

Measures against global warming at KEK.  
And tried to save energy

March 2017 The High Energy Accelerator Research Organization

Environment · Global Warming · Energy Conservation Committee

## Action Plan for Five Years (2013 to 2017) against Global Warming Countermeasures

Item	Action plan
CO2 emissions reduction target	Establish numerical targets to reduce CO2 emissions associated with energy use such as electric power. (Excluding accelerator and experimental equipment)
Promotion of energy saving measures	<ul style="list-style-type: none"> <li>· Organize to promote energy conservation measures</li> <li>· Establish an annual plan (Check it at the end)</li> <li>· Encourage staff to use public transportation and bicycles for commuting.</li> </ul>
Publish information on energy saving measures	<ul style="list-style-type: none"> <li>· Notify annual plan of energy saving measures</li> <li>· Report the amount of electricity and water usage etc at various meetings</li> <li>· Publish annual CO2 emissions</li> </ul>
Advance energy conservation of laboratory equipment.and to make effective use of resources	<ul style="list-style-type: none"> <li>· Advance the efficiency of experimental equipment</li> <li>· Promote recycling (effective use) of laboratory materials and equipment.</li> </ul>
Considering the environment in procuring and using goods and services	<ul style="list-style-type: none"> <li>· Introducing environmentally friendly cars</li> <li>· Use cars efficiently.</li> <li>· Introduction of equipment with high energy consumption efficiency</li> <li>· Promote the purchase / use of products not using hydrofluorocarbon (HFC)</li> <li>· Reduction of paper consumption</li> <li>· Utilize recycled paper and other recycled items</li> </ul>
Considering the environment when building and managing buildings	<ul style="list-style-type: none"> <li>· Choose building materials with less greenhouse gas emissions</li> <li>· Introduce air conditioners with less greenhouse gas emissions</li> <li>· Proper temperature control by air conditioner</li> <li>· Consider introducing new energy such as photovoltaic power generation</li> <li>· Try to save water</li> <li>· Install measuring instruments and visualize usage</li> <li>· Think about construction method with less greenhouse gas emissions</li> </ul>
Other environmental considerations	<ul style="list-style-type: none"> <li>· Plan for energy saving measures</li> <li>· Promote recycling</li> <li>· Recycle scrap and make effective use of resources</li> <li>· Promote weight loss of waste</li> </ul>
Employee training	<ul style="list-style-type: none"> <li>· Provide staff with training opportunities and provide information</li> <li>· Urge employees to participate in measures against global warming.</li> </ul>

Action target for global warming countermeasure and energy conservation measures in 2017

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( 1 ) Reduction of CO2 emissions	<p>◇The CO2 emission upper limit target for 2017: 3,385 (t).</p> <p>※Based on the revision of the Paris Agreement and the Law Concerning the Promotion of Measures to Cope with Global Warming, in 2017 KEK plans to review the "plan for measures against global warming". For this reason, the KEK will set the emission target for 2012 as the upper limit target next year as before.</p> <p><b>【Breakdown】</b></p> <table data-bbox="563 622 1157 795"> <tr> <td><u>Electricity consumption for</u></td> <td>3,052 (t)</td> </tr> <tr> <td><u>Gas consumption for</u></td> <td>248 (t)</td> </tr> <tr> <td><u>Gasoline fuel usage:</u></td> <td>79 (t)</td> </tr> <tr> <td><u>Diesel fuel usage:</u></td> <td>6 (t)</td> </tr> </table> <p>◇CO2 emissions from laboratory facilities are expected to increase from last year, but consider operating plan, And aim for reduction.</p> <p>◇KEK aims to make CO2 emissions from ordinary buildings less than 2012 emissions.</p> <p><b>【Breakdown】</b></p> <table data-bbox="563 1030 1173 1227"> <tr> <td><u>Lights off during lunch break:</u></td> <td>10ton-CO2</td> </tr> <tr> <td><u>Set the air conditioner proper temperature setting:</u></td> <td>12ton-CO2</td> </tr> <tr> <td><u>Maintenance management such as air conditioner filter cleaning:</u></td> <td>4ton-CO2</td> </tr> </table>	<u>Electricity consumption for</u>	3,052 (t)	<u>Gas consumption for</u>	248 (t)	<u>Gasoline fuel usage:</u>	79 (t)	<u>Diesel fuel usage:</u>	6 (t)	<u>Lights off during lunch break:</u>	10ton-CO2	<u>Set the air conditioner proper temperature setting:</u>	12ton-CO2	<u>Maintenance management such as air conditioner filter cleaning:</u>	4ton-CO2
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( 2 ) Promotion of energy saving measures	<ol style="list-style-type: none"> <li>1 ) Verify at the end of the annual plan and prepare an action plan for next year.</li> <li>2 ) Educate staff about energy conservation. <ul style="list-style-type: none"> <li>· Posting a poster to encourage energy conservation</li> <li>· Conduct energy saving patrol. Report the results at the conference or post on the website</li> </ul> </li> </ol>														
( 3 ) Transmission of information	<ol style="list-style-type: none"> <li>1 ) Post annual plan on website and inform staff.</li> <li>2 ) Publish utility costs on various conferences and websites</li> <li>3 ) Disclose about the amount of electricity generated by solar light</li> <li>4 ) Publish CO2 emissions of 2016</li> </ol>														
( 4 ) Promote energy conservation of laboratory equipment and effective use of resources	<ol style="list-style-type: none"> <li>1 ) Improve the efficiency of research results against the efficiency of energy used in accelerators and experimental equipment</li> <li>2 ) Promote energy conservation of laboratory equipment</li> <li>3 ) Promote reuse and effective utilization of laboratory equipment and experimental materials</li> <li>4 ) Appropriate budget execution</li> <li>5 ) Plan the superconductivity of electromagnets and devices of accelerators to be introduced in the future.</li> </ol>														

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<p>( 5 ) Purchase environment-friendly goods and procure services</p>	<ol style="list-style-type: none"> <li>1 ) Introduction of low pollution vehicles</li> <li>2 ) Efficient use of cars <ul style="list-style-type: none"> <li>• Regularly check the tire pressure. Encourage car maintenance</li> <li>• Effort to Eco Drive</li> <li>• Promote the use of business communication bus</li> </ul> </li> <li>3 ) Reduce usage of paper <ul style="list-style-type: none"> <li>• Reduce paper by simplifying meetings and procedures</li> <li>• Double-sided printing, double-sided copy, aggregate print · aggregate copy recommended</li> <li>• Try to make effective use of resources such as reuse of used envelopes</li> </ul> </li> <li>4 ) Use products such as recycled paper</li> <li>5 ) Purchase of paper / stationery etc <ul style="list-style-type: none"> <li>• For paper products, unless otherwise instructed, those made of recycled paper is used.</li> <li>• For other office supplies, purchase recycling items when there is no particular instruction. Or purchase recyclable products.</li> <li>• In delivering the product, packaging shall be simple. Also, packaging Materials should be as recyclable as possible.</li> </ul> </li> <li>6 ) Delivery of printed goods <ul style="list-style-type: none"> <li>• Regarding printed products, use recycled paper unless otherwise instructed</li> <li>• In delivering the printed product, packaging shall be simple. Also, packaging Materials should be as recyclable as possible.</li> </ul> </li> <li>7 ) Review vending machine installation <ul style="list-style-type: none"> <li>• When updating a vending machine, energy consumption Choose a model with fewer.</li> </ul> </li> <li>8 ) Other <ul style="list-style-type: none"> <li>• Reuse the office supplies that are no longer used</li> <li>• General waste is properly treated such as separation.</li> <li>Industrial waste is outsourced to specialized companies under the responsibility of the orderer.</li> </ul> </li> </ol>
<p>( 6 ) Environmental considerations in building construction and management</p>	<ol style="list-style-type: none"> <li>1)Introduction of air conditioning with less emissions of greenhouse gases <ul style="list-style-type: none"> <li>• For air conditioning equipment, consider introducing equipment with less greenhouse gas emissions. Also, when renewing existing air conditioning equipment, consider introducing models that emit less greenhouse gas emissions</li> </ul> </li> <li>2 ) Effective use of water <ul style="list-style-type: none"> <li>• If necessary, install a sensing flushing valve and automatic faucet at the end of the water supply unit to save water.</li> </ul> </li> <li>3 ) Maintenance of campus environment <ul style="list-style-type: none"> <li>• Reduce waste by reusing fallen leaves and branches emerging from plants growing on campus</li> </ul> </li> <li>4 ) Other <ul style="list-style-type: none"> <li>• Ask builders to use construction machines that are as energy-efficient as possible.</li> <li>• Confirm whether the construction company is processing the construction waste correctly.</li> </ul> </li> </ol>

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( 7 ) Other efforts	<p>1 ) Energy conservation by visualizing energy usage</p> <ul style="list-style-type: none"> <li>· Analyze for efficient energy management and publish concrete activities.</li> </ul> <p>2 ) Strategic approach to measures against global warming</p> <ul style="list-style-type: none"> <li>· Introduce energy saving efforts model on the website.</li> <li>· Clean the outdoor unit of the air conditioner.</li> <li>· Maintain and manage plants. Perform water leakage inspection.</li> </ul> <p>◇Try to secure budget for the following two items.</p> <ul style="list-style-type: none"> <li>· Systematically updating equipment with poor energy efficiency</li> <li>· Construct for energy conservation</li> </ul> <p>3 ) Efficient operation of facilities</p> <ul style="list-style-type: none"> <li>· Discuss with the researcher about the utility operation during the pausing period of KEKB · PF and try to operate economically.</li> </ul> <p>4 ) Implementation of energy saving measures that can be done immediately</p> <ul style="list-style-type: none"> <li>· Turn off in places where there is no one</li> <li>· Turn off during lunch break</li> <li>· Proper management of indoor temperature, enforcement of cool biz warm biz</li> <li>· Clean air conditioner filter. (Encourage users to perform filter cleaning of indoor units before using summer and winter air conditioners.)</li> <li>· When warming the toilet seat, close the lid when not in use</li> <li>· Turn off air conditioning in rooms not in use</li> <li>· Do not open doors and windows unnecessarily during heating and air conditioning. Use air conditioning with blinds etc. to use efficiency.</li> <li>· Turn off the power when not using the computer</li> </ul> <p>5 ) Waste reduction</p> <ul style="list-style-type: none"> <li>· Do not shred anything other than documents containing personal information</li> <li>· Proceed with collection and reuse of toner cartridges.</li> <li>· When disposing office automation equipment, home appliances, cars, we strive to process correctly</li> </ul>
( 8 ) Training for staff	<p>1 ) Provide staff training and information on global warming and energy conservation.</p> <ul style="list-style-type: none"> <li>· Make staff actively participate in training of other agencies concerning environment consciousness.</li> <li>· Provide staff with information on environmental considerations by website and e-mail.</li> <li>· Collect ideas on energy conservation measures from staff.</li> </ul>