ASSET WORLD
CORPORATION

Task Force on Climate-related Financial Disclosures (TCFD)

BUILDING
A BETTER FUTURE

Introduction

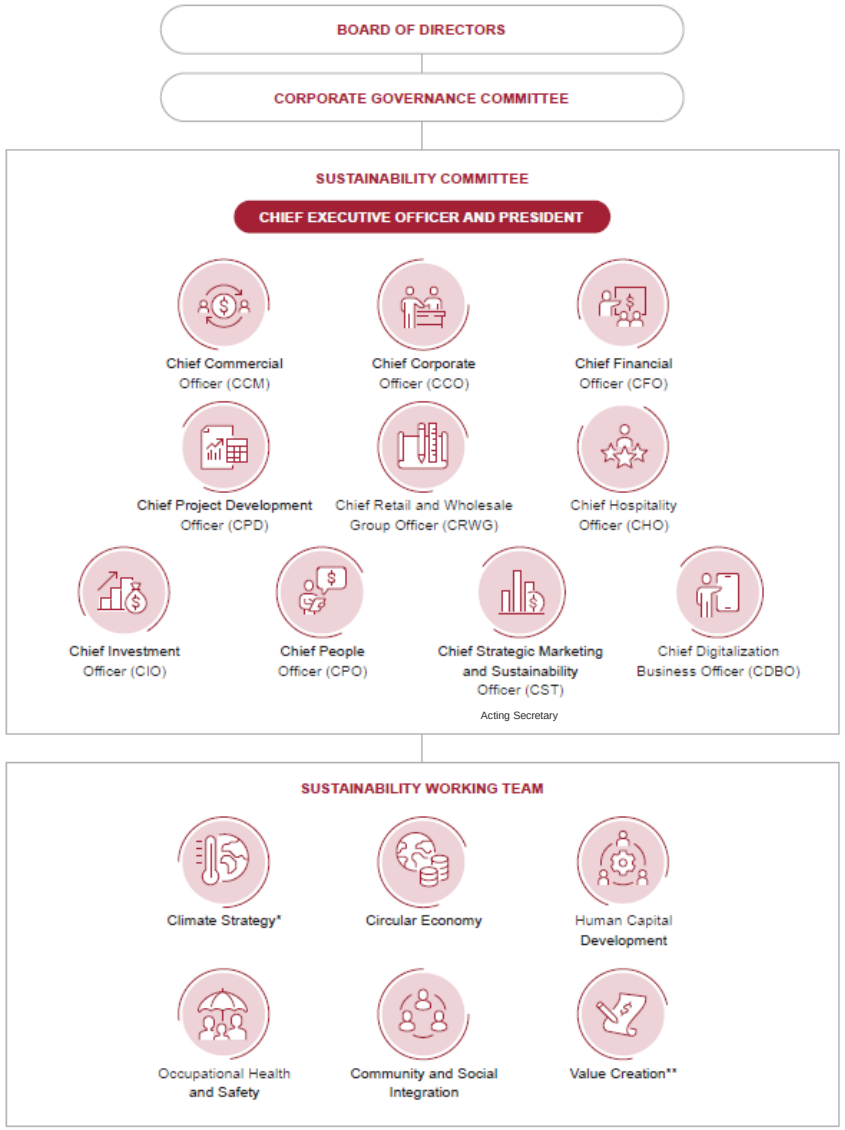
Asset World Corporation (AWC) is a leading real estate and hotel company in Thailand which climate change is one amongst the company's sustainability materiality.

The company pledges its strong and measurable commitment to become carbon neutral by 2030. The company has taken a more vigilant approach to climate change, which is now escalated into a climate crisis. With this urgent call, the company strives to minimize and eliminates climate-related physical impacts. These are, for example, the EEP, water stress monitoring, circular economy through different interventions - sustainable packaging, and zero waste commitment.

AWC became the TCFD's supporter in August 2021 where the company will set up the target that decisively addresses imminent climate risks. AWC has also adopted the recommendations of the Task Force on Climate-Related Financial Disclosure (TCFD), together with climate actions of the Sustainable Development Goal 13 to integrate into our cooperate strategy.

This TCFD report is designed to describe how climate change may impact our business and how AWC can address and mitigate climate risks whether current, potential, emerging, and future one. The content of the report aligns with the TCFD framework - Governance, Strategy, Risk Management, and Metrics and Targets. The report discloses the date for the year 2022 and covers the AWC's GHG performance in all AWC assets.

Governance



Asset World Corp Public Company Limited (AWC) understands that strong governance, transparency in business conduct, and integration of sustainability in all that we do is fundamental to resilient and successful business operations. Hence, AWC has a Board of Directors (BoD) that is comprised of members with profound experience and who are from diverse backgrounds, in order to successfully lead AWC toward its vision, mission, and goals.

Additionally, To echo AWC's commitment to creating sustainable value for all stakeholders, a sustainability committee, or SC, sits under the Corporate Governance Committee (CG), and is appointed by the BoD to oversee the overall sustainability management of all business units, to set targets, establish policies, monitor performances, and ensure the accuracy of sustainability information disclosures. The SC is chaired by the Chief Executive Officer and President and also includes all members of the Management Committee, or MACO, as committee directors.

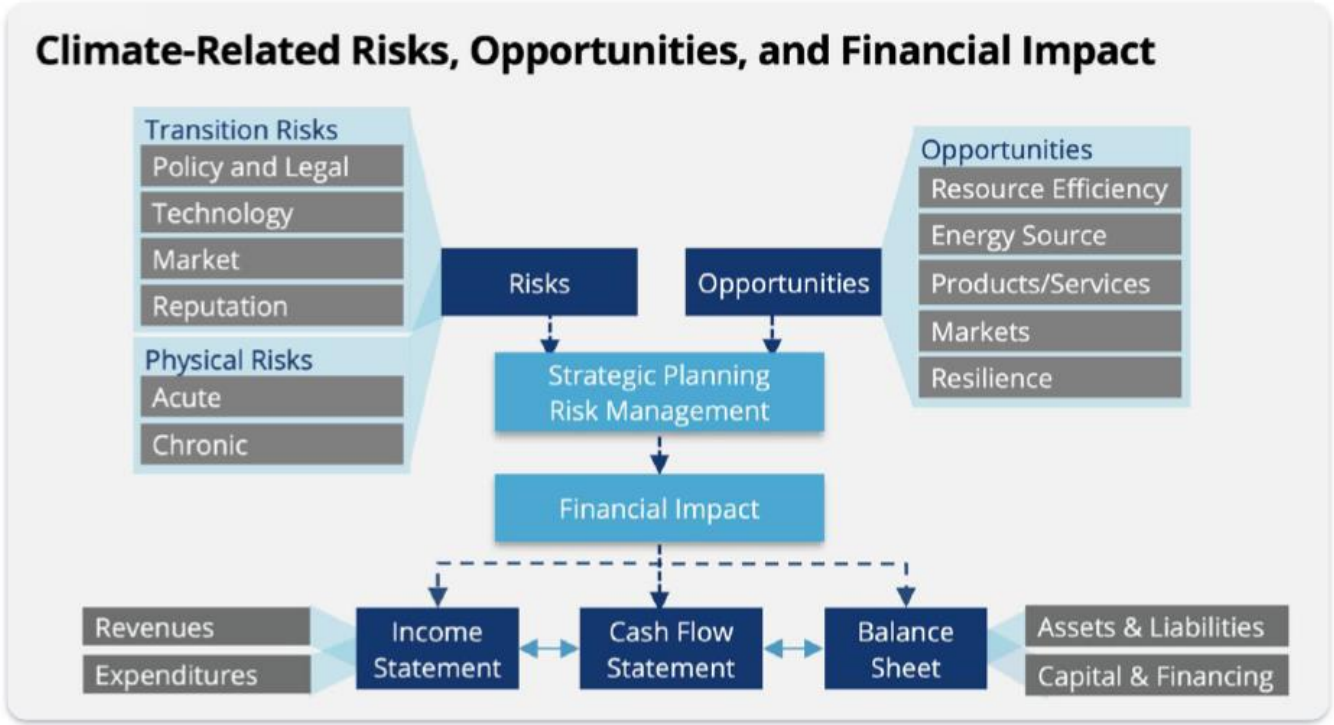
In 2022, several sustainability-related topics were brought into the committee's quarterly meetings, such as the sustainability strategy, the refinement of targets, and AWC's sustainability position in the national and international arena.

Strategy

As a leading national real estate developer, with over 30 assets across the country, AWC is obliged to minimize the environmental impacts from our operations throughout the value chain, including investment, project development, construction, asset management, and service/product usage by customers and consumers. To reduce the impacts on the environment, AWC has set the target to **become a carbon-neutral organization by 2030**, and in order to achieve the target AWC is in the process of finalizing annual targets and the Company has centered the focus on standards and certification compliance, energy efficiency enhancement, technology implementation, and stakeholder collaboration

Risk Assessment on Climate Change

In recent years, the world has been facing several severe natural disasters, which were mainly triggered by rising global temperatures. These disasters have been directly impacting the quality of life of people around the world, as well as the integrity of infrastructures. In order to minimize the severity of natural disasters and secure a livable environment for all living species, international organizations, such as the Intergovernmental Panel on Climate Change (IPCC) and the United Nations (UN) asked all nations and sectors to reduce GHG emissions and reach net zero as soon as possible. However, the recent report from COP27 revealed that efforts to reduce GHG emissions have been insufficient, and more ambitious actions are needed immediately from all nations and sectors. In response to the recent report, the Company integrates climate related risks and business opportunities in line with TCFD (Task Force on Climate - Related Financial Disclosure) recommendations



Source: Final Report Recommendations the Task Force on Climate-related Financial Disclosures, TCFD, June 2017

Scenario Analysis for Climate-related risk

The climate-related risk management has been analyzed from the high-emission scenarios which are considered by business as usual (4ºC) and Low carbon future (2ºC) to understand potential climate change will have impacts on business.

	High emission scenario - Business as usual	Low emission scenario - Low carbon future 2 ºC
Characteristic	• Significant impact to physical risk, business as usual with little-to-no additional action from the broader global community • The policies and actions are less ambitious • Emissions remain high • Face several severe natural disasters such as floods, drought, water stress, heat extreme, etc.	• Significant impact on transition risks, most ambitious global emissions mitigation scenario • The policies and actions limit the warming to 1.5°C above pre-industrial levels • The greenhouse gas emissions need to be reduced rapidly in the coming years.
Reference point	• Representative Concentration pathway (RCP8.5) • Representative Concentration pathway (RCP4.5) Ref: the Intergovernmental Panel on Climate Change (IPCC)	• Nationally determined contributions (NDCs) • 2 Degree Scenario (2DS) Ref: International Energy Agency (IEA)
Time Horizon	Short term 1-3 years Middle term 3-5 years Long term > 5 years	

Physical Risk

Acute (Short - Medium term :1-5 years)

- The manifestations of climate change have caused natural disasters in several areas of Thailand such as flooding or windstorms which damaged the Company's properties and services. The Company's business may also be affected by the outbreak of public health epidemics, or even the fear of such an outbreak, in Thailand or elsewhere.
- Operation costs and raw material prices are increased.

Chronic Long term (>5 years)

- Increasing flooding, windstorms, extreme temperature, drought, and rising sea levels
- Impact of water stress on production.

Potential Financial Impact

- Increased insurance cost
- Increased costs associated with building construction/maintenance
- Increased cost for the operational expenditure of HVAC system.

Physical Risk – Hazard Level

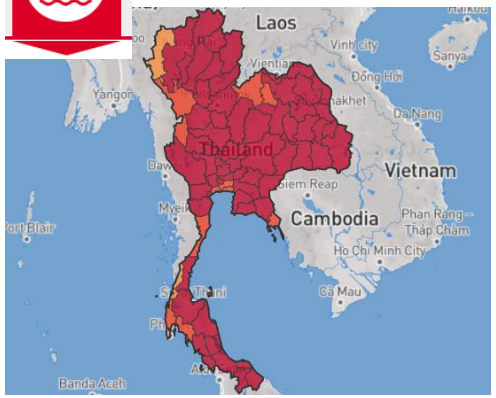
Based on ThinkHazard!, the classification of hazard level is based on the likelihood, frequency, and intensity of the hazard exceeding predefined thresholds. A higher hazard indicates that there is greater potential for damage or disruption to activities or a project, according to the underlying hazard data. AWC operation sites are in 7 areas of Thailand to consider hazard levels with related climate change impact that affected business disruption and revenue.

Location	No. of Hospitality	No. of Commercial	No. of Retail & Wholesale	Urban Flood	River flood	Coastal flood	Water scarity	Cyclone	Extreme heat	Wildfire	Landslide	Tsunami	Earthquake
Bangkok	8	4	6	Medium	Medium	High	Medium	High	High	High	Very Low	N/A	Low
Nonthaburi	-	-	1	High	High	N/A	Medium	Medium	High	High	Very Low	N/A	Low
ChaingMai	2	-	1	High	High	N/A	Low	Low	Medium	High	High	N/A	Medium
Hua Hin	1	-	-	Medium	Low	N/A	Low	High	Medium	High	Medium	Low	Low
Krabi	1	-	-	High	Medium	High	Very Low	High	Medium	Medium	Low	Medium	Low
Phuket	2	-	-	High	Low	High	N/A	High	Medium	Medium	High	Medium	Low
Samui	4	-	-	Low	Very Low	High	Very Low	High	Medium	Medium	High	Low	Low

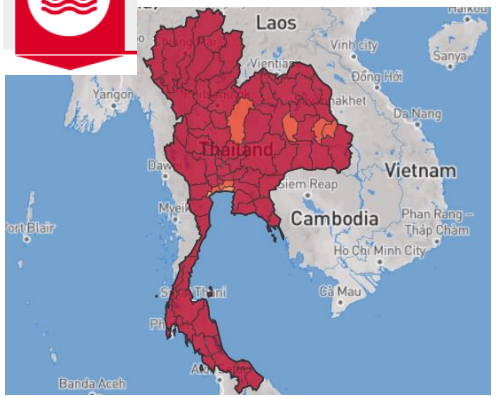
Source: https://www.thinkhazard.org/en/

Physical Risk: Identify Natural Hazards

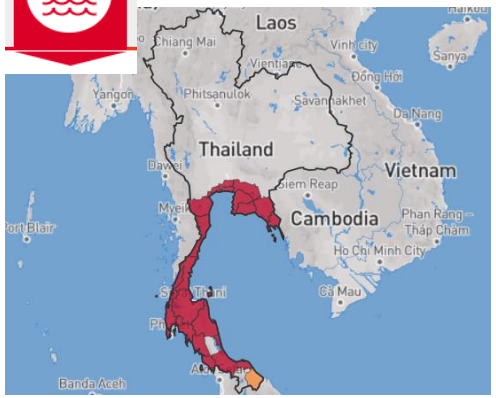
Urban Flood



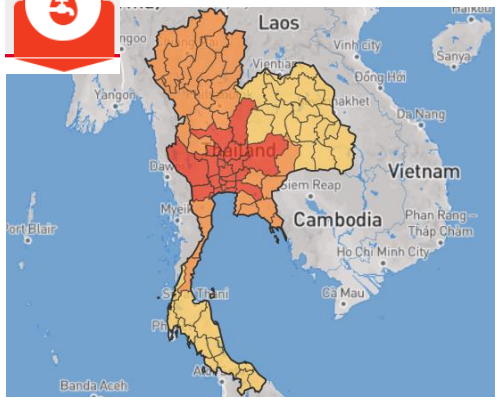
River Flood



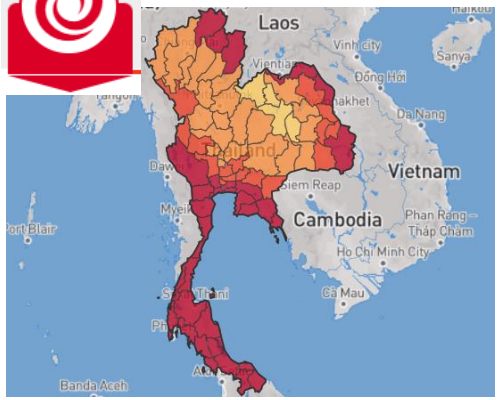
Coastal Flood



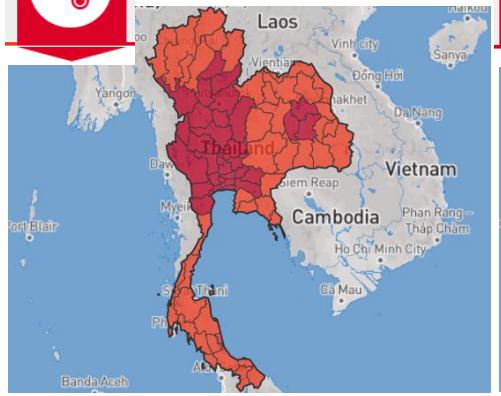
Water Scarity



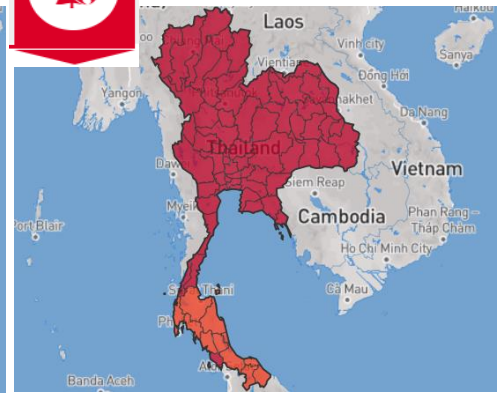
Cyclone



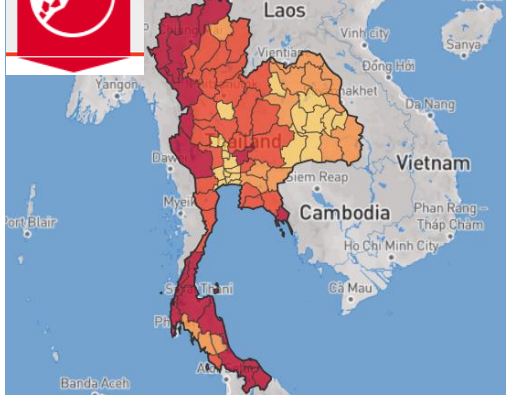
Extreme Heat



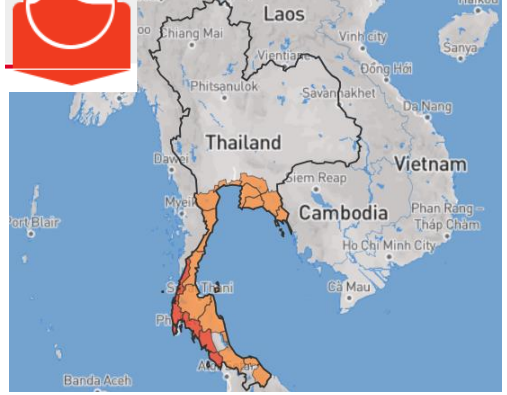
Wildfire



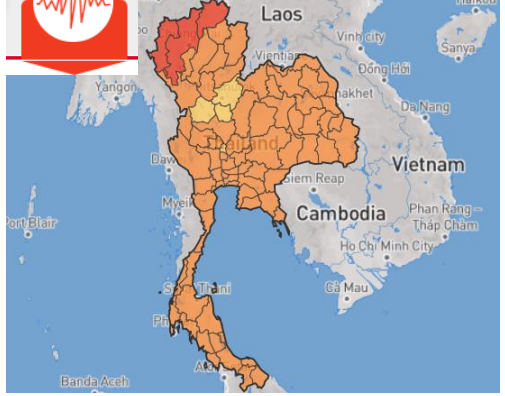
Landslide



Tsunami



Earthquake



High
Low
Medium
Very low

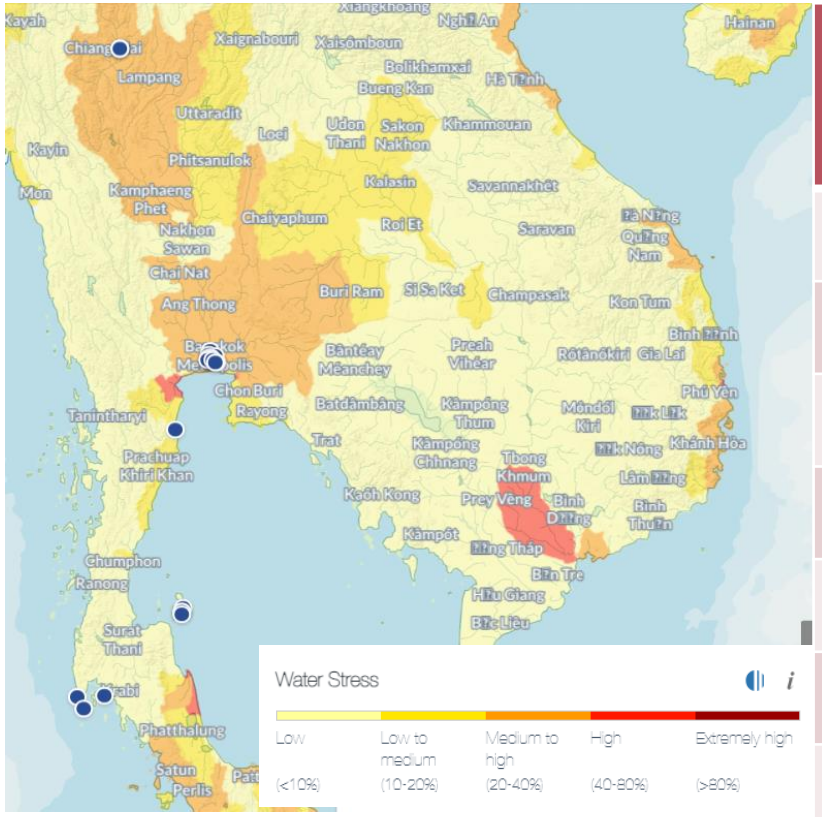
Source: https://www.thinkhazard.org/en/

Adaptation of flood management plans

Flood Risk Level	Adaptation of flood management plans	Context-specific plan (Target: < 5 years)
Low	(1) Prepare flooding response plan (2) Monitor the situation/ water level of nearby river/canal (**Source:** http://weather.bangkok.go.th/)	• 4 Hotels in Samui
Medium	(1) Prepare flooding response plan (2) Monitor the situation/ water level of nearby river/canal (**Source:** http://weather.bangkok.go.th/) (3) Check the machines and equipment (e.g., water pump) to ensure they are working properly. (4) Check the drain, and make sure there is no trash to block or slow the water. (5) Prepare a list of electrician circuits that must be cut off if flooded. (6) Prepare for additional protection equipment e.g., sandbag. (7) Arrange a meeting with the working team to clear their roles and responsibilities.	• 8 Hotels, 4 Commercials, and 6 Retails & Wholesale in Bangkok • 1 Hotel in Hua Hin
High	(1) Prepare flooding response plan (2) Monitor the situation/ water level of nearby river/canal (**Source:** http://weather.bangkok.go.th/) (3) Check the machines and equipment (e.g., water pump) to ensure they are working property. (4) Check the drain, make sure there is no trash to block or slow the water. (5) Prepare a list of electrician circuits that must be cut off if flooded. (6) Barricading (put on sandbag) / sealing the spot to prevent leaking water (7) Rehearse the plan to ensure the working team clearly understand what to do if there is a flooding (8) Prepare plan to support tenants	• 2 Hotels, 1 Retail in Chaing Mai • 2 Hotels in Phuket • 1 Hotel in Krabi • 1 Retail in Nonthaburi

Physical Risk : Water Stress in 2030 and 2040

Scenario analysis of water stress is conducted to evaluate the impact of key physical risks under selected climate scenarios using information specific to AWC operations. AWC operation sites are used as input in the Water stress impact evaluation tool (Aqueduct)* based on 2 scenarios;
1. Business as usual scenario (SSP2 RCP8.5) 2.Optimistic" scenario (SSP2 RCP4.5)(1.1-2.6 °C by 2100)



Location	No. of Hospitality	No. of Commercial	No. of Retail & Wholesale	2030		2040	
				RCP4.5	RCP8.5	RCP4.5	RCP8.5
Bangkok	8	4	6	Medium-High	Medium-High	Medium-High	Medium-High
Nonthaburi	-	-	1	Medium-High	Medium-High	Medium-High	Medium-High
ChaingMai	2	-	1	Medium-High	Medium-High	Medium-High	Medium-High
Hua Hin	1	-	-	Low	Low	Low	Low
Krabi	1	-	-	Low	Low	Low	Low
Phuket	2	-	-	Low	Low	Low	Low
Samui	4	-	-	Low	Low	Low	Low

Source: https://www.wri.org/aqueduct

Transition Risks

Policy Long term (>5 years)

- Explicit action plan that enables to reduce emission towards the carbon neutrality goal
- Energy consumption reduction through promotion of energy efficiency initiatives
- Legislation focused on climate change – carbon tax, carbon credits, etc

Technology Medium term (3 - 5 years)

- Failure to embrace and integrate new technology/ method to reduce emission
- Adopt a new array of compelling construction technologies, while investors and customers are paying attention to the profound impacts on their health and well-being and the environment rather than just the service quality and fee.

Reputation & Market Medium term (3 - 5 years)

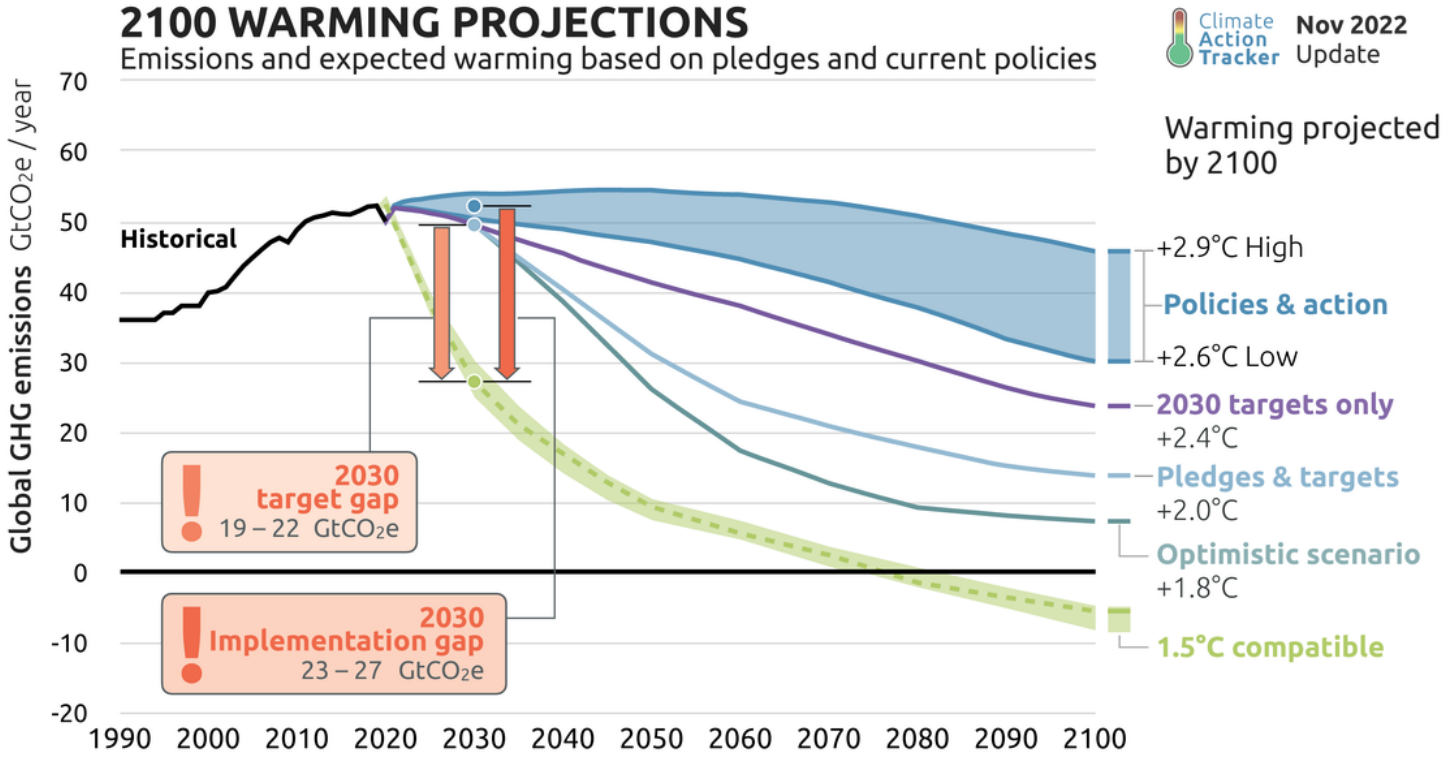
- Stakeholders demand for real estate companies where climate risks are included in the investment.

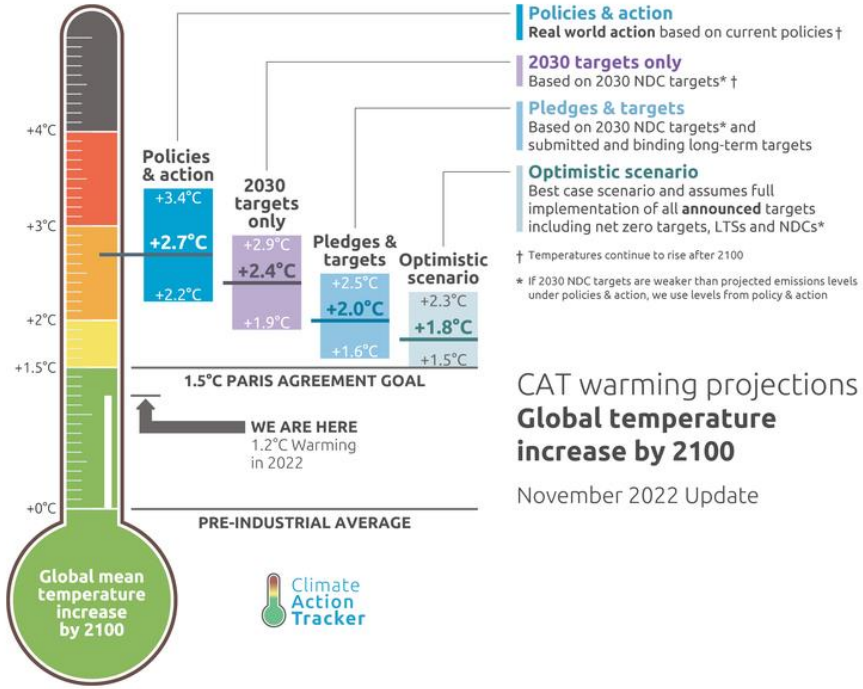
Potential Financial Impact

- Decrease in subsidies for certain technologies
- Additional investment costs to bring the real estate portfolio in line with national laws
- Strict enforcement of rules that properties can only be rented if they meet a certain energy standard
- Introduction of environmental taxation, e.g., Carbon tax
- Increased cost for new construction technologies.
- Loss of reputation
- Negative impact on stakeholder engagement

Evaluating progress towards the Paris Agreement

In the case of the 2C target, the Paris Agreement's "well below" language has been interpreted as ensuring that there is no more than a 33% chance of exceeding 2C – and, therefore, a 66% chance of staying below it. But the 1.5C target could be interpreted as either aiming for a 50% chance of staying below 1.5C target.



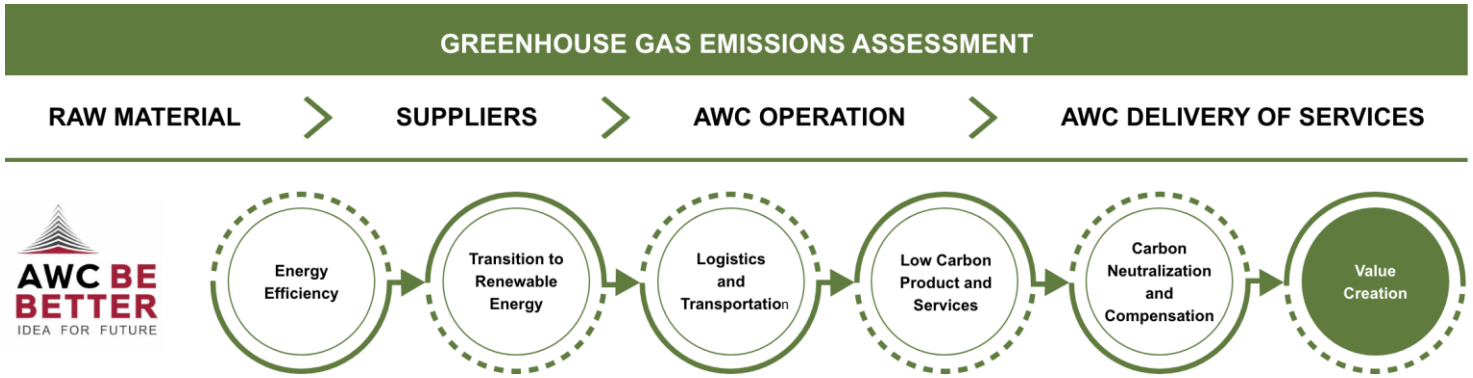


Source: https://climateactiontracker.org/global/temperatures/

Metrics and Targets

TARGET BECOME CARBON-NEUTRAL WITHIN 2030

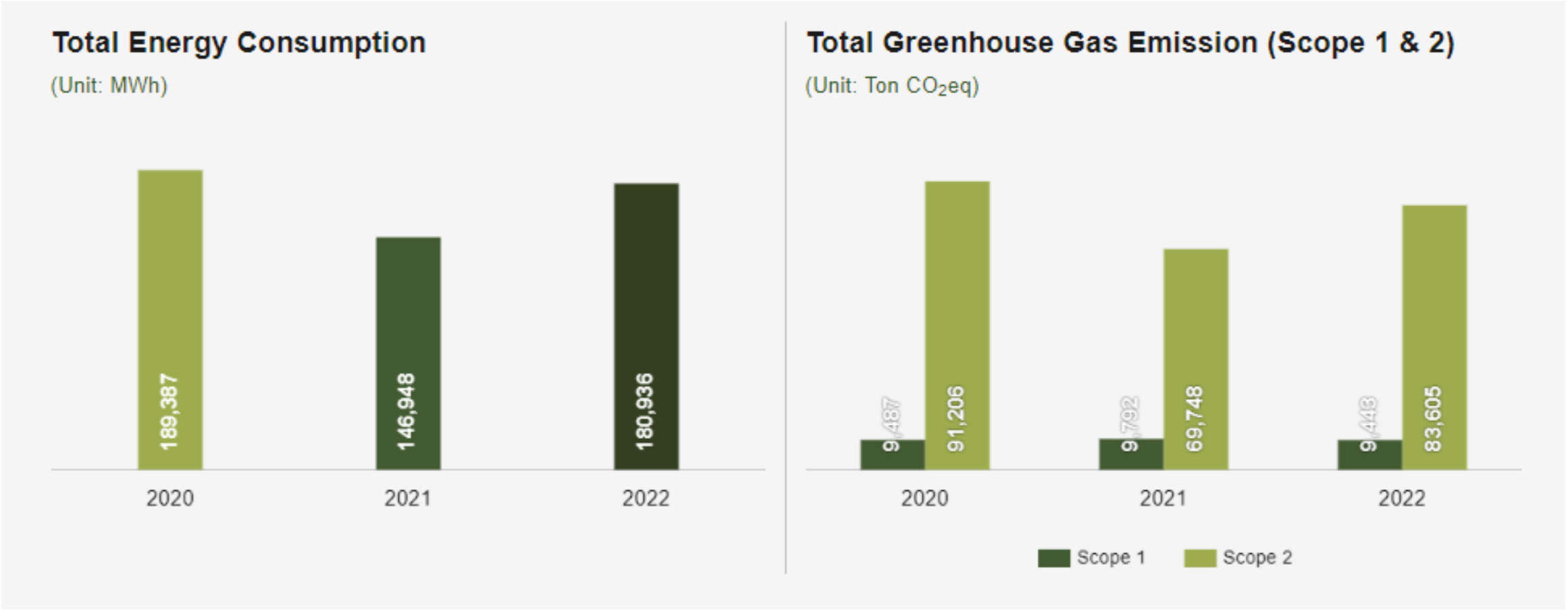
Strategic initiatives towards carbon neutrality target



Working under the Better Planet Pillar, AWC developed the Strategic Initiatives on Climate Strategy, underpinning the company's target **to become a carbon-neutral business by 2030**. The Climate Strategy focuses on monitoring and measuring the volume of greenhouse gas emissions across all AWC operations, starting from raw material sourcing to the delivery of our products and services. To leverage the AWC's capacity to help combat climate change and reduce GHG with measurable and progressive outcomes, our energy efficiency plan is designed in according to international recognized green building standard such as LEED and EDGE etc. In addition, we shape our investment strategy towards energy technology projects and renewable energy transition - the result of which helps reduce energy costs. In line with this, the company will launch a green purchasing and low carbon tourism program contributing to low-carbon products and services. With the intention to reduce our carbon emissions, carbon storage and carbon offsetting activities are to be integrated in AWC's tree planting activities, expansion of green spaces, and carbon credit trading. Engaging with the local community and generating more incomes from low carbon products and services are also enablers to create value.

Based on Realistic Target	Baseline Year	% Emission Reduction compared to Baseline Year	
		2023	2030
Scope 2 Reduction Target	Avg 2017-2019	0.8%	24%
Total GHG Scope 1 & 2 Reduction Target	N/A	0.7%	22%

Energy and Greenhouse Gas Emission Performance



Energy Efficiency Plan (EEP)

AWC focuses on sustainable energy management, environmentally friendly business operations, maintains and ensures full utilization of resources, promotes the use of renewable energy and waste management throughout the value chain. The company understands and acknowledges its role in combating climate change through its operations. AWC continues to pursue our journey to enhance energy efficiency through Energy Saving Initiatives (ESIs), which is a high-level carried-on project to lessen energy consumption and GHG emissions. In 2022, 14 ESIs were implemented throughout operating assets according to Energy Efficiency Plan (EEP). The anticipated energy saving of the "Energy Efficiency Plan" is to reduce energy usage by 33 GWh, or by ~13% by 2026, compared with the average annual energy consumption baseline in 2017 - 2019.

AWC believes that the continuous implementation of ESIs will reduce electricity consumption and thus carbon emission. Hence, AWC already expanded plans and implemented across all properties in Hospitality, Commercial, Retail, and Wholesale business units.

RESULT

Performance of EEP in 2022

- ✓ Energy Consumption reduced by **12.96 GWh/y** or **49.26 MB/y** (5% reduction).
- ✓ GHG Scope 2 Emission reduced by **5,947 TonCO_2e/y** or equivalent to **2,973 rais of Forest**

EEP Roadmap and associated ESIs

Y2022	Y2023	Y2024	Y2025 & Y2026
Operation Management	**Short Term ESIs (Low Complexity)**	**Long Term ESIs (High Complexity)**	
O1: Increase 1°F in Chilled water	S1: Clean Chiller / Split / Package Unit	L1: High Efficiency Chiller	
O2: Turnover rate of pump at swimming pool	S2: Change Boiler to Heat Pump	L2: Solar Rooftop	
O3: Minimize operating Cooling Tower at Night	S3: Install VSD CHP&CDP	L3: HVACO / Chiller Plant Optimization	
O4: Close AHU/ A/C at Lobby at Night	S4: LED	L4: High Efficiency Split A/C	
O5: Reduce Lighting bulb or Lighting Management	S5: Motion Sensor for Corridor / Toilet	L5: Building Envelop	
O6: Open Hood on demand and Close after use within 15 mins	S6: Dimmer Switch for Lighting in Corridor / Lobby / Toilet		
O7: Electric Water Boiler: Unplug immediately after not use / Set Temp 100°C to boiling and 85°C for Warming	S7: Categorize type of food by appropriate temp required		
O8: Minimize operating VSD CHP&CDP	S8: Demand – Controlled Kitchen Ventilation (DCKV)		
O9: Operate Higher Efficiency Chiller / Cooling tower / CDP / CHP on Baseload	S9: Temp sensor + VSD for AHU in Corridor / Lobby		
O10: Decrease 1°C in Heat Pump	S10: Demand – Controlled Escalator (DCE)		
O11: Turn off Equipment after use by participant motivation	S11: High Efficiency Refrigerator and Freezer		
O12: Minimize Operating Time of Chiller / CHP / CDP / Cooling Tower / A/C			
O13: Minimize Operating Time of Lighting			
O14: Increase 1°C in Package Unit / Split type			

Major Energy Saving Initiatives

HVACO / CHILLER PLANT OPTIMIZATION

Implementations of HVACO Initiatives at The Empire, Athenee Tower Building, and Pantip Plaza at Ngamwongwan continued in 2022. In addition to the above the installation of HVACO at The Athenee Hotel, A Luxury Collection Hotel Bangkok was completed in October 2022. As a result, the total forecasted energy saving per year from the implementation of Chiller Plant Optimization at AWC is 7,132,705 kWh or equivalent to 3,565.64 Ton CO_2e.

SOLAR PV ROOFTOP

AWC has installed a total of 6 solar rooftops at its operating assets (Hua Hin Marriott Resort & Spa, Phuket Marriott Resort & Spa, Nai Yang Beach, Gateway at Bangsue, Lasalle's Avenue, Pantip Plaza at Ngamwongwan, and Pantip Plaza in Chiang Mai) and the COD in 2022 for 4 properties (Hua Hin Marriott Resort & Spa, Phuket Marriott Resort & Spa, Nai Yang Beach, Lasalle's Avenue, and Pantip Plaza at Ngamwongwan) were energized and solar rooftops at Gateway at Bangsue and Pantip Plaza in Chiangmai will be COD early 2023. Total projected reduction in energy consumption from the grid is 5,027,100 kWh/year or equivalent to 2,513 Ton CO_2e/year.

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