

CHAPTER 3 FACILITATING ENVIRONMENTAL SUSTAINABILITY

3-1 Sustainable Finance	82
3-2 Green Operations	92

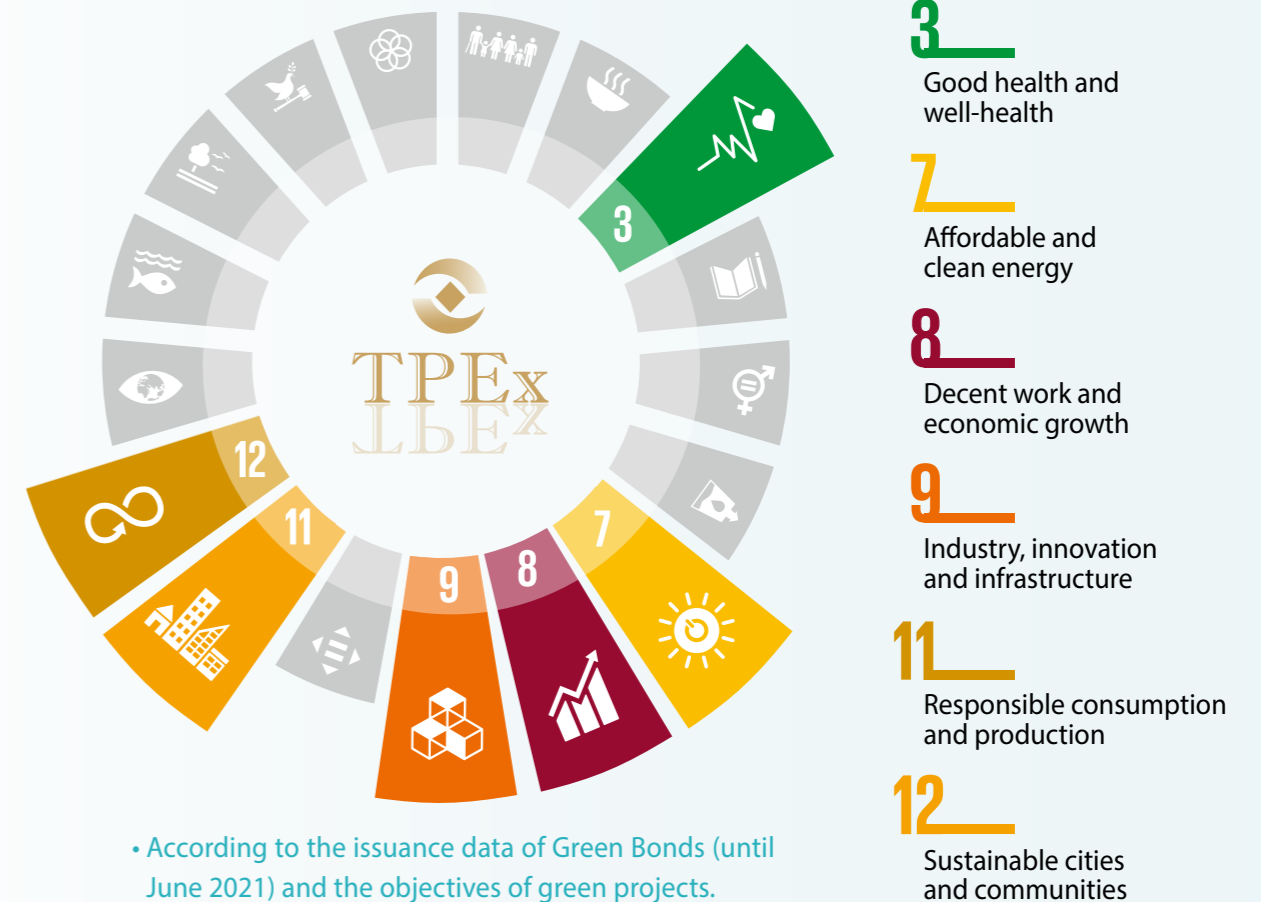
3-1 Sustainable Finance

3-1-1 Green Finance

As climate change continues to escalate, causing extreme climate events, the United Nations' SDGs call on governments and enterprises to take environmental sustainability and social equity into account while pursuing economic growth. Countries around the world have been responding by leveraging financial market forces to promote sustainable development.

TPEX encourages enterprises and investors to provide further consideration to environmental, social and corporate governance issues. The virtuous cycle will enable Taiwan to accelerate the low-carbon transition and to realize a sustainable development vision, in which economic growth, environmental protection and social progress can all be realized to the fullest extent.

Green Bonds



In response to Taiwan's policies to promote the energy transition and build a nuclear-free homeland, the FSC has prioritized the development of "Green Finance" along with other missions. In 2017, the FSC formulated the 25 "Green Finance Action Plans", among which the development of green bonds was given utmost priority. The FSC furthermore announced the successive "Green Finance Action Plan 2.0" in 2020, proposing sustainability bonds issuance to diversify the range of financial products and channels in Taiwan.

In line with the government's "5+2 Innovative Industries Program," TPEX has promulgated the "Operational Directions for Green Bonds" on April 21, 2017, to establish Taiwan's over-the-counter trading system for green bonds, with reference to relevant international standards and development experience. The system is expected to help the green energy technology industry and green investment projects obtain medium and long-term financing while facilitating Taiwan's transformation into a green economy.

Under the active promotion of the TPEX, Taiwan's green bond market flourished in 2020, with both issuance volume and outstanding balance reaching record highs. The 19 green bonds issued in 2020 have a total issuance amount of NT\$56.6 billion, the full amount of which has been used to finance domestic green investment projects.

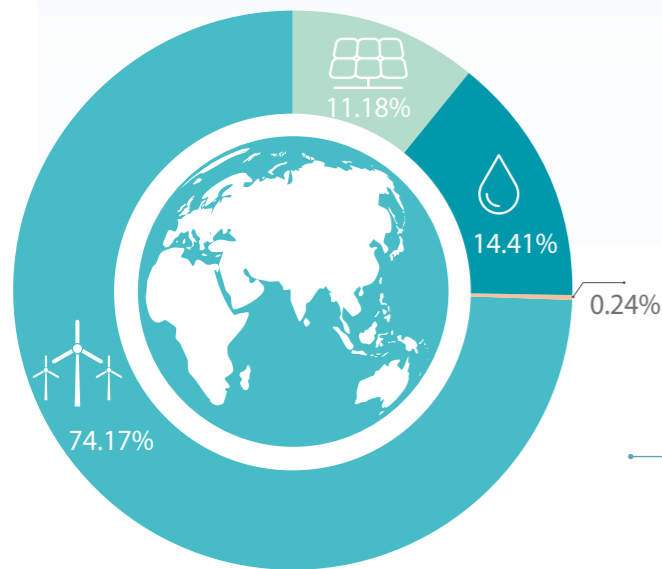
In terms of issuers, Taiwan Semiconductor Manufacturing Company, one of the leading semiconductor foundries, also applied for green bond issuance in 2020. It was joined by the four newly added financial institutions, including First Commercial Bank, Mega International Commercial Bank, Crédit Agricole CIB Taipei Branch, and HSBC Bank (Taiwan).

In terms of product range, TPEX expanded the scope of green bonds to include Islamic fixed-income securities (Sukuk) and also relaxed the funds' utilization scope for green bond issuance. In addition to providing investors with more diversified investment options, TPEX also increased the flexibility with which financial institutions can utilize the funds obtained.



Promoting Renewable Energy Development and Low Carbon Transition in Taiwan

Taiwan Power Company issued green bonds with a denomination of NT\$12.8 billion (abbreviated as P09 Taipower 4A, P09 Taipower 4B, and P09 Taipower 4C) through TPEX's green bond issuance platform. The bond assisted Taiwan's most significant vertical integrated utility increase hydro, wind, solar photovoltaic, and geothermal energy penetration. In addition, the project also invested in the power grid bolstering to utilize renewables better, to realize energy transformation and climate policies.



2,032 GWh
renewable energy added

1,034,642 Tonnes
carbon emission reduction with renewable energy added

- Solar Photovoltaic
- Hydropower
- Geothermal Power
- Wind Power



Environmental Management and Climate Commitment of the Semiconductor Industry

Taiwan Semiconductor Manufacturing Company issued green bonds with a denomination of NT\$12 billion (abbreviated as P09 TSMC 6A, P09 TSMC 6B, and P09 TSMC 6C) through TPEX's green bond issuance platform. The bond assisted one of the world's biggest semiconductor foundries to introduce green buildings, uninterruptible power systems, and exhaust gas treatment facilities, which reduce the process's energy consumption and greenhouse gas emissions. Thus, the project promotes the transformation of the semiconductor industry and environmental benefits.



EEWH
Green Building Certification in 2020

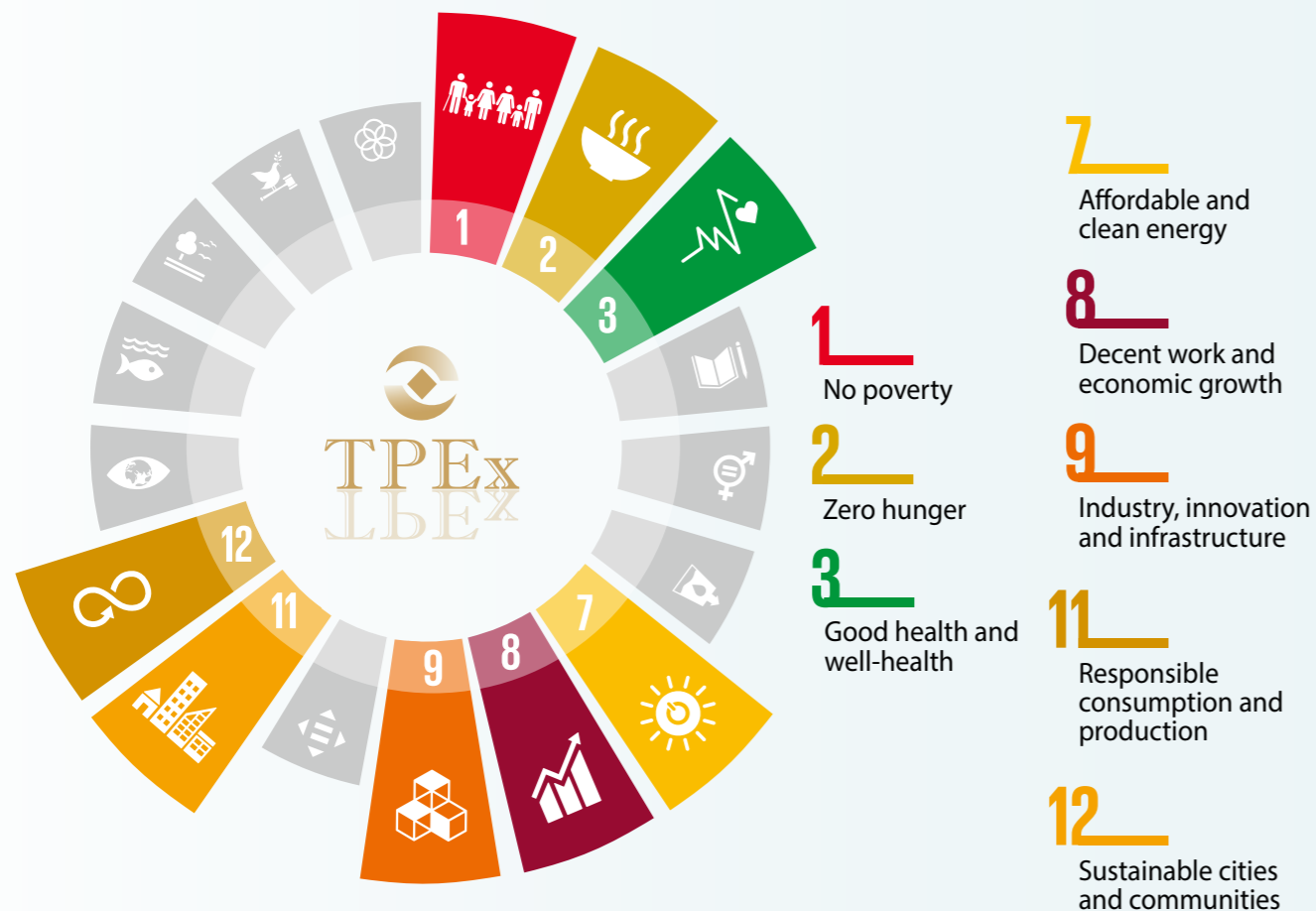
LEED BD+C
Green Building Certification in 2020

-22,115 Tonnes
carbon emissions with uninterruptible power systems (UPS)

-640,000 Tonnes
carbon emissions with exhaust gas treatment facilities



Sustainability Bonds



• According to the issuance data of Sustainability Bonds (until June 2021) and the objectives of green and social projects.

TPEX promulgated on October 6, 2020, the "Operational Directions for Sustainability bonds," thus establishing an over-the-counter trading system for sustainability bonds in Taiwan. The establishment echo with international markets' trends of sustainable development, and pursuant to the competent authority's initiatives, including "Corporate Governance 3.0-Sustainable Development Roadmap," "Green Finance Action Plan 2.0," and "Capital Market Roadmap 2021-2023."



Financing Green Infrastructure for Circular Economy

Far Eastern New Century Co., Ltd. issued a sustainability bond with a denomination of NT\$3.8 billion (abbreviated as P09 Far East New 5) through TPEX's sustainability bond issuance platform. The green project supports the embodiment of circular economy and sustainability, fostering a green industrial chain. Meanwhile, the social project supports the intelligent and environmentally friendly Taipei Far Eastern Telecom Park, which improves the facilities of schools and hospitals, providing employment opportunities for the disadvantaged.

-63%

carbon emissions of granules made from PET bottle bricks generated compared with traditional petrochemical raw materials





Financing Solution for Enterprises and Employees to Overcome Pandemic's Impacts

Bank SinoPac Co., Ltd. issued a sustainability bond with a denomination of NT\$1 billion (abbreviated as P09 SinoPac Bank 7) through TPEX's sustainability bond issuance platform. The social project incorporates the governmental interest subsidy schemes, provides low-interest financing solutions to support the small and medium-sized enterprises affected by the pandemic on working capital and employee salaries, assisting the society in tiding over the difficult times.

2 Projects

supporting the difficulties under the pandemic

24 Companies

supported by the projects

1,415 Individuals

supported by the projects

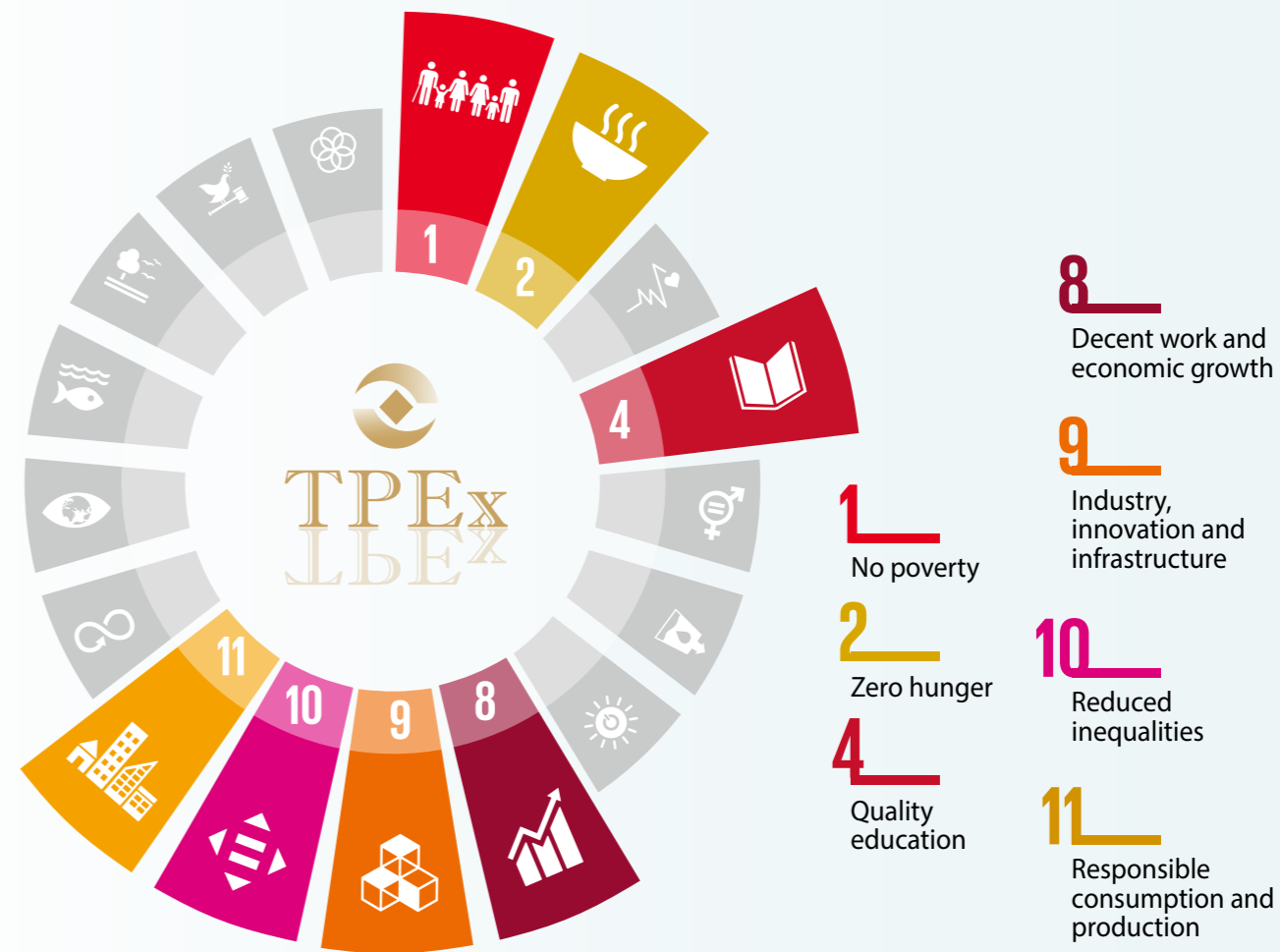
While assisting companies to obtain financing, the Sustainability Bond Market is also a platform through which companies can demonstrate and validate their commitments and corporate values. Sustainability bond issuers can directly explain to investors their sustainable development ideas, business models, and investment plans for the use of funds through investment proposals. Also, companies can publicly showcase their long-term sustainable development plans through reports on the implementation progress and benefits realization.

On December 4, 2020, TPEX held the "Sustainability Bond Market Promotional Seminar" to introduce the reporting standards and relevant information, thus continuing to foster Taiwan's sustainability bond market. A total of 3 tranches of sustainability bonds amounting to NT\$5.8 billion were issued in 2020. The issuers included financial institutions such as CTBC Bank, Bank SinoPac, and Far Eastern New Century.



TPEX held "The Sustainability Bonds Listing Ceremony" on November 6, 2020.

Social Bonds



• According to the issuance data of Social Bonds (until June 2021) and the objectives of social projects.

To gradually perfect Taiwan's sustainable product and market, TPEX expects to establish an over-the-counter trading system for social bonds in 2021. By holding promotional seminars, visiting issuers and investors to promote the integration of environmental protection, social equity, and corporate governance issues into the capital market and economic activities, TPEX aims to facilitate sustainable finance while diversifying the domestic bond market with more sustainability-related products. A dedicated webpage was established on the TPEX website to organize information on green bonds, sustainability bonds and social bonds.



TPEX will continue to consider the development trends in the international financial market, and assess the feasibility of developing more sustainable fixed-income products, such as sustainability performance-linked bonds, green economy corporate bonds or other special bonds, including blue bonds, transition bonds and COVID-19 bonds, etc.

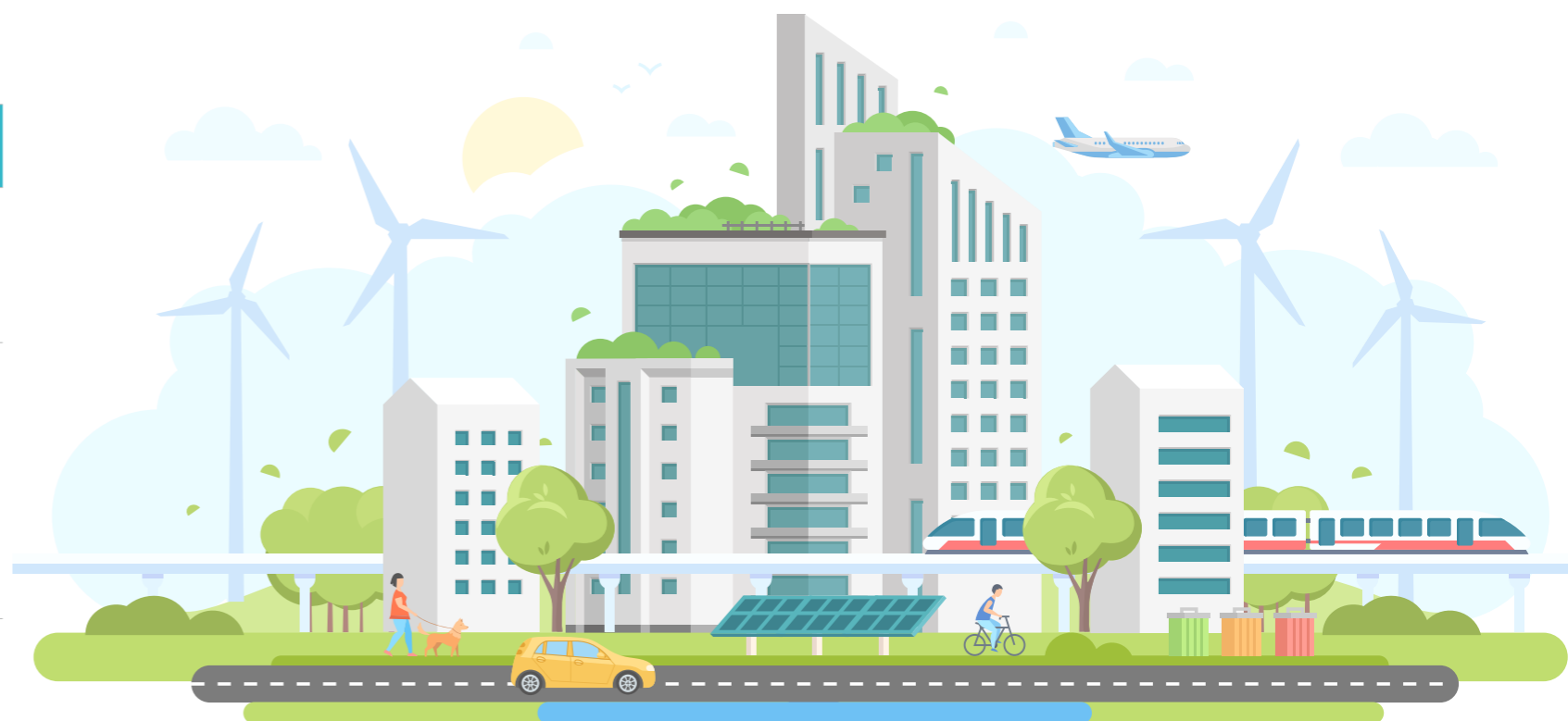


TPEX Sustainable Bond Market

3-1-2 Climate Governance

Given the intensifying impact of climate change, the international community is paying increasing attention to climate-related risks. While facing negative climate impacts, enterprises may also identify climate-related opportunities. As such, exchanges have gradually formed a consensus on the importance of promoting climate change-related disclosures and strategies. In October 2020, TPEX formally support the Task Force on Climate-related Financial Disclosures (TCFD) and performed a preliminary assessment.

	Climate-Related Impacts	Description	TPEX Responses
 Risks	Energy price increase	Policies and regulations drive the internalization of greenhouse gas emission costs, increasing operating costs	<ul style="list-style-type: none"> Promote energy conservation plans and set annual energy conservation goals
	The government strengthens the requirements and supervision of TPEX market enterprises	Policies and regulations strengthen the supervision of energy-intensive or climate change-related industries, impacting industry structure and raise the threshold for entering the capital market	<ul style="list-style-type: none"> Revise relevant laws and regulations such as the "Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TPEX Listed Companies" to promote and assist companies in assessing and addressing climate change risks and opportunities
	Extreme weather events strike operating sites and disrupt operations	Extreme weather events affect operating sites as well as facilities and systems, the most severe of which may cause operation disruption	<ul style="list-style-type: none"> Track and report on climate change trends, establish a material event notification mechanism and conduct regular drills Conduct regular drills and review the current ISO 22301 management system to strengthen the timeliness of key system recovery
 Opportunities	Develop low-carbon products and services related to climate change adaptation	<ul style="list-style-type: none"> In response to the government's promotion of green energy technology, the investment in and development of green energy technology-related industries shall increase Increased market demand for paperless, digital, and mobilized services and products 	<ul style="list-style-type: none"> Assist green energy technology, digital finance, and climate change adaptation-related industries to enter the capital market Develop green financial products and digital financial services to invigorate trading Continue to simplify internal processes and promote paperless and digital services
	Promote energy conservation plans and evaluate participation in renewable energy	<ul style="list-style-type: none"> Respond to the risk of rising energy prices and enhance operational resilience Become a benchmark for promoting energy-saving and renewable energy to enhance the potential reputation and increase market opportunities 	<ul style="list-style-type: none"> Promote energy conservation plans and set annual energy conservation goals Evaluate the status of current energy use and assess the use of renewable energy or purchase renewable energy certificates



TPEX also announced on January 2, 2020, the latest amendments to the "Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TPEX Listed Companies" to help listed companies strengthen climate-related disclosures, thus facilitating investor decision-making and the robust development of the securities market. Listed companies are required to disclose their governance of climate-related risks and opportunities, potential climate-related impacts, methods for identifying, assessing, and managing climate-related risks, as well as relevant metrics and targets in corporate social responsibility reports. Provided the Corporate Governance Evaluation indicators, listed companies are given further guidance that enables them to fully grasp the impact of climate change risks on corporate operations.

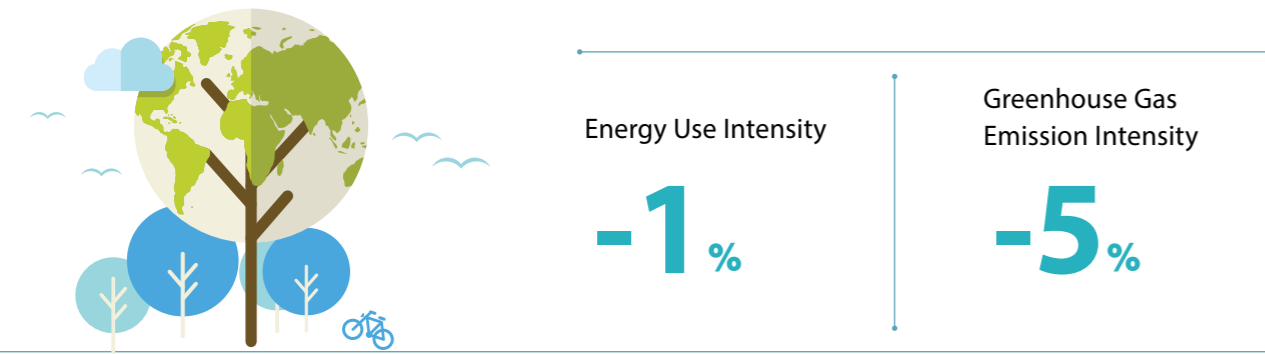
TPEX will support the "Corporate Governance 3.0" plan to promote enhanced disclosure and address listed companies' climate risks with reference to international standards and best practices. We will also analyze and research international disclosure examples, and cooperates with relevant units to handle promotional seminars, lectures or symposiums on climate change issues in a timely manner. TPEX will continue to guide companies to consider climate change issues, thus enhancing the market's resilience against climate change.

3-2 Green Operations

TPEX mainly engages in securities trading and information services and has been no instance of violations against environmental regulation or complaints received to date. However, TPEX still shoulders the mission of operating sustainably and integrating environmental values into business policies at all levels. These initiatives include digitalized administrative processes, selection of environmentally friendly materials for office equipment, promotion of energy conservation, and reduction of paper consumption.

3-2-1 Energy and GHG Emission Management

TPEX offices and information centers use purchased electricity (non-renewable), while a smaller percentage of energy use entails fuel consumption by official vehicles. In 2020, the energy use intensity decreased by 1% and the gas emission intensity decreased by 5% compared to 2019. Nevertheless, total fuel consumption in 2020 was 6,333 liters, which is a slight increase compared to 2019 due to increased vehicle usage for epidemic prevention considerations.



Energy Consumption

Energy Consumption	2019	2020
Purchased Electricity (kWh)	912,030	898,697
Purchased Electricity (GJ)	3,283.31	3,235.31
Vehicle Gasoline (liter)	6,189	6,333
Vehicle Gasoline (GJ)	202.11	206.82
Total Energy Consumption (GJ)	3,485.42	3,442.13
Energy Intensity (GJ/person)	11.70	11.59

Note 1: Compared to the 2019 report covering relevant data only from the TPEX Guting Office in Taipei City, the data of this report for 2019 and 2020 cover the TPEX Guting Office in Taipei City, Banqiao Office in New Taipei City, Banqiao server room in New Taipei City and remote backup server room in Taichung City. Purchased electricity, vehicle gasoline, total energy consumption, and energy intensity calculations are all rounded to two decimal places.

Note 2: The electricity purchased by the Guting Office in Taipei City is based on the metered number specified on Taiwan Power Company's utility bills; those of other locations are based on the metered numbers stated on respective property management service providers' statements.

Note 3: The heating value coefficient is based on the GHG Emission Coefficient Management Table version 6.0.4 issued by the Environmental Protection Administration, according to which vehicle gasoline is 7,800 kcal/liter.

Note 4: 1 gigajoule (GJ) = 10⁹ joules (J); 1 kilocalorie (Kcal) = 4186.8 joules (J); 1 kilowatt-hour (kWh) = 3.6 megajoules (MJ).

Note 5: Energy intensity is calculated based on the number of employees on December 31 of the year, 298 in 2019 and 297 in 2020.



Greenhouse Gas Emissions

Greenhouse Gas Emissions	2019	2020
Scope 1 (tCO ₂ e)	14.58	14.91
Scope 2 (tCO ₂ e)	486.11	457.44
Overall Emissions (tCO ₂ e)	500.69	472.35
Emission Intensity (tCO ₂ e/person)	1.68	1.59

Note 1: Compared to the 2019 report covering relevant data only from the TPEX Guting Office in Taipei City, the data of this report for 2019 and 2020 cover the TPEX Guting Office in Taipei City, Banqiao Office in New Taipei City, Banqiao server room in New Taipei City and remote backup server room in Taichung City. All calculations are rounded to two decimal places.

Note 2: This report adopted the operational control approach for greenhouse gas emissions inventory check. The calculation goes: activity data*emission coefficient*GWP value (the emission coefficient is based on the GHG Emission Coefficient Management Table version 6.0.4 issued by the Environmental Protection Administration and the GWP value is quoted from the IPCC's Fifth Assessment Report (2013)). Greenhouse gases include CO₂, CH₄, N₂O, HFCs.

Note 3: The electricity purchased by the Guting Office in Taipei City is based on the metered number specified on Taiwan Power Company's utility bills; those of other locations are based on the metered numbers stated on respective property management service providers' statements.

Note 4: The calculation of greenhouse gas emission intensity includes Scope 1 and Scope 2 greenhouse gas emissions; Scope 2 GHG emissions comprise mainly purchased electricity. The calculation adopted the 2018 electricity emission factor of 0.533kg CO₂e/kWh in 2019, and the 2019 factor of 0.509kg CO₂e/kWh in 2020 issued by the Bureau of Energy.

Note 5: Emission intensity is calculated based on the number of employees on December 31 of the year, 298 in 2019 and 297 in 2020.

In terms of electricity management, TPEX practices division of responsibility and regular tracking, using energy-saving lamps, enhancing insulation and maintaining air-conditioning facilities regularly to improve efficiency.

In addition, colleagues are reminded to practice energy conservation from time to time, including turning off air-conditioning in unused spaces, using only necessary lighting, and shutting doors to avoid air-conditioning leakage. Before leaving the office, colleagues are asked to turn off the power of all electrical equipment and remove unnecessary plugs. The last person of each department leaving the office should check whether power has been turned off. Before the consecutive holidays, colleagues are also reminded to turn off all unused electrical appliances and unplug power supplies.

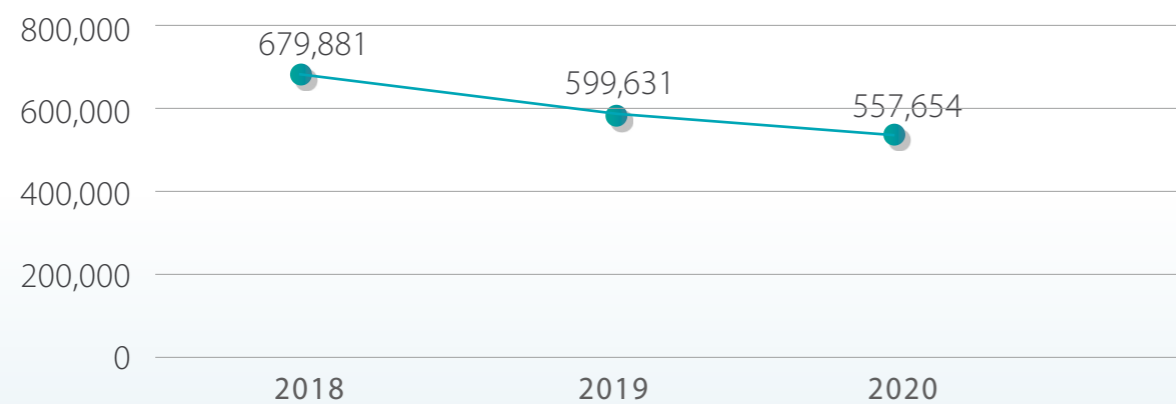
In terms of fuel management, all TPEX departments provide employees with official-use EasyCards to encourage taking public transportation. Private use of official vehicles is strictly forbidden, and rides are shared in principle. Maintenance and inspection are also carried out regularly to maintain fuel efficiency.

3-2-2 Resource Management

TPEX's main consumables are photocopy papers. Over the past few years, we have been actively promoting digitalized and paperless processes. In addition to improving productivity, these efforts have also enabled us to achieve resource efficiency.

Internally, TPEX requires colleagues to conduct administrative procedures online. The usage rate of electronic official documents increased from 54% in 2019 to 56% in 2020. Meeting materials shall be transmitted electronically as much as possible; necessary photocopying or printing should also be double-sided or done using recycled paper. In 2020, the number of paper used by photocopiers reduced by 7% compared to 2019.

■ Photocopier Paper Consumption (sheets)



Externally, TPEX has been continuing to promote various electronic reporting services since 2015. To this end, it has successively completed system development and revised relevant regulations, digitalizing declaration operations in place of the paper-based. The issuing company or intermediary agency can now download the necessary information from the TPEX website, and complete declarations using the online system.

<p>Company File Download Area</p> 	<p>Registration form for press conferences regarding material information of companies, registration statement for listing of new shares for capital increase, registration statement for capital reduction, various checklists, etc., are available online.</p>
<p>Online Declaration System</p> 	<p>Securities firms joining midway and resigning from recommending ESB stocks, declaring new shares traded over-the-counter due to capital increase/reduction, etc., are implemented online.</p>

In 2020, TPEX further improved the electronic declaration system for various services, greatly lessening document submission time and operating costs for issuers. In addition, TPEX has also urging companies to utilize the electronic official document exchange system. As of December 31, 2020, the proportion of listed/registered companies that have used the system reached 96.05%.

Taiwan Water Corporation provided all the water used at TPEX, while no groundwater or other water sources are used. TPEX's operating activities have not affected water sources, and the sewage after use is discharged into the sewerage system. In addition to reminding colleagues to practice various water-saving measures, TPEX has installed water-saving devices and regularly inspects water equipment.

3-2-3 Waste Management

TPEX mainly engages in securities trading and information services and is therefore not associated with concerns over pollution or waste. At present, resource recycling bins are set up on each floor to enable the sorting of recyclables, and colleagues are required to practice resource recycling. Moreover, environmentally friendly toner is used throughout our offices, and 100% of the used toner cartridges are handed over to the original manufacturer for recycling.