



Chunghwa Telecom

Sustainability Accounting Standards Board Disclosure Report 2020



Prepared in accordance with SASB

SUSTAINABILITY ACCOUNTING STANDARDS BOARD DISCLOSURE

The SASB Report this year marks a significant milestone of Chunghwa Telecom (CHT) in its ongoing advancement in the sustainability information disclosure. Apart from the disclosure of strategies and results of CHT creating sustainability values (environmental, social, and governance (ESG)) in the CSR section on our website and in our ESG Report, Chunghwa Telecom also discloses sustainability-related information in terms of the dimensions and material issues in line with the Sustainability Accounting Standards Board (SASB) Standards for the Telecommunication Services industry.

Unless specified otherwise, all the data disclosed in this SASB Report is as of December 31, 2020.

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1. Sustainability Disclosure Topics & Accounting Metrics

Environmental Footprint of Operations

TC-TL-130a.1

1. Total energy consumed, 2. Percentage grid electricity, 3. Percentage renewable

1. Total energy consumed : 5,673,297.31 GJ
2. Percentage grid electricity : 95.76%
3. For renewable energy, Chunghwa Telecom's photovoltaic system has a capacity of more than 2,783.665kWp by the end of 2020, with a renewable energy consumption of 315,476.37 GJ in 2020.

Data Privacy

TC-TL-220a.1

Description of policies and practices relating to behavioral advertising and customer privacy

Regarding policies governing behavioral advertising and customer privacy, Chunghwa Telecom explains how it uses information and choices of customers as well as discloses its privacy policy to its customers for them to choose to opt in or out of relevant service programs. The privacy management measures of Chunghwa Telecom, its subsidiaries, and outsourced media are as follows:

(A) Chunghwa Telecom and the subsidiary

1. Pursuant to the "Privacy Policy" as well as "Personal Data Protection Notice" and "The Personal Data Protection Act", Chunghwa Telecom collects, processes, uses and protects personal and privacy data of customers within the laws and regulations. There will be no arbitrary exchange, leasing or disclosure to any third party by any means.
2. We formulated the "Personal Data Collection Notice" for the respective service category, while prevent personal data from unauthorized access, disclosure, use, or altered to protect the personal privacy security and rights of our customers with rigorous protective measures. Through multiple channels (e.g. websites, apps, sales and business stores, and customer service hotline), customers may access and understand those categories and methods of the data collection, processing, use and the disclosure of such data to a third party by Chunghwa Telecom as well as rights exercised by customers (e.g. the inquiry, cessation of the collection, processing, use or erase) as the followings:
 - (1) Purposes of privacy data collection: for performance of contractual obligations or exercise of contractual rights, advertising or business behavior management, marketing, surveys, statistics, or research analysis, etc.
 - (2) Nature of privacy data collected: information of billing, network usage, location, etc.
 - (3) "Life cycle" of privacy data: the information that specifies the use, retention, and processing, and so on of data
 - (4) Customer rights: requests for inquiry, supplement/update, deletion, opt-out in marketing, etc.

For the complete notice concerning customer privacy, please refer to Chunghwa Telecom Personal Data Collection Notice at:

<https://spip-eshop.cdn.hinet.net/>

3. The National Communications Commission (NCC) did not promulgate regulations governing children's privacy protection, while provisions related to children's privacy protection over the Internet are seen in the laws and regulations as follows:

- (1) The Protection of Children and Youths Welfare and Rights Act
 - (2) Child and Youth Sexual Exploitation Prevention Act
 - (3) Sexual Assault Crime Prevention Act
4. As for “personally identifiable information”, CHT keeps no biometrics data as of now.

(B) Outsourced Company – Carat Media Taiwan Ltd.

1. CHT commissioned Carat Media Taiwan Ltd. for third-party media monitoring. Carat Media Taiwan Ltd. is part of Dentsu Aegis Network, a world-class professional media communications service network, providing services including communications planning, interactive marketing, direct marketing, event marketing, consumer survey, etc.
2. For the complete privacy policy concerning third-party media monitoring, please refer to Carat’s website at:

<https://www.carat.com/privacy-policy>

TC-TL-220a.2

Number of customers whose information is used for secondary purposes

1. Regarding the collection of customer personal data, CHT inquires customers if they consent to the use of personal data thereof for secondary purposes with “Chunghwa Telecom Co., Ltd. Personal Data Collection Notice for XX Business”.

Do you agree (unchecked regarded as disagree, which will not impact the use of our service):

- *We send you the product/service information of the third party (related company or enterprise customer).*
 - Agree.*
 - Disagree.*
- *“Agree” is recommended for you not to miss the good promotional opportunities, discount information, preferential schemes and more services.*

2. There were 84.4% of CHT customers consenting to the use of their personal data for secondary purposes in 2020. For more information, please visit:

<https://www.cht.com.tw/en/home/cht/sustainability/economic/privacy-protection>

*Note: The number of customers that consent to the use of personal data for secondary purposes is a sensitive information of CHT; the disclosure is thus made in ratio instead.

TC-TL-220a.3

Total amount of monetary losses as a result of legal proceedings associated with customer privacy

There was no monetary loss incurred as a result of violation of any laws or regulations pertaining to customer privacy at CHT in 2020.

TC-TL-220a.4

1. Number of law enforcement requests for customer information, 2. Number of customers whose information was requested, 3. Percentage resulting in disclosure

1. The total number of unique requests for customer information : 6,204,790
2. The total number of unique customers whose information was requested by government or law

enforcement agencies : 360,720

3. The percentage of government and law enforcement requests that resulted in disclosure to the requesting party : 92.5%

Data Security

TC-TL-230a.1

1. Number of data breaches, 2. Percentage involving personally identifiable information (PII), 3. Number of customers affected

1. Chunghwa Telecom has implemented the notification, response, and improvement mechanism and its related operation procedures for privacy data breach incidents. We collect information through public sentiment, customer consultation, and grievance channels. Upon detection of potential privacy incident, it is required to complete reporting in accordance with the report window list. In the event of major incident that requires escalation to the Cyber Security Department at the Headquarters and the CISO, a response team will be formed within a specified period to enact emergency response mechanism.
2. Upon a privacy incident verified, we shall conduct incident investigation and analysis to find the root cause, define scope of damage, and preserve relevant evidence in accordance with the existing incident handling procedures. Meanwhile, we take emergency response measures to monitor the changes in public opinions and customer grievance, learn about the personal data illegally collected, processed, used in the incident, prevent further damage, and notify individuals affected and the competent authorities. Where the incident causes damage to customers' rights, we will provide compensation or legal support to the individuals affected to assist and protect our customers' rights to the best of our ability.
 - (1) Number of data breaches : 0
 - (2) Percentage involving personally identifiable information (PII) : 0%
 - (3) Number of customers affected : 0

TC-TL-230a.2

Description of approach to identifying and addressing data security risks, including use of third-party cybersecurity standards

1. Through in-house developed Intelligent Security Operation Center (CHT SOC), Chunghwa Telecom takes a proactive tactic to uncover malicious behavior in time in the early stage of hacker attacks and hunt down possible threats. We enforce "Cybersecurity Policy" and "Privacy Protection Policy" from the start and have been certified by the competent authority and third parties (with ISO 27001 / ISO 27011 / BS10012 / CSA STAR Certification remained effective). Through the Plan-Do-Check-Act (PDCA) cycle, we constantly review and improve in these regards before incorporating into the daily operations, so as to achieve the goal of "zero tolerance" in both major cybersecurity breach and privacy incidents.
2. Chunghwa Telecom is a professional security solution provider with all-round cybersecurity integration competencies. We offer services including expert infiltration test and cybersecurity diagnostics. The CHT SOC also has a dedicated cybersecurity red team with dedicated personnel seasoned with cybersecurity experiences of more than a decade and with cybersecurity certificates like CEH, ECSA, or GWAPT. They work as an independent third party for vulnerability analysis. Mimicking hackers, we carry out Red Team testing. Any vulnerability detected in the testing is to be patched before passing the retest within a specified period.
3. All the systems, IDCs, personnel, environments, and management procedures involving personal data, or critical infrastructure services (facilities), including the fixed network, mobile network, data communication, international submarine communications cables, cloud services, and

customer service hotlines, etc., have obtained the third-party certification ISO 27001.

For more information, please visit Chunghwa Telecom website/Sustainability/Cybersecurity and Privacy Protection.

<https://www.cht.com.tw/en/home/cht/sustainability/economic/cybersecurity>

Product End-of-life Management

TC-TL-440a.1

1. Materials recovered through take back programs, percentage of recovered materials that were, 2. Reused, 3. Recycled, 4. Landfilled

Recycling used mobile phones from take back programs

1. Materials (mobile phones) recovered through take back programs : 6.1 metric tons
2. Reused : 90.5%
3. Recycled : 9.5%
4. Landfilled : 0%

Competitive Behavior & Open Internet

TC-TL-520a.1

Total amount of monetary losses as a result of legal proceedings associated with anti-competitive behavior regulations

1. No violation of antitrust-related laws and regulations at CHT in 2020.
2. Laws and regulations governing the fair competition in the telecommunication industry in Taiwan:
 - (1). Article 27 – Article 35, Chapter III Facilitating Market Competitiveness, Telecommunications Management Act (Competent Authority: NCC)
 - (2). Fair Trade Act (Competent Authority: Fair Trade Commission)
 - (3). Fair Trade Commission Disposal Directions (Policy Statements) on the Telecommunications Industry (Competent Authority: Fair Trade Commission)

TC-TL-520a.2

Average actual sustained download speed of: 1. Owned and commercially-associated content, 2. Non-associated content

Please see the testing results of the average actual download speed for non-associated content:

1. Fixed line and data communication:

- (1) The actual ADSL broadband line rates and HiNet data rates at installation in 2020

Internet Speed in bps (Download/Upload)	Line Rate (bps) (Download/Upload) measured values of 80% clients	Data Rate (bps) (Download/Upload) measured values of 80% clients (tested with engineer's computer)
2M/64K	2.175-2.165M/256.000-126.000K	2.037-1.769M/114.000-56.000K
5M/384K	5.375-5.374M/448.000-447.000K	5.046-4.635M/416.000-314.000K

Monthly measurement results:

<https://www.cht.com.tw/zh-tw/home/cht/service/hinet-internet/adsl-internet>

- (2) Actual HiNet FTTx broadband line rates and HiNet data rates at installation in 2020

Internet Speed in bps (Download/Upload)	Line Rate (bps) (Download/Upload) measured values of 80% clients	Data Rate (bps) (Download/Upload) measured values of 80% clients
16M/3M	17.472-17.008M/3.520-3.165M	16.285-15.574M/3.301-2.957M
35M/6M	38.142-37.205M/7.039-6.330M	35.856-33.859M/6.607-5.927M
60M/20M	64.557-63.424M/22.260-21.184M	60.785-57.044M/21.141-19.929M
100M/40M	106.300-100.016M/43.454-41.907M	101.497-91.336M/40.451-38.592M
100M/100M	106.300-100.000M/107.430-100.000M	104.012-94.361M/101.621-94.897M
300M/100M	354.944-332.955M/112.802-110.775M	315.877-298.526M/106.368-103.419M
500M/250M	608.704-554.925M/282.004-276.938M	528.209-468.145M/266.632-259.381M
1G/600M	1000.000-1000.000M/665.920-664.650M	948.968-878.984M/634.089-617.512M

Monthly measurement results:

<https://www.cht.com.tw/zh-tw/home/cht/service/hinet-internet/fttx-internet>

2. Mobile communication:
<https://www.cht.com.tw/home/campaign/5gSpeedtest/index.html>
3. Mobile broadband network speed performance measurement report:
https://speed.ttc.org.tw/uploads/202104211016_22234.pdf
4. Mobile Internet speed measurement results:
https://www.ncc.gov.tw/chinese/news_detail.aspx?site_content_sn=8&sn_f=43003

TC-TL-520a.3

Description of risks and opportunities associated with net neutrality, paid peering, zero rating, and related practices

1. There is no regulation relevant to net neutrality and open internet in Taiwan.
2. As to “interconnection agreements”, there are general provisions in Article 13 of the Telecommunications Management Act, while Article 30 and Article 31 in the same Act as well as the laws and regulations promulgated under the authorization thereby (i.e. Regulations Governing Interconnection involving Significant Market Power) specify the relevant provisions governing the interconnection between “Significant Market Powers” and other telecommunications enterprises.

Risks and opportunities

Risks

- (1) There is an ongoing tendency of price decline for Internet Transit worldwide, which will reduce the willingness of the local Internet Service Providers (ISPs) for interconnection.
- (2) Remote peering has become one of the new trends for Internet exchange points (IXPs). Large international IXPs set up point-of-presence (POP) remotely to draw local ISPs to bypass the local IXPs and directly connect to foreign traffics, which undermines the local ISP interconnection market operation.
- (3) The new regulations governing telecommunication enterprises continue to regulate the wholesale prices set by the dominant enterprises in the telecommunications market, while the dwindling Internet Transit prices per year affect the income from ISP interconnection business.
- (4) IDCs draw more Internet Content Providers (ICPs) onboard, which reduces the needs for interconnection among ICPs.

Opportunities

- (1) The lack of trust in the interconnection among the domestic IXPs drives their willingness to evaluate the possibility of private peering of their IDCs with other major service providers.
 - (2) To reduce the network latency and enhance the service quality for users, the foreign ICPs move toward offering services in proximity, which may increase the needs for interconnection among the local small-and-medium ISPs if they form clusters of certain scale locally.
3. For more information on connections via Taiwan Internet Exchange (TWIX):
<https://www.cht.com.tw/home/enterprise/hinet/hinet-internet/451>
 4. CHT does not currently provide zero-rating-related service.

Managing Systemic Risks from Technology Disruptions

TC-TL-550a.1

1. System average interruption frequency and, 2. Customer average interruption duration

1. System average interruption frequency : 0.00062
2. Customer average interruption duration : 0.00017

TC-TL-550a.2

Discussion of systems to provide unimpeded service during service interruptions

1. The Mobile Business Group of Chunghwa Telecom has enacted Disaster Emergency Response and Management Plan for Base Stations for business continuity management.
2. Internal Epidemic Prevention Effort:
 - (1) CHT Internal Epidemic Response Team and Business Continuity Plan (BCP) have been established with the Commander and Co-Commander appointed, under which there are the Safety and Health Section in charge of the intelligence collection, promotion, and tracking of the epidemic development, the Administration Section in charge of procurement application and distribution of epidemic prevention supplies, Human Resources Section, and Operation Section.
 - (2) Epidemic Prevention Emergency Response Team was established on January 27, and “CHT Preparedness and Contingency Plan in Response to COVID-19” was stipulated along with BCPs for Marketing, Customer Service, Network, and Information Technology Departments. All Systems have set up level 2 epidemic prevention report groups.
 - (3) BCP: All systems have formulated the respective BCPs and completed relevant drills under supervision.
 - a Network System: The response team has been created with critical personnel, split-working, offsite backup offices, and resource demands inventoried. The Northern Taiwan Business Group, Southern Taiwan Business Group, International Business Group, Mobile Business Group, and Data Communications Business Group underwent the first field exercises respectively prior to February 18 while the second exercises were conducted by the end of February.
 - b Information System: The 65 important systems have been inventoried while amendments to the BCP documents were completed. 60 systems have conducted drills of offsite working for critical personnel and remote working prior to February 14, while the other 5 systems had room for improvement. The 9 external systems would complete their first exercises by the end of the month. After capacity expansion of HiGate system, it could support connections of 2,400 concurrent users for remote working and remote maintenance respectively. Office collaboration tools like Teams were set up for personnel to carry out routine office works and teleconferencing in the office or at home via computer or mobile devices.

2. Activity Metrics

TC-TL-000.A

Number of wireless subscribers

Wireless subscribers of CHT :

Mobile communication : 11.298 million (customer amount)

TC-TL-000.B

Number of wireline subscribers

Wireline subscribers of CHT :

1. Local network : 9.897 million households (customer amount)

2. MOD : 2.069 million households (customer amount)

TC-TL-000.C

Number of broadband subscribers

Broadband subscribers of CHT :

1. Broadband access : 4.348 million households (customer amount)

2. Internet : 3.95 million households (customer amount)

TC-TL-000.D

Network traffic

1. CHT is not able to provide this data, as it is proprietary and confidential.
2. The network traffic data reported to NCC, such as the quarterly “Mobile Internet Traffic” and “Fixed-line Operator Connection Bandwidth and Busy Hour Traffic” as well as the yearly “Fixed-line Broadband Internet Traffic”, are of our trade secrets that cannot be disclosed.
3. For interconnection traffic statistics, please refer to the public information via the following links:

<https://www.twix.net/all.html>

https://www.ncc.gov.tw/chinese/news.aspx?site_content_sn=3898