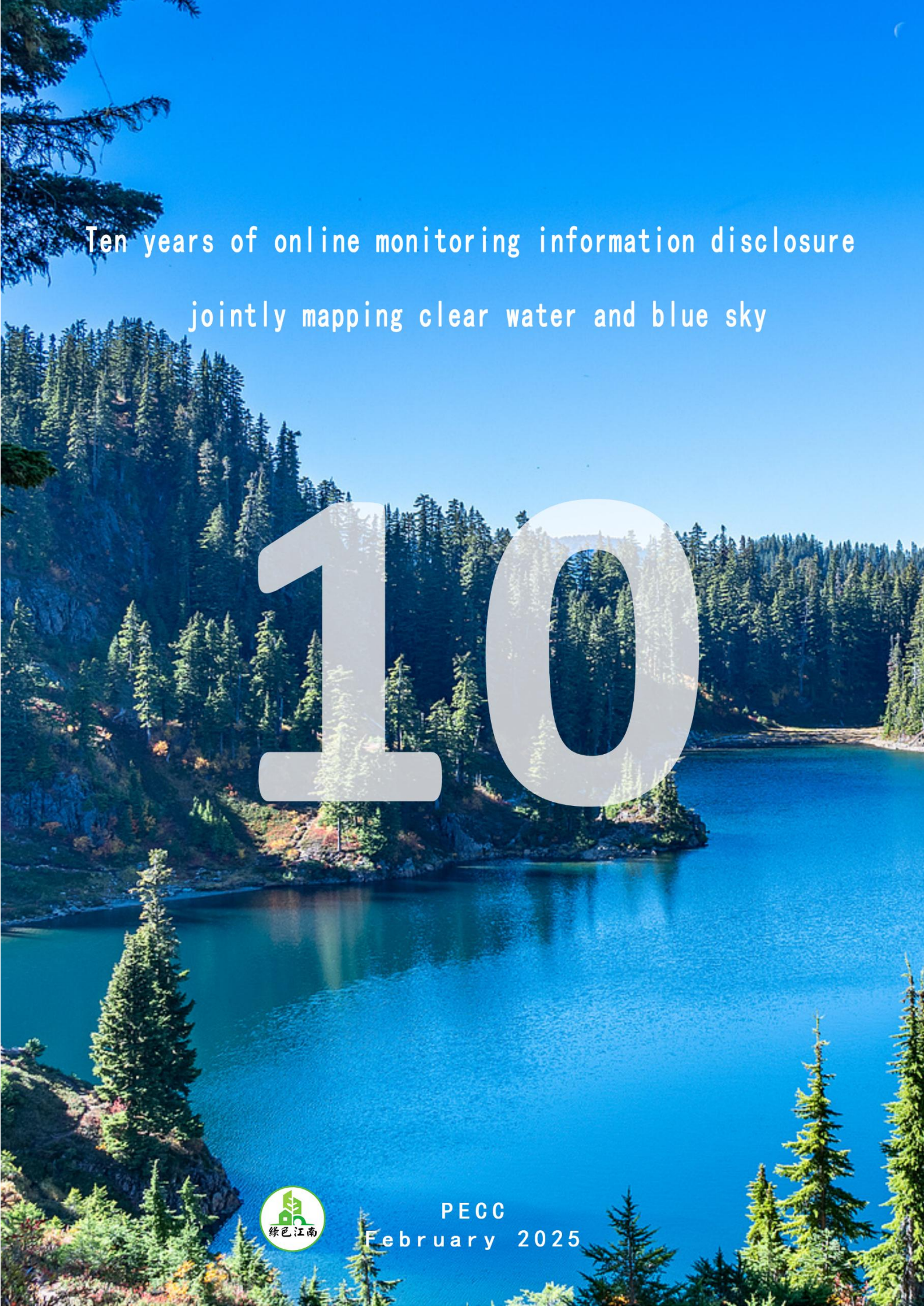

Ten years of online monitoring information disclosure
jointly mapping clear water and blue sky
10
绿色江南
PECC
February 2025

Preamble

The formal introduction of the concept of "key polluting enterprises" in China can be traced back to 2005. The former State Environmental Protection Administration (SEPA) issued the *Opinions on Strengthening and Improving Environmental Statistics* (Huanfa [2005] No. 100)[1] , which mentions that "the screening of key polluters will be carried out in a quarterly report system. The list of enterprises shall be agreed between the General Administration and the provincial environmental protection departments, and in principle shall be determined on the basis of those enterprises whose emissions of major pollutants account for more than 65 per cent of the emissions of all enterprises".

In 2007, the State Council issued the *Circular of the State Council Approving the Implementation Program and Measures for Statistical Monitoring and Assessment of Energy Conservation and Emission Reduction* (Guo Fa [2007] No. 36).[2] , which mentioned "state-controlled key pollution sources" for the first time. In the same year, the former General Administration of Environmental Protection (GEPA) issued the *List of Key State-controlled Enterprises* (Huimanban Letter [2007] No. 93)[3] , which covers a total of 6,724 key polluters in terms of waste gas and waste water, as well as municipal wastewater treatment plants that require key supervision

[1] Vip Information, http://qikan.cqvip.com/Qikan/UserPay/CheckOrder?id=20692030&kind=4
[2] Central People's Government of the People's Republic of China, https://www.gov.cn/zhengce/content/2008-03/28/content_4949.htm?ivk_sa=1024320u
[3] Pollution Source Monitoring Center, Ministry of Ecology and Environment, https://www.envsc.cn/details/index/260

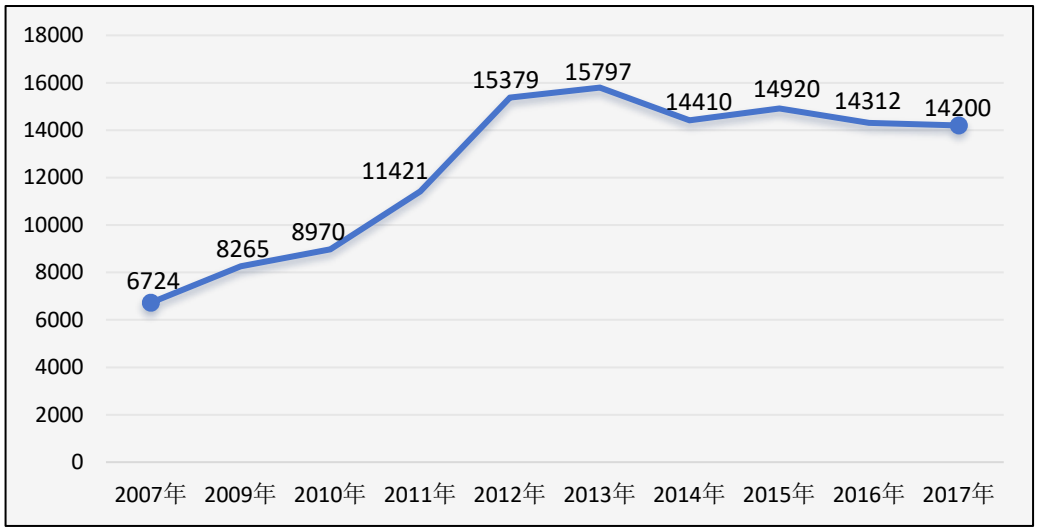


Figure 1 Number of State Controlled Enterprises (in units), 2007-2017

In addition to this, the provincial and municipal levels also carry out their own screening of key monitoring enterprises, that is, "province-controlled" and "city-controlled" enterprises. For the next 10 years, the government has been monitoring key polluters in accordance with the "state-controlled", "province-controlled" and "city-controlled" lists, and releases the corresponding re-control lists every year.

During this period, the government has successively put forward the concept and requirements of "key discharging units", such as *The Law of the People's Republic of China on the Prevention and Control of Water Pollution*[4] amended in 2008, and *The Law of the People's Republic of China on Environmental Protection*[5] amended in 2014, etc., but did not stipulate the management and screening of key discharging units. It was not until 2017 that the former General Administration of Environmental Protection issued the *Provisions on the Management of the List of Key Emission Units (for Trial Implementation)*[6] , which clarified the screening conditions for key emission units and standardized the management of the list of key emission units. Since then, the Key Emission

[4] Department of Ecology and Environment, http://jjjcz.mee.gov.cn/djfg/gjflfg/fl/200802/t20080201_444385.html
[5] Department of Ecology and Environment, http://jjjcz.mee.gov.cn/djfg/gjflfg/fl/201404/t20140401_444481.html
[6] Ministry of Ecology and Environment, https://www.mee.gov.cn/gkml/hbb/bgt/201712/t20171201_427287.htm

Unit List has officially replaced the national list of key monitoring enterprises and appeared in the public eye.

In order to strengthen management and promote the importance of environmental social responsibility on the part of key polluting enterprises, the disclosure of environmental information by enterprises has gradually been emphasized. China's existing legislation on the disclosure of environmental information takes as its starting point the *Announcement on the Disclosure of Environmental Information by Enterprises issued by the State Environmental Protection Administration*[7] (SEPA) in 2003, which provides for the disclosure of environmental information in some detail, pointing out that enterprises included in the list must disclose information on the total amount of emissions, pollution control and compliance with environmental protection laws and other five types of information, and encouraging enterprises not included in the list to take the initiative to disclose such information.

China's automatic pollution source monitoring system began in 1995, and was originally designed to remotely supervise whether pollution control facilities are normally opened and operated.[8] *The Measures for the Administration of Automatic Monitoring of Pollution Sources*[9], which came into effect on November 1, 2005, requires that sewage disposal units included in the plan for the automatic monitoring of pollution sources should complete the construction, installation, and networking of the automatic monitoring equipment in a timely manner. The *Measures for Self-monitoring and Information Disclosure of State Key Monitoring Enterprises (for Trial Implementation)*[10] which came into force on January 1, 2014 requires enterprises included in the state key monitoring program to carry out self-monitoring and disclose to the society the self-

[7] 生态环境部，https://www.mee.gov.cn/gkml/zj/wj/200910/t20091022_172224.htm
[8] Environmental Engineering Assessment Center, Ministry of Ecology and Environment, https://mp.weixin.qq.com/s/qDr9ge4KG1aN8cu-DaAcrA
[9] Department of Ecology and Environment, https://www.mee.gov.cn/gkml/zj/jl/200910/t20091022_171832.htm
[10] Department of Ecology and Environment, https://www.mee.gov.cn/gkml/hbb/bwj/201308/W020130801520697933928.pdf

monitoring situation and monitoring results, including basic information, self-monitoring results, and the reasons for not carrying out self-monitoring.

Under the requirements of national laws and regulations, each region (province/municipality/autonomous region) has begun to gradually establish a local unified automatic monitoring system for pollution sources. After 30 years of development, the automatic monitoring and basic database system for key emission units now in place has realized real-time online supervision of major pollutants and corresponding parameters at 69,000 key emission units and 119,000 monitoring points nationwide.[11]

In addition to facilitating government supervision and urging enterprises to emphasize their environmental responsibilities, promoting public participation in the supervision of pollution sources is also an important purpose of environmental information disclosure. 2002-2012 is the decade in which China's environmental protection public participation system has been fully established. The *Interim Measures for Public Participation in Environmental Impact Assessment*, *Measures for the Disclosure of Environmental Information (for Trial Implementation)*, and the *Regulations on Environmental Impact Assessment for Planning* have been issued successively, which have refined the implementation methods, applicable conditions, and legal liabilities of public participation in environmental protection.[12]

The new Environmental Protection Law of the People's Republic of China (EPL), which came into force in 2015, sets out a special chapter at to stipulate the rights, obligations and responsibilities of all parties involved in information disclosure and public participation, and proposes that "Citizens, legal persons and other organizations shall enjoy the right to obtain environmental information

[11] Environmental Engineering Assessment Center, Ministry of Ecology and Environment, https://mp.weixin.qq.com/s/qDr9ge4KG1aN8cu-DaAcrA
[12] Institute of Environmental Law, Wuhan University, https://mp.weixin.qq.com/s/ztuKCyjA74hAqmjdqp9iww

and to participate in and supervise the protection of the environment in accordance with law".

Under the support of relevant laws and regulations, SIP Lvse Jiangnan Public Environmental Concern Centre (hereinafter referred to as "PECC"), as an environmental public welfare organization that supervises industrial pollution emissions, promotes cleaner production of enterprises, promotes green supply chain purchasing of brands, and takes the initiative in assuming social responsibility, actively responds to and participates in the Measures for Public Participation in Environmental Protection[13] issued by the Ministry of Ecology and Environment. Since 2015, PECC has been paying attention to and supervising the self-monitoring data of enterprises , and on the self-monitoring data of various types of pollutants emitted by enterprises showing continuous or intermittent exceedance of the standard, and through microblogging, the national 12369 environmental protection report networking management platform (now integrated with the national letter and petition information management system into the national ecological and environmental letter and petition complaint and report management platform, hereinafter referred to as the "Letters and visits platform") to the local ecological and environmental departments (micro-reports) friendly tips.

As of December 31, 2024, PECC has provided 18,857 enterprises with friendly tips for online supervision to local ecological and environmental departments nationwide[14] , involving 15 industry sectors, 57 industry categories[15] , 29 provincial administrative divisions, and 30 pollutant types. 7,063 out of 18,857 enterprises have received replies from the ecological and environmental

[13] Department of Ecology and Environment,
https://www.mee.gov.cn/gkml/hbb/bl/201507/t20150720_306928.htm

[14] In the course of ten years of monitoring and prompting, many enterprises have been monitored and prompted many times, so the unit is expressed in terms of "family times".

[15] Industry classification is in accordance with the categories and broad categories in the National Economic Industry Classification (GB/T 4754-2017);
Industrial Classification of the National Economy, Ministry of Ecology and Environment,
https://www.mca.gov.cn/images3/www/file/201711/1509495881341.pdf

departments or the enterprises themselves. Among them, 598 enterprises were ordered to rectify, suspend production and impose administrative penalties by the ecological environment departments respectively.

1. Ten years of oversight

1.1 Multiple links, driven by environmental big data applications

PECC's monitoring tips on self-monitoring data of heavily controlled pollution sources are based on the environmental data public welfare platform established by the Public Environmental Research Center (IPE) - Blue Map Environmental Database[16] as an auxiliary tool, and real-time monitoring based on self-monitoring platforms of pollution sources established in each region, and through microblogging, letter platforms and other channels to the local ecological and environmental departments to reflect the phenomenon of enterprises' self-monitoring data exceeding the standards in real time, and to follow up the corresponding feedback from the ecological and environmental departments. Through microblogging and petitioning platforms, we reflect to the local ecological environment departments in real time the phenomenon of enterprises' self-monitoring data exceeding the standard, and at the same time follow up the corresponding feedback from the ecological environment departments in a timely manner.

[16] https://www.ipe.org.cn/index.html

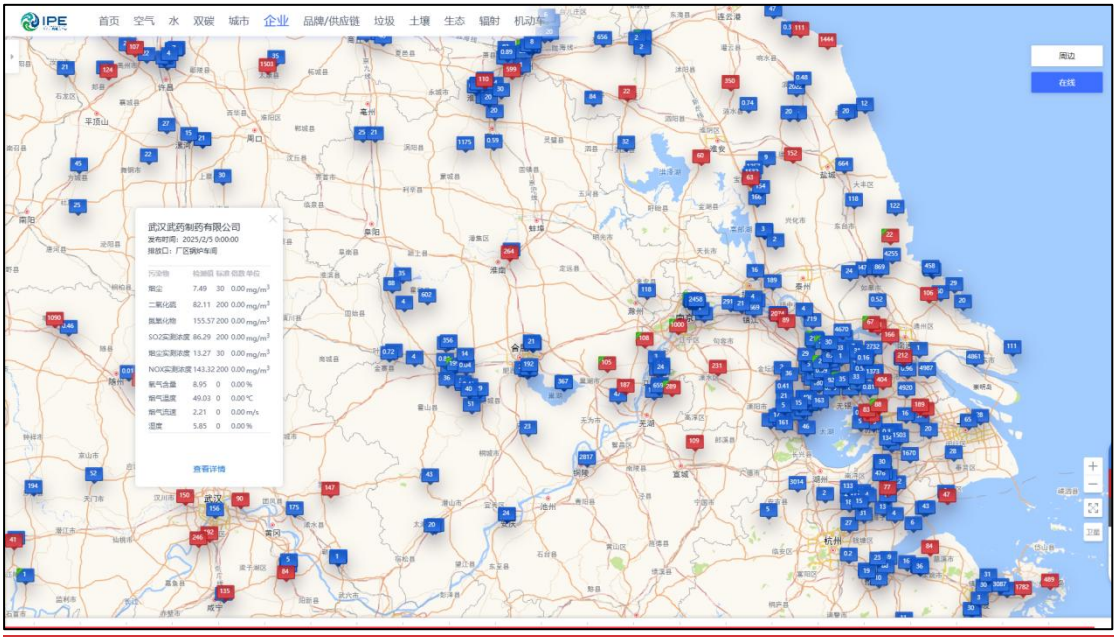


Figure 2 Blue map environmental database web version

Figure 3 Azure Map APP (online monitoring board for enterprises)

In 2015-2016, the self-monitoring platform for pollution sources in each region has just been built and piloted. PECC's online supervision prompt work is also in the beginning and groping stage, mainly based on the enterprise self-supervision data in a certain period of time range (30 days as a cycle), the daily average value of 1 day or more than 1 day of continuous or intermittent exceeding the standard phenomenon as a benchmark, through the microblogging platform @ in the local ecological and environmental departments to carry out a friendly reminder, and at the same time, will be

screenshot preservation of enterprise self-monitoring platform of self-monitoring data and microblogging At the same time, screenshots will be taken to save the self-monitoring data of the enterprise's self-monitoring platform and the relevant content of the microblogging platform, which will be convenient for later tracing. If we receive textual replies from the ecological environment department, enterprises or other related parties, we will also save the pictures in a timely manner.

Figure 4 Self-monitoring data of enterprises in Zhejiang Province saved in 2015

Figure 5 Corresponding to the saved tweets monitoring tips

In 2017-2018, PECC's online supervision and prompting work tends to mature, and began to gradually standardize the process of supervision and prompting work. In the process of supervision and prompting, we found that the enterprise self-monitoring data exceeds the standard in addition to the real exceeding the

standard, there may be due to equipment failure, debugging, shutdown resulting in pipeline exhaust gas concentration is too high, data fluctuations and other reasons for a short period of time non-true exceeding the standard, so in order to ensure that the exceeding the standard data of the authenticity and accuracy of the PECC will be used as a basis for supervision and prompting of the daily average exceeding the standard number of days from the original one day or more than one day into 3 or more days. In addition, in October 2016, the national 12369 environmental protection report networking management platform was officially launched, and in order to improve the response rate of the supervisory prompting work, PECC started to try to reflect the enterprise's self-monitoring data exceeding the standard to the local ecological and environmental departments since December 2017 through this platform.

In the process of supervision and prompting, PECC often found that some enterprises have been recently through the microblogging, letter platform for friendly prompting, but in a short period of time and again appeared to self-monitoring data abnormalities or exceeding the standard situation. In this regard, PECC has unified the cycle of repeated monitoring tips, that is, for the same enterprise with the same pollutant at the same outlet, if no response is received within two weeks from the government departments or enterprises and other relevant parties, or the content of the response is not very relevant to the exceedance of the standard again, PECC will monitor the tips again in two weeks.

In 2019, PECC, based on the Blue Map environmental big data application, further optimized the textual content of the microblogging supervision tips, encouraged enterprises to disclose information on their own and on their own initiative, added a link to the description of the Blue Map feedback process, and empowered enterprises to provide another way in the self-disclosure of environmental information, driven by multi-party linking and the construction of

trust, and gradually created a service for multiple parties (government departments, government departments, enterprises, the public, NGOs, etc.) of the Blue ecological chain (see 3.3 for details). Since then, PECC's supervision and prompting work has formally moved towards standardization, process and scale. In order to strengthen the participation of public supervision, in 2019-2020, PECC will once again adjust the number of days of exceeding the daily average value as the benchmark for supervision and alerts to one day or more.

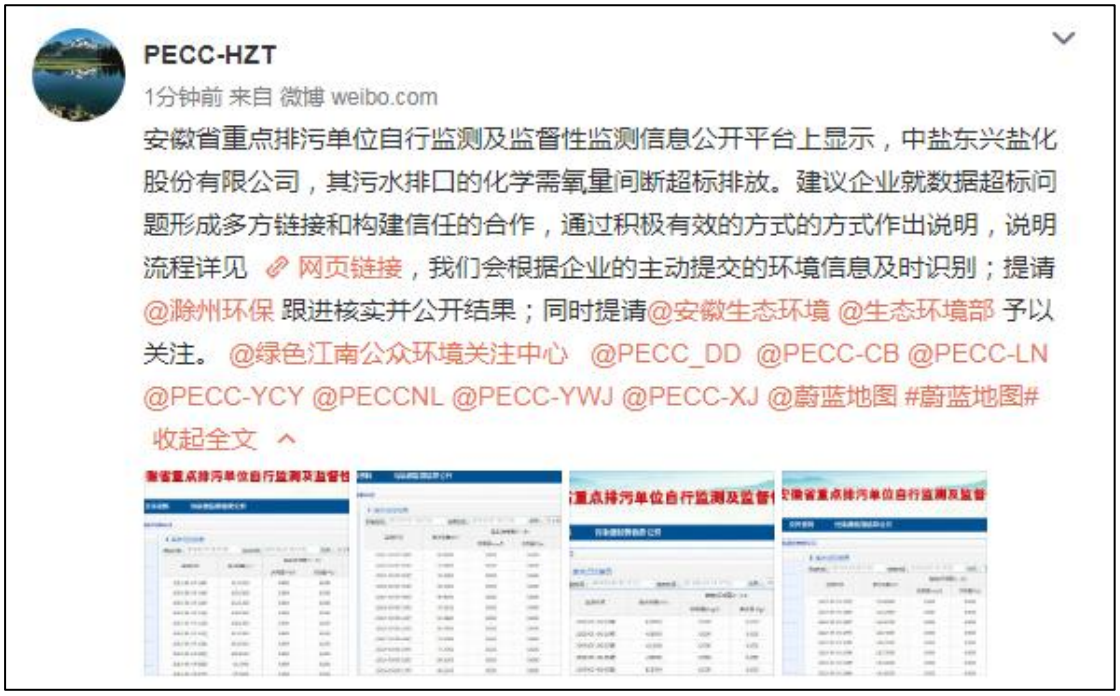


Figure 6 2019 optimized tweet alerts

In 2020, in order to optimize the business environment and stimulate market vitality, the ecological environment departments (bureaus) of Zhejiang Province[17] , Shanghai Municipality[18] , and Guizhou Province[19] issued a notice on "List of minor ecological and environmental violations not to be punished",

[17] List of minor ecological and environmental violations not to be penalized in Zhejiang Province (for trial implementation), https://zjjcmspublic.oss-cn-hangzhou-zwynet-d01-a.internet.cloud.zj.gov.cn/jcms_files/jcms1/web2548/site /attach/0/1000c3def0634b41bbf6db1f7b295087.pdf
[18] Shanghai Municipality's List of Exemptions from Penalties for Minor Ecological and Environmental Violations, https://sthj.sh.gov.cn/hbzhywpt2022/20200507/ffbcc71a796f40e884b7215152847189.html
[19] List of No Administrative Punishment for Minor Ecological and Environmental Violations in Guizhou Province (for Trial Implementation), https://sthj.guizhou.gov.cn/zwgk/zcwj/tjwj/202212/t20221209_77741220.html

and explored the implementation of inclusive and prudent supervision in the field of ecological environment. Therefore, starting from 2021, PECC has responded positively to the policy and adjusted its supervision strategy by adjusting the number of days of exceeding the daily average value as the benchmark for supervisory reminders from 1 day or more to 2 days or more.

1.2 Monitoring coverage from point to point, covering the whole country

In 2015, as PECC's online supervision and prompting work was in the initial stage, the self-monitoring platform of pollution sources around the world had just been built, so the scope of supervision was dominated by state-controlled enterprises in Jiangsu, Zhejiang and Shanghai, involving a total of 1,954 enterprises. 2016, with the continuous improvement of enterprise information and data on the self-monitoring platform, Green Jiangnan gradually expanded the scope of supervision and prompting from the Yangtze River Delta region of Jiangsu, Zhejiang and Shanghai to the six provinces and one city in East China. Expanded to six provinces and one city in East China, involving 4,317 enterprises.

With the online supervision and prompting work gradually on track, from 2017, PECC will supervise and prompt the work to cover 14,200 state-controlled enterprises across the country. With the replacement of state-controlled enterprises by key sewage disposal units, with the support and efficient application of Blue Map's environmental big data to form a set of standardized standards and controllable supervision system, PECC's supervision and prompting work has slowly covered more than 40,000 key sewage disposal units across the country, and with the updating of the list of key sewage disposal units, the scope of PECC's online supervision and prompting work on the monitoring data has already covered more than 60,000 key sewage disposal units across the country. emissions units in China.

1.3 Multi-dimensional cooperation, practicing common governance and sharing

The ecological environment department's work style is "service in supervision, supervision in service", and PECC's work style is "service in supervision, supervision in service", both work style although there is a word difference, but the ultimate purpose is to serve the enterprise High-quality development, promote enterprises to pay attention to environmental responsibility, the implementation of the main responsibility of enterprises to control pollution, so that environmental problems can be managed and improved, so as to promote the high-quality development of social economy.

At the beginning of PECC's on-line supervision of key pollution source monitoring data, its working method was not fully understood by the local ecological and environmental departments, which thought that PECC, as an environmental protection organization established less than three years ago, was "causing trouble" to the local ecological and environmental departments by carrying out the supervision and prompting work.

However, during the past ten years, PECC has been insisting on friendly communication and extensive cooperation with local ecological and environmental departments with a professional, open and pragmatic working attitude, and has won the recognition and trust of local ecological and environmental departments, enterprises, and the public by virtue of its own professionalism in the field of environmental protection, with the working attitude of "We eliminate pollution, not eliminating the polluting enterprises, but pushing the polluting enterprises to treat pollution, so as to eliminate the pollution" and the working method of "participation, not interference, helping, not adding to the mess". With its professionalism in the field of environmental protection, it has won the recognition and trust of local ecological and environmental departments, enterprises and the public with its attitude of "we

eliminate pollution, not eliminating polluting enterprises, but promoting polluting enterprises to control pollution, so as to eliminate pollution" and its working method of "participation without intervention, helping without adding to the chaos", thus opening up the mode of cooperation of multi-dimensional common governance and social sharing.

The report of the 19th CPC National Congress proposes: "We should adhere to the common governance of all people, and build an environmental governance system led by the government, with enterprises as the main body, and with the participation of social organizations and the public; we should create a pattern of social governance that is built on the basis of a common governance and sharing system, and improve the system of social governance that is led by the Party committee, responsible by the government, coordinated by society, with the participation of the public, and safeguarded by the rule of law." The report of the 20th Party Congress emphasized the construction of a social governance community in which everyone has responsibility, everyone does his or her part, and everyone enjoys it.

The concept of shared governance and sharing is a social governance philosophy that aims to modernize social governance through the joint participation of the Government, society and the public. This concept emphasizes that in social governance, the government is no longer the only subject, but requires the broad participation of all sectors of society and citizens to share the responsibility of social governance and share the fruits of governance. The supervision and prompting work of PECC has solved the problem of the lack of supervision of pollution sources and the shortage of human resources in the ecological and environmental departments, and fully relies on the ecological and environmental departments to solve problems while identifying them, which is precisely the realization of this concept of social governance.

2. Decade Oversight results

2.1 Oversight over the years

2.1.1 Monitoring prompts to witness environmental governance and improvement

From 2015 to 2024, based on the support and application of Blue Map's environmental big data, PECC's online supervision and prompting work has gradually expanded from Jiangsu, Zhejiang and Shanghai to the whole country, and the number of enterprises involved has expanded from less than 2,000 to more than 60,000, with the number of supervision and prompting enterprises totaling 18,857 times. Supervision prompts the industry where the enterprise is located involves 15 industry sectors, including manufacturing, mining and other industries, 57 industry categories. The provincial administrative divisions where the enterprises are located involve 29 regions including Jiangsu Province, Shaanxi Province and Yunnan Province. The types of pollutants involved in the supervision of prompt enterprises include chemical oxygen demand, ammonia nitrogen, nitrogen oxides and other 30 kinds.

Observing the number of online monitoring tips from previous years, a slight change occurred in 2019. the number of monitoring tips showed a yearly increasing trend before 2019, while after 2019, the number of monitoring tips decreased significantly year by year. [20] In addition, *Law of the People's Republic of China Water Pollution Prevention and Control* [21], *Law of the People's Republic of China Air Pollution Prevention and Control*[22], *Law of the*

[20] Department of Ecology and Environment, https://www.mee.gov.cn/ywgz/fgbz/fl/200802/t20080229_118802.shtml
[21] Department of Ecology and Environment, https://www.mee.gov.cn/ywgz/fgbz/fl/200802/t20080229_118802.shtml
[22] Department of Ecology and Environment, https://www.mee.gov.cn/ywgz/fgbz/fl/200802/t20080229_118802.shtml

People's Republic of China Soil Pollution Prevention and Control[23], *Measures for the Supervision and Management of River Outfalls*[24], *the People's Republic of China Law on the Prevention*[25] and *Control of Environmental Pollution by Solid Wastes and the People's Republic of China Law on Prevention and Control of Noise Pollution*[26], and other laws and regulations on the governance of the eco-environment have been issued intensively

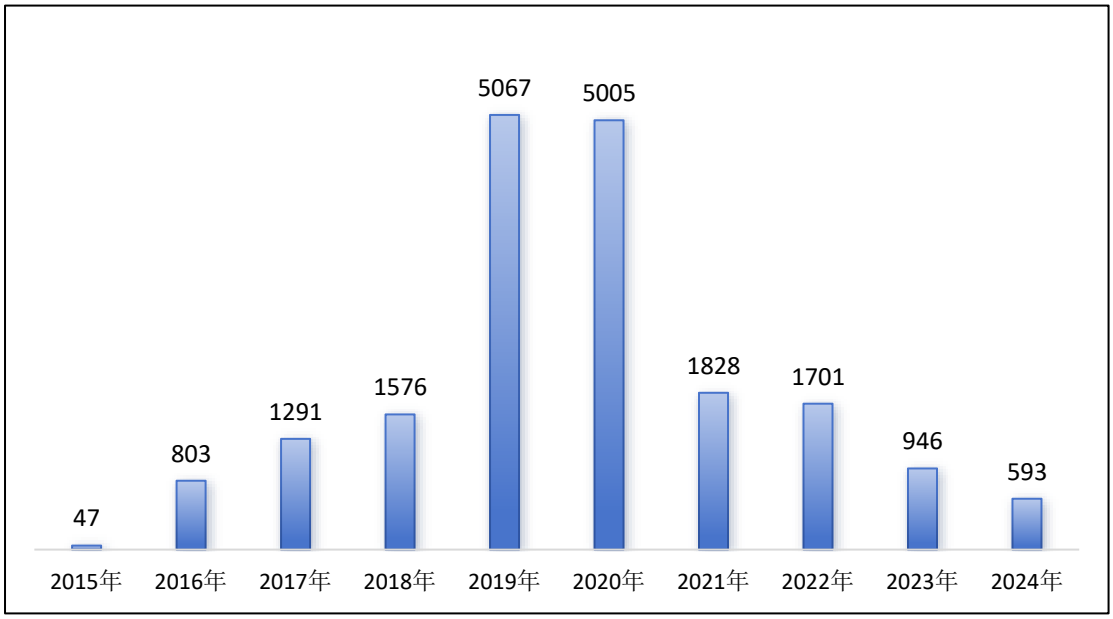


Figure 7 Number of Online Supervision Tips for 10 Years in PECC (Unit: Households)

According to 2015-2023, the Ministry of Ecology and Environment issued the *China Ecological Environment Status Bulletin*[27] , we can easily find that the annual average concentration of air pollutants such as SO_2, NO_2, CO and other air pollutants are decreasing year by year, and the environmental quality of the surface water of the country continues to improve. In addition, the management

[23] Department of Ecology and Environment, https://www.mee.gov.cn/ywgz/fgbz/fl/200802/t20080229_118802.shtml
[24] Department of Ecology and Environment, https://www.mee.gov.cn/ywgz/fgbz/fl/200802/t20080229_118802.shtml
[25] Department of Ecology and Environment, https://www.mee.gov.cn/ywgz/fgbz/fl/201811/t20181113_673567.shtml
[26] Department of Ecology and Environment, https://www.mee.gov.cn/ywgz/fgbz/fl/200802/t20080229_118802.shtml
[27] Department of Ecology and Environment, https://www.mee.gov.cn/hjzl/sthjzk/zghjzkgb/

of black smelly water bodies has also achieved significant results. in 2015, in order to promote black smelly water body remediation, the government opened the urban black smelly water body remediation supervision platform, and nearly 2,000 urban black smelly water bodies were identified around the country. by 2020, the proportion of black smelly water bodies in the built-up areas of prefectural-level and above cities nationwide was eliminated to reach 98.2%. by 2021, black smelly water bodies in the built-up areas of prefectural-level and above cities nationwide had been basically eliminated. . These data and information confirm the overall reduction in the concentration of pollutant emissions in various industries, the environmental quality is gradually improving the good situation, but also an important embodiment of the government's solid promotion of the construction of a beautiful China.

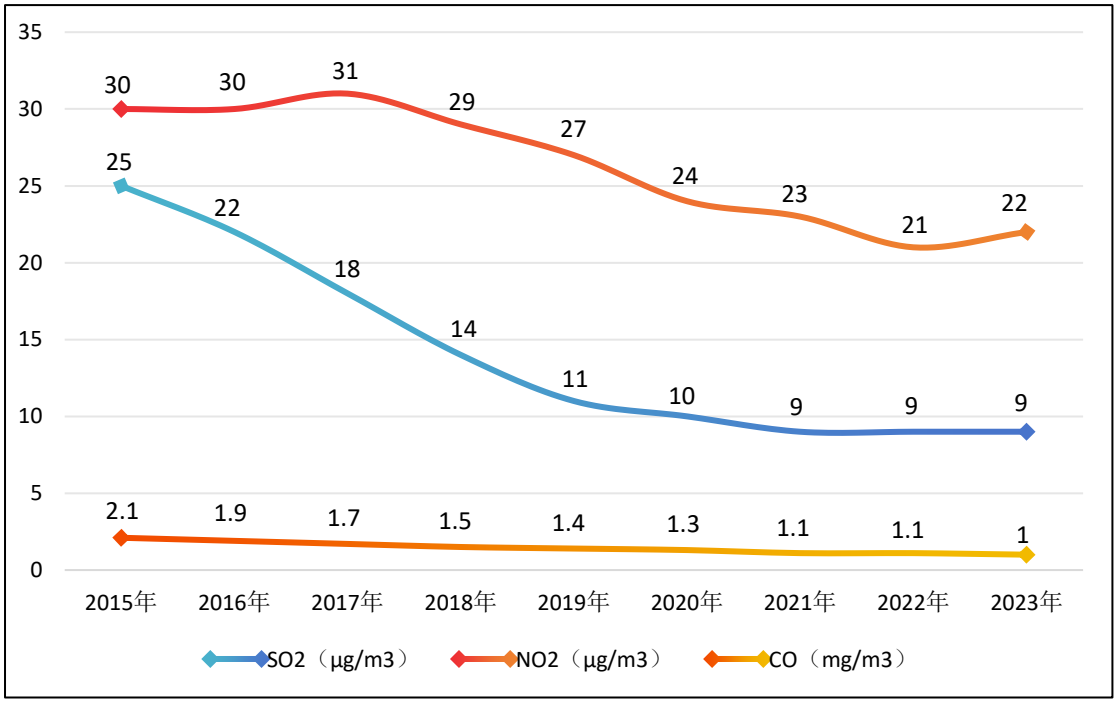


Figure 8 Trends in annual average concentrations of air pollutants SO2, NO2, and CO over the period 2015-2023

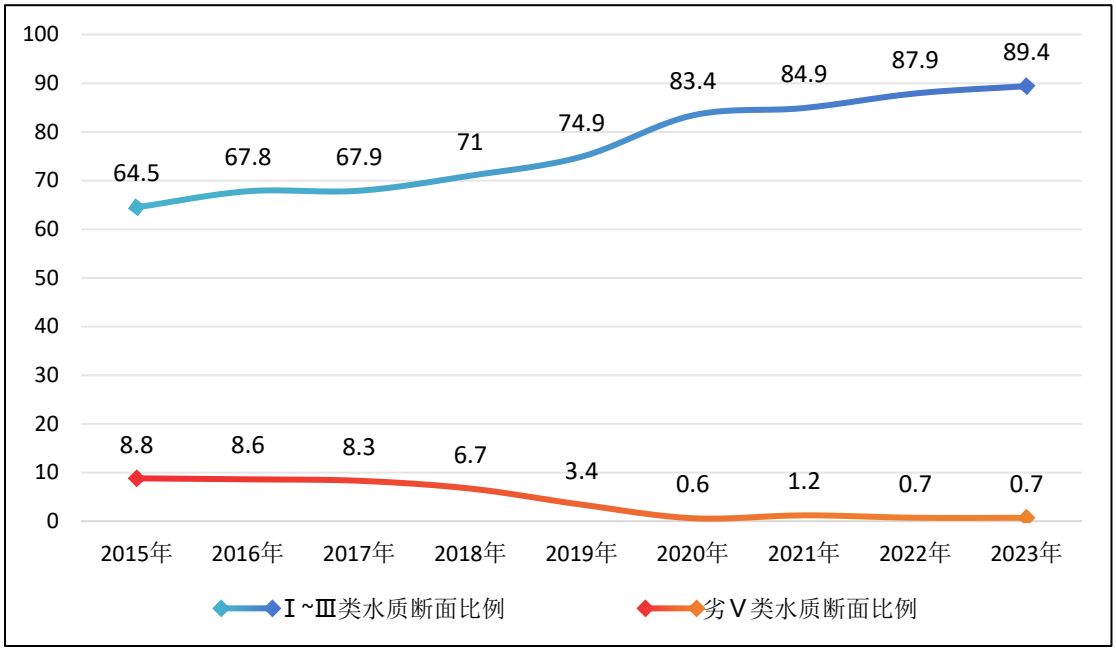


Figure 9 Trends in the proportion of good (Class I-III) and poor Class V water quality sections during the period 2015-2023 (unit: %)

2.1.2 distribution of online supervision tips industry

Enterprises with 10 years of online monitoring alerts involved a total of 15 industry sectors, of which the manufacturing sector accounted for the largest share of nearly 50%, followed by the electricity, heat, gas and water production and supply sector, with a total of 8,374, accounting for nearly 45% of the total number of times. It can be seen that these two industries are not only the key industries to be regulated by government departments, but also the industries where pollutants are prone to anomalies/exceedances.

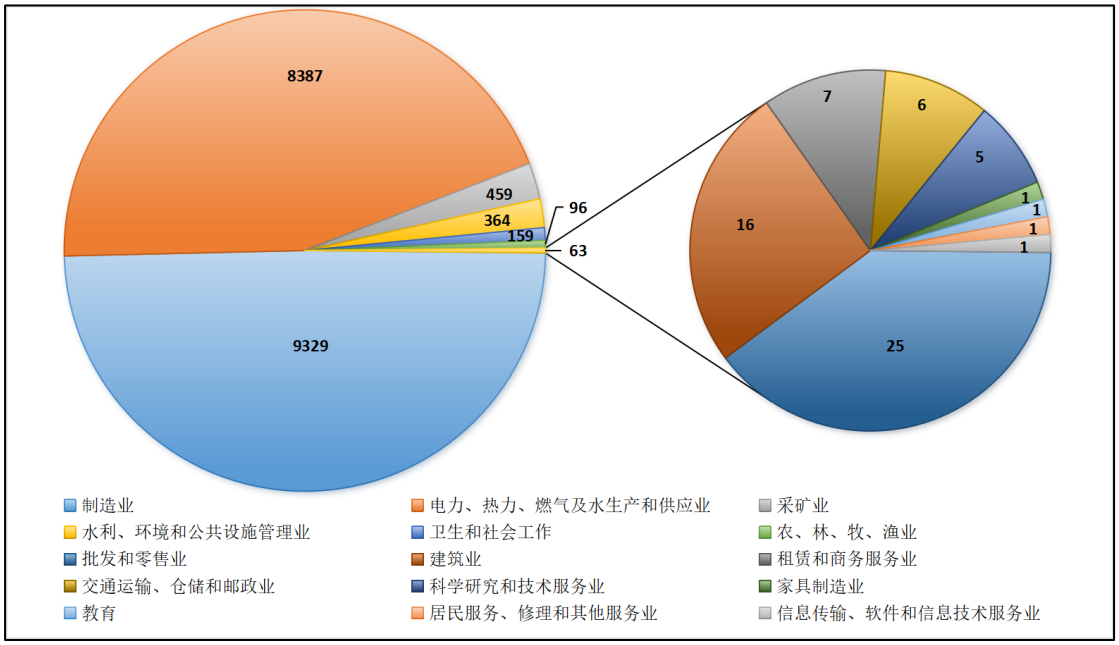


Figure 10 15 Industry Sectors and Number of Companies Involved in PECC's 10-Year Online Surveillance Tips

Online supervision tips involving 9329 times in the manufacturing industry and the textile industry in the largest number, accounting for more than 25% of the number of manufacturing enterprises, is to supervise the tips of the total number of enterprises 12.82%. Followed by chemical raw materials and chemical products manufacturing industry and non-metallic mineral products industry, accounting for more than 14% of the number of manufacturing enterprises and 13%, respectively, is the supervision of the total number of enterprises prompted 6.98% and 6.90%. In addition, the supervision tips involved in the manufacturing industry also includes paper and paper products industry, agricultural food processing industry, pharmaceutical manufacturing industry and other 25 industry categories.

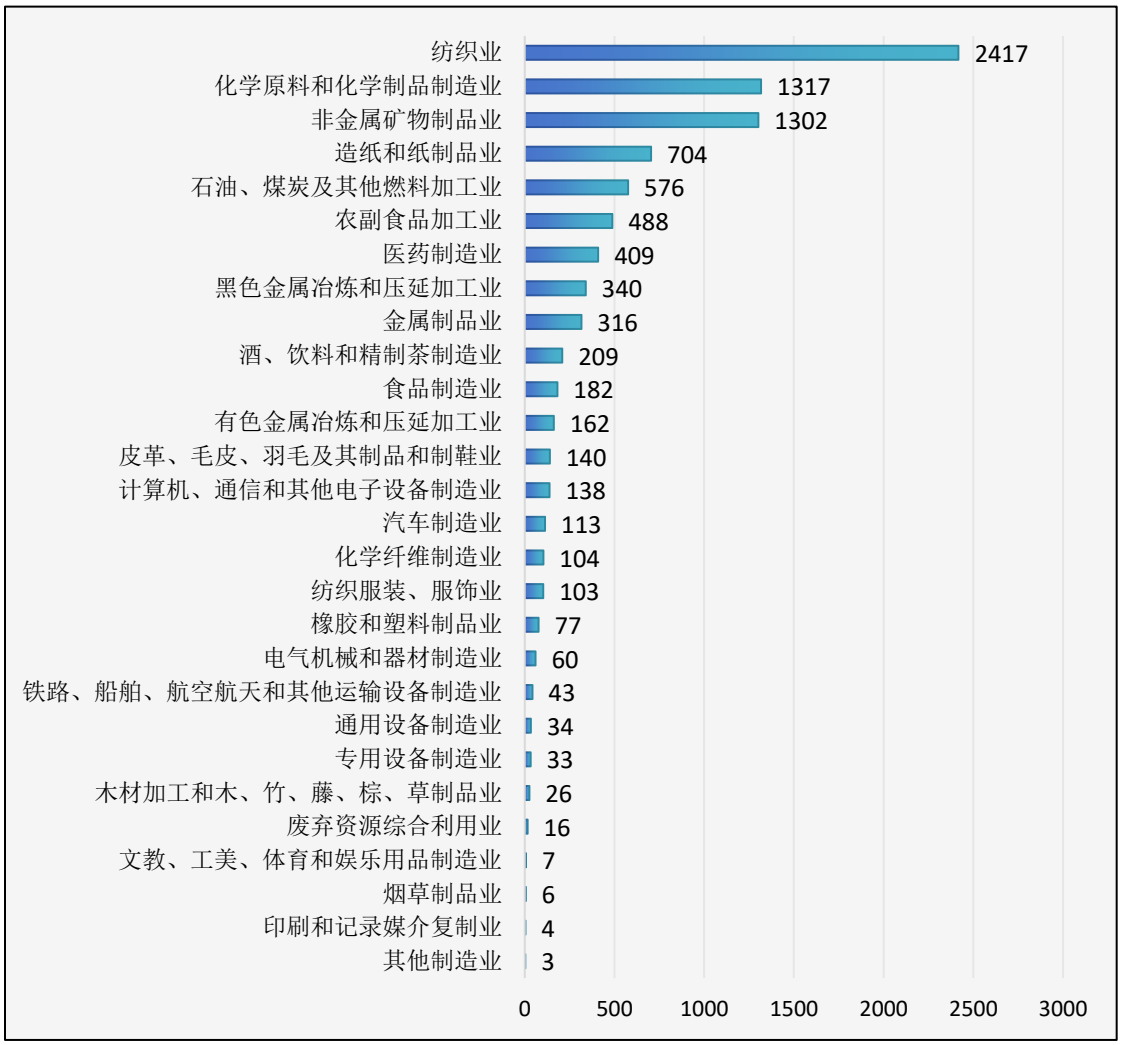


Figure 11　28 broad industry categories and number of enterprises involved in the manufacturing sector (in units)

Figure 12 a steel company (photographed by PECC in June 2022)

Figure 13 a steel company (taken by PECC in September 2022)

Figure 14 a chemical park (taken by PECC in October 2023)

Figure 15 An industrial area along a river (taken by PECC in March 2024)

Figure 16 a chemical park (taken by PECC in May 2024)

According to the *National Economic Sectoral Classification* implemented in 2017, the electricity, heat, gas and water production and supply industry comprises three broad industry categories, all of which are involved in PECC's online supervision and prompting work. Among them, the number of enterprises in the water production and supply industry totaled 6,134, accounting for more than 70% of the number of enterprises in the sector, which is 32.53% of the total number of enterprises in the supervision tips, and is also the industry with the largest number of enterprises in the 57 industry broad categories. The number of enterprises in the electricity, heat production and supply industry is 26.80% of the number of enterprises in the category, which is 11.92% of the total number of enterprises under supervision and prompting. The number of enterprises in the gas production and supply industry is relatively small, with only five times.

Figure 17 a thermal power plant (photographed by PECC in September 2024)

The remaining 1,141 enterprises belong to 13 industry sectors and 26 industry categories. Among the 13 industry categories, the mining industry has the largest number of enterprises, with 459 times, followed by the water conservancy, environment and public facilities management industry, with 364 times.Among the 26 industry categories, the coal mining and washing industry has the largest number of enterprises, with 362 times, followed by ecological protection and environmental governance industry, with 278 times.

Table 1: Remaining 26 broad industry categories and number of enterprises involved in the monitoring tips (unit: number of enterprises)

phylum or division (taxonomy)	industry group	quantities

mining industry	Coal mining and washing	362
	Non-ferrous metal mining	71
	Non-metallic mining	12
	Ferrous metal ore mining	11
	Oil and gas extraction	3
Water, environment and utilities management	Ecological protection and environmental management industry	278
	Utility management industry	86
Agriculture, forestry, animal husbandry and fisheries	stock raising	78
	Agriculture, forestry, animal husbandry, fishery professional and auxiliary activities	12
	fisheries industry	5
	agriculture	1
Health and social work	hygiene	154
	social work	5
Transportation, storage and postal services	Water transportation	2
	Loading, unloading, handling and warehousing	2
	air transportation industry	1
	Railroad transportation industry	1
Scientific research and technical services	Science and technology promotion and application services	3
	Research and experimental development	2
Wholesale and retail trade	bulk trade	25
building industry	Building decoration, renovation and other construction	16
Leasing and business services	Business services	7
Furniture manufacturing	Wooden furniture manufacturing	1
Information transmission, software and information technology services	Software and information technology services	1
teach	teach	1
Residential services, repairs and other services	Residential services	1

Figure 18 a photovoltaic company (photographed by PECC in July 2023)

Figure 19 a photovoltaic company (photographed by PECC in November 2024)

2.1.3 Six regions have more than 1,000 online monitoring tips

According to provincial administrative divisions, PECC's online supervision tips enterprises are distributed in a total of 29 regions across the country

including Jiangsu Province, Shaanxi Province and Yunnan Province. Among them, Jiangsu Province has the largest number of enterprises, with 4,101, accounting for more than 21%; followed by Shaanxi Province and Shandong Province, with more than 2,000 enterprises, accounting for more than 11%; and Zhejiang Province and Fujian Province, with around 2,000 enterprises, accounting for more than 10%.

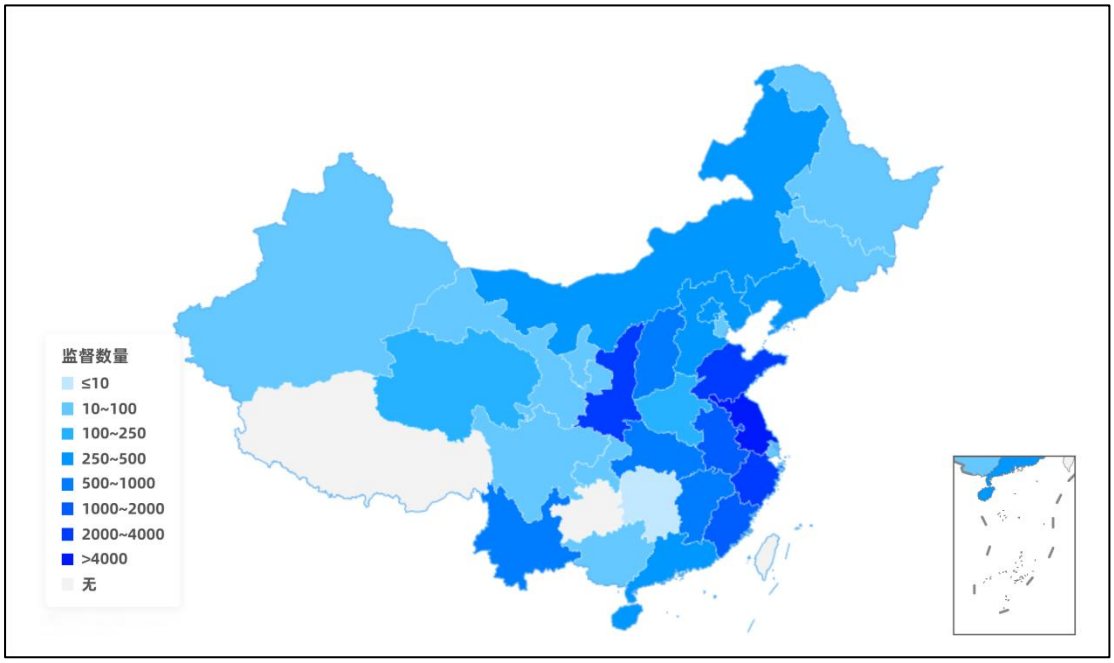


Figure 20 Distribution of enterprises with online monitoring alerts (unit: number of units)

According to the regional division of the area where the supervision prompted enterprises, 18,857 times enterprises are distributed in all seven regions of the country. The largest proportion of distributed enterprises is the East China region, with a total of 11,963 enterprises. Followed by Northwest China and North China, the number of enterprises in the two regions are 2629 and 1992 respectively.

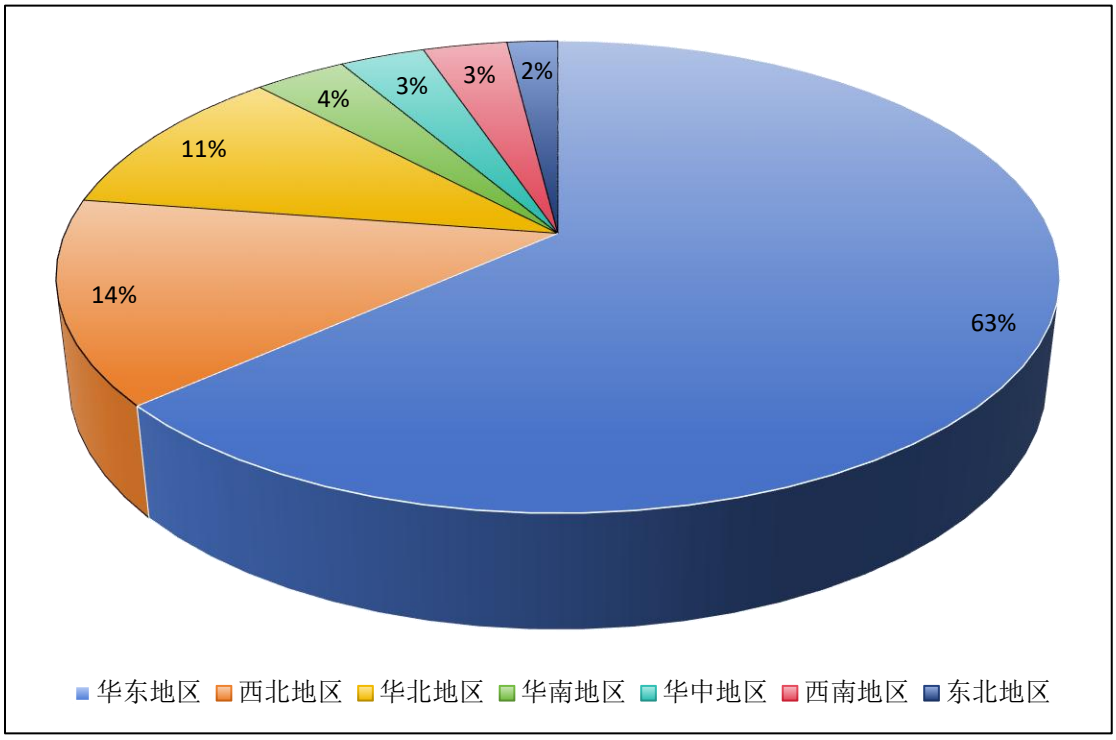


Figure 21 Regional Segmentation of Online Surveillance Alerts Enterprises by Region and Percentage of Enterprises

2.1.4 Online monitoring suggests that pollutant types are dominated by common pollutants

As of December 31, 2024, 18,846 of the enterprises in the PECC Online Supervisory Alert were friendly alerts to the local ecological environment department because 30 pollutants, including chemical oxygen demand, ammonia nitrogen, nitrogen oxides and soot, were shown to be exceeding the standard on the self-monitoring platform, and another 11 enterprises were supervised and alerted because the instantaneous flow of wastewater was shown to be exceeding the standard.

Twenty of the 30 pollutants are water pollutants and the other 10 are air pollutants. Among the water pollutants, there are 5,491 enterprises involved in chemical oxygen demand (COD), accounting for nearly 30%, followed by ammonia nitrogen and pH, both accounting for more than 11%. Through Figure

17, we find that in addition to the common water pollutants such as COD, ammonia nitrogen and pH, there are also nine heavy metal pollutants such as total cadmium, total chromium and total copper. The number of enterprises involved in heavy metal pollutants is 177 times, accounting for nearly 1%. And the broad categories of industries to which the enterprises belonged include metal products industry, water production and supply industry, automobile manufacturing industry and 15 other categories.

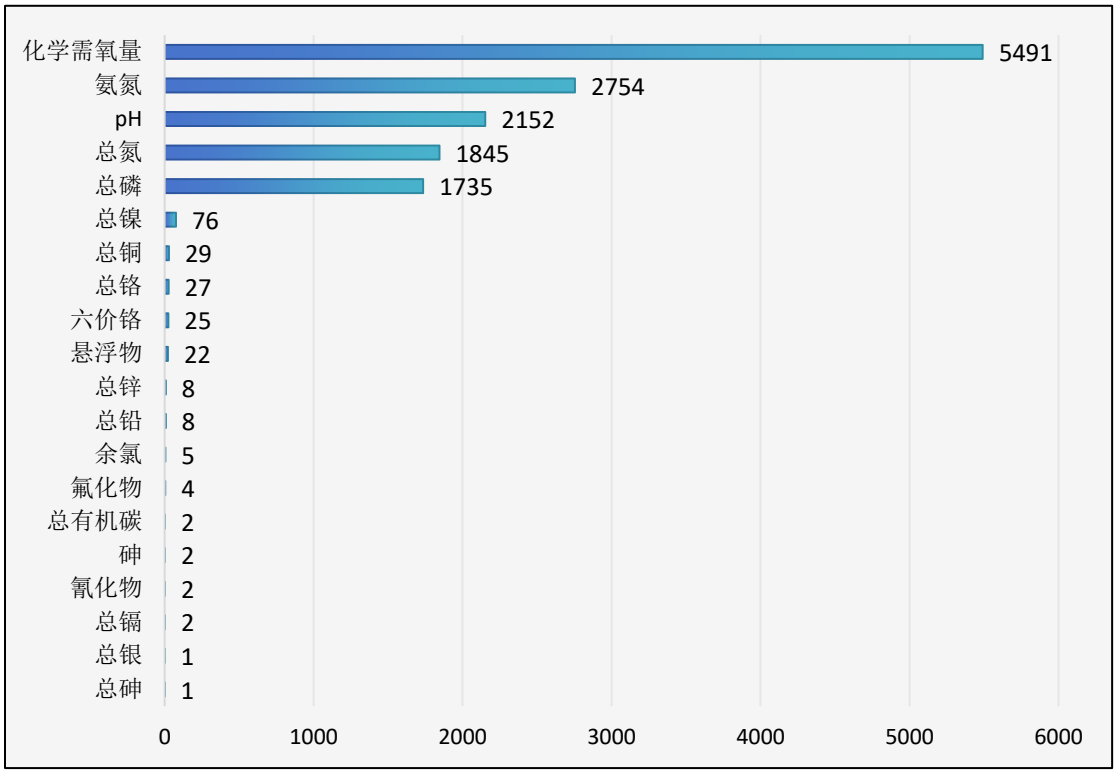


Figure 22 Number of enterprises involved in 20 water pollutants (in units)

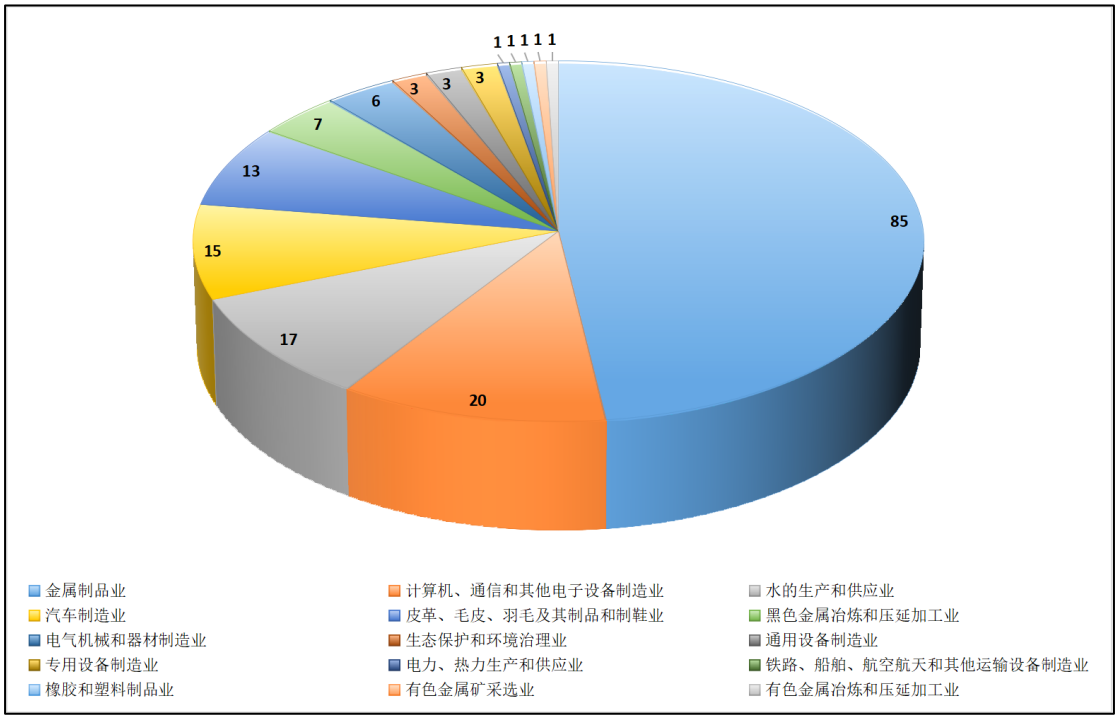


Figure 23 15 broad industry categories and number of enterprises involved in heavy metal pollutants (unit: number of enterprises)

The number of enterprises involved in both NOx and soot in air pollutants is close to 2,200 times, accounting for more than 11% of both. Among them, there are 80 times the enterprises were supervised and prompted by PECC because of the volatile organic compounds (VOCs) show exceeding the standard, and the types of VOCs include methylene chloride, non-methane hydrocarbons and so on. In addition, PECC also found that there have been many regions and many industries whose self-monitoring data include carbon monoxide, which also provides data support for the carbon reduction and pollution reduction work of enterprises.

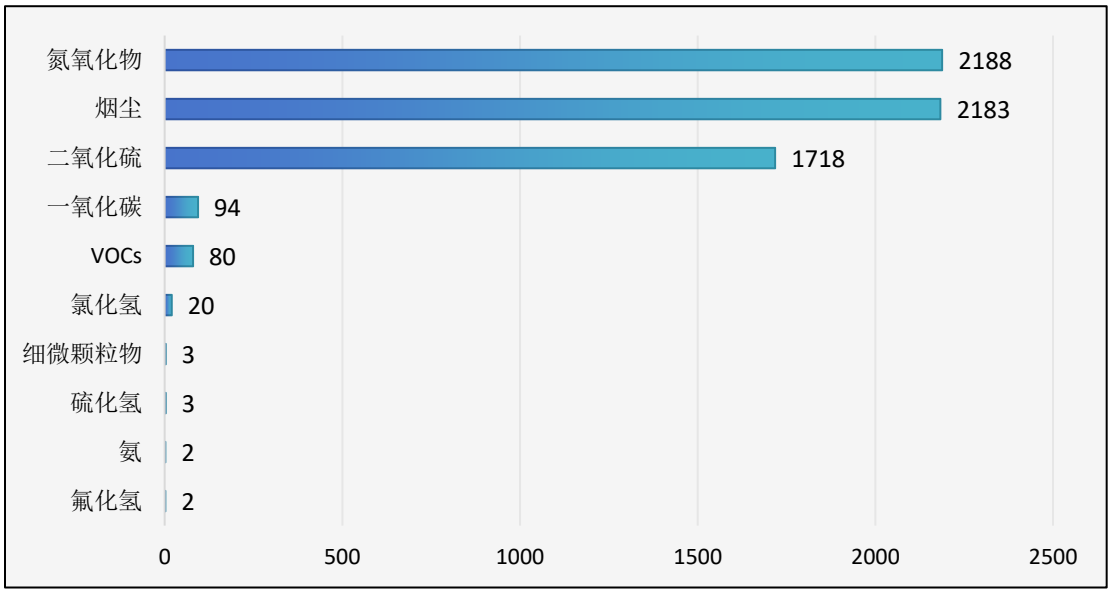


Figure 24 Number of enterprises involved in 10 air pollutants (in units)

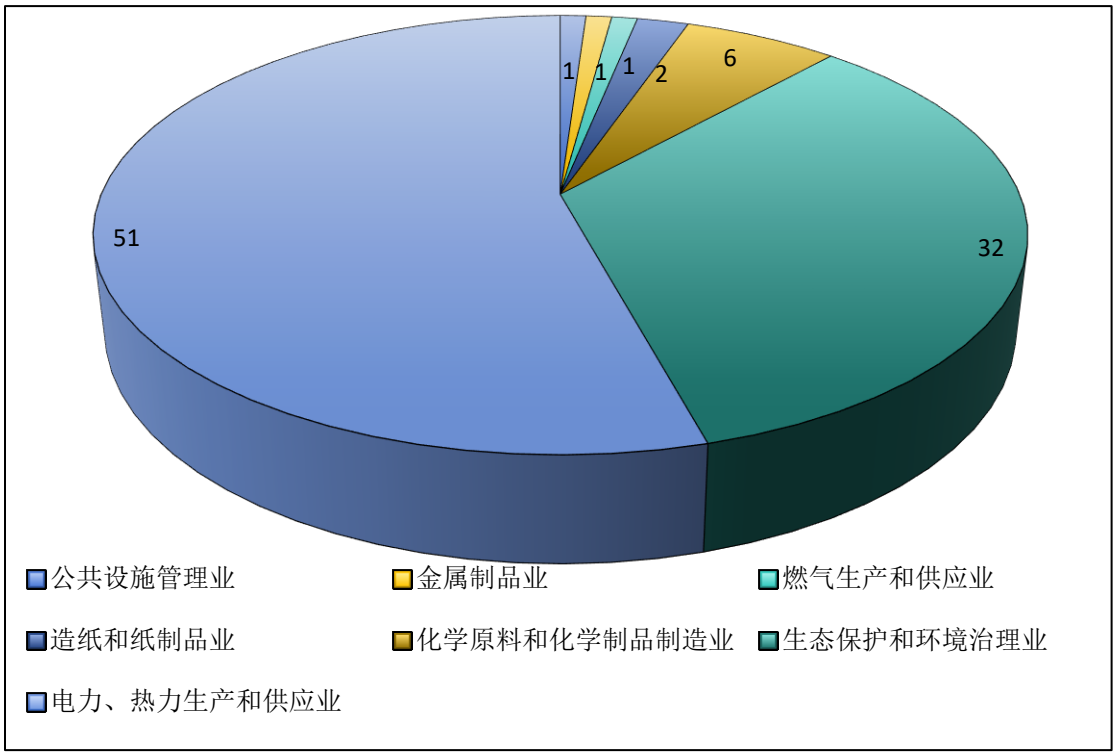


Figure 25 Broad industry categories and number of supervisory alerts involving carbon monoxide (in homes)

2.2 Status of responses

2.2.1 Overall upward trend in response rate

The total number of enterprises prompted by PECC's ten years of online supervision totaled 18,857, of which 7,063 received feedback from the ecological environment department or the enterprises themselves, with an overall response rate of only 37.46%. By calculating the annual response rate for each year, we find that except for 2019 and 2020, the response rate shows an overall upward trend. Through Figure 21, we find that the response rate in 2018 has increased several times compared to the previous three years, which is also due to the fact that PECC began to reflect the exceeding of the enterprise's self-monitoring data through the letter platform from December 2017, thus increasing the response rate of the ecological environment department. As for 2019-2020, since the benchmark for PECC's supervision tips is that the daily average value exceeds the standard for more than or equal to 1 day, although the number of supervision tips is more than three times that of 2018, this also causes an increase in the number of enterprises repeating the supervision tips in the short term, which in turn decreases the response rate of the supervision tips.

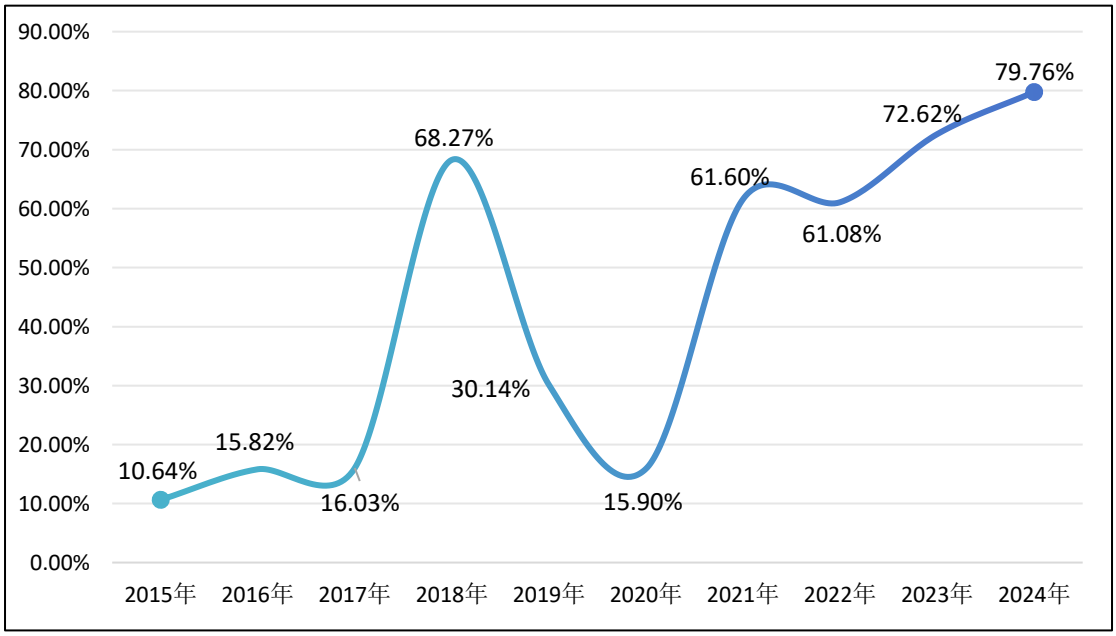


Figure 26 Annual response rates by year

Among the 29 regions involved in the PECC Online Supervision Tips, the response rate of more than 50% (including 50%) is only 7 regions such as Jilin Province, Gansu Province and Inner Mongolia Autonomous Region. At the same time, we also found that the number of supervision tips in these seven regions are not high, are less than 1.70%, the least number of supervision tips in the region only 4 times, is also the least number of 29 regions in a region. Among the regions with more than 1,000 supervisory reminders, only Jiangsu Province and Shaanxi Province have a response rate of more than 40%, and the lowest response rate is in Anhui Province, which is less than 24%.

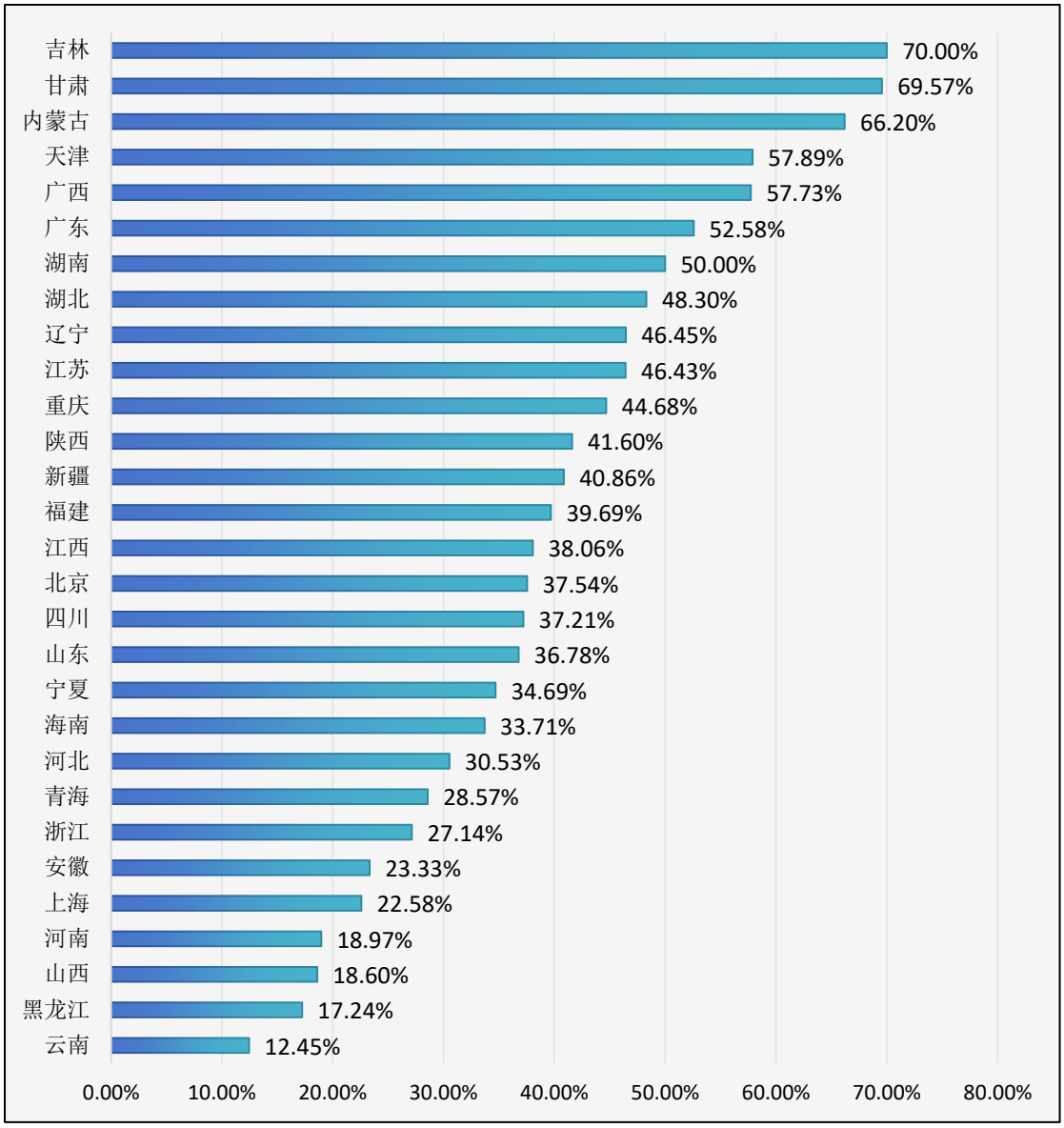


Figure 27 Response rates by region

From the content of the reply, among the 7063 enterprises that received the reply from the local ecological and environmental departments or enterprises, 598 enterprises were ordered by the ecological and environmental departments to make rectification, suspend production for remediation, and imposed administrative penalties, etc. The rest of the enterprises' self-monitoring data exceeded the standard due to the non-true exceedance of the standard caused by the startup and shutdown of furnaces, shutdown of production, debugging,

acceptance and other reasons. Combined with Fig. 21 and Fig. 23, it is not difficult to find that the trend of the proportion of enterprises seriously dealt with by the ecological and environmental departments in each year is basically the same as that of the annual response rate.

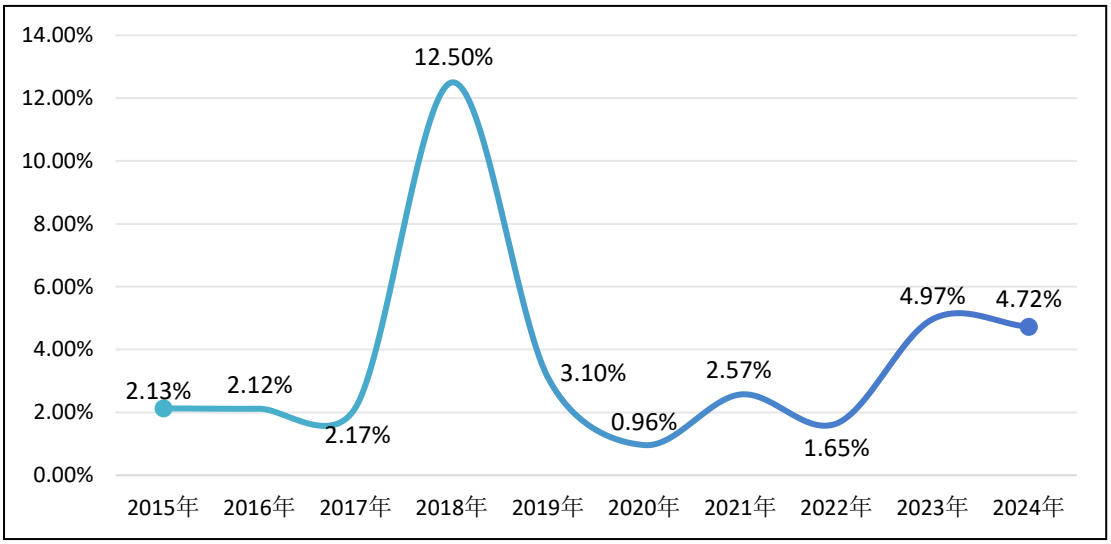


Figure 28 Percentage of serious businesses by year (number of serious businesses/number of monitoring tips)

In terms of the regional distribution of serious treatment enterprises, except for 5 regions such as Hunan Province, Chongqing Municipality and Beijing Municipality, the remaining 24 regions have serious treatment enterprises distributed. Through Figure 24, we can easily see the trend of the number of serious treatment enterprises and the proportion (number of serious treatment enterprises / number of supervision tips) but not consistent. In addition, we can also see from the side of the Xinjiang Uygur Autonomous Region, Jilin Province, Inner Mongolia Autonomous Region and other regions of the enterprise's self-monitoring data exceeding the standard belongs to the real exceeding the standard of the probability is relatively high.

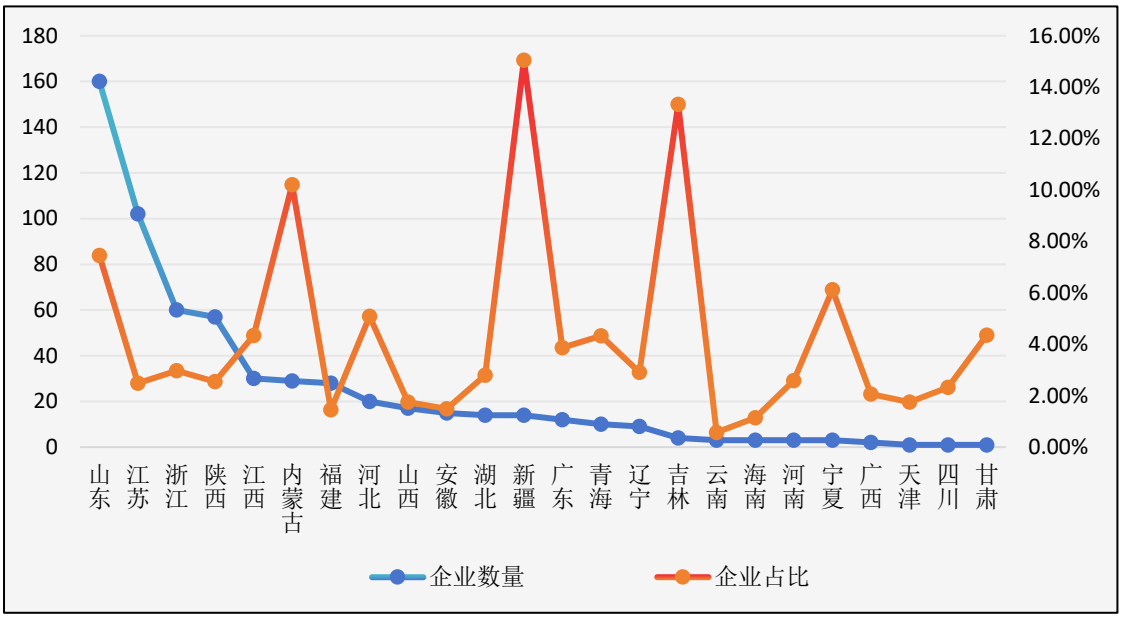


Figure 29 Number and percentage of serious businesses by region (number of serious businesses/number of monitoring tips)

2.2.2 Typical cases

Green Jiangnan's supervision and prompting work has covered more than 60,000 enterprises nationwide, the number of supervision and prompting is nearly 20,000 times, and the response is more than 7,000 times, from which Green Jiangnan has selected 9 as the typical cases in this report.

Table 2, 9 typical cases

serial number	company identification	Supervised Reminder Time	Status of responses
Case 1	Sihong Shengang Environmental Protection Engineering Technology Co.	2016/09/26	Issuance of a notice of rectification with a deadline
Case 2	Guyang County Jinshan Township Domestic Sewage Treatment Station	2017/12/11	Issuance of a decision ordering the correction of an

			illegal act
Case 3	Wanzai Sentai Industry Co.	2018/12/18	limit production
Case 4	Huaibei Lingyun Environmental Protection Technology Co.	2019/03/25	administrative penalty
Case 5	Ningxia Dadi Recycling Development Co.	2020/02/11	time limit for rectification
Case 6	Shaanxi Aowei Qianyuan Chemical Co.	2021/06/16	A fine of one million dollars
Case 7	Zizhou County Water Co.	2022/07/26	Issuance of supervision orders
Case 8	Fushun Jinxin Heating Co.	2023/02/23	shutdown and remediation
Case 9	Xixiang County Bailong Village New Building Materials Factory	2024/04/28	Issuance of a notice of rectification with a deadline

Case 1: On September 26, 2016, PECC supervised and prompted Sihong County Shenzhen-Hong Kong Environmental Protection Engineering Technology Co. to discharge suspected excessive chemical oxygen demand at the total discharge.

On September 27, 2016, Suqian City Bureau of Ecology and Environment microblogging response: has been issued on September 30 to the company a deadline for rectification notice.

Figure 30 Microblogging tips from Sihong County Shenzhen-Hong Kong Environmental Protection Engineering Technology Co

Figure 31 Cebu Ecology and Environment Agency Response

Case 2: On December 11, 2017, PECC online supervision prompted the online monitoring of the effluent from the domestic wastewater treatment station in Jinshan Town, Guyang County, which was suspected of exceeding the discharge standard for chemical oxygen demand.

On December 13, 2017, Baotou City Ecological Environment Bureau in the national ecological environment complaint reporting platform replied: in response to the environmental violations of the enterprise, the Environmental Protection Bureau of Guyang County has issued a decision ordering the correction of violations, ordered the enterprise to carry out governance, and has filed a case is being implemented administrative penalties.

Figure 32 Tweets alerting the Town of Kings Mountain domestic wastewater treatment station in Goodyear County

Figure 33 Baotou City Bureau of Ecology and Environment Response

Case 3: On December 18, 2018, PECC Online Supervision prompted the suspected excessive discharge of chemical oxygen demand (COD) at the total discharge outlet of Wanzai County Sentai Industrial Co.

On December 29, 2018, the Wanzai County Ecological Environment Bureau replied on the National Ecological Environment Complaint and Reporting Platform that it had ordered the company to limit production.

Figure 34 Microblogging tips from Wanzai Sentai Industrial Co.

Figure 35 Wanzai County Environmental Protection Bureau Response

Case 4: On March 25, 2019, PECC Online Supervision prompted a suspected excessive discharge of chemical oxygen demand (COD) from the wastewater point of Huaibei Lingyun Environmental Protection Technology Limited Liability Company.

On May 10, 2019, Huaibei City Ecological Environment Bureau in the national ecological environment complaint reporting platform replied: in response to the problem of exceeding the standard, the Municipal Bureau of Ecology and Environment has ordered the company to immediately stop the illegal behavior, and immediately take rectification measures to correct the existence of environmental violations, and punish its environmental violations, and at present, the punishment is in the process of fulfillment of the procedure.

Figure 36 Microblogging tips from Huaibei Lingyun Environmental Protection Technology Co.

Figure 37 Response from Huaibei City Bureau of Ecology and Environment

Case 5: On February 11, 2020, PECC Online supervised and prompted the

suspected excessive discharge of ammonia and nitrogen from the total discharge of sewage treatment in the plant of Ningxia Dadi Recycling Development Co.

On April 3, 2020, Shizuishan City Bureau of Ecology and Environment in the national ecological environment complaint reporting platform replied: by Pingluo County Environmental Protection Bureau on-site inspection, found that there is a violation of the law, Pingluo County Environmental Protection Bureau has required enterprises to rectify the deadline.

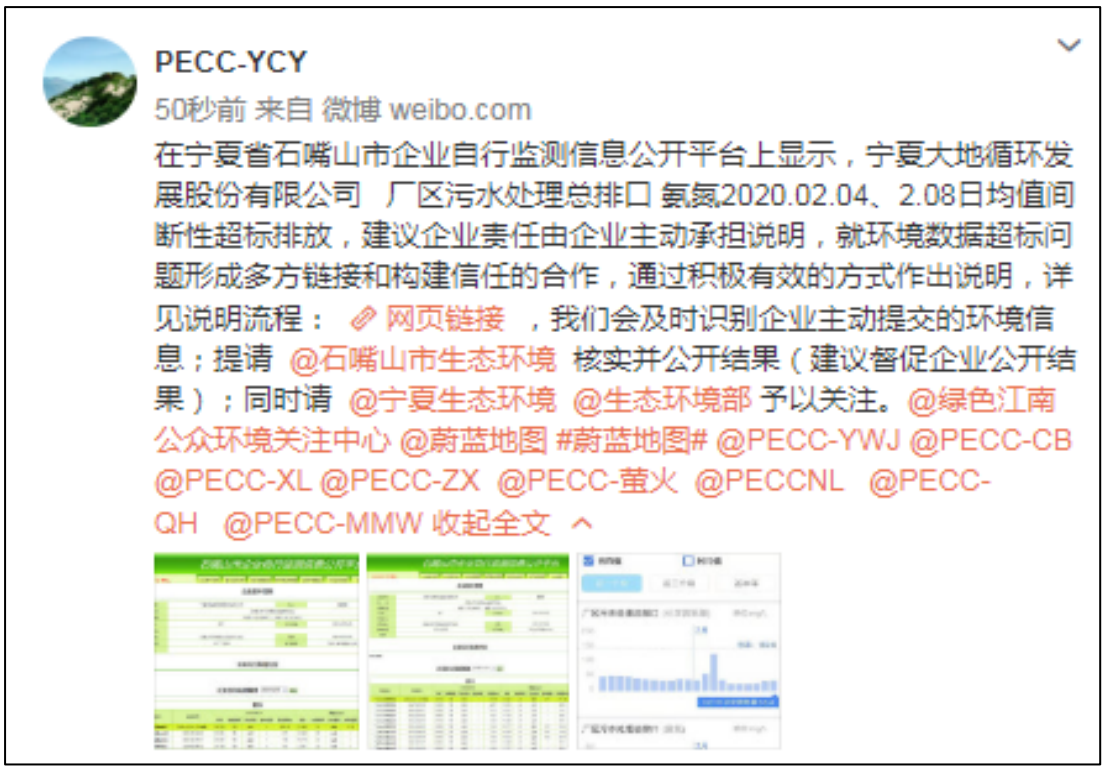


Figure 38 Microblogging tips from Ningxia Dadi Cycle Development Co.

Figure 39 Response from Shizuishan Ecological Environment Bureau

Case 6: On June 16, 2021, PECC Online Supervision prompted Shaanxi Aowei Qianyuan Chemical Co. wastewater monitoring point 1 Chemical Oxygen Demand (COD) is suspected of exceeding the emission standards.

August 9, 2021, Yulin City Ecological Environment Bureau Fugu Branch Fugu County Ecological Environmental Protection Comprehensive Law Enforcement Brigade in the national ecological environment complaints and reports platform reply: the number of exceeding the standard phenomenon is true, impose an administrative fine of one hundred thousand yuan penalty, and require enterprises to strengthen the supervision of water pollution prevention and control facilities.

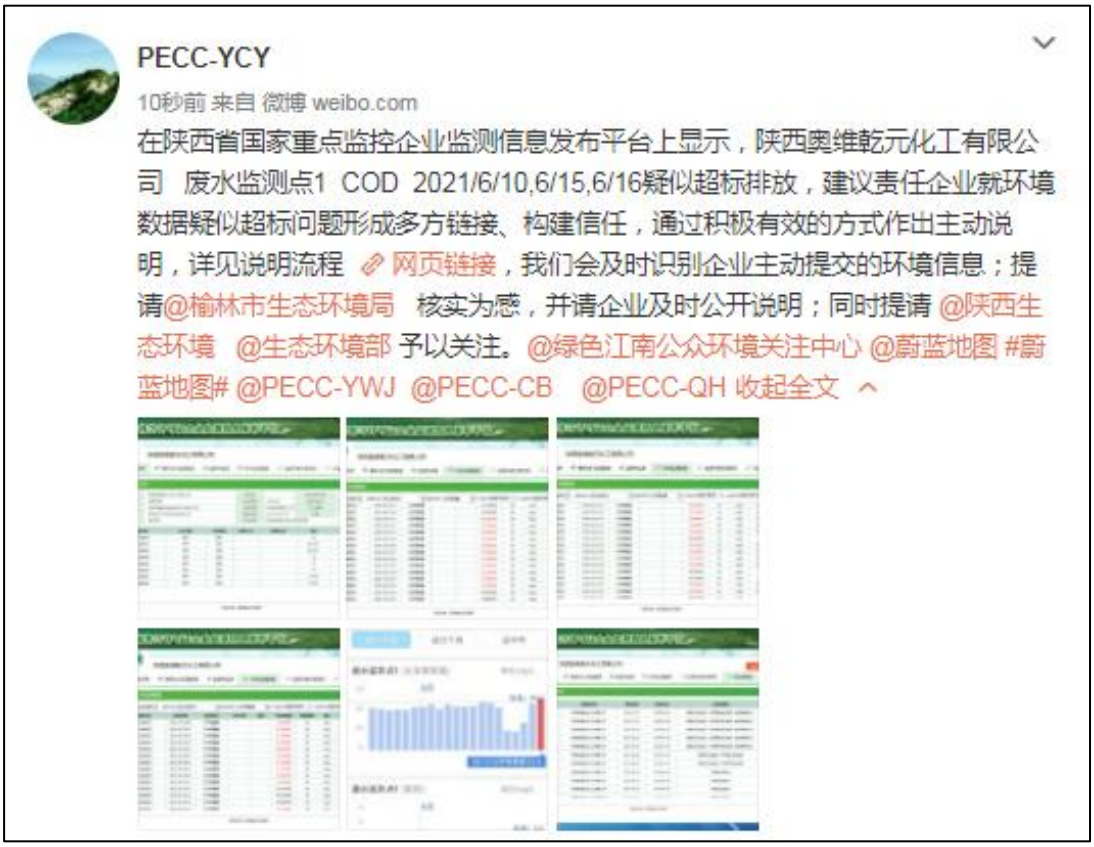


Figure 40 Microblogging tips from Shaanxi Aowei Qianyuan Chemical Co.

Figure 41 Yulin City Ecological Environment Bureau Fugu Branch Fugu County Ecological Environment Protection Comprehensive Law Enforcement Brigade Response

Case 7: On July 26, 2022, PECC Online Supervision prompted Zizhou County Water Co. to export online monitoring of ammonia nitrogen and total phosphorus suspected of exceeding the emission standards.

August 10, 2022, Yulin City Ecological Environment Bureau Fugu Branch Fugu County Ecological Environmental Protection Comprehensive Law Enforcement Brigade in the national ecological environment complaints and reports platform replied: in response to continuous exceeding of the standard, the Bureau in the name of the Office of the Environmental Protection Commission on July 29th issued a supervisory order (Zi environmental supervision issued [2022] No. 23).

Figure 42 Microblogging tips from Zizhou County Water Co.

Figure 43 Yulin City Ecological Environment Bureau Fugu Branch Fugu County Ecological Environment Protection Comprehensive Law Enforcement Brigade Response

Case 8: On February 23, 2023, PECC Online monitoring alerted Fushun Jinxin Heating Co. of suspected excessive emissions of NOx and particulate matter from the exit of the boiler exhaust.

April 28, 2023, Fushun City Ecological Environment Bureau Fushun County Branch Emergency Response Center in the national ecological environment complaints and reports platform replied: March 7 issued an order to correct the notice. on March 15, the monitoring showed that the nitrogen oxides exceeded the standard, the enterprise has been suspended on March 20 for remediation.

Figure 44 Fushun Jinxin Heating Company Limited's microblogging tips

Figure 45 Response from the Emergency Center of the Fushun County Branch of the Fushun Municipal Bureau of Ecology and Environmental Protection

Case 9: On April 28, 2024, PECC Online supervised and prompted the suspected excessive emission of particulate matter at the discharge port of the desulfurization tower of Xixiang County Bailong Village New Building Materials Factory.

On May 10, 2024, Hanzhong City Ecological Environmental Protection Bureau Xixiang Branch Xixiang County Ecological Environmental Protection Comprehensive Law Enforcement Brigade in the national ecological environment complaints and reports platform replied: for the problems of the enterprise issued a deadline rectification notice.

Figure 46 Xixiang County Bailong Village New Building Materials Factory's Weibo Alerts

Figure 47 Hanzhong City Ecological Environmental Protection Bureau Xixiang Branch Xixiang County Ecological Environmental Protection Comprehensive Law Enforcement Brigade Response

2.3 Lessons learned

In the past ten years, PECC has not only achieved remarkable results in covering the online supervision and prompting work of national heavy-control

pollution sources, but also accumulated rich and valuable experience, and at the same time, it has systematically summarized and summarized the problems and points of attention encountered in the work of online supervision and prompting, which lays a solid foundation for further enhancing the efficiency and accuracy of the supervision and prompting work.

The first is the case where the self-monitoring data, although showing exceedance of the standard, need to be categorized as an anomaly without the need for a friendly reminder to the ecological and environmental departments:

（1）Self-monitoring data are constant

The monitoring data from the self-monitoring platforms in each region are generally accurate to 2-3 digits after the decimal point, so the monitoring values of enterprises will not fluctuate without any fluctuation in each time period during the normal production process. Once such a situation occurs, it is usually due to data transmission problems, self-monitoring equipment failure. Therefore, when the self-monitoring data show that the standard is exceeded, but the data is a constant value, there is no need to reflect to the ecological environment department.

Figure 48 Self-monitoring data exceeded but at constant values

（2）Negative self-monitoring data

In addition to the pH value, some enterprises will set the minimum limit value of self-monitoring data for pollutants to 0. This leads to the platform also showing data exceeding the standard when the self-monitoring data is negative. Negative numbers are generally caused by analyzer instrument zero drift, equipment failure, etc., and may also be the pollutants converted to a negative concentration during the shutdown of waste gas enterprises, start and stop the furnace. Therefore, when this situation is encountered, there is no need to carry out supervision prompt.

（3）The monitoring points are shown as water reuse, urban domestic sewage treatment plant intake

Water reuse, also known as water reuse, refers to the water generated by an enterprise that is not discharged but directly or after treatment reused in a water

unit or system. For example, the collection of steam condensate for reuse, production activities, purification and reuse of sewage (waste) water, waterworks rinse sedimentation tanks, filters and then reuse the water after treatment. [28] In short, it means that the water reused in the enterprise is recycled within the enterprise and will not be discharged to the external environment. Therefore, when the monitoring data of such outlets show that they are exceeding the standard, PECC will also be automatically skipped.

As for urban domestic sewage treatment plants, they usually serve residents within the boundaries of cities/towns/townships, etc., and their intakes receive mainly domestic sewage generated by residents. Therefore, when the pollutants at the intake of domestic sewage treatment plants are shown to have exceeded the standard, it is very difficult for government departments to trace the source. Therefore, PECC will not normally carry out supervision and prompting when this situation is encountered.

Figure 49 a wastewater treatment plant (taken by PECC in September 2024)

[28] https://mp.weixin.qq.com/s/sPNrWkbhnvibi6nB5BLdFQ

（4）During startup and shutdown

The Ministry of Ecology and Environment (MEC) also has special regulations on the situation where the concentration of pollutant emissions exceeds the emission limit value during the starting and stopping of furnaces in the air industry. For example, in the cement industry, the "Technical Specification for the Application and Issuance of Emission Permit for Cement Industry" ([29]) stipulates that, in the case of cold ignition of the cement kiln (from ignition to warming up, feeding to stable operation) for 36 hours (the time can be extended appropriately for the large-scale replacement of refractory bricks and during winter season), in the case of hot ignition (from ignition to warming up, feeding to stable operation, with temperature of the kiln end flue chamber higher than 400 degrees) for 8 hours, and in the case of kiln stopping for 8 hours, the emission concentrations of SO NOx emission concentrations are not considered to be in violation of the permitted emission concentration limits. For example, in the boiler industry, the *Technical Specification for the Application and Issuance of Emission Permit for Boilers*[30] clearly states that the NOx emission data during the startup and shutdown periods of boilers of boiler emission units shall not be used as the basis for the determination of the compliance of the exhaust gas emission concentration, and the startup times of boilers with different fuels are also stipulated.

> 锅炉排污单位锅炉启动和停机时段内的氮氧化物排放数据不作为废气排放浓度合规判定依据。燃煤/燃生物质锅炉冷启动时长不超过 4 小时、热启动时长不超过 2 小时，停机时间为 1 小时；燃油锅炉冷启动时长不超过 2 小时、热启动时长不超过 1 小时，停机时间为 0.5 小时；燃气锅炉冷启动时长不超过 0.5 小时、热启动时长不超过 0.5 小时，停机时间为 0.5 小时。

Figure 50 Start-up times for boilers of different fuels

[29] Department of Ecology and Environment, https://www.mee.gov.cn/ywgz/fgbz/bz/bzwb/pwxk/201708/W020170802617396676231.pdf
[30] Department of Ecology and Environment, https://www.mee.gov.cn/ywgz/fgbz/bz/bzwb/pwxk/201808/W020180808314066594969.pdf

Figure 51 A Cement Company (Photo by PECC in July 2023)

As a result, PECC will not alert the local ecological and environmental authorities when the enterprise has already marked the exceedance value of the starting and stopping furnace stage on the self-monitoring platform.

Second, even if the self-monitoring data does show an exceedance, PECC will confirm the following before formalizing the monitoring prompt:

（1）Whether the enterprise has already made a note of the abnormal data through the self-monitoring platform;

Figure 52 Self-monitoring data, although exceeding standards, are noted

（2）Water-related pollutants such as chemical oxygen demand, ammonia nitrogen, pH and other monitoring data exceeds the standard, such as the monitoring platform has a corresponding wastewater flow, you need to confirm the size of the flow value. If it is too small (PECC generally uses 0.1L/s as the basis for judgment), the enterprise may not have drained or discharged wastewater left in the pipeline, and this situation does not need to be reflected to the ecological environment department.

When the monitoring data of air-related pollutants such as soot, nitrogen oxides and sulphur dioxide exceed the standard, it is necessary to confirm whether the corresponding value of oxygen content is large (the oxygen content of an enterprise will not normally exceed the standard by 15% under normal production conditions). If the oxygen content is on the large side, there is no need for monitoring alerts.

Figure 53 Wastewater flow rate of 0 despite exceedance of pollutant standards

监测点	监测时间	流量(m³/h)	含氧量(%)	湿度(%)	温度(°C)	监测项目	监测结果	折算结果	标准限值	排放单位	是否超标
窑尾废气排放口	2024-10-21 23时	-413.495	20.488	0.824	8.801	颗粒物	1.409	30.406	20	毫克/立方米	超标
窑尾废气排放口	2024-10-21 22时	-363.286	20.503	0.899	9.055	颗粒物	1.178	26.208	20	毫克/立方米	超标
窑尾废气排放口	2024-10-21 21时	-323.002	20.472	0.752	9.544	颗粒物	1.040	21.783	20	毫克/立方米	超标
窑尾废气排放口	2024-10-21 20时	3856.608	20.467	0.771	10.040	颗粒物	1.266	26.241	20	毫克/立方米	超标
窑尾废气排放口	2024-10-21 19时	8715.365	20.470	0.891	11.490	颗粒物	1.110	23.170	20	毫克/立方米	超标
窑尾废气排放口	2024-10-21 15时	154570.941	20.416	0.808	20.978	颗粒物	1.057	20.004	20	毫克/立方米	超标
窑尾废气排放口	2024-10-21 13时	53388.068	20.411	0.666	14.167	颗粒物	1.158	21.721	20	毫克/立方米	超标

Figure 54 Oxygen content is high despite exceeding pollutant standards

In addition, **PECC will pay special attention to the following pollutants and industry emission standards in its daily online monitoring and alerting work:**

（1）Ammonia and total nitrogen in urban domestic wastewater treatment plants

Urban sewage treatment plant in the biological denitrification process, nitrogen-containing compounds in the nitrifying bacteria and denitrifying bacteria under the action of the successive occurrence of "ammonia reaction, a nitrification reaction, a denitrification reaction", and ultimately in the form of N_2 from the sewage detachment. Nitrification reaction of the appropriate temperature is 20 ~ 30 ℃, 15 ℃ below, the nitrification rate decreases, 5 ℃ completely stopped; denitrification reaction of the appropriate temperature is 20 ~ 40 ℃, less than 15 ℃, denitrifying bacteria proliferation rate decreases, the metabolic rate is also reduced. Therefore, it is difficult to degrade the ammonia nitrogen and total nitrogen in the sewage in winter, and the government will appropriately relax the control requirements for ammonia nitrogen and total nitrogen.

The former General Administration of Environmental Protection issued the *Pollutant Emission Standards for Urban Sewage Treatment Plants* (GB18918-2002)[31] in 2002, which takes 12℃ as the dividing line, and sets different emission standards for ammonia nitrogen respectively. Generally, the standards in parentheses in the following chart are implemented in winter (November-March), and the standards outside the parentheses are implemented in the rest of the year. The ecological environment departments (bureaus) of Jiangsu, Shandong, Zhejiang and other regions have also set different emission limits for total nitrogen at low temperatures in winter.

[31] https://www.mee.gov.cn/ywgz/fgbz/bz/bzwb/shjbh/swrwpfbz/200307/W020061027518964575034.pdf

GB18918-2002

表 1　基本控制项目最高允许排放浓度（日均值）　　单位　mg/L

序号	基本控制项目		一级标准		二级标准	三级标准
			A 标准	B 标准		
1	化学需氧量（COD）		50	60	100	120①
2	生化需氧量（BOD_5）		10	20	30	60①
3	悬浮物（SS）		10	20	30	50
4	动植物油		1	3	5	20
5	石油类		1	3	5	15
6	阴离子表面活性剂		0.5	1	2	5
7	总氮　（以 N 计）		15	20	–	–
8	氨氮（以 N 计）②		5（8）	8（15）	25（30）	–
9	总磷（以 P 计）	2005 年 12 月 31 日前建设的	1	1.5	3	5
		2006 年 1 月 1 日起建设的	0.5	1	3	5
10	色度（稀释倍数）		30	30	40	50
11	pH		6-9			
12	粪大肠菌群数（个/L）		10^3	10^4	10^4	–

Figure 55 Different implementation standards for ammonia nitrogen

4.2　自本标准实施之日起，新建城镇污水处理厂主要污染物执行表 2 限值。

表1　现有城镇污水处理厂主要水污染物排放限值

单位：mg/L

序号	污染物项目	限值
1	化学需氧量（COD_{Cr}）	40
2	氨氮	2（4）[1]
3	总氮	12（15）[1]
4	总磷	0.3

注1：括号内数值为每年11月1日至次年3月31日执行。

表2　新建城镇污水处理厂主要水污染物排放限值

单位：mg/L

序号	污染物项目	限值
1	化学需氧量（COD_{Cr}）	30
2	氨氮	1.5（3）[1]
3	总氮	10（12）[1]
4	总磷	0.3

注1：括号内数值为每年11月1日至次年3月31日执行。

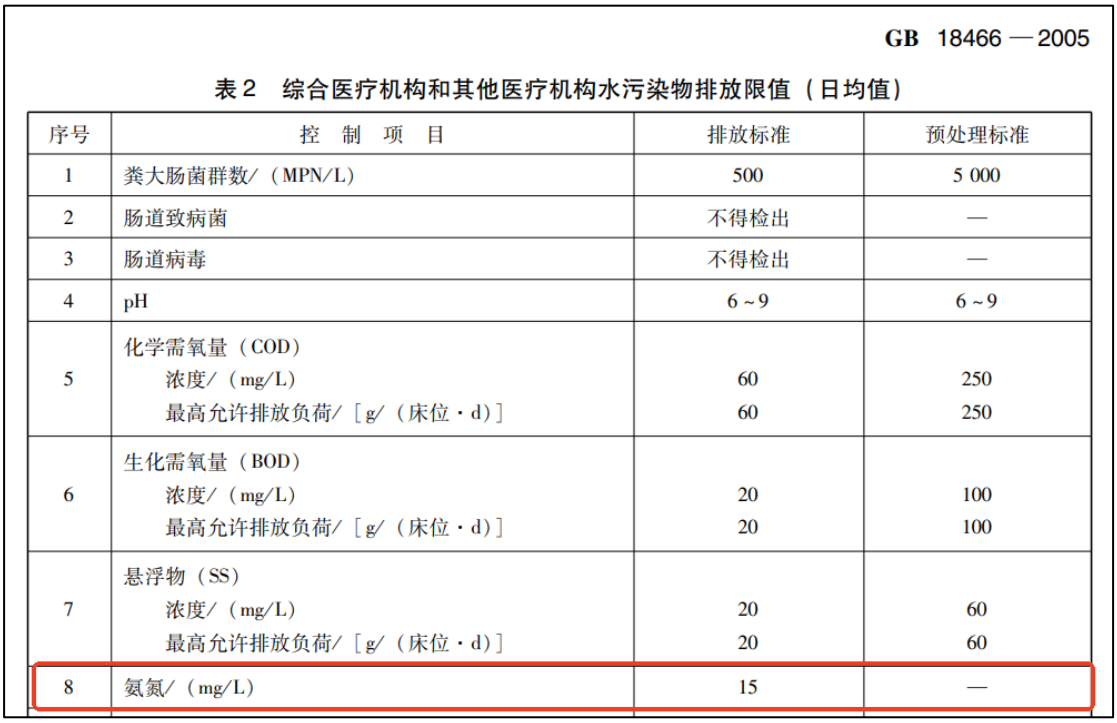
Figure 56 Total Nitrogen based on the emission standard of urban wastewater treatment plants in

Zhejiang Province[32]

（2）Ammonia nitrogen in hospital pretreatment water

Table 2 of the *Emission Standards for Water Pollutants in Medical Institutions* (GB18466-2005)[33] has set emission limits for ammonia nitrogen in wastewater directly discharged from comprehensive medical institutions and other medical institutions (≤15mg/L), but there are no emission limits for ammonia nitrogen in pretreatment water. However, many medical institutions on the self-monitoring platform do not distinguish between outlets, but uniformly set the ammonia nitrogen discharge limit value as ≤15mg/L. Therefore, when supervising and prompting medical institutions, pay attention to the name of the outlet, and if you really can not confirm it, you can verify the ammonia nitrogen limit value through the national sewage license management information disclosure platform.

[32] Zhejiang Provincial Department of Ecology and Environment, Emission Standards for Major Water Pollutants in Urban Sewage Treatment Plants (DB 33/ 2169-2018), https://zjjcmspublic.oss-cn-hangzhou-zwynet-d01-a.internet.cloud.zj.gov. cn/jcms_files/jcms1/web1756/site/attach/0/c7dadc59b0df44848d9f5817ee4a5ece.pdf
[33] https://www.mee.gov.cn/ywgz/fgbz/bz/bzwb/shjbh/swrwpfbz/200601/W020110127361303905047.pdf



GB 18466 — 2005

表 2　综合医疗机构和其他医疗机构水污染物排放限值（日均值）

序号	控　制　项　目	排放标准	预处理标准
1	粪大肠菌群数/（MPN/L）	500	5 000
2	肠道致病菌	不得检出	—
3	肠道病毒	不得检出	—
4	pH	6～9	6～9
5	化学需氧量（COD） 浓度/（mg/L） 最高允许排放负荷/［g/（床位·d）］	 60 60	 250 250
6	生化需氧量（BOD） 浓度/（mg/L） 最高允许排放负荷/［g/（床位·d）］	 20 20	 100 100
7	悬浮物（SS） 浓度/（mg/L） 最高允许排放负荷/［g/（床位·d）］	 20 20	 60 60
8	氨氮/（mg/L）	15	—

Figure 57 Hospital Emission Standards for Ammonia Nitrogen

Figure 58 The First Hospital of Shanxi Medical University showing exceedance of ammonia nitrogen

standard

排放口编号	排放口名称	污染物种类	许可排放浓度限值（mg/L）
DW001	废水总排放口	肠道致病菌	/mg/L
DW001	废水总排放口	悬浮物	60mg/L
DW001	废水总排放口	化学需氧量	250mg/L
DW001	废水总排放口	五日生化需氧量	100mg/L
DW001	废水总排放口	阴离子表面活性剂	10mg/L
DW001	废水总排放口	pH值	6-9
DW001	废水总排放口	总氰化物	0.5mg/L
DW001	废水总排放口	石油类	20mg/L
DW001	废水总排放口	粪大肠菌群数/（MPN/L）	5000个/L
DW001	废水总排放口	氨氮（NH3-N）	/mg/L
DW001	废水总排放口	色度	/

Figure 59 The national platform for the disclosure of information on the management of sewage discharge permits shows that no limit has been set for ammonia nitrogen in this hospital

（3）NOx in the magnesium industry

Similar to the situation of ammonia nitrogen in hospital pretreatment water, there is also nitrogen oxides in magnesium industry, magnesium industry air pollutant emissions by the implementation of the emission standard is "magnesium, titanium industry pollutant emission standards" (GB 25468-2010)[34] , the industry emission standards do not limit the concentration of nitrogen oxides emissions.

[34] https://www.mee.gov.cn/ywgz/fgbz/bz/bzwb/shjbh/swrwpfbz/201010/W020130129576375141793.pdf

表 4　现有企业大气污染物排放浓度限值

单位：mg/m³

生产系统及设备		限　值				污染物排放监控位置
		颗粒物	二氧化硫	氯气	氯化氢	
矿山	破碎、筛分、转运等	100	—	—	—	车间或生产设施排气筒
镁冶炼	原料制备	100	—	—	—	
	煅烧炉	200	800	—	—	
	还原炉	100	800	—	—	
	精炼	100	800	—	—	
	其他	100	800	—	—	
钛冶炼	原料制备	100	—	—	—	
	高钛渣电炉	120	300	—	—	
	氯化系统	—	—	70	120	
	精制系统	—	—	70	120	
	镁电解槽	—	—	70	120	
	镁精炼	100	800	—	—	
	其他	100	800	70	120	

Figure 60 NOx is not covered in the air pollutant emission standards for the magnesium industry

（4）Differences in the basis for judging compliance in some industries

Environmental protection standards usually require that the concentration of air pollutants be converted to dry flue gas under standardized conditions[35] as the basis for evaluating whether the emissions of enterprises exceed the standards. Therefore, the self-monitoring platform generally uses the converted concentration as the standard for evaluating whether the flue gas emission exceeds the standard. However, there are some industries or outlets that are judged by measured concentrations because the state has not yet stipulated the baseline exhaust volume per unit of product for production facilities.

[35] Dry flue gas in the standard state is flue gas free of water vapor at a temperature of 273 K and a pressure of 101,325 Pa. This state of flue gas is mainly used for environmental monitoring and calculations because it provides a standardized ambient condition that allows the concentration of pollutants in the flue gas to be compared and determined.

序号	行业标准	排口	达标判断依据
1	GB 16171-2012 炼焦化学工业污染物排放标准	有组织排放排口	实测浓度
2	GB 25465-2010 铝工业污染物排放标准		
3	GB 28661-2012 铁矿采选工业污染物排放标准		
4	GB 28663-2012 炼铁工业大气污染物排放标准		
5	GB 28666-2012 铁合金工业污染物排放标准		
6	GB 28666-2012 铁合金工业污染物排放标准		
7	GB 13223-2011 火电厂大气污染物排放标准	有组织排放排口	折算浓度
8	GB 13271-2014 锅炉大气污染物排放标准		
9	GB 25464-2010 陶瓷工业污染物排放标准		
10	GB 29620-2013 砖瓦工业大气污染物排放标准		
11	GB 4915-2013 水泥工业大气污染物排放标准	水泥窑及窑尾余热利用系统、采用独立热源的烘干设备	折算浓度
		其他车间或生产设施	实测浓度
12	GB 28664-2012 炼钢工业大气污染物排放标准	石灰宝、白云石窑	折算浓度
		其他生产设施	实测浓度
13	GB 28665-2012 轧钢工业大气污染物排放标准	热处理炉	折算浓度
		其他生产设施	实测浓度
14	GB 25466-2010 铅、锌工业污染物排放标准	冶炼炉窑	折算浓度
		其他生产设施	实测浓度
15	GB 25468-2010 镁、钛工业污染物排放标准	炉窑	折算浓度
		其他生产设施	实测浓度

Figure 61 The basis for judging the compliance of some common atmospheric sectors compiled by PECC by 2020

However, for the coking chemical industry and the lead and zinc industry, the Ecological and Environmental Protection Department (EEPD) issued the "Emission Standards of Air Pollutants for the Coking Chemical Industry (Draft for Public Comments)" ([2021] No. 27)[36] and the "Emission Standards of Air Pollutants for the Lead and Zinc Industry (Draft for Public Comments)" ([2024]39 号)[37] in September 2021 and November 2024, respectively, and revised the basis for judging the compliance with the standards. The basis for judgment has been revised.

[36] Department of Ecology and Environment, https://www.mee.gov.cn/xxgk2018/xxgk/xxgk06/202109/W020210903630969124057.pdf
[37] Department of Ecology and Environment, https://www.mee.gov.cn/xxgk2018/xxgk/xxgk06/202411/W020241129632771553410.pdf

4.2 铅制酸、还原炉、烟化炉、富氧回转窑、锌冶炼侧吹炉烟气及其他冶炼炉窑（电炉除外）烟气，应同时对排气中含氧量进行监测，实测排气筒中大气污染物排放浓度，应按式（1）换算为基准含氧量状态下的大气污染物基准排放浓度，并以此作为达标判定依据。铅制酸、还原炉、烟化炉、富氧回转窑、锌冶炼侧吹炉烟气及其他冶炼炉窑（电炉除外）烟气基准含氧量按照表 2 执行。

$$\rho_{基} = \frac{21 - O_{基}}{21 - O_{实}} \times \rho_{实} \quad (1)$$

式中：$\rho_{基}$——大气污染物基准排放浓度，mg/m³；

$\rho_{实}$——大气污染物实测排放浓度，mg/m³；

$O_{基}$——干烟气基准含氧量，%；

$O_{实}$——干烟气实测含氧量，%。

Figure 62 *Lead and Zinc Industry Air Pollutant Emission Standards* (Draft for Public Comments) part of the basis for judgment

In addition, in the process of supervision and prompting, some enterprises may encounter changes in emission standards due to late emission into the pipe or revision of industry standards, but the self-monitoring platform has not been updated in time, resulting in self-monitoring data exceeding the standard. In this case, after receiving the relevant reply and confirming the relevant emission standards, PECC will categorize and summarize the information of the enterprises involved, such as the name of the enterprise, the changed standards, etc., in order to ensure the professionalism and accuracy of PECC's supervision and prompting work.

省份	地市/区县	企业详细名称	注意点
江苏省	南京市	爱尔集新能源（南京）有限公司	爱尔集新能源公司将偏光板业务和配套的污水处理站出售给杉金光电，两家企业已于2022年4月将废水排口分开，5月11日两家企业在江苏省污染监控系统中分开，因实际情况和系统中申报存在一定滞后性，5月6日-8日，江苏省污染源监控系统中显示的爱尔集新能源的废水排放情况实际为杉金光电排放，企业执行是《电子工业水污染物排放标准》相关要求，COD间接排放浓度要求为500mg/L。
安徽省	合肥市	安徽大地熊新材料股份有限公司	COD≤300mg/L
安徽省	滁州市	安徽沙丰新材料有限公司	该厂位于全椒县化工集中区，该区企业所排放的污水采取“一企一管”的方式直接排入化工集中区污水处理站处理，常规因子的接管标准：PH：6-9，COD≤1500mg/L，SS≤400mg/L、氨氮≤45mg/L，总氮≤80mg/L，总磷≤10mg/L
安徽省	黄山市	安徽善孚新材料科技股份有限公司	含盐量小于2500mg/L、CODcr小于3000mg/
安徽省	六安市	安徽胜利精密制造科技有限公司	污水排放口001执行污水综合排放标准GB8978-1996三级排放标准，总磷、氨氮、总氮执行污水排入城镇下水道水质标准GB/T31962-2015中B等级标准，氨氮排放限值为45mg/L
安徽省	宿州市	安徽银泰合成革有限公司	2021年6月16日，安徽银泰合成革有限公司（现由安徽基裕科技有限公司租赁经营）与园区萧县清源污水处理有限公司签订污水处理接纳协议，总氮执行排放标准限值由40mg/L变更为60mg/L
陕西省	安康市	安康安信水环境发展有限公司(江南再生水厂)	环保实际考核（南水北调应急中心）考核标准为一级A标准（COD限值为50mg/L）

Figure 63 Changes in some of the corporate standards organized by PECC

3. Online monitoring and promotion

During the past ten years, PECC has not only witnessed the upgrading of the self-monitoring platform and the improvement of the disclosure of corporate environmental information, but also actively participated in and promoted this process through hundreds of letters, applications and other means, which not only improves the public's right to know about the quality of the environment, but also makes an important contribution to the promotion of the green development of the local community and ecological environmental protection .

3.1 Self-monitoring platform upgrade

In 2019, PECC found that the self-monitoring platform of Hebei Province could only view the data of the day, and the self-monitoring platform of Henan Province could only view the data of the previous day, and neither of them could query the historical records. Accordingly, PECC also sent letters to the Ecological Environment Department of the two provinces respectively, and received written replies. The Department of Ecology and Environment said that

the self-monitoring platform is an application platform for receiving, inquiring, counting and managing the automatic monitoring data of pollution sources, so the function of viewing historical automatic monitoring data is not open to the public.

However, both provinces have upgraded their self-monitoring platforms, and the new self-monitoring platform in Hebei Province,[38] , and the "Mobile Query of Pollution Sources" APP developed by Henan Province,[39] , can query the historical monitoring data of enterprises.

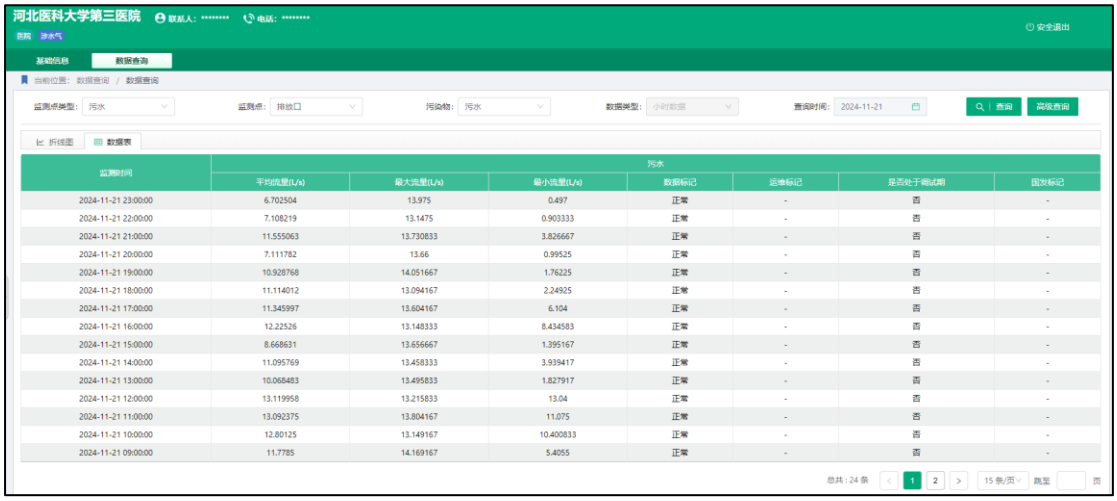


Figure 64 Hebei self-monitoring platform: December 4 query for November 21 monitoring data

3.2 Public disclosure of environmental information is timely and complete

The Measures for the Disclosure of Environmental Information by Enterprises and Institutions[40] , which came into force in 2015, requires that key sewage disposal units should disclose information on basic information, sewage discharge information, construction and operation of pollution prevention and

[38] https://111.62.218.180:9051/loginPublic
[39] http://222.143.24.250:8241/api/app/downloadAPP
[40] Chengdu Ecology, https://mp.weixin.qq.com/s/kmalLj3YsrS3Kk9Zlg9i4Q

control facilities, environmental impact assessment of construction projects and other administrative licenses for environmental protection, and contingency plans for environmental emergencies.

During the online monitoring period, PECC found that 336 key emission units in many regions such as Jiangsu Province, Zhejiang Province and Shanghai Municipality failed to disclose environmental information in a timely and comprehensive manner in accordance with the requirements of Measures for the Disclosure of Environmental Information by Enterprises and Institutions. In response to the situation, PECC sent letters to the ecological environment bureaus where the enterprises are located, and pushed nearly 300 enterprises to improve the content of environmental information disclosure.

In addition, PECC also found that enterprises in Jiangsu, Zhejiang, Shaanxi and other provinces are more timely in environmental information disclosure. Specifically, when the enterprise's self-monitoring data exceeds the standard, the enterprise can timely report the exceeding description to the local ecological environment department and upload it to the online monitoring platform.

Figure 65 Enterprises upload the reasons for exceeding the standard in a timely manner

3.3 Building the Azure Ecosystem

Since PECC carried out the supervision of heavy-control pollution sources in 2015, through communication with ecological and environmental departments, enterprises and other relevant parties, we found that in addition to the pollutants of some enterprises are real exceeding the standard, there are also some enterprises' self-monitoring data exceeding the standard is caused by the instrument malfunction, equipment shutdown, etc., which not only caused misunderstanding to the public, but also brought some negative social impacts on the enterprises.

In 2019, in order to open up the channel for environmental information sharing among ecological and environmental departments, enterprises, the public and social organizations, and eliminate the phenomenon of information asymmetry among all parties, PECC promotes enterprises to independently increase the description of environmental information disclosure by using the Blue Map in a

variety of ways including microblogging supervision, sending letters of reminder, and is committed to building a multi-party interoperability, data linking, information sharing, real-time reminder, and other functions of the We are committed to building an eco-chain with multiple interoperability, data links, information sharing, and real-time alerts.

In 2020, in order to further enhance the enthusiasm of enterprises in environmental information disclosure, PECC continued to launch nine excellent enterprise cases of independently increasing environmental information disclosure through WeChat Public Number, including Jiangsu Guoxin Rudong Biomass Power Generation Co. and Huzhou Guangzheng Water Purification Co. in the hope of promoting more enterprises to increase environmental information disclosure through the Blue Map to improve the transparency of corporate green and promote the We hope to promote more enterprises to increase environmental information disclosure through Blue Map, improve green transparency of enterprises, and promote high-quality sustainable development of enterprises. As of December 31, 2024, PECC has promoted a total of 3,443 enterprises to disclose environmental information on Blue Map, with a total of 5,474 feedback records. Many of these enterprises have submitted dozens of self-monitoring feedback records through Azure Map, such as 25 feedback records for Jin Huasheng Paper (Suzhou Industrial Park) Co., Ltd. and nearly 70 feedback records for Jiangsu Guoxin Rudong Biomass Power Generation Co.

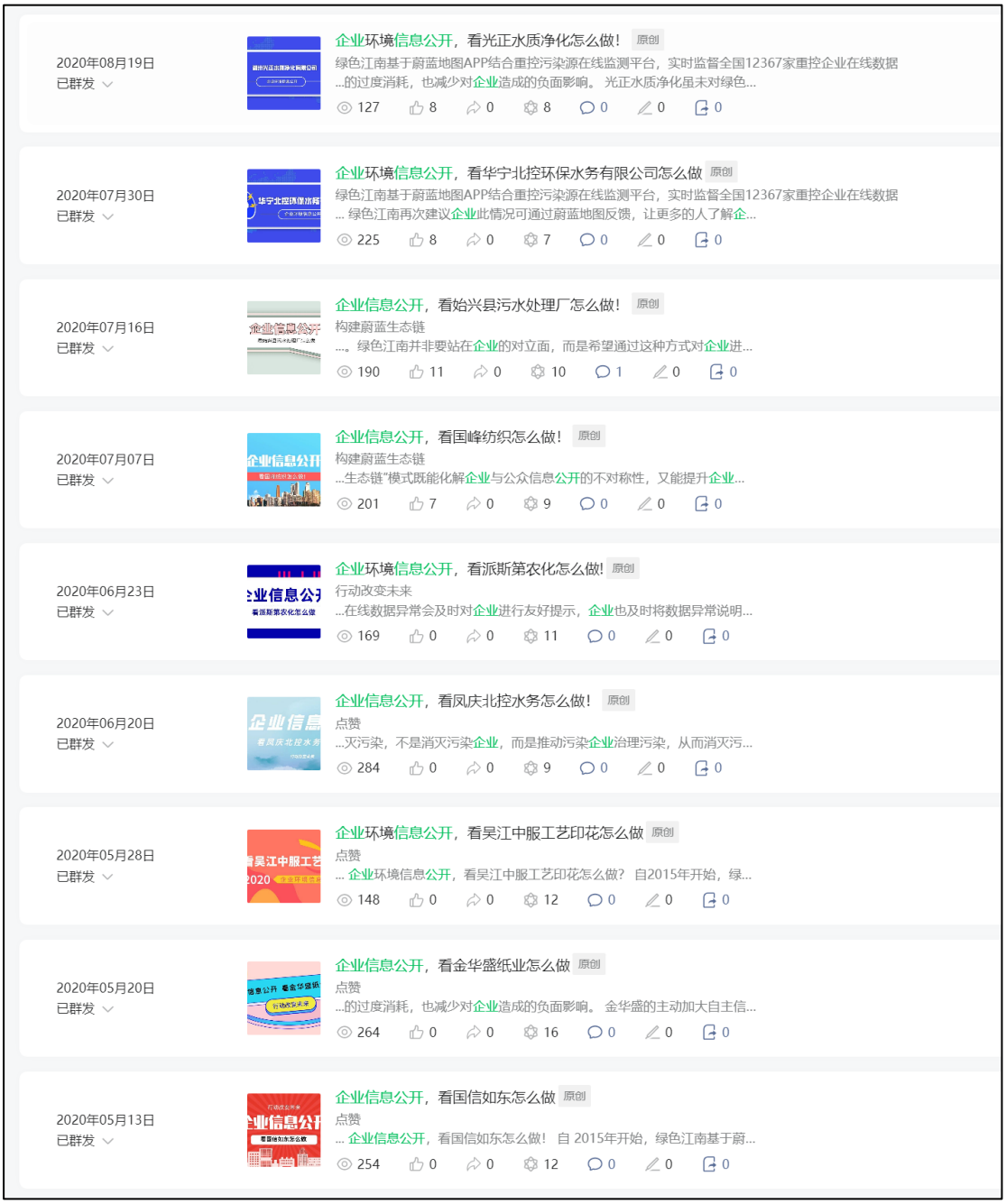


Figure 66 Outstanding Business Case Tweets

Figure 67 Selected Feedback Records of Jin Huasheng Paper (Suzhou Industrial Park) Co.

Enterprises to do a good job of environmental information disclosure and accept social supervision, is the law and policy requirements, but also China's environmental governance towards modernization of the general trend. With the help of data technology, Blue Eco-chain helps enterprises to get timely information prompts and make feedback instructions effectively, which can not only enhance the social responsibility image of enterprises, but also make positive feedbacks to the public in time on the emergence of problems in time, avoiding complaints from time to time and from time to time, reducing the excessive consumption of valuable administrative resources, as well as reducing the negative impacts on the enterprises.

4、Public participation to draw a roadmap for blue water and blue sky

Public participation is an indispensable part of the roadmap for drawing blue

water and blue sky together. As environmental problems improve, public awareness and participation in environmental protection are also increasing. To achieve the goal of drawing a roadmap for blue water and blue sky, close cooperation among the government, enterprises, social organizations and the public is needed, with enterprises actively fulfilling their social responsibilities, and social organizations actively playing the role of a bridge and a link to promote exchanges and cooperation among various parties. By pooling the strengths of all, a clear and feasible blueprint for a beautiful China will be drawn up together to realize the goal of sustainable development.

Beautiful China is a cause for the people to participate in and build together, and turning the construction of a beautiful China into a conscious action of all the people is one of the "ten insistences" of Xi Jinping's thought on ecological civilization. In January 2024, the Opinions of the Central Committee of the Communist Party of China and the State Council on Comprehensively Promoting the Construction of a Beautiful China[41] was formally released, calling for a "sustained and in-depth battle to safeguard the blue sky and a sustained and in-depth battle to safeguard the blue water".

Guarding blue water and blue sky is closely related to building a beautiful China, and public participation is an indispensable part of realizing the goal of blue water and blue sky. Public participation actively builds a community of environmental governance in which everyone participates, everyone has responsibility and everyone shares, promotes the green development of enterprises, guards blue water and blue sky, and contributes to the construction of a beautiful China.

5. Shortcomings and recommendations

[41] Central People's Government of the People's Republic of China, https://www.gov.cn/gongbao/2024/issue_11126/202401/content_6928805.html

5.1 10 regions, including Qinghai and Sichuan, should rebuild and reopen the platform as soon as possible

In 2019-2021, the self-monitoring platforms in Hubei Province, Hebei Province, Qinghai Province and other regions have become inaccessible one after another. Green Jiangnan has sent letters to the local ecological environment departments to understand why the platforms are inaccessible and whether the links to the platforms have been updated, and has received positive responses and proactive explanations from the local ecological environment departments. Among them, the ecological environment departments of Guangdong Province, Qinghai Province, Hunan Province and Hainan Province replied that "the State is currently revamping the National Emission Permit Management Information Platform (hereinafter referred to as the "Permit Platform")[42] , which is expected to be completed in the second half of 2021, and the emission units are unified to make public their Self-monitoring data."

Table 3: Districts to which letters were sent and responses

as suffix city name, means prefecture or county (area administered by a prefecture level city or county level city)	Status of responses
Hubei Province	Reply with new link
Liaoning Province	Reply with new link
Zhejiang Province	Reply with new link
Jiangxi	System upgrade, temporarily suspended
Guangdong Province	Data migration, platform decommissioning
Qinghai	Data migration, platform decommissioning
Hunan	Data migration, platform decommissioning
Hainan Province	Data migration, platform decommissioning

[42] https://permit.mee.gov.cn/permitExt/defaults/default-index!getInformation.action

However, according to the observation of PECC, although the license platform has opened the self-monitoring information public port, but the data is not perfect, if you want to see the historical data, you need to rely on the self-monitoring platform established in each region. In response to the imperfect data of the platform, PECC to the Ministry of Ecology and Environment to apply and receive a written reply, the reply said that enterprises around the self-monitoring information disclosure of two kinds of situations: self-monitoring data disclosure in the licensing platform and self-monitoring data in the provincial pollution source data system to fill in the self-monitoring data.

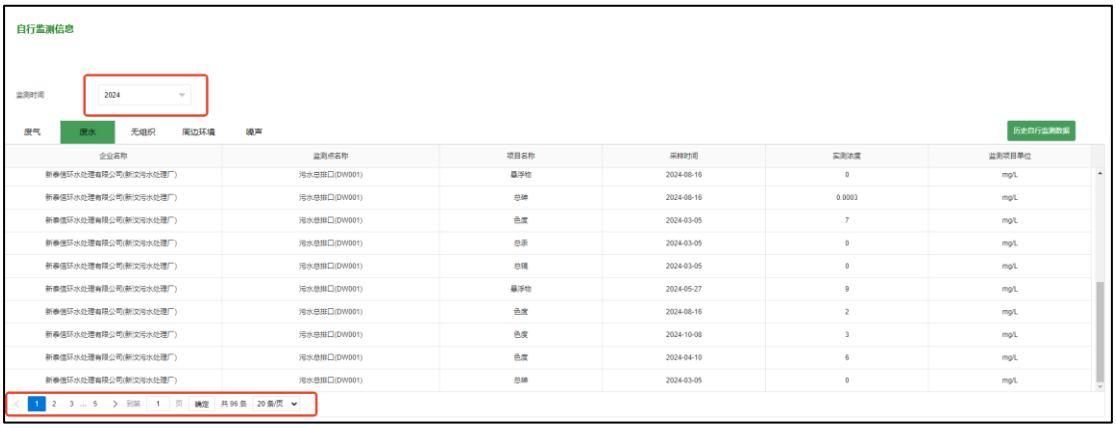


Figure 68 An enterprise disclosed less than 100 self-monitoring data in 2024 on the national sewage license management information platform

目前，各地企业自行监测信息公开存在2种情形：企业直接使用全国污染源数据系统填报自行监测数据的，在许可平台直接公开自行监测信息；企业在省级污染源数据系统填报自行监测数据并交换至全国污染源数据系统的，通过链接至许可平台的省级公开系统公开自行监测信息，可在许可平台点击“自行监测数据查询按键”查询。

Figure 69 Written response from the Ministry of Ecology

Among the provinces where PECC found that self-monitoring platforms were discontinued due to the Ministry of Ecology and Environment's revamping of the licensing platform, Hunan and Hainan provinces have long since restarted public release of self-monitoring data on pollution sources, but self-monitoring data in Qinghai province has still ceased to be released. And before that, Guangxi Zhuang Autonomous Region and Guizhou Province stopped publicly releasing self-monitoring data since 2018. While Sichuan, Jiangxi, Heilongjiang, Jilin, Guangdong, and Ningxia Hui Autonomous Region stopped public release from 2023; Beijing stopped public release from September 2024 onwards.[43]

The disclosure of self-monitoring data by key emission units not only strengthens the transparency and credibility of environmental supervision, protects the public's rights to know, participate and supervise, and promotes enterprises to pay attention to environmental management, but also is of great significance in promoting the formation of a mechanism for environmental protection in which the whole society participates together. Therefore, PECC suggests that the 10 regions that have stopped publicizing self-monitoring data, such as Qinghai Province and Sichuan Province, should re-establish the

[43] https://mp.weixin.qq.com/s/K500J_REfL_CooNHsb55TQ

platform for self-monitoring of pollution sources, and publicize self-monitoring data of pollution sources in a comprehensive, timely and effective manner.

5.2 Timely marking and enhanced management

Enterprises often have abnormal self-monitoring data due to shutdowns, equipment debugging, equipment failures and other reasons during the production process. In order to ensure that the monitoring data are true, accurate, complete and effective, the Ministry of Ecology and Environment formulated and published the Rules for Marking of Automatic Pollutant Discharge Monitoring Equipment[44] in July 2022, which is used to standardize the construction and operation management of the automatic monitoring system for pollution sources.

During the period of monitoring reminders, PECC often receives feedback from enterprises that their self-monitoring data are not real exceedances, but are due to external factors, such as equipment problems, changes in emission permits, etc., and that they have already reported to the competent authorities. When encountering such a situation, PECC usually suggests enterprises to report to the competent authorities and also upload the corresponding information to the public access platform for self-monitoring of pollution sources established in their regions. However, companies often say that they are not sure how to update and upload the environmental information on the platform, and are at a loss.

Therefore, PECC suggests that when establishing the self-monitoring and sharing platform for pollution sources, all regions should also fulfill their obligation to inform and provide professional training to the key sewage disposal units under their jurisdiction, so that enterprises can handle and update

[44] Department of Ecology and Environment, https://www.mee.gov.cn/xxgk2018/xxgk/xxgk01/202208/t20220801_990434.html

the information changes or data anomalies in a timely manner, and to ensure the authenticity, completeness and timeliness of the content of the environmental information and data of the enterprises.

5.3 Enterprises should timely and fully publicize annual reports on pollution source monitoring

The Measures for Self-Monitoring and Disclosure of Information by Key State Monitoring Enterprises (for Trial Implementation) stipulates that key monitoring enterprises shall, by the end of January each year, prepare and complete an annual report on their self-monitoring for the previous year, which shall be made available to the public. The contents of the annual report include the adjustment and change of the monitoring program, the number of production days and monitoring days in a year, the number of times each monitoring point and each monitoring index is monitored, the number of times it meets the standard and exceeds the standard in a year, the amount of pollutants discharged from wastewater and exhaust gas in a year, and the type of solid wastes, the quantity generated, the way to dispose of them, the quantity, and the direction of the wastes. However, according to PECC's observation, most of the enterprises either failed to publicize the annual report on pollution source monitoring in time or the content of the annual report is incomplete.

Figure 70 Enterprises failing to disclose annual reports in a timely manner

Figure 71 Incomplete annual reports

内蒙古阜丰生物科技有限公司 自行监测年度报告

报告时间：2024 年 1 月 1 日

监测项目 / 监测内容		监测点位	全年生产天数	应当监测天数	实际监测天数	实际监测次数	达标次数	超标情况
监测指标	化学需氧量	废水总排口	365	365	365	8760	8760	无超标
	氨氮	废水总排口	365	365	365	8760	8760	无超标
	总氮	废水总排口	365	365	365	8760	8760	无超标
	PH	废水总排口	365	365	365	8760	8760	无超标
	二氧化硫	1#2#3#烟气排放口	365	365	365	8760	8760	无超标
	氮氧化物	1#2#3#烟气排放口	365	365	365	8760	8760	无超标
	颗粒物	1#2#3#烟气排放口	365	365	365	8760	8760	无超标
监测方案的调整变化情况		脱硫废水中 PH 值、总汞、总铬、总砷、总铅、流量；烟气中林格曼黑度、汞及其化合物；无组织中氨、非甲烷总烃、粉尘、硫化氢、臭气浓度等委托呼和浩特海纳源清水环境发展有限责任公司进行检测						
全年废水、废气污染物排放量		废气：二氧化硫 804.127 吨、氮氧化物 949.762 吨、烟尘 100.495 吨； 废水：COD83.535 吨、氨氮 31.962 吨、总氮 47.051 吨						
固体废弃物的类型、产生数量，处置方式数量以及去向		粉煤灰：324171.35 吨，炉渣：91748.3 吨，石膏：112601.38 吨，全部综合利用生产加气砖砌块或委托第三方处置						
按要求开展企业周边环境质量影响状况监测结果		达标						

Figure 72 Annual reports are complete and up-to-date, citing "Inner Mongolia Fufeng Biotechnology Co.

The preparation and disclosure of annual reports on pollution source monitoring by enterprises not only enables them to fully understand their own environmental management status, but also builds public trust, provides valuable data resources for stakeholders, promotes the formation of an environmental protection pattern in which the whole society participates together, and helps to realize the goal of green and sustainable development. Therefore, PECC suggests that enterprises that have not publicized their annual reports in a timely manner or whose reports are incomplete should publicize their annual reports on pollution source monitoring in a timely and comprehensive manner in accordance with the relevant national requirements.

5.4 Accelerate the establishment of VOCs self-monitoring system

Volatile organic compounds (VOCs) are organic compounds that participate in atmospheric photochemical reactions, including non-methane hydrocarbons, oxygen-containing organic compounds, chlorine-containing organic compounds, nitrogen-containing organic compounds, sulfur-containing organic

compounds, etc., which are important precursors for the formation of secondary pollutants, such as fine particulate matter (PM2.5), ozone ($O_{(3)}$, and others. Some VOCs, such as methane (CH_4), have a strong greenhouse effect in the atmosphere and can have an impact on global climate change.

In September 2017, the former Ministry of Environmental Protection, the National Development and Reform Commission and other six departments jointly issued the "Thirteenth Five-Year" Volatile Organic Compounds Pollution Prevention and Control Work Program [45] proposed to accelerate the development of the technical requirements and testing methods for the automatic monitoring system and portable monitor for fixed pollution source exhaust VOCs.In June 2019, the Ministry of Ecology and Environment issued s "Comprehensive Treatment Program for Volatile Organic Compounds in Key Industries"[46] , which explicitly requires that key sources of VOCs emissions such as petrochemicals, chemicals, packaging and printing, and industrial coating will be included in the directory of key emission units, and that automatic monitoring facilities will be installed at major outfalls and be networked with the competent ecological environment authorities, and that the program will be basically completed in the key regions by the end of 2019, and the country will be basically completed by the end of 2020. According to the observation, Shandong, Zhejiang, Jiangsu, Hebei, Yunnan, Henan, Hainan, Hunan, Anhui, Shanghai and other places have already had the good practice of key emission units disclosing VOCs automatic monitoring data to the society.[47]

Therefore, PECC suggests that government departments should urge key VOCs emitters to install automatic monitoring equipment at outfalls and network them. key VOCs emitters should also respond to the government's call to take

[45] Department of Ecology and Environment, https://www.mee.gov.cn/gkml/hbb/bwj/201709/W020170919373521878296.pdf
[46] Department of Ecology and Environment, https://www.mee.gov.cn/xxgk2018/xxgk/xxgk03/201907/t20190703_708395.html
[47] https://mp.weixin.qq.com/s/K500J_REfL_CooNHsb55TQ

the initiative to install VOCs self-monitoring facilities and disclose them to the community.

6. Monitoring and empowerment to help the formation of new quality productivity

In September 2023, General Secretary Xi Jinping hosted a symposium on promoting the comprehensive revitalization of the Northeast in the new era in Harbin, pointing out, "Actively cultivate strategic emerging industries such as new energy, new materials, advanced manufacturing, electronic information, and actively cultivate the future industry, accelerate the formation of new quality productivity, and enhance the new momentum of development." [48]This is the first time that the concept of new quality productivity has been put forward, and has been discussed in depth on many important occasions since then. New quality productivity is to lead the comprehensive revitalization of industry with scientific and technological innovation, and industry should develop in the direction of high-end, intelligent and green. Enterprises to carry out self-monitoring, public environmental information, but also towards the green development of one of the important guarantee.

The New Quality Productivity published by CITIC Publishing Group[49] mentions that NQP consists of three "new" components, namely "new manufacturing", "new services" and "new business", the most important of which is productive services. "he most important of the "new services" is productive services. According to the *Statistical Classification of Productive Services (2019)* issued by the National Bureau of Statistics (NBS) in April 2019[50] , productive services include R&D, design and other technical services for production activities, cargo transportation, general aviation production, warehousing and postal courier

[48] People's Tribune Network, http://www.rmlt.com.cn/2023/1117/687842.shtml
[49] Justin Yifu Lin et al, New Quality Productivity, CITIC Press, 1st edition, March 2024
[50] Central People's Government of the People's Republic of China, https://www.gov.cn/zhengce/zhengceku/2019-09/05/content_5427530.htm

services, information services, financial services, and energy conservation and environmental protection services in ten major categories, of which the energy conservation and environmental protection services include productive environmental protection monitoring[51]. The energy-saving and environmental protection services include productive environmental protection monitoring. It can be seen that, in order to develop a new quality of productivity, enterprises to carry out self-monitoring, the government to establish an automatic monitoring system of pollution sources is also an essential part.

With the continuous progress of science and technology, the automatic pollution source monitoring system is developing in the direction of intelligence, precision and efficiency. With the help of Internet of Things, big data analysis, artificial intelligence and other advanced technologies, we can foresee that in the future, pollution source monitoring will realize all-weather, all-round, full-coverage real-time monitoring, which not only can quickly identify abnormal pollution emission, but also can greatly improve the efficiency and accuracy of environmental governance, which is also an embodiment of scientific and technological innovation.

Climate Change 2023, a synthesis report of the Sixth Assessment Report released by the United Nations Intergovernmental Panel on Climate Change (IPCC)[52] points out that 2020-2030 is a key decade for determining the future trend of global warming, and emphasizes the urgency of reducing greenhouse gas emissions and adopting adaptive measures. In October 2024, the *Work Program for Improving the Carbon Emission Statistical Accounting System* , which was issued by the National Development and Reform Commission (NDRC), explicitly proposes to "orderly promote the pilot application of the automatic carbon emission monitoring system (CEMS) and encourage

[51] Productive environmental protection monitoring means testing and monitoring services for various types of pollutant discharges resulting from production activities.
[52] https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf

enterprises in the electric power and cement industries to take the pilot test". In October 2024, the National Development and Reform Commission (NDRC) and other departments issued the "Work Program for Improving the Carbon Emission Statistics and Accounting System" ([53]), in which it is clearly stated that "the pilot application of the carbon emission monitoring system (CEMS) will be promoted in an orderly manner, and enterprises of the electric power and cement industries are encouraged to take the lead. From this, we can see that the future CEMS will not only focus on common pollutants such as water and air, but also on greenhouse gases such as carbon dioxide and methane. The disclosure of greenhouse gas emission information by enterprises will not only show the positive actions taken by enterprises to address climate change, but also promote sustainable development of enterprises, help the economic and social transformation to green and low-carbon, and contribute to the construction of ecological civilization and net-zero emissions.

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[53] NDRC, https://www.ndrc.gov.cn/xwdt/tzgg/202410/t20241024_1393880.html