CHT's Climate Adaptation Plan

TCFD Adaptation Plans for Climate Change in the Short-/Mid-/Long-term of Chunghwa Telecom

Extreme weather events such as typhoons and floods may result in damage to critical infrastructure, including data centers and base stations, causing service disruptions and leading to significant repair and restoration costs. These impacts pose potential risks to CHT's revenue and financial performance, as well as customer retention. On the other hand, long-term climate changes — including rising average temperatures, shifting precipitation patterns, and rising sea level — may further increase energy demand for cooling systems, elevate asset damage risks, and cause operational disruptions, collectively presenting material threats to the telecommunications industry.

Nevertheless, these challenges also present opportunities for business transformation. They enable CHT to accelerate the deployment of energy-efficient technologies and develop low-carbon operational models, thereby enhancing climate resilience and unlocking new opportunities for sustainable growth.

In alignment with the TCFD recommended framework, CHT identifies climate-related risks and opportunities by referencing global risk reports, international standards, Taiwan's regulatory and policy developments, as well as peer benchmarking. Considering that CHT is also listed in the United States, it is required to comply with both the International Financial Reporting Standards (IFRS) and the climate-related disclosure requirements of the U.S. Securities and Exchange Commission (SEC). To align these disclosure regimes, CHT classifies the potential impacts of climate risks and opportunities across three time horizons: short term (reporting year to 1 year), medium term (2 to 6 years), and long term (7 to 26 years).

To mitigate the operational impacts of climate change, CHT has been actively implementing both climate mitigation and adaptation strategies, as outlined in Table 1. The Science Based Targets initiative (SBTi) serves as the primary benchmark for setting emission reduction targets. Key transition measures include "low-carbon technologies for telecom data centers" and the "adoption of renewable energy," aimed at achieving 100% renewable energy usage by 2040 and net-zero emissions by 2045. Relevant strategies and implementation plans for capturing climate-related opportunities are presented in Table 2.

In addition, CHT utilizes revenues generated from its internal carbon pricing mechanism as a dedicated funding source for advancing climate strategies. A carbon price of NT$1,600 per metric ton is applied as the internal benchmark for calculating the cost of GHG emissions, and an internal carbon fee fund has been established accordingly. In 2024, a total of 51 innovation proposals were approved and funded through the internal carbon fee mechanism. The use of this fund is not limited to emission reduction initiatives—it also supports business transformation. Through innovative low-carbon strategies and technologies, CHT aims to develop new products and services aligned with climate-related opportunities.

Table 1. Climate Risk Mitigation and Adaptation Strategies and Implementation

Strategy Category	Risk Issue	Impact Period of Adaptation Plans	Strategy Description	Implementation Details
Climate Mitigation	Domestic 2050 Net Zero Emission Policy	Long-term	Establishing a decarbonization pathway aligned with the SBTi roadmap, targeting net-zero emissions by 2045—five years ahead of the national 2050 goal	SBTi Net-Zero Target Surpassing the national 2050 net-zero emissions target, CHT has set its Science Based Targets initiative (SBTi) net-zero goal for 2045. To achieve this, it has committed to a range of emission reduction measures, including improving energy efficiency, adopting renewable energy, implementing telecom data center energy-saving programs, and promoting internal environmental responsibility.
		Short-term	Leveraging technology to reduce carbon emissions by progressively lowering the Power Usage Effectiveness (PUE) of IDC data centers.	Low-Carbon Technology for IDC Data Centers CHT has accelerated the decommissioning of outdated and energy-intensive equipment, actively introducing Next Generation Network (NGN) devices and replacing legacy PSTN switches to reduce overall energy consumption. Energy efficiency measures implemented in IDC data centers include dedicated hot and cold aisle containment systems and high sensible heat servers, resulting in annual electricity savings of 2.16 million kWh and a significant reduction in Power Usage Effectiveness (PUE). Energy data collection has been fully automated, with the establishment of an energy efficiency performance monitoring center. Electricity consumption patterns are analyzed to enhance visibility and optimize

Strategy Category	Risk Issue	Impact Period of Adaptation Plans	Strategy Description	Implementation Details
				energy-saving outcomes. CHT has completed the full shutdown of its 3G network, achieving annual electricity savings of over 74 million kWh. Services have been transitioned to more energy-efficient VoLTE (Voice over LTE) systems.
		Short-term	Procuring and installing renewable energy systems, and promoting the use of electric vehicles through CHT's EV100 commitment.	RE100 CHT joined the RE100 initiative in 2023 and committed to achieving 100% renewable energy use across all operations by 2040. As part of its renewable energy strategy, CHT has developed rooftop and ground-mounted solar photovoltaic systems on idle buildings and land, and established green base stations. As of 2024, a total of 130 sites have been developed, with a combined installed capacity of 12 MWp. In 2024, the total volume of renewable electricity generated and procured reached 72.604 million kWh. **EV100** In 2024, CHT officially joined the EV100 initiative and pledged to fully electrify all engineering and administrative vehicles by 2030.
	Impact on the global supply chain	Medium-term	Adopting a diversified supplier strategy across the value chain, with a focus on engaging suppliers that have robust	**Three Key Objectives of Supply Chain Carbon Management** Enhancing Green Procurement and Supplier Awareness of Climate Change

Strategy Category	Risk Issue	Impact Period of Adaptation Plans	Strategy Description	Implementation Details
			carbon management practices.	To fulfill its Scope 3 emission reduction targets under the Science Based Targets initiative (SBTi), CHT carefully selects suppliers, actively promotes green procurement, and communicates its environmental performance to raise suppliers' awareness of climate change issues. In procurement practices, CHT prioritizes environmentally friendly products and services with lower carbon footprints. Its green procurement strategy encourages all operational sites to give preference to: • Category I: Products with official environmental certifications • Category II: Products made from recycled materials, recyclable items, low-pollution goods, or those with energy-saving attributes • Category III: Products certified with energy-saving, water-saving, or green building labels, as well as paper and wooden furniture certified by FSC or PEFC The strategy also includes self-declared criteria such as mobile devices, computers, monitors, servers, and network equipment certified under EPEAT Gold, RoHS, WEEE, EMAS, ECOCERT, COSMOS, or OMRI, or other products with lower environmental impacts throughout their life cycle (from raw material extraction to disposal).

Strategy Category	Risk Issue	Impact Period of Adaptation Plans	Strategy Description	Implementation Details
				GHG Emissions Data Collection For customer-end network communication devices such as Home Gateways (HGWs), Mesh access points (APs), and MOD set-top boxes (STBs), CHT requires suppliers to provide ISO 14067 product carbon footprint certification. Communication and Incentives (Shaping Supplier Behavior) Since 2017, CHT has been a member of the CDP Supply Chain Program, helping suppliers move from basic climate awareness toward effective carbon management. CHT also launched a "Sustainable Partner Certification" system, which evaluates and classifies suppliers based on type and significance, as well as audit results. Suppliers are ranked into four levels: Gold, Silver, Bronze, and Participant. Those not meeting minimum requirements are provided with guidance and a deadline for corrective action. Certified suppliers receive recognition marks according to their tier, and the certification level serves as a bonus criterion in procurement tenders. CHT also plans to expand incentive mechanisms to encourage suppliers to develop climate-friendly products and services that contribute to climate change mitigation.
Climate Adaptati	Damage to telecommunicat	Short-term	Reducing losses caused by strong	Pre-Event Inspections Each telecommunications equipment

Strategy Category	Risk Issue	Impact Period of Adaptation Plans	Strategy Description	Implementation Details
on	ions equipment and base stations – strong winds (typhoons)		winds (e.g., typhoons) through regular inspections, emergency response drills, and the establishment of standardized operating procedures (SOPs) for equipment maintenance.	management unit has developed business continuity and emergency response plans for natural disaster preparedness. These plans include evacuation procedures, backup systems for equipment, and operational recovery drills during flood scenarios. Pre-Event Drills All telecom facilities are equipped with 24/7 monitoring systems to promptly assess network conditions in the event of a sudden disaster. Response resources are prepared based on the severity of the event, and real-time updates are continuously tracked. Annual flood prevention drills are conducted at the Mobile Communication Building in the Taipei Aiguo campus, covering four key access points: the car entrance, motorcycle entrance, basement stairwell, and basement emergency exit. Flood barriers are installed at the entrances connecting the ground floor and basement levels. Establishing Standard Operating Procedures (SOPs) for Repairs CHT has deployed mobile transmission backup equipment and conducts integrated disaster response drills involving both fixed-Network and mobile networks to enhance emergency response and repair efficiency. The construction of Optical Transport Network (OTN) routes in Hualien Guangfu,

Strategy Category	Risk Issue	Impact Period of Adaptation Plans	Strategy Description	Implementation Details
				Yuli, Fengbin, and Taitung Chenggong and Guanshan has been completed to resolve the issue of single routing in the region's mountainous and coastal areas by establishing dual-routing pathways. OTN infrastructure has also been completed in Taichung Fushou and Nantou Puli. These upgrades strengthen circuit availability and resiliency in vulnerable mountainous regions through dual-route access via OTN networks.
	Supply chain disruption due to extreme weather conditions	Short-term	Improving supplier climate resilience and minimizing supply chain disruption risks by implementing a supplier evaluation mechanism and encouraging participation in the CDP Supply Chain Program.	Promoting Participation in the CDP Supply Chain Program CHT conducts training sessions titled "CDP Supply Chain Program for International Suppliers" to enhance supplier awareness of climate-related issues. The training covers the following key areas: Introduction to the international CDP initiative and its relevance to supply chain management Improving suppliers' understanding of climate risk management and opportunity identification Strengthening competencies in carbon footprint calculation and emissions reduction strategy planning, while encouraging suppliers to take more proactive climate actions
	Inundation of operational sites due to rising sea level	Long-term	Installing climate-resilient infrastructure and implementing site selection criteria to address risks	Deployment of Climate-Resilient Infrastructure CHT continues to strengthen its business continuity and emergency response plans, including conducting backup and service

Strategy Category	Risk Issue	Impact Period of Adaptation Plans	Strategy Description	Implementation Details
			associated with rising sea level, storm surges, and coastal high winds.	rerouting drills for remote and offshore locations. A triple-layered network redundancy system has been established between Taiwan and Matsu—including submarine cables, microwave transmission, and satellite communications—to enhance network resilience and reduce the impact of undersea cable failures on national security, public services, and industry. To improve disaster resilience in vulnerable mountainous facilities and remote areas in eastern Taiwan, CHT has constructed new microwave base stations and upgraded existing base stations. Through disaster recovery systems, CHT ensures redundancy for critical network access paths and communications equipment. In the event of equipment failure, adjacent base stations can be adjusted to maintain service continuity. Site Selection Principles IDC (Internet Data Center) site selection follows strict criteria to minimize climate and operational risks. These include avoiding proximity to critical infrastructure (e.g., air routes, military facilities, or defense structures), residential areas, hazardous zones, and environmentally sensitive locations. Priority

Strategy Category	Risk Issue	Impact Period of Adaptation Plans	Strategy Description	Implementation Details
				is also given to sites with access to at least two roads or a frontage of more than 20 meters, enhancing operational flexibility and customer confidence. To further ensure network resilience, each IDC site is designed with 2 to 4 vertical cable conduit spaces on both sides of the building, enabling future scalability while avoiding single-route dependency.

Note：Short-term (reporting year to 1 year),Medium-term (2 to 6 years), and Long-term (7 to 26 years)

Table 2. Climate Opportunity Strategies and Implementation

Strategy Category	Opportunity Issue		Strategy Description	Implementation Details
Climate Opportunities	Development of Energy-Efficient Network Infrastructure and Data Centers	Short-term	Construct world-class cloud data centers with hot and cold aisle containment systems to reduce Power Usage Effectiveness (PUE). Attract large-scale and multinational enterprises to collocate in the cloud data centers and pursue strategic partnerships.	Expanding Business Opportunities Through World-Class Data Centers CHT's Banqiao Internet Data Center (IDC) has been built to the highest international standard—TIA-942 Rated 4—and was officially launched in 2016. Its clientele includes global internet companies, over-the-top (OTT) service providers, as well as leading domestic firms in the finance and technology sectors.
	Promoting Smart City Development through 5G and IoT	Short-term	Promoting Smart City Development through 5G and IoT Invest in the development and deployment of smart city projects.	Creating Business Opportunities Through Smart Cities CHT invests in Internet of Things (IoT)-enabled smart city projects, which include: (1) smart buildings and homes, (2) smart security and ICT systems, (3) smart transportation, and (4) smart energy

Strategy Category	Opportunity Issue		Strategy Description	Implementation Details
				solutions.

Note：Short-term (reporting year to 1 year),Medium-term (2 to 6 years), and Long-term (7 to 26 years)