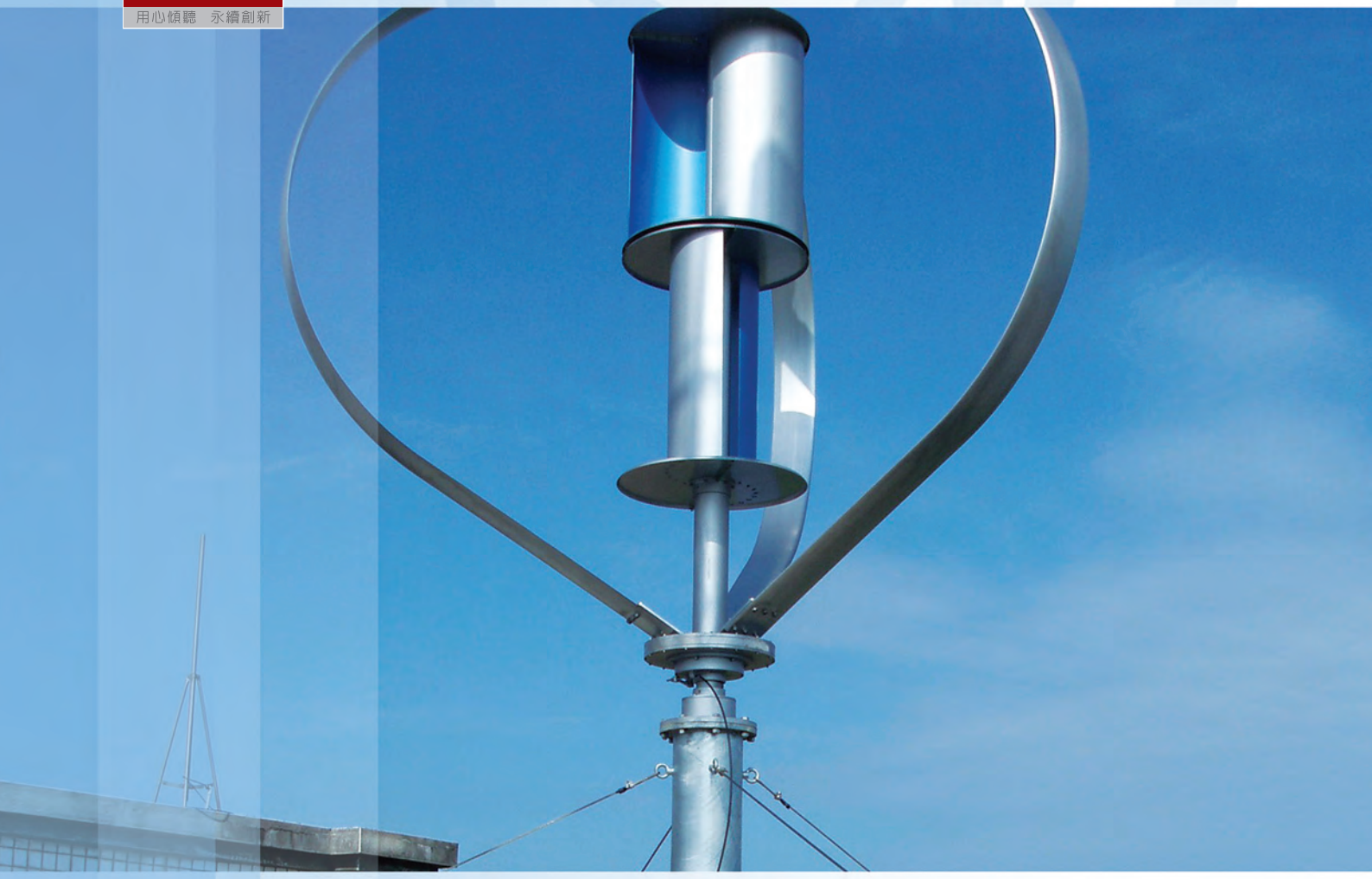
Environmental Impact

S	**Strategy**	Positive Action in Response to Change
M	**Management**	Environmental Sustainability Management/ ISO International Standard Certification/ Implementation of Power Management/ Carbon Management Objective/ Telecommunication Datacenter Energy Conservation/ Impressive Energy Conservation Carbon Reduction Results
A	**Address**	Water Resource Efficiency Management
R	**Response**	Creating a Green Business
T	**Target**	Safeguard our Beautiful Homeland

Awards

- The HiNet Internet Service was the first telecom service provider in Taiwan to pass the ISO50001 Energy Management System Standard in 2011.
- The iEN Intelligent Energy Saving Network Service received the Bureau of Foreign Trade MOEA (the first Taiwan Green Classic Model Award in 2011).
- Chunghwa Telecom received the Taipei City Government Best Participation of Green Procurement Benchmark Enterprise Award in 2011.
- Chunghwa Telecom received the Best Participation of Green Procurement for Enterprise Award from the Environmental Protection Administration in 2011.
- Chunghwa Telecom received the 2011 Golden Savings Award from the Taipei City Government.
- Chunghwa Telecom received the 1st Outstanding Energy Technology Service Provider Energy Saving Award in 2011.
- Chunghwa Telecom received the Bureau of Energy, MOEA Excellence Award in 2011.
- Chunghwa Telecom received an Energy Conservation Carbon Reduction Action Mark Award from the Environmental Protection Administration in 2011.
- Chunghwa Telecom was commended by the Department of Environmental Protection, Taipei City Government as the top performing green store in 2011.
- EARTH was awarded a Gold Prize at the 2011 Taipei Int'l Invention Show and TechnoMart Contest.
- Chunghwa Telecom received the Top Performing Green Store award in the "I like Green Stores Poll" event hosted by the Department of Environmental Protection, Kaohsiung City Government 2011.



From Autonomous Energy Conservation to **Green Opportunity**

In a time when energy conservation and carbon reduction have become business core competence, we have introduced autonomous energy conservation to our offices and put enormous effort into datacenter energy conservation. In addition to these efforts, we are also using renewable energy equipment to reduce energy consumption.

As a result of our promotion of corporate social responsibility in 2011, our energy conservation benchmark for that year dropped by 17,658 kWh compared with that of 2007, this equals a ratio of 17.42%. In addition to reducing the impact of our business operation on the natural environment, we developed iEN Intelligent Energy Saving Network Service products to conserve energy for businesses and organizations and create green opportunities.

Positive Action in Response to Change

In response to the risk of climate change, we have formulated a five-year plan (2011 - 2015) for the development of environmental protection strategy, energy conservation, and carbon reduction. In conjunction with the vigorous implementation of "office and datacenter energy conservation measures," we have compiled and analyzed all data related to energy usage and paved the way for scientific management.

The establishment of Environmental and Energy Conservation Policies

Chunghwa Telecom is the most experienced and the largest of the integrated telecommunication operators in Taiwan. Our business covers three major types of communications: fixed networks, mobile, and data networks. These provide voice, ISDN, network and broadband services; intelligent and virtual networks, e-commerce and business integration, as well as other value-added services. As a leader in the Taiwanese market, we pursue growth and sustainable development while offering a more environmentally friendly and energy efficient telecommunications service. To sustainable development issues, we have incorporated environmental protection, energy conservation and carbon reduction, environmental stewardship, and green intelligent building, and formulated specific environmental and energy conservation management plans to improve environmental performance, and to define our direction towards sustainability.

We commit ourselves to the following environmental and energy conservation policies to fulfill these commitments:

- Follow environmental regulations and promote self-regulated environmentalism
- Improve energy efficiency to implement energy conservation and carbon reduction
- Use green energy and employ green purchase
- Develop green product and promote green economy
- Enhance ecological environment and green buildings
- Apply recycle and waste reduction to build a sustainable environment

Participation in GreenTouch

The GreenTouch Consortium, formed in January 2010, an organization devoted to the development of an energy conservation technology network at all levels, aim at boosting network energy efficiency by 1000 times. They focus on increasing energy efficiency of ICT equipment, platforms, and networks. We had attended the autumn general conference, GreenTouch 2010, held in the Netherlands by invitation, and joined a formal membership in January 2011. We have actively contributed to ICT energy conservation technology.Our contributions include the evolution of mobile network architecture and energy conservation technology in heterogeneous network architecture. We addressed the current evolution trends in commercial network architecture and introduced the vision of green telecommunications and our field of research. In addition we shared our energy consumption evaluation frame and analysis the benefits of energy conservation, which are all been well received.

International Conferences and Actions

The 17th session of the United Nations Framework Convention on Climate Change (UNFCCC), 2011, where agreements announced had a profound influence on greenhouse gas emission reduction. Hence for our counter measure is to head to the sustainable development, which means that active evaluation and response from the government is needed. So, we propose the "Chunghwa Telecom Environmental Sustainability Strategy and Object" to link with the "Golden 10-Year" for the implementation on environmental sustainability policy.

Environmental Sustainability Management

We are spearing no effort in our quest for environmental sustainability, energy conservation, and carbon reduction. We review and amend our different energy conservation programs every year and implement them under a budget ceiling. In addition, we combine energy conservation performance into the "Administrative Performance Assessment" and "Performance Evaluation on Power and Air Conditioning Equipment Maintenance" and include them in regular audits.

The EARTH Management System

We dedicated to environmental issues, to efficiently control our corporate environmental resources, we need to develop suitable green information systems that can clearly show the earth protection issues of the CSR.

Our major environmental protection projects in the environmental sustainability system (EARTH) include power and water management, greenhouse gas emission, resource recycling, and tree planting. This shows our emphasis on energy conservation, carbon reduction, and environmental protection. Establishment of the EARTH system began in January 2008, R&D resources were vigorously place to extend the EARTH system, which includes the following functions and effects:

1. Energy conservation innovation: Creative ideas from all units upload results to the EARTH system to share with others, so as to learn together achieve environment protection.
2. Performance evaluation: Performance is evaluated in a systematic and quantified way to encourage all units to maximize contribution.
3. Power management: Applying collective power payments usage statistics, our system has control over 47,000 electricity registrations and 980,000 entries of electricity charges. Replaced paper bills with electronic files, this not only facilitate process, but also reduced company resource requirements and provided analysis function that shows power usage trends, power factor statistics, and breach of over power usage. This allows better management, which meets our policy of reducing greenhouse gas emission. With the help of the exception notification function, we saved NT$5,470,000 in overcharges by the end of 2011.
4. Water management: By applying electronic billing and collective payment from the water company and collating water usage statistics, our system has controlled over 1,000 water registration numbers and 38,000 entries of water charges. This reduces administrative operation and provides analysis function (including usage comparison, trends and history). With the help of the exception notification function, we saved NT$660,000 in overcharges by the end of 2011.
5. Carbon inventory: In light of risks related to carbon emission, EARTH provides carbon verification forms to help carbon inventory, promote carbon reduction measures, reduce operational risks, and enhance the corporate benchmark. We have saved approximately 300 man-days, amount of traveling expenses, and carbon emissions from travel in all regions. This has helped us obtain ISO14064-1 carbon verification certification for past four years.
6. Afforestation: An interface is provided for users to archive the information about types of trees. Archived logs cover 240 types of trees in the Chunghwa Telecom parks, including 64,000 entries of tree information in the database.
7. Water recycling management: An interface is provided for users to archive the information about the type, approach, responsible unit, and location of water recycling. Our logs show that over 14,022 metric tons of wastewater was recycled.
8. Recycling management: An interface is provided for users to archive the type, amount, and unit for recycling. Logs cover 22 categories and 9,706,844 entries of recycling.

ISO International Standard Certification

We applied for two international standard certifications to provide a necessary internal procedural framework and establish guidelines and processes for the compliance of organizations and businesses. This should allow them to maximize their energy efficiency and fulfill the objectives of sustainability and environmental friendliness. All units will complete certification by the end of 2015.

Environmental Management Certification

Certification under the ISO14001 environmental management system clearly demonstrates our commitment to environmental sustainability. It also offers many benefits, such as proof of environmental performance, more management confidence, reduced environmental management risk, better market competitiveness, regulatory and other compliance, continual improvement, and lower costs.

ISO14001 Certification Sequence for Chunghwa Telecom Units

Year	Execution Unit
2008	Southern Taiwan Business Group
2009	Mobile Business Group
2010	Northern Taiwan Business Group Data Communications Business Group
2011	International Business Group Telecom Laboratories
2012	International Business Group
2013	Telecom Laboratories

Certification acquired before 2015 for Chunghwa Telecom Units.

Energy Management Certification

The ISO50001 energy system management standard primarily aims at providing a necessary procedural framework for organizations and businesses by establishing certain guidelines and processes for compliance. This should allow them to maximize energy efficiency in a way that leaves their existing operation unaffected and closely aligned with their business operation strategy and objectives. When supplemented by the PDCA (Plan-Do-Check-Action) mechanism, not only can energy use in an organization be continuously improved, but the objectives of sustainability and environmental friendliness can be met by reducing energy cost and greenhouse gas emission. Our Data Communications Business Group acquired ISO50001 energy system management certification in 2011 and we plan certification of the Telecom Laboratories for 2012.

ISO15001 Certification Sequence for Chunghwa Telecom Units

Year	Execution Unit
2011	Data Communications Business Group
2012	Telecom Training Institute
2013	Enterprise Business Group
2014	Northern Taiwan Business Group/ Southern Taiwan Business Group
2015	Telecom Training Institute/ Enterprise Business Group

Implementation of Power Management

As a large enterprise, we have a high demand for power and make much effort in the promotion of energy conservation. We have taken an inside-out approach, starting with the energy conservation monitoring network in the biggest building in Taiwan, and then gradually improving the energy management and efficiency of the others. We hope that we can accumulate 297 million kWh of energy saving, that accounts for 22% of total conserved electricity, by the end of 2015.

Power Management Plan and Objective

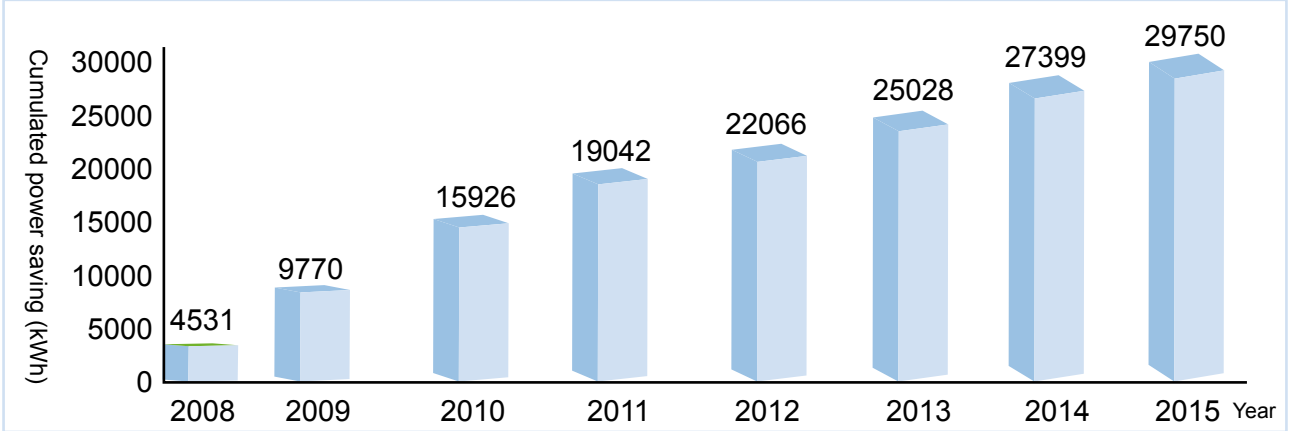
Our power management objective is to "implement energy conservation and carbon reduction plans to reduce power use in telecommunication datacenters and office buildings in 2012 by 12% as compared to that of 2007." Thanks to proper control, this objective had already been met in 2011, when our corporate power consumption had decreased by 29,750 kWh in comparison to that of 2007, accounting for 22% of the total conserved electricity. From this point forward, we will continue to follow the government energy conservation and carbon reduction policies. With the 2007 power consumption as a benchmark, we plan to further reduce our total power consumption by 8% by 2015. It is estimated that our power consumption will decrease 29,750 kWh by 2015 (excluding power consumption from business growth) in contrast to that of 2007, accounting for 22% of total conserved electricity.

Chunghwa Telecom Power Management Plan

Year	Cumulated office building energy saving (kWh) (A)	Cumulated power consumption from business growth (kWh) (B)	Power consumption growth vs. 2007 (kWh) (C)	Power saving vs. previous year (kWh) (D)	Net power saving ratio (%) (E)	Cumulated power saving (kWh) (F)	Cumulated power saving ratio (%) (G)
2008	200	8530	4199	4531	3.37%	4531	3.37%
2009	1050	13167	4447	5239	3.89%	9770	7.26%
2010	1900	17832	3806	6156	4.57%	15926	11.83%
2011	2580	21435	4973	3116	2.32%	19042	14.15%
2012	3090	24902	5926	3024	2.25%	22066	16.40%
2013	3490	28200	6662	2962	2.20%	25028	18.60%
2014	3800	31103	7504	2371	1.76%	27399	20.36%
2015	4100	34000	8350	2351	1.75%	29750	22.11%

Note 1: T = Base year 2007, 134,572 kWh. E=D/T, F=A+B-C, G=F/T.
Note 2: Numbers for year 2012 to 2015 are target values.

Chunghwa Telecom Cumulative Power Management Target



Note: Years 2012 to 2015 are target values.

Carbon Management Objective

Energy conservation and carbon reduction have always been the objectives of our efforts. We hope that we may use energy more efficiently and reduce our dependence upon electricity and fossil fuel while still maintaining business growth. The goal is to reach a carbon reduction ratio of 17.04% by the end of 2015.

Carbon Management Plan and Objective

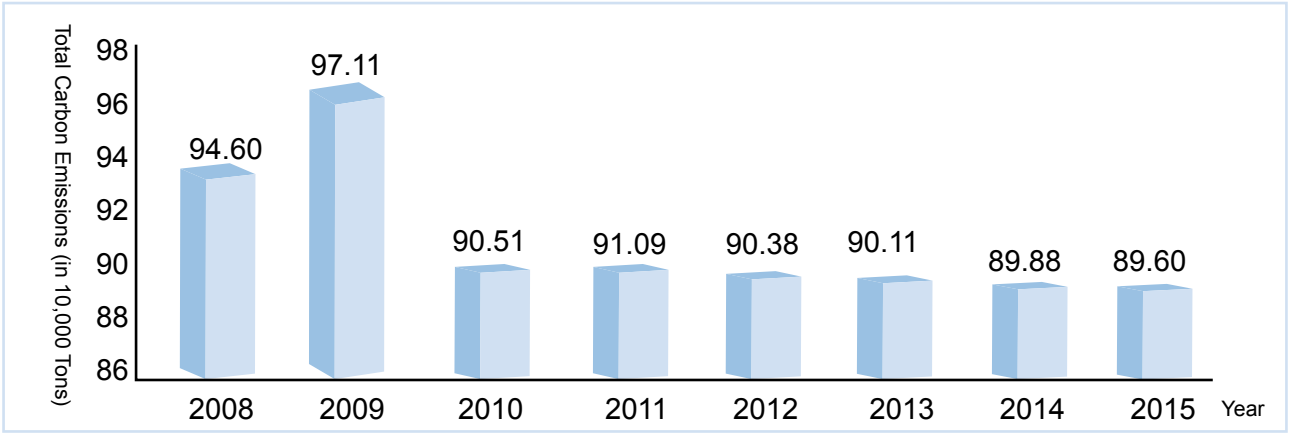
Our carbon management objective is to "bring our greenhouse gas emission level in 2012 back to our 2007 benchmark." As we continue to reduce power and fossil fuel consumption, we enjoy the benefit of lower cost for power and less greenhouse gas emission. Our greenhouse gas inventory for 2010 showed that our total emission for the year accounted for 905,095.14t-CO_2e and also showed that by using the proper control we had met our reduction objective by a significant amount. In the future, we will continue this control so that our greenhouse gas emission can remain unchanged in 2015 even as business grows.

Chunghwa Telecom Carbon Management Plan

Year	Carbon emission from power consumption CO_2 (10,000 Tons)	Increased carbon emission vs. 2007 CO_2 (10,000 Tons)	Carbon emission from fossil fuel CO_2 (10,000 Tons)	Other carbon emission CO_2 (10,000 Tons)	Total carbon emissions CO_2 (10,000 Tons)	Carbon emission from business growth CO_2 (10,000 Tons)	Carbon saving vs. previous year CO_2 (10,000 Tons)	Cumulated carbon saving CO_2 (10,000 Tons)	Cumulated carbon saving ratio (%)
2008	85.98	2.67	1.74	4.21	94.60	5.43	2.76	2.76	2.97%
2009	88.58	2.72	1.61	4.20	97.11	8.20	2.73	5.49	5.90%
2010	82.50	2.33	1.49	4.19	90.51	10.91	3.25	8.74	9.39%
2011	81.80	3.04	1.45	4.18	91.09	13.12	1.49	10.23	11.00%
2012	81.20	3.63	1.38	4.17	90.38	15.24	1.54	11.77	12.65%
2013	80.50	4.08	1.37	4.16	90.11	17.26	1.57	13.34	14.34%
2014	79.80	4.59	1.35	4.14	89.88	19.04	1.26	14.60	15.69%
2015	79.00	5.11	1.34	4.15	89.60	20.81	1.26	15.85	17.04%

Note: Years 2012 to 2015 show target values.

Chunghwa Telecom Carbon Management Objective (including business growth)



Note: Years 2012 to 2015 show target values.

Telecommunication Datacenter Energy Conservation

Chunghwa Telecom has been established for over 60 years and we have tens of thousands of telecommunications datacenters. This means that there is much room for improvement. On the one hand, we work hard to replace inefficient old equipment with energy saving units that conform to international standards, and on the other hand, we are striving to change our habits in order to achieve energy conservation and carbon reduction goals.

The 5-year plan for telecomm datacenters

A 5-year plan for energy saving and carbon reduction in telecomm datacenters was made in 2008 to address the impact of climate change on business operations and to take responsibility as a global citizen to reduce CO_2 emission. The plan is outlined below:

1. Air conditioning temperature control: Specific temperature management standards as set for individual power consumption locations: datacenters, machine repair rooms, measurement workbenches, and offices. These standards are then incorporated into the POSS system for automatic monitoring as well as review and supervision by the energy saving management team of each unit.
2. Improvement of SMR operation efficiency and reduction of energy consumption by increasing/decreasing the number of operating SMR units according to their loading status.
3. Power usage control: Save energy and cost by auto-loading, auto-unloading, and timing control equipment with POSS.
4. Air conditioning segmentation: Control the use of air conditioning by segmenting individual air conditioning space and reduce waste in empty space and space with idle equipment.
5. Inverter installation: Adjust the operation frequency and save energy by adding inverters to the CC cooling water pumps and the power sources of cooling tower fans.
6. Cooling by external air ventilation: Replace the cooling systems of equipment with operating temperatures above 40°C with external air ventilation.
7. Install modern condensing units in telecomm datacenters: Employ condensing units with a sensible heat ratio above 0.9 when installing new, or replacing old, air conditioning equipment in datacenters.
8. Change airflow volume or adjust duct configuration: Adjust flow volume or duct configuration when adding new or replacing existing telecomm equipment in datacenters by adapting to the heat source distribution.
9. Remove or power off PCBs in disabled or backup telecomm equipment: Power off switches and transmission devices in datacenters or remove the PCBs.
10. Reduce the use of premium diesel in telecomm datacenters: Adjust the diesel power generator load test frequency from 2 to 4 weeks to reduce fuel consumption, noise and air pollution.
11. Lighting management in datacenters: Revise datacenter lighting from large to small segments based on the working requirements and install LED double switches with independent controls to make turning lights off easy.
12. Energy saving at base stations: Save energy by adopting site-dependent energy saving measures including: natural turbine ventilation equipment, a ventilation fan in addition to air conditioning, and higher temperature settings.
13. PBXs replacement: Employ NGN_CN equipment, replace existing PSTN PBX, and expand NGN GW devices and functions.
14. Integrating transmission equipment: Replace early PDH and SDH networking equipment with NG SDH networks. Reduce field operation costs and energy waste in low speed and existing transmission networking devices by adopting ROADM, OXC and NG SDH transmission networking devices.
15. Replace access network equipment: Replace existing DSLAM equipment from Lucent, Nokia, Alcatel, Samsung and ECI by adapting to FTTx buildup and customer requirements.
16. Incorporate energy saving performance in the Annual Maintenance Operation Performance Appraisal of Electric Air Conditioning Equipment.

Impressive Energy Conservation Carbon Reduction Results

The fulfillment of energy conservation and carbon reduction in response to global climate change is one of the priorities of current government policy. As a responsible member of the global village, government will present a succession of relevant action plans, and policy objectives will also be amended accordingly to bring them into line with international trends. Chunghwa Telecom will also amend and update our policies every year with the firm vision of sustainability through high efficiency, high value, low emission, and low consumption. We will join efforts with others to continue to promote energy conservation and carbon reduction.

Introducing Renewable Energy

By taking the measures described above, power consumption was reduced by 3.634 million degrees in 2011 against 2010; and 17,658 million degrees against 2007 the baseline year. Compared to 2007, power consumption in 2011 was reduced by up to 17.42% and carbon by 108,067 tons. The 5-year plan for energy saving and carbon reduction in telecomm datacenters will continue and are expect to reach the goal of a 2% power saving each year.

To lower the impact of the business operation on the environment, a score of aircon(air conditioning) related energy saving measures have been adopted for the telecomm datacenters including energy savings by using inverters, high heat sensibility, and the use of supplementary cooling by external air. As of the end of 2011, total installation of energy saving related capacity was: inverter modules 1,837.5 HP, aircon equipment with sensible loads 6,958 RT, high efficiency air-con equipment 1,230 sets (of capacity 2~3 kW respectively), wholly external-air based aircon equipment 430 RT and natural-air-based-and-aircon-supplemented equipment 75 sets. A total capacity of 23 kW wind and 84.5kWp solar power generation equipment has been installed to use renewable energy, reduce impact on the environment, and improve our corporate image.

Waste disposal from the Telecomm datacenters

The disposal of scrapped lead-acid batteries is regulated by the EPA as recyclable industrial waste. Disposal of hazardous substances and waste are common social liabilities of enterprises. To reduce pollution the recycling and disposal operations are outsourced by joint contract based public auction. The contractor must be a qualified service provider listed on the website of the Recycling Fund Management Board of the EPA to ensure legitimate management and disposal for the least environmental impact.

All the lead-acid batteries scrapped by each business unit are auctioned on site and proper documents for their disposal are filed for audit tracking. Delivery for recycling, removal, and disposal are all required to be entered on a lead-acid battery disposal form. There were 31,101 scrapped lead-acid batteries, with a total weight of 1,635,427 KG, disposed of in 2011. Total revenue generated by their recycling and disposal was NT$ 40,988,066, thanks to the higher value of recycled material which benefits the corporate operations while also fulfilling social responsibility.

Apply zero-carbon renewable energy to reduce operational carbon footprint.

Water Resource Efficiency Management

Eco-efficiency has been proposed by WBCSD, and is aimed at improving effective resource utilization and lowering pollution. This indicator allows an understanding of the conditions of the internal environment and business performance of a corporation. In order to effectively lower the environmental impact of the telecommunications industry and increase resource utilization, we have introduced a number of energy conserving mobile products / services and programs designed to assist residential and commercial departments as well as the transportation industry in the reduction of carbon emission.

Water Resource Management Plan and Objective

Our water usage primary includes facilities as restrooms and air-conditioning. As expanding business so the need for manpower rises, there will be less room for reduction. Instead, we turn to rainwater and cooling water recycling to meet the effective use of water. We also promote water resource management plans by setting up conservation measures, centralized the management of water bill, and the development of specific management objectives to realize water conservation.

I.Promote water resource conservation measures

1.Spray taps for washbasins.

2.Restrooms with two-stage flushing devices.

3.Office boiled water supply only in office hour.

4.Minimum water usage to eliminate wastage.

5.Rainwater is recycled to water plants.

6.immediately contact to repair crew whenever a damage to water supply equipment.

7.Reclaimed new water installations and process used water to the required standard water quality, hence to reused for other than drinking or physical use.

The abandoned agricultural reservoir at the Telecom Laboratories has undergone landscaping and been transformed into an ecological lake.

II.Water use reduction objective

1.Since 2007, we have been promoting water conservation measures, including programs for the use of rainwater, bathing water, and the recycling of condensed air-conditioning water. Recycled water is used for irrigation in parks, gardens and for washing sidewalks. We planned to reduce our water use by 2% each year and we had met our goal at the water saving of 8.6% level in 2011.

2.In the long run, we will continue on water conservation plans and expect to cut use more than 15% in 2015.

III.Resource Recycling 5-year Plan

1.Our water resource recycling management has been incorporated into the EARTH system since 2008. The statistics show a slight growth on recycled water from 3,733 metric tons in 2008 to 7,936 metric tons in 2011. To further enhance the effectiveness, we planned a 5-year construction plan for new rainwater recycling systems to collect clean rainwater from the datacenter roof and ground. New condensed cooling water recycling systems will also be installed in the air-conditioning systems in office buildings to recycle water.

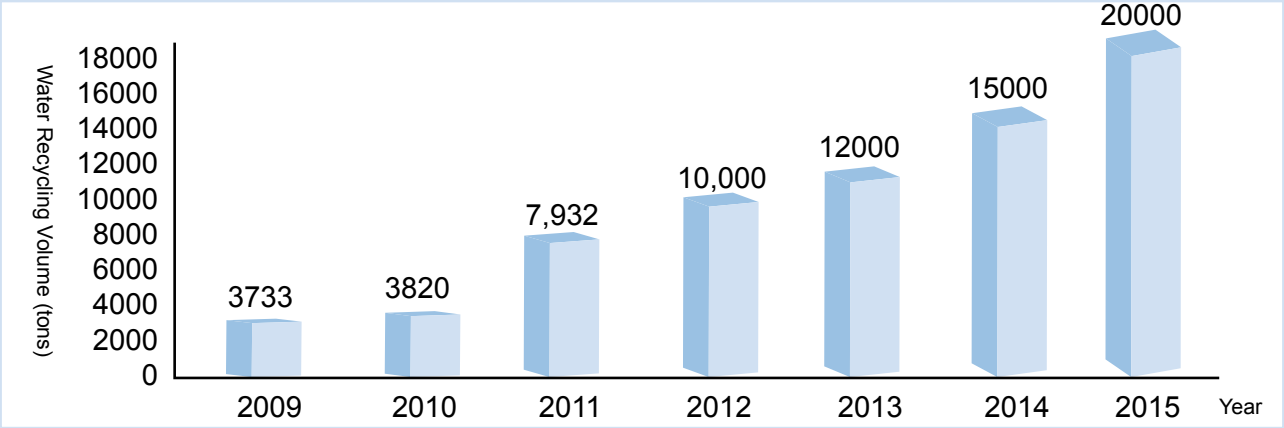
2.We expect to reach 1.5% recycling rate of our total water use before 2015.

Chunghwa Telecom Water Resource Recycling Plan and Objective

Year	2009	2010	2011	2012	2013	2014	2015
Water resource recycling volume (tons)	3,733	3,820	7,932	10,000	12,000	15,000	20,000

Note: The years 2012 to 2015 show target values.

Chunghwa Telecom Water Resource Recycling Plan



Note: The years 2012 to 2015 show target values.

Energy Conservation Action Plan and Measures

I.Telecommunication datacenter energy conservation plan and measures

- Air conditioning temperature control
- Adjustment of operating SMR units
- Power usage control
- Air conditioning segmentation
- Inverter installation
- Cooling by natural ventilation
- High sensible heat in telecomm datacenters
- Change air volume or adjust configuration
- Remove PCBs in disabled or backup telecoms equipment
- Avoid redundant of small power equipment (e.g. UPS, SMR)
- Reduce use of premium diesel in datacenters
- Lighting management in datacenters
- Energy saving at base stations
- Set up solar photovoltaic equipment

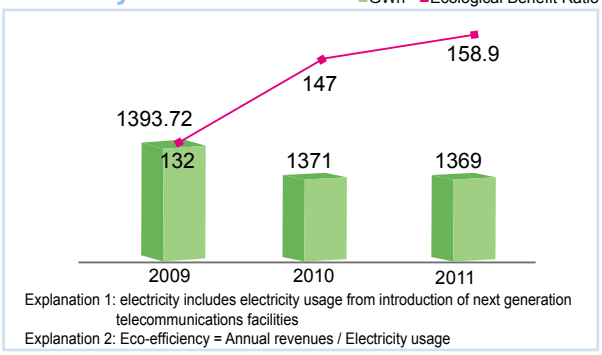
II. Office energy conservation plans and measures

- Use high EER value equipment
- Temperature setting to 26 - 28°C. temperature Difference should be lower than 5ºC.
- Use fans in air-conditioned rooms.
- Turn off water-cooling unit and switch to air supply 30 minutes before end of each day.
- Install blinds for windows to reduce solar radiation.
- Prevent cooled air from leaking out from entrances
- No central air conditioning on holidays or when a few working overtime.
- Convert water cooling and air supply system to inverter to control air volume.
- Use fluorescent lamps with electrical ballasts.
- Use power-saving light bulbs.
- Apply light-color paint to enhance light reflection.
- Optionally turn on lamp to reduce the number of light tubes when less lighting is required.
- Reminds to turn off light.
- Use daylight sensors to reduce lightning.
- Install infrared sensing lighting.
- Clean lighting devices regularly to increase efficiency.
- Replace light tubes regularly.
- Review the adequacy of environmental illumination and lighting allocation.
- Reduce available elevators when off-peak hours
- Set auto turn off elevator ventilation and lighting to after 3 minutes of standby.
- Try to walk the stairs when moving between 3 floors.
- Use inverter elevator when new or replacing elevators.
- Change elevator car cooling system to automatic temperature control.
- Use eco-friendly electronics.
- Turn off not in use electrical appliances to reduce power consumption on standby.
- Choose energy-saving office appliances.
- High voltage users to keep voltage fluctuation under 5%
- Transformers should be positioned in well-ventilated locations and use fans if necessary.
- Power factor compensators should be positioned at the low-voltage side and close to the load end.
- Review the rationality of contract capacity to seek for reduction on peak-hour regularly.
- Add power management and peak-hour control systems, and monitor on air-conditioning and lighting systems for the effective control of power consumption.

Overview of Environmental Impacts

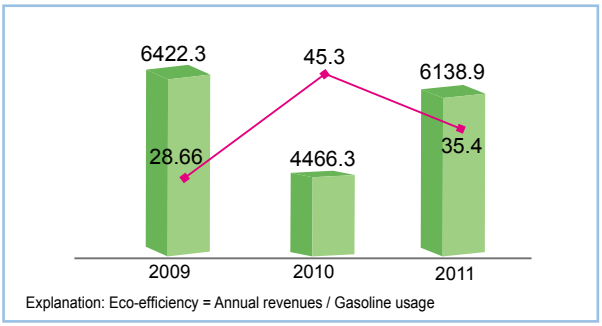
Input

Electricity



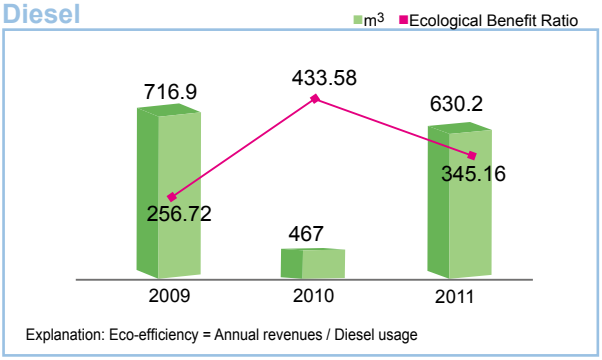
Explanation 1: electricity includes electricity usage from introduction of next generation telecommunications facilities
Explanation 2: Eco-efficiency = Annual revenues / Electricity usage

Gasoline



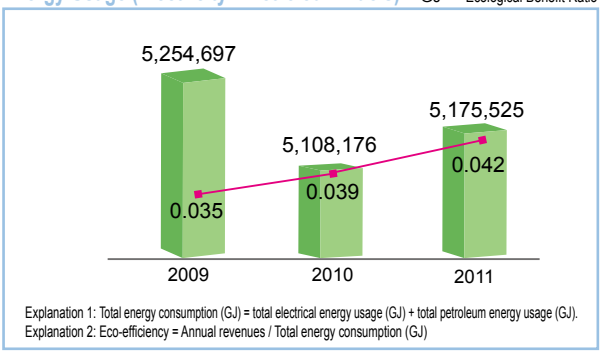
Explanation: Eco-efficiency = Annual revenues / Gasoline usage

Diesel



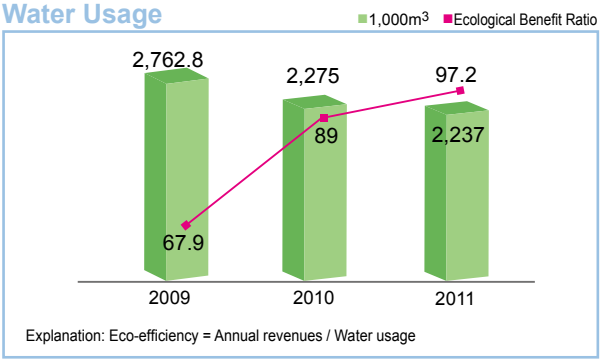
Explanation: Eco-efficiency = Annual revenues / Diesel usage

Energy Usage (Electricity + Petroleum Fuels)



Explanation 1: Total energy consumption (GJ) = total electrical energy usage (GJ) + total petroleum energy usage (GJ).
Explanation 2: Eco-efficiency = Annual revenues / Total energy consumption (GJ)

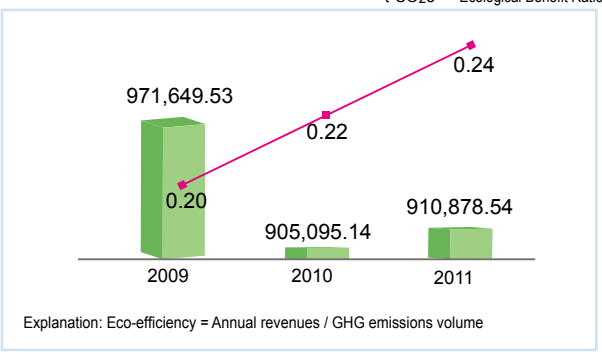
Water Usage



Explanation: Eco-efficiency = Annual revenues / Water usage

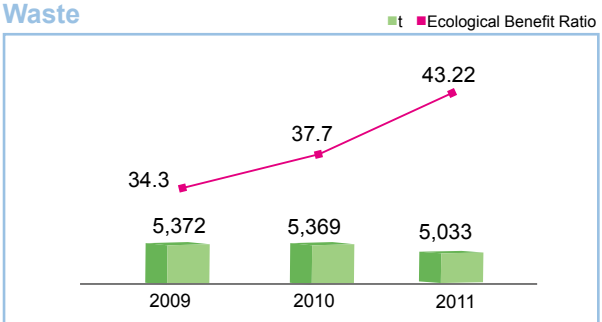
Output

Greenhouse Gas Emissions



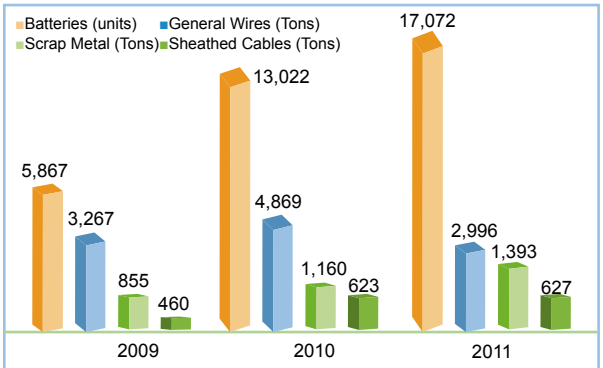
Explanation: Eco-efficiency = Annual revenues / GHG emissions volume

Waste



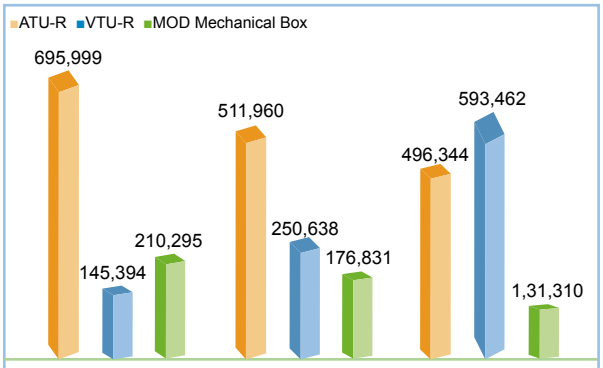
Explanation: Eco-efficiency = Annual revenues / Waste production volume

Scrap Metal Recycling Volume



Explanation: batteries need to be used for 5 years or more and be in unusable condition before they can be disposed. Number of units recycled are related to infrastructure volumes of that year, and are not used as performance indicators

End User Equipment Recycling Volume



Explanation: ATU-R is the abbreviation for ADSL Transceiver Unit, Remote Terminal End; VTU-R is the abbreviation for VDSL Unit Remote

Creating a Green Business

As was announced in our 15th anniversary publication "To Build a Beautiful Sustainable Vision 2020," we have set an objective for comprehensive (exclusive) green purchasing by 2015, and for active participation in international energy conservation research, as well the exploration of energy conservation and carbon reduction issues and implements corporate social responsibility.

Promote Comprehensive Green Purchasing

We have announced that we will exclusively purchase "low-pollution, recyclable, and resource-saving" green products by 2015 and provide related services and activities. Comprehensive or exclusive green purchasing is defined as being compliant with government and other countries' green marks and provision of self-proclaimed environmentally friendly products, services, and related activities. This includes the purchase of green products, the implementation of green purchasing by combining corporation and supply chains, the development of green products, and the provision of relevant services and activities. As we are vigorously promoting green purchasing, we have established the following annual green purchasing plans and objectives:

The Chunghwa Telecom Green Purchasing Plan

Year	2009	2010	2011	2012	2013	2014	2015
Purchase amount (in hundred millions)	2.06	4.1	8	10	12	14	16

Note: The years from 2012 to 2015 show target values.

Green Accommodation

In order to promote green accommodation, green life, and hotelier recognition of its customer's green actions, the Environmental Protection Administration of the Executive Yuan, ROC launched the "Join US! Let's go green! " project that allocates part of the amenity cost from hoteliers who recognize consumer green action to support non-government, non-profit organization environmental plans, keeping green actions going on and excel. Since 2008, our telecommunications clubs started to implement environmental policy in which the use of one-time disposable toiletries is stopped, bed sheets and towels are not changed for several consecutive stays, and so on in response to environmental protection.

A Green Building Label

A Green building is academically part of the earth sustainable development policy. The "Green Building Promotion Program" promulgated by Executive Yuan defines seven environmental assessment indexes regarding buildings, which includes greenness, water conservation, energy saving, the reduction of CO_2 emission, the reduction of waste disposal, indoor environment, water resources, and improvement of sewage and garbage disposal. Therefore, we announced that we will apply for environmentally-friendly and energy-saving green building labels for new buildings and datacenters with a total cost fifty million construction budget. Our north branch has applied for diamond-rating green building label candidate certification.

Waste Recycling

Recycling can reduce waste and raw material consumption. The recyclable material in the EARTH system 2011 version usually includes glass, paper, aluminum, asphalt, steel, printers, toner cartridges, and ink cartridges.

With the rise of the cloud service, we bolster energy saving at datacenters to achieve green ICT.

Safeguard our Beautiful Homeland

The Global climate has changed considerably in recent years. The number of storms is increasing, the power of typhoons has intensified, and even the summer temperature keeps hitting record highs. To relieve the pressure on the gradually depleted natural resources, countries all over the world are committed to energy conservation and carbon reduction activities. Faced with deterioration of the ecological environment and an imperious energy crisis, we need to do whatever we can to contribute to the safeguard of our beautiful homeland.

Environmental Information Disclosure

- Implement annual greenhouse gas inventory. Obtain ISO14064 verification and certification.
- Respond to the annual Carbon Disclosure Project (CDP) questionnaire.
- Respond to environmentally related issues in the annual Dow Jones Sustainability Indexes (DJSI) questionnaire.
- Respond to the Common Wealth Magazine and Global View Magazine questionnaires.
- Publish the CSR report (environmental protection): Provide data on greenhouse gas inventory, power, water, and fuel consumption, as well as waste recyclables generation.

Improve Energy Use Efficiency

- Integrate datacenters: Merge and exploit datacenter space.
- Add iEN to buildings: Incorporate iEN Intelligent Energy Saving System into new datacenter construction.
- Save cooling energy: Use high-efficient and air-conditioners, and cold/hot channel air-conditioning systems in the datacenters.
- Green building and accommodation: Use green materials for newly constructed datacenters or buildings.
- Solar water heaters: Install solar water heaters in Telecommunications clubs.
- Recycling: Set up rainwater, underground, and condensed cooling water recycling systems.
- Environmentally-friendly LED bulbs: Internal office building trial plan.

Green Energy

- Photovoltaic system: 157.06kWp capacity System constructed in 2011.
- Wind power: 26.6kWp capacity built in 2011.
- Fuel cell: Pilot program with the Industrial Technology Research Institute, 15kWp capacity system built in 2011.

Autonomous Environmental Protection

- Green purchasing: 800 million NTD green purchasing target in 2011 to import green purchasing data into EPIS, also been imported for the sustainable development system.
- Vehicle energy conservation and carbon reduction: Replace old vehicles with environmentally friendly, and use electric vehicles for trial.
- ISO14001 management system: Certifications for overseas branches and laboratories in 2011.
- Clean homes, energy saving office, health management system, car-free days, and paperless ODAS.
- Energy conservation service team: Provide to help SMB or disadvantaged.
- Industrial waste recycling: Set recycling goals.
- Environmental award summary: Annual enterprise environmental protection award, energy-saving gold award, and Ministry of Economic Affairs energy conservation award.

Value-added Products and Services

- Electronic billing: Features environmental protection, promote with marketing section.
- iEN(Intelligent Energy Saving Network Service) and promote eight energy-saving categories.
- Mobile device recycling: Recycle bins are available at service centers in line with the promotion of waste recycling.
- Assist suppliers to apply for product eco-labels.