**Chapter 2 Environmental Emissions**

**Section 1 Air**

Gaseous and particulate matters emitted during the course of production, consumption and accumulation fall into two main categories of pollutants: air pollutants and greenhouse gases. Air pollutants are presented through accounts such as physical flow accounts, emission accounts, quality accounts and degradation accounts. However, greenhouse gas pollutants can currently only be presented through data such as emissions.

**Ⅰ. Physical flow accounts**

These accounts present information about various air pollutants being released into the environment. They use supply and use tables to comprehensively compile and show the general conditions of flow from the economy into the environment.

In terms of the supply side's overall flows, in 2016, the total supply of air pollutant emissions reached 1,763 thousand metric tons. Emissions of households took the lead, with 681 thousand metric tons, 38.6% of the total; this was followed by the manufacturing and the transportation, with 370 thousand and 340 thousand metric tons, accounting for 21.0% and 19.3% of the total, respectively. Breaking it down per pollutant, we find that the emissions of total suspended particulates were 321 thousand metric tons; households, the transportation and the construction were the main contributing sources here. Sulfur oxides emissions were 107 thousand metric tons, with the manufacturing and the electricity & gas supply as the primary sources. Emissions of nitrogen oxides were 342 thousand metric tons, with the bulk of emissions coming from the transportation. Emissions of non-methane hydrocarbon were 447 thousand metric tons, with the households and manufacturing as the main sources. Emissions of carbon monoxide were 545 thousand metric tons, most of which came from households, 57% of the total. Emissions of lead were in relatively few quantities, with the manufacturing as the main emitter.

In terms of the flows of various pollutants emitted into the environment, carbon monoxide led with 545 thousand metric tons, followed by non-methane hydrocarbon with 447 thousand metric tons and then nitrogen oxides with 342 thousand metric tons. These three pollutants aggregated to account for 76% of the total.

**Table 1.2.1.1 Supply and use table for air pollution emissions, 2016**

Unit: thousand M.T.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Total | TSP | SOx | NOx | NMHC | CO | Pb |
| Total supply | 1,763 | 321 | 107 | 342 | 447 | 545 | 1 |
| By sectors | 1,763 | 321 | 107 | 342 | 447 | 545 | 1 |
| Agriculture, forestry, fishing and animal husbandry | 100 | 27 | 1 | 7 | 19 | 46 | 0 |
| Mining and quarrying | 16 | 15 | 0 | 0 | 0 | 0 | 0 |
| Manufacturing | 370 | 31 | 48 | 87 | 149 | 55 | 1 |
| Electricity and gas supply | 118 | 5 | 37 | 59 | 0 | 17 | 0 |
| Water supply and remediation activities | 10 | 0 | 1 | 6 | 1 | 2 | 0 |
| Construction | 89 | 47 | 0 | 0 | 41 | 0 | 0 |
| Wholesale and retail trade | 5 | 0 | 0 | 0 | 5 | 0 | 0 |
| Transportation | 340 | 48 | 18 | 144 | 21 | 110 | 0 |
| Accommodation and food service activities | 23 | 6 | 1 | 2 | 7 | 7 | 0 |
| Government | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Households | 681 | 141 | 1 | 36 | 195 | 308 | 0 |
| Others | 10 | 0 | 0 | 1 | 9 | 1 | 0 |
| Landfill ① | 0 | － | － | － | 0 | － | － |
| Total use | 1,763 | 321 | 107 | 342 | 447 | 545 | 1 |
| Flows into the environment | 1,763 | 321 | 107 | 342 | 447 | 545 | 1 |

Note**:**① It primarily reflects release conditions of emissions during the course of production, consumption and accumulation from the previous few periods.

**Ⅱ. Emission accounts**

Emission accounts involve tallying emissions of gaseous and particulate matters during the course of production, consumption and accumulation. The emissions of air pollutants are presented through three aspects: pollutants; sources of pollution; sinks. The greenhouse gases discuss the emissions of various greenhouse gases, as well as emission sources of carbon dioxide (CO2), the most significant greenhouse gas. The emissions intensity and emissions per capita of CO2 are also given.

**(Ⅰ) Air pollutants**

1. By pollutants

The particulate matters in the air primarily derive from black smoke from fuel-burning, powder dust released from industrial manufacturing processes, and dust sent up by from construction projects and road traffic. For example, they include total suspended particulates (TSP), suspended particulates (PM**10**), lead (Pb), dust-fall, black smoke, etc. Gaseous pollutants mostly come from the gases generated from burning fossil fuels, such as sulfur oxides (SOx), carbon monoxide (CO), nitrogen oxides (NOx) and volatile organic compounds (VOCs).

According to the latest revised data from the Taiwan Emission Data System (TEDS), promulgated by the Environmental Protection Administration (EAP) of the Executive Yuan, in 2016, the emissions reached 1,763 thousand metric tons, a decrease of 1.3% from 2015. In terms of pollutants, CO had the greatest emissions (accounting for 30.9% of the total), up 0.4%; the next was non-methane hydrocarbon (NMHC) (accounting for 25.4% of the total), a slight decrease of 0.4%.

**Figure 1.2.1.1 Air pollution emissions－by pollutants**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **2012** | **2013** | **2014** | **2015** | **2016** |
| Total | 1,885 | 1,876 | 1,825 | 1,786 | 1,763 |
| TSP | 337 | 333 | 329 | 324 | 321 |
| SOx | 126 | 117 | 115 | 111 | 107 |
| NOx | 397 | 399 | 379 | 357 | 342 |
| NMHC | 443 | 457 | 453 | 449 | 447 |
| CO | 582 | 568 | 548 | 543 | 545 |
| Pb | 1 | 1 | 1 | 1 | 1 |

2. By pollution sources

In terms of the pollution sources of air pollution emissions, in 2016, the Line Source pollution from road-going vehicles had the greatest emissions, with 698 thousand metric tons (accounting for 39.6% of the total), a decrease of 2.0% from 2015; the next was the Plane Source pollution with low emissions intensity and non-road vehicles, with 642 thousand metric tons (accounting for 36.4% of the total), a decrease of 0.9%. The Point Source pollution generated from industrial manufacturing processes reached 423 thousand metric tons (accounting for 24.0% of the total), down 0.5%.

**Figure 1.2.1.2 Air pollution emissions－by pollution sources**



|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **2012** | **2013** | **2014** | **2015** | **2016** |
| Total | 1,885 | 1,876 | 1,825 | 1,786 | 1,763 |
| Point Source | 414 | 439 | 437 | 426 | 423 |
| Line Source | 803 | 781 | 737 | 713 | 698 |
| Plane Source | 669 | 656 | 651 | 647 | 642 |

(1) Point Source

The manufacturing was responsible for the bulk of the Point Source pollution emissions, with 287 thousand metric tons in 2016, followed by the electricity and gas supply with 118 thousand metric tons. Within the manufacturing, the base metals, chemical materials and other non-metallic mineral products had the greatest emissions, with 69 thousand, 63 thousand and 40 thousand metric tons, respectively. In terms of pollutants, NOx took the lead with 153 thousand metric tons, followed by SOx with 86 thousand metric tons. The manufacturing emitted the bulk of the aforementioned both pollutants, with 56.7% and 55.8% of the total, respectively.

**Table 1.2.1.2 Pollution emissions－by Point Source, 2016**

 Unit: thousand M.T.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Total | TSP | SOx | NOx | NMHC | CO | Pb |
| Total | 423 | 41 |  86 | 153 |  68 |  74 | 1 |
| Mining and quarrying |  5 |  5 |  0 |  0 |  0 |  0 | 0 |
| Manufacturing | 287 | 31 |  48 |  87 |  65 |  55 | 1 |
| Petroleum and coal products |  16 |  1 |  4 |  6 |  3 |  3 | 0 |
| Chemical material |  63 |  3 |  12 |  25 |  10 |  12 | 0 |
| Other Non-metallic mineral products |  40 | 12 |  3 |  23 |  1 |  2 | 0 |
| Basic metals |  69 |  8 |  14 |  12 |  3 |  32 | 0 |
| Others |  99 |  7 |  16 |  21 |  47 |  7 | 0 |
| Electricity and gas supply | 118 |  5 |  37 |  59 |  0 |  17 | 0 |
| Others |  14 |  1 |  1 |  7 |  3 |  2 | 0 |

(2) Line Source

In 2016, four-stroke motorcycles and gasoline passenger sedans accounted for the greatest Line Source pollution emissions, and they aggregated to account for 62% of the total. In terms of pollutants, CO was the most with 403 thousand metric tons, followed by NOx with 154 thousand metric tons and then NMHC with 114 thousand metric tons. These three pollutants aggregated to account for 96% of the total. Emissions of CO primarily came from gasoline passenger sedans and four-stroke motorcycles, with 37.2% and 36.6% of the total, respectively; while NOx primarily came from diesel fuel buses and heavy trucks, accounting for 71.0% of the total. Four-stroke motorcycles and gasoline passenger sedans were responsible for the bulk of NMHC emission, accounting for 44.1% and 29.5% of the total, respectively.

**Table 1.2.1.3 Pollution emissions－by Line Source, 2016**

 Unit: thousand M.T.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Total | TSP | SOx | NOx | NMHC | CO | Pb |
| Total |  698 | 26 | 0 | 154 | 114 |  403 | 0 |
| Gasoline passenger sedans |  213 |  9 | 0 |  21 |  34 |  150 | 0 |
| Gasoline small trucks |  51 |  1 | 0 |  4 |  6 |  39 | 0 |
| Diesel fuel small trucks |  18 |  3 | 0 |  8 |  1 |  7 | － |
| Diesel fuel buses and heavy trucks |  171 |  9 | 0 | 110 |  10 |  43 | － |
| Two-stroke motorcycles |  31 |  1 | 0 |  0 |  13 |  16 | 0 |
| Four-stroke motorcycles |  214 |  4 | 0 |  12 |  50 |  147 | 0 |

(3) Plane Source

Emission sources of the Plane Source pollution can be divided into the three categories: combustion, fugitive dust, and fugitive hydrocarbon. In 2016, the emission sources for fugitive hydrocarbons were 251 thousand metric tons, accounting for 39.1% of the total, all of which came from NMHC. Emission sources for fugitive particulates reached 242 thousand metric tons, accounting for 37.7% of the total, all of which came from TSP. Emission sources for combustion were 149 thousand metric tons, accounting for 23.2% of the total.

**Table 1.2.1.4 Pollution emissions－by Plane Source, 2016**

 Unit: thousand M.T.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Total | TSP | SOx | NOx | NMHC | CO | Pb |
| Total |  642 | 254 | 21 | 34 | 265 | 68 | － |
| Combustion |  149 |  12 | 21 | 34 |  13 | 68 | － |
| Fugitive dust |  242 | 242 | － | － |  － | － | － |
| Fugitive hydrocarbon |  251 |  － | － | － | 251 | － | － |

3. Sinks

After comparing air pollution emissions from various air basins, we find that the North Air Basin was the most with 504 thousand metric tons in 2016, followed by the Kaohsiung/Pingtung Air Basin with 371 thousand metric tons. The next was the Central Air Basin with 331 thousand metric tons. Compared with 2015, they represented decreases of 0.4%, 1.5% and 2.3%, respectively. Besides, the outer islands totaled 36 thousand metric tons in 2016.

**Table 1.2.1.5 Air pollution emissions－by air basins**

 Unit: thousand M.T.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Total | North | Hsinchu/Miaoli | Central | Yunlin/Chiayi/Tainan | Kaohsiung/Pingtung | Yilan | Hualien/Taitung | Outer islands |
| 2012 | 1,885 | 537 | 124 | 366 | 301 | 392 | 46 | 84 | 36 |
| 2013 | 1,876 | 527 | 126 | 361 | 302 | 397 | 45 | 81 | 36 |
| 2014 | 1,825 | 514 | 123 | 349 | 294 | 387 | 44 | 79 | 36 |
| 2015 | 1,786 | 507 | 120 | 339 | 287 | 377 | 43 | 78 | 36 |
| 2016 | 1,763 | 504 | 119 | 331 | 283 | 371 | 42 | 77 | 36 |

In terms of the pollutants in various Air Basin, the Yilan Air Basin and the Hualien/Taitung Air Basin had the highest shares for TSP, while the pollutants in the Hsinchu/Miaoli Air Basin and the outer islands were predominately made up of NMHC and NOx, and the main pollutant in the other air basins was CO. In terms of pollution sources, area source pollution was most common. This is with the exception of the North Air Basin, the central air basin, the Yunlin/Chiayi/Tainan air basin, and the Kaohsiung/Pingtung air basin, where line source pollution was more dominant.

**Figure 1.2.1.3 Air pollution emissions－by air basins, 2016**

**Table 1.2.1.6 Air pollution emissions－by air basins & pollution sources, 2016**

Unit: thousand M.T.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Total | Point Source | Line Source | Plane Source |
| Total | 1,763 | 423 | 698 |  642 |
| North |  504 |  76 | 253 |  176 |
| Hsinchu/Miaoli |  119 |  29 |  39 |  51 |
| Central |  331 |  86 | 124 |  121 |
| Yunlin/Chiayi/Tainan |  283 |  78 | 104 |  101 |
| Kaohsiung/Pingtung |  371 | 110 | 145 |  116 |
| Yilan |  42 |  12 |  14 |  16 |
| Hualien/Taitung |  77 |  25 |  16 |  37 |
| Outer islands |  36 |  8 |  4 |  24 |

**(Ⅱ) Greenhouse gases**

In 2015, Taiwan's greenhouse gas emissions totaled 0.28 billion metric tons of CO2 equivalent, a decrease of 0.6% from 2014. Among these, the CO2 emissions still dominated with 0.27 billion metric tons, accounting for more than 95% of the total. In terms of emission sources of CO2, emissions from energy use (fuel combustion) were still predominant, with 0.25 billion metric tons, accounting for more than 94% of the total. In terms of Taiwan's CO2 emissions intensity, an average 17.3 metric tons of CO2 was emitted in 2015 when we created GDP (by Chained Dollars) for every million NTD, down 0.2 metric tons from 2014. However, the average CO2 emissions per capita was 11.6 metric tons, and it showed a tendency of decreases.

**Table 1.2.1.7 Greenhouse gas emissions**

 Unit: million M.T. of CO2 equivalent

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Total | CO2 | CH4 | N2O | HFCS | PFCS | SF6 | NF3 |
| 2011 | 290.3 | 274.4 | 6.6 | 4.8 | 1.0 | 1.4 | 1.8 | 0.4 |
| 2012 | 285.1 | 270.5 | 6.2 | 4.8 | 0.9 | 0.7 | 1.6 | 0.3 |
| 2013 | 286.3 | 271.5 | 5.9 | 4.6 | 1.0 | 0.9 | 1.7 | 0.7 |
| 2014 | 286.2 | 271.9 | 5.7 | 4.5 | 1.0 | 1.1 | 1.4 | 0.6 |
| 2015 | 284.6 | 271.0 | 5.4 | 4.5 | 1.0 | 0.9 | 1.1 | 0.6 |

Note: Data shown for greenhouse gas pollutant emissions is delayed one year.

**Table 1.2.1.8 CO2 emissions－by pollution sources**

 Unit: million M.T.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Total | Energy use by sectors (fuel combustion) | Industrial process and product use sector | Agricul-tural sector | Incine-ration of waste sector |
| Sub-total | Ener-gy | Indus-trial | Transpor-tation | Agricul-tural | Ser-vices | Resi-dential |
| 2011 | 274.4 | 255.3 | 163.5 | 46.8 | 35.3 | 0.9 | 4.0 | 4.8 | 18.8 | 0.1 | 0.1 |
| 2012 | 270.5 | 251.1 | 161.1 | 45.8 | 34.5 | 1.0 | 4.0 | 4.8 | 19.1 | 0.1 | 0.1 |
| 2013 | 271.5 | 252.0 | 160.3 | 47.4 | 34.5 | 1.0 | 4.2 | 4.6 | 19.3 | 0.0 | 0.2 |
| 2014 | 271.9 | 254.4 | 165.8 | 43.5 | 35.0 | 1.1 | 4.4 | 4.6 | 17.3 | 0.0 | 0.1 |
| 2015 | 271.0 | 253.9 | 164.7 | 43.2 | 35.8 | 1.1 | 4.5 | 4.7 | 17.0 | 0.0 | 0.1 |

 **Table 1.2.1.9 Emissions intensity & average emissions per capita of CO2**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | CO2 emissions (a)(103 M.T. of CO2 equivalent) | GDP(b)(Million NT$) | Number of mid-year population (c)(Thousand persons) | CO2 Emissions intensity(d) = (a) / (b)×1,000(M.T./ Million) | Average CO2 emissions per capita (e) = (a) / (c)(M.T.) |
| 2011 | 274,356 | 14,312,200 | 23,194 | 19.2 | 11.83 |
| 2012 | 270,480 | 14,607,569 | 23,270 | 18.5 | 11.62 |
| 2013 | 271,494 | 14,929,292 | 23,345 | 18.2 | 11.63 |
| 2014 | 271,899 | 15,529,606 | 23,404 | 17.5 | 11.62 |
| 2015 | 271,013 | 15,654,835 | 23,463 | 17.3 | 11.55 |

**Ⅲ. Quality accounts**

Under the influence of climate and topography, there is no necessarily a directly proportional relationship between the emissions and concentration of air pollutants. In 2016, the percentage of measurement station-days with PSI>100 unhealthful or hazardous accounted for 0.8% of the total. Within this, the share in Taiwan Island was also 0.8%, a slight up 0.2 percentage points from 2015.

In terms of the national air quality, the average concentration for TSP, PM**10**, PM**2.5**, SO2, NO2, and O3 in 2016 reached 47.0 μg/ｍ3, 42.9 μg/ｍ3, 20.0 μg/ｍ3, 3.0 ppb, 13.5 ppb and 28.0 ppb, respectively. All of these were declines from 2015. Besides, in terms of air quality of month, PM2.5 was affected by unfavorable factors such as northeast monsoon and shrouding so that it exceededthe national average concentration in January to April and November to December, 2016.

In terms of the Air Basin across Taiwan Island, in 2016, exceedingthe national average concentration, about TSP, they were the Hsinchu/Miaoli Air Basin, Yunlin/Chiayi/Tainan Air Basin, and Kaohsiung/Pingtung Air Basin. About PM**10** and PM**2.5**, they were the Central Air Basin, the Yunlin/Chiayi/Tainan Air Basin and the Kaohsiung/Pingtung Air Basin. About SO2, it was the Kaohsiung/Pingtung Air Basin. About NO2, they were the North Air Basin, the Central Air Basin and the Kaohsiung/Pingtung Air Basin. About O3, they were the Hsinchu/Miaoli Air Basin and the Kaohsiung/Pingtung Air Basin. For the outer islands, the Makung area saw their detected average concentration of TSP and O3 exceeding the national average. For the Kinmen area, with the exception of CO and NO2, the remaining pollutant levels were all higher than the national average. With regard to the Matsu area, pollutants whose concentration was higher than the national average included PM**2.5** and O3.

**Table 1.2.1.10 Air quality**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Percentage of measurement station-days with PSI>100 | TSP | PM10 | PM2.5 | SO2 | NO2 | O3 |
| (％) | (μg/ｍ3) | (μg/ｍ3) | (μg/ｍ3) | (ppb) | (ppb) | (ppb) |
| 2012 | 1.0 | 63.2 | 50.5 | … | 3.3 | 14.6 | 29.3  |
| 2013 | 1.5 | 63.3 | 53.1 | 24.0 | 3.4 | 14.3 | 30.0  |
| 2014 | 1.3 | 58.1 | 52.0 | 23.6 | 3.4 | 14.4 | 30.3  |
| 2015 | 0.6 | 52.7 | 47.1 | 22.0 | 3.1 | 13.6 | 29.6  |
| 2016 | 0.8 | 47.0 | 42.9 | 20.0 | 3.0 | 13.5 | 28.0  |
| Taiwan Island | 0.8 | 46.5 | 43.0 | 20.2 | 3.0 | 13.9 | 27.5  |
| North | 0.6 | 42.0 | 36.7 | 18.2 | 3.0 | 16.5 | 26.9  |
| Hsinchu/Miaoli | 0.3 | 50.2 | 39.0 | 19.6 | 2.5 | 11.9 | 29.0  |
| Central | 0.5 | 44.4 | 44.9 | 23.1 | 2.8 | 14.1 | 27.0  |
| Yunlin/Chiayi/Tainan | 0.7 | 48.7 | 52.5 | 26.7 | 2.9 | 12.1 | 27.9  |
| Kaohsiung/Pingtung | 1.7 | 57.4 | 51.2 | 20.6 | 3.9 | 13.9 | 28.4  |
| Yilan | － | 35.0 | 33.4 | 12.5 | 2.1 | 8.1 | 27.1  |
| Hualien/Taitung | 0.1 | 32.7 | 26.7 | 10.0 | 1.5 | 6.2 | 25.2  |
| Outer islands |  |  |  |  |  |  |  |
| Makung | － | 65.7 | 30.4 | 15.8 | 1.9 | 4.4 | 36.5  |
| Kinmen | 0.5 | 59.1 | 52.6 | 26.6 | 3.8 | 10.8 | 34.9  |
| Matsu | 0.3 | … | 41.7 | 22.0 | 2.7 | 5.9 | 42.0  |

**Figure 1.2.1.4 The average concentration for PM2.5, 2016**

**Ⅳ. Degradation accounts**

These mainly involve discussion of monetary values which the costs are needed to reduce the emissions of air pollutants to reach the air quality standards. Due to the varying reduction costs per unit for the different pollutants, as well as differences in the proportions by which they need to be reduced, there is no a directly proportional relationship between air pollution emissions and degradation. In 2016, the air quality degradation was valued at NTD 13.12 billion, up by 2.3% from 2015.

In terms of pollution sources, the degradation value for the Plane Source pollution was the highest at NTD 7.05 billion, accounting for 53.8% of the total degradation for air pollution. This was followed by Line Source pollution at NTD 3.16 billion, accounting for 24.1% of the total. The Point Source pollution came in at NTD 2.90 billion, accounting for 22.1% of the total. Compared with 2015, the Point Source and Plane Source increased respectively by 2.4% and 3.4%, but the Line Source declined by 0.2%. In terms of Air Basin, the North Air Basin had the highest rate at NTD 3.77 billion, accounting for 28.7% of the total; this was followed by the Kaohsiung/Pingtung Air Basin at NTD 2.88 billion, for a share of 21.9% of the total. The Central Air Basin and the Yunlin/Chiayi/Tainan Air Basin came in at NTD 2.78 billion and NTD 2.40 billion, accounting for 21.2% and 18.3% of the total, respectively.

**Table 1.2.1.11 Degradation value of air pollution, 2016**

Unit: million NT$

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Total | Point Source | Line Source | Plane Source |
| Total | 13,115 | 2,897 | 3,163 | 7,054 |
| North |  3,769 |  586 |  881 | 2,302 |
| Hsinchu/Miaoli |  979 |  295 |  191 |  494 |
| Central | 2,778 |  521 |  669 | 1,588 |
| Yunlin/Chiayi/Tainan | 2,403 |  592 |  571 | 1,240 |
| Kaohsiung/Pingtung | 2,876 |  809 |  798 | 1,269 |
| Yilan |  82 |  23 |  22 |  37 |
| Hualien/Taitung |  61 |  18 |  12 |  31 |
| Outer islands |  166 |  53 |  19 |  93 |

 **Figure 1.2.1.5 Degradation value of air pollution**



|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  **2012** | **2013** |  **2014** | **2015** | **2016** |
| Total | 14,959 | 14,681 | 13,630 | 12,820 | 13,115 |
| Point Source | 2,992 | 3,182 | 3,010 | 2,830 | 2,897 |
| Line Source | 4,026 | 3,925 | 3,495 | 3,170 | 3,163 |
| Plane Source | 7,941 | 7,573 | 7,125 | 6,820 | 7,054 |