Prospects of Cooperation in the Energy Sector between Japan and Russia

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Japanese policies in the area of Energy Conservation and Renewable Energy
“Low-carbon Economy and Society”
Energy Conservation and New Energy

\[ \text{CO2 emissions} = \frac{\text{Energy supply}}{\text{GDP}} \times \text{Energy Efficiency Improvement} \times \text{Economic growth} \]

- **CO2 emissions**
  - Expansion of the introduction of new energy
  - Promotion of nuclear energy
  - Expanded utilization of biofuels
  - Others

- **Energy supply**
  - Expansion of energy efficiency
  - Improvement of energy utilization intensity
  - Improvement of fuel efficiency performance
  - Others

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Energy Efficiency Policy
Energy Conservation Efforts of Japan after Oil Crises

- Japan improved the energy efficiency by 37% in last 30 years after the oil crises in the 1970s as a result of active activities made by both public and private sectors.
- Japanese primary energy consumption per GDP is the lowest in the world owing to various energy conservation measures taken for the respective sectors.

Energy use per real GDP of Japan

(Oil converted kilo ton/1 billion yen)

Primary energy supply per GDP unit of each country (2007)

(Source) “Total Energy Statistics” by ANRE

* Calculated according to IEA Energy Balances of OECD/Non-OECD Countries (2008 edition)
Index of each country making Japan 1.0, based on the value dividing primary energy consumption by GDP.
The energy consumption efficiency of Japanese manufacturers is the highest in the world and it was achieved by the activities to improve energy efficiency.
(Note) It must be noted that the values after 1990 were calculated differently from those of the years before that, because the calculation method for totaling the total energy statistics was changed in that year.
Overview of Japan’s energy efficiency policy

**Regulation**
- Energy management obligation by Energy Conservation Law (Factories, Carrier, Consignor)
  → Factories: Introduce energy management by an unit of a company (in 2008)
- Enhancement of energy efficiency of buildings by Energy Conservation Law
  → Strengthen regulation (in 2008)
- Top Runner Program

**Voluntary action**
- Promotion of Nippon Keidanren’s Voluntary Action Plan

**Incentive**
- Promotion of high fuel economy vehicles (clean energy vehicles)
- Subsidies for promoting energy efficient facilities
  (high-efficient building, high-performance industrial furnace, etc.)
- Energy-saving labeling, Forum for Promoting energy efficient home electric appliances, etc.
- Tax incentive for energy efficient reform of residence, Low-interest loan

**Cross Sectoral approach**
- Providing information and promotion of national movement
- Promotion of energy efficiency technological development
- Promoting international cooperation
Energy Efficiency is promoted through both regulatory and supportive measures.

Overall Picture of Energy Efficiency Initiatives

Measures based on Energy Conservation Law

- Effort obligation and judgment standards
- Reporting Requirements
- Obligations (Appointment of Energy Manager etc)
- Reporting Requirements
- Measures to encourage improvements in EE in housing
- Top Runner Standard (for household appliances, automobiles, etc.)

Promotion of introduction of energy-efficient equipment, etc. and development of energy conservation technology (budget, taxation, policy-based financing)

- Supporting private business operators that invest in improving energy-efficiency
- Supporting the introduction of energy-efficient equipment such as high-efficient water heaters
- Supporting energy-efficiency diagnosis and introduction of ESCO services
Operational Flow of Energy Management

Common operational flow of energy management

Obligations based on Energy Conservation Law

Maintenance of management organization

Submission of notification on status of energy consumption

Gaining understanding of actual conditions of use

Appointment and submission of notice relating to Energy Manager (Energy Management Officer)

Daily management

PDCA cycle

PDCA cycle

Gaining understanding of annual performance and implementation of medium and long term plans

Submission of periodical reports

Submission of medium and long term plans*

* For Type 1 Designated Energy Management Factories only

- Practical implementation of management based on evaluation criteria
- Setting of management standards and targets

Gaining understanding regarding actual conditions of consumption and management of unit consumption

Investigation and implementation of improvements

Execution of plans

- Gaining understanding of annual performance and analysis of unit consumption
- Formulation of medium and long term plans
Numerous amendments have been established since initial establishment in 1979 with 14,116 business locations (total amount of consumption for heat and electric power at or over 1,500 kiloliters [crude oil conversion] per year) designated as of March 2008. Manufacturing plants comprise 9,375 of these business locations (66%).

<table>
<thead>
<tr>
<th>Year</th>
<th>Type 1 Business locations</th>
<th>Type 2 Business locations</th>
<th>Total Business locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>10,044</td>
<td>3,715</td>
<td>13,759</td>
</tr>
<tr>
<td>2006</td>
<td>8,851</td>
<td>2,820</td>
<td>11,671</td>
</tr>
<tr>
<td>2005</td>
<td>8,204</td>
<td>2,684</td>
<td>10,888</td>
</tr>
<tr>
<td>2004</td>
<td>7,929</td>
<td>2,550</td>
<td>10,479</td>
</tr>
<tr>
<td>2003</td>
<td>7,680</td>
<td>2,416</td>
<td>10,096</td>
</tr>
<tr>
<td>2002</td>
<td>7,529</td>
<td>2,341</td>
<td>9,870</td>
</tr>
<tr>
<td>2001</td>
<td>7,382</td>
<td>2,305</td>
<td>9,687</td>
</tr>
<tr>
<td>2000</td>
<td>7,225</td>
<td>2,264</td>
<td>9,489</td>
</tr>
<tr>
<td>1999</td>
<td>7,060</td>
<td>2,221</td>
<td>9,281</td>
</tr>
<tr>
<td>1998</td>
<td>6,900</td>
<td>2,179</td>
<td>9,079</td>
</tr>
<tr>
<td>1997</td>
<td>6,740</td>
<td>2,135</td>
<td>8,875</td>
</tr>
<tr>
<td>1996</td>
<td>6,580</td>
<td>2,091</td>
<td>8,671</td>
</tr>
<tr>
<td>1995</td>
<td>6,420</td>
<td>2,044</td>
<td>8,464</td>
</tr>
<tr>
<td>1994</td>
<td>6,260</td>
<td>1,994</td>
<td>8,254</td>
</tr>
<tr>
<td>1993</td>
<td>6,100</td>
<td>1,944</td>
<td>8,044</td>
</tr>
<tr>
<td>1992</td>
<td>5,940</td>
<td>1,892</td>
<td>7,832</td>
</tr>
<tr>
<td>1991</td>
<td>5,780</td>
<td>1,839</td>
<td>7,619</td>
</tr>
<tr>
<td>1990</td>
<td>5,620</td>
<td>1,779</td>
<td>7,399</td>
</tr>
<tr>
<td>1989</td>
<td>5,460</td>
<td>1,716</td>
<td>7,176</td>
</tr>
<tr>
<td>1988</td>
<td>5,300</td>
<td>1,652</td>
<td>6,952</td>
</tr>
<tr>
<td>1987</td>
<td>5,140</td>
<td>1,588</td>
<td>6,728</td>
</tr>
<tr>
<td>1986</td>
<td>4,980</td>
<td>1,524</td>
<td>6,504</td>
</tr>
<tr>
<td>1985</td>
<td>4,820</td>
<td>1,460</td>
<td>6,280</td>
</tr>
<tr>
<td>1984</td>
<td>4,660</td>
<td>1,396</td>
<td>6,056</td>
</tr>
<tr>
<td>1983</td>
<td>4,500</td>
<td>1,332</td>
<td>5,832</td>
</tr>
<tr>
<td>1982</td>
<td>4,340</td>
<td>1,268</td>
<td>5,608</td>
</tr>
<tr>
<td>1981</td>
<td>4,180</td>
<td>1,204</td>
<td>5,384</td>
</tr>
<tr>
<td>1980</td>
<td>3,980</td>
<td>1,136</td>
<td>5,116</td>
</tr>
<tr>
<td>1979</td>
<td>3,800</td>
<td>1,068</td>
<td>4,868</td>
</tr>
</tbody>
</table>

* Factory: A business location that belongs to five manufacturing business categories (manufacturing, mining, electric power supply, gas supply and heat supply).
Appoint Energy Manager (Energy Management Officer)

In order to realize energy conservation, appoints are made for persons who are to play a central role in promoting energy conservation in the field, by submitting proposals to business operators and providing instructions to employees, based on specialized knowledge relating to energy management, such as maintenance and management of production facilities.

Requirements for appointment of Energy Managers

- Person must have a license for the Qualified Person for Energy Management of Type 1 Designated Factory

Requirements for Energy Managers

- Person must have a license for the Qualified Person for Energy Management of Type 1 Designated Factory
- Person must have completed Energy Management Officer Course

Energy Consumption

- Cokes manufacture, electric power supply, gas supply, heat supply
- Other manufacturing industry

- Energy Manager
- Energy Management Officer

- Offices of business lines other than those described to left
- Other business lines

- 100,000 kiloliters or more
- 50,000 kiloliters or more
- 20,000 kiloliters or more
- 10,000 kiloliters or more
- Less than 10,000 kiloliters

- 2 persons
- 1 person
- 4 persons
- 3 persons
- 2 persons
- 1 person
- 1 person
Registered Energy Manager

- Registered energy manager: National qualification established in 1948 on the basis of Energy Conservation Act
- Registered energy managers are required at plants with energy consumption of 3,000kl/year or more (approx. 8,000 locations in Japan)
- Qualified persons for energy management are required at smaller facilities

Registered energy manager
Examination passed (1 year of practical experience)
On site training completed (3 years of practical experience)
Total number of people with registered energy manager qualifications: 36,435

Qualified person for energy management
Seminars completed
Total number of those who completed the seminars: 21,088
Top Runner Program

- Energy conservation law stipulates energy conservation standards for domestic appliances and vehicles according to the Top Runner method. Manufacturers and the like are under the obligation to comply with the standards. For incompliance, manufacturers and the like may be imposed recommendation, publication, order, penalty (under one million yen penalty).

- 23 product types were made the target of the program.

**Example of Top Runner Program**

<table>
<thead>
<tr>
<th>Fuel Efficiency (km/L)</th>
<th>Target Fiscal Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Target Fiscal Year</td>
</tr>
<tr>
<td>15km/L</td>
<td></td>
</tr>
<tr>
<td>14km/L</td>
<td></td>
</tr>
<tr>
<td>13km/L</td>
<td></td>
</tr>
<tr>
<td>12km/L</td>
<td></td>
</tr>
</tbody>
</table>

Achievement is judged by weighted average per product category

**Target products (23 products)**

1. Passenger vehicles
2. Freight vehicles
3. Air-conditioners
4. TV sets
5. Video-cassette recorders
6. Fluorescent lights
7. Copiers
8. Computers
9. Magnetic disc units
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. etc.

**Top Runner Program:**

The concept of the program is that fuel economy standards for vehicles and energy conservation standards for electric appliances, etc. shall be set exactly the same as or higher than the best standard value of each product item currently available in the market.
# Past Energy Conservation Effect due to Top Runner System

<table>
<thead>
<tr>
<th>Device</th>
<th>Improvement of energy consumption efficiency (recorded)</th>
<th>Improvement of energy consumption efficiency (estimated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Television receiver (cathode-ray tube television)</td>
<td>25.7% (FY1997 → 2003)</td>
<td>16.4%</td>
</tr>
<tr>
<td>Video tape recorder</td>
<td>73.6% (FY1997 → 2003)</td>
<td>58.7%</td>
</tr>
<tr>
<td>Air conditioner (room air conditioner) *</td>
<td>67.8% (FY1997 → 2004)</td>
<td>66.1%</td>
</tr>
<tr>
<td>Refrigerator</td>
<td>55.2% (FY1998 → 2004)</td>
<td>30.5%</td>
</tr>
<tr>
<td>Freezer</td>
<td>29.6% (FY1998 → 2004)</td>
<td>22.9%</td>
</tr>
<tr>
<td>Gasoline passenger vehicle *</td>
<td>22.8% (FY1995 → 2005)</td>
<td>22.8% (FY1995 → 2010)</td>
</tr>
<tr>
<td>Diesel truck *</td>
<td>21.7% (FY1995 → 2005)</td>
<td>6.5%</td>
</tr>
<tr>
<td>Vending machine</td>
<td>37.3% (FY2000 → 2005)</td>
<td>33.9%</td>
</tr>
<tr>
<td>Fluorescent lighting equipment *</td>
<td>35.6% (FY1997 → 2005)</td>
<td>16.6%</td>
</tr>
<tr>
<td>Computer</td>
<td>99.1% (FY1997 → 2005)</td>
<td>83.0%</td>
</tr>
<tr>
<td>Magnetic disk unit</td>
<td>98.2% (FY1997 → 2005)</td>
<td>78.0%</td>
</tr>
<tr>
<td>Copying machine</td>
<td>72.5% (FY1997 → 2006)</td>
<td>30.97%</td>
</tr>
<tr>
<td>Electric toilet seat</td>
<td>14.6% (FY2000 → 2006)</td>
<td>9.7%</td>
</tr>
<tr>
<td>Gas water heater (instantaneous gas water heater, gas-heated bath)</td>
<td>1.6% (FY2000 → 2006)</td>
<td>4.1%</td>
</tr>
<tr>
<td>Gas cooking machinery (cooker)</td>
<td>15.7% (FY2000 → 2006)</td>
<td>13.9%</td>
</tr>
<tr>
<td>Gas heater</td>
<td>1.9% (FY2000 → 2006)</td>
<td>1.4%</td>
</tr>
<tr>
<td>Oil heater</td>
<td>5.4% (FY2000 → 2006)</td>
<td>3.8%</td>
</tr>
</tbody>
</table>
The Revised Law Concerning the Rational Use of Energy enforced in April 2006 stipulates that retailers shall make efforts to provide information. In light of this, a guideline was formulated, including providing information by using uniform energy-saving labels.

The system started in October 2006. As of August, 2008, televisions and air conditioners are the targets of this system.

**Uniform Energy Saving Label**

- **Multi-stage rating system**
  - Energy-saving performance is indicated in 5 stages, from 1 to 5 stars, from low to high performance of products offered in the market.
  - In order to clarify the compliance level with the Top Runner standard, arrows are placed under the stars, showing achievement and non-achievement.

- **Energy-saving labeling system**
  - Products which achieved the Top Runner standard carry a green “e” mark, while others carry an orange “e” mark.
  - Achievement level and annual electricity consumption are also indicated.

- **Expected annual electricity bill**
  - The expected annual electricity bill is indicated to show the energy consumption efficiency (annual electricity consumption) clearly.
Spread of energy-saving home appliances by using Eco Point

**[Purpose]** ① CO2 reduction, ② Economic activation, ③ Spread of ground-wave digital television

**[When to start]** Acceptance of Eco Point application starts in July and commodity exchange starts in August.

- **Guarantee, bill, etc.**
- **Mailing PC**
- **Application of Eco Point**
- **Eco Point commodity exchange**
- **Consumer**
- **Eco Point Secretariat**

**Eco Point Secretariat**
Energy-saving home appliance promotion consortium

**<Commodity to exchange>**
① Excellent at energy conservation and environment-consciousness (eco-type bulb, rechargeable battery, etc.)
   (9 providers to be selected in primary recruit)
② Gift certificates or pre-paid cards that can be used nationwide (environment-conscious type such as eco-donation by providers (including public transport pass cards))
   (98 providers to be selected in primary recruit)
③ Contributable for local promotion (local gift certificates, local products)
   (164 providers to be selected in primary recruit)

**<Eco Points>**

<table>
<thead>
<tr>
<th></th>
<th>Air conditioner</th>
<th>Refrigerator</th>
<th>Television</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase of product</td>
<td>6,000 to 9,000</td>
<td>3,000</td>
<td>7,000 to 36,000</td>
</tr>
<tr>
<td>with uniform energy-</td>
<td>(3 steps</td>
<td>(4 steps</td>
<td>(5 steps</td>
</tr>
<tr>
<td>saving label equivalent</td>
<td>according to</td>
<td>according to</td>
<td>according to</td>
</tr>
<tr>
<td>to 4 stars</td>
<td>cooling</td>
<td>capacity</td>
<td>screen size</td>
</tr>
<tr>
<td>Further recycling</td>
<td>3,000</td>
<td>5,000</td>
<td>3,000</td>
</tr>
</tbody>
</table>
Promotion of High-Efficiency Boilers

- Energy demand for hot-water supply dominates approximately 30% of total energy consumption in a household.
- A subsidy system has been introduced to promote the proliferation of energy efficient hot-water systems.

**CO2 Refrigerant Heat-Pump Boiler (ECO CUTE)**
Utilizing the principle of a heat-pump used in an air-conditioner, it can be heated with energy of approximately 3 times more than input energy. Energy saving of approximately 30% compared to a traditional combustion-type boiler is achieved.

**Latent-heat Recovery Boiler (ECO JOZU)**
Recovers the latent heat of exhausted gas, which is usually wasted. Energy saving of approximately 15% compared to a conventional combustion-type boiler is realized.

**Gas Engine Boiler (ECO WILL)**
Uses the gas-powered engine's exhaust heat and power to provide heat (main) and electricity (sub) for approximately 10% of overall energy saving for a building.
Positive Growth Cycle in Popularization of Energy Efficient Products

- By providing necessary information, encourage consumers to select energy efficient products.
- Popularization of energy efficient products will act as incentives for development of further energy efficient products.

**Consumers**
- Purchase of energy efficient products

**Manufacturers**
- Competitive development of energy efficient products

**Retailers**
- Sales of energy efficient products with provision of relevant information

- Increased awareness on energy saving
- Increased sales of energy efficient products
- → Promotion of development of energy efficient products

Development of rules for provision of information on energy saving

Provision of products and information

Improvment of performance and promotion of competition resulting from Top Runner program

Promotion of efforts resulting from the excellent outlet approval program
Renewable Energy Policy
Renewable Energy Deployment Target compared to Final Energy Consumption

*) Including heat supply from heat pumps as prescribed at EU Directive
New Utilization Targets under the RPS Law

RPS Law (Special Measures Law on Use of New Energy by Electric Utilities or Renewables Portfolio Standards Law)

<Utilization Target for fiscal 2014>
- 16 billion kWh as realistic and ambitious "goal.

<Improvement of the RPS Law System>
- Photovoltaic power is recognized as twice its value (2011 – 2014).
- Small- and medium-scale hydraulic and geothermal power generation was included.
- Biomass power generation: recognition of material recycle of wood chips.

<Governmental Measures>
- The government in future will expand the potential for the introduction of new energy by reviewing various restrictions in addition to financial assistance for new energy.
  * Utilization of Green Certificate
  * Policies on system interconnection, etc.
  * Promotion of technological development to reduce cost of PV generation

<table>
<thead>
<tr>
<th>Utilization targets</th>
<th>Fiscal 2008 (actual generated values)</th>
<th>Fiscal 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 million kWh</td>
<td>75 (0.7% of generated electricity)</td>
<td>160 (1.6% of generated electricity)</td>
</tr>
</tbody>
</table>
## Incentives & Regulation to Install PV Systems

<table>
<thead>
<tr>
<th></th>
<th>Subsidies</th>
<th>Tax Incentives</th>
<th>Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Residence</strong></td>
<td><strong>70,000 yen per kW</strong></td>
<td>included in <strong>Home Loan Taxation</strong></td>
<td><strong>RPS Act</strong></td>
</tr>
<tr>
<td></td>
<td>start from Jan.2009</td>
<td>amount to 1% of the loan balance is deducted from</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>the income tax for 10 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>also included in <strong>Renovation Promotion Taxation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>amount to 10% of the renovation cost (up to 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>million yen) is deducted from the income tax, in</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>case of the renovation for energy conservation</td>
<td></td>
</tr>
<tr>
<td><strong>Industrial Sector</strong></td>
<td><strong>Upper Limit : 1/3 of Total Cost</strong></td>
<td><strong>Investment Promotion Taxation for Improvement of Energy Supply &amp; Demand Structure</strong></td>
<td></td>
</tr>
<tr>
<td>(Factory, Buildings, etc.)</td>
<td>in case of large scale plants cooperate with local governments, upper limit : 1/2 of total cost</td>
<td>amount to 7% of the total cost is deducted from the corporation tax or 30% special depreciation (for small and medium-sized enterprises)</td>
<td></td>
</tr>
<tr>
<td><strong>Public Sector</strong></td>
<td><strong>Upper Limit : 1/2 of Total Cost</strong></td>
<td>— —</td>
<td></td>
</tr>
<tr>
<td>(Local Government, School, Hospital, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Scenario for Introduction of Photovoltaic Generation (Estimate)

For residential use: About 5.3 million houses
28 million kW (7 million kl)

14 million kW (3.5 million kl)

For residential use: About 320,000 houses
1.4 million kW (350,000 kl)

Start of buyback system

About 20 times higher than in 2005

Technological Development of the system is necessary

About 10 times higher than in 2005

Houses: about 70%
Non-houses: about 30%

Start of subsidy for residential photovoltaic generation

2005

2020
Outline of the New Buyback Program for Photovoltaic Generation

**Major points of the buyback system**

- Of the electricity generated by photovoltaic generation systems, **surplus electricity** will be purchased.
- The buyback period is within the **10 years** from the start of the program. The buyback price is fixed.
  - (※The buyback price may differ depending on the fiscal year in which a panel is installed. In the initial stages, it is ¥48/kWh for residential use [less than 10kW].)
- Expenses will be born by all electricity users.

- **Surplus electricity**
  - **Purchase revenue (¥48/kWh for residential use)**
- **Electricity**
  - **Electric Power Companies**
  - **Solar surcharge (Born by all electricity users)**
- **Electricity Users**
  - **Purchase revenue (¥24/kWh for purposes other than residential use)**

※In the initial stages after installation, ¥48/kWh for residential use (less than 10kW) and ¥24/kWh for other uses. In the case where a private electric generator is also installed, ¥39/kWh and ¥20/kWh, respectively.
Action Plan for Promoting the Introduction of Solar Power Generation

- To encourage players to promote solar power generation through concrete measures
  - increasing the amount of installations of solar power generation systems tenfold by 2020 and 40-fold by 2030
  - "Action Plan for Achieving a Low-carbon Society" (approved by the Cabinet in July 2008)
  - Promotion of the installation of solar power generation systems in homes, businesses and public facilities
    "Comprehensive Immediate Policy Package" (formulated by the government and the ruling parties in August 2008)

- 【Content】
  - Measures on the supply and demand sides
    - Supply-side measures
      - Technology transfer
      - Foster cooperation between solar cell manufacturers and housing companies
        (formulate standard execution guidelines, etc.)
    - Demand-side measures
      - Build and enhance Next-Generation Energy Parks
        - Residential sector
          - Dramatically increase the installation of solar power generation systems through subsidies for residential solar power systems or other means.
        - Business sector
          - Promote installation by SMEs.
          - Promote "mega solar" (large-scale solar power generation plants) construction projects
        - Public facility sector
          - Provide detailed information on installation examples for the owners of public facilities (roads, railroads, ports, airports, etc.)
          - Encourage information sharing between companies engaged in the solar power generation business and those operating public facilities
          - Promote installation in a greater number of public facilities (by enhancing assistance available to such facilities).
        - Educational institutions
          - Increase the installation of solar power generation systems in elementary, junior high, and high schools as well as universities and other schools.
          - Encourage schools to use solar power generation as a topic in their environmental education and certify those that have done so as model schools.
  - Building institutional infrastructure
    - Improve institutional infrastructure, including regulatory instruments
  - Consolidating infrastructure for the solar energy-related industries

- 【Reference: Existing examples】
  - Roads: Slope in Highway
    - Osaka prefecture: 200KW
  - Railroad: Post-house
    - Kanagawa prefecture: 140KW
  - Airport: Cargo terminal (planning)
    - Osaka prefecture: 18,000KW
  - Educational Institution: Window roofs of a school
    - (Tokyo prefecture: 21KW)
  - Educational Institution: Window roofs of a school
    - (Osaka prefecture: 21KW)
  - Waterfront: Industrial complex (planning)
    - (Haneda airport: 2000KW)
    - (Osaka prefecture: 18,000KW)
International Cooperation
By 2030, world energy demand will increase by 1.45 times of demand in 2006. China and India will account for over 50% of the increase (China: 38%, India: 14%). Additionally, the Middle East accounts for about 11%, which will be one of the greatest demand areas.

**Prospects of World Energy Demand**

- 1.45 times
- 11,730 (2006)
- 17,014 (2030)

**Details of increment of energy demands**

- China: 38%
- India: 14%
- East Europe, Central Asia: 5%
- USA: 8%
- Russia: 5%
- Central/South America: 6%
- OECD*: 5%
- Africa: 11%
- East Asia: 11%

*Excluding Japan and USA
**Excluding Japan, China, India and Korea

Source: IEA World Energy Outlook 2008
Energy Efficiency accounts for over 50% of CO2 reduction potential.

Contribution of each measures to the CO2 reduction potential in 2030
(Analysis by IEA)

* Proportion making the entire reduction potential 100

- Energy conservation: 58%
- Developing countries: 67%
- World: 58%
- Renewable energy: 17%
- Nuclear power: 5%
- Fuel conversion (Demand): 17%
- Fuel conversion (Power generation): 4%
- Fuel conversion (Power generation): 4%
- Fuel conversion (Demand): 7%
- Fuel conversion (Power generation): 7%
International Cooperation in Energy Conservation and Renewable Energy

Support to Develop Institutional Framework

- Acceptance of trainees
  - Creation of laws and systems (tax systems, subsidy programs and others) to promote energy conservation
  - Introduction of energy-saving and other associated technologies, and methods for management of energy conservation
  - Japan’s energy cooperation initiative (East Asia Summit).
  - (Energy Conservation) Accept 1,000 trainees from East Asian countries in five years and send 500 experts in five years
  - (Renewable Energy) Accept 500 trainees from East Asian countries in five years

- Dispatch of experts
  - Long-term dispatch of experts to prepare energy conservation plans (formulation of energy-conservation targets, action plans and others) and develop energy conservation institutions such as law system.
  - Short-term dispatch of experts for energy conservation diagnoses of factories

Energy conservation and Renewable energy model projects

- Demonstrate the effectiveness of Japan’s practical energy efficient technologies with actual models and others in the countries where such technologies have not come into wide use yet
- Disseminate proven energy-saving and alternative-energy technologies on a business basis
- The greatest challenge facing us is to promote wide use after completion of projects.

Support of business based technology deployment

- Support “Japanese Business Alliance for Smart Energy Worldwide” to realize energy-saving businesses and others with the government and private sectors in one
- Public-private forums to support business to business transactions

Multilateral Frameworks

- IEA, APEC, APP, EAS, IPEEC, IRENA etc.
JASE-World was established in October, 2008

**Mr. F. Mitarai,**
Chairman of JASE-W

**Purpose**

Contribution on Greenhouse Effect through Promotion of Energy Conservation Technology over the World

**Activities**

- Publication of Smart Energy Products & Technologies and its distribution to the World.
- Globalizing Japan’s eco-friendly businesses through the government – private joint activities.
- Deep discussion on specific business fields
  1. Heat Pump / Inverter Working Group
  2. Energy Saving Solution Working Group

**Establishment** : October 30th, 2008

**Chairman** : Mr. F Mitarai, Chairman of Japanese Business Federation

**Main Members** : 57 Companies, 19 Observers, 11 Governmental Organizations
Thank you