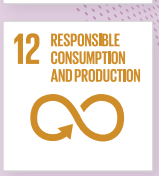
The SDGs CHT contributions to in this section

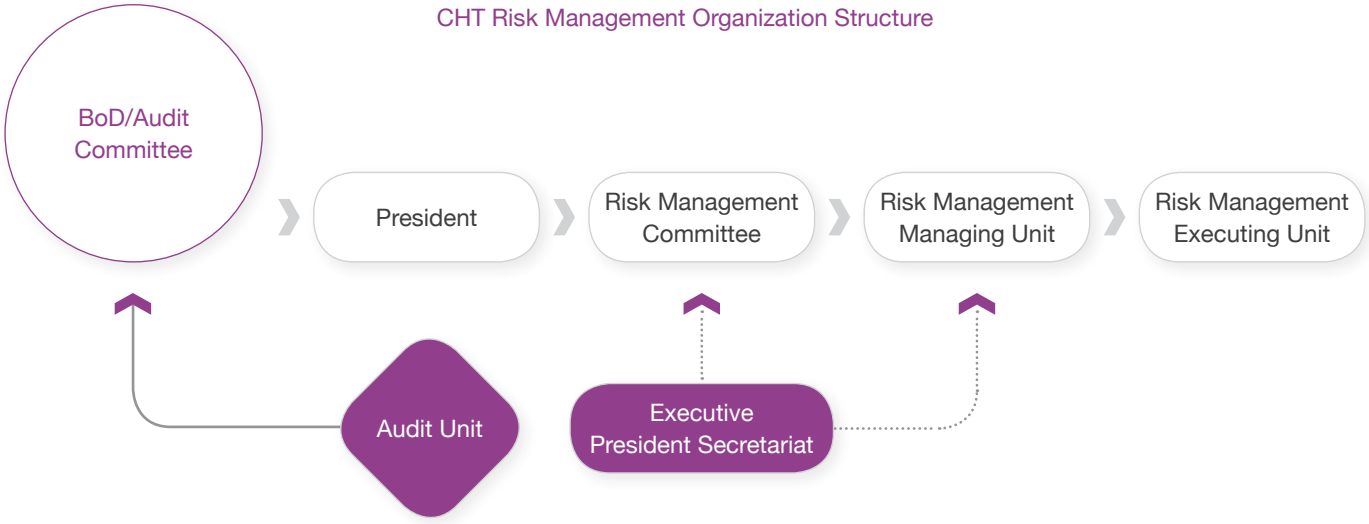


Sustainability Risks and Opportunities

CHT places emphasis on the control of the corporate operation and sustainability risk. In 2016, the Company established a Risk Management Committee with the President as convener and senior managers as members. The committee supervises risk management throughout the organization and is responsible for prioritizing identified risks, formulating response strategies to key risk issues, and reporting to the board of directors when deemed necessary. Through control of the mechanism at each level, potential risks and loss to the Company can be minimized.

Aspects	Description
Organizational Aspect	▪ The "Risk Management Committee" was established
Strategic Aspect	▪ The BoD established the risk management strategy and structure ▪ The "Risk Management Regulations" were established as a foundation and are followed by all employees engaged in business operations
Management System	▪ The Enterprise Risk Management system (ERM) was established for the regular control of risk in each division of the business
Assessment Tool	▪ We use a "Risk Analysis Matrix" as a tool for the assessment of legal risk, network maintenance risk, market competition risk and financial operations risk ▪ For major operational items and relative CSR issues, we use sensitivity analysis and the pressure test to enhance performance
Audit Aspect	▪ The Executive Secretariat promotes risk management activity throughout the Company ▪ The Auditor reviews all risks and reports to the BoD
Feedback and Improvement	▪ Risk status is followed up on a monthly basis and reports are regularly sent to the Risk Management Committee ▪ The Committee improves the current risk management mechanism based on feedback from individual units to ensure the process is up to date and satisfies the operational need

CHT Risk Management Organization Structure



Forming the Management System with the Organizational Structure to Increase the Overall Risk Management Efficiency

To further enhance risk management, the Risk Management Committee has divided subordinate branches and the operational risks into 16 categories. Some of these include strategy, information security, operational marketing, network maintenance, law, and occupational safety, according to Company organization in 2017. We will enhance risk management performance evaluation in 2018 to make risk management more effective.

You can find information related to risk management on page 115 to 116 in our 2017 Annual Report.

Emerging Risks

CHT continues with advanced technological research and development to take advantage of the many business opportunities in this digital convergence era and reduce operational risk. We absorb, cultivate and make good use of excellent available talent to integrate Internet and marketing resources. We cooperate closely with our strategic partners in the launch of new services and products that satisfy our customers. We have become “The Digital Economy Motivator and The Creative Industry Pilot,” and we create values for clients, shareholders, employees and society.

Risk Factor	Potential Influence (Obstacles)
The decrease in the voice revenue	▪ Market competition and VoIP, has caused a slight decrease in voice revenue ▪ We continue to maintain our competitive edge in broadband Internet, even in the face of low price competition from cable television.
The 5G business model is unclear	▪ The cost of our 4G investment has not been fully recovered and 5G belongs to the high-frequency spectrum. We predict that serious investment will need to made to satisfy the requirements for new construction in the near future.
Energy supply stability	▪ A stable and sufficient electricity supply ▪ The establishment of renewable energy

CHT IoT intelligent internet platform: http://iot.cht.com.tw/iot/

Emerging Opportunities

The new 5G technology will drive intelligent technological applications. AI will be everywhere around us in the future. Completely new types of services such as AIoT (AI and IoT) will become the core of fast convergence. The rise of new industries, edge computing, the volume of the IoT, drones, AR, VR and the intelligent family, will push corporations in Taiwan to move their business emphasis. We predict that the global output value of AI hardware will exceed NT$ 5 trillion. This will inevitably become an important force in pushing global economic growth.

Opportunity Factor	Potential Business Opportunity
Development of 5G	▪ Forecasts show that 5G technology will result in an output of US$134 billion to the companies in Taiwan in 2035.
IoT/Big Data	▪ International research institutes predict that the derivative application of the IoT will produce installation business opportunities amounting to some NT$ 30 to 50 billion in 2020. ▪ The global IoT output value in 2025 will be US$ 6 trillion.
Information Security Management	▪ SonicWALL reported that in 2017 the number of blackmail attacks on company IT systems grew to 638 million, 167 times that of 2016. ▪ Gartner predicts that company investment in information security will rise to US$ 114.8 billion by 2020 with a compound annual growth rate of 7.9% around the globe. ▪ In 2017, company investment in information security in Taiwan was NT$ 30 billion. The annual growth of 14.5% is higher than the global average.

Enhancement and Response Mechanism

- In addition to enhancing current core business, we continue with new product research and development, as well as service and value-added applications. These include video service, information security, IoT, the cloud, mobile payment and other new business.
- We are concentrating on applications related to big data, information security, the cloud, IoT, 5G and the intelligent city. CHT is being transformed into the leading brand for information, communications and digital convergence.

- We have developed an IoT intelligent internet platform by combining five main services, information security, big data, blockchains, AI and AR.
- We expect IoT applications to develop rapidly with the advent of 5G and we already have 3 million phone numbers authorized by the NCC. We intend to provide IoT for both industrial and domestic applications.

- We are increasing the percentage of self-built renewable energy devices and have set up emergency power generating equipment to avoid interruption to our services in times of crisis.

The scale of blackmail software and other kinds of illegal activity that uses Internet technology has increased by 40 times in recent years. The growth rate of information leaks has also increased by a factor of 2.8. Threats to information security have become multifaceted and compound. This has made integrated information security services an immediate need and a serious future risk. CHT has extensive experience in the field of information security, and has cultivated a deep and complete integrated service. During the 2017 Lunar New Year, there were several serious attacks on the IT systems of some securities and futures companies. However, those using our deep multilevel information security service, all successfully avoided attacks.

Enhancement and Response Mechanism

- We are cooperating with the 5G office in DoIT, the Industrial Technology Research Institute, and the Institute for Information Industry, in the launch of the “Taiwan 5G Industry Development Alliance-CHT leading team” project.

- CHT is forming a national IoT team in a coalition with several international and Taiwanese companies to build a competitive IoT industry in Taiwan. There are now 40 first-tier companies in the alliance.
- We have developed our own intelligent IoT internet platform that combines five of our main services, information security, big data, blockchains, AI and AR.

- The “SOC Information Security and Integration Monitoring Center” has also been established and one of its main functions is hacker information control and the processing of information about security events.
- CHT “EyeQuila” is the first information security service in the world that uses a retrospective detection concept. The application can collect, store and analyze information security data.
- The “FIDO Biometrics” application was developed to recognize fingerprints on cell phones or other devices. CHT was the first ISP company to implement such a service.
- We also founded CHT Security to provide an information security service that integrates both hardware and software security. Our own internal research and development technology has been used to expand the market scale and launch new products. We plan to build an international information security company using a combination of brand, research, development and service.

Climate Change Risks

Global climate change has recently become rather severe. As a part of the global supply chain, CHT also faces the potential risks and pressure of energy conservation and carbon reduction. To ensure that we are able to respond to climate change issues in a timely fashion we comply strictly with all the environmental laws and regulations and maintain our leading position in the industry. We make sure that stakeholders have no reason to question our behavior or reputation, and confirm and identify the potential risks, and even opportunities, presented by climate change.

Corresponding Strategy ›

The core competence, technology and the business acumen of CHT will be the key to energy conservation and carbon reduction in the future, and also make it easier to cope with the coming mobile and cloud era. We will use internal and external strategy to realize our vision of environmental sustainability.

External

In our efforts to establish a green operation we have adopted the “green products and services” philosophy. We use professional energy saving technology and services that help industrial companies easily manage energy conservation.

Internal

We have established an organized “Corporate Strategy and Environmental Sustainability” system with set goals and manage all environmental information with our own Environmental Sustainable Development and Management System (EARTH).

The Potential Operational Risks Caused by Climate Change

1. The impact of the greenhouse effect, rising global temperatures and the aggravation of extreme climate, have caused some areas of Taiwan to experience more severe typhoons and flooding while other parts face serious water shortage. Such crises affect both industrial and domestic water use and effort has to be made to reduce the severity and avoid disastrous outcomes. Resources need to be made available for action in cases of natural disaster, and the equipment used must be properly maintained and be available for further use after disasters and operational energy must also be easy to acquire.
2. We will establish greenhouse gas emission control and also allow carbon rights transactions in accordance with the "Greenhouse Emission Reduction and Management Act" of Taiwan. The CHT Internet and the operation of the generator room depend on a huge amount of energy and the relative input has a direct effect on company finances.

Opportunities and Actions

We have adopted the following strategies to cope with potential regulations and international environmental and climate initiatives in a timely manner:

Engagement with the stakeholders

We focus closely on domestic and international law changes and communicate actively with the competent authorities and stakeholders.

Planning environmental sustainability scheme

We have amended our "Five-year Plan of Strategy and Goal for Environmental Sustainability Development," which set in 2015, to target "green corporation," "green sustainability" and "green innovation" and have actively expanded our environmental actions. Furthermore, we have established a generator room disaster prevention and climate adaption plan to enhance our disaster response measures.

Import and develop renewable energy

1. In 2016 we established an "Energy Office" targeting three main areas, solar energy, wind energy, and LED. We cooperate with subcontractors in the generation of solar energy and install solar panels on the roofs of rented spaces. After connection to the power grid, we can provide the leasing contractor with power, and sell any excess back to Taipower. We have been assessing the possibility of participation in government bidding or investment in Taipower wind energy projects where we could put our telecom expertise and experience of energy conservation and carbon reduction to good use.
2. We have installed photovoltaic panels on base stations in some of the remote mountain areas to provide green power and reduce energy consumption and carbon emission. In the event of mains power loss due to natural disaster, or breakdown at Taipower, the solar facilities can provide emergency power for the base stations.
3. We have responded to the government's renewable energy development efforts by the purchase of 2 million kW of green electricity in 2015, 4 million in 2016, and 6 million in 2017, and took first place among all the companies in Taiwan.

Greenhouse gas emission management

We carry out a greenhouse gas inventory and verification every year and publish all the relative information. We use our self-developed EARTH system, to control environmental resources and the effectiveness of energy conservation to increase efficiency in environmental management.
We also joined the CDP Supply Chain Project in 2017. We gained an understanding of carbon emission data produced by the supply chain, how the inventory was calculated and what concrete action was necessary. This will be used as a basis for setting the carbon reduction goals for the supply chain in the future.

Developing green products and services

In addition to reducing the influence of our operations and product services on the environment, CHT also considers crises to be opportunities, at least with respect to products and service. We are reducing our carbon footprint through green innovative services including, video conferencing, the use of electronic billing, cloud products and several other technology innovations. We also make good use of our technological advantage in the field to improve current products and also use it to build intelligence into the city. The intelligent taxi sending system is an example which helps avoid empty journeys and reduces gas consumption. We will continue to develop more efficient ways to use energy and investigate low carbon emission solutions in collaboration with our customers.

Greenhouse Gas Emission Management

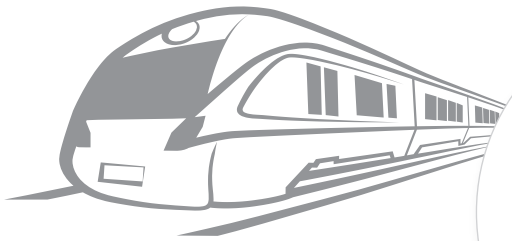
The total greenhouse gas emission in 2017 was 832,987.46 t-CO_2e. This includes six GHGs of CO_2, CH_4, N_2O, HFCs, PFCs and SF_6. As an integrated telecom carrier, most of the energy consumed by Chunghwa Telecom is purchased electricity, classed as Scope 2 gas emission and accounted for 96.29% of total gas emission. The source of Scope 1 gas emission is normally greenhouse gas from offices and accounted for 3.71% of total gas emission.

Unit: t-CO_2e	2015	2016	2017
Direct Emissions (Scope 1)	26,994.3	27,345.62	30,873.98
Indirect Emissions (Scope 2)	807,750.98	811,826.45	802,113.48
Total Emissions Amount (Scope 1+Scope 2)	834,745.37	839,172.07	832,987.46
GHG Intensity(t-CO_2e/NT million)	3.6	3.7	3.7
Coverage of Revenue	100%	100%	100%

Note: GHG inventories and certification are made in accordance with the ISO 14064-1 standard, and the value of Global warming potential is referred to IPCC in the Fourth Assessment Report (2007). All data are certified by SGS-Taiwan.

Green Transportation

In 2013 Chunghwa Telecom started discussions about the carbon footprint associated with business travel by employees. Boundaries were set at “Scope 3,” as specified by the World Business Council for Sustainable Development (WBCSD), while emission was calculated based on mileage. Company Scope 3 emissions were 267.13 kg-CO_2e in 2017. Employee business travel emission was calculated based on two main forms of transportation: high-speed rail and air travel.



Land Transport (High-speed Rail) GHG Emissions

194,590 kg-CO_2e

Total GHG Emissions

267,133.23 kg-CO_2e

Air Transport (Aircraft) GHG Emissions

72,543.23 kg-CO_2e

Internal Carbon Pricing

CHT places great emphasis on carbon management risk. In 2017 we combined the GHG emissions and relative operation and activities and carbon pricing management was used to do a pressure test in respect to risk management. This was important for compliance with the restrictions of future laws, such as the "Greenhouse Emission Reduction and Management Act," and for responding to requests from stakeholders. Promotion of energy conservation and emission reduction, and the establishment of a renewable energy system are very important aspects of carbon management risk.

Internal carbon pricing as a negative environmental reduction value was used as a pressure test for scenario 2 "fines for exceeding the total emission amount in the Greenhouse Emission Reduction and Management Act." Although no total GHG emissions amount has yet been specified for the ICT industry in the Greenhouse Emission Reduction and Management Act, we voluntarily set the mid-long term carbon reduction goal as a basis for carbon price calculation. Evaluation of our internal energy conservation and carbon reduction project is carried out on the same basis.

CHT Internal Carbon Pricing Analysis

The Scenario for Carbon Management Risk	Carbon Pricing of Use (Shadow Price)	GHG Emission Scope	Interfered Business Location Amount	Actual Carbon Pricing (NT$ 100 million)
100% renewable energy use	NT$ 3.56 /kW	Scope 2	Headquarters and the business locations	48.51
Fine for exceeding the total emission amount in the Greenhouse Emission Reduction and Management Act	NT$ 1500 /t-CO_2e	Scope 1 Scope 2	Headquarters and the business locations	1.25

Note:
1. Sources from National Renewable Energy Certification Center
2. The green electricity add-on charge was NT$ 3.12/kW in 2017, and the price dropped to NT$ 1.06/kW during the promotion. But the actual green electricity fee of using 1kW was NT$ 2.5+NT$ 1.06=NT$ 3.56.
3. Shadow price: It is the hypothetical cost of processing the GHG emissions. The risks and opportunities behind the GHG emission are concretely quantified to be the reference for the project promoting or capital expense decision.
4. Scenario 1: 100% renewable energy use (such as green electricity).
5. Scenario 2: After the inclusion of a system of fines for exceeding a total GHG emission limit has been included in the Greenhouse Emission Reduction and Management Act an enterprise will be fined a maximum of NT$ 1500 per metric ton for exceeding such specified limit.
6. The actual price in scenario 2 has been estimated in accordance with our voluntary emissions reduction goal for mid-long term carbon management. 2017 was taken a base for a 10% reduction in greenhouse gas emission from our buildings in 2023. The amount of GHG emission in 2017 was 832,987.46 t-CO_2e. If the 10% voluntary goal is not reached, we estimate that emission of 83,298.75 t-CO_2e will be subject to a fine.

Cybersecurity Risks

As the largest integrated telecom service provider in the country, CHT will put its customers' rights and the reputation of the overall communication industry in jeopardy if there is any information security accident or personal information leak. The Company will also face sanctions and financial losses.

With the external threats and the continuous technology updates of the hackers, our system and service might be influenced by the information security risk, including advanced persistent threat, phishing, the robbing of the clients' information by the hackers, and distributed denial-of-service (DDoS), etc. Digital services such as electronic billing and multi-line payments are also at risk of cyber-attacks.

Corresponding Strategies ›

We comply with international standards such as ISO 27001 and BS 10012, and all relative laws and regulations. This helps us maintain a management system that includes excellent information security and personal information protection. We keep close contact with the external environment and watch for changes in government policies and laws, for new threats to information security, international standards, and developments in technology. We carry out the internal risk assessment that includes internal and external audit results, CHT SOC information security monitoring, as well as event processing. We also continue to improve internal abnormality detection and security methods to increase information and intelligence control. We enhance endpoint security and machine learning and technology and implement the necessary security control measures. Regular reviews are made of progress to decrease the risks to corporate security.

"Cybersecurity Department," created in 2016, directly implements, regulates, promotes, and audits information security. The head of Cyber Security reports to the SEVP, President and the BoD. The mechanism includes:

Monthly evaluation

A progress report and any information about new risks are sent to the Risk Management Committee for action. Reviews and modifications to strategy are decided at the regular information security meetings.

Designated Unit

Cybersecurity Department

Establishment of the yearly strategic action

Results are evaluated based on occurrence, frequency, the degree of risk and the level of impact on operations. Plans for important projects and activities as well as performance indicators are included in personnel performance evaluation after approval by the President.

CHT carried out an extensive risk assessment in legal compliance with both the "Cyber Security Management Act" of the Executive Yuan and the EU "General Data Protection Regulation" (GDPR). We report every threat and the corresponding measures taken and will continue to remain vigilant and follow-up and assess all the risks to our system security.

A focus on new markets for CHT Security

Chunghwa Telecom is the leading company in the telecom industry in Asia. We have cultivated a professional service for information security and use our technological expertise to provide clients with a complete professional service. We keep an eye on business opportunities brought about by the recent flood of global information security issues. In 2017 we established CHT Security, a new subsidiary that we hope will soon become international. A combination of brand, research, development and service will allow us to expand operations into new markets and take advantage of business opportunities overseas with the help of CHT client relations management. We also expect CHT Security to become the leading domestic information security brand. We intend to expand into international information security operation and will also promote the development of an extensive chain of domestic cybersecurity resources in the country.

中華資安國際 CHT Security

Opportunities and Actions

Establishment of a Complete Information Security Mechanism

To implement a national cybersecurity strategy "cybersecurity is homeland security," we not only support and encourage information security professionals, but also strive to achieve risk management security goals in advance to ensure a timely warning and monitoring of an event and a quick post-response.

Planning and Organizing the Education and Training Needed for an Information Security Project for the Government or Corporate Clients

Information security forums, training courses and seminars are arranged for all sizes of enterprise from large to small. Ten such training courses were held in 2017.

Building an Information Security Service, or a Product Planning and Equipment Application Technology Team

To build self-confidence in team personnel and give personnel a better understanding (from a service point of view) of an information security service and selling, planning and equipment application, we arranged comprehensive training courses for AM/PM/PE.

The CHT Re-investment Subsidiary "CHT Security"

"CHT Security" was established not only to lead the local development of information security, but also to defend digital security on a national scale. This helps the government to achieve a vision of "building a safe and trustworthy digital country."