WHAUP

WHA UTILITIS AND POWER PUBLIC COMPANY LIMITED

SET AWARDS : SUSTAINABILITY EXCELLENCE 2023

INTRODUCING SPEAKER & TEAM

Speaker

Mr. Somkiat Masunthasuwun

Chief Executive Officer

Team

Mr. Akarin Prathuangsit

Chief Operation Officer

Mr. Prapon Chinudomsub

Chief Financial Officer

Mr. Khamhoung Ratsamany

Vice President Business Operation

Mr. Varanon Laosuwan

Director of Utilities Business Development

Ms. Pathathai Tonsuwonnont

Assistant Director of Power Business Development

Ms. Nutcha Rattanajitbanjong

Corporate Secretary

WHA Utilities & Power

COMPANY OVERVIEW

KEY CHALLENGES AND OUR ACTIONS

WHAUP SUSTAINABILITY

BUSINESS OVERVIEW

Vision:

"To be Asia's leader in Utilities and Power providing total solutions to partners with good corporate governance as well as environmentally and socially friendly operations"

Utilities Business

Sole provider of utilities to manufacturers/ factories in leading industrial estates with a concrete plan to capture increasing demand from heavy users and expand outside i.e. other IEs, non-IE area and international

Raw Water

Industrial Water
- *Process water*
- *Clarified water*

Demineralized Water

Wastewater Treatment

Reclaimed Water

2021

2022

6M'2023

Water Sale and Management Volume

Power Business

Active power provider and investor with strategic partnership with leading Thai and international power companies

Conventional

Industrial Waste to Energy

Renewable

Natural Gas

2021

2022

6M'2023

Installed Equity MW under Operation

**717 MW is total capacity including projects under development and 125 MW is the installed capacity of 5 Solar farm project awarded by ERC on 5 Apr 2023*

ASSET LOCATION & PORTFOLIO

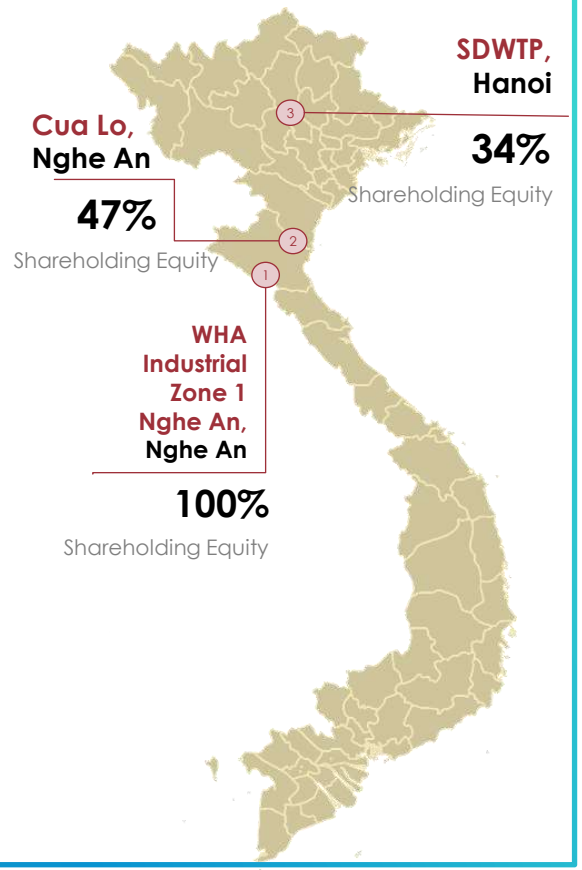
Utilities Business – Assets Location

- WHAUP's exclusive rights to operate and provide utilities services to customers in WHA Industrial Estates and 2 other areas outside WHA Industrial Estates, which are Eastern Economic Corridor of Innovation (EECi) and Asia Industrial Estate (Map Ta Phut).
- Vietnam, WHAUP holds 47% stake in Cua Lo water plant in Nghe An province and 34% stake in SDWTP water plant in Hanoi and has full exclusive rights to operate 1 WHA Industrial zone in Nghe An and 1 under development.

Thailand

WHA Industrial Estates	
1	WHA Chonburi Industrial Estate 1 (WHA CIE 1)
2	WHA Chonburi Industrial Estate 2 (WHA CIE 2)
3	Easter Seaboard Industrial Estate (ESIE)
4	WHA Eastern Seaboard Industrial Estate 1 (WHA ESIE 1)
5	WHA Eastern Industrial Estate (Map Ta Phut) (WHA EIE)
6	WHA Saraburi Industrial Land (WHA SIL)
7	WHA Rayong Industrial Land (WHA RIL)
8	WHA Eastern Seaboard Industrial Estate 2 (WHA ESIE2)
9	WHA Eastern Seaboard Industrial Estate 4 (WHA ESIE4)
10	WHA Eastern Seaboard Industrial Estate 3 (WHA ESIE3)
11	WHA Rayong 36 Industrial Estate (WHA R36)
12	WHA Industrial Estate Rayong (WHA IER) (Under development)

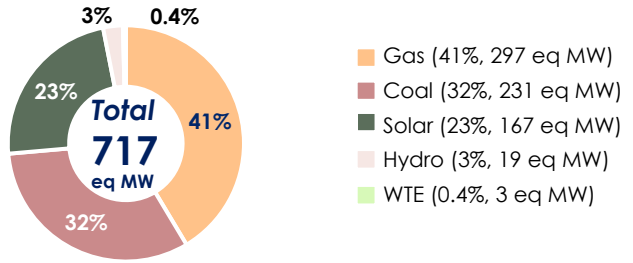
Vietnam



Power Business – Portfolio Breakdown

Total Capacity (717 MW eq) : 654 MW eq under Operation + 63 MW eq under development

BY TYPE



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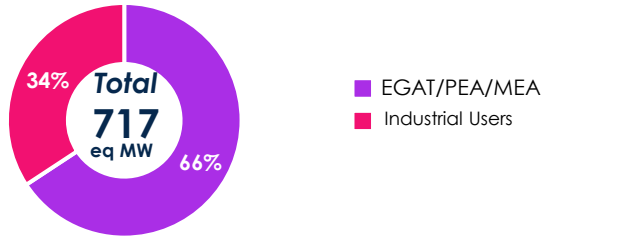

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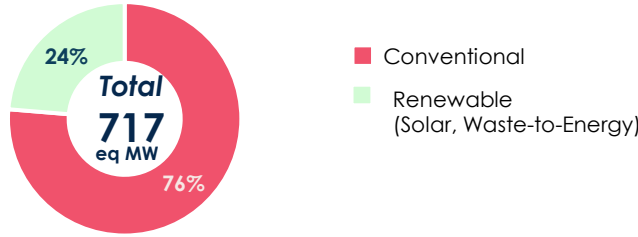
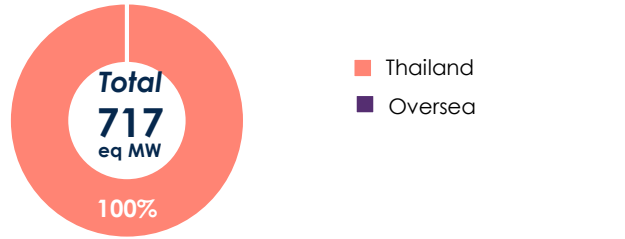


BY LOCATION



WHAUP CORPORATE STRATEGY

UTILITIES BUSINESS

Grow with Industrial Estate Development

Central utilities and Value-added Products

Offer Innovative and Sustainable Solutions for Customers

Reused Water, Reclamation Water, Desalination Water, Solution to reduce water footprint, Improve water quality & Efficiency

Capture Opportunities

Value-added products

Digitalize Operation through Smart Water Platform

Water Optimization, UOC

Focus on Vietnam Market

Industrial Users and Residential Users

POWER BUSINESS

Enlarge Domestic Portfolio with Clean Energy

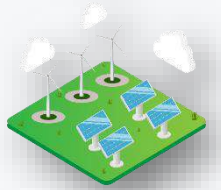
Solar & Wind Farm, Waste-to-Energy Power

Penetrate to International Markets

Solar Rooftop in Vietnam, Studying Renewable projects outside Thailand

Utilize Innovative Solution in Sustainable Manner

Solar Monitoring Platform, Peer-to-Peer Energy Trading, Renewable Energy Certificate, Carbon Trading, and Battery Energy Storage System



Pursue New S-Curve Business

Battery Energy Storage System, and Hydrogen

MISSION TO THE SUN PROGRAMS: TURN TO TECH COMPANY IN 2024

ESG

SUSTAINABLE DEVELOPMENT

Circular

Organization and Culture Development

MTTS PROGRAM

Green Logistics

NEW PRODUCTS & SERVICES

CUSTOMER

Customer Centricity

PEOPLE & PROCESS

People Development

Innovative Workplace

WHA Utilities & Power

COMPANY OVERVIEW

KEY CHALLENGES AND OUR ACTIONS

WHAUP SUSTAINABILITY

BUSINESS CHALLENGES

CLIMATE CHANGE AND RISE OF SUSTAINABILITY

Increased focus on the scope 3 emission

The challenge to reduce scope 3 emissions i.e., indirect emissions by suppliers or consumers in an organization's value chain, will accelerate in 2023 as companies focus on their supply-chain partners and on how their products and services are used by customers

Renewable energy and energy security

War and energy shortages accelerate adoption of energy efficiency and renewable energy. Policy incentives will also continue to emerge to stimulate innovation, help tackle climate change and fund the shift to clean energy

Circular economy

Companies are expected to take more action towards circular economy, such as including circularity as a key operational sustainability initiative, and innovation into recycling technology, re-use options, and reusable packing options.

Protecting global biodiversity

With the momentum of COP15, biodiversity-related risks and opportunities is expected to be factored into decision-making. The Taskforce on Nature related Financial Disclosures (TNFD) should provide frameworks to identify, measure and disclose nature related risks and impacts within Sep 2023.

Investments in adaptation and resilience

Risks of climate change, such as rising sea levels, prolonged heatwaves, crop failures, are going to happen more frequently, but investments in the technologies and interventions are lagging. In 2023, it is expected to see significant attention paid to adaptation and resilience financing.

Social sustainability

This will include everything from fair labor practices to diversity, as well as how companies manage human rights in their upstream operations. Industries with the riskiest working conditions will face greater costs associated with building the systems and capacities needed to comply with new requirements.

TECHNOLOGY TREND

FinTech

- Any form of currency that exists digitally or virtually and uses cryptography to secure transactions

Web 3.0 & Metaverse

- Web 3.0 advocates a decentralized web while Metaverse provides a foundation for connectivity
- Both Web 3.0 and the Metaverse are entirely compatible with each other

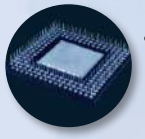
Blockchain

- Stores information in a long chain of "blocks". Its application includes Cryptocurrency

Cybersecurity

- Protection of internet-connected systems such as hardware, software, and data from cyber threats

Quantum Computing



- Harnesses quantum mechanics to progress in computation to solve certain problems

Process automation and virtualization

- Includes: Industrial IoT, Digital twins, Robots/cobots/RPA, and 3-D/4-D printing

Sensor and IOT

- the collection and analysis of data in real-time, enabling us to make informed decisions and automate processes.

AI and ML

- A technology which enables a machine to simulate human behavior and to create an intelligent system which can perform various complex tasks.

RECLAMATION WATER PROJECTS

Develop a new water treatment for sustainable water resource management

Initiated since 2017 to reduce water withdrawal from natural sources, and to minimize the discharged into public waterways. The reclaimed water will help secure raw water resources in long term and can be converted into demineralized water or high-quality water for industrial operators in WHA Group's industrial estates.

Water Reclamation plant

Resolve Water Pollution

Reduce water withdrawal

Key Benefits

Saving **7.0 mm3** of water usage per year from natural water sources or represents **9.4%** of the total water consumption for production

Saving is equivalent to the water consumption of **Kamphaeng Phet** province in 2022.
(Ref: Provincial Waterworks Authority).

Saving around **80 million** bath per year on raw water sourcing

WHAUP's TARGET

By 2025

60,400
Cubic meter per day

Increase production capacity for Reclamation Water by **2 times** from 30,200 cubic meter per day in 2020 to **60,400** cubic meter per day in 2025

By 2028

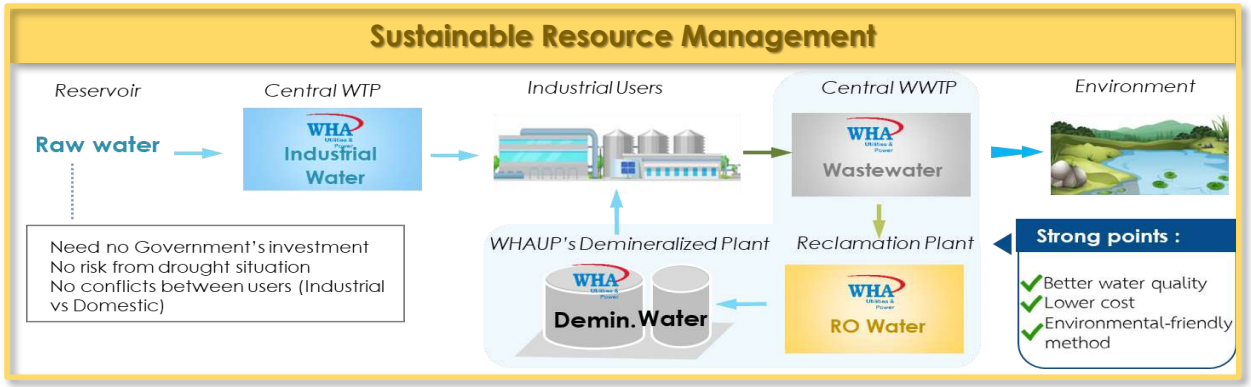
100%
Wastewater Utilization

Increase wastewater utilization rate to **100% in 2028**

DEMINERALIZED RECLAIMED WATER PROJECTS

The real sustainable resource for future development

WHAUP has developed the Demineralized Water Project as an alternative water source for sustainable industrial development in the country. This is considered to extend the existing technology and create innovations to increase product value, from wastewater by turning it into demineralized industrial water.



Key Benefits

Generated new business and has received positive results for many dimension

- **Significantly reduce** the amount of wastewater entering the environment.
- **Reduce government investment budget** in the development of water storage and delivery.
- **Reduce conflicts** between the community and industry on the allocation of water resources.
- The industry uses high quality water **hight quality water** at a competitive cost.

- Generating revenue of **1,250 MB** for 15-year contract
- **Saving 3 million** cubic meter of water withdrawal and water discharge
- **Saving cost of 35 MB** on raw water sourcing

Received SET Outstanding Innovation Award 2021

SOLAR PRIVATE PPA

Clean energy for our customers

Offers an all-in solar rooftop service package for customers in Thailand including permitting, design and engineering, construction and installation, as well as operation and maintenance throughout the contract period

Selected Solar Projects Signed in 2022

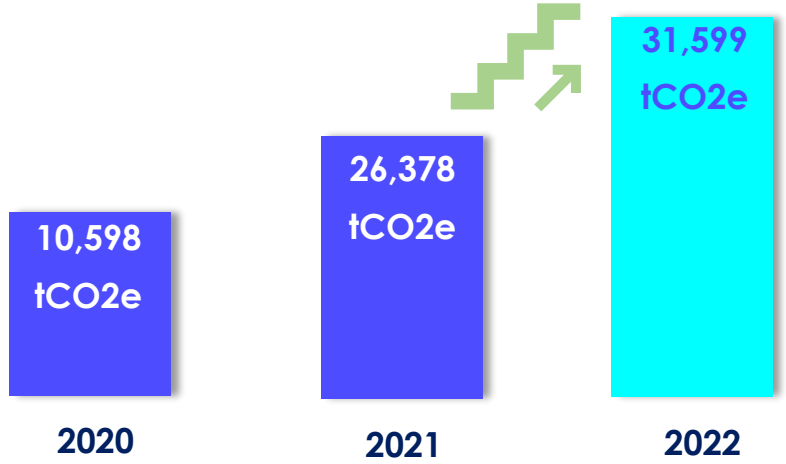
With 300 MW PPAs of solar power fully operated there will be;

Revenue generation of **1,400 MB** per year

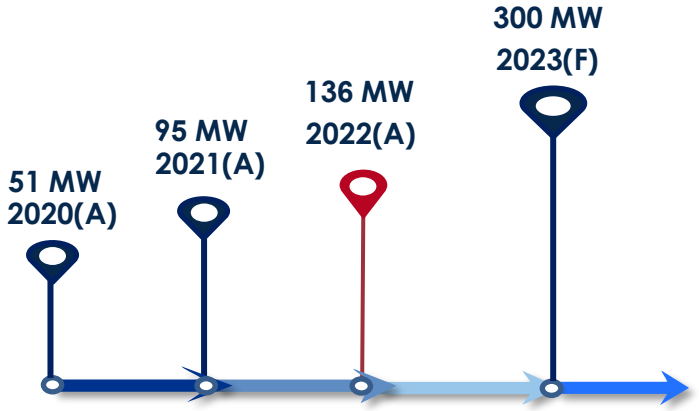
Customer savings on electricity costs of **465 MB** per year

Environment Saving

GHG Emission Offset from Grid Electricity Consumption Per year



Cumulative Target Signed PPA



EMBRACING SMART ENERGY SOLUTIONS

Peer-to-peer Energy & Carbon Credit Trading Platform

Innovative Energy Solution for Increased Opportunities and Efficiency

This project will boost renewable portfolio for at least **additional 200 MW**

Enabling industrial users to save more than **100 Million** Baht per year their electricity cost

Achieve over **4,300,000 tons of CO2** reduction over the project life cycle.

Key Components

- Energy Trading Platform (using Blockchain Technology)
- Smart Metering and Billing
- Prosumers
- Consumers/Buyers
- PEA distribution Network

Key Benefits

- ✓ Energy cost saving to industrial users
- ✓ Increase opportunity to invest in renewable energy
- ✓ Help reduce fossil fuel and climate change because we can fully utilize the possible solar area

SET Best Innovative Company Award 2022

Received the Best Innovative Company Awards

from the SET Awards 2022 for "Peer-to-Peer Energy Trading: Future of Energy Market" an innovative system using blockchain technology."

CLIMATE-RELATED PHYSICAL AND TRANSITION RISKS

PHYSICAL RISKS

FLOODING AND EXTREME WEATHER
The increased in severity of extreme weather events and flooding

DROUGHTS
The increased in severity of extreme weather events, relating to droughts.

STORMS AND LIGHTING RISK
The increased in severity of extreme weather events, relating to storm and lighting

AIR TEMPERATURE
The increased in severity of extreme weather events, relating to air temperature.

TRANSITION RISKS

POLICY AND LEGAL
Legal and regulation changes relating to GHG reduction, such as enforcing the use of construction materials with no GHG emission.

TECHNOLOGY
Changes in direction and development of current renewable energy technology may leads to new demands and expectations from customers.

MARKET
There may also be more demand for environmental friendly building (in both construction process and GHG emission).

REPUTATION
WHAUP's stakeholders may pay more attention and demand that the Group take actions to reduce GHG emissions.

MANAGING CLIMATE-RELATED PHYSICAL RISK #1

MANAGING FLOOD RISK

Strategic Location Selection; substantial above sea level, solid foundation and no obstruction against community water flow

Design properties to cope with severe weather; water drainage, retention pond and building structure (storm and earthquake resistance)

Routine monitoring of water storage level

Routine inspection and maintenance for dikes and water pumps to ensure effective conditions

Installation of ultrasonic equipment and SCADA system to closely monitor water levels and manage raw water supply

UOC: Flooding Prevention System at WHA SIL

MANAGING DROUGHT RISK

Design properties to cope with severe weather; reservoirs system (to optimize use of rainfall at site and as buffer during tight supply) and alternative raw water source

Increase the efficiency of natural water use through the implementation of the **SCADA project**

Construction of **additional ponds and water reservoir** to ensure that capacity of water storage is sufficient for self-supply

Use **Water Reclamation** which reduce the Group's reliance on natural resources, by reducing water withdrawal and water discharge and save costs on raw water sourcing

Reclamation plant at ESIS and Water Reservoir

MANAGING CLIMATE-RELATED PHYSICAL RISK #2

MANAGING STROMS RISK

Select construction materials that meet high standards for utility and power systems to ensure durability and resilience to withstand severe weather conditions.

Studying and developing innovative materials and equipment used in the construction of solar power generation projects to reduce temperatures, prevent overheating, and protect against lightning strikes.

Monitor closely the weather conditions and changes through various news channels

Regularly assess the environmental changes and the surrounding areas of each project.

MANAGING AIR RISK

Choose innovative materials for constructing utility and power system that can help reduce internal temperatures and enhance the efficiency of the overall structure, including air ventilation.

Develop a long-term disaster management and risk mitigation plan.

Upgrade the utility and power system to accommodate events that may arise from climate change.

Enhance awareness and capabilities to effectively manage the entire value chain.

MANAGING CLIMATE-RELATED TRANSITION RISKS

POLICY AND LEGAL

TECHNOLOGY

MARKET

REPUTATION

Managing Policy & Legal Risk

- Track relevant legal changes
- Establish guidelines for effective mitigation actions
- Increase renewable energy to reduce greenhouse gas emissions
- Use construction materials that reduce greenhouse gas emissions
- Reuse construction materials through processes of recycling and re-use

Managing Technology Risk

- Expand to alternative energy services for customers
- Readiness from the design process of the building that can install solar panels on the roof immediately
- Study various technologies to reduce the impact of climate change

Managing Market Risk

- Adopt cutting-edge technologies to complement the concept of SMART ECO Industrial Estates
- Provide solar energy in the Group's warehouse building that can help customers to reduce energy costs and environmental impacts

Managing Reputation Risk

- Plan and implement strategy towards becoming Net Zero while support customer and partners in utilizing and transitioning to renewable energy
- Work together with customers and partners to reduce climate change challenges throughout business value chain

USING TECHNOLOGIES TO MANAGE CLIMATE CHANGE RISK – UTILITIES BUSINESS

WHA Utilities & Power

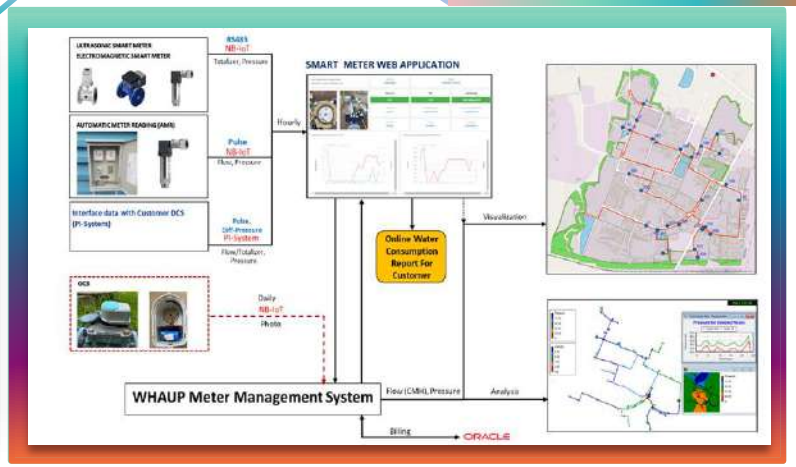
SCADA System for Remote Monitoring

SCADA & UOC for WHAUP's improvement

- Able to monitor and control all WHAUP's utility plants through SCADA & UOC
- Able to report real-time key operational performance

Example of the screen at Unified Operation Center (UOC)

Smart water solution



- To transform manual meter reading to automatic system by using smart devious and digital platform

- Better energy usage, load distribution and pressure control

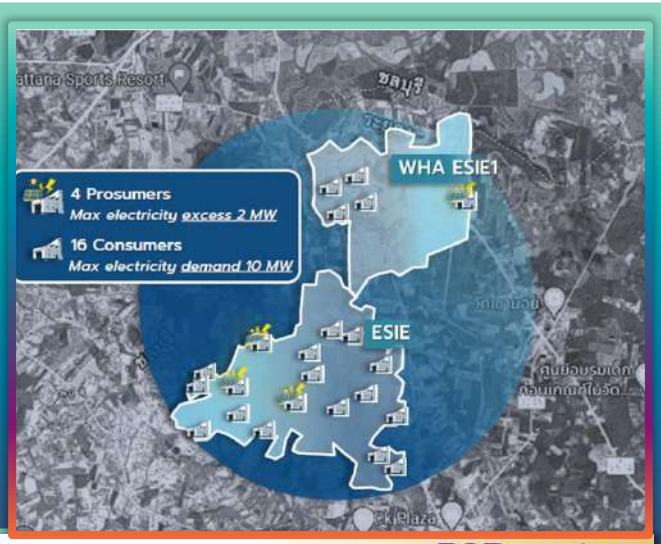
USING TECHNOLOGIES TO MANAGE CLIMATE CHANGE RISK – POWER BUSINESS

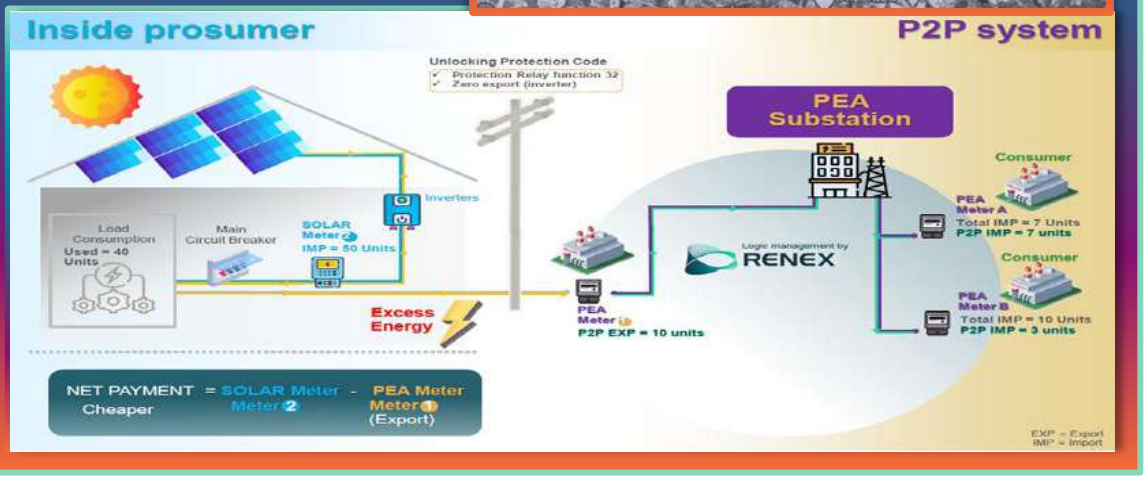
Solar Monitoring and predictive O&M

- To monitor, Control and plan for maintenance of Solar projects efficiently

P2P Energy Trading

- To promote clean energy by trading Solar energy within WHA's IEs
- To optimize electricity management by using AI and Block Chain Technology





TAKLING CLIMATE CHANGE BY CLEAN ENERGY

Reduce power consumption

Promote Clean Energy to customers

Reduce power consumption at water plants by installing solar panels with battery storage system

WHAUP has developed a pilot project **to install solar rooftop panels coupled with battery energy storage system (BESS) at the water plant in Eastern Seaboard Industrial Estate (ESIE)**. The solar rooftop system was completed and commenced operation in November 2021.

- The system's solar rooftop panels generated approximately 813.2 kW of solar power with **BESS capacity of 550 kWh**.
- This project will help WHAUP **reduce around 1,150 MWh of electricity off-take from the grid** each year, which is equivalent to **saving on electricity expenses of around 4 million Baht per year**.
- WHAUP will be able to **reduce greenhouse gas (GHG) scope 2 emissions by 15,000 tCO2e** due to grid electricity substitution throughout the project's lifetime.

Solar Rooftop & Solar Carpark for customers

The company has also implemented various renewable energy projects, including solar power generation with a contracted capacity of **133** megawatts in 2022. It can offsets greenhouse gas emissions by approximately **93,100 tons** per year from **Scope 2 emissions**.

Thailand's largest solar carpark

7.7 MW in WHA ESIE 1

Solar PV eco System

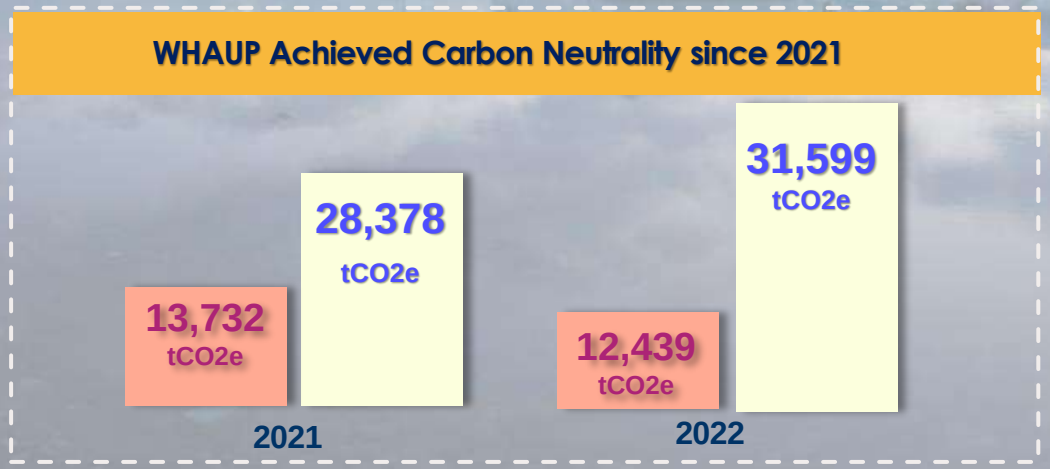
4.2 MW for Solar Rooftop, Solar Carpark and Solar Floating in ESIE 4

OUR NET ZERO EMISSION TARGET

WHAUP Achieved Carbon Neutrality since 2021

NET ZERO CO_2 EMISSIONS 2050

WHAUP provides solar power, with private PPA scheme, creating Avoided CO2 Emission offsetting CO2 Emissions from our operation



WHAUP supports WHA Group to Achieving Net Zero Greenhouse Gas Emissions by 2050

WHA Utilities & Power

COMPANY OVERVERVIEW

KEY CHALLENGES AND OUR ACTIONS

WHAUP SUSTAINABILITY

WHAUP SUSTAINBILITY HIGHLIGHT

WHA Utilities & Power

"The Ultimate Solution for Sustainable Growth"

ENVIRONMENTAL

CHANGING FOR A MORE SUSTAINABLE WORLD

- Solar Power Projects
- Battery Energy Storage System
- P2P Energy Trading
- Energy Reduction Program
- Smart Utilities & Power
- Water Reclamation
- Demineralized Reclaimed Water Project
- Smart Metering
- SCADA
- Biodiversity Policy and Commitment
- Wastewater Treatment
- Waste to Energy
- Plastic Reduction Program
- WeCycle
- Sludge to Soil Nutrient

SOCIAL

WELL-BEING & BETTER LIFE

- Human Rights Awareness
- Satisfactions
- Whappy Program
- Art Camp For Students
- Scholarships
- Teacher Fellowship Program
- Clean Water For Planet
- Wetland Water Systems
- Clean Water For Planet Wet Land & Learning Center
- Pan Gan Project
- Water Hyacinth Project
- Zero Incident Goal
- MTTS Culture Development

GOVERNANCE

INTEGRITY & ETHICAL RESPONSIBILITIES

- Code of Conducts
- Corporate Document Management System (CDMS)
- Paperless Transformation
- Digital Transformation Program
- 5-star CGR Rating
- Outstanding AGM Scoring
- Gender Diversity
- Woman Empowerment
- Stakeholder Engagement
- Supply Chain Management
- Risk And Crisis Management
- Data Security Management

WHAUP SUSTAINBILITY MAPPED WITH 17 SDG GOALS

#16 PEACE & JUSTICE STRONG INSTITUTIONS
- Code of Conducts
- 5-star CGR Rating
- Outstanding AGM Scoring
- Supply Chain Management
- Risk and Crisis Management
- Data Security Management

#15 LIFE ON LAND
- Biodiversity Policy And Commitment
- Tree Planting Project

#13 CLIMATE ACTION
- **P2P Energy Trading**
- Solar power projects
- Battery Energy Storage System
- Energy Reduction Program
- **Net Zero**

#12 RESPONSIBLE CONSUMPTION & PRODUCTION
- Waste to energy
- Plastic reduction
- Sludge to Soil Nutrient
- WeCycle
- Water Hyacinth Project

#9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
- Demineralized Reclaimed Water
- SCADA
- Smart Metering
- **P2P Energy Trading**
- Digital Transformation Program
- Corporate
- Document Management System (CDMS)

#17 PARTNERSHIPS TO ACHIEVE THE GOAL
- Clean Water for Planet
- Clean Water for Planet Learning Center
- Water Hyacinth Project

#1 NO POVERTY
- Pan Gan Project
- Water Hyacinth Project

#2 ZERO HUNGER
- Pan Gan Project
- Water Hyacinth Project

#3 GOOD HEALTH & WELL-BEING
- Zero Incident Goal

#4 QUALITY EDUCATION
- Teacher Fellowship Program

#5 GENDER EQUALITY
- Human Rights Awareness
- Code of Conducts
- Gender Diversity
- Woman Empowerment

#6 CLEAN WATER & SANITATION
- Water Reclamation
- Demineralized Reclaimed Water
- Wastewater Treatment
- Clean Water for Planet
- Water Hyacinth Project
- Wet Land & Learning Center

#8 DECENT WORK & ECONOMIC GROWTH
- Enhance Employees Engagement and Satisfactions
- Water Hyacinth Project

#7 AFFORDABLE & CLEAN ENERGY
- **P2P Energy Trading**
- Solar Power Projects
- Battery Energy Storage System

Remark: *represents MTTS Projects*

CLEAN WATER FOR PLANET PROJECT: WASTEWATER MANAGEMENT FOR SOCIETY

CLEAN WATER FOR PLANET Roadmap

2000-2019

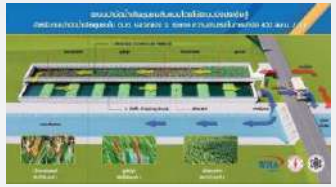
2020

Clean Water For Planet To Pluakdaeng Community

Clean Water For Planet Wang Tanode Project Chantaburi Province

Reclaim Water Projects

MOU with CU, Laemchabang, Pattaya



2021-2023

Continuous Pilot Project for City Water Treatment.

Clean Water Detective Project

Establish WHA Clean Water For Planet Learning Center

To build a sustainable wastewater treatment system in Nong-kla municipality, Chantaburi province, and named the project is "**Wang Ta Note Constructed Wet Land Project".**

This system can **treat up to 800 cubic meters of wastewater per day**

2024-2026

To create brand awareness of **"Clean Water For Planet"**

WHAUP is well recognized for wastewater treatment expert

2026 - onwards

2026

To emphasize our brand positioning in

"Professional consultant for water management, wastewater treatment for the communities, public and private partners, and customers"

CONSTRUCTED WETLAND: SUSTAINABIE WASTEWATER TECHNOLOGY FOR COMMUNITY

Constructed Wetland Water Treatment Facility Caring for Environment

WHAUP Constructed Wetland Systems, considered a natural technology that is eco-friendly, cost effective and easy to maintain delivered to Pluak Daeng Sub-District Office in Rayong Province in 2020.

- ✓ **Demonstrate** the application of Simple Wastewater Treatment to Communities in a sustainable method
- ✓ **Reduce** the organic compound by **80%**
- ✓ **Treat** wastewater with the capacity of **146,000** cubic meters per year
- ✓ **Benefit** to **5,984** individuals, **35** apartments, **12,494** houses, and **4** local markets in the Pluak Daeng community
- ✓ **Mitigate** risk from complaints related to water pollution to the Company

Sustainable Wastewater Treatment System "Wang Ta Note Constructed Wet Land Project"

In 2022, WHAUP has built a sustainable wastewater treatment system in Nong-kla municipality, Chantaburi province, and named the project as "Wang Ta Note Constructed Wet Land Project".

The system can treat up to **292,000 cubic meters** of wastewater per year. It gives Nong Kla communities access to clean water, recreation area, and learning area, and allows WHAUP to reserve such water supply as a backup in the event of drought.

WASTEWATER TREATMENT KNOWLEDGE CENTER

Training couses for students and knowledge-sharing with local organizations

In 2022, there were 8 students participating in the internship program, and 545 interested individuals visited an operational site.

Clean Water for Planet learning Center

The learning centre is a water management consultant center for various organizations or agencies, student communities, and interested individuals.

WASTE MANAGEMENT FOR CIRCULAR ECONOMY

WASTE TO ENERGY

The first industrial waste to energy facility in Southeast Asia to meet European emission standards

Using safe and environmentally sustainable waste incineration technology and high standard air emission control systems

- *Create synergy from collaboration with network of partnership*
- *Explore various sources of waste to energy*
- *Create synergy from collaboration with network of partnership*

Chonburi Clean Energy (CCE)

- **104,208 tons of waste**
- **57,297 MWh to PEA**
- **Saved 38,000 tco2**
- **Sustainable electricity for around 32,000 homes**

Plastic Waste Reduction

Reduce more than 20,000 bottles of plastic waste by stop serving plastic bottled drinking water to its guests and visitors

Sort N' Save Project

The Internal Project increase environmental awareness amongst WHAUP's employees and to explore innovative business platforms in alignment with the circular economy principles

Paperless Culture

WHAUP takes part in WHA Group's journey to digital transformation through the **"E-Paperless" project to drive a paperless culture** within the Company. WHAUP can avoid **63,800 document paper from being printed.**

Hazardous Chemical Containment Reduction

WHAUP has procured chemical substances via **loading tankers** and empty chemical storage containers **over 2 tons/year to landfill were reduced.**

Sludge to Fertilizer

3,958 tons of sludge that are generated from water and wastewater treatment processes **was composed to fertile soil instead of being disposed via Landfill.**

The soil ensures no contaminants (i.e. of heavy metals) that could ultimately damage plantations.

Percentage of Waste to Landfill and Incineration (with no energy recovery)

2019	2022
90%	55%

2025 Target

< 50%

WATER HYACINTH PROJECT: TURNING WASTE INTO VALUABLE PRODUCTS

The Community can take unwanted water Hyacinths from WHA's wastewater pond for free

- **Benefit** to community generate income, save cost from purchasing such water hyacinths that is approximately **80-100 Baht per bundle or 100 strands**, and have a secure source of raw material.
- **Save** WHA ESIE's cost on contractor expenses for removing such water hyacinths **15,000 Baht/month.**
- **Support** this business by purchasing 300 woven baskets from the local community to make use as new year gifts in 2021 contributed to **120,000 Baht** of income to the community.
- **Generate** 1 million Baht in revenue for the community, an additional income of approximately **10,000 Baht/month/person.**

Waste Management Collaboration Project: Hamper and Laptop Case

- This project collected 8,850 used PET bottles and approximately 4.0 tons of water hyacinth to produce 300 hampers and 200 laptop cases. **The products are sold at 600 THB each.**
- It can reduce the cost of water hyacinth management by generating such an income with the community to sell the dried water hyacinth fibers for **approximately 40,000 baht.**
- The rest of the water hyacinth in the WHA Group's pond, WHA Group can use it to produce soil fertilizer using in the Group's industrial estates.

WHAUP COMMITED HUMAN RIGHTS PRINCIPLES AND INVESTMENT IN HUMAN RESOURCE FOR SUSTAINABLE GROWTH

WHAUP Human Rights Policy

WHAUP has identified and assess potential and actual human rights issues including risks and impacts covered the followings;

Employee Rights | *Community Rights* | *Customer Rights* | *Supplier & Business Partners Rights*

- ✓ Operational sites and associated activities were assessed on their Human Rights risks and impacts.
- ✓ Operational sites and associated activities which have been identified with high Human Rights risks, Have mitigation measures and/or remediation actions implemented.
- ✓ After the assessment, Operational sites and associated activities were identified with high Human Rights Risks [Salient Issues], Health and Safety of communities, customers and employees, Health and Safety in the supply chain, Livelihood and standard of living for communities

Discrimination and Harassment Policy:
- Zero tolerance on discrimination
- Escalation process
- Non-sexual harassment

Human Rights Commitments:
- Prevent / prohibit human trafficking

Corporate Culture

ADVANCE | *CHAMPION* | *RESOURCEFUL* | *PARTNERSHIP* | *INTEGRITY*

'5 Years' Direction for Human Resource Management

1. Enhance WHAUP Employment Branding in **targeted 1 workforce markets**
2. Revitalize **WHAUP DNA** to promote and foster Digital Transformation & Innovation
3. Accelerate people transformation through **Capabilities Upskill & Reskill**, and promote **Creative Work Environment** to support continuous self-development and drive business results
4. Implement **New Workforce Model** for future proof organization
5. Build **Leadership Pipeline** to ensure business sustainable growth

Human Capital Return on Investment (HCROI)

FY 2022

17 Times

GOVERNANCE STRUCTURE

WHAUP has commitment to become a leading organization equipped with good corporate governance.

As it proved to be a ***"5 stars excellent for 4 consecutive years"*** of Corporate Governance Report assessment from the Thai Institute of Directors (IOD)

- Issued a corporate governance policy according to **"Principles of good corporate governance for listed companies in 2017"**
- Assigned the Corporate Governance and Sustainability Committee (CGC) to review it on a regular basis.

- Appropriate internal control system
- Disclose transparency and accuracy information (including financial statement) to public
- Authorized representatives of the Board of Director according to IPOA

- Financial and Operation Audit
- Compliance Monitoring
- Risk Management
- Follow up and Reporting to the Audit Committee

- Follow WHAUP's Corporate Governance Policy

WHAUP COMPLIANCE POLICY AND RESULTS

"Good Corporate Governance creates long-term Shareholder Value and builds trust with stakeholders"

CGR Rating

5 Stars
Received a CG Rating of "Excellent" (5 Stars) criteria for 4 consecutive years

AGM Scoring

100 Score of AGM Check list for 6 consecutive years

Code of Business Conduct

100% of employees have been communicated on the Code of Conduct

Supplier Code of Conduct

100% of suppliers are communicated with Supplier Code of Conduct

100% have signed acknowledgement to the Supplier Code of Conduct in 2022

Business Integrity

WHAUP has been CAC member since 2019
And was renewed as a member in January 2023.

Data Security

0 Number of identified leaks, thefts, or losses of customer data

Q&A

ENVIRONMENTAL

SOCIAL

GOVERNANCE

APPENDIX

SHAREHOLDER AND MANAGEMENT STRUCTURE

Board of Director

Ms. Jareeporn Jarukornsakul
Chairman of Board of Directors

Mrs. Punnee Worawuthichongsathit
Independent Director and Audit Committee

Mr. Weidt Nuchjalearn
Independent Director and Chairman of Audit Committee

Mr. Ekajai Tivutanond
Independent Director and Audit Committee

Mr. David Richard Nardone
Director

Mr. Vivat Jiratikarnsakul
Director

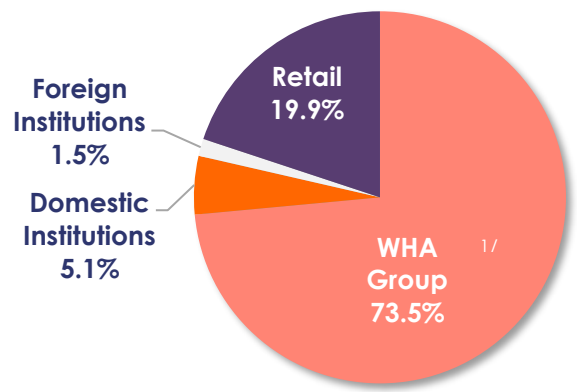
Mr. Numchai Lowattanakul
Independent Director

Mr. Somkiat Masunthasuwun
Director and Chief Executive Officer

Mr. Pajongwit Pongsivapai
Director

Mr. Krailuck Aswachatroj
Director

Shareholders Structure



Shareholders	No. of shares	%
WHA Industrial Development Public Company Limited	2,694,852,570	70.5%
Bangkok Life Assurance Public Company Limited	97,830,300	2.6%
Ms. Jareeporn Jarukornsakul	73,836,600	1.9%
WHA Industrial Development International (SG) PTE. LTD	43,500,010	1.1%
Ms. Chatchamol Anantaprayoon	33,363,478	0.9%
Thai NVDR Company Limited.	27,094.911	0.7%
Mr. Chaiwat Phupisut	26,684,956	0.7%
Ms. Supitchaya Phupisut	26,540,006	0.7%
South East Life Insurance	22,185,800	0.6%
KKP Equity Retirement Mutual Fund	21,545,600	0.6%
Others	757,565,769	19.8%
Total	3,825,000,000	100.0%

5-YEAR SUSTAINBILITY FRAMEWORK

BUSINESS DIRECTION

"The Ultimate Solution for Sustainable Growth"

Corporate Value

NATURAL RESOURCES

- **Double the reclaimed industrial water for industrial use** from 30,200 cubic meter/day in 2020 to 60,400 cubic meter/day **by 2025**
- **Optimize proportion of waste to landfill** and incineration approach by 2025

Corporate Value

DIGITIZATION

- **Revenue generation and cost reduction from innovation projects**
- **100% data breach prevention** in terms of data leaks, thefts or losses of both inbound and outbound data are achieved in 2025

Corporate Value

HUMAN CAPITAL

- Maintain **Human Capital Return on Investment at 14 times** by 2025
- targeted at ≥80.0% in 2022
- 7% overall **turnover rate** in 2025
- 5% **talent turnover rate** in 2025

Corporate Value

GOVERNANCE

- **100% acknowledgement and communication of Code of Conduct** to subsidiary, employees and suppliers/contractors by 2025
- **100% employees at all levels are trained on risk management** by 2022
- **Maintain Number one of market share for industrial development** at 40%
- 97% **customer satisfaction score** in 2022

Corporate Value