Pioneer Group  Environmental Data  2017
### Targets, Plans and Performance

<table>
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<tr>
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<tbody>
<tr>
<td>Prevention of Global Warming</td>
<td>CO2 equivalent greenhouse gas emission</td>
<td>Japan: 9% reduction from FY2010 to FY2021 (gross emission)</td>
<td>1.072</td>
<td>1.059</td>
<td>1.084</td>
<td>1.071</td>
<td>1.071</td>
<td>Achieved 5% reduction</td>
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<tr>
<td>Prevention of Global Warming</td>
<td>CO2 equivalent greenhouse gas emission</td>
<td>Japan and overseas: 11% reduction from FY2010 to FY2021 (emissions per unit of sales amount)</td>
<td>1.032</td>
<td>1.012</td>
<td>1.038</td>
<td>1.025</td>
<td>1.025</td>
<td>Achieved 6% reduction</td>
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<tr>
<td>Conservation of Resources and Recycling</td>
<td>Exhaust of five GHG gases except CO2</td>
<td>Worldwide, maintaining FY2014 level</td>
<td>1.595</td>
<td>1.553</td>
<td>1.595</td>
<td>1.553</td>
<td>1.553</td>
<td>Achieved reduction 100% tonne CO2</td>
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<tr>
<td>Conservation of Resources and Recycling</td>
<td>Recycling rate for valued resources/waste material</td>
<td>Japan: 90%</td>
<td>95%</td>
<td>95%</td>
<td>95%</td>
<td>95%</td>
<td>Achieved</td>
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<tr>
<td>Conservation of Resources and Recycling</td>
<td>Recycling rate for valued resources/waste material</td>
<td>Japan: 90%</td>
<td>95%</td>
<td>95%</td>
<td>95%</td>
<td>95%</td>
<td>Achieved</td>
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<td>Conservation of Resources and Recycling</td>
<td>Management of the amount of office paper purchase</td>
<td>Worldwide, maintaining FY2014 level</td>
<td>1.950</td>
<td>1.900</td>
<td>1.950</td>
<td>1.900</td>
<td>1.900</td>
<td>Achieved</td>
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<tr>
<td>Management of chemical substances</td>
<td>Management of emissions of PRTR chemical substances VOCs</td>
<td>Worldwide, maintaining FY2014 level</td>
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<td>120</td>
<td>120</td>
<td>120</td>
<td>Achieved</td>
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### Input and output

#### Input

<table>
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<tr>
<th>Resources</th>
<th>Unit</th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
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<tbody>
<tr>
<td>Total energy</td>
<td>10,000 tonnes</td>
<td>1.97</td>
<td>1.97</td>
<td>1.97</td>
<td>1.97</td>
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<tr>
<td>Water consumed</td>
<td>10,000 m³</td>
<td>188</td>
<td>186</td>
<td>186</td>
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<tr>
<td>Substances</td>
<td>tonnes</td>
<td>186</td>
<td>184</td>
<td>184</td>
<td>184</td>
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<tr>
<td>Waste generated</td>
<td>10,000 sheets</td>
<td>2,860</td>
<td>2,860</td>
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#### Output

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<tr>
<th>Environmental impact emitted as a result of business activities</th>
<th>Unit</th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
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</thead>
<tbody>
<tr>
<td>Greenhouse gases discharged</td>
<td>10,000 tonnes CO2</td>
<td>11.4</td>
<td>10.3</td>
<td>10.6</td>
<td>9</td>
<td>8.6</td>
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<tr>
<td>Waste generated</td>
<td>10,000 tonnes</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
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<td>Amount received</td>
<td>10,000 tonnes</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
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<tr>
<td>Waste water</td>
<td>10,000 tonnes m³</td>
<td>136</td>
<td>136</td>
<td>136</td>
<td>136</td>
<td>136</td>
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<tr>
<td>Substances</td>
<td>tonnes</td>
<td>186</td>
<td>184</td>
<td>184</td>
<td>184</td>
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<tr>
<td>SOx</td>
<td>tonnes</td>
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<td>0.28</td>
<td>0.28</td>
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<tr>
<td>NOx</td>
<td>tonnes</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>CO2 (in Japan)</td>
<td>1,000 tonnes</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
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</table>

**Notes:**
- FY2017: 95% reduction from FY2016 result
- FY2016: 95% reduction from FY2015 result
- FY2015: 95% reduction from FY2014 result
- FY2014: 95% reduction from FY2013 result
- FY2013: 95% reduction from FY2012 result

---

1. By regulation of Zero emission of waste (Pioneer’s definition), it judges for every plant.
2. The target material is 20 kinds for JEITA’s independence reduction activity.
### Environmental Costs

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
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</thead>
<tbody>
<tr>
<td>Plants</td>
<td>Anti-pollution costs</td>
<td>5</td>
<td>104</td>
<td>3</td>
<td>98</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Wastewater treatment and management, water quality analysis, etc.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>Sediment control/preservation</td>
<td>2</td>
<td>65</td>
<td>3</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Energy saving related</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waste disposal and recycling costs</td>
<td>18</td>
<td>61</td>
<td>0</td>
<td>62</td>
<td>0</td>
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<tr>
<td>Upstream and downstream costs</td>
<td>Cost of reducing environmental impacts, generated upstream or downstream in production and services activities</td>
<td>17</td>
<td>23</td>
<td>4</td>
<td>17</td>
<td>0</td>
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<tr>
<td></td>
<td>Difference from environmental-friendly products/elimination of styrene foam</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Environmental remediation costs in R&amp;D activities</td>
<td>60</td>
<td>597</td>
<td>54</td>
<td>540</td>
<td>31</td>
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<td></td>
<td>Cost of developing technologies including environmental factors</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Social activities</td>
<td>0</td>
<td>13</td>
<td>0</td>
<td>8</td>
<td>0</td>
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<tr>
<td></td>
<td>Voluntary environmental preservation activities/education and training activities</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Environmental remediation costs in social activities</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Environmental remediation cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cost to restore, cover degradation suits or insurance fees.</td>
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<td></td>
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<tr>
<td></td>
<td>Total</td>
<td>1,944</td>
<td>1,070</td>
<td>55</td>
<td>909</td>
<td>33</td>
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</table>

### Economic Benefits

<table>
<thead>
<tr>
<th>Category</th>
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<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
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</thead>
<tbody>
<tr>
<td>1. Saving due to environmental preservation</td>
<td>Power reduction by purchase of energy saving equipment, upgrading, etc.</td>
<td>18</td>
<td>16</td>
<td>10</td>
<td>48</td>
<td>49</td>
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<tr>
<td>2. Savings due to resource recycling</td>
<td>Reduction of waste disposal costs</td>
<td>84</td>
<td>37</td>
<td>21</td>
<td>18</td>
<td>24</td>
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<td></td>
<td>Profits from sales of valuable resources</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>Environmental remediation</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Reduction in component unit price, reduction in distribution cost, green purchasing effect</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1,944</td>
<td>1,070</td>
<td>55</td>
<td>909</td>
<td>33</td>
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### Environmental Conservation Benefit

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global warming</td>
<td>Reduction in greenhouse gases</td>
<td>10 tonnes CO2</td>
<td>110</td>
<td>100</td>
<td>100</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Reduction in energy consumption</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Reduction in waste discharge</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
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<tr>
<td></td>
<td>Reduction in usage of water</td>
<td>100 m³</td>
<td>1,830</td>
<td>1,720</td>
<td>1,720</td>
<td>1,987</td>
</tr>
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</table>
# Global Warming Prevention Activities

## Greenhouse gases emissions

<table>
<thead>
<tr>
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<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
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</thead>
<tbody>
<tr>
<td><strong>Japan</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scope 1</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Scope 2</td>
<td>30</td>
<td>32</td>
<td>30</td>
<td>32</td>
<td>34</td>
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<tr>
<td>Scope 3</td>
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<td>5</td>
<td>5</td>
<td>6</td>
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<tr>
<td>PFC, HFC, etc.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>total</td>
<td>41</td>
<td>40</td>
<td>42</td>
<td>40</td>
<td>40</td>
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<tr>
<td><strong>Overseas</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scope 1</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<td>Scope 2</td>
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<td>Scope 3</td>
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<td>1</td>
<td>1</td>
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<tr>
<td>PFC, HFC, etc.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>total</td>
<td>35</td>
<td>32</td>
<td>36</td>
<td>33</td>
<td>34</td>
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## Energy consumption (TJ)

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<tr>
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<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
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<tbody>
<tr>
<td><strong>Japan</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>695</td>
<td>664</td>
<td>659</td>
<td>674</td>
<td>642</td>
</tr>
<tr>
<td>Fuel</td>
<td>45</td>
<td>39</td>
<td>37</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>Gas</td>
<td>48</td>
<td>44</td>
<td>45</td>
<td>44</td>
<td>48</td>
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<tr>
<td>total</td>
<td>788</td>
<td>757</td>
<td>748</td>
<td>726</td>
<td>719</td>
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<tr>
<td>Electricity</td>
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<td>580</td>
<td>628</td>
<td>627</td>
<td>638</td>
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<tr>
<td>Fuel</td>
<td>37</td>
<td>36</td>
<td>33</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>Gas</td>
<td>29</td>
<td>37</td>
<td>19</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>total</td>
<td>920</td>
<td>853</td>
<td>880</td>
<td>865</td>
<td>871</td>
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## Reduction of Non-Energy-Derived Greenhouse Gases

<table>
<thead>
<tr>
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<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
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</thead>
<tbody>
<tr>
<td><strong>Japan</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenhouse</td>
<td>1.5</td>
<td>1.3</td>
<td>1.1</td>
<td>1.0</td>
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* This data includes CO2, CH4, CO, PFC, N2O, SF6, HFE, NF3.

## Energy Saving in Distribution (Modal shift)

### Transition of CO2 emissions by domestic product

<table>
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<tr>
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<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
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<tbody>
<tr>
<td><strong>Japan</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tonne-CO2/million JPY</td>
<td>7.95</td>
<td>6.54</td>
<td>5.36</td>
<td>4.43</td>
<td>3.16</td>
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<tr>
<td>tonne-CO2</td>
<td>3.462</td>
<td>3.002</td>
<td>2.637</td>
<td>2.299</td>
<td>1.949</td>
</tr>
<tr>
<td><strong>Overseas</strong></td>
<td></td>
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<td></td>
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</table>

### CO2 reduction by modal shift

<table>
<thead>
<tr>
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<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Japan</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tonne-CO2</td>
<td>3.462</td>
<td>3.002</td>
<td>2.637</td>
<td>2.299</td>
<td>1.949</td>
</tr>
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</table>

## Green Purchasing Activities

### Green Purchasing Activities

<table>
<thead>
<tr>
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<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Japan</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>98.5%</td>
<td>99.6%</td>
<td>98.6%</td>
<td>96.2%</td>
<td>99.1%</td>
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</table>

## Switching to eco-friendly vehicles

### Vehicles

<table>
<thead>
<tr>
<th>Category</th>
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<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Japan</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ultra Low-Emission (Hybrid)</td>
<td>59</td>
<td>65</td>
<td>81</td>
<td>80</td>
<td>90</td>
</tr>
<tr>
<td>Ultra Low-Emission (Other)</td>
<td>219</td>
<td>217</td>
<td>186</td>
<td>181</td>
<td>261</td>
</tr>
<tr>
<td>Low-Emission</td>
<td>17</td>
<td>17</td>
<td>18</td>
<td>16</td>
<td>16</td>
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<td>Ordinary</td>
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<td>88</td>
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<td>86</td>
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<tr>
<td>total</td>
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<td>417</td>
<td>420</td>
<td>398</td>
<td>424</td>
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## Transition of office paper purchases

<table>
<thead>
<tr>
<th>Category</th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Japan</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>million sheet</td>
<td>105</td>
<td>114</td>
<td>122</td>
<td>104</td>
<td>109</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>million sheet</td>
<td>17.8</td>
<td>14.8</td>
<td>11.2</td>
<td>10.3</td>
<td>8.9</td>
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</table>
## Reduction in Waste and Valuables

### Transition of generation amounts of waste and valuables (tonnes)

<table>
<thead>
<tr>
<th></th>
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<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
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</thead>
<tbody>
<tr>
<td><strong>Japan</strong></td>
<td>1,464</td>
<td>1,734</td>
<td>1,703</td>
<td>2,135</td>
<td>1,812</td>
</tr>
<tr>
<td><strong>Overseas</strong></td>
<td>12,691</td>
<td>12,155</td>
<td>11,687</td>
<td>10,462</td>
<td>9,543</td>
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</table>

### Transition of recycling rate

<table>
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<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Japan</strong></td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>99.9%</td>
<td>99.8%</td>
</tr>
<tr>
<td><strong>Overseas</strong></td>
<td>100.0%</td>
<td>99.9%</td>
<td>99.5%</td>
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</table>

### Breakdown of waste and valuables

<table>
<thead>
<tr>
<th></th>
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<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Japan</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sludge</td>
<td>5.00%</td>
<td>3.70%</td>
<td>6.17%</td>
<td>3.61%</td>
<td>4.77%</td>
</tr>
<tr>
<td>Waste oil</td>
<td>3.30%</td>
<td>2.40%</td>
<td>4.98%</td>
<td>2.07%</td>
<td>3.09%</td>
</tr>
<tr>
<td>Waste acids</td>
<td>-</td>
<td>-</td>
<td>0.02%</td>
<td>0.15%</td>
<td>0.04%</td>
</tr>
<tr>
<td>Waste alkali</td>
<td>0.40%</td>
<td>0.10%</td>
<td>0.03%</td>
<td>0.01%</td>
<td>0.03%</td>
</tr>
<tr>
<td>Waste Plastics and rubber</td>
<td>22.70%</td>
<td>22.80%</td>
<td>24.04%</td>
<td>22.04%</td>
<td>26.50%</td>
</tr>
<tr>
<td>Waste paper</td>
<td>33.30%</td>
<td>38.70%</td>
<td>31.87%</td>
<td>30.71%</td>
<td>41.02%</td>
</tr>
<tr>
<td>Wood waste</td>
<td>2.50%</td>
<td>2.20%</td>
<td>2.61%</td>
<td>3.00%</td>
<td>3.08%</td>
</tr>
<tr>
<td>Waste textile</td>
<td>-</td>
<td>0.02%</td>
<td>0.02%</td>
<td>0.01%</td>
<td>-</td>
</tr>
<tr>
<td>Gabage</td>
<td>3.90%</td>
<td>4.80%</td>
<td>2.90%</td>
<td>2.70%</td>
<td>2.30%</td>
</tr>
<tr>
<td>Waste metals</td>
<td>18.30%</td>
<td>23.20%</td>
<td>20.37%</td>
<td>18.59%</td>
<td>18.72%</td>
</tr>
<tr>
<td>Glass and pottery waste</td>
<td>11.00%</td>
<td>12.20%</td>
<td>10.77%</td>
<td>9.93%</td>
<td>9.48%</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overseas</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste paper</td>
<td>-</td>
<td>31.8%</td>
<td>27.3%</td>
<td>26.5%</td>
<td>26.9%</td>
</tr>
<tr>
<td>Waste metals</td>
<td>-</td>
<td>10.0%</td>
<td>10.0%</td>
<td>10.7%</td>
<td>11.1%</td>
</tr>
<tr>
<td>Gabage</td>
<td>-</td>
<td>1.6%</td>
<td>2.3%</td>
<td>2.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Wood waste</td>
<td>-</td>
<td>0.8%</td>
<td>0.8%</td>
<td>0.8%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Waste Plastics and rubber</td>
<td>4.5%</td>
<td>4.5%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Waste acids and alkali</td>
<td>-</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Waste oil</td>
<td>-</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Glass and pottery waste</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>General waste from dormitories</td>
<td>10.0%</td>
<td>12.8%</td>
<td>9.8%</td>
<td>10.8%</td>
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</tbody>
</table>
### Management of Chemical Substances

#### Trends in VOC emissions

<table>
<thead>
<tr>
<th></th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>15</td>
<td>13</td>
<td>19</td>
<td>48</td>
<td>36</td>
</tr>
<tr>
<td>Overseas</td>
<td>112</td>
<td>98</td>
<td>96</td>
<td>96</td>
<td>96</td>
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</tbody>
</table>

#### Trends in PRTR chemical substances handling and emissions

<table>
<thead>
<tr>
<th></th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume handled</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume emitted</td>
<td>0.02</td>
<td>0.02</td>
<td>1</td>
<td>3.3</td>
<td></td>
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#### Handling, transfer and emissions of PRTR chemical substances

<table>
<thead>
<tr>
<th>Substance</th>
<th>Volume handled</th>
<th>Volume emitted into atmosphere</th>
<th>Volume emitted into water</th>
<th>Volume emitted to soil</th>
<th>Volume transferred as waste</th>
<th>Volume transferred to sewers</th>
<th>Transferred in the products</th>
<th>Volume removed or disposed</th>
<th>Volume recycled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl napthalene&lt;sup&gt;※&lt;/sup&gt;</td>
<td>12</td>
<td>0.1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hydrogen fluoride and its salt</td>
<td>3.1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Toluene</td>
<td>24</td>
<td>0.1</td>
<td>0</td>
<td>0</td>
<td>2.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1.4-xylene dimethyl benzene</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Xylene</td>
<td>7.5</td>
<td>0.06</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2-ethoxyethyl acetate&lt;sup&gt;※&lt;/sup&gt;</td>
<td>2.4</td>
<td>0.3</td>
<td>0</td>
<td>0</td>
<td>2.1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>23.9</td>
<td>0.87</td>
<td>0</td>
<td>0</td>
<td>23</td>
<td>0</td>
<td>17.8</td>
<td>0</td>
<td>0</td>
</tr>
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</table>

#### Trends in SOx, NOx and Smoke Dust emissions

<table>
<thead>
<tr>
<th>Category</th>
<th>FY2013</th>
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<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>NOx</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>SOx</td>
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<td>10</td>
<td>10</td>
<td>10</td>
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<tr>
<td>Dust</td>
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</tr>
<tr>
<td>NOx</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>SOx</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
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</tbody>
</table>

### Notes
- Methyl napthalene is included in the distilled fuel for power generation.
- This table is the result of the aggregate quantity that one substance handled by one plant exceeds one tonne in Japan.
- 2-ethoxyethyl acetate as like Ethylene glycol monoethyl ether acetate.

<sup>※</sup>Methyl napthalene is included in the distilled fuel for power generation.
<sup>※</sup>2-ethoxyethyl acetate as like Ethylene glycol monoethyl ether acetate.
### Reduction of Water Usage and Discharged Water Amounts

#### Water usage (1000m³)

<table>
<thead>
<tr>
<th></th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Water</td>
<td>60</td>
<td>64</td>
<td>64</td>
<td>66</td>
<td>70</td>
</tr>
<tr>
<td>Underground Water</td>
<td>393</td>
<td>357</td>
<td>376</td>
<td>423</td>
<td>422</td>
</tr>
<tr>
<td>Public Water Supply</td>
<td>113</td>
<td>107</td>
<td>99</td>
<td>93</td>
<td>78</td>
</tr>
<tr>
<td>Overseas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Water</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Underground Water</td>
<td>27</td>
<td>25</td>
<td>26</td>
<td>28</td>
<td>37</td>
</tr>
<tr>
<td>Public Water Supply</td>
<td>1,223</td>
<td>1,164</td>
<td>1,151</td>
<td>1,050</td>
<td>901</td>
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</table>

#### Discharged water (1000m³)

<table>
<thead>
<tr>
<th></th>
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<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
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</thead>
<tbody>
<tr>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Water</td>
<td>186</td>
<td>212</td>
<td>226</td>
<td>288</td>
<td>288</td>
</tr>
<tr>
<td>Sewer</td>
<td>315</td>
<td>292</td>
<td>285</td>
<td>281</td>
<td>267</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Overseas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Water</td>
<td>134</td>
<td>81</td>
<td>73</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>Sewer</td>
<td>895</td>
<td>806</td>
<td>795</td>
<td>823</td>
<td>831</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>28</td>
<td>22</td>
<td>0</td>
<td>0</td>
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</table>

### Number of Environment-related Qualification

The Pioneer Group has secured staff numbers exceeding the legally required number of qualified persons in Japan.

<table>
<thead>
<tr>
<th>National qualification</th>
<th>Foreign qualification</th>
<th>Legally required number</th>
<th>Number of Holders</th>
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<tr>
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<td>FY2014</td>
</tr>
<tr>
<td>Pollution-related</td>
<td>Pollution Control Manager</td>
<td>4</td>
<td>10</td>
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<tr>
<td></td>
<td>Qualified Person for Energy Management</td>
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<td>10</td>
</tr>
<tr>
<td></td>
<td>Energy Manager and Energy Management</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Waste</td>
<td>11</td>
<td>42</td>
</tr>
<tr>
<td>Handling of hazardous materials</td>
<td>Hazardous Materials Offers</td>
<td>12</td>
<td>204</td>
</tr>
<tr>
<td></td>
<td>Specified High Pressure Gas Handling Supervisor</td>
<td>2</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>High Pressure Gas Handling Supervisor</td>
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<td>3</td>
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<tr>
<td></td>
<td>Environmental Management</td>
<td>24</td>
<td>372</td>
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<tr>
<td>Toxic Substance Handling Officer</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Environmental Auditor(Overseas)</td>
<td>83</td>
<td>75</td>
<td>68</td>
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</table>
## Environmental Impact

<table>
<thead>
<tr>
<th>Site name</th>
<th>District</th>
<th>Energy consumption (GJ)</th>
<th>Waste (tonnes)</th>
<th>Chemical substances* emissions (tonnes)</th>
<th>Waste use (10^3 m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2017</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pioneer Corporation Headquarters</td>
<td>Kanagawa pref.</td>
<td>30,059</td>
<td>2</td>
<td>0.6</td>
<td>41.6</td>
</tr>
<tr>
<td>Pioneer Corporation Kawasaki plant</td>
<td>Saitama pref.</td>
<td>177,447</td>
<td>889</td>
<td>0.5</td>
<td>419</td>
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<tr>
<td>Pioneer F&amp;A corporation</td>
<td>Saitama pref.</td>
<td>4,907</td>
<td>8</td>
<td>0.1</td>
<td>6.8</td>
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<tr>
<td>Pioneer Metallic Corporation</td>
<td>Saitama pref.</td>
<td>16,792</td>
<td>7</td>
<td>0.1</td>
<td>13.6</td>
</tr>
<tr>
<td>Tohoku Pioneer Corporation</td>
<td>Yamagata pref.</td>
<td>219,987</td>
<td>110</td>
<td>0.6</td>
<td>36.1</td>
</tr>
<tr>
<td>Tohoku Pioneer Corporation</td>
<td>Yamagata pref.</td>
<td>26,471</td>
<td>187</td>
<td>0.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Tohoku Pioneer Corporation</td>
<td>Yamagata pref.</td>
<td>26,471</td>
<td>187</td>
<td>0.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Pioneer Micro Technology Corporation</td>
<td>Yamanashi pref.</td>
<td>280,045</td>
<td>113</td>
<td>0.5</td>
<td>407</td>
</tr>
<tr>
<td>Pioneer Automotive Technologies, Inc. (PAI)</td>
<td>USA</td>
<td>207,064</td>
<td>1,482</td>
<td>3.5</td>
<td>37.2</td>
</tr>
<tr>
<td>Pioneer do Brasil Ltda. (PBL)</td>
<td>Brazil</td>
<td>32,918</td>
<td>57</td>
<td>0.4</td>
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</tr>
<tr>
<td>Pioneer Corp. (Malaysia) Bhd. (CMPT)</td>
<td>Malaysia</td>
<td>31,703</td>
<td>22</td>
<td>0.2</td>
<td>12.6</td>
</tr>
<tr>
<td>Pioneer Manufacturing (Thailand) Co. Ltd (PMTH)</td>
<td>Thailand</td>
<td>197,357</td>
<td>732</td>
<td>0.5</td>
<td>185.5</td>
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<td>Pioneer Manufacturing (Thailand) Co. Ltd (PTP)</td>
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<td>24,945</td>
<td>2,055</td>
<td>0.2</td>
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<td>Yung Industries (Vietnam) Co., Ltd. (YHV)</td>
<td>Vietnam</td>
<td>21,701</td>
<td>918</td>
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<td>30.3</td>
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<tr>
<td>Shanghai Pioneer Speakers Co., Ltd. (SPS)</td>
<td>China</td>
<td>32,380</td>
<td>718</td>
<td>0.2</td>
<td>26.2</td>
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<tr>
<td>Pioneer Technology Shanghai Ltd. (PSH)</td>
<td>China</td>
<td>119,783</td>
<td>225</td>
<td>0.1</td>
<td>35.4</td>
</tr>
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<td>Pioneer Technology (Dongguan) Co., Ltd (PTD)</td>
<td>China</td>
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<tr>
<td>Dongguan Monatsh Electronic Co., Ltd (MND)</td>
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<td>72,337</td>
<td>337</td>
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<td>38.5</td>
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* PRTR substances and VOC (20 substances of VOC electrical and electronic industry-defined)*

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※1 Pioneer headquarters relocated to an office building. There is no use of water at the exclusive possession part.
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<th>District</th>
<th>Energy consumption (GJ)</th>
<th>Waste (tonnes)</th>
<th>Chemical substances* emissions (tonnes)</th>
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* PRTR substances and VOC (20 substances of VOC electrical and electronic industry-defined)
Scope of Data

Period covered

The period covered by the data is FY2013 (April 2013–March 2014) – FY2017 (April 2016–March 2017), but whenever possible, the latest events have been included even if outside this period. Expansion of the range of the data and scrutiny of the figures has caused some changes from the figures released last year. There may be some discrepancies between subtotals and totals due to rounding off.

Organization covered

The scope of this data is as follows. (Site name is as of March in 2017.) Activities other than the following are also reported.

**Japan**
- Pioneer Corporation
- Headquarters
- Kawagoe Plant
- Tohoku Pioneer Corporation
- Headquarters
- Yonezawa Plant
- Mogami Denki Corporation
- Tohoku Pioneer EG Corporation
- Pioneer Micro Technology Corporation

**THE AMERICAS**

**U.S.A.**
- Pioneer North America, Inc. (PNA)
- Pioneer Automotive Technologies, Inc. (PAT)

**BRAZIL**
- Pioneer do Brasil Ltda. (PBL)

**EUROPE**

**BELGIUM**
- Pioneer Europe NV (PEE)

**ASIA & OCEANIA**

**SINGAPORE**
- Pioneer Electronics Asiacentre Pte. Ltd. (PAC)

**MALAYSIA**
- Pioneer Technology (Malaysia) Sdn. Bhd. (MPT)

**THAILAND**
- Pioneer Manufacturing (Thailand) Co., Ltd. (PTM)
- Tohoku Pioneer (Thailand) Co., Ltd. (TPT)

**VIETNAM**
- Tohoku Pioneer (Vietnam) Co., Ltd. (TPV)

**AUSTRALIA**
- Pioneer Electronics Australia Pty. Ltd. (PTY)