3. Initiatives contributing to the realization of a recycling-orientated society

• Promotion of proactive 3R efforts aimed at zero emission
• Promoting safe, reliable, and complete disposal of PCB wastes
• Promoting green procurement
Initiatives contributing to the realization of a recycling-oriented society

Based on the Kansai Electric Power Group Environmental Action Plan, we are undertaking 3R (reduction, reuse and recycling) efforts toward the achievement of zero emissions of general waste generated from our business activities. In addition, for office trash, including copy paper, and other ordinary waste, we are undertaking 3R efforts with an emphasis on “sorting” at all our business places, and we are working to reduce and recycle general waste.

Other efforts that we are making include advancing the safe, reliable and complete disposal of all PCB wastes that we have according to their characteristics, promoting green procurement, and using limited water resources appropriately.
Promotion of proactive 3R efforts aimed at zero emission

The principal types of industrial waste generated by Kansai Electric Power include coal ash from coal-fired thermal power plants and concrete pole fragments remaining from power grid construction. We have targeted an industrial waste recycling rate of at least 99.5% with the goal of achieving zero emissions.

We achieved a 99.9% recycling rate in fiscal 2017, which marks the eighth consecutive year that we have reached our target. We are also working to reduce and recycle general waste, such as printer paper, produced by our offices.

**industrial wastes**

○ Changes in emissions and recycling rates for industrial wastes

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**Note:** Industrial waste recycling rate (%) = (industrial waste emissions - landfill disposal amount) / industrial waste emissions × 100
3. Initiatives contributing to the realization of a recycling-oriented society

Promotion of proactive 3R efforts aimed at zero emission

○ Main applications of recycled industrial waste, etc.

<table>
<thead>
<tr>
<th>Type of industrial waste</th>
<th>Recycling rate</th>
<th>Main recycling applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal scraps</td>
<td>99.4%</td>
<td>Metal recovery</td>
</tr>
<tr>
<td>Demolition debris (Waste concrete utility poles, etc.)</td>
<td>99.8%</td>
<td>Roadbed materials</td>
</tr>
<tr>
<td>Soot (Coal ash, heavy oil ash, etc.)</td>
<td>100%</td>
<td>Cement raw materials</td>
</tr>
<tr>
<td>Sludge (Desulfogypsum, wastewater processing sludge, etc.)</td>
<td>99.9%</td>
<td>Construction materials</td>
</tr>
<tr>
<td>Cinders (Coal ash, heavy oil ash, etc.)</td>
<td>100%</td>
<td>Rare metal recovery</td>
</tr>
<tr>
<td>Waste oil</td>
<td>100%</td>
<td>Fuel</td>
</tr>
</tbody>
</table>

○ Recycling scrap insulators

Conventionally, scrap insulators have been limited to use as a roadbed material after crushing because of the sharp edges that remain. However, Kanden L&A Co., Ltd., developed a grinder that eliminates such sharp edges, and crushed insulators can now be used as landscaping stone for residential use. As a result, the Kansai Electric Power Company is maintaining a high recycling rate for insulator waste.

At the fiscal 2015 Awards for Resource-Recycling Technologies and Systems, Kanden L & A Co., Ltd. and Kansai Electric Power received a Ministry of Economy, Trade and Industry Technology Environmental Director General Award.
Promotion of proactive 3R efforts aimed at zero emission

○ Recycling of coal ash
We are recycling all the coal ash emitted by the Maizuru Power Station as raw material for cement and roadbed material, for example. The minute spherical particles found in coal ash are called “fly ash” when in their modified form and, when mixed with concrete, add strength. Fly ash is used as concrete admixture for engineering and construction projects for bridges and the like. Kanden Power-Tech Corporation is promoting sales of this material.
Promotion of proactive 3R efforts aimed at zero emission

■ General waste

We are promoting 3R efforts (waste reduction, reuse and recycling) of general waste with "sorting" as the foundation.

For example, at our head office, in order to promote efficient sorting, we do not keep personal trash cans. Instead, each work area is furnished with a “sorting collector”, “collection box for non-burnables and other waste”.

○ Reuse of stationery and other goods

In cooperation with Kanden L-Heart Co., Inc., which is one of our affiliate companies, we are undertaking the collection of stationery products that are no longer needed. We are endeavoring to reduce the amount of ordinary waste by having the staff of Kanden L-Heart collect such stationery products and make them usable again.
3. Initiatives contributing to the realization of a recycling-oriented society

Promoting safe, reliable, and complete disposal of PCB wastes

PCB* materials have characteristics that include insulation and non-flammability, and they are chemically stable. For these reasons, their production began in Japan in 1954 and they were used in a wide range of applications, including electrical equipment such as transformers and capacitors. However, PCB manufacture was terminated due to their toxicity becoming a problem for society. The Law Concerning Special Measures Against PCB Waste also requires businesses with equipment and other items that use PCBs to store them suitably and dispose of them by the end of March 2027.

Kansai Electric Power complies strictly with the Law Concerning Special Measures Against PCB* Waste and related laws, and promotes safe, reliable disposal based on the special characteristics of the PCB waste involved. Kansai Electric Power uses a range of methods for dealing with the disposal of electrical equipment containing minute amounts of PCBs. We established the Recycling Center for Utility Pole Transformers to render insulating oil and transformer cases harmless and suitable for recycling. At the end of July 2015, we completed processing of stored insulating oil and transformer cases. For other equipment, we are promoting effective processing using technologies from our Group companies.

In keeping with government plans, we have commissioned Japan Environmental Storage & Safety Corporation (JESCO) to process waste containing high concentrations of PCB insulating oil.

※ PCB: Initialism for polychlorinated biphenyl. It is a strong electrical insulator and has been used as an insulating oil in electrical transformers. Because it has an adverse environmental impact, its production and use have been prohibited in principle.
Promoting safe, reliable, and complete disposal of PCB wastes

Initiatives of our group companies（The Kanden L & A Co., Ltd.）

Received the first permit in Japan from the Minister of the Environment for disposal treatment of low-concentration PCBs in discarded electrical equipment by using mobile solvent-based cleaning equipment

Kanden Engineering Corporation received the first permit in Japan from the Minister of the Environment in May 2014 for disposal treatment of low-concentration PCBs in discarded electrical equipment by using mobile solvent-based cleaning equipment. It has been conducting safe and economical decontamination treatments that do not require moving or dismantling contaminated equipment. In the future, our corporate group will continue contributing to the realization of a recycling-oriented society.
Promoting green procurement

In order to advance efforts for the realization of a recycling-oriented society, we have prepared a Kansai Electric Power Group Green Procurement Manual.

Our fundamental approach to green procurement

(1) We recognize that all procured goods, building equipment and methods used in construction have some kind of impacts on the environment; therefore, we purchase and use office supplies, materials, building equipment and methods that consider environmental impact reduction as much as possible.

(2) Before purchasing a good we “rethink” whether that good is really necessary and investigate whether it is possible to “reduce” the quantity we purchase. Furthermore, we strive to use purchased goods for long periods, and we seek to “reuse” goods that become unneeded in different places as well as “recycle” and “repair” them.