

04

Creating a Sustainable Planet

At present, various environmental issues such as climate change, plastic pollution, food waste and waste treatment are closely related to sustainable corporate operations. Effectively adopting green operations, optimizing resource efficiency and realizing environmental sustainability are important elements in PCSC's overall operating value chain. As the leader in convenience stores, we hope to strike a balance between convenience and environmental impact by being committed to reducing the negative impact of plastics, food waste and waste in our operations, as well as actively improving our ability to address climate change issues.



Corresponding Material Topic



Climate Change



Waste Management



Food Waste Management



Packaging Material Management

Policies and Commitments

- Environmental Policy
- Greenhouse Gas Policy
- Energy Policy
- Packaging Material Management
- Waste Management
- Food Waste Management

Management Actions

- Inventory and management of environmental information (greenhouse gas emissions, packaging material consumption, waste removal and food waste production in the stores)
- Energy-saving and carbon reduction actions and low-carbon transition plan for own operations and value chain
- Adaptation Strategies for climate-related physical and transition risks
- Actions towards plastic reduction (single-use plastic reduction, expansion of recycling mechanism, circular economy collaborations, designs with reduced plastic, procurement of packaging materials with sustainability certification)
- Food waste management (reducing the scrap rate of fresh food, improving the management mechanism of the manufacturers, improving the recovery rate of food waste, order-to-delivery system)
- Waste management (setting up a convenient eco-friendly recycling platform in stores, refurbishment and reuse of store equipment, waste reduction for all operating locations, managing waste flows with suppliers)

Management Policies

4.1 Environmental Management

Policies and Commitments

To realize the vision of green operations, PCSC has formulated “Environmental Policy”, “Energy Policy”, and “Greenhouse Gas Policy” as the guiding principles for the Group’s actions on environmental issues. Short, medium and long-term targets have been set based on this foundation (see [1.4 Process Management of Sustainable Targets](#)) to incorporate the concept of environmental sustainability into all aspects of the value chain. Year 2021 was declared as the “Year One of Sustainability” for PCSC to expand the strategies of plastic reduction, carbon reduction, and food waste reduction to our operations and business model in order to realize sustainability, making green consumption a part of daily life. Moreover, PCSC has set up the Integrated Services Center hotline (0800-008-711) and email (public@mail.7-11.com.tw) as convenient channels to further communications with stakeholders.

Environmental Policy

PCSC is dedicated to becoming the best retailer, providing the most convenient lifestyle services and fulfilling our responsibilities as a corporate citizen. To this end, four task forces of “Plastic Reduction,” “Carbon Reduction,” “Food Waste Reduction” and “Sustainable Procurement” under the Environmental Group of the ESG Committee have been selected to take charge of ESG policies, systems or management regarding various environmental aspects as well as proposing and formulating concrete action plans. Our commitments are as follows:

- Comply with environmental protection laws and regulations and prohibit any behavior that may harm the environment.
- Continuously improve our environmental protection performance, as well as optimizing our surrounding environment.
- Cherish the use of resources and increase recycling and reuse, sticking to the principle of “making the most of resources.”
- Endeavor to reduce the amount of waste based on the concept of “pollution prevention.”
- Consider the environmental impact of our products and services in each phase of the life cycle, from R&D, design, manufacturing, packaging to delivery. Reduce resource consumption and increase the efficiency of resource use
- Build up an eco-friendly value chain step-by-step, take environmental aspects into the suppliers screening, new projects developing and decisions making of merge and acquisition.
- Care for community development and manage sustainable relationships with local communities.
- Promote environmental education and training, share environmental protection concepts with stakeholders like employees and customers in order to protect the environment together.

Energy Policy

As we strive to meet customer needs, we have made energy conservation and carbon reduction actions a core value of our business strategy. We use our stores as a base for energy conservation and carbon reduction by maximizing our advantage as a retail channel. We also exert our influence through the benefits of energy conservation.

- Complying with the government’s energy laws and regulations and continuing to make energy improvements.
- Expanding stores with energy saving designs and developing and selling energy-efficient products.
- Optimizing our energy use to achieve sustainable corporate development.

Greenhouse gas Policy

As a member of the global village, PCSC lays great emphasis on the use of energy and resources, as well as the environmental impact. To fulfill our corporate responsibilities, we will control and manage the current status of greenhouse gas emissions and promote energy-saving and carbon-reduction plans based on the result of the inventory, with a view to reducing greenhouse gas emissions and doing our best for the environment.

Communications and Incentives

PCSC shares ideas with store employees by integrating policy with practice through a variety of campaigns, online courses and education and training, helping each employee incorporate environmental management in their daily routines. In 2022, a total of 35,419 store employees completed the campaign and training course in environmental protection, including employees of directly operated stores and franchisees with a total of 6,450 hours.

Environmental Protection Campaigns or Training Courses in 2022

Topics	Targets	Man-Hours
Plastic Reduction Online Course	All employees/franchisees	1,159
Compliance campaign: eliminating plastic straws	All store employees	68
In-store recycling and coffee ground reuse	All store employees/franchisees	332
In-store energy-saving and carbon reduction measures	All store employees/franchisees	1,557
Coffee quality assurance and raw material management of regulations on the use of plastic straws, encourage the use of reusable cups	All store employees/franchisees	3,334

To encourage employees to actively manage energy use in stores, PCSC has formulated the “Energy Conservation Incentive Measures for Stores.” The measures include the electricity fee management outcomes of newly opened and renovated stores, and take the power consumption management of existing stores and energy conservation improvements into employees, store and regional engineering performance appraisal items. Monetary rewards are given to those who discovered abnormal store electricity bills. In 2022, NT\$7,884 was given out as reward to those discovering abnormality in store electricity bills. As of 2022, the cumulative of NT\$17,729 was given out as reward money.

In addition to internal training for store employees, PCSC continues to launch various sustainable initiatives to integrate sustainable actions into consumer behavior. This includes not taking the initiative to offer single-use cutlery in the stores, recycling plastic packaging for shopping discount and waste batteries and electronics for cash back, double points for plastic reduction products and so on. In addition, we worked with the “Good Neighbors O2O Funfest” to educate children about the importance of recycling, in order to extend plastic reduction actions from 7-ELEVEN stores to home. To this end, numbers of online activities and social media campaigns have been organized, including the “Super Positive Quotes,” and “Raise Your Hand if You Love the Earth.” Hoping encouraging consumers of all ages to support eco-friendly actions through various channels such as stores, online and offline, making sustainability a part of everyone’s daily life.

Water Resource Management

Water supply and quality have a direct or indirect impact on the business model of chain stores regarding the products and services we can provide to the consumers. Especially in areas with tight water resources, how to reduce the operational impact on the local water resources is one of the key focus in overall operating value chain. All operating locations of PCSC use tap water. Besides for the fresh-brewed beverages, the overall water consumption is the most for store cleaning. In the future, we plan to reuse RO (reverse osmosis) residual water in the stores. The residual water wasted in the RO filtration process will be taken out from the drainage pipeline and connected to the water tower, which can be used for the faucet, building cleaning and bathroom flushing.

After analyzing the correlation between operating activities and water consumption of stores, we deducted the water used for fresh-brewed beverages as the base for managing store water consumption. PCSC commits to reduce the water consumption per store by 1% compared with previous year and set the base year as 2019 (after deducting the water used to fresh-brewed beverages). By 2025, the water consumption should be reduced by 5% compared to the base year. In 2022, the total water withdraw of PCSC was 3,020,304.2 cubic meters, and the total water consumption was 105,461.0 cubic meters. The scope covers stores, headquarters, shopping centers and regional offices. Moreover, the average water consumption per store in 2022 was 397 cubic meters, a decrease of 14.9% compared with the base year. In the future, we will continue to track the changes in water consumption as a reference for future target setting and water management.

Although the headquarters building accounts for a relatively small amount of water consumption, we set an example by closely monitoring the annual water consumption as an internal management indicator, as well as reducing water consumption through water-saving actions. For example, in order to reduce the amount of water coming out of the taps in restrooms and coffee rooms, we installed water-saving devices at the urinals, adjusting the optimal water output of the toilets, reducing the frequency of sprinklers and so on.

4.2 Packaging Material Management

Policies and Commitments

Plastic reduction is a hot topic in recent years. Although the global plastic reduction progress has been delayed due to the global pandemic, the stakeholders remain concerned with the plastic pollution. Since plastic is one of the most common choices among packaging materials in retail industry with its durability and low costs, the society has been closely inspected the use of plastics packaging at supermarkets, convenience stores and hypermarkets that are closely related to daily life. To consolidate sustainable operations,

we hope to achieve a balance between convenience and environmental impacts by committing to reducing plastic pollution in our own operations. In 2020, PCSC officially set up the Plastic Reduction Task Force, while formulating a series of management policies for the packaging materials of private-label products. This sets up a top-down plastic-reduction and environmental-friendly business model, starting from our private-label and combining various operational strategies for products, services, logistics and e-commerce, in order to achieve the vision of phasing out single-use plastic in operations by 2050. For detailed plastic reduction schedule and the progress in 2022, please refer to [1.4 Process Management of Sustainable Targets](#).

- The procurement of eco-friendly, certified packaging materials and lightweight packaging should be prioritized in consideration of environmental and ecology protection, while achieving sustainable operations. A target for packaging reduction for private-label products has also been set.
- To reduce the amount of single-use plastic, as well as encouraging the consumers to use reusable packaging materials (or containers), the stores do not take the initiative to provide customers with straws. A reward is also given for consumers who use their own reusable cups for fresh-brewed beverages. PCSC responded to the regulation in advance, bringing own reusable cup according to the regulations of the Environmental Protection Administration will entitle the customers to save NT \$5, moreover, on the first of each month, bringing own reusable cup for “CITY” brand fresh-brewed beverages will entitle them to an NT\$7 discount.
- Introduced the “OPEN iECO Recycled Cups Renting Service” as part of the recycling mechanism.
- FSC-certified packaging materials were adopted by 100% of refrigerated beverages in 2022.
- FSC-certified paper sleeve packaging materials were tested in 2022. PCSC expects to introduce certified packages(paper cups and cup sleeves, etc.) to fresh-brewed beverages series in 2023.
- Packaging materials for cup sleeves and cup holders are made of recycled materials (65% for cup sleeves and 100% for cup holders).
- Ice makers were introduced to reduce the amount of plastic packaging used for ice cubes.
- PCSC has set up Plastic Reduction Task Force as an internal cross-functional team to consolidate the company’s efforts in plastic reduction. By combining the power of internal employees and external suppliers, Plastic Reduction Task Force promotes packaging plastic reduction strategies, targets, and action plans, while holding regular meetings to ensure the progress of each actions. The task force took about NT\$2.5 million each year in manpower and testing resources, such as task force operations, R&D, testing costs in manpower and raw materials.
- PCSC worked with President Packaging Ind. Corp., an affiliated company, to establish and develop circular cup renting services to transit from manufacturing single-use containers to developing reusable containers. The Plastic Reduction Task Force also stays on top of information on external competitiveness and the industry with the assistance of consulting company.

Plastic Reduction Task Force	Missions
Coffee Division	Packaging reduction for fresh-brewed beverages, and introducing reward model for reusable cups
Fresh Food Division	Packaging weight reduction and increasing paper container usage proportion for fresh food.
Product Division	Introducing products with lightweight plastic containers.
Supply Chain Management Division	Collaboration and communications with private-label suppliers, development of alternative materials and optimization of packaging weight reduction
Operations Division	In-store recycling mechanism optimization and store employees’ awareness of plastic reduction build.

Plastic Reduction Task Force	Missions
Procurement Division	Procurement of store supplies, weight reduction for cutlery, development and introduction of alternative materials
Public Affairs Division	Internal and external communications, Consumer awareness campaign
Human Resources Division	Internal education and training to increase the awareness of plastic reduction
Administrative Service Division	Internal plastic reduction action planning

Statistics of Packaging Material Consumption

Plastic Packaging Materials

To enhance the efficiency of packaging material management, PCSC has redefined the classification of plastic packaging materials. Plastic consumption in each stage is inventoried for private-label products and services according to “usage” and “material.” The performance and target achievement are reviewed every quarter with corresponding plastic reduction actions formulated.

Use	Description
Usage	Reusable plastic Packaging that can be refilled or reused for the same purpose without ancillary products, and. They can circulate onin the market to make the packaging refillable.
	Single-use plastic Plastic packaging that is single-use or for short-term use, it cannot be reused.
Material	Recyclable plastic Recyclable plastics as defined by the EPA ^(Note 1) .
	Compostable/ decomposable plastic Compostable and technically recyclable plastic packaging has been developed.
	Plastic with recycled materials Plastic products containing recycled plastic.
	Other plastic Plastics that cannot be recycled, composted/decomposed or contained recycled material ^(Note 2) .

(Note 1) The EPA defines recyclable plastics as PET, PVC, PE, PP, PS, unexpandable PS and others. If the material itself is recyclable without having obtained the recycling label from the EPA, or if it cannot be properly recycled in the current waste disposal system, it is not considered as recyclable.

(Note 2) Even if the garbage bags in the stores are made of recycled materials, they are still considered as single-use.

As the new version of plastic packaging classification was adopted, the statistics of plastic packaging materials were adjusted (please refer to the appendix for historical data). The previous “single-use plastic” is now redefined as “other plastic” that is for single-use according to the new classification, and to reduce the proportion to less than 20% in 2023, less than 10% by 2028, and phase out by 2050. In 2022, the total weight of plastic packaging materials consumed by PCSC was 10,168.40 tonnes, an increase of 0.7% compared to 2021. The weight of “recycled plastic” increased by 6.1% compared to 2021, mainly due to the increase in sales of coffee and fresh food. The use of “plastics with recycled materials” increased by 33.2% compared to 2021, mainly due to the increase in the plastic garbage bag used in the stores. For “compostable/decomposable plastic”, the weight decreased by 73.8% due to the complete elimination of PLA cup for cold drinks.

Changes in Packaging Material Consumption for PCSC’s private-label products from 2021 to 2022

Plastic Classification	Weight (Metric tonnes)		Differences between the Two Years	
	2021	2022		
Usage	Reusable plastic	481.30	420.03	-12.7%
	Single-use plastic	9,611.82	9,748.37	1.4%
Material	Recyclable plastic	6,633.98	7,040.76	6.1%
	Compostable/ decomposable plastic	737.27	193.53	-73.8%
	Plastic with recycled materials	294.47	392.33	33.2%
	Other plastic	2,427.39	2,541.77	4.7%

Non-plastic Packaging Materials

PCSC strives to reduce the consumption of packaging materials for private-label products and services. Not only do we reduce the consumption of plastic packaging materials, but we also work hard to reduce the consumption of non-plastic packaging materials and promote FSC certification packaging material. In line with PCSC’s Sustainable Procurement Policy, the targets for private-label products packaging by paper materials with sustainability certification have been set for 2030 and 2050 to reach 70% and 100%, respectively. In 2022, the consumption of non-plastic packaging materials (including paper/wood, metal) increased by approximately 11.1% compared with 2021.

Statistics of Packaging Material Consumption in Each Life Cycle Stage for private-label products in 2022						
The Life Cycle Stage of private-label Products	Manufacturing and Production	Supplier/ Manufacturer	Logistics Delivery to Stores	Store Sales and Services	Total Weight (Tonnes)	
Packaging item	Fresh food packaging, fresh-brewed beverages supplies, cutlery	Fresh food sealing film	Delivery cartons	Store supplies, such as shopping bags, cutlery, delivery packaging, store garbage bags, etc.		10,168.40
	Outer packaging for coffee beans/tea	Outer packaging box, paper container for fresh food	Shipping film	Online shopping delivery boxes, fresh food cartons, paper bowls and store supplies		
Unit	Tonnes					
Use (Plastic)	Reusable plastic	-	-	-	420.03	10,168.40
	Single-use plastic	6,143.73	-	20.08	3,584.55	
Material (Plastic)	Recyclable plastic	5,361.25	-	-	1,679.52	10,168.40
	Compostable/ decomposable plastic	131.32	-	-	62.21	
	Plastic with recycled materials	-	-	-	392.33	
	Other plastic	651.16	-	20.08	1,870.52	
Material (Others)	Paper/wood	839.95	733.66	451.10	9,540.06	11,564.78
	Metal	235.42	-	-	-	235.42

■ Plastic ● Paper/Wood ◆ Metal (composite material)

(Note 1) The scope of statistics includes the packaging of private-label products of PCSC and the items sold and serviced in the store (in addition to the outer packaging of the items, the materials used for the items and the packaging used for logistics and distribution are also included). The statistics of plastic packaging materials cover 100% of private-label products. The statistics of non-plastic packaging materials cover 100% of private-label products.
 (Note 2) The inventory of paper/wood includes the statistics of general cartons, paper containers with coating, as well as materials for cutlery packaging and content for store supplies.

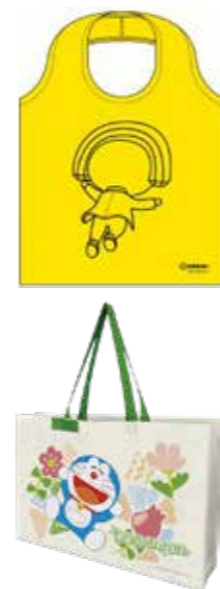
Plastic Reduction Management Actions

PCSC engages in three aspects to reduce plastic, including “reduction at the source,” “innovative packaging” and “encouraging customers to bring their own containers.” We actively partner with suppliers to develop innovative packaging materials to reduce the consumption of single-use plastic from private-label products and services, as well as encouraging the reduction of disposable containers by providing with discounts. Moreover, companies in the Group worked together in 2022 to establish the “OPEN iECO Recycled Cups Renting Service” that has been introduced to 500 stores by 2022, hoping to create a win-win situation with providing convenient services and working towards environmental protection.

Single-use Plastic Reduction

Plastic Reduction for Product Packaging

We are committed to reducing the burden on the earth from product packaging. Since 2019, PCSC has been working on reducing the environmental impact by expanding the use of recycled plastics and continuous promotion of the “packaging weight reduction program.” In 2022, the plastic packaging material for our sandwiches was redesigned with a weight reduction of 12.5%, the bags used for the agricultural products were changed from PE to kraft paper, reducing approximately 0.96 tonnes of plastic consumption, and 55.3% less of plastic was consumed after paper packaging was adopted for light meals. Moreover, PCSC and Uni-President Enterprises Corporation worked together to launch the label-free bottled water, reducing plastic consumption by 0.38 tonnes each year. In 2022, roughly 502,000 reusable shopping bags were sold, estimated to reduce plastic shopping bag consumption by 46.5 tonnes. In the future, we will continue to promote reuse in the future to reduce the consumption of single-use plastic.



Plastic Reduction for Store Services



To reduce plastic consumption, the amount of plastic used in various packaging materials has been adjusted since 2019, for example, paper cups for fresh-brewed beverages sold in stores; from 2020, plastic straws are offered only upon request. In 2021, lightweight shopping bags and eco-friendly reusable shopping bags were launched. From May 2021, all garbage bags in the stores have been replaced with 100% recycled materials.

Packaging Recycling and Reduction for E-commerce Orders

In 2022, PCSC reduced the weight of the “MyShip” delivery bags by about 14.86% per piece, as well as developing and using decomposable materials for delivery bags, which can reduce about 18.43 tonnes of single-use plastic consumption. In addition to reducing the weight of the delivery bags, PCSC also optimized the service process by incorporating the OPEN POINT app. Traditional barcode slips were replaced by mobile phone barcodes, and the label sticker replaced the document holder bag to reduce the consumption of unnecessary paper and plastic. In 2022, the aforementioned innovations reduced the consumption of paper by 685,000 tonnes and single-use plastic by 18.06 tonnes in 2022.



PCSC continues to work with social enterprise PackAge+ to launch recyclable packaging for e-commerce orders, encouraging consumers to return recyclable packaging bags to 29 PCSC stores, reducing resource consumption through recycling.

Expansion of the Recycling Mechanism

In response to the international ESG trend, the demand for renewable resources will increase year by year. The global plastic consumption has increased since the post-pandemic period started. Member states of the European Union have been obliged to pay a levy on plastics since 2022. Disposable plastic will eventually become 100% recyclable. Plastic wastes that are challenging to be regenerated with the current recycling mechanism are expected to become resources in the future. To stay updated with the trend, automatic recycling machines were gradually introduced to all stores, as well as motivating people for recycling PET bottles by providing OPEN POINT points. As the pilot program had great results in 2020, the machines have been installed in more stores afterwards.

In 2022, PCSC further introduced the “Efficient Smart Recycling Machine” that can recycle PET bottles and batteries. For details, please refer to “Efficient Smart Recycling Machine” in the sustainability column.

Reducing Disposable Containers – Bring Your Own Cups and Reusable Cups

Reuse is the fundamental measure of reducing the amount from the source. PCSC encourages consumers to contribute to environmental protection by providing cups on loan, cups for on-the-spot consumption, and a discount for consumers who bring their own cups. In 2020, PCSC started working with social enterprise “Good to Go” on the rental cup program. The program was first introduced to 9 stores in Taipei, Taoyuan and Tainan. Seeing that the awareness for plastic reduction and regulations both experienced great progress in 2022, PCSC integrated the resources of the Group to build the “OPEN iECO Circular Cup Rental System.” For details, please refer to “Circular Cup Life Circle Service” in the sustainability column.

Public Welfare Combined with Circular Economy for a Win-Win Situation

PCSC not only strives to reduce plastic on its own, but also aims for combining public welfare to expand its influence and drive circular economy. PCSC collaborated with non-profit organizations and social enterprises to launch the 100% recyclable denim beverage holder and messenger bag. In 2022, PCSC launched two sustainable products, namely "Hugging Hedgehog Bag" and "Small Star and Moon Bag on Strap." Over the past couple of years, this initiative has recycled 3,527 kilograms of PET bottles and 3,064 kilograms of fresh milk PE bottles, while providing employment opportunities for nearly a hundred families belonging to non-profit organizations, creating a win-win situation for public welfare groups, social enterprises and PCSC.



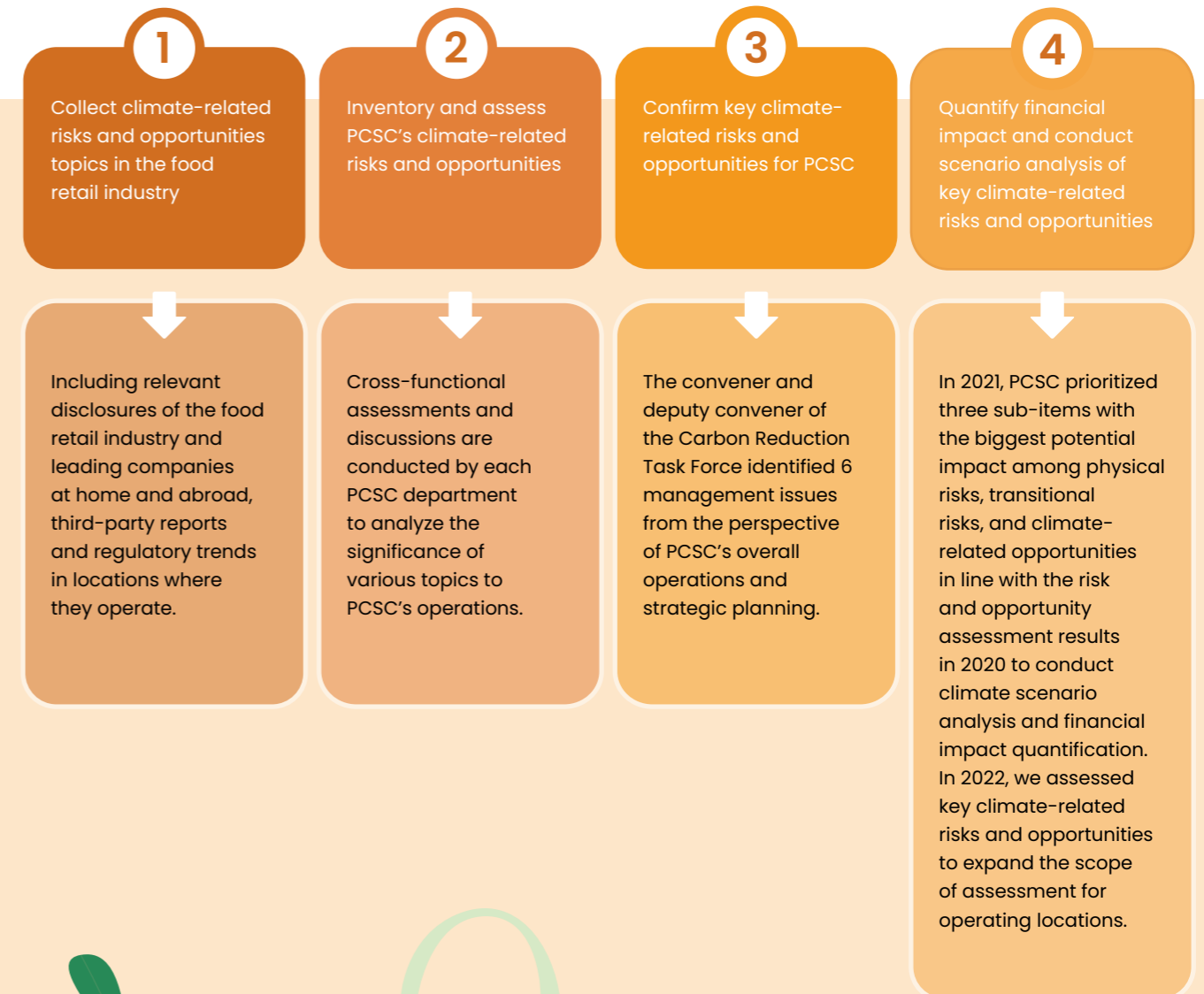
4.3 Climate Change Mitigation and Adaptation

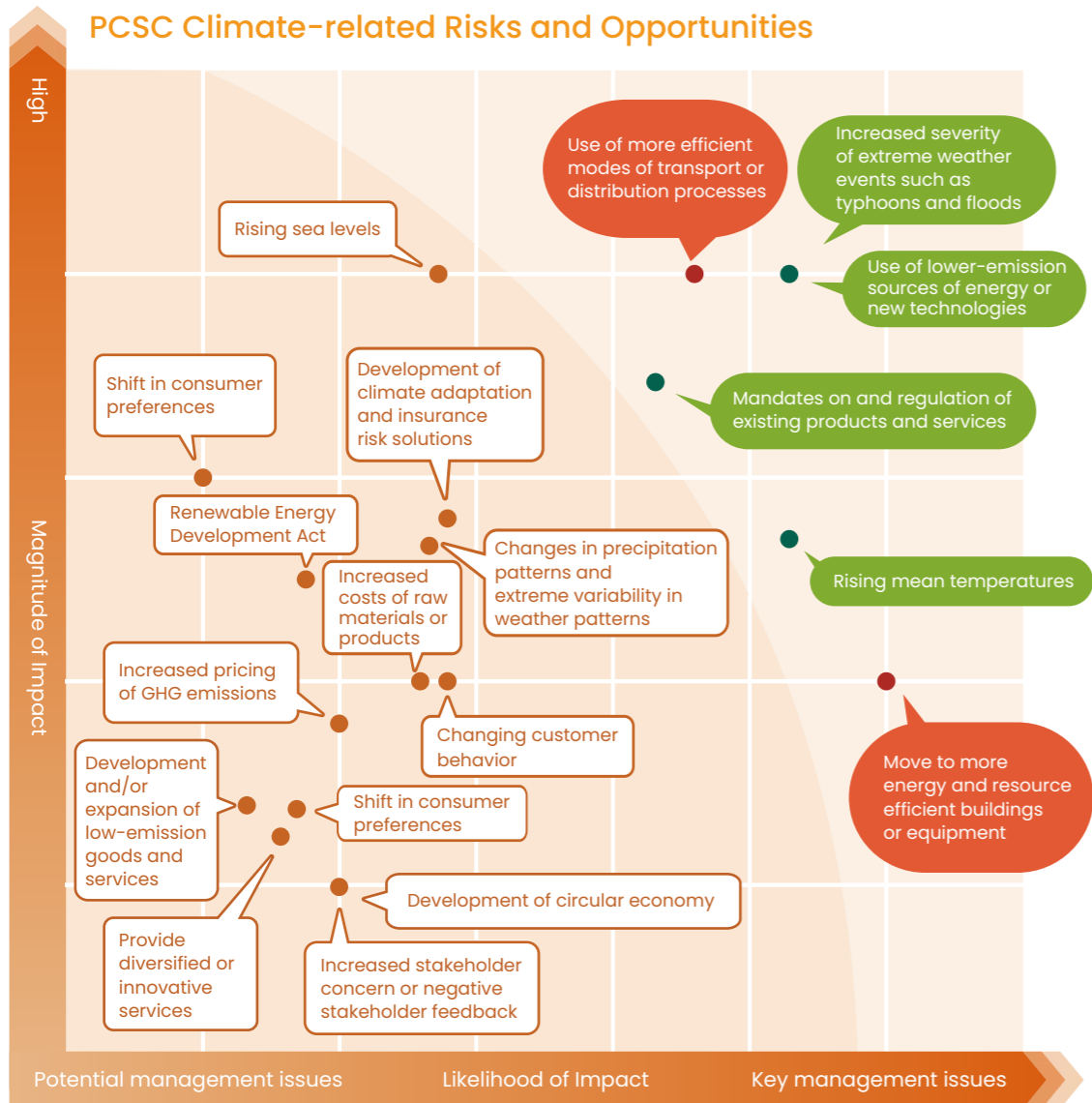
Climate Governance

PCSC's governance structure of climate change issues has the Board of Directors as the highest governing body. The management and control mechanism of relevant issues is built under the Sustainable Development Committee, with the working group in charge of issue management and risk assessment, and the Committee reporting the management and implementation of the issues to the Board of Directors on a regular basis. PCSC set up the Carbon Reduction Task Force in 2021 as the executive committee dedicated to assessing and managing climate change risks and issues. Climate issues are then reported to the Board of Directors by the Sustainable Development Committee. This group is convened by the Deputy Chairman of the Sustainable Development Committee, and function-specific tasks are assigned to each department's functions. Please refer to the "1.2 Sustainable Development Committee" for more details.

Assessment for Climate Risks and Opportunities

To understand the impact of climate change on the operations of PCSC, we have sorted out and assessed 6 major climate risks and opportunities topics according to the following procedures in 2020. In 2021, we further conducted scenario analysis and the financial impact quantification on three key climate risk and opportunity topics. Since there has been no major change in the industry structure and operational strategy for PCSC in recent years, the assessment of key climate risks and opportunities in 2022 expanded the scope for all operating locations with a main focus on the latest climate scenario information updates to stay tuned with the impact of physical and transitional risks on PCSC's finances.





(For a detailed description of the assessment of the 6 key climate-related risks and opportunities, please refer to PCSC's 2020 CSR Report – Response and Management of Key Climate-related Risks and Opportunities)

Key Topic I: Physical Risks

In view of the physical risks of “increased severity of extreme weather events such as typhoons, floods and snowfall,” the probability of flooding, equipment damage, power and water outages may increase with an impact on store operations. Besides store operations, these events might also cause physical risks to upstream logistics and downstream customers, like delivery, customer inconvenience and product unavailability. We evaluate the risk of flooding in the middle of this century (2050) for all stores in Taiwan under different climate scenarios.

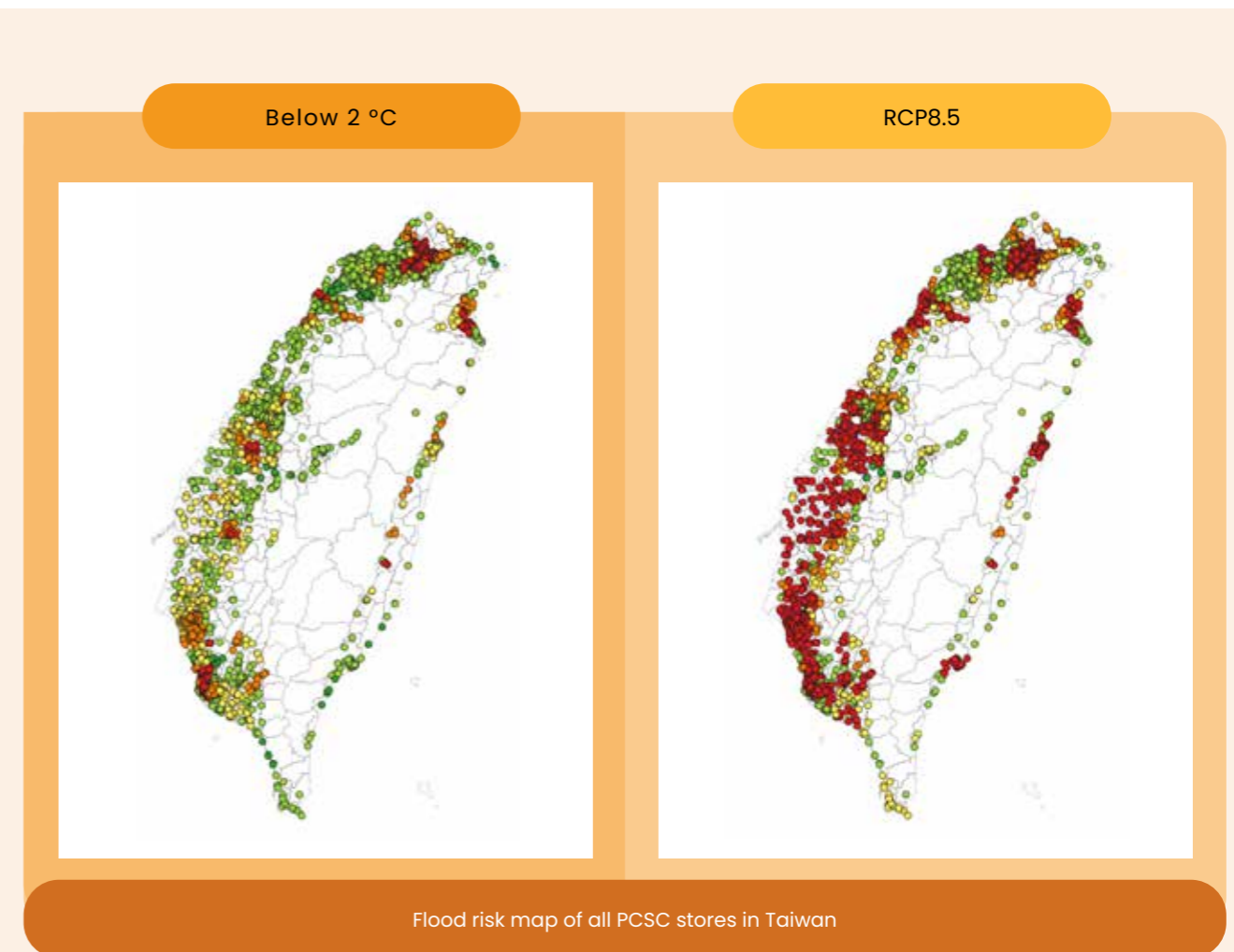
Selected Scenarios, Parameters and Assumptions

- Below 2°C scenario: According to the level of flood risks of the National Science and Technology Center for Disaster Reduction (NCDR) during the base period (1976–2005), we assume that the temperature increase does not exceed 2°C by the end of this century, and the climate and environment will remain the same as the current situation to assess the risk level of flooding in stores in the middle of the century, and evaluate the financial impact of flooding of impacted stores.

- RCP 8.5 Scenario: According to NCDR's future projection of the level of flood risks (2036–2065) in the RCP 8.5 scenario, the level of flood risks and the financial impact of flooding in impacted stores are evaluated in the middle of the century (2050) under the high warming trend.

Methods and Results

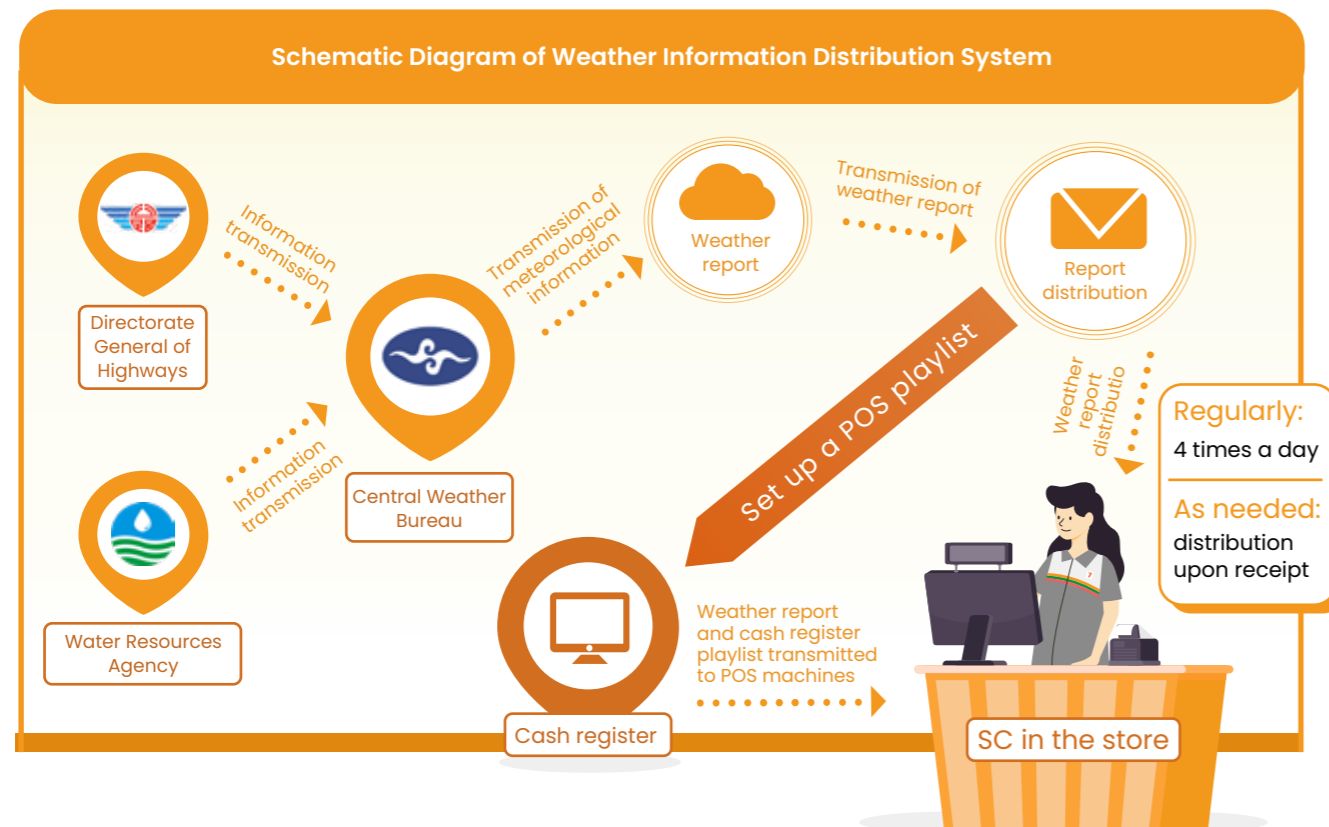
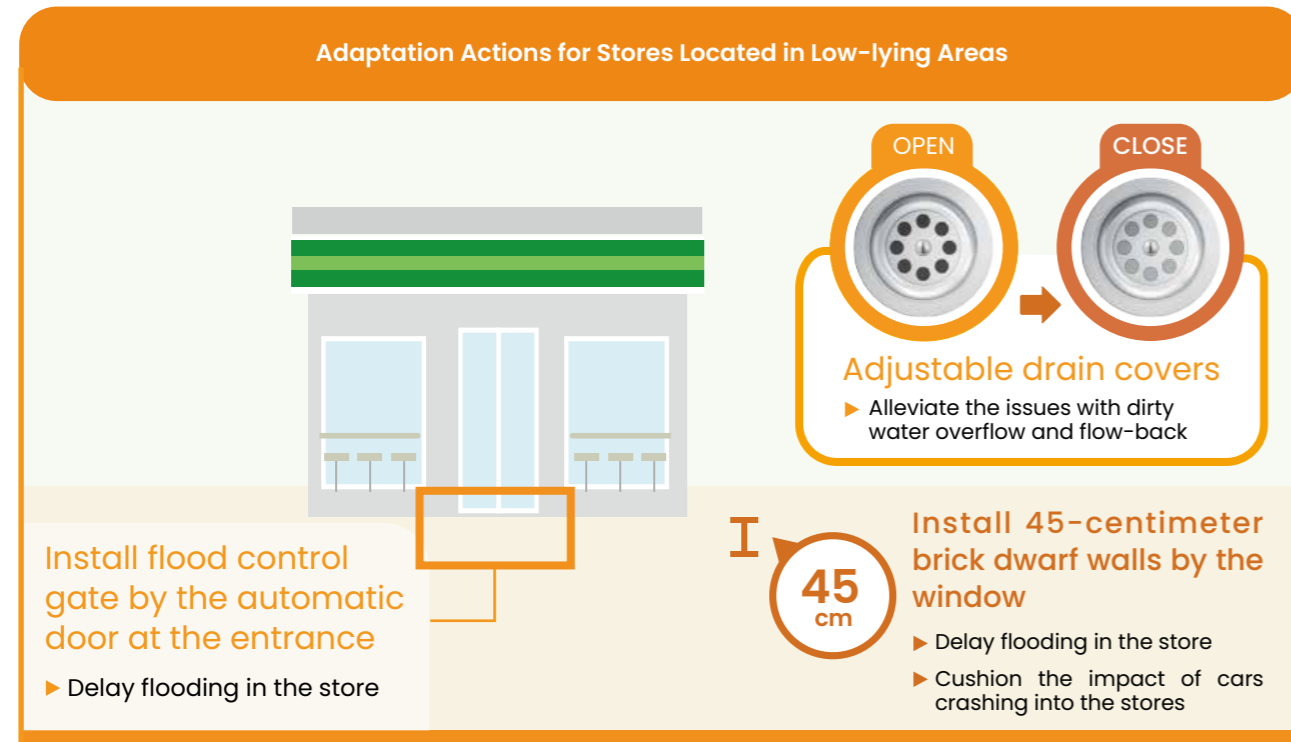
- Comparing the locations of all stores in Taiwan in 2022 with the NCDR risk classification, the number of stores with high flood risks (level 5):
 - Below 2° C: 26.77% of total stores in 2022
 - RCP 8.5: 64.36% of total stores in 2022
- Based on historical experiences and assuming that when a store in a high-risk area encounters flooding, the store will not be able to operate and with damage to store equipment, the estimated cost from a drop in revenue and increase in equipment repair costs in the middle of the century is approximately:
 - Below 2°C: The financial impact of potential flooding in the middle of the century will affect the revenue by about 0.05%
 - RCP 8.5: The financial impact of potential flooding in the middle of the century will affect the revenue by about 0.11%



Legend: Levels of Risk ● Level 1 ● Level 2 ● Level 3 ● Level 4 ● Level 5

Adaptation/Management Strategies:

To reduce the impact of flood risks on stores, PCSC has formulated the “Construction Specifications for Flood Control Gates and Dwarf Walls in the Stores Located in Low-lying Areas” and the “Weather Information Distribution System” to immediately notify the stores of the weather and issue flood warnings, so as to reduce the risks caused by flooding. In addition, to reduce the losses caused by flooding in the stores, PCSC has formulated emergency response procedures for risks, standardized the logistics and distribution contingency mechanism, and purchased property insurance against natural disasters for the stores to reduce the financial impact of losses.



Key Topic II: Transitional Risk

Considering that the Environmental Protection Administration amended the Climate Change Response Act, it is expected that carbon fees will be charged for large carbon emitters in 2024. Although the act has not been extended to the residential and commercial sectors at this stage, with the government’s net zero emission policy, PCSC has a high probability of being included in the carbon fee regulations in the future. To understand the potential impact in advance, PCSC assesses the potential financial impact under different scenarios in 2025 if PCSC is charged the carbon fee in the future.

Selected Scenarios, Parameters and Assumptions

- 1** Net-Zero scenario: According to Carbon Pricing Options for Taiwan (2020), an outsourced research report by Taiwan’s Environmental Protection Administration, it is recommended that the carbon fee of US\$52 is charged per tonne of CO₂e in 2025 to achieve net zero emissions in 2050.
- 2** Stated Policies Scenario (STEP): According to Carbon Pricing Options for Taiwan (2020), it is recommended that the carbon fee of US\$10 is charged per tonne of CO₂e starting in 2024 with a 10% increase each year. By 2025, the carbon fee will reach US\$11 per tonne of CO₂e in 2025.

Methods and Results

- 1** Based on the greenhouse gas emissions of PCSC in 2022 and potential future growth, the emissions in 2025 is estimated without imposing control measures in the business as usual(BAU) scenario.
- 2** The greenhouse gas emissions in 2025 is estimated in the BAU scenario with the carbon fees under different climate scenarios applied. The additional costs that may be charged are approximately as follows:
 - Net-Zero scenario: the increased costs in 2025 will account for about 0.43% of the annual revenue
 - STEP scenario: the increased costs in 2025 will account for about 0.09% of the annual revenue

Adaptation/Management Strategies:

Although the carbon fee has not been applied to PCSC, PCSC will continue to adopt a variety of energy-saving and carbon-reduction measures by gradually improving energy efficiency and reducing greenhouse gas emissions in the stores all over Taiwan to reduce the potential financial impact in the future.

- 1** **Introduction of renewable energy:**
In response to international carbon reduction requirements and to reduce the dependence on traditional electricity, PCSC introduced a photovoltaic system in Yawan store in 2022. As renewable energy certificate applications are still in process, the actual generation capacity cannot be presented.
- 2** **Introduction of energy management system:**
To promote energy conservation and energy efficiency improvement in the headquarters and stores, the headquarters building, and two stores maintained the ISO 50001 energy management system certification in 2022. Other bases also engage in energy management in the spirit and structure of the energy management system to continuously improve energy use.

3

Store energy conservation measures and achievements:

In order to effectively improve the energy efficiency of stores, PCSC has formulated basic requirements for equipment and store environment management for new stores, including heat insulation, energy-saving signboards, lamp reduction, reduction of window area, frequency conversion system and LED lamps, and indoor lighting management, as well as introducing the energy-saving windbreak room depending on the stores. Existing stores actively evaluate the feasibility of introducing various energy-saving measures and gradually replace high-efficiency equipment. In 2022, PCSC stores successfully saved 116,943,313 kWh of electricity and NT\$273,647,353 in electricity bills through five projects (as below), as well as reducing indirect emissions of 59,524 tonnes of CO₂e compared to 2021. In addition to the replacement of energy-saving equipment, all store employees have been trained to conduct regular inspections on air-conditioning, circulation fans, lighting, refrigerators and freezers, signboard windows and other equipment in accordance with the "Self-Inspections on Store Energy-Saving" to ensure that the equipment can maintain the efficiency. We also cooperate with the government and relevant academic institutions to improve the energy efficiency of our stores.

Store Energy-saving Actions		Quantity in 2022	Energy Saved		Greenhouse gas Emission Reduction (Metric tonnes of CO ₂ e)	Contribution to Energy-Saving Project Results
			kWh	GJ		
Inverter system	Inverter air-conditioning	3,270	53,284,171	191,823	27,122	46%
	Third-generation combination refrigerator	414	10,168,626	36,607	5,176	9%
	New energy-saving freezer	724	2,922,684	10,522	1,488	2%
Lamp number reduction, LED lamps and indoor lighting management	Arcade lighting energy-saving upgrade	9,195	2,779,092	10,005	1,415	2%
	Lighting upgrade in store	78,128	41,108,007	147,989	20,924	35%
Energy saving for signboards	Energy-saving improvement of horizontal signboard	20,138	5,791,873	20,851	2,948	5%
Improve heat exchange environment	Energy-saving windbreak room	134	888,862	3,200	452	1%
Total		112,003	116,943,313	420,996	59,524	100%

(Note 1) As the grid emission coefficient for 2022 has not yet been announced, a coefficient of 0.509 kg CO₂e/kWh in 2021 was adopted as the greenhouse gas emission parameter to calculate the greenhouse gas emission reduction.

(Note 2) The annual energy saving of each program is estimated by multiplying the measured value before and after the improvement of a single equipment by the total number of equipment replacements.

PCSC Store Energy-Saving Design

Capacitive auto controller

Concrete Measures

Automatically control the input and cut-out of capacitors according to the actual needs of various equipment in the store to reduce the abnormal failure of system power supply and store equipment, as well as reducing the failure rate of capacitors

Arcade Lighting energy-saving upgrade

Concrete Measures

Lamps are changed from the original adjacent layout to a spaced one to reduce the total number of lamps, as well as choosing LED lamps that saves 1/3 of the energy compared to T5 ones



Store lamp configuration

Concrete Measures

- Change the lamp configuration to reduce the total number of lamps needed
- Introduce LED lamps which save 43% of energy compared to T5 ones

Third-generation combination refrigerator

Concrete Measures

- DC exhaust fans, LED lighting and smart refrigerators are used for defrosting to improve the refrigerator's 24-hour energy consumption performance
- Install sensor glass doors to reduce air-conditioning leakage. In 2021, electric heater saver and non-electric freezer glass were added, as well as optimizing the combination of refrigerator door frames to achieve further energy-saving benefits



Energy-saving windbreak room

Concrete Measures

Considering space and legal feasibility, a buffer space is installed outside the automatic door to prevent the indoor air-conditioning from leaking and the mosquitoes and flies getting in

Optimizing the store's architectural design and reducing the window opening area





Concrete Measures

- Reduce sun exposure and open window area based on the store's geographical environment and architectural design to maintain the efficiency of the store's cold storage
- Taking the Hsinchu Tang store for example, the electricity bill before and after the energy-saving renovation saved NT\$6,209 on average compared with the same period of the previous year, with the daily consumption reduced by 125 kWh



4 Counselling for stores with high electricity bills

We continue to provide energy-saving counselling to stores with high electricity costs (Note 1). This year, we have sent staff from the headquarters to visit 492 stores with high electricity bills to discuss energy-saving measures. Compared to 2021, we saved a total of 1,380,188 kWh of electricity in 2022. Among the stores with high electricity bills, 60 are older ones. Comprehensive energy-saving renovations have been carried out in order to improve the energy efficiency of store operations. The overall electricity consumption has decreased by 929,521 kWh compared with 2021. Chuan Hsing store, located in Xindian, came out with the best result with a total electricity saving of 54,720 kWh, namely 28.1% compared to that of 2021, by replacing acrylic signboards, changing indoor lighting to LED lamps, and updating the store's machines outdoor to increase efficiency.

Energy-saving measure	Before the Energy-saving Renovation	After the Energy-saving Renovation
Replacing acrylic signboards		
Changing the island refrigerator to an open display cabinet		

(Note 1) Stores with high electricity bills are selected for those ones whose kWh of electricity consumption in the same period in 2022 exceeded the average of stores with the same floor area, and the kWh of electricity consumption increased compared with the same period in 2021 with a decline in operational performance.

5 Office Energy-saving Measures and Results:

The office energy consumption pattern of the headquarters building is different from retail stores. In addition to continuously updating energy-saving targets and metrics of the headquarters building, we continued to adopt the ESCO (Energy Service Company) energy-saving service system as a concrete measure to track electricity consumption and identify and reduce abnormal electricity consumption. By adopting strategies such as system efficiency improvement, equipment use timing improvement, employee energy conservation awareness and energy use monitoring, we aim to improve the energy efficiency of the headquarters building. In 2022, the electricity consumption of the headquarters building dropped by 110,645 kWh compared with 2021, showing a significant decrease. The reasons mainly include the adjustment of the temperature of the water chiller, air-conditioning indoor air blower timer setting, replacement of office lighting with LED lamps and turning off lights during lunch breaks and so on.

Improvement Measure	Air-conditioning System	Lighting System	Use of Electronic Appliances
System power improvement	<ul style="list-style-type: none"> • Adjust air-conditioning system parameters • Update energy-saving inverter independent air conditioners 	<ul style="list-style-type: none"> • Gradual replacement with LED lamps 	—
Timing improvement	<ul style="list-style-type: none"> • Use full heat exchanger to bring in fresh cool air in winter • The indoor air conditioner is equipped with timer settings. 	<ul style="list-style-type: none"> • Automatic lighting switch sensor • Reduce indirect lighting in the hallway • Reduce lighting during lunch breaks 	<ul style="list-style-type: none"> • Elevators, photocopiers, food heaters, water dispensers, refrigerators, etc. are turned off outside of office hours
Employee awareness raising	<ul style="list-style-type: none"> • Awareness-raising for energy-saving 		
Energy use monitoring	<ul style="list-style-type: none"> • Security inspection 		

Key Issue III: Opportunities

In response to the increasing severity of climate change, the world is turning its attention to carbon reduction and low-carbon transition. Taiwan's relevant regulations and policies are also developing net-zero emission pathways. With PCSC having many stores all over Taiwan, logistics is an important element in PCSC's operations. If we can transition towards low-carbon transportation in advance, it will contribute to the development of the national net-zero policy.

● Scenario for Analysis

Under the development of national net-zero policies such as the first phase of the Greenhouse Gas Reduction and Management Act and the Climate Change Adaptation Act, PCSC assessed the strategic impact in 2026 based on the low-carbon transportation transition plan and the PCSC energy efficiency in the transportation system and transportation vehicles under relevant planning.

● Transition Plan and Potential Opportunities and Benefits

PCSC's commitment to energy conservation and carbon reduction not only focuses on the stores and office areas. In order to take advantage of opportunities brought by the climate and low carbon, we also actively influence long-term logistics partners to gradually invest in corresponding management plans or actions. Various energy-saving and carbon-reduction methods can improve energy efficiency and reduce environmental impact, so as to increase the positive benefits brought about by addressing climate change issues through continuously adapting our operational strategies and responding to low-carbon operational needs in a timely manner.

Introduction of logistics vehicles with the latest environmentally-friendly standards

1

We are currently working on two aspects of our low-carbon transition plan:

To reduce the carbon emissions caused by logistics, PCSC replaced 62 older vehicles in 2022, purchased 4 phase V vehicles and 98 phase VI vehicles. PCSC expects to replace 267 phase III and phase IV environmentally-friendly vehicles by 2026, as well as purchasing a total of 267 phase V ones. Please refer to the sustainability column for further details.

Distribution automation, energy saving and carbon reduction measures

Average annual savings:

NT\$ **83.19** million in labor costs

102,441 kWh of electricity

82,773 liters of diesel

267.1 Metric tonnes of CO₂e reduction

664.7 Metric tonnes of carbon emissions

Optimizing the internal operation procedure and equipment

We plan to introduce distribution automation to the internal operational environment and equipment in the logistics centers to reduce the picking load of personnel, walking distance, etc., saving the operating time of human distribution. In the meantime, lighting and air-conditioning in the logistics centers have been upgraded with traditional industrial fans replaced by large MagLev ones to improve the energy-saving benefits of the overall internal operations.

2

Logistics Company	Energy-saving Action	Amount of Energy/ Resource Saved	Amount of Energy Saved (GJ)	Greenhouse gas Emission Reduction (Metric tonnes of CO ₂ e) ^(note1)
Uni-President Cold-Chain Corp(UPCC)	<ul style="list-style-type: none"> Replacement of 318 LED lamps Replacement of 26 Inverter air conditioners 	199,237 kWh of electricity saved each year ^(note1)	717.3	104.41
Wisdom Distribution Service Corp.	Installed 52 large MagLev fans to replace traditional industrial ones.	1,480,535 kWh of electricity saved each year ^(note2)	5,329.9	754.59

(Note 1) Each replaced lamp is estimated to save 24 kWh of electricity for UPCC, calculated based on the daily time of use at the locations 365 days a year. The 26 air-conditioners are expected to save consumption by 70kWh, calculated based on 6 hours of use a day and 365 days a year.

(Note 2) Wisdom Distribution Service Corp. replaced 52 traditional industrial fans with large MagLev fans in distribution centers located in Shulin, Sanxia, Luzhu, Daxi, Xioushui, Yongkang and Benjhou. The statistics is calculated based on the daily time of use at the locations 365 days a year.

(Note 3) As the grid emission coefficient for 2022 has not yet been announced, a coefficient of 0.509 kg CO₂e/kWh in 2021 was adopted as the greenhouse gas emission parameter to calculate the greenhouse gas emission reduction.

(Note 4) Aforementioned resource and savings as well as reduction in greenhouse gas emissions are all calculated with 2021 as the base year.

Key Performance Metrics and Targets

Greenhouse gas Emissions

PCSC's main business locations include stores (including retail stores and shopping centers) and offices (including the headquarters, regional offices and training centers) around Taiwan and on outlying islands. We have conducted greenhouse gas inventory in line with ISO 14064-1:2006 since 2017 to stay updated with the overall greenhouse gas emissions. In 2020, we adopted the updated ISO 14064-1:2018 as reference for greenhouse gas inventory as well as passing third-party certification. We have also continued to expand the scope of sites on inspection. The scope of the greenhouse gas inspections in 2022 covered 6,791 bases, with the coverage rate of 99.55% for the greenhouse gas inspection boundary.

Operating Locations with ISO 14064-1:2018 Certification in 2022

Stores (Retail stores and shopping centers)	Offices and training center
6,782	9
A total of 6,791 locations	

(Note) The 6,754 stores inventoried in 2022 include the 122 stores that have moved or closed in 2022

Type of Emissions	Description	Volume(Metric tonnes of CO ₂ e)
Direct Emissions (Scope 1)	Refrigerant, marsh gas, company vehicles, CO ₂ for beer on tap	29,940.01
Indirect Emissions (Scope 2)	Electricity consumed from stores, headquarters, shopping centers, regional offices and training center	504,544.40
Indirect Emissions (Scope 3)	Procurement of upstream products, gas used for deliveries by the logistics center, waste disposal in stores and headquarters, power loss during power distribution and disposal of product packaging materials	2,393,290.28
Total greenhouse gas emissions		2,927,774.68

(Note 1) Greenhouse gas inventory adopts the ISO 14064-1:2018 methodology. The organization boundary is set using operational control. The greenhouse gas emission coefficient refers to the Electricity Emission Coefficient set by the Bureau of Energy, Ministry of Economic Affairs, the Environmental Protection Administration's Emission Coefficient Management Table 6.0.4 and the Environmental Protection Administration's Product Carbon Footprint Information Network. GWP adopted the values of the fourth assessment report of the IPCC in 2007. If there is no reference value in the IPCC 2007 Fourth Assessment Report, the IPCC 2013 warming potential value is quoted.

(Note 2) The calculation for indirect emissions from purchased electricity is based on location. Since the grid emission coefficient for 2022 has not been announced, the coefficient of 0.509 kg CO₂e/kWh in 2021 is adopted as the calculation parameter.

(Note 3) The types of greenhouse gas covered by the inventory include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆) and nitrogen trifluoride (NF₃).

(Note 4) The carbon dioxide emissions from biological sources are zero.

Direct Emissions

The main source of direct emissions from PCSC is the refrigerant leaked from store freezing, refrigeration and air-conditioning equipment. The emissions in 2021 are calculated based on the refrigerant refill of the equipment warranty system for the refrigerant equipment failure maintenance. The result accounted for 92.62% of the direct emissions, with the proportion of refrigerant not containing ozone-depleting refrigerant as 100%.

Emission Equipment	Emission Source	Direct Emissions (Metric tonnes of CO ₂ e)	Percentage of Direct Emissions (%)
Refrigerators and air conditioners	R404, 410, 134	27,729.46	92.62%
Gas for company cars	Gas	193.61	0.65%
Marsh gas from septic tank	Night soil (ammonia)	2,013.38	6.72%
Beer machine	CO ₂	3.55	0.01%

Indirect Emissions

The 2022 indirect emissions survey was evaluated in accordance with the principle of materiality. Significant indirect greenhouse gas emission sources include indirect greenhouse gas emissions from purchased electricity, upstream emissions, cargo distribution and waste treatment. Among them, the emission of purchased electricity is the main source of indirect greenhouse gas emissions.

The greenhouse gas inventory shows total purchased electricity used by all the inventoried operating locations in 2022 was 99,125 kWh, resulting in indirect greenhouse gas emissions of 504,544.40 tonnes of CO₂e, an increase of 8.5% compared to 2021 emissions. The amount of purchased electricity increased by 65.08 million kWh in 2021, mainly due to 412 new stores and additional freezers, electronic displays, and ice makers in response to changes in the customers' shopping habits during COVID-19 pandemic. PCSC will continue to promote energy saving in stores and offices, carbon reduction in logistics and transportation, as well as evaluating the expansion of photovoltaics or the purchase of renewable energy so as to gradually achieve the reduction target for 2025.

Indirect Emission Source		Indirect Emissions (Metric tonnes of CO ₂ e)	Percentage of Indirect Emissions (%)
Electricity	Emissions from purchased electricity ^(Note)	504,544.40	17.41%
	Upstream emissions from purchased electricity	87,427.93	3.02%
Purchased products	Emissions from purchased products	2,228,830.56	76.76%
Emissions from upstream transportation and cargo distribution	Diesel fuel from distribution and transportation from logistics centers to stores	60,514.67	2.09%
Discharges from solid and liquid waste treatment	Store waste disposal	15,505.16	0.54%
Emissions from end-of-life stage of products	Packaging materials Disposal	1,011.96	0.03%

(Note) 100% of purchased electricity comes from electric grid.

Energy Use

The PCSC Yawan store opened in 2022, with renewable energy integrated into the store design. The photovoltaic system was incorporated to increase the use of renewable energy in the future. Please refer to the Sustainability Column – "Energy Transition" for details. As renewable energy certificate applications are still in process, the actual generation capacity cannot be presented.

In 2022, the total electricity consumption of all the inspected locations reached 991,246,355.69 kWh, with the 3,571,172.07 GJ energy consumption. The utilization rate of renewable energy was 0%, and the percentage of purchased electricity was 99.92%, respectively. As for the upstream transportation, energy consumed for diesel used for distribution and transportation from logistics center to the stores was 629,689.17 GJ.

Energy-consuming Equipment	Source of Energy	Consumption	Energy Consumption (GJ)	Percentage of Energy Use
Gas used for company cars	Gas	82,136.35 Liters	2,682.46	0.08%
Electricity use from store operations	Purchased electricity	991,246,355.69 kWh	3,568,486.88	99.92%
Total Energy Consumption			3,571,169.34	100.00%

Energy Efficiency Metrics and Targets

Since most stores are open around the clock, their electricity consumption pattern is different from that of the headquarters, regional offices and training center. To effectively monitor the electricity consumption of stores and gradually improve their energy efficiency, we set up an EUI and reduction targets for stores as well as tracking the progress each month.

The electricity intensity reduction target for stores in 2022 was 886.5 kWh/m², a decrease of 0.5% compared to 2021. The actual energy intensity of our stores was 833.2 kWh/m² in 2022, showing a 3% decrease from 2020. We have reached our energy intensity reduction target this year.

EUI ^(Note)								
Year	2015	2016	2017	2018	2019	2020	2021	2022
EUI	1,046	1,011	1,008	962	947	919	891	833
Percentage of Decrease	-4.39%	-3.35%	-0.30%	-4.56%	-1.56%	-2.96%	-3.05%	-6.46%

(Note) The EUI of stores is calculated as the electricity consumption per ping (approximately 3.3 square meters) based on the data provided by Taiwan Power Company each month. The EUI for stores in areas without any data from Taiwan Power Company is estimated on the same basis. The two are added to produce the total electricity consumption that month, which is then divided by total floor area.

Greenhouse Gas Emission Intensity Metrics and Targets

Considering that the largest greenhouse gas emission source of PCSC comes from electricity consumption of the stores, and that the electricity consumption is intertwined with the store size, equipment and business model, which will eventually be reflected by the revenue, we calculated the emission intensity per NT\$ million in revenue as reference for the reduction target for overall greenhouse gas emissions. To effectively manage greenhouse gas emissions of PCSC's own operations and its value chain, we re-examined the goal setting method in 2021 and separated the greenhouse gas emissions of our own operations and value chain management in target setting. In our own operations, the greenhouse gas emission intensity of Scope 1 and Scope 2 is set to be reduced by 7% in 2025 and 14% in 2030, using the 2020 greenhouse gas inventory, 2.99 tonnes CO₂e/NT\$ million turnovers, as the benchmark to set the greenhouse gas emission intensity target. In 2022, the COVID-19 pandemic indirectly affected the electricity consumption in the stores. The greenhouse gas emission intensity was 2.92 tonnes CO₂e/NT\$ million turnovers, a decrease of 2.35% compared with the base year. In addition, in terms of value chain management, we are actively optimizing the inventory items and methods of Scope 3 emissions. In the future, we expect to introduce Science-Based Targets (SBT) to strengthen the carbon management of the entire value chain with updated medium- and long-term targets. It is hoped that PCSC can be the pioneer in the industry as well as an important partner for Taiwan in achieving its net-zero emission goal.

4.4 Food Waste and Waste Management

Food Waste and Waste Management Strategy

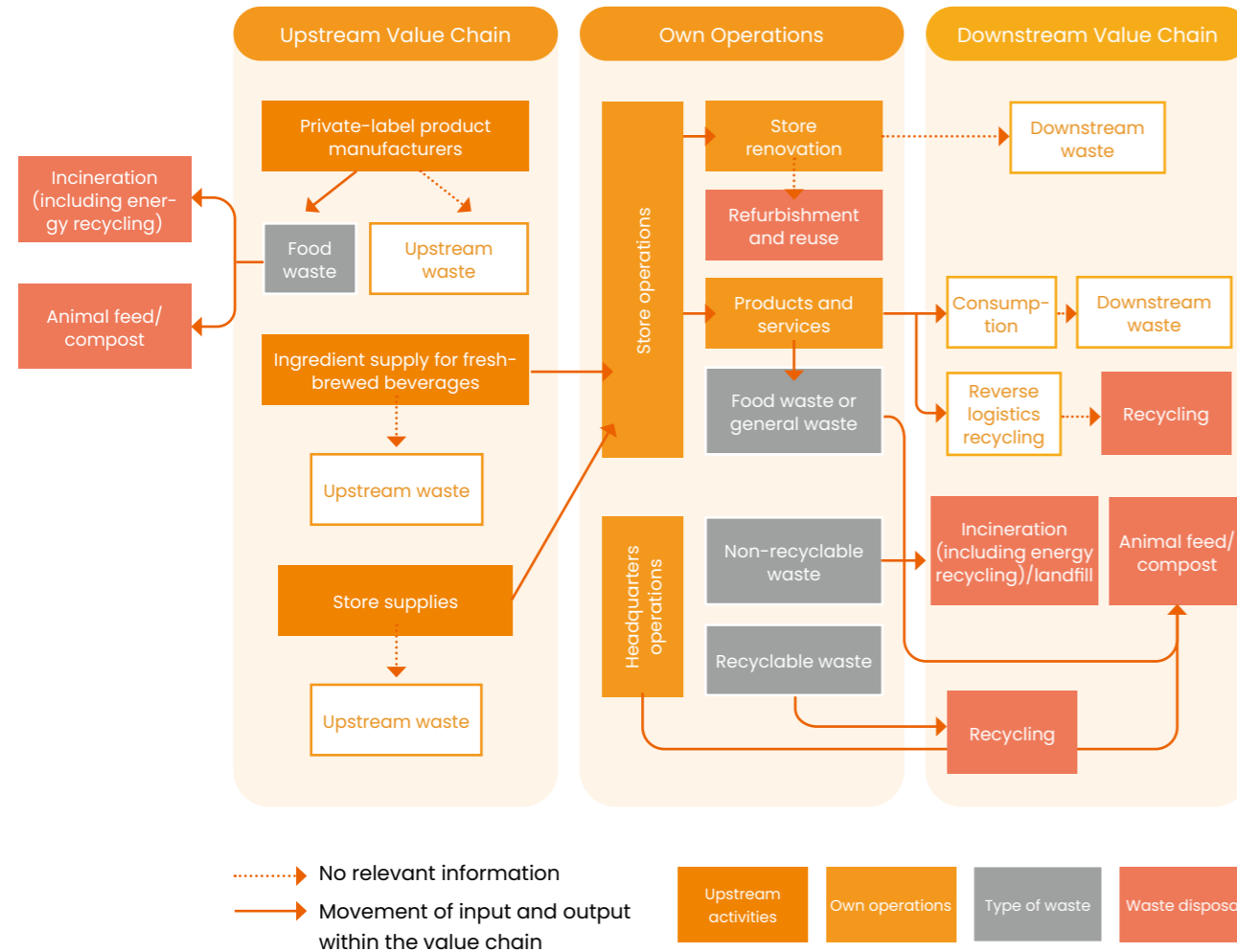
The busy pace of modern life gave rise to the services of compound retail stores such as convenience stores. The introduction of new products and services has made convenience stores an indispensable part of a convenient modern life. However, convenience also gives rise to the use of more disposable commodities and packaging consumables. As the leader with the largest number of stores and the most widely distributed stores, PCSC cannot shy away from the responsibilities regarding food waste and waste.

The waste produced by PCSC is mainly domestic waste, which belongs to the general waste and general industrial waste as categorized by the Environmental Protection Administration with no hazardous industrial waste. The generation of bulk waste is closely related to store operations, including operational waste from upstream fresh food manufacturers, general waste (food waste, general household waste, etc.) generated by store services, and recyclables generated from the stores' reverse logistics mechanism, etc. In 2022, the non-recyclable waste generated by the stores and headquarters activities reached 42,992.12 tonnes, accounting for 1.0% of the national waste for incineration. If PCSC fails to properly handle and reduce waste, not only will it put a heavy burden on the incineration plants, but it will also exacerbate the subsequent environmental impact caused by waste incineration. PCSC follows the 3R principles in the overall waste management strategy to reduce, recycle, reuse, as well as minimizing non-recyclable waste. In addition to controlling the amount of waste generated and ensuring proper disposal, PCSC effectively combines "convenience" and "recycling" through its many bases to help people recycle electronic waste. Although the packaging waste generated by products and services is not included in the scope of our own operations and belongs to the downstream waste of the value chain, we are still concerned with the environmental impact of plastics. To this end, we work on the three aspects of "reduction at the source," "innovative packaging" and "encouraging people to bring their own containers" to fulfill our social responsibility, as well as further promoting the recycling mechanism in stores to gradually reduce the society's dependence on single-use plastics (for detailed packaging material management measures, please refer to [4.2 Packaging Material Management](#)).

The food waste generated by convenience stores is another important issue that PCSC cannot shy away from. The lifecycle of food waste generated by PCSC operations can be divided into four phases according to the supply chain process, including food waste produced by upstream manufacturers, losses in logistics and transportation operations, scrapped fresh food, and food waste from store operations. Food waste that cannot be properly disposed of is not only a waste in food ingredients but will also a food security problem. Furthermore, it will also emit greenhouse gas while decomposing in landfills, aggravating the greenhouse effect. After announcing the target of halving food waste by 2030 in 2020 (with 2019 as the base year), PCSC took a detailed inventory to find out where food waste went and started implementing four policies in 2021, including reducing the amount of scrapped fresh food year by year, reducing production loss at the manufacturers, reducing loss during logistics operations, and increasing the recovery of food waste in the stores. PCSC regularly tracks performance through these four metrics and continues to reduce food waste and loss to ultimately reduce food waste at the source (please refer to the [Sustainability Column – Food Waste Management](#) for further details).

Waste Generation and Process Flow Management

PCSC's Waste Generation Process



To understand the amount and process flow of waste, PCSC collects and calculates the amount of waste at each operating site on a yearly basis. The headquarters building signs an agreement with a waste management company, which calculates the amount of waste generated and treats various types of waste in a manner that complies with the laws. Regarding the retail stores, only Taipei, New Taipei City and Taoyuan City at present require convenience stores to dispose of waste separately from other entities, while waste from stores located in other counties and cities is disposed of with household waste. Besides the stores that are obliged to dispose of waste separately, PCSC has formulated a plan to encourage stores from other cities and counties to also outsource waste management with the aim to better control the amount of waste generated by retail stores. In addition to its own operational waste, PCSC also attaches great importance to the waste management of fresh food manufacturers in the upstream value chain. We regularly calculate the amount of food waste generated by the manufacturers and track the food waste disposal methods to better understand the situation of food waste. The recyclable waste from the stores mostly comes from packaging cartons and the electronic waste people bring in. Please refer to the ["Convenient Recycling Platform"](#) for further details.

Waste Management Performance

In 2022, a total of 1,110 stores and the headquarters building have entrusted waste management to dedicated companies, which reported the amount of waste diverted and disposed as well as removal and treatment methods for different kinds of waste, including food waste and general household waste, whereas waste produced by other stores and offices (general household waste) is harder to measure. Therefore, the amount of waste produced by a single store or per capita is used for estimation. Scrap items are estimated based on the date, and the disposal method of waste that was not outsourced to cleaning companies is speculated based on national waste disposal announced by the Environmental Protection Administration for the current year.

In 2022, the total amount of non-recyclable waste from store operations and headquarters activities was 43,922.12 tonnes. To effectively manage non-recyclable waste (excluding food waste) in stores, PCSC takes 2019 as the base year and sets the average waste generated by a single store as the target to reduce 13% in 2022 compared with the base year. A 40% reduction from the base year is targeted for 2025. In 2022, the amount of waste generated by a single store is 5.80 tonnes, a decrease of 31.24% compared with the base year. The result is closely linked to multiple waste reduction measures actively introduced by PCSC, causing the 21.72% decrease of average disposal weight from a single store compared to the previous year. In the future, we will continue to track waste data and actively promote recycling, reuse and plastic reduction to strengthen the management of non-recyclable waste in our stores.

PCSC Waste Generation and Disposal in 2022

Waste Disposal ^(Note 1)	Waste Composition	Location of Waste Generation ^(Note 2)		
		Upstream (Metric tonnes)	Own Operations (Metric tonnes)	
Off-site	Animal feed/compost	Food waste	2,515.14	3,294.16 ^(Note 3)
Off-site	Incineration (including energy recovery)	Food waste	380.14	5,449.14
Off-site	Landfill	Food waste	-	376.79
Off-site	Recycling	Recycled plastics	-	681.99
Off-site	Recycling	Paper	-	8,954.29
Off-site	Recycling	Metal	-	24.68
Off-site	Recycling	Batteries	-	365.68
Off-site	Recycling	Optical discs	-	76.72
Off-site	Recycling	Electronic appliances	-	78.31
Off-site	Landfill	General household waste	-	2,451.89
Off-site	Incineration (including energy recovery)	General household waste	-	36,091.08

(Note 1) Waste disposal data at the headquarters building and the stores that outsource waste management was collected from the outsourced cleaning companies. The proportion of waste incineration and landfill at other stores and operating bases was considered as 93.53% based on 2022's national general waste disposal published by the Environmental Protection Administration.

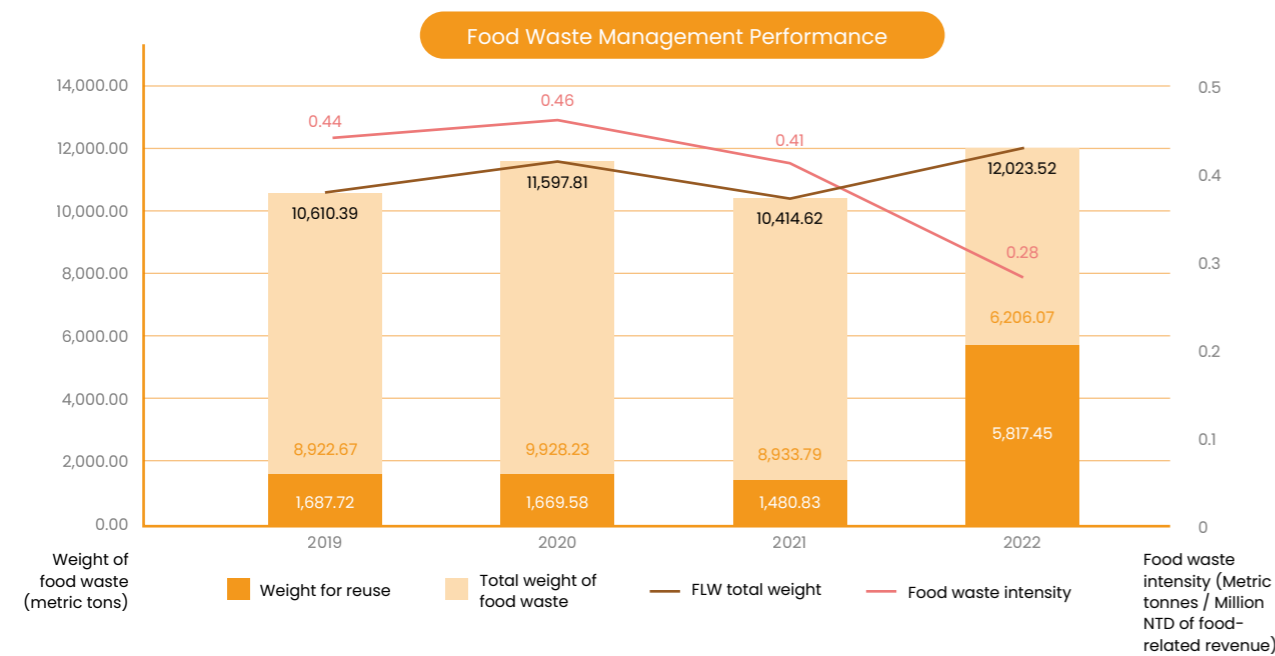
(Note 2) The scope of data for our own operations includes the headquarters, regional offices and stores. The scope of data from the upstream covers 12 manufacturers.

(Note 3) The data before 2021 only covers Taipei City, New Taipei City and Taoyuan City. The data from 2022 covered all stores in Taiwan.

Food Waste Management Performance

In addition, PCSC inventories the production and sales of private-label products from manufacturing to retail to understand the amount of food loss and waste at each stage, in order to better organize more appropriate measures for reducing food waste. The total amount of food waste generated in 2022 was 12,023.52 tonnes, increasing 15.45% from 2021. The reasons include scope expansion for manufacturers from 4 to 12 this year, number of stores and continuous growth in fresh food sales. The food reuse ratio was 48.38% (mainly for animal feed/compost) in 2022, with a significant growth compared to 14.22% in 2021. The actual weight of food waste was 6,206.07 tonnes with a decrease of 30.5% from 2021.

PCSC will continue to strive to lower food loss and waste, and increase the kitchen waste recycling in the stores as main management strategies to optimize our collaboration with outsourced cleaning companies, as well as encouraging all stores to follow our lead in making an effort towards food waste management.



Food Waste and Waste Reduction Actions

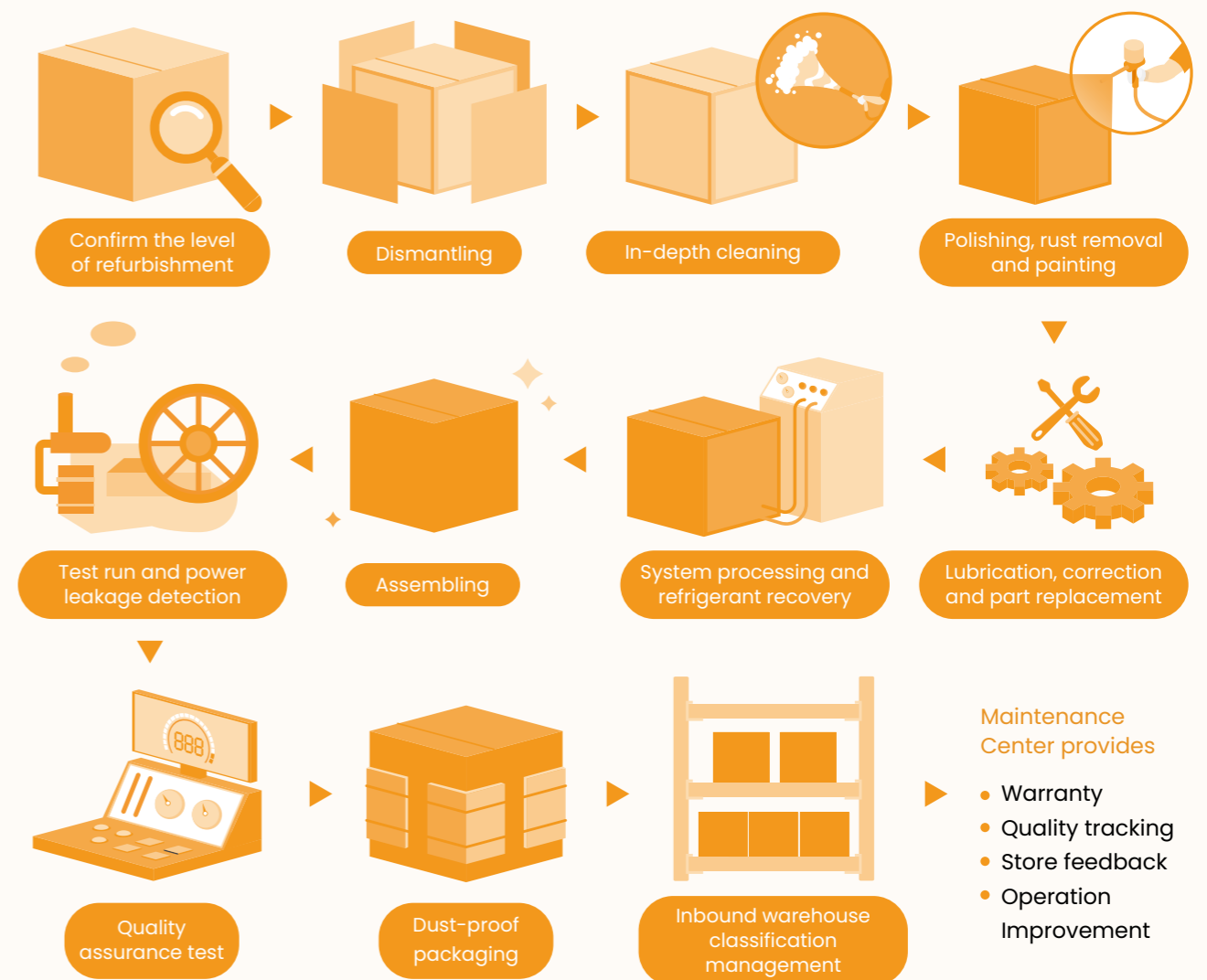
Convenient Recycling Platform

By taking advantage of the multiple bases, PCSC effectively combines “convenience” with “recycling” in helping people recycle electronic waste, including batteries, laptops, optical discs, mobile phones and chargers. To encourage people to recycle through convenience stores, PCSC provides NT\$3 to NT\$120 of store credit. The recyclable waste collected is shipped and distributed through the intensive and comprehensive logistics network, then classified and processed after being collected by the reverse logistics system.

Store Equipment Reuse

In order to provide the most convenient products and services, it relies on a large number and variety of machines. As the wear and tear as well as out-of-service machines cause a great burden on the environment, we have made good use of our flexible dispatch system and a great number of stores to set up the Equipment Refurbishment Center. The recycling system works on existing equipment from renovated and shut down stores, such as air conditioners, refrigerators, oden cooking machines, microwave ovens and so on. It is returned and put to use after inspecting, cleaning and repairing to reduce waste of resources and waste generation, while also saving on equipment procurement costs. In 2022, 25 types of equipment were refurbished and put to use, with the total number of 2,493 machines and saving a total amount of equipment procurement costs of NT\$83,599,740.

Equipment Refurbishment Process



Upgraded iLove Food Program and Reducing Food Waste with Technology

As the leader in the retail industry, PCSC is committed to reducing food waste. PCSC launched the iLove Food Map in the app in 2021 for consumers’ easy access to the iLove Food availability in each store, allowing them to take advantage of the convenient program. In 2022, iLove Food prevented the generation of 9,780.15 tonnes food waste with an increase of 3,312.75 tonnes from 2021. In addition to working together with consumers to reduce food waste, we extended the shelf life of food in 2022 by taking advantage of new technologies, such as the high-temperature sterilization equipment and special sealing film to reduce food waste from overstock. Please refer to the Sustainability Column–Food Waste Management for more details.

Waste Reduction in Headquarters

To encourage employees to save resources, the PCSC headquarters set “paper-saving” as an internal management metric. Employees are encouraged to replace printing, scanning and photocopying with electronic files and double-sided printing, etc., in order to reduce the amount of paper used in office and administrative processes. The paper consumption per capita in 2022 decreased by approximately 2.5% compared with the previous year. In addition, the headquarters building has also continued the recycling program. In 2022, the weight of recycling reached a total 17,825.9 kilograms, a decrease of about 14% over 2021 due to the fact that most employees were working from home during the COVID-19 pandemic, reducing recycling amount from the headquarters building.