Waste Management

- **Waste Management Plan**

Ratch Pathana and Affiliates implements waste management in compliance with legal standards and specific measures for each power plant. The waste is categorized into two types: hazardous waste and non-hazardous waste, and is managed as follows:

1. Hazardous Waste: This includes waste that may impact on the environment, such as transformer oil, engine oil, chemical drums, etc. The company controls the usage of transformer oil that does not contain hazardous substances and ensures proper disposal according to legal requirements. The waste is disposed of by licensed agencies authorized by the Department of Industrial Works.

2. Non-Hazardous Waste: This refers to waste similar to household waste, such as food scraps, wood, paper, cables, plastic bags, construction materials, etc. Measures are in place to segregate and manage these materials before they are either safely landfilled or repurposed. The company has established a waste bank project to raise awareness and encourage employees to consider resource efficiency and sustainability.

Additionally, the biomass ash generated from the combustion process in the Sako-Cogen Green and Sako-Green Forest Biomass Power Plants is classified as non-hazardous waste. This ash has been developed for use in agriculture and brick production, which is distributed to local communities through the company's corporate social responsibility programs. This initiative helps maximize the value of non-hazardous waste, ensuring its optimal benefit.

Waste Management Target for 2024

Target	Performance Results
Ratch Pathana Energy Power Plant	
Amount of waste from the production process sent for incineration (non-energy) to be zero	Amount of waste from the production process sent for incineration (non-energy) is zero
Reduce office waste disposed of by landfill by 10% through the 3R process	Reduced office waste disposed of by landfill by 2.42 tons, representing 8.09% through the 3R process
Sahacogen Green Power Plant	
Waste from the production process sent for incineration to be zero; hazardous waste sent for landfill to be zero	Waste from the production process sent for incineration (non-energy) is zero
Reduce office waste disposed of by landfill by 10% of total general waste in 2024 through the 3R process	Reduced office waste disposed of by landfill by 12.52 tons, representing 13.50% through the 3R process
Sahagreen Forest Power Plant	
Waste from the production process sent for incineration to be zero; hazardous waste sent for landfill to be zero	Waste from the production process sent for incineration (non-energy) is zero
Reduce office waste disposed of by landfill by 8% through the 3R process	Reduced office waste disposed of by landfill by 624 kg, representing 8.95% through the 3R proces

Waste Generation Volumes from Business Operations

Company	Item	2022	2023	2024
SCG	Non-hazardous waste (tons)	168.72	115.50	90.07
	Hazardous waste (tons)	28.74	23.10	18.15
	Waste reused (tons)	0	4.39	2.35
	Other recovery operations (tons)	11.9	11.31	7.06
	Non-recyclable waste (tons))	185.56	122.9	98.86
SGN	Non-hazardous waste (biomass ash) (tons)	12,521.71	12,215.90	12,526.64
	Hazardous waste (tons)	5.22	8.90	4.7
SGF	Non-hazardous waste (biomass ash) (tons)	6,367.89	4,956.00	2653.06
	Hazardous waste (tons)	2.52	1.57	2.25

Waste Management Promotion Activities within the Organization

Last year, the company implemented the 3R principles (Reduce, Reuse, Recycle) to manage waste and promote environmental responsibility within the organization. The following approaches were adopted:

1. **Reduce (Reducing Consumption)**
   - o Reduced paper usage by supporting electronic documentation systems (Paperless Office).
   - o Reduced the use of single-use packaging, such as plastic cups and utensils.
   - o Encouraged the use of environmentally friendly materials within the office.
2. **Reuse (Reusing Materials)**
   - o Provided communal containers for reusable items, such as water glasses and lunchboxes.
   - o Encouraged employees to reuse office supplies, such as file folders and document envelopes.
   - o Set up donation points for reusable items, such as clothes, books, and office equipment, to be given to those in need.

In the past year, the company launched a donation project to collect unused items from employees, such as clothes, books, toys, and other good-condition goods, which were sent to the Ban Nok Khamin Foundation and organizations supporting disadvantaged individuals. This initiative helped reduce waste and maximize the value of resources. Additionally, the company collaborated with partners to donate recyclable waste, such as old bras to Waco Ltd. Lamphun, and soda can pull tabs for prosthetic leg production. This project is ongoing every year to promote efficient and sustainable resource use.

3. **Recycle (Recycling)**
   - Segregated waste by type, such as paper, plastic, and organic waste, for proper recycling.
   - Established e-waste collection points for discarded items like batteries and light bulbs.
   - Coordinated with external agencies for the proper disposal of hazardous waste.

The implementation of the 3R principles has helped reduce waste within the organization, increase resource efficiency, and foster an environmentally friendly workplace culture.

- Sahacogen Green Co., Ltd. has participated in the "Lamphun Clean City for Sustainable Development" project for the fourth consecutive year in 2024. The project aims to promote and develop businesses toward a green industry. It drives initiatives such as the Wet Waste–Free Province project, Lamphun Clean City without Foam (Foam–Free), and the "Lamphun People United for the Environment" campaign. The focus is on reducing, refusing, and reusing plastic shopping bags and plastic straws. Additionally, the project enhances waste management practices in Lamphun Province to ensure continuous, tangible progress and long–term sustainability.
- Waste Bank for the Environment Project Sahacogen Green Co., Ltd. and Sako–Green Forest Co., Ltd. launched the Waste Bank for the Environment project to raise employee awareness about environmental protection through waste segregation in both offices and factories. The initiative also encourages employees to donate or exchange household waste for goods before selling it to recycling buyers. The goal of the project is to reduce waste and help mitigate global warming caused by greenhouse gases. In 2024, the project segregated five types of waste: paper, plastic, metal, glass, and aluminum, totaling 764 kilograms, resulting in a reduction of greenhouse gas emissions by 549.92 kg CO_2 equivalent.

Summary of Waste and Greenhouse Gas Emission Reduction from Waste Segregation for Recycling in the Waste Bank for the Environment Project (2024)

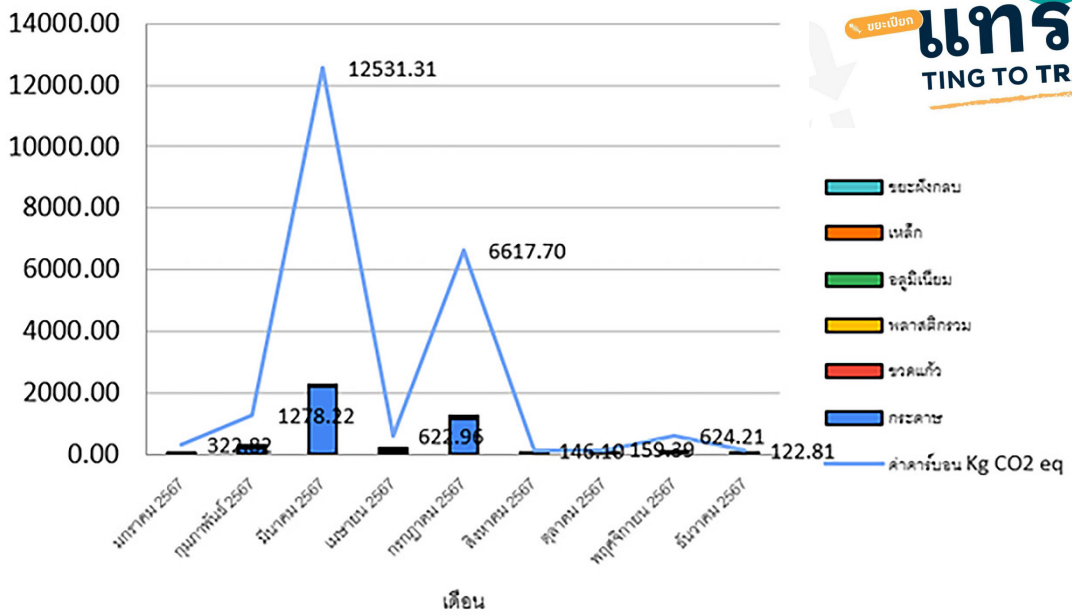
Waste Type	Waste Volume (Kg)	Greenhouse Gas Emission Reduction (kgCO_2e)
Paper	412	203.53
Plastic	90	78.21
Metal	61	69.95
Glass	619	460.54
Aluminum	13.5	45.58
Total	**764**	**549.92**

Note: The project supports greenhouse gas emission reduction activities through waste segregation for recycling (source: GHG Reduction) by the Greenhouse Gas Management Organization (Public Organization).


• Ratch Pathana Energy Public Company Limited participated in the “Ting to Trash” project with the Securities and Exchange Commission (SEC) and the Thai Listed Companies Association to promote registered companies’ understanding of proper waste segregation methods and to foster an organizational culture aimed at reducing greenhouse gas emissions.

In 2024, the project segregated 6 types of waste: paper, landfill waste, glass bottles, mixed plastics, metal, and aluminum, with a total weight of 4,167 kilograms. This effort helped reduce greenhouse gas emissions by 22,425.51 kg CO2 equivalent.

Performance Results of the “Ting to Trash” Project (2024)



Air Quality Management

The company strictly adheres to legal requirements for air quality management as follows:

- Air quality measurement equipment is installed at the stack venting point to monitor the levels of pollutants released into the air. These pollutants include total suspended particulates (TSP), sulfur dioxide (SOx as SO2), and nitrogen dioxide (NOx as NO2). The measured pollutant levels for all three types are within the limits set by legal standards.
- Air quality measurement equipment is also installed in the surrounding community areas around the plant. The company monitors air quality regularly and prepares environmental monitoring reports to be presented to the community and relevant authorities every 6 months. This is done to ensure continuous monitoring and control of air quality impacts, keeping them within the legal standards.
- The company has installed an electrostatic precipitator (ESP) system, which is highly effective in removing over 99.5% of particulate matter from exhaust gases at the Sako-Cogen Green Biomass Power Plant and the Sako-Green Forest Biomass Power Plant. This equipment helps prevent airborne dust pollution from being emitted from the power plants, ensuring that the air released from the stack meets the required air quality standards.