizing global warming impacts. There was a Recycling Drop Point campaign, co-organized with SCGP to encourage correct waste disposal by replacing waste incineration and landfills with recycling approaches, and have a Waste Separation Model project combined with SC Circular to use fabric fibers from old shirts and plastic water bottles generated at gas stations to produce new clothes, to be given to students and teachers at Ban Rak Thai Border Patrol Police School, Phitsanulok Province.

On top of that, in order to rigorously comply with environment-related laws, the Company has assessed and reviewed compliance and alignment of its operations, assigning more committees to inspect safety and environmental concerns at service stations and also establishing a regional inspection committee. It evaluates and monitors safety and environmental issues using the Safety PT service system. Moreover, environmental quality at service stations has been regularly assessed while operation plans have been prepared for ISO14001:2015 and ISO45001:2018 certification at Mae Klong petroleum storage facilities. Areas that are not compliant with applicable laws and regulations were improved and corrected in order to minimize and limit legal risks, or ensure that a specific risk possibly arising will affect the Company to only an acceptable extent.



Potential Financial Impact: If the Company does not operate its business while also taking safety and environmental concerns into consideration, environmentally conscious consumers may not support Company's products and services, which possibly cause drops in revenues and profits.

2.3 Assessment of Climate-Related Opportunities

Categories	Climate-Related Opportunities	Forecasted Financial Impacts
Resource Efficiency	<ul style="list-style-type: none"> - Reduce electricity usage at offices, warehouses and service stations. - Alternative energy usage, e.g., solar PV installations at service stations. 	<ul style="list-style-type: none"> - Facilitate electricity savings (cost savings)
Energy Source	<ul style="list-style-type: none"> - Use and invest in clean energy technologies. 	<ul style="list-style-type: none"> - Reduce costs in a long run. - Create new products or innovations which enhance competitiveness.
Product & Service	<ul style="list-style-type: none"> - Design and develop environmentally-friendly products and services in response to changes in consumers' needs and behaviours. 	<ul style="list-style-type: none"> - Increase in revenues generated by green products.
Market	<ul style="list-style-type: none"> - Penetrate green product and service markets to expand the environmentally conscious group of customers. - Enhance satisfaction of environmentally conscious customers. 	<ul style="list-style-type: none"> - Enhance competitiveness in the green market. - Attract investors who wish to invest in businesses that place importance on the environment. - Establish a positive reputation for the organisation.
Resilience	<ul style="list-style-type: none"> - Participate in green initiatives such as voluntary greenhouse gas mitigation programme based on Thailand's applicable standards (T-VER) - Incorporate government's clean energy policies in business operations. 	<ul style="list-style-type: none"> - Improve responsiveness to climate-related vulnerabilities.



3. Climate-Related Risk Management

3.1 Climate-related risk management procedures

The Company has conducted climate-related risk assessment in alignment with the Task Force on Climate-related Financial Disclosures (TCFD) and managed climate-related risks to ensure they conform to corporate risk management. The procedures are as provided in **Figure 1**.

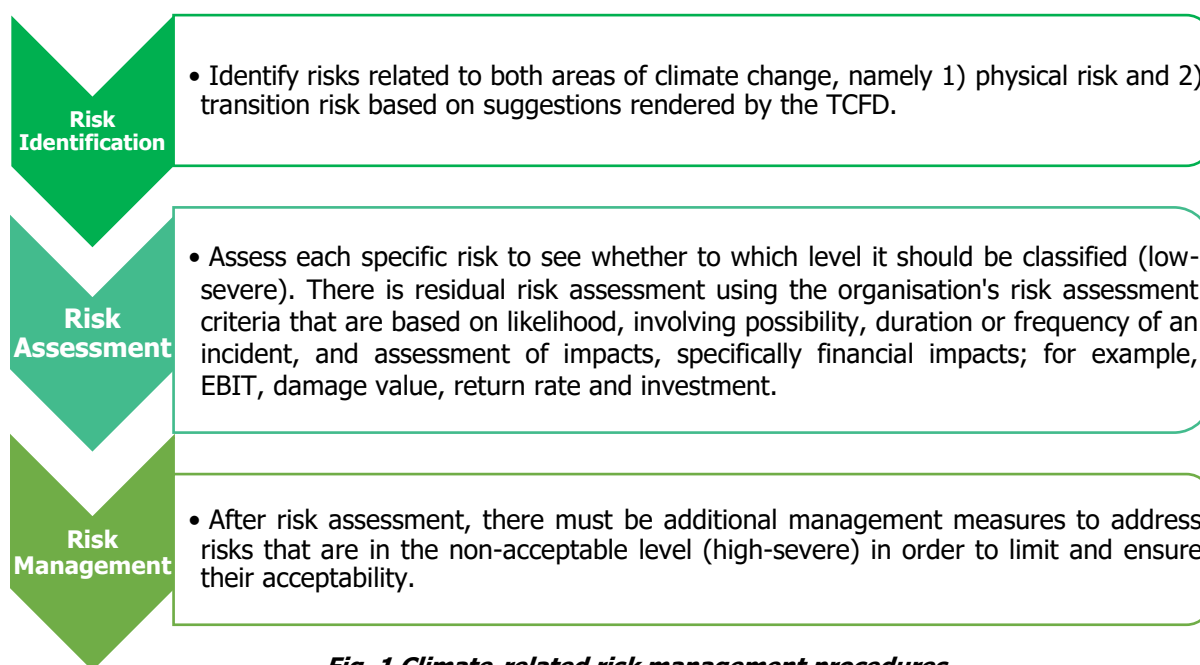


Fig. 1 Climate-related risk management procedures

3.2 Scope of Risk Assessment

The Company conducts climate-related risk assessment of which the scope covers all segments, comprising of oil business: petroleum warehouse, transportation, service stations; and non-oil business, including convenience stores, café, LPG stations, LPG retailers, in order to manage all risks and further formulate measures that extend to the entire organization.



3.3 Climate-related risk and impact mitigation measures

The Company requires its organization to have climate-related risk management plans and reduction measures in place to ensure that all risks are not exceeding the acceptable level. Key initiatives have been rolled out as follows:

1. Rooftop PV systems at service stations



In 2021, the Company has installed Solar Rooftop in 29 PT service stations, which is a pilot project as shown in **Table 1**. Compared to 2021, the Company has set a target for the electricity consumption to be reduced by 10 percent. This will also help reduce GHG emissions and respond to the risks induced by global warming. In this regard, the project will be active from 2021 to 2027. In addition, the company is planning to expand its operation by installing Solar Rooftop at additional stations in the future.

Province	Petrol Service Stations
1. Bangkok and vicinity	Sukhumvit Road 101.1, Chalong Krung Road 1, Soi Ramintra 40, Bang Kapi 3, Minburi 2 (Suwinthawong Road Soi 24), Bang Bua Thong 1, Bang Bua Thong 9, Phutthamonthon Sai 4, Talat Thai, Samut Prakan 2, Bang Bo, Nakhon Pathom 4, Nakhon Pathom 9, Nakhon Chai Si 5
2. Samut Songkhram	Samut Songkhram 4
3. Chachoengsao	Bang Nam Prio, Bang Pakong 1, Bang Pakong 3
4. Chonburi	Chonburi 4
5. Phayao	Phayao
6. Lampang	Lampang, Hang Chat 2, Thoen 1
7. Chanthaburi	Chanthaburi
8. Ayutthaya	Bang Pahan, Wang Noi
9. Saraburi	Nong Khae



10. Lopburi	Phatthana Nikhom 1
11. Khon Kaen	Nam Phong
12. Udon Thani	Udon-Nadee
13. Phetchaburi	Khao Yoi 1, Khao Yoi 2
14. Nakhon Ratchasima	Sikhio, Pak Chong 3, Nong Bun Mak 2
15. Phichit	BPTG Phichit 1
16. Kamphaeng Phet	BPTG Kamphaeng Phet 1

Table 1 Installations of rooftop PV systems at service stations

2. Erection of EleX by EGAT charging stations for electric vehicles



The Company has prepared business development plans in response to risks caused by lower demands towards petroleum due to the rising trend of electric vehicles including the strength of the company that there are more than 1,600 stations. In 2022, the Company has joined forces with the Electricity Generating Authority of Thailand (EGAT) to erect EleX by EGAT charging stations, thirty-five of which are ready for service. In addition, The Company plans to expand EV charging stations by 30 stations per year in 2023 – 2026 to support expansion of electric vehicles gain greater popularity in the future.

3. Palm Complex Project





The Company recognizes importance of the palm oil industry, which promotes the idea of operating an environmentally-friendly business; therefore, it has developed a partnership under a project called Palm Complex – the first end-to-end palm oil production in Thailand. The facility can produce 150000 kilograms of palm oil for consumption per day, 520,000 litres of biodiesel (B100) per day and 45 tonnes of pure glycerin per day. The major revenue of the project comes from biodiesel products, equivalent to 77 per cent, as there was an official campaign that mainly encouraged Thai people to use high speed diesel B10, resulting in a higher number of domestic biodiesel (B100) use. The use of such fuel helps enhance engine combustion and reduce GHG emissions. Therefore, producing and distributing biodiesel are considered a strong business opportunity for the Company to establish growth and seamless transition to become a low-carbon society in the future.

4. Targets of Climate Risk Reduction (Target)

In rolling out solar PV rooftop installations at 29 service stations, the company aims to achieve greenhouse gas mitigation at 970 CO₂ equivalent tonnes per year, meaning that the Company needs to achieve a total reduction of 6,790 CO₂ equivalent tonnes from 2021-2027 as shown in **Table 2**.

Year	Reduction of Greenhouse Gas Emission Reduction and Removal (CO ₂ equivalent tonnes)
1 (1/1/2021 – 31/12/2021)	296.95
2 (1/1/2022 – 31/12/2022)	1,114.97
3 (1/1/2023 – 31/12/2023)	1,092.22
4 (1/1/2024 – 31/12/2024)	1,084.35
5 (1/1/2025 – 31/12/2025)	1,076.48
6 (1/1/2026 – 31/12/2026)	1,068.61
7 (1/1/2027 – 31/12/2027)	1,060.74

Table 2 Target of greenhouse gas emission reduction to be achieved by the solar PV rooftop installations at service stations



References

1. The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities
Scenario Analysis
<https://assets.bbhub.io/company/sites/60/2020/10/FINAL-TCFD-Technical-Supplement-062917.pdf>
2. Energy Technology Perspectives 2017
<https://www.iea.org/reports/energy-technology-perspectives-2017>