Perspectives and experiences of Japan on energy efficiency

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President, IGES
Performance of Japan’s Energy Efficiency

Energy Consumption by Sector in Japan

- Source: METI
Performance of Japan’s Energy Efficiency

Energy Intensity by Industry in Japan

(energy consumption / IIP)

Source: METI
Performance of Japan’s Energy Efficiency

GDP and Energy Consumption in Japan

Elasticity

<table>
<thead>
<tr>
<th>Period</th>
<th>1965-’72</th>
<th>’73-’79</th>
<th>’79-’86</th>
<th>’86-’91</th>
<th>’91-2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elasticity</td>
<td>1.19</td>
<td>0.29</td>
<td>-0.11</td>
<td>0.85</td>
<td>0.71</td>
</tr>
</tbody>
</table>

Source: METI
Performance of Japan’s Energy Efficiency

Energy Efficiency of Consumer Products

Refrigerator: Perfect example of “Factor 4”

- **1981**: 2.76 kWh/ℓ
  - Capacity: 230 ℓ

- **1991**: 2.20 kWh/ℓ
  - Capacity: 413 ℓ

- **2001**: 0.75 kWh/ℓ
  - Capacity: 442 ℓ
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Top Runner Program

Concept for setting target standard

Energy efficiency standard

((A) is the top runner.)

Fuel efficiency

<table>
<thead>
<tr>
<th>Target value is set based on the products with the highest energy efficiency in the market.</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 km/L</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
| Weighted Average | TRP regulates the weighted average of shipment volume of products in the same category per manufacturers, importer etc., in terms of energy efficiency.

Currently designated products

Total 21 products designated

1. Air conditioners
2. Fluorescent lights
3. Television sets
4. Copying machines
5. Computers
6. Magnetic disk units
7. Video cassette recorders
8. Passenger vehicles
9. Freight vehicles
10. Electric refrigerators
11. Electric freezers
12. Space heaters
13. Gas cooking appliances
14. Gas water heaters
15. Oil water heaters
16. Electric toilet seats
17. Vending machines
18. Transformers (molded)
19. Electric Ovens
20. Electric Rice Cookers
21. DVD Recorders

11 products designated in 1999
7 more products designated in 2002
3 more products designated in 2006

Source: ECCJ
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Eco Point System
Stimulate purchasing Eco-friendly goods

Targets
1) CO₂ Reduction
2) Stimulate Economy
3) Spreading Terrestrial Digital TV

<table>
<thead>
<tr>
<th>Air Conditioning</th>
<th>Refrigerator</th>
<th>Television</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.6 kW or more</td>
<td>9,000 points</td>
<td>46V or more</td>
</tr>
<tr>
<td>2.8 kW – 2.5 kW</td>
<td>7,000 points</td>
<td>42V, 40V</td>
</tr>
<tr>
<td>2.2 kW or less</td>
<td>6,000 points</td>
<td>37V</td>
</tr>
<tr>
<td>250 liter or less</td>
<td>3,000 points</td>
<td>26V or less</td>
</tr>
</tbody>
</table>
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Eco point system - Effect

<CO₂ gas emission reduction>
400t/year reduction (4% of household emission reduction)
→ 4000t/10 years

<Economic Stimulus>
Electric home appliances, electronic parts, semi-conductor industries
→ stimulate 4,000billion yen

<Employment>
Stimulated job opportunity by new production
→ 120 thousand new employments

<Spreading Terrestrial Digital TV>
→ June 2011 Start Terrestrial Digital TV Broadcasting
Local Business Initiative (LBI)  
*(Eco-Home Diagnosis Programme)*

**Research Objectives**

Increases in CO₂ emissions have been striking in the household sector!

⇒ Measures “go one step further” are necessary  
  (Toward construction of a low-carbon society...)

⇒ The project of Eco-Home Diagnosis

  Individual consultation aims to effect real reductions of CO₂ in household sector.

Talks of software development  
Picture of “Eco-Home Diagnosis“  
Developed “Eco-Home Diagnosis” Software
Starting screen

Eco-Home Diagnosis

- Complete or confirm survey
- View diagnostic results of survey

Let's Go!

Hyogo Eco-Home Diagnosis Council
Comparison and ranking in relation to average CO₂ emissions ⇒ Reorganization of one’s position

• Whether your household’s utility costs are expensive or inexpensive compare to average households
• Whether your household’s CO₂ emissions are large or small compare to average households
• Ranking is give to each household, based on emissions “assumed 100 households are in the area”
Understanding of necessary amount of reduction and clarification of reduction target
⇒ Confirmation of current positioned setting of reduction target

- Way toward the climate change mitigation (distance sense)
- “How much reduction” should we reduce? “our problem”
CO₂ emissions factor analysis
⇒ “Where from “ and “ how much” is being emitted?

- Emissions from 10 areas of daily living are analyzed
- Indicate the weak points by cobweb cart (analysis of causes)
- Break free from “ assumed eco-action”
Identification of effective measures
⇒ Instruction in reliable ways of CO₂ emissions

- The top 15 effective measures for CO₂ reduction are displayed
- CO₂ reduction effects and economic impacts are displayed by selected measures to be enacted
- Position changes through implementation of measures
LBI - Findings

Households are not necessarily aware of their main Emitting point of CO$_2$. (such as car use, hot water supply and air heating)

75%  It was found that 75% of all households agreed that, “there was an area of large CO$_2$ emissions (‘blind spot’ area) of which we were not previously aware”.

40%  The pilot project also revealed that 40% of households were engaged in misdirected efforts in an area differing from the main emissions areas (assumed eco-action).

85%  Of the monitor households who underwent the Eco-Home Diagonosis, 85% have either enacted recommended measures or have concrete plans to enact measures in the near future.

For those who are in “assumes eco”, Eco-Home Diagnosis may be powerful approach to realize actual CO$_2$ reductions.
Thank you very much for your attention.

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