

Environmental operating results-Energy Management

Goals, indicators, and controls, including indicators for energy management and compliance with laws and regulations regarding energy management practices, promoting renewable energy, and energy conservation.

No	Strategic objective	2025 target and performance	
		Target	Performance
1	Fines or expenses related to non-compliance with rules and regulations, or submitting reports beyond the legally prescribed deadline.	100%	100%
2	Fines or expenses related to non-compliance with rules and regulations, or submitting reports beyond the legally prescribed deadline.(THB)	0	0

Information on Energy Management

SUTHA oversees resource utilization to optimize efficiency and mitigate the risk of depleting finite natural resources. The primary resources include limestone, electricity, fuel, energy, and water, the majority of which are derived from natural sources. Management practices are implemented in accordance with the established policy framework as outlined below.

1. Integrating Effective Management of energy and resources, along with energy conservation into the operational workflow.
2. Tracking the consumption of key resources involves gathering data on energy usage by each unit, followed by analysis to identify opportunities for reduction.
3. Committed to adhering to regulations concerning energy conservation and the management of energy and resources.
4. Dedicated to the ongoing enhancement of energy and resource efficiency, aligning with best practices.

SUTHA is committed to energy conservation and has established an energy conservation policy with the following key principles and guidelines:

- Integrate energy conservation into daily operations as a shared responsibility across all staff and management.
- Apply tailored energy-saving measures for each department based on their usage.
- Comply with all relevant energy laws, including renewable energy requirements, within business processes.
- Continuously improve energy efficiency through best practices in energy management.
- Allocate necessary personnel, budget, time, and coordination to support effective energy management.

The structure responsible for overseeing energy management includes:

- Senior management (policy oversight)
- Top management of each operational department and management level involved in oversight and supervision
- Appointed and assigned energy management working group
- Supporting teams from relevant core departments, including:
 - Engineering and maintenance teams
 - Logistics/supply chain teams
 - Environmental/ESG Team
 - Representatives from Production, Warehousing, Transportation, and Procurement
 - Representatives from Support Departments: Human Resources, Administration, and Finance

Energy management plan

SUTHA aims to track the use of key resources in processes, has management processes in place for efficient resource utilization, and implements key resource management activities to monitor progress and achieve tangible results. This encompasses the following key resources and energy:

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- Electricity consumption
- Overall energy consumption
- Utilization of renewable or clean energy
- Fuel consumption (including diesel, gasoline, NGV, all coal types, and all biomass energy types)
- Water usage, waste volume management, and efforts to minimize waste and pollution arising from business processes.

The company's energy management plan : implemented

Energy Management Plan and Guidelines:

1. Review energy conservation policies and establish a structure for energy governance.
2. Assess and analyze the scope of relevant energy management at the organizational, product, process, and project levels.
3. Define frameworks and processes for energy management.
4. Develop investment projects that support or implement measures to reduce or improve energy costs.
5. Promote and communicate to incentivize and encourage participation in developing more efficient energy management.
6. Collect data, set targets, monitor, and report results on energy management.
7. Promote knowledge and provide training courses to develop personnel to enhance their capabilities and knowledge in developing and managing energy efficiently across all processes.

Coal and diesel fuel management goals

Electricity management

The organization oversees electricity consumption through an electricity management system that regulates operations by implementing measuring devices (Sensors), meters and various electrical control systems (Actuators or Controllers) to monitor and manage electricity usage. The data gathered is utilized to process and analyze outcomes, aiming to identify the most effective energy management strategies, which may include investments in renewable energy generation systems. A solar power generation system (so called Solar farm project) has been chosen as the focus for utilizing renewable energy, thereby decreasing electricity purchases and mitigating the impact of greenhouse gas emissions in Scope 2.



- Modify the operational hours of production to align with the electricity tariff structure by utilizing Time of Use (TOU) rates, scheduling machinery to operate during off-peak hours from 22:00 to 09:00, as well as on weekends, while minimizing electricity consumption during peak hours.
- Limit the operational hours of electrical appliances to the extent that is both necessary and advantageous.
- Ensure that motors operate at 80-90% of their capacity to enhance efficiency.
- Scale down the size of machinery and equipment to match the actual workload requirements.
- Replace or eliminate any motors that have experienced failure.
- Upgrade or replace machinery and equipment to achieve greater efficiency.
- Select production processes, machinery, and equipment that are designed for low energy consumption.
- Adjust the production process to incorporate renewable energy sources, specifically from solar power systems.
- Alter machinery, electrical equipment, and lighting systems to utilize solar energy in place of conventional electricity.

Renewable / clean energy

The development project aims to invest in renewable energy sources. The objective is to identify alternatives to fossil fuels, including coal, petroleum, and natural gas, which are finite energy resources.

Currently, SUTHA focuses on key renewable energy sources as part of our strategy to stimulate economic growth while minimizing environmental impacts, particularly by lowering carbon dioxide emissions. This includes significant investment initiatives such as the Solar Farm project as follows.

- Solar Farm Phase I generation capacity 2 MW commissioned in Y2020
- Solar Farm Phase II generation capacity 0.5 MW commissioned in Y2021



Solar Farm Phase III Project, 1.5 MW (on progress)

The expansion of the Solar Farm Phase III project, initially planned to increase capacity from 1.0 MW to 1.5 MW across three phases for 2024 investment purposes, has been postponed. This decision follows the reduction in tax incentives by the BOI and an evaluation indicating that returns on investment do not align with established safety thresholds. The postponement allows for further assessment of alternative investment opportunities and ensures optimal management of returns and risks.

At present, land acquisition for project construction has been completed. Subsequent actions, including approval processes and investment allocation, are undergoing thorough review to ensure efficient utilization of resources.

Status Update for 2025:

No additional progress or further investment considerations are scheduled for the project in 2025.

The goal for electricity management

Estimated from the total electricity consumption in all branches in the base year 2019, with the amount of electricity purchased 26,499,722, a decrease of 7 percent or 1,854,980.54 kilowatt-hours compared to the base year.

Does the company set goals for electricity and/or fuel management? : Yes

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Electricity and/or fuel management Goal

goal(s)	Base years (s)	Target year(s)
Reduction of electricity purchased for consumption	2019: purchased electricity for consumption 26,499,720.00 Kilowatt-hour	By 2025: A 7% reduction or 18,548,980.54 kilowatt-hours decrease compared to the base year.
Reduced oil and fuel consumption	2022: 1,154,674.00 liters used.	By 2025: A 5% reduction or 57,733.00 liters decrease.

Energy management: performance and results

Energy management : fuel consumption

Electricity and Fuel Management Targets:

The Company mainly uses coal and other solid fuels like petroleum coke and various types of coal in its lime kiln process. To manage fuel resources efficiently, it implements energy projects such as Flex Fuels to ensure flexibility and cost control, reduces dependency on a single fuel source, and mitigates market price fluctuations from geopolitical conflicts through a multi-source fuel strategy.

For fuel selection, the company reviews options like bituminous coal, steam coal, and petcoke, and assesses key factors for each.

- Fuel quality and properties
- Heating value
- Relevant physical properties
- Price trends
- Quantity and consistency of deliveries
- Transportation costs
- Quantity offered, price, and storage space
- Working capital or credit lines ready for fuel procurement.

The Company has both domestic and international fuel sources. For international purchases, it receives support from Premthai Energy, a fuel expert consultant, who sources quality fuels and coordinates transportation and logistics services for importing fuel from abroad.

During the period 2023–2025, the company shifted its fuel selection from primarily bituminous coal to petcoke, while retaining bituminous coal as a supplementary fuel for some furnaces as per customer requirements.

Petcoke is chosen for its higher calorific value and lower ash content, which help reduce fuel use and minimize ash management needs, supporting cost-saving efforts. The company will continue to use both fuels as needed to meet customer requirements and product applications.

Renewable Fuel Management Goals for Coal Replacement

The Company is working to reduce its reliance on fossil fuels, which are scarce, by exploring sustainable renewable energy solutions. Their efforts include developing strategies and starting projects like biomass initiatives to replace fossil fuels and address upcoming energy needs and environmental concerns.

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Biomass Project Study and Development (2022–2024)

Throughout 2022–2024, the company conducted a Biomass Project study and development to assess the feasibility of using biomass energy to replace coal and fossil fuels in the lime production process. The primary objective was to reduce greenhouse gas emissions and support the organization's sustainability goals.

Key Project Progress and Activities:

- Study of industry technologies and best practices.
- Exploration of biomass utilization technologies in lime kilns.
- Sending personnel to study and observe biomass-based plants both domestically and internationally.



Assessment of Domestic Biomass Raw Material Availability:

- Surveying the quantity, stability, and security of biomass raw material sources.
- Continuously assessing the suitability for industrial-scale application.

Evaluation in Actual Production Environments:

- Testing the use of biomass in lime kilns at the Huai Pa Wai branch.
- Installed auxiliary equipment for the fuel conveying and preparation system to support the experiments.

Support from the Carmeuse Group:

The company received appropriate technical advice and best practices from the Carmeuse Group, which enabled the company to design experimental approaches suitable for the characteristics of locally available biomass.

Project Evaluation and Ongoing Directions: Technical review shows biomass as a main energy source needs substantial investment and currently offers limited returns. Despite this, the company values its environmental and sustainable potential, so it has designated the project as a Long-term Strategic Project included in future investment plans.

Maintaining the Project Status in the Long-Term Investment Plan:

Although the current returns do not meet the investment criteria, the company believes that the Biomass Project still has the potential to be resumed if the right supporting factors are present, including:

1. Provided that the company maintains adequate cash flow and an additional investment budget, the project may swiftly be reconsidered for restarting operations.
2. Future government support: If there are measures such as:
 - Investment incentives
 - Tax reductions or clean energy benefits
 - National greenhouse gas reduction promotion –an improved return on investment in accordance with the company's established criteria
3. Improved commercial viability:
 - If biomass raw material prices become more stable, or if technology is developed that reduces processing and fuel preparation costs.
 - The project has the opportunity to return in a more economically viable form.

Future directions:

- The company will revisit the study results when supporting factors emerge.
- Push the Biomass Project towards becoming a future investment project.

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- Prepare production processes for future biomass energy use.
- Conduct studies on other clean energy technologies concurrently to continuously achieve the organization's greenhouse gas reduction target (Scope 1).

Investment value in the Biomass Project:

Expenditures related to research, experimentation, and the installation of essential testing equipment at the Huai Pa Wai branch are allocated for investment in the Bio Fuel Project. The investment is valued as follows:

Investment in research and development (Biofuel Project)	Year	2022	2023	2024	Total investment
Machinery and equipment during installation. - SCAP-HW-Biofuel Ref:189500-HW-Biofuel: Property under construction	THB	432,964	722,624	59,810	1,215,398

Fuel Management Goals: Diesel, Gasoline, NGV

In lime production, fuels are critical for several operations:

- Diesel powers company trucks and production support vehicles like loaders, forklifts, water trucks, and other utility vehicles.
- Gasoline is used in executive, marketing, sales, and support vehicles.
- Natural gas fuels company transport trucks equipped with NGV systems.

To cut diesel and gasoline use, the company is launching an EV Project targeting reduced vehicle fuel consumption.

The Electric Vehicle (EV) Project is designed to cut down on energy use and, as a result, lower greenhouse gas emissions.

Through this initiative, older or high-maintenance gasoline vehicles will be replaced with electric vehicles, including BEVs, PHEVs, HEVs, and others. By investing in the EV Project, organizations can minimize energy expenses and vehicle upkeep while supporting sustainability goals related to reducing greenhouse gases. The project's investment scope is outlined below:

Vehicle Types	Scope:
1. Production support vehicles	For supporting internal factory operations, such as EV front loaders, EV forklifts, etc.
2. Logistics/ product Transportation	Tractor-trailer trucks for regular routes, such as EV trucks for transporting raw materials, or transporting rock within quarries on regular routes, or EV trucks for transporting goods to customers on regular routes.
3. Executive EV cars	Company cars with expired service life or high repair expenses.

Project Objectives:

- Reduce energy costs (fuel costs) and maintenance costs.
- Enhance the operational efficiency of logistics and production support.
- Reduce greenhouse gas emissions (CO₂e) of the corporate fleet.
- Support the organization's ESG/Carbon Neutrality goals.

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Scope of Investment:

- 1) Vehicle types: production support, logistics (internal/external), and executive cars.
- 2) Replacement based on company mileage/age policies or high maintenance/repair costs.
- 3) Investments cover charging stations (AC/DC), energy management systems (EMS), and safety training.

Business and Operational Benefits:

- Switching to BEVs can lower corporate CO₂e emissions by about 60–70% per vehicle, depending on emission factors and usage patterns.
- Fuel expenses can decrease by 40–60%, as electricity costs less per kilometer than gasoline.
- Maintenance costs may drop by 30–50% because there are fewer moving parts, and no engine oil is required.
- The transition also strengthens ESG reputation and supports sustainability policy reporting within management frameworks.

EV Project	Year	Number	Value (mTHB)	Total investment (mTHB)
EV Charger	2025	2	-	Included in the purchase
Production support – EV front loader	2025	2	5.23	10.46
Production support – EV forklift	2025	2	0.96	1.92
Logistics / delivery – EV truck	2025	1	6.70	6.70
Executive car	2025	1	1.04	1.04
Total				16.89



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Fuel Consumption	Unit	Business activities	Y2023	Y2024	Y2025
Diesel	Liter	Production and transportation	1,080,172	998,268	856,228
		Sales and administration	16,500	15,265	15,409
		Total	1,096,672	1,013,534	871,637
Benzine Gasoline	Liter	Production and transportation	0	3,363	2,693
		Sales and administration	17,041	19,015	20,670
		Total	17,041	22,378	23,363
NGV (cubic feet)	Kg.	Production and transportation	161,260	125,752	69,117
		Sales and administration	7,805	9,373	992
		Total	169,065	135,125	70,109
Coals (All types)	Tons	Fuel for production	47,496	39,554	32,466

In 2025, the company met its goal of cutting diesel use by 5% from 2022 levels.

Oil and diesel consumption	Unit	Year-over-year variation	2023-2022	2024-2023	2025-2024
Desel	Ltr	Year-over-year variation	58,002	83,138	141,896
	%	Year-over-year variation	-5%	8%	14%
Benzzyne	Ltr	Year-over-year variation	2,450	1,974	1,655
	%	Year-over-year variation	-13%	12%	9%
NGV	KG	Year-over-year variation	94,329	35,508	56,635
	%	Year-over-year variation	-37%	-22%	45%
coal	Ton	Year-over-year variation	94,169	33,940	65,016
	%	Year-over-year variation	36%	20%	48%

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The company has no data, or uses data, on the following energy and fuels: jet fuel, fuel oil, crude oil, liquefied petroleum gas (LPG), and steam.

Efficient use and management of electricity.

	Item	Unit	Data scope	2019	2023	2024	2025
				Base Year			
Quantity	Consumption forecast (base year)	Kwh	SUTHA	26,499,722	26,499,722.00	26,499,722.00	26,499,722.00
	Electricity purchased	Kwh	All branch	26,499,722	20,444,515	19,516,280.08	18,628,999.00
	% Compared to base year	%	All branch		77%	74%	70%
	Difference in electricity purchased relative to the base year's consumption.	Kwh	All branch		-6,055,207	-6,983,442	-7,870,723
	The amount of electricity purchased decreased by at least 7% compared to the base year. (The target now aligns with the energy management plan for the energy conservation project.)				-23%	- 26%	- 30%
	Summary of electricity management				ลดลง	ลดลง	ลดลง
	% compared to last year	%	All branch		87%	95%	95%
	Diff. from last year	Kwh	All branch		-3,067,738.00	-928,234.92	-887,281.08
	% compared to last year	%	All branch		-13%	-5%	-5%
	Electricity bills	THB	All branch	87,034,613.89	88,275,124.00	72,430,843.65	68,503,266.40
Electricity bills	Electricity rate per unit	THB/KWh	All branch		4.318	3.711	3.677
	Electricity cost compared to base year	THB/year	All branch		1,240,510.11	-14,603,770.24	-18,531,347.49
	% compared to base year	THB	All branch		1%	-17%	-21%
	Electricity cost compared to previous year	THB/year	All branch		1,963,605.95	-15,844,280.35	-3,927,577.25
	%compared to last year	THB	All branch		2%	-18%	-5%

Remark: 1) Decreased purchased electricity compared to the base year's is obtained by decreased purchased electricity multiply current unit electricity cost

2) In November 2018 - December 2022, electricity rates are calculated according to the time of use (TOU), classified under 4.2.2 Large business (voltage 22 - 33 kV), electricity rates in PEAK range = 4.1839 baht/unit, OFF PEAK. = 2.5849 baht/unit which is the fixed rate, but the factor varies the electricity rate per unit is the Ft as below:

3) In the 2025 report presentation, the target was adjusted from the original 3% to 7%, and the presentation method was modified to reflect the changed target.

FT	Y2019	Y2023	Y2024	Y2025
January – April	-0.1160	1.5492	0.3972	0.3672
May - August	-0.1160	0.9119	0.3972	0.1972
September - December	-0.1160	0.2048	0.3972	0.1572
Average	-0.1160	0.8886	0.3972	0.2405

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Management of renewable / clean energy
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Item	Unit	Scope	Base year Y2019	Y2023	Y2024	Y2025
Overall volume of purchased electricity	kWh	Golden Lime (Not including subsidiaries)	26,499,722	20,444,515	19,516,280	18,628,999
Volume of Use electricity generated from Solar Farm	kWh	Chong Sarika	18,545,960 Base Year	13,282,440	12,987,323	12,077,520
Reduce the amount of purchased electricity by not less than 7% compared to the base year.	kWh	GL	Base Year	28% Achieve	30% Achieve	35% Achieve
Volume of solar energy generated	kWh	Renewable energy consumption at Chong Sarika	No Power generation with solar energy	3,434,079.10	3,395,754.16	3,176,918.09
	Cost saving	Solar energy generated at Chong Sarika	No Power generation with solar energy	14,902,348.34	13,714,057.39	11,682,284.50

Note: The calculation scope of Renewable Energy adds the electricity consumption of the headquarter, Nonthaburi office, into the purchased electricity so it appears different from the results in Y2021 56-1 One Report.

Energy management: Electricity consumption

	2023	2024	2025
Total electricity consumption within the organization (Kilowatt-Hours)	23,878,594.10	22,912,034.24	21,805,917.09

Note: The total of electricity purchases + electricity usage from solar.

Summary of total energy consumption and Total energy expenditure

Total energy consumption represents the sum of the electricity consumption, oil and fuel all of which are converted into energy units. Total energy expenditure represents the sum of the expenses from electricity, oil and fuel.

	Data collected	Unit	Scope of collection	2023	2024	2025
Energy (kwh)	Electricity	Kilowatt-hour	All branches	20,445	19,516	18,629
	Oil	Kilowatt-hour	All branches	13,406	12,155	9,850
	Fuel	Kilowatt-hour	All branches	309,086	310,194	287,573
	Total energy	Kilowatt-hour	All branches	342,936	341,866	316,052
	Energy consumption per unit of product	Mw/ton of product	All branches	0.00115	0.00113 ⁽¹⁾	0.00109
Energy expenditure	Total energy expenditure	THB	All branches	292,028,492	226,659,754	172,292,725

Note 1) The total energy consumption per unit of products for 2024 has been revised to incorporate the updated product volume data.