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Waste

Plastic-Free Ocean Promoted in Response to International Trend

Starting 1 January 2018, the EPA implemented two measures in response to rising global attention on plastic waste in oceans. One measure broadens restrictions on the use of plastic shopping bags to seven additional industries, while the other is a ban on the manufacture and import of six categories of products containing plastic microbeads. With these new measures, the EPA hopes to guide enterprises to provide environmentally friendly products and encourage the public to reduce the use of plastic in their daily lives, in order to help attain a plastic-free ocean, while protecting the marine environment and the life within it.

According to United Nations statistics, roughly eight million metric tons of plastic waste enter the world's oceans every year. The UN estimates that, by weight, there will be as much plastic in the ocean as there is fish by 2025, which will ultimately impact food supplies and human diets. Lowering and limiting plastic use is hence necessary. To raise public awareness, the EPA brought in Hsin-Yao Huang, the 2017 Golden Horse Award winner for best new director, to shoot a short film on

lowering plastic use.

The EPA calls on the public to support the policy of at-source reduction of plastic bags. Stores and shops can refrain from offering plastic bags, and consumers can carry out daily practices, such as bringing their own shopping bags and reusing plastic bags. The EPA hopes that all residents will contribute to environmental protection by limiting the use of single-use plastic bags.

Expanding the targets and scope of plastic bag restrictions

In 2002, the EPA kicked off the first stage of the plastic restriction policy by limiting the use of plastic shopping bags and single-use plastic utensils. On 1 July 2006, cafeterias in government facilities and schools became the first targets to stop providing single-use utensils. Next, in March 2007, the *Restrictions on the Use of Plastic Trays and Packing Boxes* (限制塑膠類托盤及包裝盒使用)

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was announced to limit plastic trays and packing boxes for eggs, fresh produce, bread and pastries.

Minister Ying-Yuan Lee pointed out that, despite the public's support of the plastic ban policy, plastic bag usage still needs to be reduced at source in a pain-free process. Thus, in order to encourage consumers to bring their own shopping bags, reuse plastic bags and reduce the use of single-use plastic shopping bags, in August 2017, the EPA announced the revised *Targets, Implementation and Effective Date of Restricting the Use of Plastic Shopping Bags* (購物用塑膠袋限制使用對象、實施方式及實施日期), which added seven more categories of targets.

The restriction on use of plastic bags now covers 14 categories. Previously, only seven categories were subject to these restrictions, namely, government facilities, private schools, department stores/shopping malls, wholesale stores, supermarkets, chain convenience stores, and fast food chains. The new policy adds another seven categories: pharmacies/drug stores; medical equipment stores; retailers of household appliances and photographic, electronic, and communication equipment; bookstores and stationery stores; laundries; beverage shops; and bakeries.

The new categories add 80,000 businesses to the previous 20,000 already subject to the controls. With a total of 100,000 businesses now subject to the restrictions, it is expected that 1.5

Businesses shall NOT provide the following FOR FREE



Plastic bags are ALLOWED when

- Used to directly bag fresh produce or food



⬆ Plastic bags that may or may not be provided free of charge

billion fewer plastic bags will be used every year.

The EPA explained that, in consideration of food sanitation and safety, free plastic bags are allowed for packing bread or fresh produce. If the food itself is already packaged, additional plastic bags shall not be provided free of charge.

Ban on manufacture, import, and sales of cosmetics and personal care products containing plastic microbeads

In response to international concerns over ocean waste, the EPA aims to assist Taiwan's personal care product industry to switch to environmentally friendly ingredients, and to import products free of microbeads. As a result, the *Ban on Manufacture, Import, and Sales of Cosmetics and Personal Care Products Containing Microbeads* (限制含塑膠微粒之化粧品與個人清潔用品製造、輸入及販賣) was announced in August 2017. Six categories of products, namely, microbead-containing shampoo, facial

cleansers and makeup removers, shower gels, soaps, body scrubs, and toothpastes, are banned from being manufactured or imported as of 1 January 2018. Sales of such products will be banned as of 1 July 2018. The ban applies to products containing microbeads smaller than 5 mm in diameter.

Sailing toward a plastic-free ocean

At the 2017 Environmental Protection Technology Exhibition, the EPA showcased its accomplishments on land-originated waste reduction as well as clean-ups of beach and ocean floor garbage. However, ocean wastes can reach all corners of the big blue, and it is difficult to trace their sources. With limited resources and manpower for marine environmental protection, it is imperative to integrate resources from different fields and form a feasible plan to tackle marine waste. In July 2017, the EPA announced its initiative to establish the Marine Waste Management Platform along with eight civic environmental organizations. On this platform,

all sectors can exchange ideas and opinions on marine waste, including land-originated, beach, ocean floor, and floating garbage, to jointly work toward the goal of plastic-free oceans.

Future outlook

Environmental damage caused by plastic waste can severely

devastate marine ecosystems and threaten the survival of marine life, thus restricting use of plastics is a major global environmental issue. Plastics also pose a danger to human health if not properly disposed of. Other than expanding the plastic ban that has been running for 15 years, the EPA has prioritized “plastic-free oceans”

as a major focus and will further push this policy with greater vigor. Minister Lee called on the public to cooperate with the new policy and fully support it to quickly speed up its implementation, which will result in a reduction of plastic use, and ultimately a plastic-free environment.

Chemicals

Executive Yuan Convenes Meeting to Review 2017 Food Safety

On 7 December 2017, the Executive Yuan’s Office of Food Safety held the 2017 Food Safety Management Review Meeting. Related agencies such as the Ministry of Health and Welfare (MOHW), the Council of Agriculture (COA), the Ministry of Education (MOE), and the EPA attended the meeting. The review meeting aimed to jointly evaluate food safety management achievements and improve performance in the future by listening to opinions from all sectors.

The Executive Yuan’s Office of Food Safety invited the members of the Executive Yuan’s Food Safety Committee, scholars and experts, legislators, civic groups, representatives from industry

1 Separate storage

Separate storage places for industrial chemical substances and food additives with warnings on industrial substances



2 Clear labeling

Industrial chemical substances must be labeled as not allowed for food, medicine, feed or fertilizer.

3 Usage notification

For 57 chemical substances with food safety concerns, when they are sold the retailers must inform consumers not to use them in food.

4 Flow tracking

Records to be kept on buyers, information, amount of purchase, and amount of stocks



Chemical Substance Management Four Musts

organizations, and citizens to the 2017 Food Safety Management Review Meeting. The meeting was also broadcast live on the Facebook pages of the COA and the MOHW's Food and Drug Administration (FDA). In the meeting, ideas on school lunches, pesticide control, and at-source management of chemical substances with food safety concerns were discussed. On the topic of "Environmental Monitoring and At-Source Management for Chemicals with Food Safety Risks", the EPA's Toxic and Chemical Substances Bureau (TCSB) presented related achievements. For instance, the EPA has established an

at-source control mechanism and worked to maintain safe production environments since the establishment of the TCSB. Soil, drinking water and effluents are all tested and verified that they are up to standard. All industrial chemical products are under the EPA's management, and inspections and warnings will occur once an abnormal flow of products is found. Manufacturing processes are also well controlled to prevent improper usage of industrial chemical products. In 2017, a total of 2,196 chemical substance suppliers were selected for auditing.

Besides ensuring close

cooperation of the central and local governments, the Executive Yuan continues to strengthen collaboration across different agencies and upgrade the platform linking the executive and judicial branches on investigations into food- or medicine-related offences. Meanwhile, governmental, industrial, and civic organizations are also joining forces to improve at-source management and tighten audits and testing for agricultural and food safety through big data analysis. All of this is done to carry out the five major food safety policies to the fullest, in order to maintain high standards for food safety and sanitation.

Air

Red Alert Days for PM_{2.5} to be Half 2015 Level by 2019

The last few months in Taiwan, people have been more concerned about the health impacts of poor air quality. Since his inauguration, EPA Minister Ying-Yuan Lee has been setting stricter air quality improvement targets, including the reduction of red alert days (daily average PM_{2.5} $\geq 54 \mu\text{g}/\text{m}^3$) by 20% of 2015 levels by 2017 and 50% by 2019.

The Air Quality Index (AQI) is composed of a variety of air pollutant indicators for reporting daily air quality. Every country has its own air quality indices that have similar names but differ in standards for severity, such as the US AQI, South Korea's CAI (Comprehensive Air Quality Index), Australia's Daily Air Quality Index (DAQI), China's AQI, and so on. To improve air quality, the EPA aims to reduce the number of red alert days (PM_{2.5} $\geq 54 \mu\text{g}/\text{m}^3$) by 20% of 2015 levels by 2017, and 50% by 2019

To help reduce the number of red alert days, the EPA started using

the AQI from 1 December 2016. The AQI lowers the threshold for issuing a red alert to the public. Previously, the EPA issued a red alert warning when daily average PM_{2.5} concentration reached $71 \mu\text{g}/\text{m}^3$ (AQI purple level); now it is issued if the level reaches $54 \mu\text{g}/\text{m}^3$ (AQI red level). In 2016, there were a total of 143 days on which the daily PM_{2.5} concentration reached $71 \mu\text{g}/\text{m}^3$ and 874 days on which the concentration reached $54 \mu\text{g}/\text{m}^3$. Lowering the threshold for a red alert, therefore, warns residents of deterioration in the air quality earlier, to alert them to take response measures sooner. The EPA also tightened the air

quality control rules to enable it to take swifter reduction measures. The air quality control measures that were originally taken on days when the PM_{2.5} value reached $71 \mu\text{g}/\text{m}^3$ must now be taken when PM_{2.5} levels reach $54 \mu\text{g}/\text{m}^3$. The EPA also reminds the public to pay more attention to changes in air quality so that they can take precautions further in advance. To this end, the EPA will start releasing warnings once the PM_{2.5} concentration reaches $35.5 \mu\text{g}/\text{m}^3$ (AQI orange level) in an effort to help prevent continuing deterioration of air quality.

Equal Focus on Economic Incentives and Pollution Reduction for Air Pollution Control

The strategies for air pollution control in Taiwan are focused equally on economic incentives and pollution reduction. Since its announcement and implementation in 1975, the *Air Pollution Control Act* (空氣污染防制法) has gone through eight amendments to become a comprehensive legal framework for air pollution control in Taiwan. Since the last amendments in 2002, the EPA has taken into consideration the major air pollution incidents in recent years and deemed it necessary for review and revision. Amendments include harsher penalties for an expanding target base, authorizing local environmental bureaus to designate air quality zones, and having cash rewards in place for the reporting of illegal activities. The EPA hopes that adopting economic incentives and harsher punishments will effectively cut pollution and improve air quality.

After preannouncing the draft amendments to the *Air Pollution Control Act* on 23 June 2017, the EPA collected public opinion by holding three hearings. The draft was then revised and submitted to the Executive Yuan on 31 October. The draft amendments were approved by the Executive Yuan on 14 December and sent to the Legislative Yuan on 22 December. However, the amendments did not enter the agenda of the 2017 session. In response to the public's demand for clean air, EPA Minister Ying-Yuan Lee recently visited the Legislative Yuan, which agreed to include the revisions as a priority in the coming review session, in order to expedite the legislation process.

The amendments focus on harsher penalties, a whistleblower mechanism, environmental information disclosure, and enhancement of public participation. Details include increasing penalties, raising fees for violations, recovering illegal gains, providing rewards to encourage reporting illegal activities, and designating air quality zones. Other measures include implementing controls on mobile pollution sources,

adding controls on mobile sources besides transportation, controls for chemicals containing volatile organic compounds (VOCs), information disclosure, and more.

Major amendments to the *Air Pollution Control Act*

To formulate regulations concerning emergency response and total quantity control (TQC) for severe air quality deterioration, the Act requires participation of all relevant authorities. Amendments are based on legislative procedures, discussions and public hearings to which stakeholders and related ministries were invited to attend, which are all necessary in order to ensure comprehensive and mutual understanding.

The main amendments are as follows:

1. For Class 3 Control Zones, the EPA shall set standards for local environmental bureaus to follow concerning the mandatory pollution emission reduction for existing sources. Also, air pollution control plans formulated by local environmental bureaus are to be approved by the EPA.
2. For existing pollution sources

located in TQC zones that do not meet air quality standards, regulations are newly added for authorization of pollution reduction credit auctions.

3. Emission standards are added for air pollutants in public and private premises. Health risk factors should be taken into consideration for the inclusion of regulated harmful air pollutants into the emission standards.
4. When formulating regulations for the establishment of new stationary pollution sources and operating permits, the EPA is authorized to use unified evaluation principles nationwide. Considering that air quality improvement requires the planning and management of local governments, the current regulations concerning the commissioning of other governmental authorities to handle permit applications and extensions have been deleted.
5. Controls on fuels and other air pollution-causing substances are to be separated, so fuels used in stationary pollution sources at public and private premises will have to meet fuel standards and

- require specific permits. The qualifications to obtain permits to use other air pollution-causing substances have also been established.
6. When evaluating permit extensions, local environmental bureaus shall adhere to the newly added emission standards for stationary source pollutants that are required to be reduced. The EPA-approved air pollution control plans shall also be followed when calculating emissions pertaining to permit issuance as well as to specify valid permit extension periods.
7. Controls are added for mobile pollution sources other than transportation vehicles, and bans placed on the installation of emission-defeat devices on vehicles. In addition, taking into account the wearing out of acceleration systems and pollution control devices, the EPA may tighten emission standards for vehicles manufactured more than ten years ago to better keep emissions under control.
8. Pollution-control equipment for mobile sources needs to be certified by the EPA.
9. New regulations are added to authorize competent authorities to designate air quality control zones in ports and industrial zones. Furthermore, use of highly polluting vehicles is limited, while their phase-out will be accelerated.
10. The manufacture, import and sales of VOC-containing products should meet the EPA's ingredient standards.
11. The minimum criminal penalty is specified, while maximum criminal sentences and fine limits are raised. An index for exceeding standards is specified for harmful air pollutants in emissions, and punishments are detailed for burning materials that produce harmful substances.
12. With the *Water Pollution Control Act* (水污染防治法) as reference, the amount of fines are increased ten-fold. The range of penalized targets is also expanded.
13. Maximum fines for violations are raised.
14. A new dual mechanism is established to both recover illegal gains and impose fines. Fines are collected when fuel sellers and importers or public and private enterprises do not file and pay air pollution control fees according to regulations. This revenue, along with illegal gains recovered by competent authorities, should only be used on air pollution control and also as special control funds.
15. Penalties are issued based on each violation committed instead of violations on consecutive days.
16. The minimum penalty is adjusted to lessen the burden on disadvantaged citizens and

Table: Main points of amendments to the Air Pollution Control Act

1	Integrating review principles for permit application
2	Strengthening fuel controls
3	Reviewing TQC systems
4	Implementing controls on harmful air pollutants
5	Implementing controls on mobile pollution sources
6	Increasing controls on VOC-containing chemical products
7	Adjusting penalties and raising fines
8	Improving the whistleblowing mechanism
9	Providing rewards to encourage reporting of illegal activities
10	Promoting full information disclosure to expand public participation

impose lighter punishment for minor offenses.

17. Heavier fines are imposed for manufacturing, selling, or installing emission-defeat devices.

18. Cash rewards are put in place to encourage citizens to report illegal activities at public and private premises.

19. The EPA takes references from foreign examples of protecting whistleblowers and state witnesses and the *Water Pollution Control Act* to encourage corporate employees to report illegal practices.

Future outlook

For factory emissions, the amendments start with regulating fuel components, placing pollution controls at both the source and the end of emission pipes. For emissions from mobile sources, the EPA will authorize regional environmental bureaus to designate air quality control zones

in order to limit or ban the use of highly polluting vehicles.

To raise penalties and ensure that everyone responsible is penalized, those failing to file and pay air pollution control fees as mandated will be tracked for five years and pay twice the amount. Regional environmental bureaus are required to set reduction goals for pollution sources based on the guidelines for pollutant emission reduction. Also, for violators who fail to improve by given deadlines, penalties will be imposed based on each violation committed instead of by consecutive days of violations.

In an attempt to stop business and industrial establishments from violating the *Air Pollution Control Act* and affecting public health, the heaviest fine is raised from NT\$1,000,000 to NT\$20,000,000. The EPA has specified limits for emissions of harmful pollutants as well as penalties for burning materials that produce specified substances hazardous to health. The maximum fines are increased

ten-fold for legal persons or individuals, with an expanded range of regulatory targets.

Conclusion

Premier Ching-Te Lai expressed that air pollution improvement needs action plans to be implemented, on top of regulatory revisions. Therefore, each department of the Executive Yuan would be required to actively participate and also assist and supervise regional governments to jointly carry out air pollution control work.

Minister Lee promised to collect air pollution fees for particulate pollutants from stationary sources, and the fee collection is expected to begin in July 2018, at the earliest. In the future, the EPA and the Ministry of Economic Affairs will comb through all pollution emissions produced by state-run corporations before reducing them by 25% in three years. It is hoped that via both economic incentives and pollution reduction measures, improvement of air quality will be hastened.

Waste

Coordinating Regulations Regarding Large-Scale Incinerators Announced

The EPA promulgated the *Regulations Regarding Coordination of Existing Large-Scale Incinerators* (現有大型焚化廠統一調度辦法) on 8 January 2018. The regulations were made in accordance with amendments made to the *Waste Disposal Act* (廢棄物清理法) on 18 January 2017. The EPA will coordinate the conditions, procedures, fees, and other details for coordinated use of incinerators.

The key points of the *Regulations Coordinating Existing Large-Scale Incinerators* are listed below:

1. In accordance with Article 28 of the *Waste Disposal Act*, the requirements for coordinating

incinerator operations apply only when responding to abnormal situations, which are defined as unforeseen circumstances, temporary situations, non-human factors, and other scenarios requiring coordination

as deemed necessary by the EPA.

2. Principles are set for coordination of incinerator operations by central competent authorities. A comprehensive evaluation will be done on

existing incinerators, which shall investigate the amount of general industrial waste collected, the status of operations, and the amounts remaining after processing. It also examines the average hauling distance for waste disposal, each incinerator's adherence to regulations laid out in the *Waste Disposal Act* Article 28 Paragraph 6 Subparagraphs 1 and 2, and any other relevant data. Coordination is based on the national annual average per capita daily waste. The amount of general waste handled by environmental

protection facilities in their respective jurisdictions as well as the amount that other cities/counties/municipalities can help process shall be exempted. The central competent authority will also examine whether the adjusted amount being requested has a yearly decrease of 2%.

3.Regulations are established for offices applying for coordination to cover the expenses incurred by existing incinerators while processing general waste from other cities/counties/municipalities. Additional

agreements between the two parties shall be exempt.

4.The authority applying for coordination and the one being coordinated are to determine the ratio for bottom ash or the recycled aggregates to be transported back. In the event that the reuse channel for recycled aggregates made from incinerator bottom ash is obstructed, the competent central authority is to step in and coordinate based on relevant regulations.

Climate Change

Taiwan's Response to International Climate Agreements

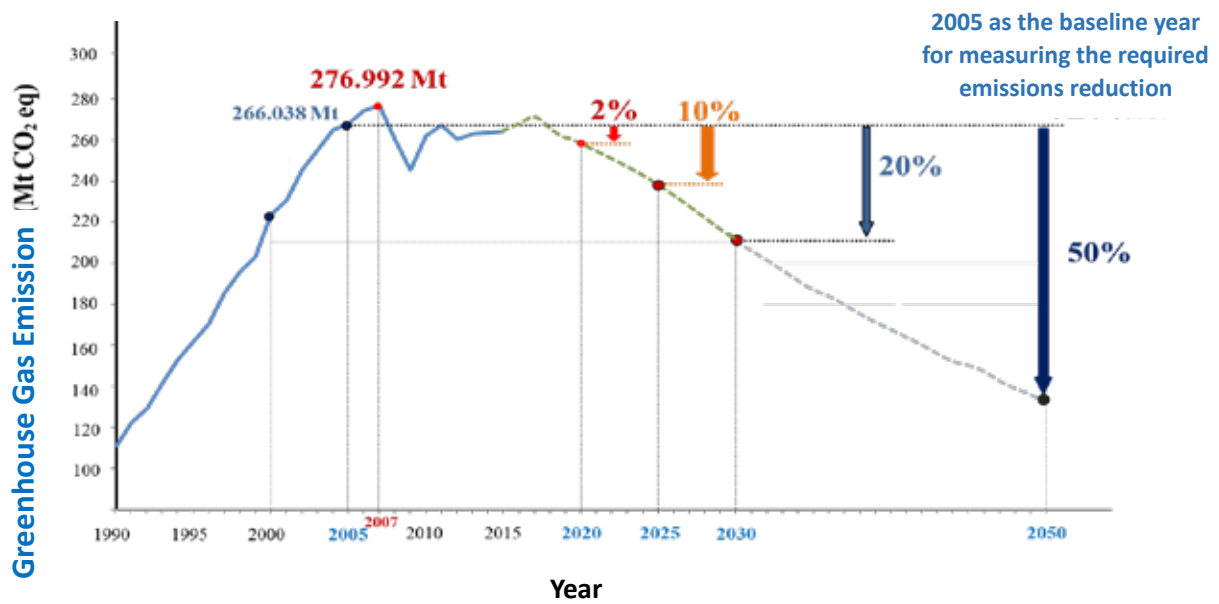
Closely related to the sustainable development of all nations and the continued existence of species, climate change is an urgent challenge faced by the international community. As average global temperatures keep reaching record highs, impacting human survival and ecosystems, Taiwan continues to cut carbon emissions by following the Paris Agreement and the United Nations Sustainable Development Goals. In 2017, the *National Climate Change Action Guidelines* (國家因應氣候變遷行動綱領) that had been formulated by the EPA and related agencies was approved by the Executive Yuan. The Guidelines not only lay out principles for national greenhouse gas reduction and climate change mitigation policies, but launched the interministerial response to jointly reach the carbon reduction goals stated in the *Greenhouse Gas Reduction and Management Act* (溫室氣體減量及管理法).

In response to global carbon reduction efforts, the Executive Yuan approved the *National Climate Change Action Guidelines* (國家因應氣候變遷行動綱領) in February 2017. The Guidelines serve as the general directions for policies on greenhouse gas mitigation and adaptation to climate change. The EPA consulted with various central industrial competent authorities to set carbon reduction goals for the first stage. To jointly lower emissions, practical responsibilities have been

delegated to each sector after referring to emission contributions, current emissions, reduction trends as well as potential reductions in the energy, production, transportation, residential and business, agricultural, and environmental sectors. A public hearing was also held on 23 November 2017 to collect opinions from the public. Approved by the Executive Yuan on 23 January 2018, the Guidelines stipulate reductions that would start slowly and later accelerate. The target of cutting emissions by 2020 to

2% lower than that of the baseline year 2005, and other mid-term goals, are outlined. It aims to gradually achieve the long-term reduction goals during the next 139 years.

To reach the reduction goals of each stage, the EPA consulted with central regulatory authorities and formulated the draft *Greenhouse Gas Reduction Promotion Program* (溫室氣體減量推動方案). It was submitted to the Executive Yuan on 2 January 2018 for approval and



📍 Taiwan's carbon reduction plan

future implementation. Since carbon reduction efforts involve transformation of energy sources, consumer behaviors, and industrial structures, countries tend to proceed via cautious planning and promotion with long-term goals set for 2030 or 2050. Taiwan's current new energy policies and conservation movements will start a preliminary energy transformation, although it may even slightly increase carbon emissions. However, in the long run, with all ministries shouldering their responsibilities and through continuous hard work, the long-term reduction goals can be accomplished.

To build an incentive mechanism that encourages emission sources to cut greenhouse gases, the EPA has established inventory, audit, and registration systems and gathered data of major carbon-emitting enterprises. A total of 280 enterprises, which account for 87.6% of Taiwan's industrial and energy sources of carbon emissions, are listed as under

regulatory control. Furthermore, seven greenhouse gas auditing institutes are permitted to authenticate various data and information, which will be used as a basis to establish total control and emission trading systems.

Various incentive measures

To raise industry's awareness of climate change mitigation and carbon emission reduction, the EPA has been promoting the system for carbon footprint labels. Also, the *Low-Carbon Product Award Regulations* (低碳產品獎勵辦法) were promulgated on 10 July 2017 to increase tangible incentives for enterprises to apply for carbon footprint labels (or "carbon labels") and carbon footprint reduction labels (or "carbon reduction labels").

In addition, the EPA drafted the *Regulations Governing Incentives for Greenhouse Emission Sources Compliant with Efficiency Standards* (溫室氣體排放源符合效能標準獎勵辦法). These regulations aim to reward

announced emission sources that have begun to take carbon emission mitigation measures before being included in the total emission control, as well as to serve as a basis for the certification of Taiwan's voluntary mitigation results. Subsidies are also in place to reward enterprises that install generators to produce electricity from methane extracted from landfills.

Building a low-carbon sustainable homeland

To strengthen local capacities to achieve low-carbon status, the EPA and regional governments actively promoted the *Low-Carbon Sustainable Homeland Certification and Rating Promotion Plan* (低碳永續家園認證評等推動計畫). Villages, neighborhoods, towns, and regional governments are encouraged and helped to sign up to receive a rating. From 1 July 2014 to February 2018, participants comprised a total of 22 regional governments, 325 towns and cities (accounting for 88.3% of 368 towns in Taiwan with an



↑ The product carbon reduction label (left) and the product carbon label (right)

average county/city participation of over 50%), and 3,474 boroughs (accounting for 44.2% of 7,851 boroughs in Taiwan with an average county/city participation of 35%). Fifty-three silver class certifications and 861 bronze class certifications were awarded after evaluation. In 2017, a total of 138 communities were newly certified.

The average energy conservation per person at the borough level in 2017 compared to 2016 have been analyzed, showing that the average energy saved was 3.79 kWh/person in boroughs that did not participate in the certification, 4.22 kWh/person in participating boroughs, and 5.74kWh/person in boroughs receiving bronze

certification, and 14.91kWh/person in boroughs receiving silver certification. This is evidence of largely improved public awareness of the importance of energy conservation and carbon reduction and that participants are working hard to achieve and live a low-carbon lifestyle by adopting new behaviors.

Raising public awareness to act on climate change

An information disclosure platform has been established to promote strategies for a low-carbon and sustainable lifestyle. Also, an online platform has been set up to integrate diverse knowledge and information relevant to climate change, energy conservation,

carbon reduction, low-carbon lifestyles, and impact mitigation. It serves as a channel to promote policies in response to climate change and practical tips on living a low-carbon life.

Regional governments and civic organizations are brought together to cooperate on energy conservation, carbon reduction, and climate change mitigation. In 2017, 22 regional governments have been subsidized with a total of NT\$61,500,000. In addition, promotion of energy conservation and carbon reduction measures are carried out in local communities alongside the efforts of civic organizations to encourage participation in environmental protection activities and events. A total of 47 civic organizations have received grants to jointly build a low-carbon sustainable society.

Enterprises that perform well are also given rewards for emission reduction. Those that install generators to produce electricity from methane extracted from landfills are provided with monetary rewards, with a total of NT\$5,712,000 disbursed in 2017. Such capacity for treatment of



↑ Some visible low-carbon measures adopted by low-carbon communities

methane reached 10,065 metric tons, equivalent to reducing 70,588 metric tons of carbon emissions.

➔ *Methane-extracting generation equipment at Fudekeng landfill in Taipei City*



Air

Emergency Response Meetings Held for Air Quality Control

On 3 March 2018, in response to poor air quality in western Taiwan, the EPA established a central command center and held three emergency response meetings. In the meetings, the participants discussed control measures that could be taken to curb the air pollutants. The participants were from: the Ministry of the Interior, the Ministry of Economic Affairs, the Ministry of Transportation and Communications, the Ministry of Education, the Ministry of Health and Welfare, Taiwan Power Company, and other related ministries. During the meeting, a total of eight local command centers were established by different cities/counties, and the emergency response measures that had been taken by both local and central governments were reported. The EPA also reminded both public and private premises to strengthen their air quality control when air pollution is more severe.

The EPA forecasted that the air quality in western Taiwan on 4 March 2018 would be at the most severe level because of poor atmospheric dispersion conditions due to weaker morning wind speeds. The AQI in northern Taiwan and the Hsinchu/Miaoli emission control zones was predicted to flash red for the day, but it was possible to drop to orange level if there were stronger wind speeds and better atmospheric dispersion conditions in the morning. However, with reduced wind speed at night and the accumulation of pollutants, the AQI level could resume to a red level. Affected by transboundary pollutants, Matsu Island and Kinmen Island were expected to receive red or orange alerts on 4 March. Orange alerts were also issued to central Taiwan and the Yunlin/Chiayi/Tainan emission

control zones. On the other hand, the air quality in the Kaohsiung/Pingtung zones and Penghu was rated moderate and the air quality in Yilan and Hualien/Taitung zones was rated good.

To reduce the impact of air pollution on the following day, Taiwan Power Company started to take voluntary reduction measures and cut electricity output at the following plants starting on 2 March: Taichung Power Plant, Hsinta Power Plant, Hsieh-ho Power Plant, and Linkou Power Plant. In the meantime, various government-owned enterprises tried to help improve the air quality by increasing the use of natural gas to avoid burning more highly polluting fuel and by tightening the equipment testing and the regular inspections both within and around the plants. Moreover, they

stopped soot blowing, increased the frequency of water sprinkling at raw material storage sites to prevent fugitive dust, operated in high energy efficient mode, and reduced pollutant emissions and total electricity output.

The EPA also reminded all participants of the Tainan Ancient Capital International Marathon held on the following day to carefully monitor their own health conditions. They were advised to immediately seek medical help if any symptoms were detected.

The EPA and government at all levels will continue taking emission reduction measures. The EPA will also keep a close eye on air quality changes and track the effectiveness of air pollution control measures.

New Environmental Measures in Effect as of 1 January 2018

Six environmental measures took effect on 1 January 2018 :

Policies or measures	Description
1.Subsidies for phasing out two-stroke motorcycles and purchasing new electric two-wheel vehicles	<ol style="list-style-type: none"> 1.NT\$1,000 for phasing out a two-stroke motorcycle in 2018 2.NT\$4,000-6,000 for phasing out a two-stroke motorcycle and purchasing a new electric two-wheel vehicle in 2018 3.NT\$1,500-3,500 for purchasing a new electric two-wheel vehicle in 2018 4.Subsidies will be reduced by NT\$500 every year and no longer available as of 2020.
2.Air pollution control fee rates for stationary sources	Different fee rates are set for autumn and winter to encourage public and private premises, during the seasons of poor air quality, to cut down outputs or redistribute production capacity, or reduce pollution emissions by enhancing efficiency of pollution control equipment.
3.Expanding control targets and implementation for the restricted use of plastic shopping bags	Seven categories, namely, pharmacies/drugstores, medical device stores, consumer electronics retailers, bookstores and stationery stores, laundries, beverage shops, and bakeries, are added as targets of the restrictions on the use of plastic shopping bags.
4.New controls on plastic microbead-containing cosmetics and personal care products	Six categories of products, namely, shampoo, facial cleansers and makeup removers, shower gels, soaps, body scrubs, and toothpastes, are not allowed to have plastic microbeads added.
5.Reporting and payment for recycling fees using mobile devices	Responsible enterprises may print out payment invoices and complete payments at banks after reporting amounts handled (imported). For fees under NT\$20,000, enterprises can complete reporting and payment arrangements online and pay fees at convenience stores using bar codes received on mobile devices.
6.Ban of asbestos in brake lining manufacturing	The schedule of the total asbestos ban has been moved ahead. Asbestos use is now forbidden in all manufacturing.

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Shiuan-Wu Chang; Yu-Ling Yang; Shaowen Chang;
Ken Lee; Jason Hoy

For inquiries or subscriptions, please contact:

Environmental Policy Quarterly

Office of Sustainable Development

Environmental Protection Administration

83, Sec. 1, Zhonghua Rd., Taipei 100, R.O.C. (Taiwan)

tel: 886-2-2311-7722 ext. 2211

fax: 886-2-2311-5486

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