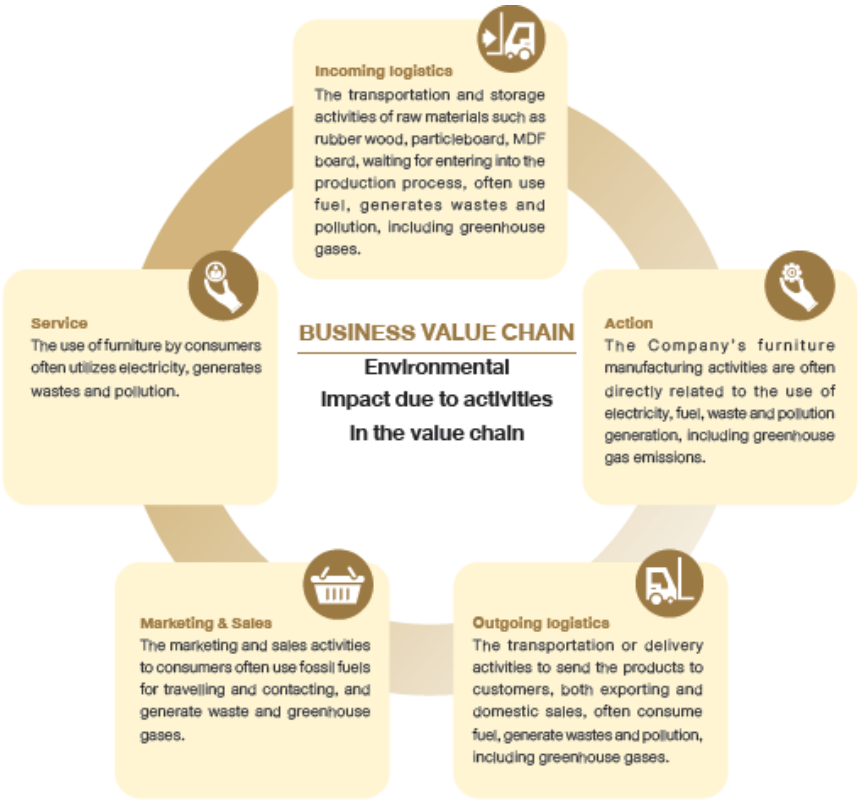
Environmental Policies and Practical Guideline

The Company gives precedence environmental impact occurred from the Company's business process either directly or indirectly, the environmental policies and practical guidelines are under control from environmental friendly production process of products and services in every procedure to reduce the use of energy, water, waste generation, wastes and pollution, including reducing the amount of greenhouse gas emissions, also cultivates its employees to be aware of environmental care, to know how to utilize natural resources for utmost benefits, whether being waste sorting, cleanliness inside the building area, plant and surrounding area, as well as to cultivate the concept of Circular Economy in order to step up to change the production process of products and services in compliance with the said economic system through the concept of "take-back system" in the process for returning the usable raw material waste into the new process to reduce wastes as much as possible.

In the formulation of environmental policies and practices, the Company conducted the value chain analysis and environmental impact as follows:



Above table could lead to a summary of 4 environment-relevant issues as follows:

1. Energy consumption such as fossil fuel, electricity
2. Water consumption
3. Generation of wastes and pollution
4. Greenhouse Gas Emissions

In order to ensure that the Company have guidelines and a reliable environmental and safety management system, the Company has been certified of quality management system standard ISO 9001:2015 (ISO 9001 – Quality Management System). In addition, the Company also annually inspects the environmental and safety performance and has a policy as an important principle to achieve the effective use of resources as follows:

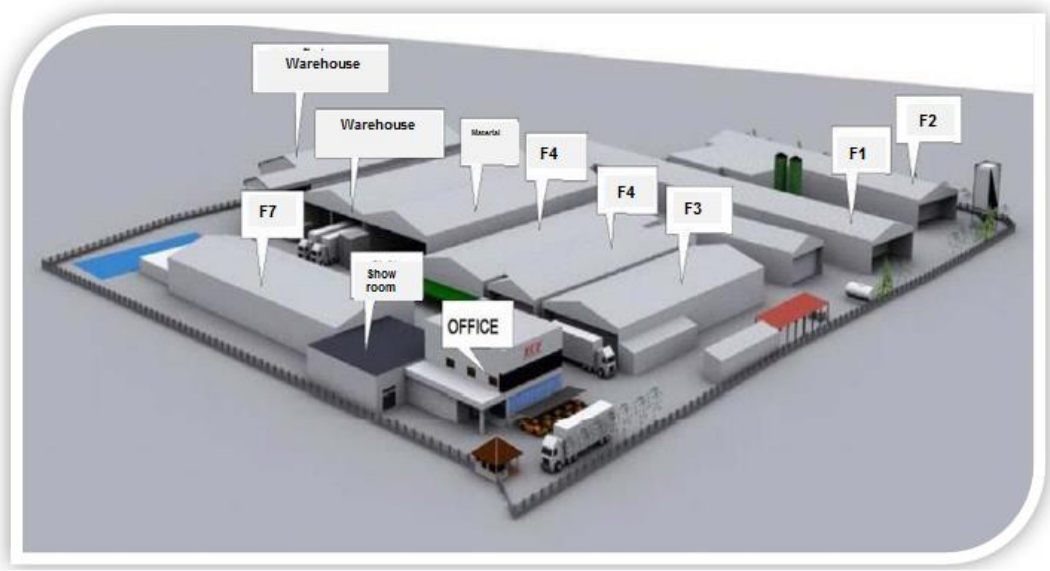
1. Support a monitoring approach in the operations that may affect the environment.
2. Promote activities to enhance environmental responsibilities.
3. Promote the development and dissemination of environmentally friendly technologies

Cultivating the concept of Circular Economy to change the production process in accordance with the said economic system through the concept of "Take-back System".

In addition, the areas responsible for maintaining cleanliness has been separated for zoning and for protecting the environmental condition inside the plant area as shown in below diagram.

Zoning of areas to be responsible in cleanliness and environment inside the plant area

Head Office Branch, Rayong Province



Environmental Management Target

The Company has set the environmental management targets and practices that are consistent with short-term and long-term business strategies as follows:

Target	Practices
1. To aware on the wise use of electricity and fuel	Cultivate the concept on wise using electricity and fuel and manage energy for maximum efficiency
2. To reduce the fossil energy consumption	Consider and choose to use clean energy or renewable energy
3. To prevent water shortage problem	Cultivate the concept of wise use of water and manage water for maximum efficiency
4. To prevent water quality deterioration	Wastewater treatment, water source conservation and development
5. To prevent the problem of inequitable or unequal access to water resources.	Water management with good governance and community consideration
6. To reduce the volume of wastes generated in the furniture manufacturing process, the amount of solid wastes and plastic wastes inside the factory	1. Improving the style of production process or adjust the style of products, packaging to reduce the use of raw materials or materials in production. 2. Cultivating the Circular Economy concept to change the production process through the concept of "Take-back System". 3. Cultivating the idea of reducing the use of plastics for waste reduction 4. Participating in the creation of awareness and the change of consumer behaviors
7. To reduce the problem of dust pollution in the air that arises from the production process	Controlling dust at the source or production process at the point where dust is generated
8. To prevent the problem of incorrect disposal of industrial wastes	Correct disposal of hazardous wastes, especially industrial waste
9. To take part in helping reduce the problems of global warming, climate change, greenhouse gas emissions without responsibility	1. Reducing greenhouse gas emissions 2. Preparing Carbon Footprint 3. Offsetting Carbon and trading Carbon Credits

Perfomance on Quality Environment

1. Energy Consumption

The Company has used energy in production process, services and offices, consisting of 2 parts:

- Electricity supplied by the Provincial Electricity Authority for the office and production in the plant at Head Office in Rayong Provinc, and Provincial Electricity Authority for Marketing Office at Lam Luk Ka branch office in Pathum Thani Province.
- Fuels such as diesel, benzine for using in transportation of products and the Company's office vehicles.

During 2021, the Company's electricity consumption and fuel consumption are as follows:

Unit : Baht

Type of Resources	Amount			
	2019	2020	2021	Difference between 2020 and 2021 (%)
Electricity	24,467,466.82	24,512,146.82	26,305,823.63	7.32%
Fuel	10,692,871.21	7,935,400	9,786,105.00	23.32%
Total	35,160,338.03	32,447,546.82	36,091,928.63	11.23%

Based on the above table showing the utilization of resources, it was found that the cost of electricity was increased by 7.32% because in 2021, the Company accelerated the production capacity in order to keep up with the demands of customers according to the increasing number of orders, as a result, the amount of electricity consumption was increased.

Most of fuel consumption is for goods transportation, in terms of amount, the expense was increased by 23.32% compared to the year 2020. Comparing the number of units, it was found that the fuel consumption in 2021 was 359,730.06 liters, 370,000 liters in 2020, representing a decrease in the amount of fuel oil at 2.78%. It can be said that the increasing expense is due to the continuous increase in fuel prices throughout the year 2021. In order to manage for maximum efficiency of fuel use, the Company has established preliminary guidelines such as turning off the engine while waiting for loading or not in use, and the driver will be evaluated of their performance by providing incentives for motivation of energy conservation, etc.

2. Water Consumption

The Company uses tap water supplied by the Provincial Waterworks Authority for the office and production in the plant at Head Office in Rayong Province, and the Provincial Waterworks Authority for Marketing Office at Lam Luk Ka branch office in Pathum Thani Province.

In 2021, the Company's consumption of tap water is as follows:

Unit : Baht

Type of Resources	Amount			
	2019	2020	2021	Difference between 2020 and /2020 (%)
Tap Water	55,218.75	52,330.00	44,708.65	-14.56%

Based on the data from the table showing the expense of tap water in the Company, it was found that the expense has been continuously declined comparing to 2020, decreasing for more than 14.56%, as a result of compliance with resource management policies.

3. Waste and unused materials management

In furniture manufacturing process, the Company has placed the importance on the management of wastes and residual materials arising from the production process, and the generation of pollution that may occur during the production process. For the management of wastes and residual materials from various processes, details are as follows

- ***Wood chips and sawdust***: the products remaining from the wood cutting process shall be used as the fuel for the boiler to generate renewable energy in the production process. If the quantity of wood chips and sawdust is high, the company shall sell them to a third party.
- ***Dust*** the dust from polishing process using sandpaper or polishing machine, the company shall use filter bag. The filtered dust shall be sold to a third party to use as a raw material accordingly.
- ***Residue*** of Spraying from the pigmentation process on the work piece, the company has a measure to prevent the impact caused by spraying color to the environment by using a pigmentation room with circulating water to reduce the color mist. The residue from this process shall be properly eliminated.
- ***Paint residue*** from the manufacture of covering paper; the residue of paint after printing process, the company shall bury such residue in the factory. At present, if the paint residues are still of good quality, the Company will mix them and reuse to reduce the effects caused by the paint residues and this is part of production cost reduction while maintaining good quality products in accordance with the standards set by the Company. From this process, the cost of new paint buying could be reduced up to 5%.
- ***Waste*** materials such as rejected artificial leather or textile from production process, the company shall gather them to sell to a third party.
- ***Glue*** it is the adhesive materials to attach the covering paper to the particle boards, the company shall use water base glue that can be melted by water, causing no environmental impact.

The Company has set the target to reduce the amount of wood chips and sawdust which are the remaining raw material from the production process due to the cutting of workpieces, and the amount of paint that will be landfilled after the production process, starting from year 2021 as the base year, to show the benefits of reducing raw material costs and to reduce the generation of wastes arising from the production process as follows:

Unit : Ton

Type of Resources	2021
The amount of wood chips and sawdust generated after the production process	834.35

As for the amount of A4 paper wastes from the use in the Company's works during 2021, the Company's paper consumption is as follows:

Unit: Baht

Type of Resources	Amount			
	2019	2020	2022	Difference between 2020 and 2021 (%)
Paper	165,063	157,104	170,724	8.67

Based on the data in 2021, the cost of A4 paper in the office was increased by 8.67% compared to 2020. Currently, the Company is developing an Application system to support and facilitate sales and customer service tasks, fast stock checking, presenting the product through the Application instead of presentation with papers.

4. Greenhouse gas emissions

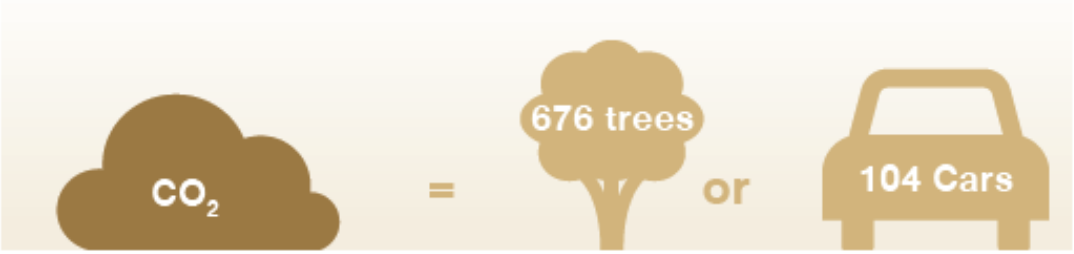
The Company's greenhouse gas emissions mostly come from the furniture manufacturing process and the transportation partially causes the increase in the amount of greenhouse gases, affect the environment which is the cause of volatile weather conditions or current global warming. The Company has not neglected the aforementioned problems; the management has considered to find a management approach on reducing greenhouse gas emissions throughout the business value chain, to ensure that the Company's operations have the least impact on the environment.

In preparation for the disclosure of information for the year 2022, the Company is aware of the consideration and disclosure of greenhouse gas emissions. The preparation will be made as follows:

1. Preparation of information on business activities that produce greenhouse gases, including direct activities and indirect activities, such as the use of electricity, heat or steam used within the organization.
2. Management guidelines to reduce greenhouse gas emissions.
3. Figures for calculating the amount of greenhouse gas emissions generated within the organization to be used as a baseline and use them for year-to-year comparison.

In terms of carbon footprint in the organization, in order to offset greenhouse gas emissions throughout the value chain of furniture business, the Company has implemented 2 renewable energy power plant projects in which the calculation of greenhouse gas emission reduction from these 2 plants is as follows:

For the rooftop solar project Installed at the Head Office, Rayong Province, with a capacity of 998 kWh, in 2021, it can reduce the use of electricity by 993,514 kWh/year, or reducing greenhouse gas emissions by *496.66 tCO2e /year, equivalent to planting 676 trees, or reducing the pollution emitted by 104 cars.



The Solar Power Plant Project with the total installed power generation capacity of 220 MW of Green Earth Power (Thailand) Co., Ltd. (“Minbu Power Plant Project” or “GEP”) located at Minbu City, Magway Region, Republic of the Union of Myanmar (“Myanmar”) whereby the Company assigns ECF Power Company Limited (“ECF-P”), a subsidiary in which the Company holds 99.99% of shares, to invest in the shares of GEP, accounting 20% of total shares. Presently, Phase 1 with a capacity of 50 megawatts from the total capacity of 220 megawatts started the Commercial Opeation Date (COD) on 27 September 2019 (and Phase 2 is under construction). Under such project, Phase 1, can generate electricity of 77,460,964 kWh/year, equivalent to the reductions in greenhouse gas emissions for *38,722.74 tCO_2e/year, equivalent to planting 52,697 trees, or reducing vehicle pollution released by 8,107 cars.

If the aforementioned project can start the Commercial Operation Date for Phase 2 with a capacity of 50 megawatts, Phase 3 with a capacity of 50 megawatts and Phase 4 with a capacity of 70 megawatts, this solar power plant project will help to significantly reduce the amount of pollution and greenhouse gas emissions.

At present, the Company is considering the participation in the Thailand Voluntary Emission Reduction Program (T-VER) established by the Thailand Greenhouse Gas Management Organization (TGO) to make the operation on carbon footprint more standardized.

*Note: The data on the reduction of greenhouse gas emission amount as mentioned above has not been verified by those who have been registered by the TGO or equivalent.

Target of Greenhouse Gas Emission Management

Objective: To be a part of building a low-carbon society inside the organization

Indicator: The Company can continuously reduce greenhouse gas emissions in the value chain of the business, when calculated in proportion to compare to previous year, the decrease should be at least 5% or higher.

Particiaption in the Care the Bear Program

ECF has recognized that the current problems of global warming and climate variability are globally significant that all sectors need to focus on and work together to solve them, this is the important reason that the Company wishes to participate in the "Care the Bear" Program, with the expection that the organization and all employees are involved in solving global warming problem, the Company also aims to develop many related business activities such as manufacturing, logistics, marketing, and procurement of raw materials in line with the concept to help solve global warming problem as a guideline for sustainable operations. The participation in such activity (participated in July 2021) resulted in 2021, the Company can reduce its carbon footprint by 118.77 $kgCO_2e$, equivalent to the CO_2/year absorption of 13 trees. Most activities include online in-house meetings which can reduce fossil fuels used for travelling and reduce the amount of carbon footprints.

Practical Guideline for Environmental Conservation

Solar Rooftop Project

The Company has installed the Solar Rooftop on the rooftop of factory in Klaeng District, Rayong Province, with a capacity of not more than 998.40 kWh for the internal use, which reduces production costs of electricity costs and helps reduce greenhouse gas emissions caused by the use of electricity. The completed project can generate electricity at full capacity since 2019. In 2018, the Company had electricity expense of THB 36.40 million after the installation of solar panels, and the electricity expense in 2019 was decreased to THB 24.47 million, when compared to 2018, a decrease was 32.79% as a result of the installation of Solar Rooftop. In 2021, the Solar Rooftop project can help reduce electricity cost for more than THB 3.57 million, or 13.60% of the Company's total electricity consumption.

Considering that the installation of solar cells is the starting point for the Company's success aiming to reduce the resource costs, in addition to reducing the burden of the Company's expenses, it also has a positive effect on the environment because solar cells are considered a type of pure energy that does not affect the environment. At the same time, the Company has a policy to find ways to increase the sales of carbon credits from the said project with the amount of greenhouse gas units to be reduced, to further sell as income for the Company.

Use of Recycled Paper instead of Good Grade Paper for Product Assembly Manual

The product assembly manual is necessary and paper is also necessary to be used for manual production. In this process, the Company decided to use recycled paper to replace good grade A4 paper to help in tree cutting reduction for paper production and this also helps in reducing the Company’s production cost for approximately 0.40 million Baht per year.

At present, the Company is seeking the way to reduce the use of paper to minimize the environmental impact from the paper production process by printing the instruction on the product boxes, however, this method is limited to apply, it will be applied for the product that has uncomplicated assembly process.

The Use of Eco-Friendly Materials

The Company has changed to use the Edge Banding-typed or plastic materials for covering the edge of wood instead of original materials that are made from 100% PVC and plastic materials are environmentally friendly or Eco-Friendly grade that is biodegradable for minimizing environmental damages.

The Reduction of Chemicals in Production Process

The production process of furniture made from artificial woods such as particle board, which requires resins as admixture to combine woods in the compression process, such resin contains formaldehyde that will harm the users if its ratio exceeds the standard, the formaldehyde measurement standard is defined or it is called the European formaldehyde emission standards, divided into 3 main parts, the levels start from "E2" level that is harmful to the users because the release of formaldehyde is higher than the set value; "E1" level that is not more than 0.75 ppm; and "E0" level that is an advanced standard upgraded from E1. The furniture passed this process will contain formaldehyde not more than 0.07 ppm. All operational parts, especially the manufacturing part, are conducted of development to allow such standards to cover the global furniture industry in the future.

In order to minimize the impacts on both users and the environment , at present, the Company chooses to use wood in E1 level, which was found that the formaldehyde content is lower than E2 level, up to 1.0 mg/l, or can reduce formaldehyde from the use of materials up to 67%, additionally, it also presents positive impact on environment, users and employees' health, it is also good for cost reduction in the production process, decreasing the amount of costs up to 3.70 Million Baht per year.

Replacement of LED Light Bulbs in Factory

In the Production Department, it was found that there are more than 2,000 points of light bulbs in the production area, at present, the Company has gradually replaced with LED light bulbs because LED light bulbs has real white light which its temperature is similar to natural light, making the eyes comfortable and good for eye care, with longer lifetime, using lesser electricity, and importantly, LED light bulbs is eco-friendly because the fluorescent bulb consists of heavy metals i.e. mercury, etc. which are toxic to the environment, while the LED bulb does not contain any harmful heavy metals and importantly, its materials produced are recyclable.

Change to use Transparent Roof for Factory

At present, the Company has changed the roof of the factory from solid roof to be transparent roof by designing to allow natural light enter into certain areas in the factory to reduce the use of electrical light.

Use of Technology to Reduce Paper Use in Office.

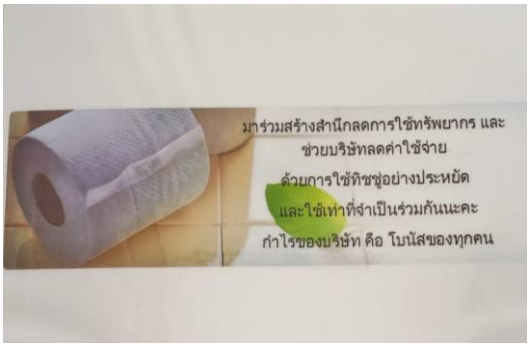
The Company is in the process of developing the Application to support and facilitate sales and customer service for fast stock checking, presenting products through the Application. In addition, for the production, the Company has applied the Cloud system to collect all furniture designs, covering all types manufactured and distributed by the Company in order to facilitate the customers in both domestic market and international market, and shorten the work duration of Product Design, and also help reduce the use of papers in working (Paperless system).

The waste sorting campaign titled "We, ECF, help in global warming reduction" know how to drop

At present, the Company has established the guidelines for employees to control and manage the wastes arising from the activities, the wastes are divided into 4 types as follows:

1. Wet Bin (green) for wet wastes such as food waste, vegetable debris, fruit waste.
2. Dry Bin (yellow) for dry wastes such as branches, leaves, toilet paper.
3. Recycle Bin (blue) for recyclable wastes such as paper, paper boxes, metal scraps, beverage cans, bottles, glasses, plastics.
4. Hazardous Bin (red) for hazardous wastes such as battery, phone battery, ink cartridge.

In addition, in order to encourage the awareness on the use of natural resources for utmost benefits, the Company posted warning signs and messages in many areas such as posting warning messages about the use of toilet paper in employees' toilets, placing the messages 'saving of water and electricity' at the water tap or power switch areas, in building areas, to encourage employee's awareness to reduce the use of natural resources.



Until present, the Company has never received any complaints or disputes with communities in the areas near the factory, or areas used in the Company's business operations in relation to environmental issues or impacts from the Company's production processes.