Japan to share energy efficiency experiences through SE4ALL

During the Secretary-General’s Climate Summit on 23 September, Prime Minister Shinzo Abe announced that Japan intends to contribute to the reduction of global greenhouse gas (GHG) emissions by establishing a new hub for energy efficiency facilitation in Tokyo. Prime Minister Abe added that Japan will also contribute by diffusing leading technologies to the international community. (Read Prime Minister Abe’s full statement)
Transition of Final Energy Consumption of Industrial sector in Japan

(Fiscal year)

Approx. 37% improvement

1970 year = 100

(Source) "Total Energy Statistics" by ANRE
Energy Efficiency of Japan after the Oil Crisis

Comparison of primary energy supply for per GDP capita (2010)

resources: IEA energy balance 2011/2012
Top Runner Program

- The “Top Runner Program” is a mandatory program for companies (manufacturers and importers), to fulfill the efficiency targets within 3 to 10 years, which encourages competition and innovation among the companies without increasing market prices.
- Companies make efforts toward those goals, so the program has contributed to improving energy efficiency of consumer electronics and automobiles in Japan.
- For instance, we had expected energy efficiency improvements of 16.0km/L for medium class gasoline passenger vehicles in fiscal year 1999, but actually, it attained 19.9km/L.

Achievement of Top Runner Program

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Improvement Rate</th>
<th>Fiscal Year</th>
<th>Fiscal Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasoline passenger vehicles</td>
<td>48.8%</td>
<td>FY1995→FY2010</td>
<td></td>
</tr>
<tr>
<td>Air-conditioners</td>
<td>32.3%</td>
<td>FY1997→FY2007</td>
<td></td>
</tr>
<tr>
<td>Electric refrigerators</td>
<td>43.0%</td>
<td>FY2005→FY2010</td>
<td></td>
</tr>
<tr>
<td>TV sets (LCD and PDP TVs)</td>
<td>29.6%</td>
<td>FY2004→FY2008</td>
<td></td>
</tr>
</tbody>
</table>

Specified equipment (29 equipment and materials):

1. Passenger cars
2. Trucks
3. Air conditioners
4. Television receivers
5. Video tape recorders
6. Lighting apparatuses
7. Copying machines
8. Computers
9. Magnetic disk devices
10. Electrical refrigerators
11. Electrical freezers
12. Heaters
13. Gas cooking appliances
14. Gas water heating appliances
15. Oil water heaters
16. Electric toilet seats
17. Vending machines
18. Power transformers
19. Jar rice cookers
20. Microwave ovens
21. DVD recorders
22. Routing equipment
23. Switching equipment
24. Multifunction Devices
25. Printers
27. AC motors
28. LED lamps
29. Heat insulating
ECCJ sends two experts of energy conservation to the factory for diagnosis.
Experts submit an audit report and presents specific improvement proposals, expected effects and economic feasibility of the proposals.

Factory, Building

The Energy Conservation Center, Japan

Free of charge

Application form
Preliminary examination sheet
On-site audit
Reports
Voluntary improvement

Acceptance of application form
Implementation procedures
Discussion
Report making

- Examination of conditions
- Preliminary examination
- Schedule adjustment
- On-site hearing
- Examination on documents
- On-site confirmation
- Improvement proposals
- Consideration of economic feasibility
- Quantification
- Presentation meeting if required

Voluntary improvement
One-day Energy Auditing by ECCJ

<table>
<thead>
<tr>
<th>Program</th>
<th>Applicable factory</th>
<th>Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-day Energy Conservation Diagnosis for</td>
<td>Medium and Small sized</td>
<td>On-site Activities&lt;br&gt;Discussions&lt;br&gt;Document review&lt;br&gt;On-site inspections</td>
</tr>
<tr>
<td>Factories (Free-of-charge)</td>
<td>Factories and Buildings</td>
<td>1 day&lt;br&gt;Report of findings → Proposals on improvement</td>
</tr>
</tbody>
</table>

Actual Results : Free Energy Audit

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Factories (F)</td>
<td>914</td>
<td>910</td>
<td>2,191</td>
<td>537</td>
<td>303</td>
<td>432</td>
<td>560</td>
<td>5,847</td>
</tr>
<tr>
<td>Buildings (B)</td>
<td>383</td>
<td>1,097</td>
<td>2,694</td>
<td>559</td>
<td>438</td>
<td>386</td>
<td>399</td>
<td>5,956</td>
</tr>
<tr>
<td>Total</td>
<td>1,297</td>
<td>2,007</td>
<td>4,885</td>
<td>1,096</td>
<td>741</td>
<td>818</td>
<td>959</td>
<td>11,803</td>
</tr>
</tbody>
</table>

For Electric Power Saving (F + B)

<table>
<thead>
<tr>
<th>Grand Total</th>
<th>653</th>
<th>185</th>
<th>234</th>
<th>1,072</th>
</tr>
</thead>
</table>

(Started) 12,875
# Proposals in Energy Diagnosis and Power-saving Rates

## Top 10 proposals (2012)

<table>
<thead>
<tr>
<th>Order</th>
<th>Proposal</th>
<th>Order</th>
<th>Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Visualization of demand and setting of power-saving goal</td>
<td>6</td>
<td>Lower discharge pressure of the compressor</td>
</tr>
<tr>
<td>2</td>
<td>Replacement of lighting apparatuses with high-efficiency ones</td>
<td>7</td>
<td>Cleaning of packaged air-conditioner and outdoor unit fans</td>
</tr>
<tr>
<td>3</td>
<td>Increase/decrease of cooling/heating temperature setting</td>
<td>8</td>
<td>Renewal to high-efficiency emergency exit lights</td>
</tr>
<tr>
<td>4</td>
<td>Removal of unnecessary lighting</td>
<td>9</td>
<td>Shielding of outdoor unit from sunlight</td>
</tr>
<tr>
<td>5</td>
<td>Lights-out of window-side lighting</td>
<td>10</td>
<td>Stop of unnecessary devices and reduction of operation time</td>
</tr>
</tbody>
</table>

## Power-saving rates (Based on 2012 proposals)

<table>
<thead>
<tr>
<th></th>
<th>Factory</th>
<th>Office building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average power-saving rate</td>
<td>9.6%</td>
<td>13.4%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>11.7%</td>
</tr>
</tbody>
</table>
EE-Labels to show Multiple Benefits
Background of ECCJ’s Establishment with Trend of Primary Energy Intensity per GDP in Japan

1st Oil Crisis

ECCJ Established

2nd Oil Crisis

Improvement over 40%

Act Concerning Rational Use of Energy

Heat Management Regulation (1951-)

Source: METI/General Energy Statistics and IEA Energy Balance
ECCJ is the core organization responsible for promotion of energy conservation in Japan. Its activities were authorized by the Diet when the Energy Conservation Law was enacted.

**Legal status**: General Incorporated Foundation  
**Establishment**: 1978  
**Office location**: Tokyo Head office & 8 branches  
**Supporting member**: Approx. 2,500 companies (as of April 2014)  
**Staff**: 122 persons (as of April 2014)  
**Business scale**: 2.504 billion yen in 2013 FY (25 million U$)

### Fields of Main Activities

#### Industrial Sector
1. Energy conservation **Audit services** for factories & buildings  
2. Education & training on energy conservation  
3. **State examination** for energy managers

#### Commercial / Residential Sector
1. Energy conservation **Audit services** for buildings  
2. Dissemination of **Top Runner Program** and **Labeling**  
3. Promotion of **Eco-driving**

#### Cross Sector
1. Information & data base, Publicity and publishing  
2. **International Cooperation** including AEEC’s activities  
3. Registration of auditors **for ISO50001 Energy Management System**
The Center enhances international cooperation to promote the energy conservation from the global point of view

- Dispatch of Experts for Technical Transfer at the Developing Countries
- Acceptance of People for Training in Japan
- Asia Energy Efficiency and Conservation Collaboration Center
- International Energy Conservation Business

Dispatch Expert: Energy audit
Training program in Japan
Exhibition at Malaysia (JASE-W)
Smart Communities and Future Cities in Japan
Diverse community models to combine carbon reduction and sustainable development making maximum use of local resources.

To be integrally promoted within the city:

- Compact city
- Upgrading of traffic systems
- Reform of residence style
- Environmental education
- Conservation and use of forest
- Renewable energy

Transformation of lifestyle and business style
Generation of the region’s vitality
Cities create new value by tackling environmental issue and aging

Create Environmental value
- Low carbon
- Water and atmosphere
- Biodiversity
- Waste management

Create Social value
- Health care and medical services
- Nursing and Welfare
- Prevention of disaster
- Childcare and Education

Create economic value
- Creating stable employment and income
- Sightseeing
- New businesses
- Cooperation between the Public and private sectors

Base of life
- Education
- ICT
- Medical care and nursing
- Mobility
- Energy
- Houses, buildings etc.

Environment

Super-aging

Regional specific theme
Environmental value
(low carbon, energy saving, nature)
Social value
(healthcare, nursing, childcare, education)
Economic value
(job creation, tourism, growth of agricultural, forestry and fishery industries)
Low carbon
(renewable energy, forest improvement, utilization of regional resources)

**“FutureCity”**
Currently, 11 cities and regions

**Eco-Model City**
Currently, 23 cities

- Support for creating leading strategies and international development
- Indirect support for the independent efforts of cities
- Independent activities of municipalities which aim to become a “FutureCity” and Eco-Model City

Promotion Council for the “FutureCity” Initiative

Hands-on projects to create new value

Concentrate
Goods
Regulatory reforms

International network
Technology
Socio-economic system
Service
Business models
City planning

Virtuous circle of financially autonomous models

Disseminate successful cases
Best practices (domestic and overseas)
International Smart Community Cooperation (FS) (South-Eastern Asia)

**Cambodia**
- Development of smart community with photovoltaic and batteries for islands.
  - Place: Isolated island
  - Status: feasibility study

**Thailand**
- Development of smart community at high-tech park.
  - Place: Hanoi
  - Status: feasibility study

**Vietnam**
- City development with high-quality electricity, ICT infrastructure and so on.
  - Place: Binh Duong province
  - Status: commercialization

**Indonesia**
- Development of low-carbon environmental city to promote co-generation systems.
  - Place: Surabaya
  - Status: feasibility study

- Development of Smart traffic information and control systems in a resort area.
  - Place: Bali
  - Status: feasibility study

- Demonstration of smart community in an industrial park.
  - Place: Suryacipta
  - Status: pilot project

- Development of smart community with photovoltaic and batteries for islands.
  - Place: Isolated island
  - Status: feasibility study

**Malaysia**
- Development of smart community including a BEMS aggregator project in major urban area.
  - Place: Putrajaya, Cyberjaya etc.
  - Status: under study

- City development with smart grid.
  - Place: Iskandar
  - Status: commercialization

**Project Flow**
- Under study
  - Feasibility study
  - Preparing for pilot project
  - Pilot project
  - Commercialization

Structuring a 3D geographical space information system.
- Place: Bangkok, Vietnam, Indonesia etc.
  - Status: feasibility study
AIM Research Project Team Approach towards LCS in Asia

Policy makers
Central/regional government administration
Development Agencies
NGOs

Collaboration for developing LCS scenario and the roadmaps

Request of more practical, realistic roadmaps and also tractable tools for Low Carbon Development Strategies

Each country’s domestic/local research institute

Application and development to actual LCS processes

Core research members

Development and maintenance of study tools/models

India
Bangladesh
Vietnam
China
Korea
Japan
Thailand
Cambodia
Malaysia
Indonesia

http://2050.nies.go.jp/LCS
低炭素都市
イスカンダー（マレーシア）
潜在的温室効果ガス削減：40%

セクター別温室効果ガス