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 organisation 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 c-suite executives who are particularly responsible for corporate risk management. The Committee further formed a Corporate 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

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, analysing, 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 decarbonised 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 hypothesised 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 biodiesel B7 to B10, helping mitigate greenhouse gas emission, which is a reason of higher temperature. However, if government policies in the future prefer use of biodiesel B6, the Company will also change to B6 accordingly. Even though greenhouse gas generated by B6 is greater than B7 and B10, it is still less than that generated by standard diesel. 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 Organisation by the Thailand Greenhouse Gas Management Organisation (Public Organisation). This aims to analyse data and adjust operation approaches to further mitigate organisational 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: Long-term risks (over 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.

Potential Financial Impact: As there are risks caused by changes of consumers' behaviours towards green products and services, including electric vehicles, leading to less use of petroleum, the Company has adjusted its plan by targeting to generate more sales volumes and gross profits from non-oil segments. Apart from boosting non-oil businesses including food and beverage, LPG retailers, MAX Card membership and e-Money, the Company also has a plan to establish a new business segment which may result in higher costs of operations due to investment needs in emerging technologies.

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

These are risks caused by shifting consumer behaviours 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. Moreover, the Company has organised activities to serve the shifting behaviours of consumers; for example, tote bag giveaways at service stations, a no-bag campaign at MAX Mart convenience stores, and co-investment in the Palm Complex project to produce and distribute biodiesel (B100), which helps enhance engine combustion performance and minimise 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 organised to minimise 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 Programme (T-VER) to prove its commitment to mitigating GHG emissions and minimising global warming impacts. There was a Recycling Drop Point campaign, co-organised with SCGP to encourage correct waste disposal by replacing waste incineration and landfills with recycling approaches.

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 minimise 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	- Reduce electricity usage at offices, warehouses and service stations. - Alternative energy usage, e.g., solar PV installations at service stations.	- Facilitate electricity savings (cost savings)
Energy Source	- Use and invest in clean energy technologies.	- Reduce costs in a long run. - Create new products or innovations which enhance competitiveness.
Product & Service	- Design and develop environmentally-friendly products and services in response to changes in consumers' needs and behaviours.	- Increase in revenues generated by green products.
Market	- Penetrate green product and service markets to expand the environmentally conscious group of customers. - Enhance satisfaction of environmentally conscious customers.	- Enhance competitiveness in the green market. - Attract investors who wish to invest in businesses that place importance on the environment.
Resilience	- 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.	- Establish a positive reputation for the organisation. - 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.***

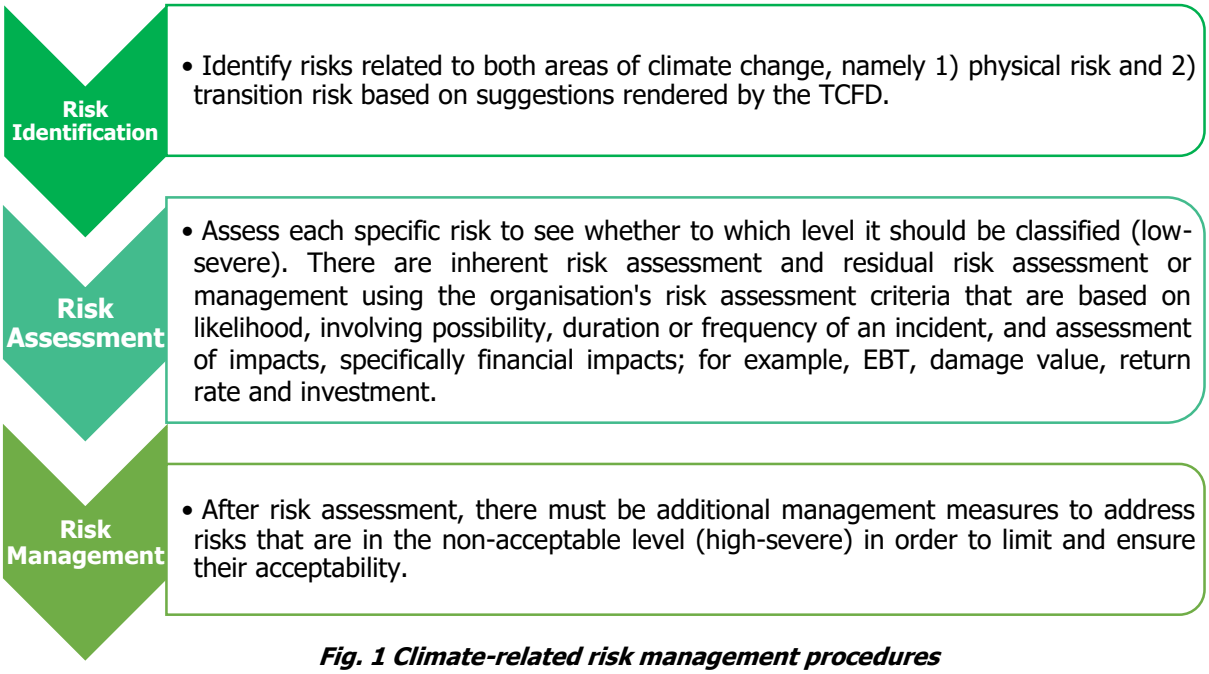

Fig. 1 Climate-related risk management procedures

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 organisation.

3.3 Climate-related risk and impact mitigation measures

The Company requires its organisation 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 expanded the rooftop PV system project to its service stations nationwide, as shown in Table 1, with a target of, compared to 2020, 10 per cent lower electricity consumption to be achieved. 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.

Province	Petrol Service Stations
1. Bangkok and vicinity	Bang Bua Thong 1, Bang Bua Thong 9, Talat Thai, Phutthamonthon Sai 4, Samut Prakan 2, Bang Bo, Nakhon Pathom 4, Nakhon Pathom 9
2. Chachoengsao	Bang Nam Priao, Bang Pakong 1, Bang Pakong 3
3. Chonburi	Chonburi 4
4. Phayao	Phayao
5. Lampang	Lampang, Hang Chat 2, Thoen 1
6. Chanthaburi	Chanthaburi
7. Ayutthaya	Bang Pahan
8. Saraburi	Nong Khae
9. Lopburi	Phatthana Nikhom 1
10. Khon Kaen	Nam Phong
11. Udon Thani	Udon-Nadee

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. In 2021, the Company has joined forces with the Electricity Generating Authority of Thailand (EGAT) to erect EleX by EGAT charging stations, five of which are readily available in all regions of Thailand including PT gas stations of Pak Chong 3 branch in Nakhon Ratchasima, Khao Yoi branch in Phetchaburi, Phayuha Khiri 2 branch in Nakhon Sawan, Bang Phra branch in Chonburi and Ban Tai branch in Kanchanaburi. As one of the Company's strengths is its over 2,100 petroleum stations located throughout the country, it aims to erect 35 charging stations by the end of the first quarter of 2022 if electric vehicles gain greater popularity in the future.

3. Palm Complex Project

The Company recognises 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 kilogrammes of palm oil for consumption per day, 520000 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 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 (CO2 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