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. The Chief of Finance and Sustainability Officer has been appointed as the primary executive responsible for oversight of climate-related risks at the board level. This role involves regularly reporting to the board on progress in greenhouse gas emissions reduction, adherence to environmental objectives, and the implementation of sustainability policies, to ensure alignment with the Company's climate change mitigation and adaptation strategies. Additionally, the Chief of Finance and Sustainability Officer oversees the Enterprise Risk Management (ERM) team, which is specifically tasked with monitoring and managing organizational risks. Furthermore, a Risk Management Task Force has been formally appointed to execute and uphold various processes associated with the Company's enterprise risk management framework.

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 and droughts, can result in business damage and interruptions. The Company has implemented a risk management measure, namely Business Continuity Plan (BCP), to mitigate the impact of specific natural disasters, which is reviewed annually. Additionally, the Company has measures in place to control hazardous material leaks during disasters, and conducts annual fire prevention drills and emergency response training for petroleum product transportation accidents.

Potential Financial Impact: The Company's revenue could decline significantly as more than one of the following segments—service stations, Max Mart convenience stores, and Punthai Café—are damaged and require temporary closures in some areas due to natural disasters, which could potentially affect the Company's revenue. Additionally, the Company's management costs could increase due to the need for recovery efforts in affected areas, and insurance premiums could increase as a result of more severe natural disaster events. There could also be a need for compensation payments to employees affected by these natural disasters.

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 cause equipment malfunctions, such as fire-reactive materials used in service stations and fuel storage facilities, resulting in damage to company property and stakeholders. Therefore, the Company conducts regular equipment assessments at service stations and storage facilities, and implements various initiatives to reduce greenhouse gas emissions and mitigate global warming, such as campaigns supporting energy-saving light bulbs, measures for cost-effectiveness of energy efficiency, and the installation of solar rooftop at service stations. Furthermore, the Company has preparedness and response plans, as well as regulations concerning flammable materials in compliance with applicable laws to prevent potential damage. In addition, the Company regularly conducts fire prevention drills and accident response training for transportation of petroleum products.

Potential Financial Impact: Management costs increase as the business has been impacted by the global warming crisis, which may lead to the loss of petroleum due to evaporation from higher temperatures. Additionally, flammable materials used within service stations or petroleum storage facilities may be damaged, resulting in losses to the Company's assets and adverse impacts on 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: Short-term risks (1–3 years)

Risks arising from changes in government policies and regulations related to climate change, such as carbon tax policies, the mandatory implementation of EURO5, the draft Climate Change Act, and the Energy 4.0 policy supporting clean energy use by 2036, may require the Company to adjust its business plans to ensure compliance with the government's requirements. The Company therefore manages these risks by preparing data on greenhouse gas emissions reduction from its operations, including Carbon Footprint for Organization certification from the Greenhouse Gas Management Organization (TGO), which will be used to analyze and adjust operational strategies to further reduce emissions. The Company also stays updated on changes in government policies and regulations, studies the impact of the Carbon Tax, and has partnered with the Electricity Generating Authority of Thailand (EGAT) under the EleX by EGAT project to install charging stations for electric vehicles, supporting the use of clean energy in line with government policies. Additionally, the Company has invested in new businesses that benefit from climate change-related laws and is focusing on increasing the share of gross profit from its Non-Oil business.

Potential Financial Impact: As the Company may need to adjust its business plan, investment budgets for certain projects may need to be higher than the estimates in order to ensure business continuity in light of the changing policies and laws. Additionally, the Company may face increased management costs due to the Carbon Tax, operational costs from greenhouse gas emissions disclosures as required by government regulations or regulatory bodies, vehicle taxes based on carbon emissions, and the cost of purchasing oil will increase by approximately 30 satang per liter from the enforcement of EURO5. There may also be fines or claims for damages arising from non-compliance with laws related to climate change.

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 and research and development. The Company has conducted research on global trends toward a low-carbon society to allocate budget for technological investment. Additionally, it has identified opportunities to collaborate with business partners for product and service development to achieve cost reduction and effectively respond to such risks. The Company has also initiated several clean technology investment projects, including investments in the Palm Complex

power plant (Bio-gas, Bio-mass), the installation of Solar Rooftop at service stations, the waste-to-fuel (RDF) project, waste-to-electricity plants, and the installation of Electric Vehicle (EV) charging stations. Furthermore, the Company has developed an electronic money service system and service providers, offering e-wallet services through the Max Me application, which is an Ecosystem & Communities platform, connecting services through the Max Card, enabling an online-to-offline (O2O) experience. This service supports changing customer behavior and the growing trend of digital transactions and aims to become the leader in the electronic money service system among energy companies, fully addressing the needs of a digital society. Furthermore, the Company is exploring partnerships with experts in clean technology to jointly invest in waste management and fuel production from waste, and to enhance the technology of the RDF waste-to-energy projects and Energy Storage systems for higher efficiency.

Potential Financial Impact: This may lead to an increase in the Company's costs, as part of the investment may be allocated to new technology, requiring a higher investment budget, estimated to be around 25-30% more.

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

The risks arising from changing consumer behavior, with a growing interest in environmentally friendly products and services, as well as the use of electric vehicles, which leads to a reduction in fuel consumption, are being addressed by the Company's business plan adjustments. The Company has installed Electric Vehicle (EV) charging stations, implemented a Recycling Drop point Project in collaboration with SCGP to support proper waste disposal through recycling, increased the availability of eco-friendly products, and offered promotional items made from recycled materials. Additionally, the Company uses eco-friendly packaging to reduce construction waste from building coffee shops by utilizing prefabricated components, and has conducted an impact analysis of the trend towards electric vehicles for presentation to management. Furthermore, the Company has co-invested in the Palm Complex project to produce and distribute biodiesel (B100), which improves engine combustion efficiency and reduces air pollution. The Company has also set goals to increase sales and gross profit from its Non-Oil business, such as Food and Beverages, increased sales from the Max Card EV membership, and investments in the e-Money financial service business.

Potential Financial Impact: The Company shall consider adjusting its business plan to serve the evolving needs of consumers, which may result in budget excess as a larger budget is required to invest in producing environmentally friendly products to meet consumers' changing preferences. Additionally, this may lead to a reduction in oil sales revenue by approximately 2.21% of total revenue (Assumption: An estimated 300,000 electric vehicles (EVs) by 2030, according to the Energy Policy and Planning Office (EPPO)).

2.2.4 Reputation: 1-3 years

The risk of stakeholders complaining about the Company's business operations that negatively impact the environment or the failure to comply with environmental laws could harm the Company's reputation and result in a lack of support from consumers, ultimately leading to a decrease in profits. To mitigate this risk, the Company has established risk management measures by conducting various activities to minimize environmental impacts. For instance, the Company requires public hearings to gather stakeholders' opinions before establishing any service stations, fostering good relationships with surrounding communities through CSR project such as the "PTG never leaves anyone behind", and has joined the Thailand Voluntary Emission Reduction Program (T-VER) standards, demonstrating the Company's commitment to reducing greenhouse gas emissions and mitigating global warming. Furthermore, the Company has launched the Recycling Drop Point project in collaboration with SCGP to support proper waste disposal and reduce burning and landfilling through recycling methods. The Company has also established channels for stakeholders to complaints, as well as conducted drills to prevent oil spills and emergency response drills for service stations, oil depots, and transportation.

In addition, to strictly comply with environmental laws and regulations, the Company has implemented the following actions:

1. Regularly assessing and reviewing legal compliance.
2. Revising the inspection procedure for stations by adding safety and environmental inspection teams at service stations and establishing regional inspection teams.
3. Assessing and monitoring safety and environmental issues through the Safety PT Service system.
4. Inspecting the environmental quality of service stations.
5. The Company has also obtained ISO 14001:2015 and ISO 45001:2018 certifications for the Meklong Oil Depot and Khon Kaen Oil Depot, with a plan to obtain ISO certifications for all depots by 2024.
6. Improving and addressing issues of non-compliance with laws and regulations to effectively control the risk of non-compliance, ensuring that if non-compliance occurs, the impact will be at an acceptable level for the Company.
7. Strengthening the selection and inspection process of operational areas to ensure they comply with the law and improving the quality of operational areas.
8. Implementing remedial measures for those affected.

Potential Financial Impact: If the Company does not consider safety and environmental factors in its operations, environmentally conscious consumers withdraw their support, potentially resulting in a decline in revenues, profits, and stock value. Additionally, failure to comply with environmental laws could lead to fines or damage claims from non-compliance with relevant environmental regulations.

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 (Green Loan interest rate decreased by approximately 1.5%). - Create new products or innovations which enhance competitiveness. - Government funding support for environmental investments.
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. (Revenue from EV Charger electricity sales is 7.15 THB per unit.) - Revenue from Max Card Plus EV - Revenue from RDF project
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. - Establish a positive reputation for the organisation. - Revenue from Eco-Friendly Glasses (PUN)
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.	- Improve responsiveness to climate-related vulnerabilities. - Revenue from the sale of Carbon Credits (based on the assessed period)

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.***

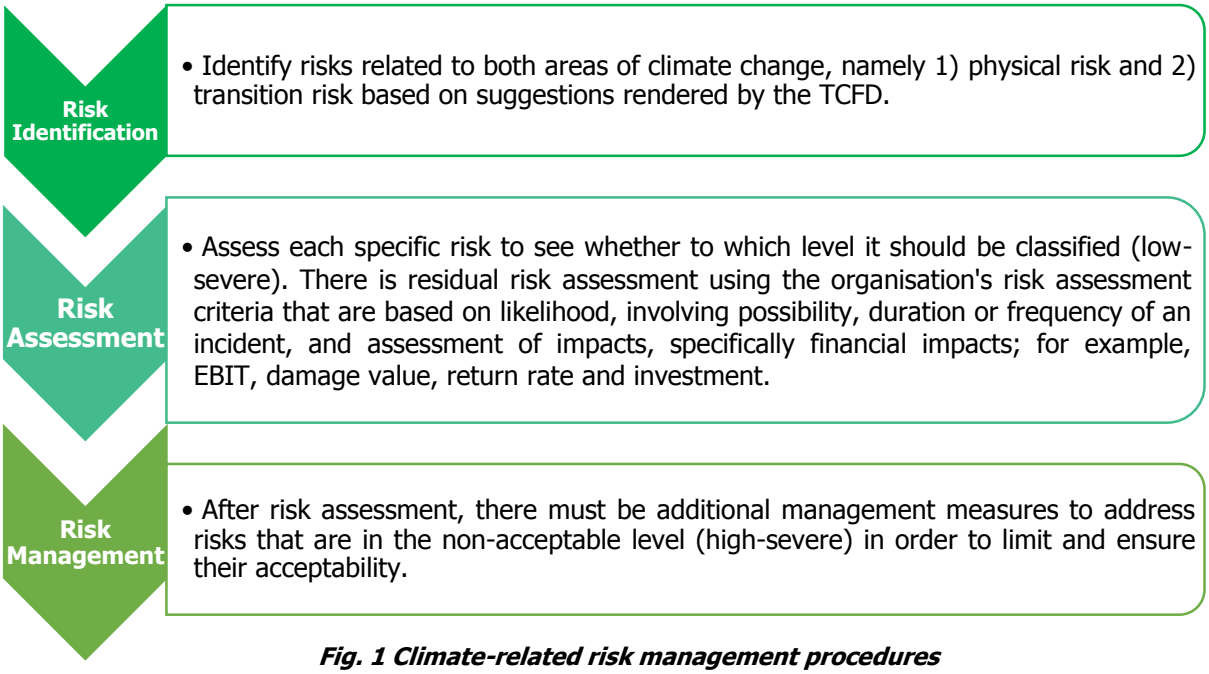

Fig. 1 Climate-related risk management procedures

3.2 Scope of Risk Assessment

The Company conducts a climate-related risk assessment, which the scope covers all segments, comprising of oil business: the headquarters, oil depots, oil transportation, service stations, as well as convenience stores (Max Mart) and coffee shops (Punthai and Coffee World), in order to manage all risks and develop measures that extend throughout the 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 began installing Solar Rooftop systems at PT service stations as a pilot project. Currently, 147 stations have been equipped, generating a total of 2,000,000 kilowatt-hours of electricity. This project is set to run from 2021 to 2027, with plans to install Solar Rooftops at 1,200 stations by 2027, generating a total of 17,000,000 kilowatt-hours of electricity. Additionally, by 2024, the Company aims to reduce electricity consumption by 10% compared to 2023, which will help reduce greenhouse gas emissions and mitigate the impact of rising temperatures due to global warming. Furthermore, the Company has set a target to reduce greenhouse gas emissions from the Solar Rooftop installation project at 29 service stations, with an annual reduction of 970 tons of CO2 equivalent. The total reduction target is 6,794 tons of CO2 equivalent from 2021 to 2027, as shown in ***Table 1***

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

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

The Company has developed business plans in response to the risks posed by the declining demand for petroleum, driven by the rising trend of electric vehicles, while leveraging its strength of over 1,600 stations. In 2022, the Company partnered with the Electricity Generating Authority of Thailand (EGAT) to launch EleX by EGAT charging stations, 113 of which are already operational, covering every region throughout Thailand. Furthermore, the Company plans to expand its EV charging stations to 712 stations by 2027 to support the increasing popularity of electric vehicles in the future.

3. Other Projects

- **Mangrove Planting Project for Carbon Credits**

The Company has been granted a project area of 90.5 rai (14.48 hectares) in Krabi Province by the Department of Marine and Coastal Resources for the implementation of a mangrove reforestation project aimed at generating carbon credits. It is estimated that this project will be able to absorb approximately 5,800 tons of carbon dioxide equivalent (tCO_2e). Currently, the project is in the process of being publicized to the local communities to raise awareness about the origins and benefits of the project.

- **The Development and Support of Sustainable Arabica Coffee and Other Economic Crops Project**

The Company has signed a Memorandum of Understanding with the Mae Fah Luang Foundation under Royal Patronage, the Royal Forest Department, and the Bank for Agriculture and Agricultural Cooperatives (BAAC) to jointly develop forest areas and promote sustainable of Arabica coffee and other economic crops. This project aims to support farmers in shifting from traditional agricultural practices to coffee cultivation, offering environmental benefits by converting deforested land into coffee plantations, which helps protect against wildfires, reduces PM2.5 dust and smoke, and absorbs and sequesters carbon through natural methods. The Company has set a goal to support coffee cultivation on 32,000 rai (5,120 hectares) by 2028.

4. Greenhouse Gas (GHG) Emissions Report

GHG Emissions	2020	2021	2022	2023
Direct Greenhouse Gas Emissions (Scope 1)	1.398	1.582	55.771	**50.718**
Indirect Greenhouse Gas Emissions (Scope 2)	0.887	1.064	31.806	**38.307**
Total	**2.285**	**2.646**	**87.577**	**89.025**

Unit: Thousand Tons of CO_2 Equivalent

Note: 1. The scope for 2020 to 2021 includes the headquarters and the oil storage facilities.
2. The scope for 2022 to 2023 includes the headquarters, oil storage facilities, transportation, and stations.

5. Targets of Climate Risk Reduction (Target)

The Company recognizes the crucial role of supporting global sustainability goals and creating added value for all stakeholders. As part of this commitment, the company has set a key target to reduce greenhouse gas emissions by achieving Carbon Neutrality by 2030 for Scope 1 and Scope 2 emissions.

To achieve this goal, PTG has established a comprehensive strategy based on three key approaches:

1) **Reduce:** The Company is committed to reducing greenhouse gas emissions at the source by adopting environmentally friendly operational practices. This includes reducing energy consumption in offices and promoting the use of renewable energy across various locations. Additionally, the company supports resource efficiency by minimizing paper and plastic usage and enhancing waste management through recycling programs. PTG also fosters a corporate culture that prioritizes sustainability, raising environmental awareness among all employees.

2) **Reforest:** The Company actively supports afforestation and ecosystem restoration through ongoing initiatives. The company emphasizes collaboration with government agencies, private sectors, and local communities to ensure long-term sustainability. Conservation of natural resources is a key focus, with initiatives aimed at restoring forest ecosystems and preserving environmental integrity. PTG also seeks to cultivate environmental awareness within society, promoting sustainable development that balances economic growth with nature conservation.

3) **Readjust Portfolio:** The Company is committed to adjusting its business portfolio in alignment with the energy transition, seizing new opportunities to reduce greenhouse gas emissions. Renewable energy has been designated as one of the company's eight core businesses for future investment. This strategic shift aims to support sustainable growth while creating long-term value.

References

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