

Chunghwa Telecom 2021 Top 3 Material ESG Issues

	Material Issue 1	Material Issue 2	Material Issue 3
Material Issue	5G Application & Innovative ICT Services	Climate Change Mitigation and Adaptation	Cybersecurity Management and Privacy Protection
Category	Innovation	Climate strategy	Cybersecurity / Privacy Protection
Business Case	<p>The core telecom businesses in Taiwan (fixed-line, mobile, and voice services) are close to saturation with fierce competition, resulting in impacts to the revenues of CHT:</p> <p>1. Decreased telecom service revenue</p> <p>(1) Revenue from mobile services decrease continually due to free communication services like LINE and VoIP communication service.</p> <p>(2) Price-cutting competition from cable TV carriers in the broadband services.</p> <p>(3) Facing the fierce competition of the mobile services in Taiwan, the telecom companies in Taiwan began mergers in 2021 to boost competitiveness.</p> <p>2. Excessive cost in telecom infrastructure construction</p> <p>(1) The total bid amount for the 5G communication frequency bands in Taiwan is NT\$142.191 billion as the 3rd highest in the world.</p> <p>(2) The 5G base station equipment is higher than the 4G counterpart per unit, leads to impact to revenues and operating margin.</p>	<p>CHT emits GHGs close to 800,000 metric tons of CO₂e a year. Facing climate regulations and transition risks, without mitigation and adaptation, CHT will have impacts commercially that affects corporate operation and reputation.</p> <p>1. Operational impacts</p> <p>(1) The net-zero and renewable energy policy set by the government of Taiwan will result in rising energy bills. The operating costs shall rise significantly.</p> <p>(2) The government of Taiwan shall levy carbon fees in 2024. CHT will spend an extra NT\$240 million on carbon fee if it is NT\$300 per metric ton. The spending will hit NT\$1 billion or more if it is the same with that in the U.S. or EU.</p> <p>2. Reputational impact</p> <p>(1) CHT issues ADR in the U.S. and is a listed company in Taiwan.</p> <p>(2) Failure to respond to international carbon management regulations and relevant laws and regulations in Taiwan will result in regulatory fines and concerns from stakeholders (e.g. international institutional investors), leading to risks of reputational damage.</p>	<p>CHT is actively developing and supplying emerging tech services (e.g. 5G application, virtualization, AIoT). Any material cybersecurity/privacy incident will result in impacts to CHT's reputation and costs.</p> <p>1. Risk of regulatory fines for violations: The government stipulated rigid cybersecurity/privacy laws and regulations. Failure to implement cybersecurity plans or maintain independent third-party verifications may lead to risks of penalties for negligence with liabilities to fines and corporate reputation damage.</p> <p>2. Cybersecurity service development to drive revenues: CHT is equipped with the cybersecurity R&D capability and seasoned with cybersecurity defense experiences. In 2018, it invested in the subsidiary, CHT Security Co., Ltd., which yielded a revenue of NT\$1.139 billion in 2021, contributing to the cybersecurity business opportunities and CHT's revenue.</p>

	Material Issue 1	Material Issue 2	Material Issue 3
	(3) OTT competition: CHT mobile data is on the rise overall, but the business revenue is shrinking year by year.		
Business Impact	Cost	Revenue	Risk
Business strategies	<p>To compensate for the core telecom business revenue drop, CHT responded via 3 strategies:</p> <ol style="list-style-type: none"> Improvement of innovative 5G applications: Self-developed IoT application platform; CHT IoT numbers accounting for 65.7% of the market according to the NCC Development of innovative ICT products/services: <ol style="list-style-type: none"> Integration of fixed-line, data, and mobile services to launch the MOD+OTT multi-display services Partnership with Fox+ and Netflix to expand the market share of CHT MOD services M&A/Joint venture: <ol style="list-style-type: none"> Investment in NEXT BANK, an internet-only bank, to enter the financial service sector with its cybersecurity, big data, and AI technologies Holding shares of WiAdvance, a subsidiary of Wistron group to help embrace digital transformation via the cloud services MOU with the National Telecom of Thailand, The WhiteSpace, and Delta Electronics (Thailand) for 5G enterprise private network to help Thailand 	<p>We mitigate impacts with 3 strategies:</p> <ol style="list-style-type: none"> Low-carbon operation <ol style="list-style-type: none"> 100% management of all energy resources used in operation, energy-saving performance, and energy costs via the self-developed EARTH System Network facilities of high energy efficiency adopted: new technologies introduced to replace existing, old PSTN devices and energy-demanding 3G base stations with NGN_CN deployment Network resilience enhancement <ol style="list-style-type: none"> Strengthening the emergency backup capacity of networks and IDCs Renewable energy development <ol style="list-style-type: none"> Installation/procurement of renewable energy: active investment in solar, wind power, biogas power generation, and other green energy; over 51 solar power plants established with cumulative 4,506 kw of installed capacity and 5.76 million kWh of power generated annually Membership in CDP Supply Chain Program since 2017 to facilitate the supply chain to care for climate risks; emission reduction awareness enhancement via CDP questionnaire. Since 2018, totaled 54.73 million metric tons of CO₂e has reduced by the supply chain. 	<p>To implement cybersecurity/privacy management, reduce risks of violation, and drive revenues of cybersecurity services, CHT responds with 2 strategies as follows:</p> <ol style="list-style-type: none"> Establishment of comprehensive cybersecurity risk management and protection mechanisms <ol style="list-style-type: none"> Deployment of Diversity and Defense-in-Depth for security via CHT SOC based on the Zero Trust Architecture Preemptive discovery of anomaly and timely blocking of hacking via the intelligent, automated cybersecurity governance mechanism to implement cybersecurity and privacy protection Establishment of CHT Security Co., Ltd. to generate revenues from cybersecurity services <ol style="list-style-type: none"> Provision of cybersecurity solutions and consultation for enterprises in Taiwan with the powerful R&D capabilities, cybersecurity defense experiences, and technical prowess of CHT One-stop professional cybersecurity services available at CHT, promoting the development of cybersecurity sector in Taiwan and the enabling environment for digital innovation

	Material Issue 1	Material Issue 2	Material Issue 3
	accelerate the use of innovative 5G applications.		
Long-Term Target/Metric	<ol style="list-style-type: none"> 1. NT\$30 billion of revenue from the emerging businesses, including IDC, cybersecurity, and 5G+AIoT (NT\$17.512 billion of revenue from the emerging businesses in 2021) 2. A significant growth of revenue from the emerging businesses for CHT in 2021 with 5% of CAGR in IDC, 5% in cloud services, and 17% in the gross profit of ICT services 3. Three business groups, i.e. Consumer, Enterprise, and International, established; reduction of maintenance costs and elevation of operational efficiency through coordinated use and flexible allocation of resources 4. Over 2.2 million subscribers for MOD, CHT' s OTT platform (2.06 million subscribers in 2021) 5. 35% market share for 5G services with 3 million users (20% market share for 5G services in 2021) 	<ol style="list-style-type: none"> 1. Science-based targets proposed with the plan to cut carbon emissions by 50% by 2030 compared to the 2020 levels (7.02% less in 2021 compared to 2020 levels) 2. NT\$3.5 billion worth of sustainable development bond issued with the fund raised covering both environmental protection and social development investments 3. 100% IDCs using renewable energy (6.3% in 2021) 4. Green procurement ratio of 5% at minimum 5. Over 10,376 kWp of installed PV capacity 6. 1% annual growth of revenues from green products/services 	<ol style="list-style-type: none"> 1. 100% information assets inclusion and log collection with reference to NIST CSF (100% completed in 2021) 2. Vulnerability intelligence, warning, and joint defense mechanisms established with high-risk vulnerability handled and responded within 7 days (100% completed in 2021) 3. 100% security check to systems online, patching of high-risk vulnerabilities, and ongoing obtainment of independent third-party cybersecurity certification (100% completed in 2021) 4. Cybersecurity threat early warning and swift check and response mechanisms established with notification in 1 hour and emergency response completed in 24 hours (no cybersecurity or privacy breach in 2021) 5. The number of cybersecurity service customers: 500,000 family and SME users and over 300 large corporate users (320,000 family and SME users and over 200 large corporate users in 2021) 6. Revenue from cybersecurity and privacy protection: >NT\$10 billion
Target Year	2025	2025	2025
Executive Compensation	1. The compensations for the CEO and President of Chunghwa Telecom, apart from the respective expertise, are dispersed in line with the operation and	1. Pursuant to the provisions of "Directions Governing Performances of Senior Managers of Chunghwa Telecom" , the sustainability	1. Indicators pertaining to talent acquisition have included in the annual indicators pertaining to "human capital"

	Material Issue 1	Material Issue 2	Material Issue 3
	<p>financial conditions of CHT. The revenue of innovative ICT products and services belongs to “development of emerging ICT business” , which is listed as CHT’ s performance indicator in the Directions Governing Performances of Senior Managers of Chunghwa Telecom and is hooked with the variable compensation of the senior managers.</p> <p>2. The performance evaluation of the senior managers of Chunghwa Telecom is linked with their variable compensation (i.e. the attainment of cash incentive dispersal).</p>	<p>indicators hooked with the variable compensations of the senior managers are: (1) risk management; (2) code of ethical conduct; (3) information/cyber security; (4) climate change; (5) inventory and engagement of stakeholders; and (6) social participation.</p> <p>2. Results of performance appraisal of senior managers are hooked with the variable compensations thereof (i.e. the attainment of annual indicators related to climate change is the attainment of the standard for cash incentive).</p>	<p>of CHT, linked with the variable compensation of the senior managers.</p> <p>2. For senior managers in the relevant businesses, Chunghwa Telecom hooks their results of performance appraisal in human capital replenishment and training with the variable compensation thereof (i.e. the attainment of annual manpower replenishment indicators is the attainment of cash incentive dispersal).</p>