Greenhouse Gases Analysis Report

And Reduction Targets 2020 -2030

(Issue: 4)

Prepared by

GHGs Management Sub-Division

Corporate Sustainability Management Division

CP ALL Public Company Limited

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Introduction

According to climate change impacts that are potentially developing to the stage of climate crisis, resulting all countries entire the world are facing both direct and in-direct impacts that include impacts on economic and community. CP ALL Public Company Limited and subsidiary (“the Company”) are realized meaningful of collaborating prevention and mitigation climate change impacts as severe flooding occurred during the 2011 that obviously impacted on people, industrial sector, logistic, and seven eleven stores. Furthermore, the Company is willing to contribute in climate change mitigation at global scale. The first phase of GHG emissions reduction target 2015-2020 was set and concluded. More strength corporate climate target has been set to contribute the Paris Agreement that aim to keep the increase in global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. The Company has set climate target to be carbon neutrality by 2030 and to reach net zero emissions by 2050.

The Company has prepared and updated this report, analyzing current GHG emissions situation and forecast potential GHG emissions scenarios (2020-2030), relevant financial impacts, sensitivity analysis, and cost of carbon offset as well as targets setting in according with expectations of the international and Charoen Pokphand Group, being carbon neutral or net zero carbon emissions and contribute to the national targets. The analyses are reflecting the potential global climate scenario which included a Representative Concentration Pathway 2.6 (RCP 2.6) and RCP 8.5. Furthermore, the Company has expanded the scope of the assessment to cover emerging risk that associated with climate change i.e. sea level rise and its impact. With the awareness on the global issue, the Company has announced the Climate resilience target to be Carbon Neutrality within 2030 and Net Zero Carbon within 2050 which aligned with the science based target at well below 2°C.

The report intention is forecasting potential GHG emissions scenarios by using input data that verified by external independence party or third party. GHG emissions assumptions are direct variation with business as usual case. Hence, periodically updating data that is reflecting the business is necessary for enhancing accuracy of projecting scenarios. Report preparing team is hopefully that the report will be benefit the entity screening GHG emissions reduction and offset initiatives properly and effectively.

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General Manager

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1. Corporate climate governance

The company has periodically conducted materiality assessment for analyzing topics concerned by various stakeholders. The results will be integrated into corporate strategic planning which obviously climate change is ranked as high material issue (top quatire). Hence, several management and mitigation activities on the issue such as strategic planning, transition planning, long-term targets, risk assessment, supply chian management, etc have been performed and reported to the governance body as shown in Figure 1 governance structure.

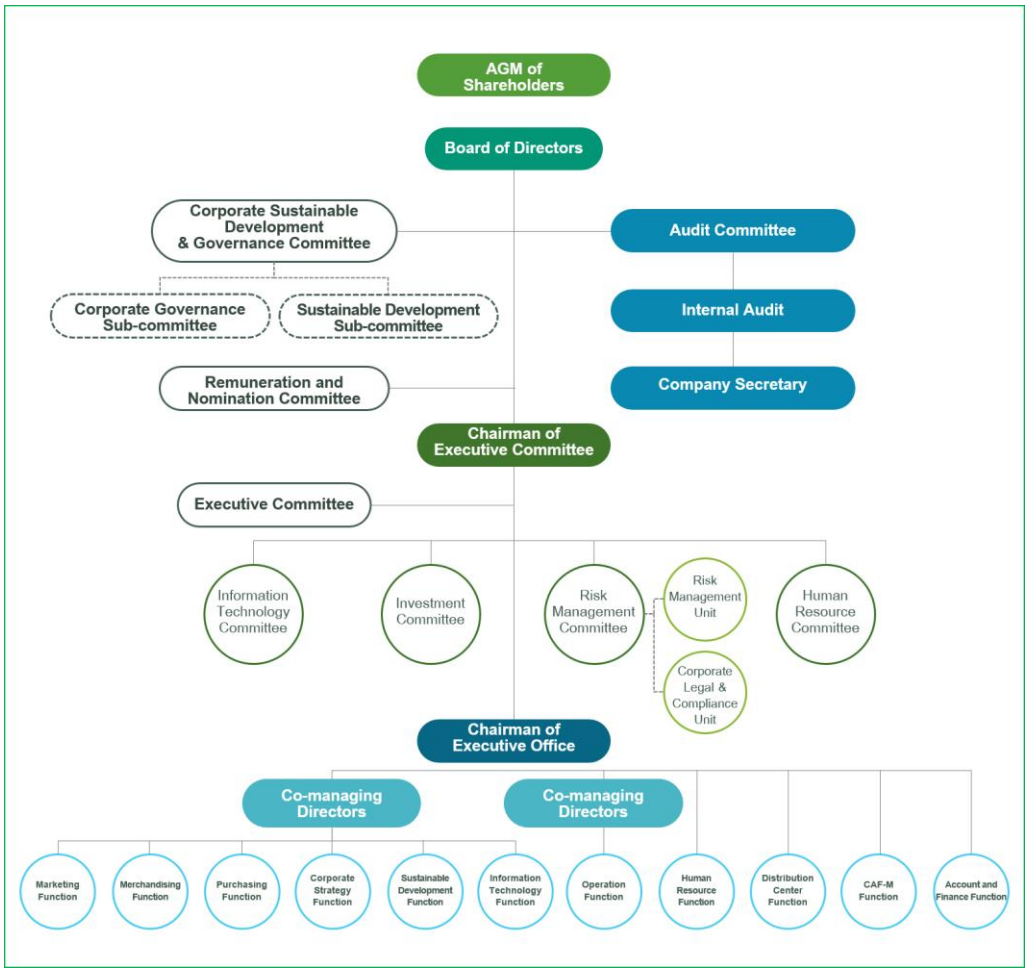

Figure 1 Governance structure

Progress and activities have been reported to sustainability sub-committee quarterly and to the sustainability and corporate governance committee for review and providing a direction on sustainability growth. Sustainabililty KPIs have been set and cascaded to all levels employee such as enegey management, and renewable energy.

2. GHG Emissions Circumstance (2015-2020)

CP ALL Public Company Limited and subsidiary ("the Company")[1] have collected GHG emissions related information in according with the international reporting standard, Global Reporting Initiative: GRI, calculated and converted into tonne carbon dioxide equivalent in according with Greenhouse Gas Protocol, and United Nations Framework Convention on Climate Change: UNFCCC. The GHG emissions scope 1 and 2 data have been consolidated since 2015-2020 (shown in **diagram 1**). The specific emission factor of the national electricity grid has been updated by the Energy Policy and Planning office (EPPO), Ministry of Energy which the Company has been re-calculated the GHG emission by referring to the numbers. The updated numbers and calculation methodology have been verified by an external 3rd verifier. The analyzed data indicate that during 2015-2020 GHG emissions is direct variation with growth as shown by GHG intensity (tCO_2e per million Baht) 2.43, 2.35, 2.18, 2.16, 2.15 2.17 respectively (shown in **diagram 2**). The number is indicating that the Company has achieved the sustainability target 2020 to reduce GHG intensity by 10% comparing with 2015 base year.

Since 2015, the volume of GHGs emissions were increased reflecting our business expansion and revenue growth. The Company is able to maintain the GHG intensity (tCO_2e per million Baht) by implementing several energy efficiency and renewable energy projects at more than 10,000 seven eleven stores such as 100% of stores changing conventional light bulb to LED, around 40% of stores upgrading air conditioner to invertor system, solar PV rooftop initiative generating renewable energy at pilot branches and deploying to potential branches entire the country. During 2019-2020, the GHG emissions were reduced and the intensity performance was improved due to external factors i.e. COVID-19 and expansion of our online store.

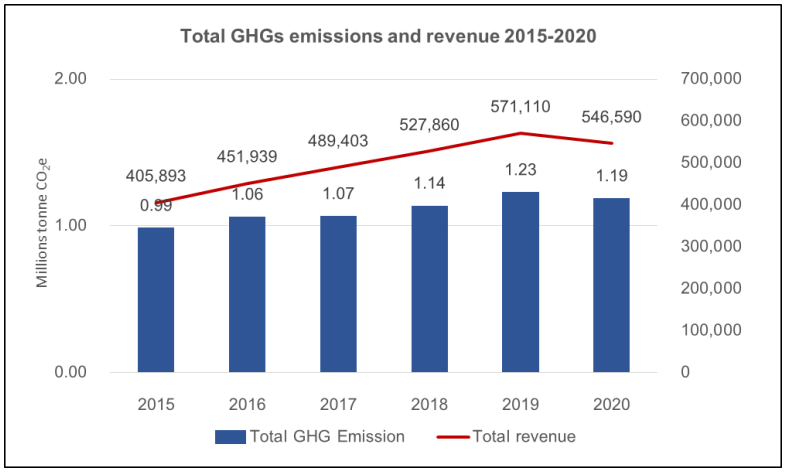

Diagram 1 GHG emissions and revenue 2015-2020

[1] The Company comprised of CP ALL Plc., Siam Makro PCL., and CPRAM Co., Ltd. which revenue composition 2020 are 55%, 37%, and 3.26%, respectively.

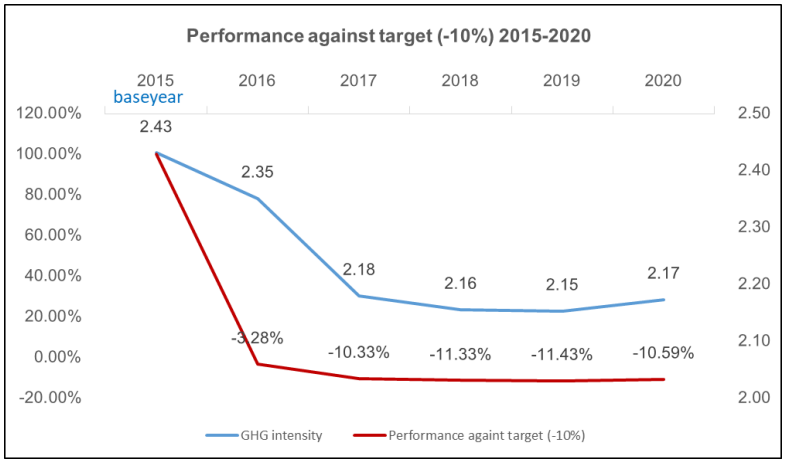

Diagram 2 GHG Performance against target 2015-2020

Analyzing 2020 data by comparing of average GHG proportions of 3 main business units found that CP ALL Plc. (CP ALL) has contributed 78.0% of total emissions, Siam Makro PCL. (Siam Makro) has contributed 16% of total emissions, and CP RAM Co. ltd. (CPRAM) has contributed 6%.

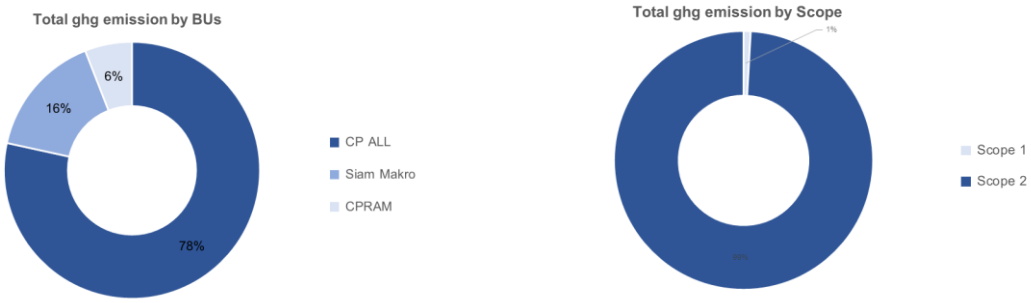

Diagram 3 GHG emissions by business units and scopes 2020

According to **diagram 3**, inferring that CP ALL has a major proportion of GHG emissions. In 2020, CP ALL has a direct (Scope 1) GHG emissions at 1% and energy indirect (Scope 2) GHG emissions has contributed 99%, that solely calculate from electricity

3. Climate Change Target Phase 1: 2015-2020

As per completion of sustainability targets phase 1, the climate change target, reducing GHG intensity by 10% comparing with 2015 baseline, the Company has concluded the group-wide data as well as CP ALL Plc. performance. The progress against targets and results have been presented as **Table 1**. The group-wide performance is achieving the target at 10% GHG intensity reduction as actual reduction is at 2.17%. Focusing on CP ALL Plc., the Company has reduced the GHG intensity at 2.67% which required to reduce more 2,795 tCO_2e in order to achieve the target. The Company has expressed responsibility on this matter by offsetting the Thailand Voluntary Emission Reduction (T-VER) certified by the Thailand greenhouse gas management organization (public organization) (TGO).

Table 1: results of climate change 2020 target

Scope	GHG intensity 2015 (tCO_2e/MTHB)	GHG intensity 2020 (tCO_2e/ MTHB)	Performance against target (%change)	Absolute number of tCO_2e required to achieve target	Remark
Group-wide performance	2.43	2.17	-10.59%	-	-
CP ALL Plc.	2.94	2.67	-9.12%	+2,795	The number of 2,795 has been offset by the Thailand voluntary emission reduction (T-VER).

4. Risk and Opportunity Assessment on Climate Change

In order to find suitable ways for adapting to climate change, the Company has conducted an assessment of risks and opportunities that may ensue from climate change and the impact to the operations of each department under the Company. The assessment is conducted and evaluation under of the risk assessment committee, approval and governance under of the corporate sustainable development and governance committee to ensure full disclosure of information regarding climate change risk management for stakeholders. The committees in turn apply the reporting framework of the Task Force on Climate-related Financial Disclosure (TCFD) to devise effective risk mitigation plans for climate change.

Scope of assessment

The scope and focus risk and opportunity assessment of CP ALL covers one major physical risk and one transition risk in line with TCFD recommendations. The assessment covers own operation (including majority of operations) as well as up- and downstream of the value chain under short-term (1-3 years) medium-term (3-6 years) and long-term (>6years) timeframe which aligns with the lifetime of our operations and business activities. Moreover, the assessment takes into account the context-specific environment of our operations and value chain activities, i.e. jurisdiction and geographical location, where applicable.

Result of assessment

In 2021, the Company pinpointed significant risks and opportunities related climate change along with countermeasures, as follows.

Physical Risks

Inundation

Impact to the Business	Impact to the Value Chain
• Interruption to production processes • 7-Eleven Interruption to services provided by 7-Eleven stores • 7-Eleven staff experience flooding • Decreased income of 4,383 million Baht due to fewer sales at 7-Eleven stores	• 7-Eleven interruption to product delivery to 7-Eleven stores • 7-Eleven customers are unable to access 7-Eleven storesand select products • Communities surrounding 7-Eleven stores experience flooding

Countermeasures

The Company has designed protective measures for 7-Eleven stores to withstand damage from floods under the concept of “Stores Combating Water”. Under this concept, various aspects were considered, such as high walls, floor designs, doors that can hold against the force of water, piping system and pumps. In the event of a flood, the Company has devised management plans in 3 stages, as follow.

- *Before the event (prevention and preparation) :* At this stage, relevant departments will closely monitor weather conditions and conduct a risk assessment of the situation so that store staff can prepare to move equipment and goods to a safe location. Additionally, equipment is prepared to prevent water from entering 7-Eleven stores. Equally important, facilities are provided to store staff to make the situation more convenient in case of flash floods.
- *During the event (Response)*
  - ○ If a flood occurs in the vicinity of a 7-Eleven store,staff must be on alert for the possibility of water entering the store and be ready to move equipment and goods to a safe location. Staff must also report the situation to the flood response center.
  - ○ If water has flooded into a 7-Eleven store, staff must turn on the pump to drain water out from the store and prepare to safely evacuate to designated evacuation points.
  - ○ If the flood height exceeds 30 cm or a flash flood occurs at a 7-Eleven store, staff must evacuate to designated assembly points and prepare first aid for injured staff. Support in the form of food, beverages and temporary accommodation will also be provided to affected staff.
- *After the event (Restoration and remediation)* : The Company will check equipment and restore the damaged 7-Eleven store. In the same time, the Company will provide care to affected staff according to the Company’s welfare services, provide survival kits to others who are affected and support the community.

This flood risk assessment and response plan has been applied in all stores across Thailand. Future establishment of all stores in flood prone areas needs to take these measures in consideration as part of the site’s assessment.

Drought / Salinization

Impact to the Business	Impact to the Value Chain
• Lower production and product quality • Shortage of agricultural products and raw material • Increased expenses of 44 million Baht for restoring equipment damaged by scale and rust	• Lower agricultural yield and scarce raw material from partners • Consumers may be contract intestinal ailments from consuming products that are not of standard quality

Countermeasures

- Order water reserve tanks to store reserve water and use it to produce drinking water and general usage water in affected areas or in areas experiencing a water shortage longer than 1 week.
- Order general usage water to preserve water that is used specifically for producing beverages in areas experiencing water shortage or poor water quality.
- Install a reverse osmosis (RO) system to treat water that does not meet standard quality, such as salinity and hardness, in areas with brackish water, e.g., coastal areas, or in areas that use ground water with high levels of hardness.
- Install an air-water system to draw water from the air and treat it to produce quality water for 7-Eleven stores in areas with water shortage or in areas with high humidity.
- Share knowledge with farmers to prevent a shortage of essential raw material for production. Experts will provide advice starting from conditioning the soil for agriculture, agricultural processes, trimming, separation and suitable greenhouse positioning. In parallel, the scope of knowledge sharing encompasses the utilization of technology to lay out a network of sensors for automating water control, online data collection and monitoring produce.
- Allocate treated water to farmers around the factory to prevent a shortage of essential raw material for production. The treated water from the factory's natural water storage ponds must meet quality standards stipulated by the law.

Transition Risks

Regulations on GHG Emission reduction

Impact to the Business	Impact to the Value Chain
• Implementation of carbon price could increased operational cost (OPEX) of CP ALL from carbon tax, carbon trading and carbon offset. • Alternatively, the electricity and fuel might be higher if the carbon proce is embedded from energy provider.	• Increased overall energy cost in the value chain which potentially resulting in an increase cost of goods sold.

Countermeasures

- Implementaiton of energy efficiency measures through 7 Go Green Strategy
- Internal awareness raising campaign to reduce energy consumption
- Increase utilization of renewable energy e.g. solar cells

Regulations on Plastics

Impact to the Business	Impact to the Value Chain
• Increased expenses of 215 million Baht for procuring raw material substitutes • Improved reputation for plastic waste management GHG emissions reduction	• Stakeholders place their confidence in the Company's plastic waste management • Partners, consumers and communities are supported in reusing plastic waste

Countermeasures

The Company has prepared its readiness and developed its plastic waste management roadmap from 2018 to 2030 by applying the Extended Producer Responsibility (EPR) Framework. The roadmap was established to drive the reduction of pollution caused from plastics and shape the Company as a leader in reducing the use of plastic bags and single-use plastics through various plastic management projects, such as placing a symbol on products made from recycling, plastic reduction and discontinuation, and a project to recycle plastic waste into 7-Eleven bags (for more detail, refer to Sustainable Packaging Management chapter on pages 212-222.

Marketing

Impact to the Business	Impact to the Value Chain
• Expenses from investing and developing low carbon and green packaging • Innovations on low carbon packaging • Penetrating new customer markets • Increased market share for the business and generated income and profits to grow the business in the long term • Stronger reputation for services that support GHG emissions reduction	• Stakeholders have a positive perception of the Company's brand • Consumers are encouraged to select low carbon and green products

Countermeasures

- Develop green products and place importance on the reduction of GHG emissions from production processes starting from the procurement of raw material until production, logistics, usage and disposal.
- Gain consumers' acknowledgement through certification of a product's carbon footprint from the Thailand Greenhouse Gas Management Organization (Public Organization) (TGO).

Reputation

Impact to the Business	Impact to the Value Chain
• Lower demand for goods and services from negative perceptions of the Company • Stakeholder expectations for the products, services and business approach may influence the brand's reputation	• Stakeholders have a positive perception of the Company's brand • Consumers are encouraged to select low carbon and green products

Countermeasures

- Establish green policies and targets for business operations.
- Establish the "7 Go Green" Strategy and projects to drive environmental goals.
- Adopt the Green Marketing Strategy to the business.
- Continuously arrange marketing activities or campaigns for the environment, such as the Thais United Against Plastic Bags Project.

5. Climate Scenario Analysis

Scenario Analysis of Physical Risk: Risks of increasing sea level and erosion of brackishwater due to climate change

The mean sea level is rising up due to the impact of climate change. Due to the NASA Global Climate Change, Vital Signs of the Planet reports the observing land ice is having rate of change decreasing 151 billion metric tons per year. The Antarctica mass variation since 2002 is decreasing trend which the present period (2019-2020) variation range is around -2,000 - -3,000 Gt. (**Diagram 9**)**.** This scenario is aligned with Representative Concentration Pathway 8.5 (RCP8.5)

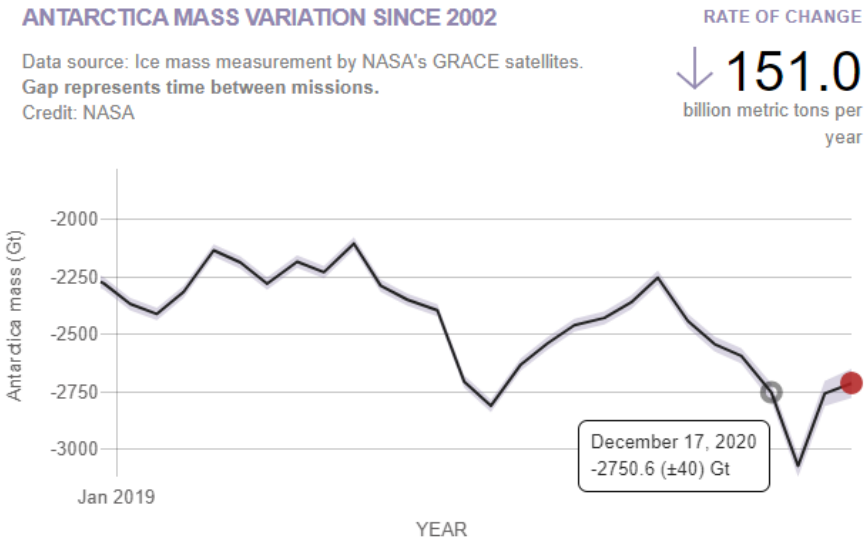

Diagram 9: Antarctica mass variation

Source: climate.nasa.gov

Apart from evidential impact aforementioned, there are various influential factors to nature, flora & fauna, and mankind. The sea level rising is a one of consequently effects which is caused[2] primarily by two factors related to global warming: the added water from melting ice sheets and glaciers and the expansion of seawater as it warms[3]. The NASA has published the information reported that rate of change of sea level is increasing trend at plus 3.3 millimeter per year. Reflecting hot season period in our main operation as Thailand, the sea height variation is at 100.8 (±4.00) mm (**Diagram 10**).

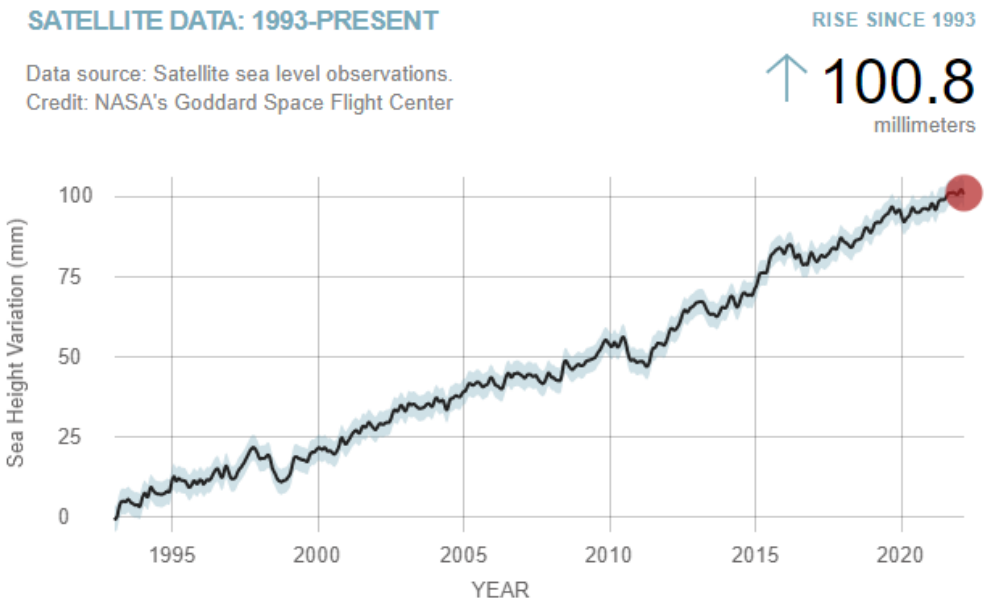

Diagram 10: Satellite data: sea level change

Data source: Satellite sea level observations, Credit: NASA's Goddard Space Flight Center

The Company is aware of the impacts and its consequences that inevitably has effects on the business and stakeholders. This matter was considered as one of emerging- climate related- risks of the Company. The impacts assessment is initially performed by considering effects on cost related with assets and opportunity to sale which are expecting or trending to amplify with this decades. Sensitivity analysis has been performed to determine corporate tolerance levels against the threshold or risk appetite.

Sensitivity analysis for sea level rise

Indicators and factors used for the assessment

- Areas: The central area of Thailand where focus on the provinces located near the gulf of Thailand and surrounding area reported impacts on the water qulity. (Bangkok, Samutprakarn, Nonthaburi, Pathum thani, Saraburi, Nakhonpathom, Samutsakorn, Chachoengsao, and Prachinburi provinces)
- Cost associated with water filtration: the cost is determined by shorten life service time of membrane or filter.

[2] https://climate.nasa.gov/vital-signs/sea-level/

[3] The causes of sea-level rise since 1900 Frederikse et al., 2020

- Cost associated with procuring fresh water: in order to maintain quality and service of the store, fresh water is required to procure from other sources. The volume is reflecting washing and cleaning activities (excluding drinking or production)
- Value of losing opportunity to sale specific products that got impacted from brackish water: in order to maintain quality of the products, drinkable products, and beverages that prepare or brew at store assumed / will be non-available on the specific period. The brackish water will have impacts on these products' quality.

Sensitivity testing factor is focusing exposure time of these impacts (default at 30 days) to the business which aims to identify maximum days that cause impacts on the business at the threshold (as 1% of sale). The lower sensitivity analysis is indicating low impacts from the climate change and aligned with RCP2.6 where the globe is maintain temperature at well below 2°C.

Input	Value	Unit
Estimated stores of each area		
Bangkok	2,506	stores
Samutprakarn	449	stores
Nonthaburi	410	stores
Pathum thani	373	stores
Saraburi	95	stores
Nakhonpathom	174	stores
Samutsakorn	168	stores
Chachoengsao	655	stores
Prachinburi	62	stores
Maintenance fee (equipment included)	1,350	THB / store
Fresh water (procure)	200	THB / m^3
Fresh water (consumption rate)	1.277	m^3/ store / day
Drinkable products, and beverages	29,864	THB / day / store
Duration (variable factor)	30	days

Table 2: Sensitivity analysis for sea level rise (Unit: million Baht)

Sensitivity range	-10%	-5%	±0%	+5%	+10%	+15%	+20%	+25%
Sea level rise impacts	3,985	4,206	4,427	4,648	4,869	5,090	5,311	5,532*

* exceeded threshold at 1% of revenue

Business Impacts

Researches from various institutes demonstrate possibilities of rising sea level. The data is derived from highly precise calculations from satellite images. Over 96% of Thailand's Bangkok would be flooded if flooding occurs, encompassing over 1,512 square kilometers within the next 3-5 years. The economic

damage could multiply, particularly in basins within Bangkok and the peripheral provinces, which are areas of business importance due to the high density of stores.

Notably, climate change-induced impacts such as rising sea level and seawater intrusion in freshwater sources, directly affect 7-Eleven stores in the river basin areas across 9 provinces, which are Bangkok, Samut Prakarn, Nonthaburi, Pathumthani, Saraburi, Chachoengsao, and Prajinburi. There are over 4,892 store branches. Post-flooding, there would be business disruption, additional cost for store fixes and rebuilding, expense in tool and equipment procurement to maintain water supply quality for businesses. In tandem, such incidents can impact products' quality, as well as products and services requiring prior preparation, which must stop its sales as it got affected by seawater level and high-tide, resulting in saltwater intrusion of frequently sourced freshwater bodies. The Company would lose many business opportunities during such crisis. Consequently, the Company has conducted risk assessments, categorized into 2 dimensions, as follows.

- Loss of sale opportunities for product groups necessitating good quality of water, such as All Café freshly made beverage, 7-Select beverage machine, and Slurpee. The expense to procure clean water for consumption, which can be valued at 1,000-1,500 million Baht, if the products and services cannot be provided for 7 consecutive days.
- Damage value after an insurance claim was an equivalent of over 2,644 million Baht, as assessed from deductible of the first part from the insurance claims and the insurance payout.

Measures and Management Approach

The Company developed comprehensive risk policy and risk management plan, governed by Risk Management Committee. Climate change risk has been integrated as a risk factor against the Company's business operations, aiming to review risk management approach thoroughly at least twice a year. This ensures risk management is aligned and is part of the decision behind determining business operation strategy. Simultaneously, the Company set up for Flood Scenario & Preparation plans for 7-Eleven stores, by studying for consistency with natural disaster statistics, coupled with the public sector's risk assessment data, such as spatial climate change-induced risk database.1 This could be used to substantiate risk assessment of store branches in each areas, to develop business continuity plans, and post-incident restoration plan. The extent includes reports on impacts from rising sea levels, which may trigger floods and high-tides, subsequently culminating in saltwater instruction, directly to Risk Management Committee. This enables stipulation of directions and identification of crisis mitigation approach, such as.

- Changes for high-quality water filters that could affectively filter salinity
- Review and adjust conditions to select branch stores' location, with considerations to the increasing sea level impacts

- Set up water-resilient store project, to ready branch stores against floods starting from the process of designing, mid-incident, to designing for mobility in case of relocation when needed
- Establish restoration plan for branch stores post-floods

Protection and adaptation plans

The results have been reported to the corporate governance and sustainability development sub-committees in order to obtain directions and discussion the action needed to protect or mitigate the foreseeable impacts. The progress of the plans will be reports to the Sustainability and Corporate Governance Committee periodically.

- Upgrade water filtration machine to have higher capacity dealing with salinity;
- Update store selection criteria by considering the sea level rise impacts;
- Collaboration with water supply to ensure fresh water availability during the period;
- Support and engage with local community to make understanding and ensure water accessibility of locals and valuable groups;
- Support farmer by associated with the expert on the protection plan and good agricultural practices

Scanerio Analysis of Transition Risk: Carbon offsetting

Forecasting GHG Emissions Scenario (2020-2030)

Forecasting information for GHG emission 2030 by considering the Group-wide performance, the scope has covered fugitive emission, adding refrigerants consumption since, 2018 which reflect management control capping the emissions growth. For other sources of GHG emission, the Company is on track to measure, monitor, and manage which will include this scope in the corporate strategy soon.

a. **Scenario 1**: business yearly growth at 8% (Business as Usual: BAU) and projection GHG emissions growth at 8% with assumption that there is no GHGs mitigation in-place. The projecting results and trend are shown as **diagram 5**.

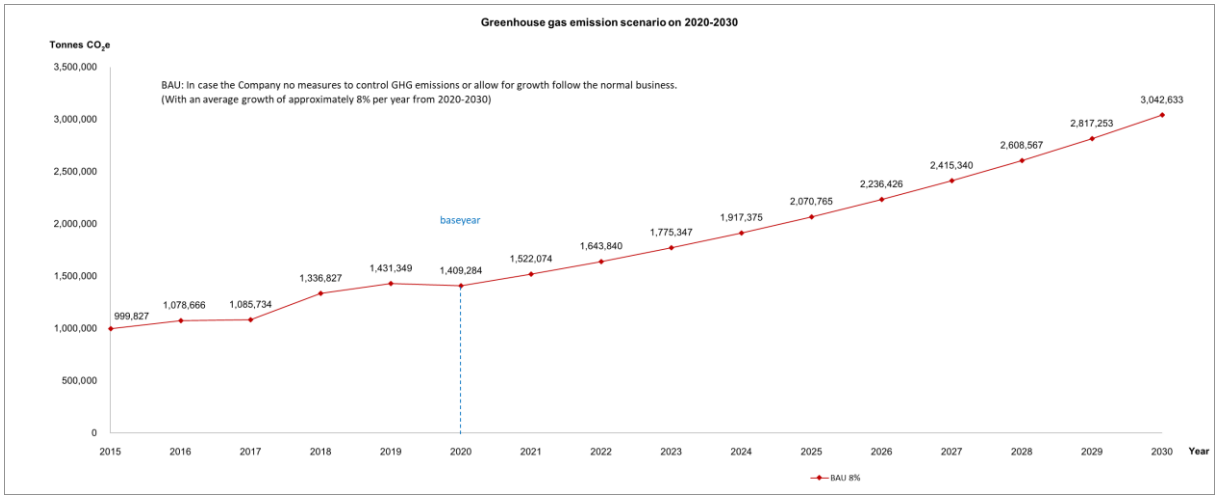

Diagram 5 Forecasting GHG emissions BAU case

b. **Scenario 2** (NDC scenario): reducing GHG emissions growth by 4%, due to the Company has limited energy consumption growth rate not over 6% which reflect the energy efficiency plan. This circumstance is focusing on the main GHG emission hot-spot at 86% of total GHG emission where fugitive emission is at 13% and others at 1%. Expecting result in 2030, the Company will reduce GHG emissions at 956,310 tCO2e comparing with BAU are shown as **diagram 6.** This scenario is in line with Thaialnd's NDC which commits the reduce GHG emission by 40% compared to BAU by 2030.

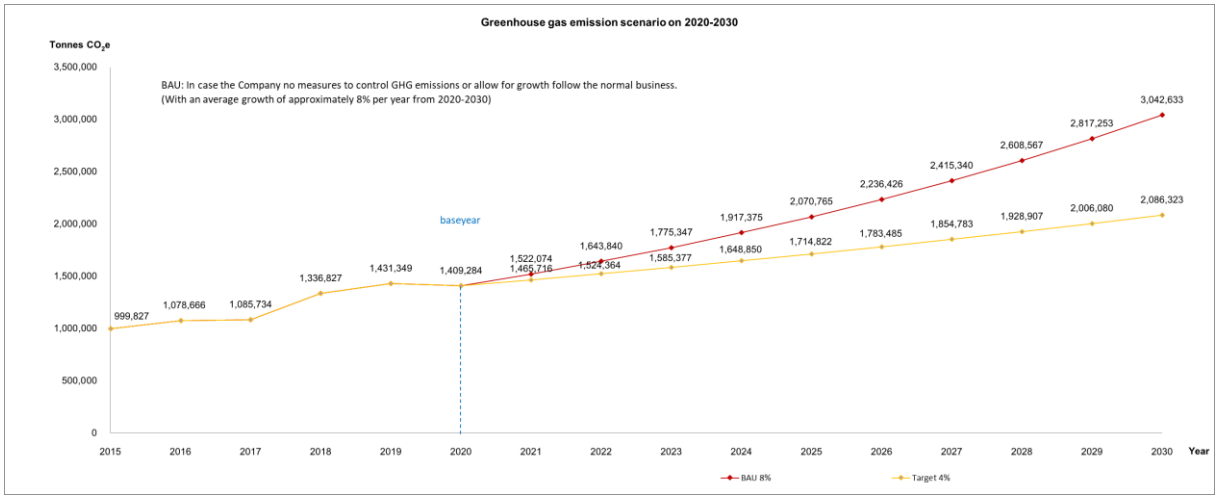

Diagram 6 Forecasting GHG emissions by capping GHG emissions at 4% (GHG reduction)

c. **Scenario 3** (IEA NZE 2050 scenario): business operates according to Business as Usual: BAU case, 8% growth, reduction of GHG emissions at 4.2% each year as implementing GHG emissions reduction, and implementing carbon offsetting, targeting to be carbon neutral or net zero carbon at 2030, this scenario is aligned with the science based target at below 2°C as implementing GHG emissions reduction. The result of GHG emissions is down-trend (shown in **diagram 7**).

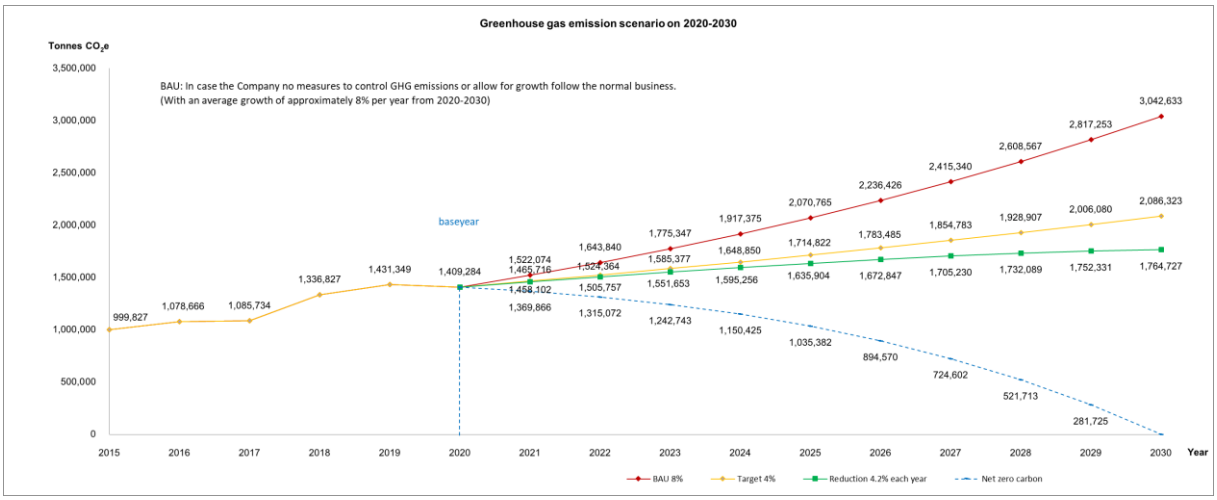

Diagram 7 Forecasting GHG emissions, targeting reduction GHG emission at 4.2% each year and net zero carbon

According to business expansion continuously, the Company is aware of development of GHG emissions reduction initiatives for various operations, including research, pilot projects, and applied to the business as well as collaboration program with stakeholders thought value chain. Under continuously development principle, the Company has preliminary studied on advance sustainability targets, being a carbon neutral organization or net zero carbon 2030 afterward. The Company has simulated 3 GHG emissions reduction scenarios (shown in diagram 8) which all cases are linked with the business growth. Additionally scenario has been performed by limiting volume of carbon offsetting at 20% of projection BAU case in 2030. The offsetting cost of all remaining carbon emissions will be used for range determination.

Results are indicating cost that associated climate change mitigation and linkage with business case which reflect effort and preparations required for co-mitigating the global issue.

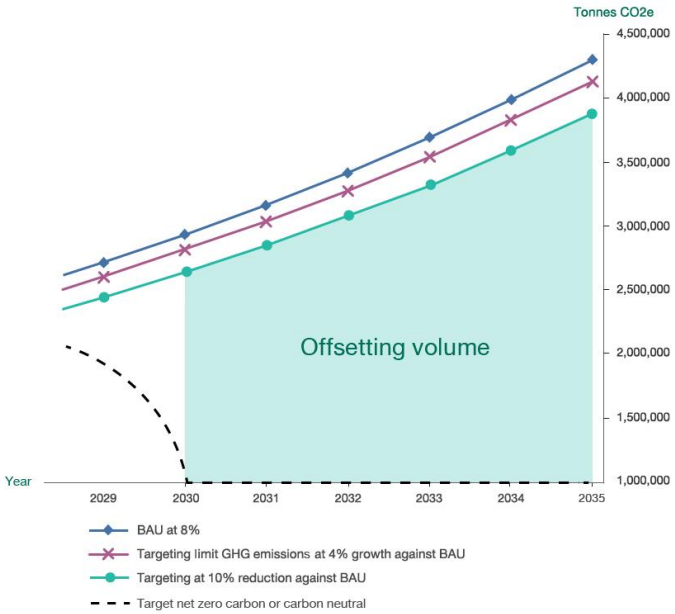

Diagram 8 GHG emissions and carbon offsetting

Data analysis (inputs and factors used for the analysis)	Unit	
Voluntary Emission Reduction	Euro / tonne	42.72
Exchange rate	Bath / Euro	38.37
Carbon emissions forecasting 2030 (CEF_{2030})	tCO_2e	3,042,632.71
Target limited GHGs growth at 4%	tCO_2e	2,086,322.77
Target GHGs reduction at 4.2% each year	tCO_2e	1,764,726.97
1% of revenue 2020	MTBH	5,465.90

Table 3: Sensitivity analysis for carbon offsetting on target year 2030 scenario

(Unit Million TBH)

Sensitivity range	-10%	-5%	0%	+5%	+10%
Carbon emissions (CEF_{2030})	4,488.64	4,738.01	4,987.38	5,236.75	5,486.12*
Target limited GHGs growth at 4% (NDC scenario)	3,077.85	3,248.84	3,419.83	3,590.82	3,761.81
Target GHGs reduction at 4.2% each year (IEA NZE 2050 scenario)	2,603.41	2,748.05	2,892.68	3,037.32	3,181.95

* exceeded threshold at 1% of revenue

6. Climate Change Target Phase 2: (2021-2030)

Long term target (2030)

The business has received impacts associated with climate change i.e. severe flooding in 2011 that affected on industrial sector and people as well as physical damage on seven eleven branches. The Company has prioritized mitigation actions and contributing in combating with climate change by set GHG emissions reduction target aligned with the national target as Thailand ratified the Paris Agreement on September. 21, 2016 during Conference of the Parties: COP21 and pledged 20-25% GHG emissions reduction by 2030[4]. The Company has set 2 phases of GHG emissions reduction targets at 4.2% each year and net zero carbon as follows:

Table 4: GHG emissions reduction targets

Target	2025	2030
GHG reduction at 4.2% each year comparing with BAU case or absolute reduction at 1,036,382 tCO_2e (2025) and 1,764,727 tCO_2e (2030)	21%	42%
Net zero carbon emission or equivalent with 1,036,382 tCO_2e (2025) and 3,042,633 tCO_2e (2030)	50%	100%

The Company has prioritized energy security by reducing fossil fuel dependency (electricity, and fuel for logistics) and increasing renewable energy consumption such as installation solar PV rooftop at distribution center, factory, and 7-Eleven stores throughout the country. At this stage, relevant functions are drafting action plan for GHG emissions reduction achieving the goal.

Yearly targets (2021-2025)

According to various assumptions and scenario reflecting the long term target, the Company has analyzed and deployed yearly targets. For accuracy purpose and alignment with business context, updating information and target numbers may require:

Table 5: GHG emissions reduction yearly targets (2021-2025)

Target	2021	2022	2023	2024	2025
4.2% each year	1,458,102	1,505,757	1,551,653	1,595,256	1,635,904
Net zero carbon	1,369,866	1,315,072	1,242,743	1,150,425	1,035,382

[4] National GHG emissions reduction 2021 – 2030 roadmap has been prepared for achieving Nationally Determined Contribution: NDC that submitted to the UN secretary-general's Climate Action Summit on October 1, 2015. The national target pledged at 20-25% reduction from business as usual (BAU) in 2030, this climate commitment is a part of the Paris agreement that Thailand ratified on September 21, 2016.

7. 7 Go Green Strategy

The Company has implemented plans to reduce GHG emissions under the “7 Go Green” Strategy and build environmental sustainability in communities, the society and the country. Some of these various implementations are on the reduction of energy **consumption and the reduction and elimination of plastic bags at 7-Eleven stores. Emphasis is placed on achieving results on the** reduction of GHG emissions while transparently and consistently communicating the results of these environmental implementations to stakeholders and raising awareness on environmental issues in communities and the society. Additionally, all actions can be tracked under the Carbon Disclosures Project (CDP), which applies the following 4 approaches.

Green Store

The Green Store approach focuses on sustainably managing energy and its efficient utilization. The approach incorporated the Green Building approach in designing stores and energy management to reduce GHG emissions.

Green Logistics

The Green Logistics approach pushes toward being a green distribution center. Careful consideration is given to designing the delivery and distribution of goods to 7-Eleven stores and consumers.

Green Packaging

The Company oversees its packaging process straight from its design, usage and distribution until its disposal or recycling. These actions add convenience to customers, increase sales for the Company and foster engagement in the preservation of natural resources across the supply chain.

Green Living

The Company has fostered collaboration between partners, communities, NGOs, government agencies and local and global organizations in projects to sustainably build consciousness towards the environment with communities.

Carbon offsetting

According to business expansion continuously, the Company is aware of development of GHG emissions reduction initiatives for various operations, including research, pilot projects, and applied to the business as well as collaboration program with stakeholders thought value chain. Under continuously development principle, the Company has preliminary studied on advance sustainability targets, being a carbon neutral organization or net zero carbon 2030 afterward. The Company has simulated 3 GHG emissions reduction scenarios (shown in diagram 8) which all cases are linked with the business growth. Additionally scenario has been performed by limiting volume of carbon offsetting at 20% of projection BAU case in 2030. The offsetting cost of all remaining carbon emissions will be used for range determination.

Results are indicating cost that associated climate change mitigation and linkage with business case which reflect effort and preparations required for co-mitigating the global issue.

8. Governmental regulations promoting packaging waste reduction in relation to climate change

Greenhouse gas emission from plastics' life cycle is presently high, resulting in failure to achieve the goal of reducing global average temperature by 1.5 degrees Celsius. Over 90% of plastics are produced from fossil fuel, the cause behind increased volume of greenhouse gas emission. Furthermore, Center for International Environmental Law (CIEL) reports emission estimation of plastic production-induced pollution globally to be equivalent to pollution emitted from coal industry over 189 plants. This may cause an increase in greenhouse gas emissions by 10-13% in 2050. The best approach to reduce plastic usage is to address it from upstream at the stage of production, reduce excessive use of resource, reduce plastic packaging, and increase recycled plastic products. This serves as a goal to initially optimize resource usage to minimize environmental impacts. The public sector's governance and policy implementation on packaging are therefore highly crucial to enabling the principle of circular economy. Thailand has Thai Plastic Roadmap for 2018-2030, comprises 2 primary goals to reduce plastic and packaging waste, as follows. The first goal is to reduce and terminate plastic usage, opting for alternative and environmentally-friendly; the second goal is to recycled plastic waste for further benefits, encompassing plastic waste reduction at-source and post-consumption. At the moment, the aforementioned plan has progressed into phase 2 (2022-2027).1 The phase stipulated was one whose scope is expanded to cover termination of single-plastic packaging use, in tandem with developing the national process and fundamental infrastructure in reusing and recycling. One of the tools used for studies to substantiate policy development is Extended Producer Responsibility (EPR), in which producers must be accountable for the entire cycle, from designing, distribution, recalls, collection, reuse, recycled, and treatment of packaging waste post-consumption. The principle of extended producer responsibility is widely practiced in Europe, North America, South Africa, and some countries in Asia. It is likely to be implemented as a regulation in Thailand, which can directly impact retail businesses in the future.

Business Impacts

The Company aims to work on plastic waste management under the Thai Plastic Roadmap continuously, supporting minimization of environmental impacts and response to the national policy, per Extended Producer Responsibility (EPR) principle. It is possible that within the next 3-5 years, it will become a regulations implemented domestically for all industries, affecting business operations throughout the Company's value chain. Review of environmental operational plan, from upstream to downstream, is extremely crucial in driving forth the Company's business. Furthermore, investment in reuses and recycles of packaging waste, as well as distribution of products rely on novel system and process, thus incurring additional costs to set up system or to operate (equates to investment of over 215 million Baht in the next 3-5 years). A nudge for legal actions per extended producer responsibility may affect the Company's reputation if one does not have sufficient preparation throughout the supply chain.

Measures and Management Approach

The Company aims to minimize plastic waste and packaging waste landfilled, by promoting waste management under the principle of Circular Economy, in order to achieve target in plastic packaging management for Private Brand. It must be reusable, recyclable, or compostable, through the concept “reduce, avoid, stop” by operating per 3 primary approaches, as follows. • Reduce plastic usage at-source, stipulating policies and strategy in response to packaging selection of the product groups which are private brand, shifting towards eco-packaging; as well as initiating packaging development strategy in collaboration with suppliers, such as designing packaging anew to reduce plastic use, the shift for sealing and printed cling film, as opposed to thick plastic lid with stickers. There is also an adjustment for the packaging thickness or bottle sizes. Suppliers are asked for cooperation in development and selection of eco-packaging. • Reduce and replace plastic usage at consumption stage; initiate strategic process in reducing single – use plastic use and commence campaigns to foster customers’ engagement. • Reduce post-consumption Plastic, Non-Plastic Waste initiate strategy of recycling post-consumption plastics per the principle of circular economy in joint-efforts with suppliers, NGOs, communities, the public sector, local entities, global organizations, as prototype of recycling post-consumption plastic waste anew, such as plastic bottle-to-employee shirt, post-consumption plastic waste separation bin for recycling process.

Reference

GHG Mitigation Action of Thailand

Pre-2020

❖ NAMA: COP20

"**Thailand will endeavor**, on a voluntary basis, **to reduce its GHG emissions** in the range of **7 to 20 percent below the Business as Usual (BAU) in energy and transportation sectors in 2020**, subject to the level of international support provided [...]"

Coverage: Renewable Energy | Energy Efficiency | Bio-fuels | Transport

Post-2020

❖ INDC: COP21

"**Thailand intends to reduce its greenhouse gas emissions by 20 percent from the projected business-as-usual (BAU) level by 2030.** The level of contribution **could increase up to 25 percent**, subject to adequate and enhanced [support] through a balanced and ambitious global agreement [...]"

Coverage: Economy-Wide | Inclusion of **LULUCF** will be decided later

LULUCF: Land Use and Land Use Change and Forestry

Submission by Thailand
Intended Nationally Determined Contribution and Relevant Information

As a developing country highly vulnerable to the impacts of climate change, Thailand attaches great importance to the global efforts to address this common and pressing challenge. Pursuant to decisions 1/CP.19 and 1/CP.20, Thailand hereby communicates its intended nationally determined contribution (INDC) and the relevant information.

Thailand intends to reduce its greenhouse gas emissions by 20 percent from the projected business-as-usual (BAU) level by 2030.
The level of contribution could increase up to 25 percent, subject to adequate and enhanced access to technology development and transfer, financial resources and capacity building support through a balanced and ambitious global agreement under the United Nations Framework Convention on Climate Change (UNFCCC).

Accompanying information

Baseline:	Business-as-usual projection from reference year 2005 in the absence of major climate change policies (BAU2030: approx. 555 $MtCO_2e$)
Time frame:	2021-2030
Coverage:	Economy-wide (Inclusion of land use, land-use change and forestry will be decided later)
Gases:	Carbon dioxide (CO_2), Methane (CH_4), Nitrous oxide (N_2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF_6)

Source : Office of The Natural Resources and Environmental Policy and Planning (ONEP) Thailand Greenhouse Gas Management Organization (TGO), 14 November 2016

The Prime Minister participated in the World Leaders Summit during the 26th United Nations Framework Convention on Climate Change Conference of the Parties (UNFCCC COP26) in Glasgow, United Kingdom.

Prime Minister Prayut Chan-o-cha announces Thailand's accelerated greenhouse gas mitigation targets, joining other states in keeping the global temperature rise below 1.5 degree Celsius to tackle the climate crisis.

On 1 November 2021, Prime Minister Prayut Chan-o-cha attended the World Leaders Summit, which is part of the 26th session of the Conference of the Parties (COP 26) to the United Nations Framework Convention on Climate Change (UNFCCC) in Glasgow, United Kingdom.

On this occasion, the Prime Minister emphasized that Thailand has put climate action as top priority, and presented Thailand's active efforts.

The Prime Minister also announced Thailand's aim to reach carbon neutrality by 2050, and net zero greenhouse gas emissions by or before 2065 to urgently tackle the issue, as Thailand is one of the top ten countries in the world most affected by climate change.

Source : Ministry of Foreign Affairs, Thailand , 2 November 2021[5]

Remarks
By H.E. General Prayuth Chan-o-Cha, Prime Minister of Thailand
At the World Leaders Summit of the Twenty-sixth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 26), Sixteenth session of the Conference of the Parties to the Kyoto Protocol (CMP 16), and Third session of the Conference of the Parties to the Paris Agreement (CMA 3)
Glasgow, Scotland

5. Moreover, Thailand was among the first nations to submit the revised NDC to reduce the GHG emissions, and put in place plans at both national and local levels. Also, Thailand was among the first nations to submit the Long-Term Low GHG Emissions Development Strategy (LT-LEDS) in line with the Paris Agreement. This demonstrates our seriousness as a contributing partner in the fight against climate change.

6. That's why today, I am here to express Thailand's willingness to be more aggressive in addressing the climate change challenges in every way and every means possible, by **aiming at reaching carbon neutrality in 2050, and Net Zero GHG Emissions in or before 2065.** With the adequate, timely and equitable support of technology transfer and cooperation, and most importantly, the availability of and access to ample green financing facilities, Thailand can **increase our NDC to 40%, and reach the Net Zero GHG Emissions in 2050.**

Source : Thailand - High-level Segment Statement COP 26, United Nations Framework Convention on Climate Change (UNFCCC), 3 November 2021[6]

[5] https://www.mfa.go.th/en/content/cop26-glasgow?page=5d5bd3cb15e39c306002a9ac&menu=5d5bd3cb15e39c306002a9ad

[6] https://unfccc.int/sites/default/files/resource/THAILAND_cop26cmp16cma3_HLS_EN.pdf