

Environmental Sustainability Management

Environmental Policy and Practice

HARN emphasizes on protecting the environment along the demand chains, from the process of products selection which does not harm the natural resources and is environmental friendly, strictly following the laws and regulations instructed by governing bodies, reducing the wastes and leftovers from the operation, save energy in the work place by regulating the use of air conditions, lights and computers by considering the maximum usage in order to lower the costs and raise the awareness of sustainable energy saving for the good of the community and in response to the energy saving policy of the Government. HARN has developed an environmental management system by establishing a policy on the environment, occupational health and safety at work to be a framework for operation as well as building a systematic environmental database to control and reduce impacts and maintain a good environment along with sustainable business growth.

Environmental Performance

In 2021, HARN had revised the training manual used on safety/work environment and environment. The training for 21 new employees. The test results after the training show 89.50% of success, encouraging the staff to be aware of the right way to dispose waste via in communication channels in HARN such as email, Line Official and Digital signage.

HOW TO dispose of "infectious waste"

"Infectious waste" is waste that is contaminated with secretions such as masks, toilet paper, which, if we come into contact with such waste, can cause disease. Therefore, it must be disposed of and disposed of properly.

How to dispose of infectious waste

1. Separate from other types of waste by disposing of it in an infectious waste bin or separate garbage bags from other waste.
2. Red trash bags should be used to clearly identify them. This allows the staff to separate the waste for proper and safe disposal.
3. Tie the mouth of the bag tightly, and put it in another trash bag as well as tie the mouth of the bag tightly as well
4. Spray with disinfectant or bleach.
5. Put up a sign stating "infectious waste" or "used masks".
6. Take the trash to the garbage dump, which the Bangkok Metropolitan Administration will collect and dispose of by burning in an infectious waste furnace

*Do not keep used masks in the house for more than 7 days.

7 How to cope with stress

When Work From Home

Source: Sirin Hospital

HARN realized the importance of reducing use of paper in work process with measures and practices set out. All the above activities were 100% completed in 2021, and set to be regular projects held continuously in the following years as below:

 Reduce	 Reuse	 Recycle
<ol style="list-style-type: none"> 1. Use email to send document eg. Gmail/Outlook 2. Store data via Data Center 3. Use e-meeting 4. Change paper-based surveys to Google Form 5. Reduce giving out handouts of seminars to soft copy via email 6. Implement "One Quality Project" to reduce paper by adjusting the working method, develop using digital systems 	<p>Print on one side printed paper</p>	<p>Placement of separate bins eg. General waste, used paper, bottles & plastics and sell reusable waste from paper, bottles & plastics.</p>

Climate Change Action

To control and reduce greenhouse gas emissions and to conserve natural resources, has set net zero greenhouse gas emissions targets in 2027, which define strategy focuses on energy efficiency, investment in green business, in a move towards green economy and the goal of Partner for Life. To this end, HARN set targets direct emissions (Scope 1), energy indirect emissions from use of electricity (Scope 2) and other energy indirect emissions, including transport, paper, accommodation, and waste (Scope 3) to be less than 120kWh per square meter per year, which has direct and significant results in greenhouse gas emissions.

In this regard, HARN was used activities data the calculation of greenhouse gas emissions is 2021 using principles and formulas from the Greenhouse Gas Management Organization (Public Organization), which is called in short "TGO." The data has not been verified by TGO experts. Result that the organization carbon footprint of HARN was 785,008 tons of carbon dioxide equivalent (tCO₂e) with Scope 1, Scope 2 and 3 were 184,387 tCO₂e, 347,442 tCO₂e and 253,178 tCO₂e, respectively. Evaluation of organization carbon footprint per capita was 3,298 tCO₂e.

Data the calculation of greenhouse gas emissions for 2021

Carbon source	tons of carbon dioxide equivalent (tCO ₂ e)
electricity	347.4
work trip	409.2
sojourn	8.6
document production	11.8
waste after the event	8.0
Total	785.0

Building and energy management system

HARN chose to learn and establish a building and energy management system by its internal team, together with our affiliates with Internet of Things (IoT) know-how, we aim for energy to be less than 120kWh per square meter per year, which is considered very low for a building in Thailand.

As a result of the use of this building, 330 solar panels installed with a capacity of 0.127 megawatts to generate electricity from solar power instead of using electric power from the Metropolitan Electricity Authority reduce energy consumption by up to 170kWh per year, or approximately 30% of the energy used, or reduce the amount of indirect greenhouse gas emissions of 62,103 tCo2e. This is therefore a clear target for reducing greenhouse gas emissions.

From the data collected throughout the year 2021, it found that the solar panels generated 124.23MWh, 24.23% of the total used electricity. However, during the first months of the building use, many parts of the system were not fully automated and resulted in inefficiencies. Since June, the team had used automation in conjunction with IoT, making the system more efficient accordingly. It can be seen that the monthly energy consumption dropped from 65MWh in March and only 40MWh in December. In other words, there was a 40% reduction in energy consumption. When considering the energy bill in December, the solar panels produced 11.67MWh of the total energy used (41.51MWh) or equivalent to 28.11%.

The Amount of Solar Power Generation (Blue) and Total Electricity Consumed (Orange) The difference is the electricity that must be purchased from MEA.

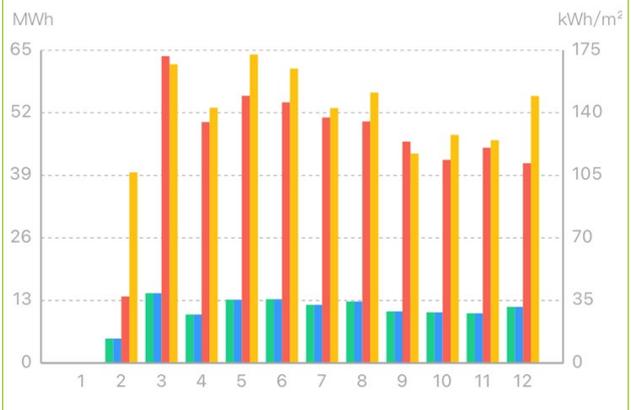
Yield **124.23 MWh**

Self-consumption **124.23 MWh** (100.00%) Export **0.49 kWh** (0.00%)

Consumption **513.06 MWh**

Self-sufficiency **124.23 MWh** (24.21%) Import **388.83 MWh** (75.79%)

● Yield ● Consumption ● Self-consumption energy ● Irradiation

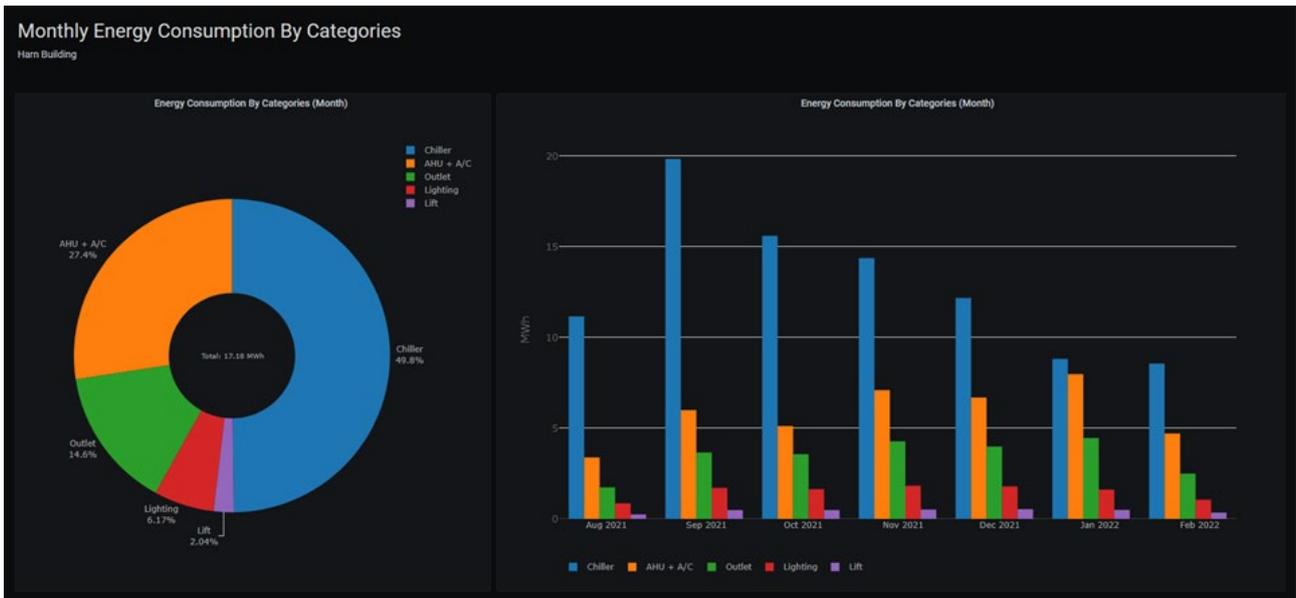


When comparing the year-round energy consumption target to the area using energy estimates for the first 45 days before moving into the office, it is found that the value was 88.84kWh per square meter per year. If the adjusted value of energy consumption in December is estimated, it is expected that the energy consumption in 2022 will be 75.47kWh per square meter per year.

It can be said that HARN has met its annual energy consumption target per square meter per year at 120kWh, and the building is one of Thailand's most energy-efficient buildings per square meter.

The data obtained from the Building Management System developed by HARN and Aiyaraharn Company Limited ("Subsidiary"), it found the proportion of energy consumption in the HARN office during the second half of 2021 is as follows:

System	Power Proportion (%)
Chiller	49.8
Cooling and Air-Conditioning	27.4
Information, communication and outlet	14.6
Light	6.1
Elevator	2.0



It can be seen that chillers and AHU & A/C are the systems that consume energy accounting for 77.2% of the total energy consumption, so modification of the two systems is required to reduce energy consumption. HARN aims to optimize the maintenance of them to reduce the total energy consumption by more than 40%.

For the lighting system, typical buildings consume 25% of the total energy consumption. It can be seen that HARN's office

building has only 6.1% of the energy consumption because HARN uses a PoE lighting system that dims or turns off the lamps according to the intensity of the light and only when they are used.

What HARN has built in this office will become a corporate culture of energy-saving consciousness, and no matter where employees are located, they will always have a sense of reducing energy loss.